

# Psychosocial aspects of infertile couples

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## Summary

Louise Brown was born thirty years ago as the world's first "test-tube" baby. Numerous speculations and concerns were linked to this event, some of them related to the psychosocial aspects of infertility and of assisted reproduction. The last few years have brought huge advances in the understanding of the psychosocial aspects of infertility. This review begins with a presentation of the important demographic and medical preconditions involved. This is followed by an overview of the psychosocial features that are typical of infertile couples and a discussion of the connections between distress and infertility. The psychological effects of reproductive medical treatment are described, and the long-term impact of involuntary childlessness is outlined. The basic principles, aims, and effects of counseling and psychotherapy of infertile couples are set out in detail, together with the urgent requirements regarding future research in this field, after thirty years of in vitro fertilisation.

## Louise Brown has reached the age of 30

Louise Brown was born in England in July 1978, as the first human being worldwide to be conceived outside the maternal body. The short article on the event, published in *The Lancet* (Steptoe and Edwards 1978), is still one of the most-cited scientific articles. The event, regarded as a medical sensation, led to many ethical and psychological, sometimes very heated, discussions. Reporting on the event, the news magazine "Der Spiegel" published an article titled "A step towards the homunculus" (Der Spiegel 1978). For example, the following query was raised: should artificial insemination, "this perversion of the act of conception", be left in the hands of "the unholy alliance of parents unsuited to bring up children and gynecologists obsessed by the ideology of 'do-ability' and competitiveness"? (Speidel 1989, p. 121). Now, after 30 years of "artificial" insemination, the results of scientific studies on the psychosocial aspects of involuntary childlessness and assisted reproductive technology (ART) are presented in this overview article.

## Prevalence of involuntary childlessness

According to the definition of the WHO (Vayena et al. 2002), couples who do not conceive within one year, although they have regular unprotected sexual intercourse, are regarded as being involuntarily childless. It is difficult to estimate how many couples are currently affected in Germany; it is assumed that the figure is between 0.5-1.5 million couples, i.e. 3-9% of all couples that desire a child (Boivin et al. 2007; Gnath et al. 2005). In terms of lifetime prevalence, every third to fourth woman has a one-year wait before conceiving (McQuillan et al. 2003; Schmidt 2006), whereas these women do not necessarily regard themselves as being involuntarily childless due to this. At present, it is not possible to provide precise data on the prevalence of involuntary childlessness. This is due firstly, to the fact that desired childlessness often passes over into involuntary childlessness, and secondly, because it is not clear how to assess couples in which the partner that wishes to have a child must wait for the other partner, who, (as yet) does not wish to have a child. It is assumed that involuntary childlessness will increase in Germany. This is mainly due to the continual increase in the average age of first-time mothers. In the old federal states, the average age is over 30, while 30 years ago the average age was 25, and in the former German Federal Republic it was 22 (BiB – Federal Institute for Population Research 2005). Risk factors that influence involuntary childlessness are also increasing, particularly the increase in chlamydia infections and overweight in young girls (Wischmann 2006c), as well as, to a lesser extent, an increase in testicular cancer in men (Purdue et al. 2005). It is expected that more and more children will be born after reproductive medical treatment, not only due to the increase in fertility disorders but also due to the growing spread of techniques of assisted reproduction. Within a period of ten years (1997-2006), over 104 000 children were born following ART (DIR 2007); now a proportion of 1.6% of all births in Germany (Nyboe Andersen et al. 2008), i.e. every 60<sup>th</sup> birth results from ART.

## Assisted reproductive technologies

The article by Jantke (2005) provides an overview of diagnosis and treatment of involuntary childlessness, including the use of reproductive medical measures. The techniques of assisted reproduction, in the narrower sense, include intrauterine insemination (IUI) following hormonal stimulation of the woman, in vitro fertilization (IVF) as the "classical" procedure, and intracytoplasmic sperm injection (ICSI), the latest development among these techniques. Von Otte (2007) describes new developments in reproductive medicine. Their use is legally regulated by the Embryo Protection Law (ESchG 1990) and is governed by the rules of conduct laid out in the medical guideline (BÄK 2006). These regulations are inadequate with regard to donor insemination, i.e. treatment with sperm from a donor (Thorn and Wischmann 2008a, 2008b), particularly with respect to the rights of the child to learn of its parentage (Wisch-

mann 2008c). The majority of treatments, although not all, are registered in the Germany national IVF Registry (DIR 2007). The number of techniques used in reproductive medicine has increased rapidly in the last years. Within the last nine years, the number of ART treatment cycles has almost doubled to ca. 59 000. The number peaked in 2003, when over 105 000 ART cycles were performed. This probably reflects the reaction of many specialists in reproductive medicine and affected couples to the ratification of the German Health Modernization Act, which came into force on the 1<sup>st</sup> January 2004. Since then, the statutory health insurance finances only 50 % of the costs of three cycles of IVF or ICSI for both partners of a married couple within a certain age range (previously, four cycles were financed completely). This means that couples must finance a co-payment of between 1 000 and 2 500 euros per IVF or ICSI attempt, this being about 1 600 Euro, on average.

Figures on pregnancy and birth rates are disputed ART data. A differentiation is made between biochemical and clinical pregnancy; only few centers of reproductive medicine issue live-birth rate figures. For example, one center advertises on the internet a clinical pregnancy rate of 42.6 % per transfer; this is one-and-a-half times higher than the corresponding average yearly rate issued by the German IVF Registry. In a German-speaking foreign country, a specialist for reproductive medicine advertised on the internet, stating that the results at his institute were roughly three times higher than in Germany (this commercial has, in the meantime, been withdrawn). The number of live-births, which is decisive for the couples affected, is, in contrast, ca. 16 % per IVF or ICSI cycle (Kupka et al. 2004) and is not above 20 % at any center (Michelmann and Himmel 2007). According to these figures, over 60 % of the couples remain childless after three completed treatment cycles (at least after four cycles the figure is 50 %). The general public clearly overestimates the live-birth rate. In a representative survey by Stöbel-Richter et al. (2006), the average live-birth rate was estimated to be 44 % after one treatment cycle of “artificial insemination”. Over one third of the participants in the survey estimated the success rate to be over 50 %.

