



## Uncertainty, risks and ethics in unsuccessful in vitro fertilisation treatment cycles

Susana Silva & Helena Machado

To cite this article: Susana Silva & Helena Machado (2010) Uncertainty, risks and ethics in unsuccessful in vitro fertilisation treatment cycles, Health, Risk & Society, 12:6, 531-545, DOI: [10.1080/13698575.2010.515734](https://doi.org/10.1080/13698575.2010.515734)

To link to this article: <https://doi.org/10.1080/13698575.2010.515734>



Published online: 02 Dec 2010.



Submit your article to this journal [↗](#)



Article views: 509



View related articles [↗](#)

## Uncertainty, risks and ethics in unsuccessful in vitro fertilisation treatment cycles

Susana Silva<sup>a\*</sup> and Helena Machado<sup>b</sup>

<sup>a</sup>*Institute of Public Health (ISPUP) and Department of Hygiene and Epidemiology, University of Porto Medical School, Porto, Portugal;* <sup>b</sup>*Department of Sociology, University of Minho, Braga, Portugal*

(Received 13 May 2009; final version received 2 February 2010)

In this article we explore the results of interviewing Portuguese couples involved in unsuccessful in vitro fertilisation (IVF) programmes. We argue that the references to uncertainties and risks of IVF procedures and their implications in the mobilisation and in the actions of different social and/or professional groups should be central topics in the debates of biomedicine and bioethics in a broader sense and in local ethics of clinical research and doctor–patient relationships. These debates should incorporate the experiences of women and men who try to have a biological child by using these techniques and produce reflection about the social, cultural, technical and medical changes that will be necessary so that these technologies are increasingly successful. The medical recognition of uncertainties, risks and complications can be an important element underlying a patient-friendly medicine, because it could minimise the feeling that many patients might have, especially women, that they are to blame.

**Keywords:** ethics; infertility; women's health; uncertainty; risk; risk perception; practice guidelines

In January 2004, *Human Reproduction*, a leading journal in obstetrics and gynaecology and reproductive biology, started a debate about the factors that should be taken in consideration when assessing the success of assisted reproductive technologies. The journal identified two key elements: the necessity of reporting success consistently and the need to define a standard of success for infertility programmes (Min *et al.* 2004). In similar studies published previously (e.g., Barratt *et al.* 1998, Gianaroli *et al.* 2000, Lambert 2002), the participants (mainly health professionals working on reproductive medicine units) concluded that the factors of success of treatments are multiple and complex and that the procedures should be guided by the principles of safety, quality, effectiveness and efficiency (Land and Evers 2004). Thus, good medical practices tend to be reduced to a matter of safety, quality, effectiveness and efficiency and the importance of the patients is lost under the rationalisation of the healthcare system (Alaszewski and Brown 2007).

However, some other literature emphasises the need for patient-friendly assisted reproductive technologies, in other words, technologies that are cost-effective and provide equity and minimisation of the associated risks and complications

---

\*Corresponding author. Email: susilva@med.up.pt

(Olivennes and Frydman 1998, Pennings and Ombelet 2007). Some public or/and professional agencies have been producing various guidelines, aiming to promote a reliable and safe use of these techniques (e.g., Barratt *et al.* 1998, ESHRE Capri Workshop Group 2000a, 2000b, 2007, ESHRE Campus Course Report 2001, ESHRE Task Force on Ethics and Law 2001, Vayena *et al.* 2002, Land and Evers 2003, Soini *et al.* 2006, Nargund *et al.* 2007, Pennings and Ombelet 2007). As May (2007) has argued, a more dynamic theoretical vision of the clinical encounter should take into account the organising impulses of contemporary corporate and management structures of medical knowledge and practice.

Assisted reproductive technologies provide ways of dealing with infertility and genetically transmitted diseases. However, these technologies do not provide certainty of outcome rather their results have to be discussed in terms of probabilities and uncertainties (Alaszewski and Brown 2007). It is also evident that the ability to diagnose and intervene does not provide any certainty in prognoses (Sandelowski 1993, Balasch 2000, ESHRE Capri Workshop Group 2000a, Webster 2002, Silva and Machado 2008). As Webster (2002) notes, many of the promises of medical technologies depend on the ability to disguise the uncertainties and risks and to mobilise a set of expectations and rights around their future therapeutic impact. Hence, assisted reproductive technologies are perceived as 'hope technologies' (Franklin 1997).

The evaluation of quality, efficacy and safety of IVF treatments results from complex processes that demand the analysis of medical knowledge and practices but also laypeople's understanding of the expectations and risks created by these technologies (Collins and Pinch 2005, Alaszewski and Brown 2007) and personal experiences of uncertainty (Alaszewski and Coxon 2008, Zinn 2008). These perceptions and appreciations are often associated with issues of power, credibility of institutions, legitimacy and equity in terms of results and strategies of clinical intervention (Beck 1992, Jasanoff 1997, Inhorn and Van Balen 2002, Ploeg 2004, Thompson 2005, Currie *et al.* 2009). Through IVF patient's narratives about their experiences we can learn ethical ways of interact with them (Adams 2008), developing a 'relational ethic' (Ellis 2007) and an 'ethics of care' (Parry 2004) and highlighting *in between* strategies for managing uncertainties and risks (Zinn 2008), where we act from our emotions and rationales and take responsibility for the consequences of our actions.

