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Abstract

Infertility affects 9% of the worldwide childbearing population and is defined by the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse. Most infertile individuals and/or couples show resilience throughout their infertility and treatment experience. However, around one-fifth of individuals who use fertility treatment develop clinically significant emotional problems. Only these patients will need specialized psychological care but all patients can benefit from the integration of general psychosocial support in the routine fertility care they receive at clinics.

Keywords

AU2 Assisted reproductive technologies; Childbearing; Fertility awareness; Fertility treatment; Illness experience; Infertility; *In vitro* fertilization; Parenthood; Psychological distress; Psychological interventions; Psychosocial support; Treatment compliance.

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Biographical Sketch



Dr. Sofia Gameiro (UK) is a mathematician and licensed clinical psychologist. She is a lecturer at the School of Psychology, Cardiff University. She conducted her doctoral studies at the University of Coimbra (Portugal), where she investigated how parents adjust to the birth of an ART conceived child. More recently her research has focused on 'reproductive decision-making,' in particular regarding compliance in fertility treatment. Sofia Gameiro is the chair of the International Committee for the Development of the New Guidelines for Infertility and Counseling in Europe of the European Society for Human Reproduction and Embryology (ESHRE). She is also a member of the Coordination Board of the Special Interest Group in Psychology & Counseling of ESHRE. She has been publishing regularly about the psychosocial issues of infertility in psychological and medical journals.

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Infertility

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Glossary

Assisted reproductive technologies (ART) All treatments or procedures that include the *in vitro* handling of both human oocytes and sperm or of embryos for the purpose of establishing a pregnancy. These include, but are not limited to, *in vitro* fertilization, intracytoplasmic sperm injection, embryo transfer, gamete intrafallopian transfer, gamete and embryo cryopreservation, oocyte and embryo donation, and gestational surrogacy. ART does not include artificial

insemination using sperm from either a woman's partner or a sperm donor.

Infertility Disease of the reproductive system clinically defined by the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse.

Medically assisted reproduction Reproduction brought about through ovulation induction; controlled ovarian stimulation; ovulation triggering; ART procedures; and intrauterine, intracervical, and intravaginal insemination with semen of husband/partner or donor.

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Infertility: Definitions and Prevalence

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Infertility is a disease of the reproductive system clinically defined by the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse (Zegers-Hochschild *et al.*, 2009). A 12-month interval without pregnancy is considered adequate because about 80% of couples having regular unprotected sexual intercourse manage to conceive during this period (Zhao *et al.*, 2010). However, because age is the factor that most negatively affects female fertility, some authors consider that for women below 35 years of age, this period should be shorter (Maheshwari *et al.*, 2008). Other authors argue that 6 months should be the threshold for timing the first infertility investigation because it can be assumed that half of the couples that did not manage to conceive in this period will be diagnosed with infertility and an earlier assessment may maximize their changes of achieving parenthood through treatment (Gnoth *et al.*, 2003).

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Infertility can be primary, when the couple has no history of previous conception, or secondary, when couples had at least one biological child before. The causes of infertility can be divided into three broad categories, female factor (about 40%), male factor (about 40%), and a combination of male and female factors, usually denominated as mixed infertility (about 10%) (American Fertility Association (AFA), 2009). Around 10% of infertility diagnoses remain unexplained. The major causes for female infertility include failure to ovulate, obstruction, or damage of the fallopian tubes and the surrounding structures of the pelvic peritoneum (mostly due to sexually transmitted diseases, pelvic surgery, or endometriosis), defects in the shape of the uterine cavity that may interfere with the implantation of the embryo, and immunological barriers to fertilization or implantation. The major cause for male infertility is failure to deliver an adequate number of healthy sperm to the fallopian tubes, which mostly results either from the incapacity of the male to produce healthy sperm or from low concentration or mobility of produced spermatozooids in the sperm. Poor timing or technique of intercourse or a combination of these previously cited

factors may also occur, accounting for mixed infertility (Mcshane, 1997).