These not very high rates of success are accompanied by several risks: 20-25 % of the pregnancies end in miscarriage and 1-3 % in extrauterine gravidity (DIR 2007). The rate of twin-births is twenty times higher and that of triplets two-hundred times higher than the rate in spontaneously conceived children, this means that ca. 20 % of the births are multiple births (DIR 2007). Furthermore, apart from the still dramatic risk of multiple births, singleton pregnancies following assisted reproduction result in an average lower birth-weight and an increase in premature births (de Geyter et al. 2006; Halliday 2007; Sutcliffe and Ludwig 2007). Higher somatic risks cannot be excluded in children born after assisted reproduction: The risk of chromosomal anomalies in children following IVF or ICSI is higher in

comparison to that in children conceived spontaneously; moreover, severe malformation must be expected in every 12<sup>th</sup> pregnancy (following spontaneous conception, in every 15<sup>th</sup> pregnancy, Wunder 2005). It has still not been clarified to what extent these risks depend on the technique of ART, or on the couples involved in assisted reproduction and their risk factors. One argument for the first alternative could be that more children are born with malformations after ICSI cryotransfers (the transfer of previously deep-frozen embryos or egg cells in a pronuclear state) than after ICSI transfers of fresh embryos (Belva et al. 2008).

### Psychological characteristics of couples with a desire for a child

From the 1940s until the 1990s, couples with an unfulfilled desire for a child were predominantly pathologized from a psychosomatic point of view, especially as at the outset it was assumed that only 50 % of all fertility disorders were due to physical reasons. The following “Personality factors in female sterility” (Blos and Cleghorn 1958) were found in an older American overview:

1. Physical and emotional immaturity
2. Aggressive-masculine type (resents female role)
3. Combination of 1 and 2
4. Hostile mother identification
5. Motherly type
6. Feminine erotic type
7. Obsessive-compulsive type
8. Disturbed, impoverished, and chronic worriers

Apart from there appearing to have been no male fertility disorders at that time (or they were simply not acknowledged), mothers or women who remained voluntarily childless will probably have no difficulty in recognizing their own characteristics among these “personality factors”. This pathologizing continued – also with respect to certain illnesses, such as endometriosis, for instance (see Wischmann 2008a). Two examples follow from German-speaking regions, from the 1980s and 1970s respectively: “A harmonious desire for children was found in only 15 % of the female, but in 40 % of the male patients” (Jeker et al. 1989; p. 29).

Among ten “functionally sterile” couples Goldschmidt and de Boor (1976) found four “severely disturbed” and three “oedipally disturbed” couples; in the authors’ opinion, the other three couples “although strongly defensive, appeared normal”. That such sweeping pathologizing statements, which are not supported by any systematic study, are not merely a relic of the last century, becomes clear in the three following more recent quotations: “Such a woman often possesses deep ambivalent feelings towards both her own mother and a fantasied child” (Christie and Morgan 2006, p. 88); “The ambivalence contained in the desire for a child is a cause of psychogenic sterility” (Eicher 2006, p. 797), and “50 percent of all couples that are involuntarily childless are physically healthy from an orthodox medical point of view. Many couples sense that deep psychological blockades may prevent them from procreating or conceiving” (Zart 2008, p. 34).

Scientifically based research presents a completely different picture (overview: Strauß et al. 2004): on average, couples that wish to have a child appear to be psychologically normal. The only consistent finding is a mild increase in the tendency to depression, anxiety, and physical complaints in many women. The most likely interpretation of these symptoms is that they result from the medical diagnosis or infertility treatment, as the severity of these symptoms increases with the length of time of the treatment in the first years. Overall, the proportion of psychopathological abnormal persons among couples that desire a child is 15-20 % and therefore certainly not higher than that in the general population. Findings are also normal in infertile couples with regard to satisfaction with the partnership. The longer the medical treatment, the more satisfied involuntarily childless women appear to become with their relationship, in comparison to standard questionnaire values. No typical specific relationship patterns could be established for childless couples (Wischmann et al. 2002). As seen in the couple profile in the Giessen Test (see. Fig. 1), apart from the clinically remarkable depression in the self-image of the woman, no other findings could be found in a large sample of patients.

The profile shown in the scale second from the bottom (HM ↔ DE) illustrates a feature often observed in psychosocial infertility counseling, namely the polarization of the basic moods of the man and woman. In the woman’s self-image she does not regard her depression (DE-pole) as being as severe as her partner perceives it to be, whereas the woman perceives the man’s basic mood to be much less encumbered than he himself regards it to be (partner-image has shifted towards the HM-Pole).