In this article the analysis will be based on three main theoretical models: science and technology studies; risk society theories; and women's studies. Drawing on STS we will discuss the importance of the social and cultural context in which IVF treatments are made sense of by their users (e.g., Latour 1999, Saetnan *et al.* 2000, Inhorn and Van Balen 2002, Thompson 2005). The risk society theories will be used to explore the role played by the uncertainty of knowledges and practices produced by experts in reproductive medicine, aiming to critically deconstruct the social and cultural basis that support the patients' trust in the medical-scientific institutions (e.g., Douglas and Wildavsky 1983, Giddens 1991, Beck 1992, Becker and Nachtigall 1994, Cooper and Blair 2002, Ericson and Doyle 2003, Takefman 2006, Khodyakov 2007). We will also drawn upon women's studies to understand the mobilisation and actions of different social and/or professional groups involved in IVF treatments, in particular the ways by which women and men have gender identities that shape their emotions and corporeal experiences (e.g., Sandelowski 1993, Franklin 1997, Ruhl 1999, Ploeg 2004, Throsby 2004, Thompson 2005, Ettorre 2007).

The empirical research involves 15 semi-structured interviews with patients who are in active treatment and not yet pregnant after at least one IVF treatment. We have used grounded-theory methodology to understand the discourses around the meanings of unsuccessful IVF treatment cycles and to explore the strategies deployed by the interviewees in the reconstruction of expectations toward IVF. It will be particularly interesting to discuss that phenomenon considering the perceptions of the complexities and uncertainties that characterise the processes involved in the various stages of IVF procedures.

## Methods

This qualitative study was conducted in Portugal, where the first legislation on medically assisted reproduction was published on 26 July 2006 (law no 32/2006). Approval for conducting the research was obtained from the Foundation for Science and Technology (Portuguese Ministry of Science, Technology and Higher Education). We followed the Code of Ethics of the International Sociological Association.

We intended to explore in depth the infertile people's meanings of unsuccessful IVF treatment cycles, an issue which remains clearly under-studied in Portugal. The first sociological studies undertaken in Portugal about infertility identified two main issues: on the one hand, the ethical, normative and juridical construction of the social uses of assisted reproductive technologies in this country (Garcia 1995); on the other hand, the main frameworks in which the production of meanings and claims of expertise about infertility were produced, drawing on interviews with doctors and couples involved in fertility treatments (Augusto 2004). The Science, Technology and Society Research Group (Centre for Social Studies, University of Coimbra, Portugal) has been studying the emergence of new social actors and new forms of public participation in the domain of rerogenetics (Santos and Nunes 2006). More recently, the authors of this text have studied the clinical, sociocultural and economic dimensions of fertility treatments taken into account the narratives produced by infertile couples of a Northwestern Portuguese municipality (Machado and Remoaldo 2009), as well as the interactions between expert and lay knowledges, informed consent and rhetoric devices related to donation of eggs, sperm and embryos (Silva 2008a, 2008b, Silva and Machado 2008, 2009a, 2009b). In this study a qualitative and interpretative approach was selected because this method is useful when little is known about a phenomenon, as it can be used to explore the Portuguese IVF patients' accounts of their experience of IVF treatment failure and, in particular, to analyse their detailed descriptions of the limitations, risks and uncertainties in IVF procedures (Olshansky 1996, Liamputtong and Ezzy 2005, Becker and Bryman (eds) 2004).

Participants were not randomly selected but, rather, selected for their shared experience in active treatment and not yet pregnant after at least one unsuccessful IVF treatment cycle in Portugal. Participants were recruited through newsletters; the first author sent a newsletter via e-mail to colleagues at work and friends, and asked them to pass the message to other people, in a snowball strategy. We have used a purposive sample, which means that we added new data to the analysis when it was of theoretical interest and its size was determined by data saturation, that is, recruitment continued until no new themes emerged from the data proceeding from the interview data (for practical guidelines see Guest *et al.* 2006).

The process of purposive sampling helped us to recruit a varied range of participants, taking into account three main characteristics: sex, age and education (Table 1 presents the sample characteristics). Eleven semistructured interviews (four heterosexual couples and seven women) were conducted. The 15 participants in this study were all Portuguese and white and, as required by law in Portugal to be a requirement to have access to treatments for infertility, heterosexual and married or in stable partnerships.

There is no data collected concerning the demographic composition of IVF patients from a complete national register. The last results of assisted reproductive techniques from treatments initiated in Portugal during 2005 are presented in the ninth report of the European IVF Monitoring Programme (Andersen *et al.* 2009). According to this report, in Portugal 18 clinics (from a total of 20 clinics) reported 3806 treatment cycles; the majority of women treated with IVF and ICSI in 2005 were in their thirties (almost 40% were 30–34 years old and almost 35% were 35–39 years old).

Whenever possible, women and their partners were interviewed together. However, seven men did not participate in this study although their partners volunteered to do so. Lloyd (1996, pp. 433–435) concluded that the lack of participation of men in studies of infertility had two main meanings: women and men had gender identities that shape their different reactions to infertility, it was seen as a problem especially by women; and hegemonic societal norms and values link male fertility with male virility and sexual performance (also see Webb and Daniluk 1999, Thorsby and Gill 2004). In our research men tended to have a positive approach to the ‘threat’ of infertility, responding to some of the comical situations involved in the fertility treatments with a redefinition of life priorities and an avoidance of emotion (Silva and Machado 2008, Machado and Remoaldo 2009).

Interviews took place at home or at the work place of the women and men who volunteered to take part in this study. Data were collected between June 2005 and February 2006. Participants were asked to describe their feelings, concerns and understandings regarding IVF treatment failure. All interviews were recorded and transcribed verbatim by the first author. Transcripts of the interviews were checked for transcription accuracy. The data were then systematically coded and synthesised around three core themes that will be explored in this article. The first one was the IVF patients’ explanations for an unsuccessful IVF treatment. The second core theme was how participants describe their feelings when coping with

Table 1. Sample characteristics.