From an anthropological and sociological perspective, infertility is a process that only begins when a couple starts to determine its inability to have children as a problem. It is, therefore, the perceived absence of the intended conception rather than the presence of clinically recognized symptoms that underlies this definition of infertility (Greil and Mcquillan, 2010). This concept is important because it influences the timing of and the course of actions couples may take to fulfill their parenthood goals.

The worldwide prevalence of current infertility was estimated to be 9%. This is, to our knowledge, the most recent estimate of the prevalence of infertility and was based on all population surveys of current infertility published since 1990, sampling 170 000 women (Boivin *et al.*, 2007). This means that throughout the world, about 72.4 million women (aged 20–44 in married and consensual unions) are currently infertile. This estimate also showed that the prevalence of infertility is similar in well- and less-well-developed countries.

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Psychosocial Issues Associated with the Experience of Infertility

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In the first World Disability Survey, the World Health Organization (WHO) ranked infertility as fifth in the list of moderate to severe disabilities within the global population under the age of 60 (World Health Organization and The World Bank, 2011). This means that infertility is considered to be the fifth health condition that most hinders the effective participation of infertile individuals in society on an equal basis with other individuals. This is not considered to be the direct consequence of infertility in itself but of how infertile individuals interact with attitudinal and environmental barriers within their social environment.

Indeed, parenthood is one of the most universally desired goals in adulthood for both women and men, and most people plan to have children at some point in their lives (Lampic *et al.*, 2006). Infertility is an unexpected event in the

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AU10 lives of individuals and/or couples that constitutes an obstacle to the realization of their parenthood goals. Consequently, it has implications at the individual, relational and social levels: at the individual level because it involves an inability to achieve an important life goal and desired social role and is therefore likely to be associated with psychological distress; at the relational level because parenthood goals are usually defined in the context of a couple relationship and couples have to cope with the problem together; and at the social level because individuals' parenthood goals are usually shaped by social norms and their realization is often subjected to strong social expectations (Cassidy and Sintrovani, 2008; Dyer *et al.*, 2008; Newton *et al.*, 1992; van Balen, 2008).

s0025 **The Impact of Infertility on the Couple**

p0060 The impact of infertility can be conceptualized in different ways. We may be interested in knowing if infertility results in significant impairment for individuals and couples, or in other words, if its impact is clinically significant. Alternatively, one may be interested in acquiring a detailed view of the meanings women and men attribute to their experience of infertility (Inhorn and Birenbeum-Carmeli, 2008).

p0065 Answering the first question implies that a causal relation is established between being infertile and the observed impairment, usually measured using quantitative techniques. This has proved to be difficult because, due to practical reasons, most studies focus on couples who are already within the medical healthcare system, making it impossible to disentangle the impact of the condition from the burden of the associated treatment (Greil, 1997). In addition, the infertile population cannot be reduced to the group of people who seek medical help as these constitute about half (or less) of this population (Greil and Mcquillan, 2004; Boivin *et al.*, 2007).

p0070 However, during the new millennium, important new studies emerged using nonclinic-based samples which have been allowing researchers to reach more definitive conclusions (Mcquillan *et al.*, 2003; King, 2003). Overall, this research portrays infertile individuals and couples as generally well adjusted and fertility treatment as a challenging situation but with which most couples are able to cope. More specifically, infertile individuals are not more depressed than individuals from the general population. They are slightly more anxious than individuals from the general population but still less anxious than mentally ill individuals (Greil, 1997; Wright *et al.*, 1991; Morrow *et al.*, 1995; Chachamovich *et al.*, 2009; Cousineau and Domar, 2007). This implies that the impact of infertility is not clinically significant or, in other words, that infertile patients do not constitute a psychiatric population.

p0075 Still, health is more than the absence of disease, and studies evaluating the quality of life of infertile couples have been unanimous in showing a negative impact of infertility, this being stronger for women than men. Different dimensions of functioning seem to be affected, including emotional, physical, and social functioning (Drosdzol and Skrzypulec, 2008; Monga *et al.*, 2004; Chachamovich *et al.*, 2009).

p0080 Some researchers claim that it is the self-identification as infertile, usually associated with seeking medical healthcare

and subsequently confirming the infertility diagnosis, that creates stress in individuals (Jacob *et al.*, 2007). Indeed, emotional reactions such as shock, surprise, and denial are often described in couples who are faced with an infertility diagnosis. These may fade as time since the diagnosis passes (Dunkel-Schetter and Lobel, 1991).