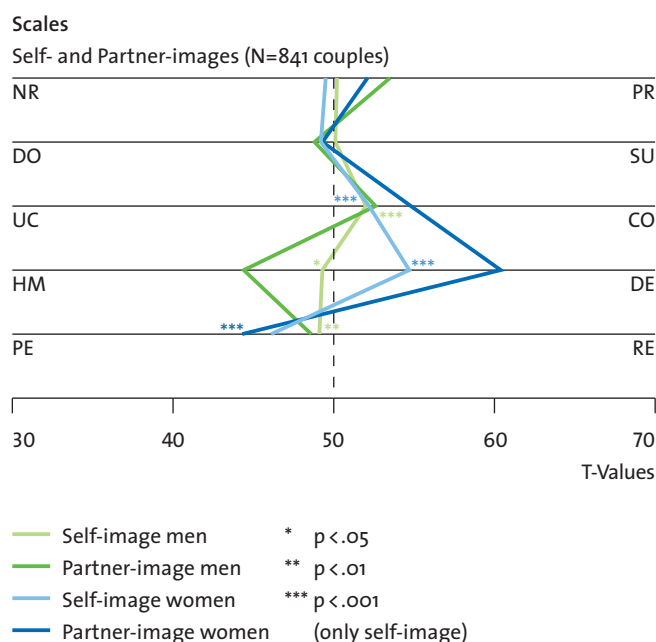


Figure 1: Giessen Test couple profile (modified from: Wischmann et al. 2002, p. 415)

NR = negative response, DO = dominant, UC = uncontrolled, HM = hypomaniac, PE = permeable, PR = positive response, SU = submissive, CO = compulsive, DE = depressive, RE = retentive

Similarly, couples with so-called idiopathic sterility, i. e. couples with normal organic medical findings, are also found to be psychologically normal. On no account should idiopathic fertility disorders always be equated with psychogenic fertility disorders, as these impairments must fulfill certain criteria. According to the current guideline “Psychosomatic oriented diagnostics and therapy for fertility disorders” (Strauß et al. 2004), a couple suffers from psychogenic infertility if

- the couple behaves in a manner that harms their fertility, despite having been advised otherwise by a physician (e. g. forms of nutrition – particularly over- or underweight and eating disorders –, high-performance sport, misuse of nicotine, alcohol, or medicinal drugs, extreme work-related stress),
- the couple does not have sexual intercourse during the woman’s fertile days or there is a non-organic sexual dysfunction, and if
- the couple acknowledges that from a medical point of view, fertility treatment is necessary if they wish to have a child, but – even after a long period of respite – they do not commence therapy: for example, if they continually postpone the tubal patency test or the spermogram

According to this scientifically proven definition of psychogenic infertility (see also BÄK 2006), it is not any kind of

mental attitude towards the child (either conscious or unconscious) that influences fertility, but only certain behavior that harms or restricts it. According to this definition, the prevalence of psychogenic infertility is estimated to be ca. 5% (Wischmann 2006a).

### The significance of stress with respect to fertility disorders

In general, the negative influence of stress on fertility is also clearly overestimated. Psychosomatic theory has developed various models to demonstrate the connection between psychological stress and the reproductive system, so-called cyclic models (Wischmann 2006a). However, these models only impress due to their (ostensive) plausibility. It has meanwhile become apparent that the connection between stress and fertility is not linear, and is moderated by other variables in addition. These mediating variables include the way a couple copes, the extent of support from their social environment, their optimism, resilience, or vulnerability (for examples see Lancaster and Boivin 2005; Litt et al. 1992; Lobel et al. 2000). Furthermore, due to their individual nature, the traditional stress models do not fully appreciate the dyadic context of infertility (Pasch et al. 2001, p. 562; see also Petersen et al. 2006). There follows a short summary of the results of two prospective studies carried out on sufficiently large sample groups. A study involving 1088 women before and during IVF or ICSI treatment investigating the connection between stress and fertility found that even a sharp rise in anxiety measurements shortly before puncture in women who previously showed little anxiety, influenced neither the result of the puncture nor the likelihood of pregnancy (Lintsen et al. 2006). Another study involving 430 Danish couples, who were planning their first pregnancy, found that the effects of the man's daily life stress on his semen quality is small or nonexistent (Hjollund et al. 2004). Also, the so-called "fact", which is often mentioned in connection with the psychogenesis of infertility, that couples who relinquish their wish to have a child (e.g. in the process of adoption) conceive spontaneously, does not stand up to scientific scrutiny. The few women (3-4%) who do become pregnant after adoption receive much more attention and appear far more frequently in the media than the 96-97% of "unsuccessful" women (de La Rochebrochard et al. 2008; Hanson and Rock 1950; Seibel and Taymor 1982; Wischmann 2006b). Systematic studies with larger case numbers found, to some extent, even lower pregnancy rates in adoptive parents than in couples that had not adopted (Lamb and Leurgans 1979). The resolution "I must give up my desire to have a child in order to conceive" can be considered psychodynamically as an – albeit paradox – attempt to positively influence the ultimately uncontrollable situation of a fertility disorder by consciously relinquishing control (Wischmann 2006a). The advice from those not involved "You only have to let go and then it will work!" is often a request not to be drawn into a situation that is not understood and which makes one feel uneasy.

### Psychological effects of the desire for a child and ART

While the psychological causes of involuntary childlessness are generally overestimated, the effects of an unfulfilled desire for a child and of the reproductive medical treatment are still often underestimated (Cousineau and Domar 2007). In the study carried out by Freeman et al. (1985), 48% of the women and 15% of the men stated that they regarded their infertility as their worst life crisis. For many women, the effects of this crisis can be equated, to a certain extent, with those of a serious illness (such as an HIV infection or cancer) or the loss of a close relative (Domar et al. 1993; Kerr et al. 1999). Reproductive medical treatment, which is time-consuming and emotionally and financially demanding, is an additional psychological burden for many women (Boivin et al. 1995; Olivius et al. 2004). Naturally, the more unsuccessful treatment cycles the woman undergoes, the more the strain increases, until after several years of treatment a certain ceiling effect sets in (Beutel et al. 1999; Burns 2007; Domar et al. 1992). Many women undergoing infertility treatment are more anxious, depressed, and their self-esteem is lower than that of their partner and in comparison to the norm (Nachtigall et al. 1992; Wright et al. 1991). Men who exhibit an andrological factor describe themselves as being more anxious and interpersonal sensitive compared with the norm (Glover et al. 1996). The psychological stress during the waiting period following embryo transfer is more of a strain for many women than all the medical procedures involved in IVF therapy, and, for example, also more stressful than the routine abdominal laparoscopy (Kentenich et al. 1989; van Balen et al. 1996). It is probably for this reason that over half of the couples, despite the lack of success, do not complete all the treatment cycles on offer (even if their health insurance reimburses 100% of the treatment costs). When questioned in retrospect, many couples say that emotional strain is the main reason for abandoning treatment (Hammarberg et al. 2001; Olivius et al. 2004; Schröder et al. 2004). Up to 60% of the couples report that reproductive medical treatment (e.g. having to keep a basal temperature curve or due to "planned intercourse") leads to serious sexual dysfunctions (Möller 2001; Strauß et al. 2004; Wischmann 2008e). Furthermore, if the fertility disorder has no organic cause, this may lead to the idea of "psychogenic infertility" in many couples, which, at least in some women, may lead to an increase in stress in the form of brooding and guilt (Wischmann 2006a) caused by treatment.