	Women ( <i>n</i> = 11)	Men ( <i>n</i> = 4)
Age (years)		
40–45	1	1
35–39	6	2
30–34	4	1
Education		
Higher education	8	1
12 years	1	2
9 years	1	1
5 years	1	

unsuccessful IVF treatment. The third emerging theme was the practical constraints associated with an unsuccessful IVF treatment. Close attention was paid to similarities and differences between women and men. The data was analysed by the first author and as the analysis evolved themes were discussed with the second author. In the case of conceptual difference, it was reflected upon and resolved by further joint debate.

Three major frameworks structured the participants' feelings, concerns and understandings regarding IVF treatment failure: the divine intervention and fatalism; gendered blame and self scrutiny; and practical constraints. The findings are reported below with verbatim quotes from interviews transcripts using pseudonyms.

## Results

### *Divine intervention and fatalism*

Before experiencing an unsuccessful IVF treatment cycle, the respondents showed a predominantly positive view of medicine and technology, which comes associated with the image of objectivity and accuracy and also to an altruistic ideal. Ana Dias, one of the interviewed women, assumed that 'people tend to always trust medicine'. Additionally, Fernanda Almeida justified her hope in IVF treatments 'because sometimes people talk about insemination treatments and we heard that sometimes miracles happen'. One of the interviewed couples believed that confidence in medicine and technology was a fundamental element for not considering the possibility that an unsuccessful infertility treatment might happen:

Sandra Ferreira: It never crossed our minds that the infertility treatment could not work (...)

Pedro Mota: Everything was all right. The embryo was ready, the uterus also ... Oh! And now what?

Sandra Ferreira: This is like maths, isn't it?

Pedro Mota: Yes, sure, it is maths! ... But it wasn't math after all! Or maybe it was like maths, but we have missed the calculation of a few more probabilities.

The failure of the first infertility treatment could lead to the couple questioning the efficacy of medicine and technology. However, the interviewees produced explanations for the failure of the treatment, with the aim of protecting their hope of conceiving a biological child. Various sorts of explanation for the failure emerged, such as references to variability in the quality of eggs, sperm and embryos, luck and divine help. Ana Dias said: 'Sometimes I ask God: if there is a pregnant woman who will discard her baby, don't give her the baby, and give it to me instead'.

Another frequent explanation for the absence of pregnancy referred to the women's behaviours and the ways their bodies react to the infertility treatments. Manuela Castro, for example, established a close relationship between her behaviour after the embryo transfer and the expected outcome of IVF treatment:

In the first treatment [without pregnancy], I had a normal life. (...). I was running up and down the stairs most of the time [in her mother's house]. I swept the small garden, I cleaned it ... I did everything ... As I had nothing [a pregnancy], this time [second IVF treatment] I made another choice: to do absolutely nothing. I was 15 days resting in the bed, waiting for ... That this [IVF treatment] result, isn't it?

The gendered responsibility for uncertainty was just as likely to manifest in any other patriarchal western social context where IVF treatments are offered (Inhorn and Van Balen 2002). However, such allocation of reproductive blame to women was also reminiscent of the Mediterranean Catholic preoccupation with sin. Pedro Mota, for example, implicitly begs for God's help in the realisation of the couple's project of having a biological child, when he said: 'What we really need it the help of a holy spirit, because by the sinful way we will not succeed'. This narrative illustrates well a societal concept of sinful conception, according to which the IVF treatments are described as 'sinful' and impure ways of conceiving a child. A moral evaluation of IVF treatments as undesirable and inappropriate means of conception of human beings underlines this way of thinking, within a social imaginary that opposed the sacred/the natural to the profane/the unnatural, in this case the sexual intercourse/IVF treatments.

The social and cultural context is essential to understand how the concepts and meanings of sinfulness of IVF are about symbolic boundary-maintenance between the clean/the purity and the pollution/the danger (Douglas 2002). Interviewees reported feelings like revolt and unfairness due to their involuntary childlessness. However, these feelings are more acute when the interviewees compared themselves to women who made an abortion, to parents who give their child for adoption and to mothers who are prostitutes. One of the interviewed couples expressed a general view of the social order and governance in the domain of human procreation and maternity (Ruhl 1999), which is now opened to medical management and modification (Rose 2006), in the following terms:

Sandra Ferreira: I can't avoid the envy of pregnant women! (...)

Pedro Mota: I have another feeling. It was something that bothered me, but now I'm really angry! We saw a prostitute in the street ...

Sandra Ferreira: Pregnant!

Pedro Mota: (...) Gee! What's happening? People don't imagine how difficult it can be to become a father.

Participants did not question the techniques when explaining unsuccessful IVF treatments. Faced with uncontrollable variables for medicine, Henrique Lima said that 'it is not worth while' to ask the medical doctors why in his particular case a pregnancy didn't occur. In his words 'I'm positively sure that this would mean to ask for something that no one could answer'. The way this male interviewee discussed medicine as unable to explain failure to conceive through assisted reproductive technologies and to answer 'big' (spiritual) questions seemed an example of pre-modernist thinking that Beck (1992) has argued is no longer mainstream, but which many sociological studies have found even in countries where religion is no longer considered to be important (e.g. Throsby 2004).

Hence, with the objective of minimising the occurrence of uncertainties, the female and male interviewees were likely to develop practices that can be described as evidence of late modern reflexivity (Giddens 1991), where thought and action intertwine and cannot be separated in people active engagement on everyday problems. These practices are associated with the conditions of late modern life, namely greater literacy and space-time distanciation. The interviewees reported practices they have developed for judging expert authorities, like looking for an expert considered to be more competent; simultaneously attending private and

public fertility services; and repeating the medical tests in laboratories considered to be reliable and to have a guarantee of 'quality' according to the recommendations of the doctor seen by the couple (Silva and Machado 2008). Another common practice was to search and access health information and treatment in diverse sources at a global level, in particular in the media and on the Internet. The character of these practices is constitutively altered in the light of incoming information about themselves. Thus, individuals' affiliation of new knowledges simultaneously erodes trust and confidence in the expert while at the same time intensifies dependence.