Infertility is often diagnosed in the context of a couple's relationship. Therefore, an individual may be diagnosed as infertile without knowing the physiological problem that is causing the infertility. In addition, parenthood goals are also usually defined in the context of couple relationships and it is therefore expectable that the marital relationship may be affected by the infertility problem. Research findings on this topic are not consistent. Studies that compared infertile couples with presumed fertile couples or couples who do not wish children showed that infertile couples reported worse relational adjustment (Monga *et al.*, 2004; Wang *et al.*, 2007). However, many studies conducted with couples undergoing fertility treatment showed that their marital relationship does not seem to be affected by the infertility condition (Abbey *et al.*, 1995; Sydsjö *et al.*, 2005; Slade *et al.*, 1997). A few studies even showed that many couples perceived their relationship to be strengthened by the infertility experience and associated treatments (Peterson *et al.*, 2011; Schmidt *et al.*, 2005). Because of the different patient populations considered, it is difficult to reach definitive conclusions, but overall, the data seem to suggest that some couples cannot overcome the challenge of infertility and these are more likely not to embark on fertility treatment. Indeed, research shows that marital and relational problems are one of the main reasons why couples do not initiate treatment (Gameiro *et al.*, 2012). Those who do start treatment may have a resilient partnership that is strengthened even more by their infertility and treatment experience.

Understanding the meaning attributed to infertility requires a more anthropological approach using qualitative research techniques. Some common themes highlighted by this descriptive literature were: negative identity; a sense of worthlessness and inadequacy; a feeling of lack of personal control; anger, resentment, and grief; anxiety and stress; envy of other mothers and isolation from 'the fertile world'; loss of the dream of cocreating (Ulrich and Weatherall, 2000); and the feeling that time is 'slipping away' (Martin-Matthews and Matthews, 2001).

In sum, although infertile patients do not constitute a psychiatric population, infertility does cause a significant level of impairment that is better captured by phenomenological methodologies and positive measures of well-being such as quality of life.

The Importance of the Sociocultural Context in the Experience of Infertility

Both the medical and sociological literature within the field are increasingly emphasizing the importance of the sociocultural context in shaping the lived experience of infertility. Two important factors play a role. The first one is how pro-natalistic countries are and the degree to which they emphasize the parenthood/motherhood role as crucial to couples'/women's

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identity. The second is the degree of availability of reproductive technology and the ease of access to it (Kirkman and Rosenthal, 1999).

p0105 Clearly, this points for a divide in how infertility is experienced in more and less developed countries (Greil *et al.*, 2010). While in more developed societies voluntary childlessness is viewed as an acceptable and viable life choice, in less developed countries, where parenthood is more intimately linked to marriage, voluntary childlessness is less likely to be accepted. In these countries it is more difficult to hide infertility and the stigma experienced tends to be greater (Dyer *et al.*, 2005). Van Balen (2008) described several consequences of involuntary childlessness in developing countries: at the individual and social level, grief and sadness, social isolation, lack of social support, stigma, and restricted rights; at the legal level, restriction of freedom and heritage rights; and at the economic level, poverty. It should be noted, however, that the influence of the sociocultural context on the experience of infertility can also be observed in more developed countries. For instance, Moura-Ramos *et al.* (2012) reported that individuals with lower socioeconomic status and/or residing in rural areas of Portugal experience more infertility-related distress because they attribute more importance to parenthood. They also observed that this was more likely to happen for women than for men.

p0110 The availability of modern treatment opportunities is also lower in developing countries than in the developed world. High-tech treatment for infertility, like *in vitro* fertilization (IVF) and intracytoplasmic sperm injection (ICSI), is many times simply not available. When it is available, it is usually only in capital cities; there are long waiting periods to access it and it is very expensive (Dyer *et al.*, 2002; Sundby *et al.*, 1998; Widge, 2005). Because people are also more likely to believe in traditional explanations for infertility (including witchcraft), many use traditional healing methods, which are more easily available although not always cheap and usually not effective (Okonofua, 1996; van Balen and Gerrits, 2001). Access to medical treatment can also be harder because of the stigma associated with infertility and male reluctance to seek treatment (van Balen, 2008). Overall, access to and delivery of infertility treatment appear to be shaped by sociocultural context (Greil *et al.*, 2010).