### The situation of permanently involuntarily childless couples

All studies suggest that there are only slight differences between the life quality of permanently involuntarily childless couples and that of couples with children (or voluntarily childless couples) (Strauß et al. 2004; Sundby et al. 2007; Sydsjö et al. 2005). It is prognostically favorable if the couple (particularly the woman) can accept childlessness and are able to evaluate the situation positively and if both partners actively search for alternatives (“plan B”) and do not socially isolate themselves (Lechner et al. 2007). Correspondingly, prognostically unfavorable factors include continued brooding and contemplation on the cause of childlessness, if a feeling of helplessness dominates the couple, and if there is still a strong focus on children being the only aim in life (Kraaij et al. 2008; Verhaak et al. 2007). Most couples report that overcoming the crisis of childlessness has led, either in the mid- or long-term, to a strengthening of their relationship. Overcoming the infertility crisis together appears, from the point of view of the woman, to “weld them together” (Repokari et al. 2007). Five to ten years after unsuccessful IVF-treatment the rate of separation of the couples is between 3 and 17 % and therefore below that of couples with spontaneously conceived children (Bryson et al. 2000; Sundby et al. 2007). Some studies report severe restrictions in the mid- and long-term sexual life of the couples (e. g. Daniluk and Tench 2007; Wirtberg et al. 2007). However, it is unclear whether these restrictions are due to involuntary childlessness, or as with other couples, they are due to the length of the relationship at this point. It should be pointed out that drawing a general conclusion from the results of studies on permanently involuntarily childless couples is limited due to the rate of non-responders, which amounts to one third on average. There is evidence that the life situation of the non-responders is slightly less favorable.

### Family development following ART

Originally, there were two contrary standpoints on the development of children conceived by ART: on the one hand, it was thought that these children and their relationship to their parents tend to develop badly. Eventually, after a phase of idealizing the desire for a child, when confronted with the weaknesses and negative aspects of the child, the parents turn away from the child in disappointment (Burns 1990). On the other hand, there was also the idea that these children develop particularly well as their parents desired them so much and they are considered “precious” (van Balen 1998), possibly to the extent of overprotection of the child (Golombok 1992). Systematic studies show that neither of these presumptions were justified (for an overview see: Wischmann 2008d). Susan Golombok’s research group carried out the worldwide leading study in four European countries, the “European Study of Assisted Reproduction Families” on 102 families after IVF, 92 families following donor insemination, 102 families with adopted

children, and 102 families with spontaneously conceived children. The main result of this careful and comprehensive long-term study showed a lack of seriously abnormal findings in the social and psychological development of singletons (children with major malformations and children from multiples births were not included in the study). The couple’s relationship and the child-parent relationship are, if anything, more positive after ART compared with couples that spontaneously conceived children, at least in the 4- to 8-year-old group. During the children’s adolescence, a tendency was found for mothers to overprotect their IVF children; this finding must, however, still be replicated. The rate of separation is between 6-12 % in IVF parents (with the exclusion of parents of multiples) and thus lower than in parents with spontaneously conceived children, where it is 15-20 % (Golombok et al. 1996, 2002, 2004; Halliday 2007; Leunens et al. 2008). It must be pointed out, however, that the response rate in the original study (Golombok et al. 1996) was 70 % in IVF and families that adopted, but only 47 % for families following donor insemination. Thus, a certain selection effect cannot be ruled out.

With regard to the development of couple relationships, Sydsjö et al. (2000) found no differences between the IVF group and a control group (each consisting of 108 couples) at the birth of the child. One year later, the quality of the relationship was significantly worse in the control group. When the children had reached the age of five, there was no longer any difference between the groups (Sydsjö et al. 2008). The separation rate in 227 couples after treatment with donor insemination was below (however, not significantly) the rate of the comparable control cases (Bendvold et al. 1989); a more recent study found a rate of 15 % (Lycett et al. 2004). The high rate of nonresponders must be taken into consideration when interpreting these results.

The (few) studies on child development after gamete donation in lesbian or homosexual couples show no abnormal development in the children, nearly 100 % of whom are informed on how they were conceived (Brews 2001; Golombok et al. 2003; Scheib et al. 2003). There are also probably no unusual findings in children of “single-mothers by choice” (Murray and Golombok 2005). The development of children following egg donation also appears to be normal, insofar as egg donation was legal in the country in which the children live (Söderström-Antilla et al. 2001). Whether this also applies to the currently 14-year-old Riccardo della Corte (and his 77-year-old

mother), who was born after egg donation to “replace” his brother of the same name who died in an accident in 1991, remains to be seen (Wischmann 2006c). Nothing is generally known about the psychosocial development of children following surrogate motherhood (van den Akker 2007); first results suggest, if anything, a normal course, similar to that in egg donation (Casey et al. 2008; Golombok et al. 2006). All previously mentioned results are based on white members of the middle and upper classes in Western countries, as there is a general lack of comparative cultural studies (Segev and van den Akker 2006).

