INTRODUCTION: In light of the near universal desire to become a parent one would expect most people to seek medical advice if they were experiencing difficulties conceiving. Yet less than 55% do so and we sought to understand more about this paradox by comparing the psychosocial profile and decision-making of women not yet engaged in the medical process to that of those who had consulted. METHODS: A Fertility Decision-Making Questionnaire was designed and posted on a website dedicated to women trying to conceive. RESULTS: A total of 426 women completed the questionnaire, 56% had not yet consulted a doctor about conceiving (non-consulter, NC). Women who had sought treatment had more positive treatment beliefs, and a greater willingness to know if a problem existed, than those who had not yet consulted. Almost 20% of NC women already met the medical definition of infertility and this subgroup had a greater fear of discovering a problem and of being labelled infertile than other women in the study. CONCLUSIONS: Seeking medical advice for fertility problems is mainly associated with what women know or want to know about their fertility and their emotional reactions to that knowledge. Negative reactions can substantially delay seeking help in 20% of women.

Keywords: decision-making; help-seeking; infertility; psychology; treatment-seeking

Introduction
Most adults have life plans that include children. In a large Swedish survey (n = 2057), 95% of childless women and men aged 23–25 years stated they wanted to have children in the future (Lampic et al., 2006). However, 8% of married couples experience fertility difficulties at some point (Mosher and Bachrach, 1996) and it has been assumed that most people would seek medical treatment to overcome such problems. Although research does show that the medical option is chosen over other alternatives (e.g. adoption, fostering) (Verdurmen et al., 1995; van Balen et al., 1997), less than 55% of subfecund women actually seek medical advice and treatment (Boivin et al., 2007). Given the importance of parent- hood as a central life goal this rate of treatment seeking seems relatively low. The aim of the present study was to better understand this paradox by identifying demographic, fertility and psychological factors which differentiated those who had sought or not sought medical advice or treatment for fertility difficulties.

Patient delay in help-seeking refers to the time between an individual’s first awareness of a sign or symptom of illness and the initial medical consultation (Bish et al., 2005), and has been studied in numerous areas of health. Research has highlighted the existence of two main reasons given by patients who delayed in seeking help (Ristvedt and Trinkaus, 2005). The first suggests a lack of awareness of the importance of potential dangers; the person believed that their symptoms were minor and would clear up without any medical intervention. The second suggests a delay in seeking treatment due to avoidance of the situation; the person was concerned that their symptoms were serious but became immobilized by fear, embarrassment or denial (Ristvedt and Trinkaus, 2005). With reference to delay in seeking help for infertility, a recent paper presented an integrated conceptual model in which action was dependent on inter-relationships amongst personal and social cues, as well as on enabling (e.g. financial resources) and predisposing (e.g. a priori knowledge of symptoms) conditions (White et al., 2006).

The empirical and psychological literature supports this prior work. First, couples who were more aware that their fertility might be compromised or more informed about fertility matters were more likely to have sought medical advice (Greil and McQuillan 2004). Second, people who decided against seeking fertility treatment were more fearful of the effects of surgical interventions, more uneasy about interacting with medical staff and generally experienced more anxiety in medical contexts than people who were willing to seek advice about fertility (van Balen and Verdurmen, 1999).
In addition to these findings, there may also be personality differences between those who seek and do not seek medical treatment. People who habitually cope with stressful events by trying to change the situation (i.e. problem-focused coping) may be more likely to seek medical advice if a problem occurs than those who deal with such threats by focusing only on avoiding negative emotions (i.e. emotion-focused coping). Furthermore, optimistic people who may try to conceive naturally for longer may also be more willing to seek medical advice if such natural efforts do not succeed.

The decision-making studies carried out to date were retrospective population surveys on ‘life time’ prevalence of treatment seeking (i.e. age range 25–50) (van Balen and Verdurmen, 1999; Greil and McQuillan, 2004), and generally did not include the decision-making process from the perspective of people who were still trying to conceive naturally. In part, this is due to the private nature of conception which makes it difficult to recruit women outside the medical system. However, the internet is now frequently used by people to gain information about health related topics (Bass, 2003), including fertility and getting pregnant. Studies specific to fertility have found that many couples from all socioeconomic levels are currently using the internet with regard to their fertility (Weissman et al., 2000), with females more active in its use than males (Haagen et al. 2003). We capitalized on this search activity to recruit people trying naturally to get pregnant to examine how their profile differed from that of people already engaged in the medical process.