s0035 **The Importance of Seeking Medical Treatment on Time**

p0115 For infertile couples who wish to become parents, timely healthcare seeking is of paramount importance because of the negative impact of age on women's fertility potential. However, and despite the fact that most people want to have children and prefer the medical option over other alternatives (e.g., adoption and fostering) to do so (Verdurmen *et al.*, 1995; van Balen *et al.*, 1997), less than 55% of subfecund women actually seek medical advice and/or treatment (Boivin *et al.*, 2007). In addition, from these, around 20% wait more than 2 years to seek it (Boivin *et al.*, 2007). Different factors can explain the absence or delay in medical help seeking, from which we highlight three. First, lack of knowledge and awareness about fertility issues can contribute to absence or delays in medical help seeking (Bunting *et al.*, 2013). Second, fear,

embarrassment, or denial of a possible infertility diagnosis can also explain these delays (Ristvedt and Trinkaus, 2005). Finally, difficulties in accessing treatment, such as lack of adequate referrals for specialized medical care may also interfere with help seeking (Gunnell and Ewings, 1994).

Several initiatives have been recently proposed to empower people to better optimize their fertility health and be more likely to reach their parenthood goals. The best way to achieve this is probably via educational campaigns that promote informed decision-making about fertility health issues for individuals and compliance with fertility guidelines for medical professionals. These initiatives cover better sexual education for children; family planning for young adults that involves value and preference clarification about parenthood goals; public health campaigns to increase awareness of the risk factors associated with reduced fertility; investigation of adherence to fertility guidelines within the medical profession; and clearer information about the benefits and limitations of available fertility treatment (Boivin *et al.*, 2013).

Psychosocial Issues Associated with Fertility Treatment

For patients who seek medical healthcare and undergo fertility treatment, chances of achieving parenthood can be as high as 69% (Pinborg *et al.*, 2009). However, fertility treatments, in particular assisted reproductive technologies (ART) such as IVF and ICSI, are challenging for couples. A cycle of ICV/ICSI typically requires 9–12 days of self injection with fertility drugs to stimulate the production of oocytes, their retrieval via transvaginal ultrasonography and fertilization in the laboratory with partner or donor sperm, and transfer of the resulting embryo to the uterus. Couples then wait two weeks to find out if a pregnancy occurred. ART treatments are clearly demanding because they require invasive complicated medical procedures (e.g., sperm collections through masturbation and injections) that have physical and psychological side effects (e.g., nausea and depressive symptoms). They demand several visits to the clinics that interfere with couples' daily routines and can cause emotional uncertainty because success is not guaranteed (Cousineau and Domar, 2007). If pregnancy is not achieved, couples have to decide whether to do another ART cycle. This is a complex decision for patients and doctors (Gameiro *et al.*, 2013c).

Extensive research has been conducted to understand how couples experience and are affected by the different types of fertility treatment they may choose to undergo. Current knowledge about the impact of fertility treatment on individuals and couples is quite consistent.

Impact of Infertility Treatment on the Couple

Patients starting fertility treatment are generally well adjusted. Their anxiety, depression, and marital satisfaction levels are similar to the general population. Increased worries and anxiety related with the medical procedures can be observed, but generally, couples feel positive and optimistic about treatment (Mahajan *et al.*, 2009; Karatas *et al.*, 2011; Beerendonk *et al.*,