Families with (high-grade) multiples following ART constitute a high-risk group from a psychological point of view too. Apart from the considerable medical risks such as increased morbidity and mortality among the children (for an overview see Thorn 2008a; a case study can be found in Wischmann 2004), the following psychosocial risks have been clearly established: multiples develop considerable behavioral and language disorders; mothers of multiples have a significantly higher risk of becoming depressed; the separation rate of parents of multiples is significantly higher than that of parents of singletons (Bindt 2002; Sheard et al. 2007). A German study showed that in every fifth family with multiple children of school age, one or more of the multiples attended special schools (Winkler 2005).

### **The importance of psychological counseling for involuntarily childless couples**

In the interviews carried out by the authors on the psychosocial necessity for infertility counseling, 27 % of the couples questioned stated that they were afraid of stigmatization, and 18 % were afraid of the destabilizing effect of counseling, and they had therefore not yet taken advantage of this. 18 % of the interviewees said that their own resources were sufficient to cope with the situation. As with other psychosocial counseling, here there are also deficits in the availability of information and threshold apprehension, as well as fear of stigmatization by the environment if this offer is taken up (Wischmann 2003). This explains why a large number of couples have a positive attitude towards psychosocial infertility counseling but only a small proportion takes advantage of it. Couples that do attend counseling are characterized by a subjectively high rate of distress and depression on the part of the woman, whereas more often the men feel helpless and dissatisfied with the relationship and the couple’s sexual life (Wischmann et al. 2009). According to Stammer et al. (2004; see also Covington and Burns 2006), the primary aims of psychosocial infertility counseling are:

- to enable couples to cope better with childlessness,
- to provide help in decision-making with regard to reproductive medical treatment,
- to avoid potential (partnership) conflicts,

- to improve communication between the partners, with physicians and with others,
- to improve acceptance if medical treatment fails,
- to give support in finding alternative perspectives.

In order to achieve these aims, the course of relationship counseling should be transparent, should remove the stigma, and activate the couple’s resources. Counseling should focus on helping couples to cope with this crisis, but also pinpoint behavior that has a damaging effect on fertility. The emotional crises that regularly occur during medical diagnostics or therapy (“emotional rollercoaster”: the fearful hope following embryo transfer abruptly alters to despairing disappointment when the pregnancy test is negative or when menstruation begins), and potential sexual dysfunctions should be anticipated, actively responded to and accepted during counseling, thus normally relieving the burden on the couple. The distinctly different emotional experiences of the partners in involuntarily childless couples must be taken into consideration (O’Donnell 2007), and if the blame is one-sided, the counselor must maintain an understanding and open attitude. Ultimately, counseling on childlessness should enable the couple to relinquish their “dream of their own child”, at least for a while and to rediscover and revitalize their life “beyond the desire for a child” (Wischmann and Stammer 2006). The structure and contents of the “Heidelberg Fertility Counselling Service” are shown in Figure 2.

Topics frequently treated during counseling include the couple’s evaluation of the medical diagnostics and treatment, the coping with infertility and its treatment, the current life situation, including the work situation, the motivation behind the desire for a child, aspects regarding family origin and social environment, the relationship, sexuality and bodily experience, as well as alternative life plans (“plan B”). A detailed description of the counseling concept is set out in Stammer et al. (2004). Psychological counseling for involuntary childlessness should be facultative and should be available to couples at all times during medical treatment (and thereafter). In 2005, Counselling Network for Infertility Germany (BKID) developed guidelines on psychosocial counseling for childlessness; these guidelines are to be found in Kleinschmidt et al. (2008). Due to the specific characteristics of treatment by gamete donation, the BKID advocates a more binding type of counseling, with obligatory documentation of participation in counseling or of its rejection. The guidelines for counseling on gamete donation are published in Thorn and Wischmann (2008b).