In the present study, the sample comprised two groups of women trying to conceive: those who had not yet sought medical advice (Non-consulters, NC) and those who had (consulters, C). Both completed an online Fertility Decision-Making Questionnaire (FDMQ). We expected that fertility perceptions, treatment beliefs, attitudes and knowledge as well as coping strategies and personality traits would differentiate these two groups of women.

Materials and Methods

Participants
Over an 8 week period, the FDMQ was posted on a website targeted at couples just starting out in the process of trying for a child. The final sample consisted of 426 women, of which 48.1% were from the UK, 38% from the USA and 13.8% from the rest of the world (Rest of world was mainly Australia, Canada and New Zealand). Countries were similar except that UK sample was older and differed on related variables (partner age, years married and fertility confidence) and were more educated than the USA sample. The USA sample was more concerned about financial aspects of seeking treatment, more positive about its positive consequences and more likely to use active coping. Further analysis showed that these differences did not impact on our conclusions). On average women were 28.61 (SD = 5.23) years of age, had been living with their partners for 4.44 (SD = 3.24) years and 75.1% were educated to college or university level. Of the sample, 15.4% (n = 64) had children with their current or a previous partner (9.2%, n = 39), and 13.4% (n = 57) of male spouses also had children from a previous relationship. Women had been trying to conceive for 12.42 (SD = 15.38) months, with a range of 0–132 months.

Instrument
The FDMQ was designed for this study and addressed issues relevant to decision-making as identified in theoretical work and empirical literature in infertility. The questionnaire comprised of 80 questions in five sections.

Demographic and fertility characteristics
Participants indicated their current country of residence, their age, their partner’s age, their and their partner’s highest educational qualification, how long they had been with their partner, whether they had any children together or separately and how healthy they currently felt (Short Form 36 Health questionnaire (SF-36); Stewart et al., 1988). Participants also indicated how fertile they believed they were, how confident they were that they would achieve a pregnancy and how long they had been trying to conceive.

Engagement in the medical process
Participants indicated whether they had consulted a doctor about trying to conceive. If a ‘yes’ response was given (C) then they were asked how long they had waited doing so. If they responded with ‘no’ (NC) they were asked how long from now would they wait till consulting a doctor. We also determined the percentage of women who had attained the time limit beyond which seeking medical advice would be recommended in practice guidelines. According to UK national guidelines, women should seek medical attention after 12 months of regular, unprotected intercourse (or 6 months if the woman is >35 years) (NICE, 2004).

Motivation and consequences to seeking medical advice
Participants were given 16 reasons for or against seeking medical advice (e.g. cost, success rates, and need for reassurance) which they rated as contributing not at all (1) to extremely (5) to their decision to seek (not seek) medical advice. Participants were also presented with four positive consequences of seeking medical advice (e.g. become a mother, having a happier relationship) and five negative consequences (e.g. friction with spouse, financially worse off), and were asked to rate how these consequences would make them feel if they happened to them on a Likert scale from bad (−3) to good (+3). Average scores for ‘negative’ and ‘positive’ consequences were computed.

Network beliefs and motivation to comply
Network beliefs and motivation to comply were measured using four items which assessed to what extent the participant felt that ‘my partner’ or ‘most people who are important to me’ would want them to seek medical advice or compliance.

Personality traits and coping
The Life Orientation Test was used to measure dispositional optimism (Scheier and Carver, 1985) (12 items, higher score is optimism). The Ways of Coping (Terry and Hynes, 1998) (16 items) was used to assess problem-focused (8 items) and emotion-focused (8 items) coping (higher score is greater use of strategy). The Need for Parenthood was assessed using items from the Infertility Reaction Scale (Collins et al., 1992) and Fertility Problem Inventory (Newton et al., 1999) (six items, higher score is greater need for parenthood).