These narratives highlight how the interpretation and explanation of the failure of assisted reproductive technologies can be framed in the idea that conception and pregnancy depend of uncertain and unknown elements outside the medical and technical field, like those proceeding from the 'will of God' or the 'will of nature' (Silva 2008a, 2008b). Thus, contemporary western society knowledge systems also incorporate religious and supernatural systems within the management of unsuccessful IVF treatments and there is space for uncertainty and anxiety in these systems (see also Gross and Shuval 2008).

### ***Gendered blame and self scrutiny***

In order to maximise the probabilities of successful IVF treatments, women must conform to the medical orientations in the management of their daily practices. In this sense, the likelihood of the application of these techniques to result in the birth of a healthy child depends on women.

The interviewed women believed that their bodies and behaviours were fundamental to achieving a pregnancy as a result of IVF treatments. As a consequence, the women tended to feel individual and private responsibility for the failure of the project of getting pregnant. Their narratives demonstrated that women felt responsible for not conforming to the hormone treatment as the medical doctors would expect. Furthermore the age of women was frequently seen as an important factor in the failure of IVF, given the usual correlation between the woman's age and the progressive lowering of the odds of conceiving a child. Older women experienced this as a personal criticism, which turns to be more significant when the medical doctors 'start referring to the fertility table', according to Matilde Silva.

Isabel Campos argued that 'the anxiety is so much that sometimes the treatment will not work because of that'. The reference to the female vulnerability to psychological pressure functioned as a side expression of the scientifically legitimate language which served to justify the failures of IVF treatments.

An additional testimony of one of the women who participated in this study showed that emphasis in the female responsibility for the absence of pregnancy, even when the cause of infertility is classified as male. In this narrative, Custódia Santos thought that she was 'unable to grab the embryo' which had been fertilised and transferred to the uterus. This patient concluded that 'even if the cause of infertility is in my husband, this can be overtaken by treatments (. . .) at the present the problem is in me, I am the one who is unable to grab the embryo'. The testimony of an interviewed couple showed how the representations that emphasised the exclusive responsibility of women in obtaining a pregnancy were articulated with the image of infallibility and objectivity of medicine and IVF procedures, as the bodies and/or the

women's behaviours were reconstructed as the core factor limiting the effectiveness of medicine:

Sandra Ferreira: The post-transfer of embryos stage until the pregnancy test is rather complicated (...) the feeling was 'if I do anything wrong during these 15 days I will spoil everything' ...

Pedro Mota: That procedure is mathematically certain.

Sandra Ferreira: Absolutely certain. Of course, if something goes wrong it is inevitable to ask myself: what have I done wrong in those 15 days?

In a context where the maximisation of the likelihood of becoming pregnant was ascribed to the individual and private responsibility of women, the period of time between the transfer of embryos and the day when there will be an expected absence of menstruation was described as a period of great anxiety by the interviewed women, and to a lesser degree by the interviewed men (Hardy and Makuch 2002, p. 276). According to those narratives in that period women must follow the medical orientations, such as resting, having a calm lifestyle or having a normal life.

The scrutiny and monitoring of the genetic and reproductive capital of gendered bodies (Ettorre 2007) produce an effect in these potentially pregnant women: they should trigger a set of security measures during the post-transfer of embryos stage to maximise the probabilities of achieving a pregnancy. These individual security actions should conform more to the guidelines provided by the physicians than to their own experiences. Some of the medical recommendations will be, for example, to increase the number of hours of daily rest; have a balanced nutrition; avoid long journeys, long work periods standing up; avoid the practice of some sports (horse riding, motorcycling, cycling and jumping, among others); avoid sexual intercourse; and to take the prescribed medication in the cases when women continue with a hormonal treatment at this stage.

Tânia Barros referred to her sleep disturbances during the period of post-transfer of embryos, by mentioning that 'I used to have those sorts of "shudders" during my sleep with the fear of not achieving pregnancy'. Other testimonies from the interviewed women highlighted the situation of easily crying during this period and of viewing any symptom as being indicative of pre-menstrual phase or, by contrast, as a signal of a pregnancy. An interesting example was that of Vitória Ribeiro, who told that she went several times to the bathroom, 'a dozen times just to check if I had blood in my knickers', during the second week of the post-transfer of embryos period.

The interviewees developed different strategies to cope with this anxiety. Pedro Mota pointed out the fact that his wife didn't 'leave him alone' during the 15 days after the transfer of embryos, as she couldn't bear 'to be by herself'. Vitória Ribeiro decided to engage in 'shopping therapy' spending money on things she did not really need after the transfer of embryos, because she 'felt down', whereas Custódia Santos decided to go for a walk with her nephew after 'spending all her energy' cleaning the house.

In sum, these descriptions reinforced the idea that regulation of women's reproductive capacity would be the responsible factor for the balance of feelings and the basis of female behaviour in other dimensions (Throsby 2004, Ettorre 2007). A patient-friendly assisted reproductive technology should contribute to minimise the feeling that many IVF patients have, especially women, that they are to blame.

### ***Practical constraints***

In a context in which hope, anxiety and suffering were noticeable, the interviewees referred to the need to take a break from the infertility treatments. According to Custódia Santos, these pauses in the involvement with IVF treatments were justified because ‘we have to maintain our mental sanity’. Luísa Pimentel categorically stated that she didn’t want ‘to be constantly in this illusion-disillusionment thing’ and involved in perpetual anguish.