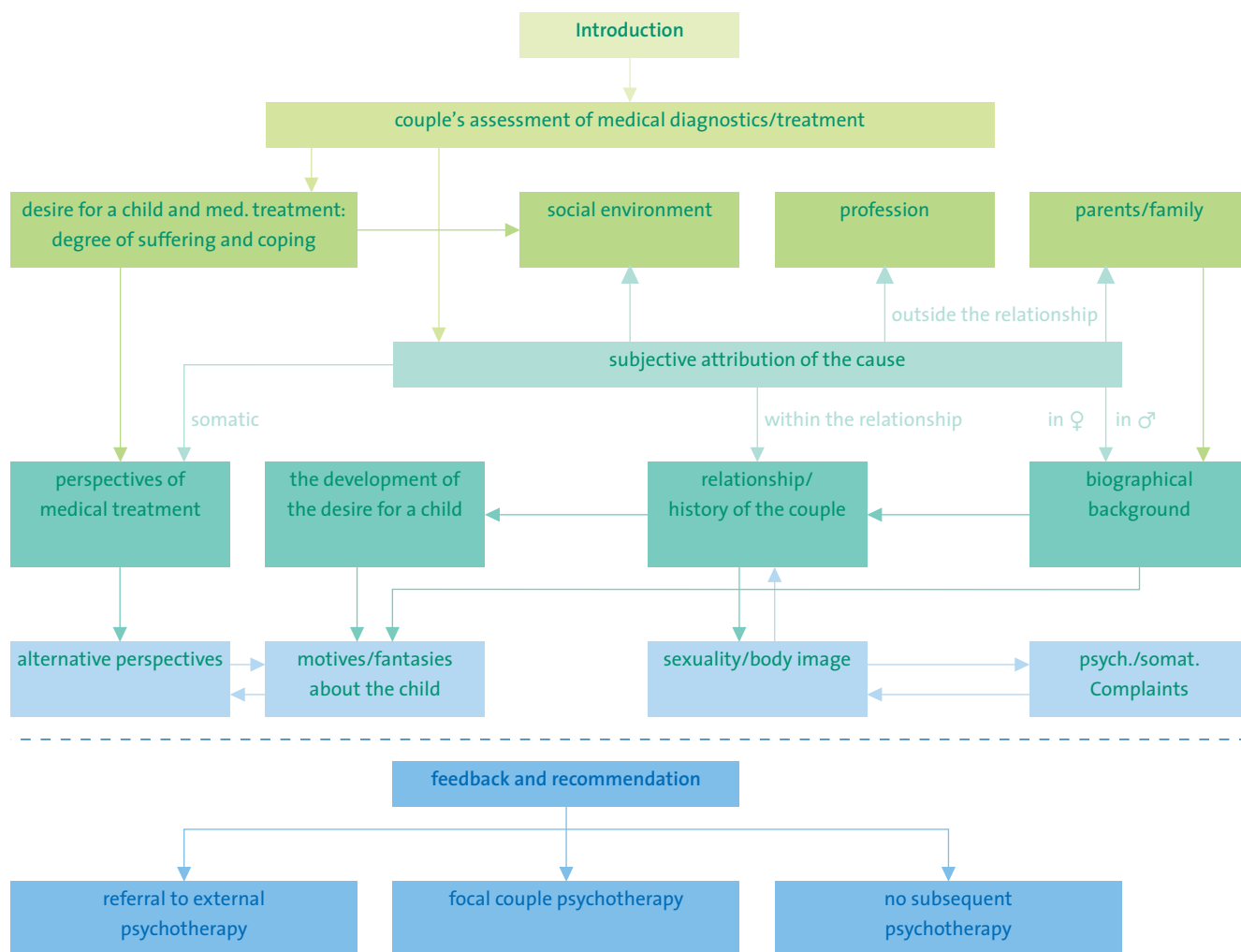


Figure 2: Structure and contents of couple counseling (modified from: Wischmann et al. 1997, p. 407)

### Effects of psychosocial interventions on involuntarily childless couples

Apart from “face-to-face counseling” there are various possibilities of psychosocial support for infertile couples (for an overview, see Wischmann 2008b). Apparently, providing information on the technical procedures in ART, in the form of brochures or videos, for example, helps couples to cope adequately with fertility disorders. Couples should also be encouraged to collect information on the internet when deciding which type of medical therapy to choose; however, the dangers of false or misleading informatshould be pointed out. Addresses of recommended web sites are to be found at the conclusion of this article. Educational groups can be recommended to strengthen the possibilities of coping, especially in the case of sperm donation treatment (Thorn and Daniels 2007). Such groups greatly contribute to speeding up the trend of informing children at an earlier stage who were conceived as result of donor insemination, a trend which has become apparent during the past years (Greenfield 2002) and which, from a psycho-

logical point of view, is urgently necessary (Golombok 2008). Self-help groups are of less benefit for coming to terms with childlessness. In this case, individual or couple counseling is probably more suitable.

The effects of fertility counseling and psychotherapy have meanwhile been carefully studied. Boivin (2004) as well as de Liz and Strauß (2005) have itemized the available scientific studies in a review, respectively in a meta-analysis. Boivin found that the effects were systematically evaluated in only a small proportion of the studies (25 of 380 studies). One result was that even low-threshold counseling (two to five hours of counseling) clearly reduces the emotional strain in the majority of women. This effect is not as distinct in men, as on average they appear to be under less

strain as a result of involuntary childlessness and therefore, a great reduction in stress is not to be expected. Whilst Boivin emphasized another result in her review, namely, that as a general rule pregnancy rates are not increased by psychosocial intervention, de Liz and Strauß arrived at a different conclusion in their meta-analysis. They found that pregnancy rates (the total sum of all interventional studies) were clearly higher than those of the reference groups. However, it remained unclear in this meta-analysis as to whether the pregnancies occurred independent of the measures of assisted reproduction or whether couples in the reference groups had undergone any medical treatment at all. In serious counseling, an increase in the likelihood of pregnancy should not be propagated as the main aim of counseling.

### Practical conclusions

Physicians treating couples for involuntary childlessness must fulfill the following requirements (from: Wischmann 2004, p. 39):

- Psychological effects of fertility disorders and ART must be reconsidered when making diagnostic and therapeutic decisions.
- It is imperative to inform each couple of the realistic, individually evaluated chances of success of ART.
- A generalized psychologization of infertility should be avoided (myth of a “psychological blockade”), as it is contra-productive and damages the physician-patient relationship.
- The sexual anamnesis must be carried out carefully and tactfully as knowledge about the significance of the “fertile days” is often limited.
- Emotional crises and sexual dysfunctions must be accepted, anticipated, and actively discussed as this usually relieves the couple.
- Couples should be advised to take a rest from treatment if it is unsuccessful, particularly in the case of a miscarriage, in order to allow time for mourning and to let other life aims resurface.
- Counseling provides couples with sources of information, not only on the medical but also on the psychological aspects of fertility disorders (handbooks on childlessness, brochures issued by the Federal Center for Health Education (BZgA).
- Inform the couple on the possibilities of psychosocial counseling (e. g. Counselling Network for Infertility Germany, see [www.bkid.de](http://www.bkid.de)).
- Observe the guidelines “Fertility Disorders – Psychosomatic Oriented Diagnosis and Therapy” (see [www.leitlinien.net](http://www.leitlinien.net)).

Apart from the “Medienpaket ungewollte Kinderlosigkeit” from the Federal Center for Health Education (BZgA 1999), publications by Kleinschmidt et al. (2008), Spiewak (2005), Stammer et al. (2004), Strauß et al. (2004) and Wischmann and Stammer (2006) are particularly recommended, not only for members of the medical profession but also for the

couples affected and their relatives. The handbook by Thorn (2008b) on the special subject of sperm donation is also recommended. The books by Enchelmaier (2004) and Zehetbauer (2007) are suitable for providing support during the process of coming to terms with infertility. The handbook by Covington and Burns (2006) is an international reference book for professionals.