Procedure
Webmasters at 11 websites aimed at couples just ‘starting out’ in the process of trying to get pregnant were contacted via e-mail to ask whether they would post the FDMQ on their site. We intentionally avoided sites devoted to people who already had fertility problems. The FDMQ was placed on the only site that replied (i.e.
getting pregnant.com). A sentence about the questionnaire (‘Survey for people currently trying to conceive’) and an option button was placed at the top of every page on the website. Clicking on the option button took the participants to a consent form and description of the content of the questionnaire. Questions were presented in sections outlined above and took around 10–15 min to complete. Throughout the questionnaire participants had the option to click out and close the questionnaire with no data being submitted. A report of study findings was provided to the webmaster at the end of data analysis. This study was approved by the Ethics Committee of the School of Psychology, Cardiff University.

**Data analyses**

Preliminary data screening produced 57 participants that were excluded from analyses due to incomplete (>50% of data missing) or invalid data. In addition, the only 10 male participants were excluded because they were too few to analyse separately. Finally, 5 outliers (>3 SD ± M) were identified and excluded, leaving a final sample of 426 female participants. Multivariate analyses of variance (MANOVA) were carried out to examine differences between consulters and NC on all variables (except demographic characteristics). If the multivariate F-test was significant, then single degree freedom t-tests were examined to determine those variables that maximally discriminated between consulters and NC. This approach reduced the risk of alpha inflation associated with multiple testing. Where relevant effect size was calculated using r, which is interpreted like a correlation coefficient with an r closer to one indicating a larger effect size (Rosenthal et al., 1999). Effect sizes (r) of 0.10, 0.20 and 0.30 marked small, medium and large effect sizes (Cohen, 1992). A factor analysis using varimax orthogonal rotation was used to group reasons for (or against) seeking medical advice. A probability value of P < 0.05 was regarded as statistically significant. Analyses were performed with the software Statistical Package for the Social Sciences.

**Results**

**Engagement in the medical process**

In total 56.57% (n = 241) of women had not consulted a doctor about conceiving (NC) and 43.43% (n = 185) had already done so (C). The average time since first consultation was 8.79 (SD = 14.32) months for those who had sought advice. Women who had not sought advice said they would do so after a further 10.21 months (SD = 7.06) of trying.

**Demographic and fertility characteristics**

As shown in Table 1, NC and their partners were younger and had been with their partner for less time. They had failed to conceive for fewer months, believed they were more fertile and were more confident they would conceive than consulters. There was no difference between groups on overall health [t(424) = 0.21, P = 0.84] and both rated their health as good to very good (sample M = 3.47 ± 0.88). No significant difference was found between groups for level of education, with the majority of the sample (75%) educated to college/university level ($\chi^2 = 2.32$, df = 4, $P = 0.68$).

**Motivations and consequences to seeking medical advice**

A factor analysis was conducted on the reasons for or against seeking medical advice. Five factors were extracted and were labelled as follows: (i) ‘Fertility and treatment beliefs’ consisted of items concerned with fertility awareness and beliefs, and attitudes toward treatment and its accessibility; (ii) ‘Discovery threat’ consisted of items concerned with being labelled/diagnosed, and its effect (e.g. disrupt marital relationship); (iii) ‘Treatment safety and comfort’ consisted of items about the complexity of fertility treatment and being comfortable with disclosure; (iv) ‘Confidentiality and reassurance’ consisted of items concerned with privacy and desired outcomes of medical consultation; and finally (v) ‘Treatment cost’. The factors accounted for 25.62, 13.36, 9.76, 6.68 and 6.31% of the total variance, respectively.

The difference score between consulters and NCs (see closed/black bar) on each item of the five factors is shown in Figure 1. In the Figure positive difference scores indicated that the reason was associated with treatment seeking (i.e. consulters scored more highly), whereas a negative difference score indicated that the reason was associated with not seeking treatment (i.e. NC scored more highly). A score of zero indicated that the reason did not discriminate between seeking or not seeking treatment (same score for consulters and NC). A series of MANOVAs indicated significant multivariate group effects for all domains [Fertility and treatment beliefs: F(5, 420) = 179.25, P < 0.001; Discovery threat: F(4, 421) = 56.46, P < 0.001; Treatment safety and comfort: F(4, 421) = 9.16, P < 0.001; Reassurance: F(2, 423) = 4.74, P < 0.01]. Average item effect size r (ESr) demonstrated however, that group discrimination was mainly due to Fertility and treatment beliefs (average ESr = 0.32), Treatment cost (ESr = 0.34) and Discovery threat (ESr = 0.17) rather than Treatment safety and comfort (ESr = 0.07) or Reassurance (ESr = 0.06). Seeking medical help was associated with positive treatment beliefs and willingness to know if a problem existed, whereas not seeking medical advice was associated with believing one was fertile or high discovery threat and perceived high treatment costs.