Apparently, the physical and emotional suffering of women was the core element for justifying the discontinuities of the treatments. However, this motive emerged blended with other elements, in particular the absence of explanations for not achieving a pregnancy, as the following quote from Custódia Santos illustrates:

I had only three [frozen embryos] and I told the doctor ‘Oh, I’m fed up with this crap, I can’t stand anymore and this is killing me. I want to stop this crap’ (...) I’m here moving from one place to the other, nobody tells me why I don’t get pregnant, I had enough of spending money, of giving up doing things I like and nothing happens.

The narratives produced by two of the interviewed couples revealed that the woman’s suffering and the money eventually spent with infertility treatments were perceived as secondary elements that should be easily forgotten and/or overcome if achieving the ultimate goal: to have a biological child. Hence the central motive for discontinuing IVF treatments related to the anxieties and uncertainties that do not assure the concretisation of that desire:

Matilde Silva: A child justifies everything I have been through (...) I told him [husband] that I will do this and much more, if needed (...)

Henrique Lima: The issue here is the whole process of distress, anxiety and so on and the fact that we might not be able to get there. The rest are mere stages through which we have to go.

Manuela Castro: Our financial situation is complicated. And we had other treatments because we had [financial] help.

Gustavo Martins: That is not the point (...) If we had the guarantee that we really would have a child, for 20,000 or 25,000 euros, we would get the money, what could be the problem then?

These quotes uphold the hypothesis that the impossibility of achieving a pregnancy and the consequent absence of an objective explanation for that are the central elements of the decision of stopping the infertility treatments. A patient-friendly assisted reproductive technology needs to incorporate answers to limitations, risks and uncertainties posed by unsuccessful IVF treatments in order to guarantee the patient’s well-being and the citizens’ trust on medicine and technology.

### **Discussion and conclusion**

In our analysis, we conclude that the uncertainties of IVF procedures must be central topics in the biomedical, bioethical and psychosocial debates around the complications and risks in assisted human reproduction, in order to create new forms of clinical relationships that ultimately alter culture (Cooper and Blair 2002). Guillemin and Gillam (2004) show the importance of using both ‘procedural ethics’ and ‘ethics in practice’ for dealing with ‘ethically important moments’ in qualitative research. In this article, we argue that this approach may also be applied to clinical research and

doctor–patient local relationships, highlighting how qualitative research in health and illness may contribute to biomedical ethics.

The medical and scientific recognition of limitations, uncertainties and risks is an important element underlying a patient-friendly medicine, because it could minimise the negative feelings that many patients might have, especially women, that they are to blame for an unsuccessful IVF treatment cycle. In doing so, we acknowledge the significance of the convergence of ethics with the moral dimensions of the laypeople's accounts of embodiment (Rose 2006), which claims a conception of ethics as practices grounded in everyday life (Shildrick and Mykitiuk 2005, Shaw 2008). This way of thinking puts 'relational ethics' at the centre of institutional discourses of IVF guidelines for practice (Halse and Honey 2007).

The interviewed couples had varied and ambiguous feelings and beliefs about IVF treatments, that can be described, as Strickler (1992, p. 116) refers, as a love-hate relationship, as they offer hope of becoming pregnant, but at the same time lead to prolonged suffering, both physically and emotionally (Chester 2003). The main dilemma experienced by the interviewees is to accept the possibility of creating a biological child by IVF treatments, while at the same time not forgetting there is no guarantee that the treatment will be successful for them. These anxiety and uncertainty environments are the main elements of physiological and psychological reactions during the treatments (Boivin *et al.* 1998, Rajkhowa *et al.* 2006) and women and men respond to it with different feelings and beliefs (Chester 2003).

Both partners are active in helping to reduce the anxieties and uncertainties and seeking certainties (Alaszewski and Coxon 2008), but women are the only ones who experienced a disciplinary regime based on individual responsibility for the reduction of the probability of an unsuccessful IVF treatment which links to a liberal government of potential pregnancy (Weir 1996) and to a larger practice of women's self regulation that occurs in advance liberal rule (Ruhl 1999). IVF couples manage anxieties and uncertainties to reinforce the social images of reproductive technomedicine as trustworthy and provider of public benefits (health and social) and this 'novel somatic ethics' (Rose 2006) implies obligations imbued with hope and oriented to the future, yet demanding actions in the present.

The search for balance between benefits and uncertainties is done on the basis of a sensible and understandable management of the probabilities made by women and men who use IVF treatments, which is not necessarily rational. However, the acceptance of the rationality of technomedicine demands, in this case, accepting the entry into a process with uncertain results and whose end is always open. This acceptance might benefit, among other things, from the medical argument related to the cumulative probabilities of success of these techniques. In fact, this medical argument might contribute to the repetition of a series of treatments to achieve the maximum accumulated chance of success, and when the limit is coming up it is always possible to restart a new series of treatments based in the change of one of the elements involved on a given cycle (Thompson 2005, p. 95). This argument can involve new risks and uncertainties that are associated with the image of success of reproductive technologies and not to their failures (Audétat 2001) and to an idea that the quality of these technologies is never enough (Sandelowski 1993).

The ways the couples give meanings to the unsuccessful IVF treatment cycles tend to (re)produce the belief in the effectiveness of scientific and technological progress, despite the disappointment created by the anxieties, uncertainties and alleged lack of objectivity of the medical and technical knowledge and practices in

this domain. The absence of an accurate medical explanation for the failure of the IVF treatments is naturalised by resourcing to two specific discursive devices: the deletion of the limitations of medicine and technology as a mean for justifying the failure; and the purification of medical and technological interventions by reinforcing the idea that their success depends of divine or providential aid and of women's bodies and behaviours (Ruhl 1999, Ploeg 2004, Throsby 2004).