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1999; Verhaak *et al.*, 2005a, 2007a, 2001). These emotions tend to remain stable during the active phase of treatment, that is, while couples are occupied with the ovarian stimulation. The oocyte collection and embryo transfer (ET) stages are critical stages for a positive closure of treatment and couples anticipate these moments with increased anxiety and slight decreases of optimism, although they also experience their relationship as more intimate (Knoll *et al.*, 2009; de Klerk *et al.*, 2006; Boivin and Lancaster, 2010). After ET, couples have to wait for two weeks to know the outcome of treatment. Couples report that these two weeks are the most demanding stage of treatment, as they become increasingly anxious and less optimistic about the possibility of achieving the so desired pregnancy (Boivin *et al.*, 1998; de Klerk *et al.*, 2006). After being informed about the outcome of treatment, anxiety falls to normative values, but those couples that receive a notice of failure react with grief and depressive symptoms. In about 20% of patients, these reactions reach clinical significance and can last for periods as long as six months (Verhaak *et al.*, 2007a; Chiaffarino *et al.*, 2011; Lukse and Vacc, 1999; Berghuis and Stanton, 2002). Women and men react in a similar way across these different stages of treatment described, but women's reactions tend to be stronger than their partners'. Besides being slightly more distressed than their partners, they also experience higher physical fatigue during the more intrusive stages of treatment and they perceive less intimacy and lack of support from their partner during the waiting period (Boivin *et al.*, 1998; Boivin and Takefman, 1996).

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Overall, most couples are able to cope with the challenges of treatment, but a significant percentage develop emotional problems that need to be prevented or addressed (Verhaak *et al.*, 2010). Several studies have investigated risk factors for poor adjustment during treatment. As expected, those patients who enter treatment already distressed are more likely to experience emotional problems, such as those who do not perceive adequate social support or find it hard to talk about fertility issues with their partner. Patients who attribute high importance to parenthood, are not able to envision a life without children, and perceive lack of control over their treatment are also more likely to develop emotional problems after a failed cycle (Verhaak *et al.*, 2005b, 2007a, 2010).

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Stress and Treatment Outcome

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Influenced by the psychoanalytic perspective, the first models of the psychology of infertility suggested that when no physiological causes could be detected for an infertility problem, a psychogenic etiology could be concluded (Deutsch, 1945). As modern diagnosis techniques developed and more cases of infertility could be diagnosed, this model fell out of favor within the field. In addition, no consistent empirical evidence was found to show that couples with unexplained infertility were psychologically different from couples with other types of infertility (Wischmann, 2003).

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The psychogenic model of infertility, however, originated many persistent myths within the field, such as that of spontaneous conception being easier if couples relax ('go on a holiday and you'll get pregnant') or don't think about it ('many couples become pregnant when they give up treatment

and/or decide to adopt') (Wischmann, 2003; Boivin *et al.*, 2011). These myths make the treatment experience even harder for couples who feel they have to remain calm throughout the treatment process, otherwise they may compromise their treatment outcome.

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Extensive research has been conducted to clarify the possible link between stress and treatment outcome, mostly with inconclusive results that may be due to methodological issues such as how and when stress was measured, how treatment outcome was defined (e.g., pregnancy vs. live birth), or the number of cycles considered (single vs. three consecutive cycles). A recent systematic review and meta-analysis conducted with fourteen studies with 3583 infertile women showed that stress measured before the start of treatment was not associated with the outcome of a single cycle of IVF treatment (Boivin *et al.*, 2011). In addition, an extensive critical appraisal of the psychogenic model of infertility also noted that pregnancy rates after treatment and/or the adoption process are very low and clearly lower than those of couples who continue treatment (Wischmann, 2003).

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As the authors of the meta-analysis suggested, these results should reassure patients that emotional distress caused by their fertility problems or other life events that may co-occur with treatment will not compromise their chance of becoming pregnant. However, both patients and physicians should be aware that stress may still affect the outcome of treatment via its indirect link with patient behavior, such as negative lifestyles that are known to affect fertility (e.g., smoking and alcohol consumption) or compliance with treatment. The authors also noted that, even if we end up having definitive evidence that stress does not affect the outcome of treatment, it does not mean that it should not be addressed, as high quality of care should promote patients' quality of life during treatment (Boivin *et al.*, 2011).

Compliance with Fertility Treatment

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In the last three decades, increasing attention has been paid to patient compliance with treatment, which has now, as in other health areas, been recognized as an issue of paramount importance for infertile patients and fertility clinics. Compliance refers to "the extent to which a person's behavior follows medical advice or corresponds with recommendations from the health care provider..." (WHO, 2003). In fertility treatment, this means doing all treatment recommended or stopping treatment when advised to do so by the clinician (Gameiro *et al.*, 2013c).