NCs and Consulters did not differ with respect to how they expected positive [t(424) = 0.90; P = 0.37] and negative [t(424) = −0.87; P = 0.38] consequences of seeking help to affect them. However, average scores demonstrated that for

<p>| Table 1: Demographic and fertility characteristics according to consultation group |
|---------------------------------|-----------|-----------|-----------|-----------|
| Demographic Variable            | Non-consulters n = 241 | Consulters n = 185 | t        |</p>
<table>
<thead>
<tr>
<th>Mean</th>
<th>SD</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female age</td>
<td>27.96</td>
<td>5.15</td>
<td>29.45</td>
</tr>
<tr>
<td>Male age</td>
<td>30.31</td>
<td>5.83</td>
<td>31.66</td>
</tr>
<tr>
<td>Years together</td>
<td>3.93</td>
<td>3.09</td>
<td>5.11</td>
</tr>
<tr>
<td>Fertility</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Months trying to conceive</td>
<td>7.24</td>
<td>9.32</td>
<td>19.14</td>
</tr>
<tr>
<td>Perception of fertility</td>
<td>2.97</td>
<td>0.80</td>
<td>2.53</td>
</tr>
<tr>
<td>Fertility confidence (%)</td>
<td>64.32</td>
<td>28.82</td>
<td>52.73</td>
</tr>
</tbody>
</table>

*Participants missing due to incomplete answers; Multivariate F-test for fertility variables was significant, Multivariate F(417) = 26.89, P < 0.001.

Perceptions of fertility: 1 = not at all; 2 = slightly; 3 = very; 4 = extremely; Fertility confidence: 0–100%; *P < 0.05; **P < 0.01; ***P < 0.001.
the sample as a whole positive \( M = 1.98, SD = 0.75 \) consequences (e.g. becoming a mother) were perceived to have a much greater influence on decision-making than negative consequences (e.g. strain on partnership) \( M = -0.72, SD = 0.78 \) \( t(425) = -53.08, P = 0.000 \).

**Network beliefs and motivation to comply**
The NC \( M = 1.98, SD = 1.29 \) were less likely to perceive close family and friends to want them to seek advice \( t(424) = -2.02, P = 0.04 \) than consulters \( M = 2.22, SD = 1.15 \). Partner variables were not associated with decision-making nor was motivation to comply or comfort disclosing to family and friends.

**Personality traits and coping strategies**
As shown in Table 2, the NC used problem focused coping (i.e. problem appraisal) more frequently, and were less likely to use emotion-focused (i.e. escapist) coping strategies compared to the consulters. Both the consulters and NC scored highly on the need for parenthood question, and did not differ on this variable.

**Delayed help-seeking**
One question raised by the results is whether the women who had not yet consulted a doctor should have been seeking medical advice. We examined the number of women who attained the criterion threshold when medical advice would typically be recommended in practice guidelines (see Materials and Methods). In total, 17.43\% \( n = 42 \) of NC women met the criteria. We examined whether isolating this subgroup changed the pattern of results presented by comparing this subgroup (labelled Delayers) to the remaining NC. Most comparisons were not significant, but a few important differences emerged (after Bonferroni correction). First, Delayers were less educated \( 54.8\%, \chi^2 = 19.29, df = 4, P = 0.001 \), had been trying to conceive for longer \( M = 22.98 \text{ months}, SD = 12.07, t(239) = 19.30, P < 0.001 \), perceived themselves as less fertile \( M = 2.36, SD = 2.36, t(239) = 5.81, P < 0.001 \) and were less confident in their ability to conceive naturally \( M = 36.93\% \),