Success of the IVF treatments confirms benefits of medicine and technology whereas their failure is fault of women and/or other factors beyond medicine. This point is very similar to Azande witchcraft (Evans-Pritchard 1979) and therefore protects the system from disbelief. Failure is always explained by factors which are external to the system. The concept of sin is used fatalistically to make sense of infertility and this point questions the relevance of Beck's Risk Society thesis, where traditional and fatalistic ways of thinking are said to be usurped by late modern sensitivities to risk (Beck 1992), as well as Douglas's Grid/Group hypothesis, where fatalistic reactions to risk are confined to socially isolated individuals (Douglas and Wildavsky 1983).

The emphasis on the individual responsibility and the processes of naturalisation and socialisation of uncertainties of assisted reproductive technologies encourages its interpretation as risks and highlights the personal and emotional components of trust when there is an unexpected challenge to the normality of personal continued existence through biological reproduction. Also, these processes emerge as strategies to give meaning and protect the technical intervention and of purification of medical knowledge in this domain by turning invisible the medical-scientific limitations (Latour 1999, Rose 2006). It permits the individualisation and privatisation of responsibility of the IVF couples (Cook and Easthope 1996, Ruhl 1999). This becomes more evident as the construction of the autonomy of medical doctors blends with the promotion of a culture of responsibility mainly directed to the citizens (Audétat 2001).

The dominance of these discourses contributes to the incorporation and naturalisation of the perceptions deployed on women, and in particular to the female body, materialised in moralising and guilt-bashing campaigns (Throsby 2004) which can promote the (re)production of the cultural identification of masculinity with success, emotional control and reason. Hence, women experience a disciplinary regime sustained in self inflicted guilt and reproductive asceticism, in the sense that they self-regulate and self-discipline desire, passions and necessities with the objective of assuring the confirmation of pregnancy. Being able to achieve a pregnancy is transformed into an arena of moral classification and evaluation of women as 'good' or 'bad' reproductive females (Ruhl 1999). This process contributes for the fact that the physical capital of women (in particular the uterus) becomes inexorably linked to the genetic capital of women and of men (Ettorre 2007).

The confidence in IVF treatments exists in a context where medicine and technology offer the possibility of conceiving a biological child. However, trust might dispel when these technologies are perceived as opponents to that expectation, which can be a central motive for discontinuing treatment (Rajkhowa *et al.* 2006, Verberg *et al.* 2008). The references to uncertainties and risks related to IVF treatments and their implications in the mobilisation and in the actions of different social groups and/or professional agents and political agendas should be incorporated in the debates of biomedicine and bioethics (Ericson and Doyle 2003, Kerr *et al.* 2007).

These debates should be capable of integrating the experience of women and men who try to have a biological child by using these techniques (Ettorre 2007) and produce reflection about the social, cultural, technical and medical changes that will be necessary so that these technologies are increasingly successful (Blankenship *et al.* 1993).

### Acknowledgements

We thank the Fundação para a Ciência e a Tecnologia (Portuguese Ministry of Science, Technology and Higher Education) for financing this research. We wish to express deep gratitude to the women and men in this study for sharing their experiences with us. We would like to thank anonymous referees for the insightful comments to the first version of this paper. We also acknowledge the work of the Scientific Editing Programme of Universidade do Minho for revising this paper.

### References

- Adams, T.E., 2008. A review of narrative ethics. *Qualitative inquiry*, 14 (2), 175–194.
- Alaszewski, A. and Brown, P., 2007. Risk, uncertainty and knowledge. *Health, risk & society*, 9 (1), 1–10.
- Alaszewski, A. and Coxon, K., 2008. The everyday experience of living with risk and uncertainty. *Health, risk & society*, 10 (5), 413–420.
- Andersen, A.N., *et al.*, 2009. Assisted reproductive technology and intrauterine inseminations in Europe, 2005: Results generated from European registers by ESHRE. *Human reproduction*, 24 (6), 1267–1287.
- Audétat, M., 2001. Review. Re-thinking science, re-thinking society. *Social studies of science*, 31 (6), 950–956.
- Augusto, A., 2004. *Infertilidade e reprodução medicamente assistida em Portugal: Dos problemas privados aos assuntos públicos* [Infertility and medically assisted reproduction in Portugal: from private problems to public issues]. Thesis (PhD). University of Beira Interior, Portugal.
- Balash, J., 2000. Investigation of the infertile couple in the era of assisted reproductive technology: A time for reappraisal. *Human reproduction*, 15 (11), 2251–2257.
- Barratt, C., *et al.*, 1998. Gamete donation guidelines. The Corsendonk consensus document for the European Union. *Human reproduction*, 13 (2), 500–501.
- Beck, U., 1992. *Risk society: Towards a new modernity*. London: Sage Publications.
- Becker, G. and Nachtigall, R.D., 1994. ‘Born to be a mother’: The cultural construction of risk in infertility treatment in the US. *Social science and medicine*, 39 (4), 507–518.
- Becker, S. and Bryman, A., eds., 2004. *Understanding research for social policy and practice: Themes, methods and approaches*. Bristol: Policy Press.
- Blankenship, K., *et al.*, 1993. Reproductive technologies and the US courts. *Gender & society*, 7 (1), 8–31.
- Boivin, J., *et al.*, 1998. Psychological reactions during in-vitro fertilization: Similar response patterns in husbands and wives. *Human reproduction*, 13 (11), 3262–3267.
- Chester, D.H., 2003. Mother. Unmother: A storied look at infertility, identity, and transformation. *Qualitative inquiry*, 9 (5), 774–784.
- Collins, H. and Pinch, T., 2005. *Dr Golem: How to think about medicine*. Chicago: University of Chicago Press.
- Cook, C. and Easthope, G., 1996. Symptoms of a crisis? Trust, risk and medicine: Review essay. *ANZJS*, 32 (3), 85–98.
- Cooper, M. and Blair, C., 2002. Foucault’s ethics. *Qualitative inquiry*, 8 (4), 511–531.
- Currie, G., *et al.*, 2009. Narratives of professional regulation and patient safety: The case of medical devices in anaesthetics. *Health, risk & society*, 11 (2), 117–135.
- Douglas, M., 2002. *Purity and danger. An analysis of concept of pollution and taboo*. 2nd ed. London and New York: Routledge.
- Douglas, M. and Wildavsky, A., 1983. *Risk and culture: An essay on the selection of technological and environmental dangers*. Berkeley: University of California Press.