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Despite initial alarming reports of very low compliance with fertility treatment, it is now known that compliance with less intrusive non-ART treatments (e.g., intrauterine) and ART is actually quite high. Indeed, 76% and 78% of patients will complete their non-ART and ART treatment program (usually composed of three successive cycles), respectively, until they achieve pregnancy or are advised to end treatment (Gameiro *et al.*, 2013c; Brandes *et al.*, 2009).

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From the patient perspective, compliance is important because it increases patients' chances of realizing their parenthood goals. Indeed, it was estimated that patients who comply with three cycles of ART treatment have a 15% higher chance

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of achieving pregnancy than patients who start but discontinue treatment (Gameiro *et al.*, 2013c). Compliance is also important for clinics because it increases their success rates. In addition, if clinics could ensure full compliance from their patients (i.e., all patients complied with three ART cycles), they would carry out an additional 110 cycles per year (based on current available data on ART cycles performed in Europe), increasing the total number of cycles done per year (Gameiro *et al.*, 2013c).

p0180 Because of the impact of compliance on treatment success rates, many researchers have tried to understand why patients discontinue treatment prematurely. Results suggest that they do so because of issues such as 'stress,' 'psychological reasons,' 'emotional distress,' 'inability to cope with more treatment,' 'poor tolerance to physical side of treatment,' 'physical discomfort,' or 'financial concerns' (Meynol *et al.*, 1997; Goldfarb *et al.*, 1997; Hammarberg *et al.*, 2001; Smeenk *et al.*, 2004), which indicates that the burdens of treatment (emotional, physical, and financial) may be too high for patients (Gameiro *et al.*, 2012). Discontinuation can thus be perceived as reflecting the (negative) treatment experience of patients or their inability to cope with a too demanding treatment. This body of literature also showed that patients discontinue because they are dissatisfied with the care they receive at fertility clinics. For instance, they report 'insufficient or poorly formulated explanations about healthcare or fertility problem' or 'poor management of psychological aspects' as reasons for discontinuing (Meynol *et al.*, 1997).

p0185 It was also observed that the reasons patients stated for not complying with treatment vary across the stages of treatment, from the moment they enter the clinic for a clinical assessment and across their treatment pathway. During earlier stages of treatment, patients are more likely to not comply due to relational problems and refusal of treatment (possibly due to ethical reasons or concerns about treatment). During more advanced stages, they are more likely to not comply due to the psychological and physical burden of treatment. It was also observed that many patients postpone treatment for more than 1 year (Gameiro *et al.*, 2012). This is equally problematic because age is the factor that most affects a woman's fertility potential.

p0190 Overall, the body of research on compliance with fertility treatment indicates that more effort needs to be put into making ART treatment less burdensome for patients and that this is important to achieve higher quality of care, promote patient quality of life during treatment, and higher efficiency in treatment (Boivin *et al.*, 2012; Pedro *et al.*, 2013). Compliance research is also putting the spotlight on those patients who are not achieving and/or will not achieve pregnancy through treatment, therefore, leading practitioners to consider their responsibilities toward these patients. Because of these reasons, compliance is now considered an important outcome to monitor in fertility care.

s0060 **Adjustment after Fertility Treatment**

p0195 Around two-thirds of patients that undergo fertility treatment achieve pregnancy (Pinborg *et al.*, 2009). These couples will then have to face a new, maybe greater challenge in their lives:

parenthood. ART techniques have allowed for the emergence of new forms of families that were not even considered possible half a century ago. The techniques themselves have also made conception so detached from the natural process that it was considered necessary to assess how all these families were adjusting, namely, if children conceived with these techniques presented normative physical, cognitive, emotional, and social development, and if parent-child relationships were similar to those of families conceived spontaneously.