Some important internet links: the brochures included in the multimedia package from the BZgA can be found at <http://www.familienplanung.de/kinderwunsch>. The project “Heidelberg Fertility Consultation Service” is described at <http://www.kinderwunschberatung.uni-hd.de>. Two recommended professional internet forums for the exchange of information, which are supervised by physicians, can be found at the following addresses: <http://www.wunschkind.net> and <http://www.kleinputz.net>. Both these forums also deal with the psychosocial aspects of involuntary childlessness. The list of psychosocial counselors of the Counselling Network for Infertility Germany, as well as its directives and guidelines are to be found at <http://www.bkid.de>. The manual “Practical therapy in sterility—a manual for gynecologists from a psychosomatic point of view” (Kentenich et al. 2000) is to be found on the website of the German Society for Psychosomatic Obstetrics and Gynecology at <http://www.dgpgg.de>. The following websites are recommended as sources of information in the English language: the website of the ESHRE at <http://www.eshre.com> (in particular the “Special Interest Group Psychology and Counselling”), the “Mental Health Professional Group” of the American Society for Reproductive Medicine (ASRM) at <http://www.asrm.org>, as well as the “British Infertility Counselling Association” at <http://www.bica.net>.

### Summary and Outlook

- The influence of the psyche on the genesis of fertility disorders is, on the whole, overestimated. Involuntarily childless couples are usually normal from a psychological point of view. The psychological, social, and motor developments of singletons born after assisted reproduction, as well as the relationships within the family, are usually normal. The general public and couples should be adequately informed of these facts.
- From a psychological point of view, multiples clearly constitute a high-risk group; therefore, singleton pregnancy should be the main aim of assisted reproduction. There is a lack of comparative studies on multiples following ART and spontaneously conceived multiples.
- The psychological effects of the higher rate of premature births and lower birth weight, also for singletons, following ART (and their possible secondary medical damage),

are still unknown. Due to this, prospective and long-term studies should be carried out on child and family development following assisted reproduction.

- In special cases of congenital paternal infertility, male offspring conceived after ICSI will also be infertile. In order to learn about these effects, prospective studies are urgently required for this group of boys up to and including the time they begin to plan a family.
- Children born after assisted reproduction are usually not informed, or only at a very late stage, on how they were conceived, and children conceived after gamete donation are almost never informed. Prospective studies on the process of the development of their identity are urgently required. Anticipated difficulties in recruitment could be counteracted by creative research approaches.
- Similar methodological considerations should be made for studies on couples that have remained involuntarily childless in the long term. Particularly meticulous responder-nonresponder analyses are called for.
- So far, research on adoption and on “open-identity sperm donors” show the importance of offsprings’ knowledge of their biological roots. According to current scientific knowledge, from a psychological point of view, anonymous sperm donation should be clearly rejected.
- As after an average of three cycles of assisted reproduction over 50 % of the couples in Germany remain childless and as a rule do not receive further psychosocial counseling, it may be concluded that additional psychosocial counseling and care should be provided.
- Almost all the studies available on the psychosocial aspects of involuntary childlessness and reproductive medical treatment are based on Western countries (USA, Europe, Australia, and New Zealand) and Japan. Therefore, the findings in scientific literature can only generally be applied to these countries. There should be more support for studies to investigate these aspects in so-called “developing countries”.

After 30 years of IVF, international, comprehensive, and differentiated scientific research has been able to allay many of the fears and prejudices that arose with the birth of Louise Brown. In particular, with regard to the psychological aspects of fertility disorders and of assisted reproduction, the all-clear signal can be partially, but not completely, given. However, it is urgent that the above-mentioned research gaps now be closed.

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### Keywords

In vitro fertilisation, infertility counseling, psychogenic infertility, child development, multiple birth

### References

- BÄK (BUNDESÄRZTEKAMMER).** (Muster-)Richtlinie zur Durchführung der assistierten Reproduktion. Novelle 2006. Dtsch Arztebl 2006; 103: A1392–A1403.
- BELVA F, HENRIET S, VAN DEN ABBEEL E, CAMUS M, DEVROEY P, VAN DER ELST J, LIEBAERS I, HAENTJENS P, BONDUELLE M.** Neonatal outcome of 937 children born after transfer of cryopreserved embryos obtained by ICSI and IVF and comparison with outcome data of fresh ICSI and IVF cycles. Hum Reprod 2008; 23: 2227–2238.
- BENDVOLD E, SKJAERAASEN J, MOE N, SJØBERG D, KRAVDAL O.** Marital break-up among couples raising families by artificial insemination by donor. Fertil Steril 1989; 51(6): 980–983.
- BEUTEL M, KIRCHMEYER P, WEIDNER W, SCHROEDER-PRINTZEN I, HERRERO JG, KÖHN F-M, GIPS H, KUPFER J.** Psychische Belastung bei MESA/TESE-Teilnehmern im Vergleich zu den Partnern von ICSI- und IVF-Teilnehmerinnen. Reproduktionsmed 2000; 16: 354–361.
- BIB (BUNDESINSTITUT FÜR BEVÖLKERUNGSFORSCHUNG).** Einstellungen zu demographischen Trends und zu bevölkerungsrelevanten Politiken. Ergebnisse der Population Policy Acceptance Study in Deutschland (Report). Wiesbaden 2005.
- BINDT C.** Das Wunschkind als Sorgenkind? Mehrlingsentwicklung nach assistierter Reproduktion. Reproduktionsmed 2002; 17: 20–29.
- BLOS C, CLEGHORN RA.** Psychogenic sterility. Fertil Steril 1958; 9(2): 84–98.
- BOIVIN J, TAKEFMAN JE.** Stress level across stages of in-vitro-fertilization in subsequently pregnant and nonpregnant women. Fertil Steril 1995; 64: 802–810.
- BOIVIN J.** Psychosoziale Interventionen bei Kinderwunsch. Ein Review. Gynäkol Endokrin 2004; 6: 94–109.
- BOIVIN J, BUNTING L, COLLINS JA, NYGREN KG.** International estimates of infertility prevalence and treatment-seeking: potential need and demand for infertility medical care. Hum Reprod 2007; 22: 1506–1512.
- BREWAEYS A.** Review: parent-child relationships and child development in donor insemination families. Hum Reprod Update 2001; 7: 38–46.
- BRYSAN CA, SYKES DH, TRAUB AI.** In vitro fertilization: a long-term follow-up after treatment failure. Human Fert 2000; 3: 214–220.
- BURNS LH.** An exploratory study of perceptions of parenting after infertility. Fam Syst Med 1990; 8: 177–189.
- BURNS LH.** Psychiatric aspects of infertility and infertility treatments. Psychiat Clin North Am 2007; 30: 689–716.
- BZGA (BUNDESZENTRALE FÜR GESUNDHEITLICHE AUFKLÄRUNG; HRSG).** Medienpaket »Ungewollt kinderlos – Ursachen, Behandlung, Hilfen«. Erhältlich über BZgA, 51101 Köln und zum Teil unter <http://www.familienplanung.de/kinderwunsch>. Köln: BZgA 1999.
- CASEY P, READINGS J, BLAKE, L, JADVA V, GOLOMBOK S.** Child development and parent-child relationships in surrogacy, egg donation and donor insemination families at age 7. Hum Reprod 2008; 23(Suppl 1): i6.