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**Table 2:** Personality and coping according to consultation group

<table>
<thead>
<tr>
<th>Variable</th>
<th>Non-consulters Mean</th>
<th>Non-consulters SD</th>
<th>Consultants Mean</th>
<th>Consultants SD</th>
<th>t(424)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Need for parenthood</td>
<td>21.09</td>
<td>4.22</td>
<td>21.44</td>
<td>4.28</td>
<td>-0.86</td>
</tr>
<tr>
<td>Dispositional optimism</td>
<td>19.06</td>
<td>5.55</td>
<td>18.11</td>
<td>5.49</td>
<td>1.75</td>
</tr>
<tr>
<td>Ways of coping</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Problem management</td>
<td>7.30</td>
<td>2.72</td>
<td>7.38</td>
<td>2.47</td>
<td>-0.33</td>
</tr>
<tr>
<td>Problem appraisal</td>
<td>5.78</td>
<td>2.13</td>
<td>5.21</td>
<td>2.12</td>
<td>2.76**</td>
</tr>
<tr>
<td>Escapism</td>
<td>5.51</td>
<td>2.61</td>
<td>6.04</td>
<td>2.63</td>
<td>-2.08*</td>
</tr>
<tr>
<td>Emotion focused</td>
<td>6.64</td>
<td>2.10</td>
<td>6.70</td>
<td>1.90</td>
<td>-0.32</td>
</tr>
</tbody>
</table>

\*P < 0.05; **P < 0.01.
Discussion

Parenthood is a life goal desired by most people yet surprisingly few seek medical help for fertility problems. Our goal was to understand this paradox by examining the psychological factors that were associated with treatment seeking. To our knowledge this is the first investigation that includes women in the early stages of getting pregnant who have not yet engaged in the medical process. The main findings showed that what women know or want to know about their fertility and their emotional reactions to that knowledge are likely to be core motivating forces behind engagement in the medical process. Findings highlight the need to raise public awareness about when and how to get help, and the most efficient way to do this is likely to be to support consumer advocacy groups in their efforts to disseminate fertility information and lobby for greater access to fertility services.

There were three main ways in which consulters and NC differed. First, consulters and NCs varied on level of fertility awareness. People seek medical advice because they suspect a problem exists. Almost all social cognition models of health put this awareness as the first call to action, whether that action is about dealing with lack of conception, a drink problem, obesity or any other health matter (DiClemente and Prochaska, 1985; Ajzen, 1991; Prochaska et al., 1992; Sheeran and Abraham, 1996). In this sample, NC perceived themselves as fertile, were confident they would eventually get pregnant naturally and accordingly took no steps toward getting medical advice. This inaction was justified for the majority of women in this group because they were young (<28 years) and most had been trying for a relatively short period of time (7 months). Given fecundity rates, there were good chances that most of these women would eventually conceive naturally (NICE, 2004). Unfortunately, the prognosis was more uncertain for the 20% or so of NC women who had already met the medical definition of infertility and reached the time threshold when seeking medical advice is recommended (e.g., NICE, 2004). This subgroup, called Delayers, had been trying for almost two years without success, were very pessimistic about their chances of getting pregnant naturally and yet had never consulted a doctor about their failure to conceive.

While this lack of action may represent a conscious rejection of medical intervention, our results showed that worries about the invasiveness, technological or ‘naturalness’ of medical intervention did not discriminate between those who had or had not sought medical advice for their fertility problems. It was the threat associated with the discovery of a fertility problem which appeared more critical. Specifically, worry about being labelled and diagnosed infertile and not wanting to know that one had a fertility problem were more markedly different between consulters and NCs, and especially for Delayers. Fear plays a critical role in the uptake of medical advice in other areas of health (e.g. breast and prostate cancer screening; Consedine et al., 2004, 2006; Ristvedt and Trinkaus, 2005) and psychological processes underlying fear in those conditions may apply to fertility problems as well. Research is needed to identify what this fear is about and how it can be addressed, especially as the source of fear is likely to determine the best way to intervene.