Overall, results show that most couples that conceive with fertility treatment adjust to the birth of their children and relate with them in a similar way as couples who conceive spontaneously (Gameiro *et al.*, 2010, 2011; Golombok *et al.*, 1996; Hammarberg *et al.*, 2008). Child development also seems to be within the range observed in children conceived spontaneously. There are now follow ups of young adults conceived with ART and these are equally reassuring. When differences were found, these seemed to be minor or not directly related to the method of conception. For instance, increased problems during pregnancy and birth were observed in families conceiving with ART but this was mostly related to the higher number of multiple pregnancies observed in this population. With reduction of the number of embryos transferred, this problem can be avoided. Because of these observed increased perinatal risks, women have increased concerns with their health and the health of their fetus during pregnancy. Previously infertile mothers take longer to embrace the motherhood identity (Gibson *et al.*, 2000; McMahon *et al.*, 1999). There is, however, no evidence of problematic parental behavior and marital or psychological problems (Hammarberg *et al.*, 2008). In sum, despite minor variations, overall there is now a sense of confidence in that the method of conception per se is not a determinant of the future development and health of families and the quality of parent-child relationships.

The remaining one-third of patients who undergo fertility treatment will not realize their parenthood goals and increasing attention has been paid to how couples adjust to the prospect of definitive childlessness. Researchers have compared these couples to couples with children. They found that adjustment increases after the treatment period and ultimately is within norms (Daniluk, 2001; Verhaak *et al.*, 2007b). However, childless women report less favorable mental health than women with children and have increased risk for hospitalization due to mental health disorders (Mindes *et al.*, 2003; Verhaak *et al.*, 2007b; Yli-Kuha *et al.*, 2010). Most couples' marital relationship does not seem to be affected either in the short or long term (Sydsjö *et al.*, 2005; Schmidt *et al.*, 2005), which is consistent with the notion that these are resilient couples that experienced many challenges together.

However, a few researchers hypothesized that it is not parenthood status per se but the ability of couples to come to terms with their unmet child wish that determines adjustment. Preliminary evidence for this was obtained in studies that showed that childless women and couples who are unable to accept their childlessness have more adjustment problems than those who manage to refocus their life on other goals than parenthood (van Balen and Trimbos-Kemper, 1994; Verhaak *et al.*, 2007b). More recently it was also found that this holds true regardless of whether couples have children or

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not. Women can already have children but if they still wish for more children, they are more likely to report worse mental health than women with or without children who no longer wish for (more) children (Gameiro *et al.*, 2013b). The major implication of these findings is that it is crucial for couples to be able to reach closure in their treatment process, independently of the outcome. In more general terms, some couples may need support to come to terms with unmet parenthood goals.

s0065 **Psychological Interventions for Infertile Couples**

p0215 Extensive research has been conducted to study infertile individuals, with the goal of assessing the need for psychological counseling, designing, and validating interventions and, in more general terms, improving service delivery. What are the implications of the knowledge produced for mental health professionals working in the field?

p0220 It is now understood that most patients are able to adapt to and cope with the multiple demands of fertility treatment and, therefore, that developing psychological interventions for all patients is neither useful nor cost-effective. Instead, the strategy should be to identify the 20% of couples that are likely to develop emotional problems during or after treatment. This should be done via pretreatment screening so that psychological care can be provided in advance and be targeted to each patient's risk profile (Verhaak *et al.*, 2010).

p0225 It is also clear that the distress patients may experience during treatment will not affect their chances of achieving parenthood. Professionals need to be aware of this and reassure their patients that their emotions will not interfere with the treatment outcome. This is important because otherwise the fertility clinic staff may implicitly attribute the responsibility of failure to patients or patients may blame themselves.

p0230 However, if patient distress does not affect the outcome of one cycle of treatment, it may still compromise treatment outcome by affecting patient compliance during the multiple cycles of treatment needed to optimize the chances of achieving parenthood. Compliance research has shown that patients do not comply with treatment because of a different array of factors that may be attributed to the patient him or herself, but also to the medical procedures and the clinic and staff. Therefore, addressing patient vulnerability may not be enough in the absence of efforts to make treatments less onerous to patients. In addition, most patients agree that specific stages of treatment are particularly demanding and that specific components of infertility care are problematic (e.g., information provision) (Dancet *et al.*, 2010).