- Ellis, C., 2007. Telling secrets, revealing lives: Relational ethics in research with intimate others. *Qualitative inquiry*, 13 (1), 3–29.
- Ericson, R.V. and Doyle, A., eds., 2003. *Risk and morality*. Toronto: University of Toronto Press.
- ESHRE Campus Course Report, 2001. Prevention of twin pregnancies after IVF/ICSI by single embryo transfer. *Human reproduction*, 16 (4), 790–800.
- ESHRE Capri Workshop Group, 2000a. Optimal use of infertility diagnostic tests and treatments. *Human reproduction*, 15 (3), 723–732.
- ESHRE Capri Workshop Group, 2000b. Multiple gestation pregnancy. *Human reproduction*, 15 (7), 1856–1864.
- ESHRE Capri Workshop Group, 2007. Intracytoplasmic sperm injection (ICSI) in 2006: Evidence and evolution. *Human reproduction update*, 13 (6), 515–526.
- ESHRE Task Force on Ethics and Law, 2001. The cryopreservation of human embryos. *Human reproduction*, 16 (5), 1049–1050.
- Evans-Pritchard, E.E., 1979. Witchcraft explains unfortunate events. In: W.A. Lessa and E.Z. Vogt, eds. *Reader in comparative religion. An anthropological approach*. 4th ed. New York: Harper Collins Publishers, 362–366.
- Ettorre, E., 2007. Genomics, gender and genetic capital: The need for an embodied ethics of reproduction. *Advances in medical sociology: Bioethical issues, sociological perspectives*, 9, 245–261.
- Franklin, S., 1997. *Embodied progress: A cultural account of assisted conception*. London: Routledge.
- Garcia, J.L., 1995. *As mulheres telefonam às cegonhas: Família, procriação e bioética no espaço público* [Women call the storks: Family, procreation and bioethics in the public space]. Thesis (MA). ISCTE, Portugal.
- Gianaroli, L., et al., 2000. ESHRE guidelines for good practice in IVF laboratories. *Human reproduction*, 15 (10), 2241–2246.
- Giddens, A., 1991. *The consequences of modernity*. Cambridge: Polity Press.
- Gross, S.E. and Shupal, J.T., 2008. On knowing and believing: Prenatal genetic screening and resistance to ‘risk-medicine’. *Health, risk & society*, 10 (6), 549–564.
- Guest, G., Bunce, A., and Johnson, L., 2006. How many interviews are enough?: An experiment with data saturation and variability. *Field methods*, 18 (1), 59–82.
- Guillemin, M. and Gillam, L., 2004. Ethics, reflexivity, and ‘ethically important moments’ in research. *Qualitative inquiry*, 10 (2), 261–280.
- Halse, C. and Honey, A., 2007. Rethinking ethics review as institutional discourse. *Qualitative inquiry*, 13 (3), 336–352.
- Hardy, E. and Makuch, M., 2002. Gender, infertility and ART. In: E. Vayena, P.J. Rowe, and P.D. Griffin, eds. *Current practices and controversies in assisted reproduction*. Geneva: World Health Organization, 272–280.
- Inhorn, M. and Van Balen, F., eds., 2002. *Infertility around the globe: New thinking on childlessness, gender and reproductive technologies*. Berkeley: University of California Press.
- Jasanoff, S., 1997. *Science at the bar: Law, science and technology in America*. Cambridge: Harvard University Press.
- Kerr, A., Cunningham-Burley, S., and Tutton, R., 2007. Shifting subject positions: Experts and lay people in public dialogue. *Social studies of science*, 37 (3), 385–411.
- Khodyakov, D., 2007. Trust as a process: A three-dimensional approach. *Sociology*, 41 (1), 115–132.
- Lambert, R., 2002. The children of assisted reproduction confront the responsible conduct of assisted reproductive technologies. *Human reproduction*, 17 (12), 3011–3015.
- Land, J. and Evers, J., 2003. Risks and complications in assisted reproduction techniques: Report of an ESHRE consensus meeting. *Human reproduction*, 18 (2), 455–457.
- Land, J. and Evers, J., 2004. Defining outcome in ART: A Gordian knot of safety, efficacy and quality. *Human reproduction*, 19 (5), 1046–1048.
- Latour, B., 1999. *Pandora’s hope: Essays on the reality of science studies*. Cambridge: Harvard University Press.
- Liamputtong, P. and Ezzy, D., 2005. *Qualitative research methods*. South Melbourne: Oxford University Press.