Second, treatment beliefs also differed between consulters and NCs in keeping with models of behaviour change (Ajzen, 1991; Lippke et al., 2005). Certain treatment beliefs were higher in those who had sought treatment (e.g. perceived high success rates, ease and knowledge about how to get help) whereas others, for example perceived high cost of treatment, were higher in those who had not. As treatment beliefs are based on knowledge these results would seem to suggest that knowledge evolves with the experience of treatment and that decision-making about fertility medical care may be compromised if access to accurate and reliable fertility information is limited (Okamura et al., 2002) or poor due to a lack of education. Indeed, people who delayed seeking help for longer periods of time (i.e. Delayers) were significantly less educated than the group as a whole. However, the healthcare context may also contribute to beliefs, since we found, for example, that NC women from the USA where most people pay for health care were more concerned about financial aspect of treatment than their counterparts in the UK where there is a subsidized national health service. Together these results indicate that one way of assisting in decision-making may be to work out ways of helping people obtain and evaluate fertility information.

Finally, there was mixed support for other psychological variables. Personality variables did not differentiate consulters and NCs and this may be because we did not assess the relevant personality dimensions. There were unexpected findings for coping variables too in that consulters were using less problem appraisal (e.g. saw less the positive side of the situation) and more escapism (e.g. more hoping that a miracle would happen) whereas we predicted the reverse. As we did not assess emotional functioning in the present sample we cannot say whether this pattern of coping would be associated with poorer outcomes as has been shown in advanced treatment but this issue warrants further investigation (Terry and Hynes, 1998). In addition, the impact of women’s social network was also limited though having endorsement from family and
friends about seeking advice was associated with medical engagement consistent with past research (Callan et al., 1988).

Together these findings provide important information about the nature of variables that might be critical in motivating people to seek medical help. However, cross-sectional designs can only offer information about associations and not cause and effect. For example, fear was higher in NC than consultants but we cannot ascertain whether this means that fear reduces treatment seeking, whether treatment seeking reduces fear, or whether both occurs. Only a prospective longitudinal investigation of the same women can provide definitive conclusions about the true causes of seeking medical help. In such a design, psychological assessments would take place when couples started trying to conceive, and periodically until such efforts were discontinued. It would then be possible to examine the pre-consultation psychological processes of those who subsequently engaged in the medical process, how it changed as a result of their medical experiences and/or how it differed from the profile of those who never subsequently consulted. However, we have made an important contribution in identifying those variables which warrant further study.

Our internet methodology proved successful. A large sample was recruited within a relatively short period of time (8 weeks) and consisted of people from a variety of countries, though mainly two western nations (UK and USA). The main aim of using the internet was to recruit women in the early stage of trying to conceive who are usually difficult to recruit. We achieved this goal. One limitation though is that internet samples tend to be skewed toward high income and high education populations (Haagen et al., 2003), which was also the case in the present study. Furthermore, there is greater heterogeneity in the sample because people can reply from anywhere in the world. Indeed we found some differences amongst the nationalities represented in this survey, but in-depth analyses revealed that these findings did not impact on the conclusions made in the present paper. Nevertheless, it would be important to replicate our results in a more representative sample of people trying to conceive who were recruited from sources other than the internet.

Two other methodological issues warrant comment. First, only one of 11 webmasters agreed to put the survey on their site and we have no feedback as to why others decided not to participate in the study. We do not feel this has biased our results as the sample recruited was large and showed good representation in terms of critical sample characteristics (e.g., age, months trying and medical consultation). A second limitation is that only 10 men responded to the survey. This disproportionate participation rate could be due to the fact that men may not be drawn to sites called ‘getting pregnant’ or to a gender difference in interest for psychological research (e.g., LaFont and Edelmann, 1994) or fertility issues (Becker and Nachtigall, 1994). 

The main implication of our findings is that people need to be educated about fertility issues. Education is needed to prevent fear and unnecessary delay in seeking help, as was apparent in about 20% of women in this sample, but also to provide guidance about when to seek medical advice and the practicalities of doing so. Information can improve quality of life because it reduces the worry of not knowing what to do and the fear about what will happen if medical advice is sought (Takefman et al., 1990). Campaigns for other major health issues (e.g., AIDS, breast cancer) have demonstrated that these can be extremely successful in achieving good public awareness about important health issues.

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