p0235 Therefore, the most recent approaches to psychosocial care delivery have advocated for an integrated model of fertility care. This model advocates the need to identify all possible causes of burden across patient, treatment, and clinic domains and develop tailored interventions (to specific needs or stages of treatment) that can be easily integrated into routine care and implemented by fertility clinic staff (e.g., nurses, doctors, embryologists, and administrators) to optimize the treatment experience (Boivin *et al.*, 2012).

p0240 The implications for mental health professionals and other fertility staff are significant. On the one hand, mental health

professionals will have to diversify from the standard one-to-one format of interventions to consider the development of simple interventions that address these specific needs or stages of treatment and can be delivered with minimal training, effort, and time (Boivin *et al.*, 2012; Gameiro *et al.*, 2013a). A good example of an intervention that is tailored to patient needs is the Infertility Source (Cousineau *et al.*, 2008). In this web-based intervention, women are first asked about the areas related to their fertility problems and treatment which they feel less able to deal with. Then, the intervention provides content in accordance with each woman's reported difficulties. A good example of an intervention that is tailored to treatment stage is the positive reappraisal coping intervention (Lancastle and Boivin, 2008). This intervention consists of a pocket-sized card that presents patients with a set of sentences that were based on validated theoretical principles and designed to prompt women to think about positive aspects of their situation. The intervention should be used during the two-week period when women are waiting to know the result of treatment and its aim is to decrease anxiety and maintain optimism about the treatment outcome. However, the fertility staff needs to acknowledge that they are also responsible for patient well-being during treatment and that psychosocial care should be another component of the care they deliver (Boivin *et al.*, 2012; Gameiro *et al.*, 2013a). The European Society for Human Reproduction and Embryology (ESHRE) (2013) is currently developing the first evidence-based guidelines for infertility care. These guidelines will provide best practice advice on how to incorporate psychosocial care into routine infertility care and are therefore expected to clarify what are the fertility staff responsibilities in this domain. Finally, fertility managers need to consider which organizational issues may be making treatment more onerous for patients or are not respectful of their preferences and/or values. For instance, an issue frequently mentioned by patients that clearly needs to be improved at fertility clinics is the lack of clear, detailed, and personalized information about the treatment process (Dancet *et al.*, 2010).

Overall, it is accepted that the delivery of high-quality fertility care (for patients and staff alike) is only possible by targeting all factors that influence how patients experience treatment and through interdisciplinary work between physicians, nurses, psychologists, and/or counselors.

Conclusions

Infertility is clinically defined by the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse. It affects 9% of the worldwide childbearing population. Although its prevalence is similar in more and less developed countries, how infertility is experienced and how treatment is accessed and delivered are strongly shaped by the surrounding sociocultural context, with the scenario being less favorable in less developed countries.

Overall, most individuals and/or couples show resilience throughout their infertility experience and treatment pathway. Nonetheless, around one-fifth of individuals that undergo treatment are at risk for developing clinically significant emotional problems. The factors that confer risk for emotional

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distress were identified and these include previous psychological vulnerability, lack of social support, and/or communication problems, and cognitions and/or representations of parenthood as being central to one's life.

p0260 Only the more distressed patients will need specialized psychosocial support but all patients can benefit from general psychosocial support that is integrated into the routine fertility care that they receive at clinics. Such care should not focus only on adapting the patient to the treatment process but also on adapting the medical treatment and the clinic organization to patients' needs and preferences. In addition, this care should not focus only on the treatment period, but needs to extend to consider interventions, measures, and initiatives that promote timely healthcare seeking and adequate referral by medical professionals before treatment as well as positive adjustment to unmet parenthood goals after treatment (Gameiro *et al.*, 2013a,b,c).

AU12

See also: Adjustment and Mood Disorders Related to Medical Disease and Treatment (00135). Depression (00084). Disability and Mental Health (00236). Evidence-Based Practice (00023). Humor and Mental Health (00044). Marriage, Romantic Relationships and Mental Health (00074). Medical Regimen Adherence (00031). Psychotherapy (00034). Stress (00051)

AU13

Uncited Reference

Hammer Burns and Covington (2006)

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