- Lloyd, M., 1996. Condemned to be meaningful: Non-response in studies of men and infertility. *Sociology of health & illness*, 18 (4), 433–454.
- Machado, H. and Remoaldo, P., 2009. Incomplete women and strong men – accounts of infertility as a gendered construction of well-being. In: B. Harris, L. Galvez, and H. Machado, eds. *Gender and well-being in Europe: Historical and contemporary perspectives*. Aldershot and Hampshire: Ashgate Publishing, 223–242.
- May, C., 2007. The clinical encounter and the problem of context. *Sociology*, 41 (1), 29–45.
- Min, J.K., et al., 2004. What is the most relevant standard of success in assisted reproduction? The singleton, term gestation, live birth rate per cycle initiated: The BESST endpoint for assisted reproduction. *Human reproduction*, 19 (1), 3–7.
- Nargund, G., et al., 2007. The ISMAAR proposal on terminology for ovarian stimulation for IVF. *Human reproduction*, 22 (11), 2801–2804.
- Olivennes, F. and Frydman, R., 1998. Friendly IVF: The way of the future? *Human reproduction*, 13 (5), 1121–1124.
- Olshansky, E.F., 1996. Theoretical issues in building a grounded theory: Application of an example of a program of research on infertility. *Qualitative health research*, 6 (3), 394–405.
- Parry, D.C., 2004. Understanding women's lived experiences with infertility: Five short stories. *Qualitative inquiry*, 10 (6), 909–922.
- Pennings, G. and Ombelet, W., 2007. Coming soon to your clinic: Patient-friendly ART. *Human reproduction*, 22 (8), 2075–2079.
- Ploeg, I.V.D., 2004. 'Only angels can do without skin': On reproductive technology's hybrids and the politics of body boundaries. *Body & society*, 10 (2–3), 153–181.
- Rajkhowa, M., Mcconnell, A., and Thomas, G.E., 2006. Reasons for discontinuation of IVF treatment: A questionnaire study. *Human reproduction*, 21 (2), 358–363.
- Rose, N., 2006. *The politics of life itself: Biomedicine, power, and subjectivity in the twenty-first century*. Princeton: Princeton University Press.
- Ruhl, L., 1999. Liberal governance and prenatal care: Risk and regulation in pregnancy. *Economy and society*, 28 (1), 95–117.
- Saetnan, A.R., Oudshoorn, N., and Kirejczyk, M., eds., 2000. *Bodies of technology. Women's involvement with reproductive medicine*. Columbus: Ohio State University Press.
- Sandelowski, M., 1993. *With child in mind: Studies of the personal encounters with infertility*. Philadelphia: University of Philadelphia Press.
- Santos, B.S. and Nunes, J.A., 2006. *Reinventing democracy: Grassroots movements in Portugal*. London and New York: Routledge.
- Shaw, R., 2008. Rethinking reproductive gifts as body projects. *Sociology*, 42 (1), 11–28.
- Shildrick, M. and Mykitiuk, R., eds., 2005. *Ethics of the body: Postconventional challenges*. Cambridge: MIT Press.
- Silva, S., 2008a. *Médicos, juristas e 'leigos': Um estudo das representações sociais sobre a reprodução medicamente assistida* [Doctors, jurists and lay people: A study of the social images of the medically assisted reproduction]. Thesis (PhD). University of Porto, Portugal.
- Silva, S., 2008b. Consentir incertezas: o consentimento informado e a (des)regulação das tecnologias de reprodução assistida [Consenting to uncertainties: Informed consent and (de)regulation of assisted reproductive technologies]. *Cadernos de Saúde Pública*, 24 (3), 525–534.
- Silva, S. and Machado, H., 2008. The diagnosis of infertility: Patients' classification processes and feelings. *Medical sociology online*, 3 (1), 4–14. Available from: <http://www.medicalsociologyonline.org/archives/issue31/pdf/diagnosis.pdf> [Accessed 12 May 2009].
- Silva, S. and Machado, H., 2009a. Trust, morality and altruism in the donation of biological material – the case of Portugal. *New genetics and society*, 28 (2), 103–118.
- Silva, S. and Machado, H., 2009b. A compreensão jurídica, médica e 'leiga' do embrião em Portugal: um alinhamento com a biologia? [The juridical, medical and 'lay' understanding of embryo in Portugal: An alignment with biology?]. *Interface (Botucatu)*, 13 (30), 31–43. Available from: [http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S1414-32832009000300004&lng=pt&nrm=iso](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1414-32832009000300004&lng=pt&nrm=iso) [Accessed 30 October 2009].
- Soini, S., et al., 2006. The interface between assisted reproductive technologies and genetics: Technical, social, ethical and legal issues. *European journal of human genetics*, 14, 588–645.

- Strickler, J., 1992. The new reproductive technology: Problem or solution? *Sociology of health & illness*, 14 (1), 111–132.
- Takefman, J.E., 2006. Ending treatment. In: S.N. Covington and L.H. Griffin, eds. *Infertility counseling: A comprehensive handbook for clinicians*. 2nd ed. New York: Cambridge University Press, 429–439.
- Thompson, C., 2005. *Making parents: The ontological choreography of reproductive technologies*. Cambridge: The MIT Press.
- Throsby, K., 2004. *When IVF fails: Feminism, infertility and the negotiation of normality*. Basingstoke: Palgrave Macmillan.
- Thorsby, K. and Gill, R., 2004. 'It's different for men'. Masculinity and IVF. *Men and masculinities*, 6 (4), 330–348.
- Vayena, E., Rowe, P.J., and Griffin, P.D., eds., 2002. *Current practices and controversies in assisted reproduction*. Geneva: World Health Organization.
- Verberg, M.F.G., et al., 2008. Why do couples drop-out from IVF treatment? A prospective cohort study. *Human reproduction*, 23 (9), 2050–2055.
- Webb, R. and Daniluk, J., 1999. The end of the line: Infertile men's experiences of being unable to produce a child. *Men and masculinities*, 2 (1), 6–25.
- Webster, A., 2002. Innovative health technologies and the social: Redefining health, medicine and the body. *Current sociology*, 50 (3), 443–457.
- Weir, L., 1996. Recent developments in the government of pregnancy. *Economy and society*, 25 (3), 373–392.
- Zinn, J.O., 2008. Heading into the unknown: Everyday strategies for managing risk and uncertainty. *Health, risk & society*, 10 (5), 439–450.