- COUSINEAU TM, DOMAR AD.** Psychological impact of infertility. *Best Practice & Research Clinical Obstetrics & Gynaecology* 2007; 21(2): 293–308.
- COVINGTON SH, BURNS LH (Hrsg).** Infertility counseling. A comprehensive handbook for clinicians, 2. Aufl. Oxford, London, New York: Taylor & Francis 2006.
- CHRISTIE GL, MORGAN A.** Individual and group psychotherapy with infertile couples. *Int J Group Psychother* 2000; 50(2): 237–250.
- DANILUK JC, TENCH E.** Long-Term Adjustment of Infertile Couples Following Unsuccessful Medical Intervention. *J Counsel Develop* 2007; 85: 89–100.
- DE GEYTER C, DE GEYTER M, STEIMANN S, ZHANG H, HOLZGREVE W.** Comparative birth weights of singletons born after assisted reproduction and natural conception in previously infertile women. *Hum Reprod* 2006; 21: 705–712.
- DE LA ROCHEBROCHARD E, QUELEN C, PEIKRISHVILI R, GUIBERT J, BOUYER J.** Long-term outcome of parenthood project during in vitro fertilization and after discontinuation of unsuccessful in vitro fertilization. *Fertil Steril* 2008 (in print).
- DE LIZ TM, STRAUSS B.** Differential efficacy of group and individual/couple psychotherapy with infertile patients. *Hum Reprod* 2005; 20: 1324–1332.
- DER SPIEGEL.** Ein Schritt Richtung Homunkulus. 1978; Heft 31: 124.
- DIR (DEUTSCHES IVF-REGISTER).** Jahrbuch 2006. Bad Segeberg 2007.
- DOMAR AD, BROOME A, ZUTTERMEISTER PC, SEIBEL M, FRIEDMAN R.** The prevalence and predictability of depression in infertile women. *Fertil Steril* 1992; 58: 1158–1163.
- DOMAR AD, ZUTTERMEISTER PC, FRIEDMAN R.** The psychological impact of infertility: a comparison with patients with other medical conditions. *J Psychosom Obstet Gynaecol* 1993; 14 Suppl: 45–52.
- EICHER W.** Andere psychosomatische Krankheitsbilder. In: Kaufmann M, Costa SD, Scharl A (Hrsg). *Die Gynäkologie*. 2. Auflage. Berlin: Springer 2006: 793–799.
- EMBRYONENSCHUTZGESETZ (ESCHG)** vom 13.12.1990. Zugriff unter <http://www.gesetze-im-internet.de/eschg/BjNR027460990.html>.
- ENCHELMAIER I.** Abschied vom Kinderwunsch. Ein Ratgeber für Frauen, die ungewollt kinderlos geblieben sind. Stuttgart: Kreuz 2004.
- FREEMAN EW, BOXER AS, RICKELS K, TURECK RW, MASTROIANNI L.** Psychological evaluation and support in a program of in vitro fertilisation and embryo transfer. *Fertil Steril* 1985; 43: 48–53.
- GLOVER L, GANNON K, SHERR L, ABEL PD.** Distress in subfertile men: a longitudinal study. *J Reprod Infant Psychol* 1996; 14: 23–36.
- GNOTH C, GODEHARDT E, FRANK-HERRMANN P, FRIOL K, TIGGES J, FREUNDL G.** Definition and prevalence of subfertility and infertility. *Hum Reprod* 2005; 20: 1144–1147.
- GOLDSCHMIDT O, DE BOOR C.** Psychoanalytische Untersuchung funktionell steriler Ehepaare. *Psyche* 1976; 10: 899–923.
- GOLOMBOK S.** Review: Psychological functioning in infertile patients. *Hum Reprod* 1992; 7: 208–212.
- GOLOMBOK S.** Auf die Liebe kommt es an. Interview in: *Die Zeit* 2008, Nr. 23: 37.
- GOLOMBOK S, BREWAEYS A, COOK R, GIAVAZZI MT, GUERRA D, MANTOVANI A, VAN HALL E, CROSIGNANI PG, DEXEUS S.** The European study of assisted reproduction families: family functioning and child development. *Hum Reprod* 1996; 11: 2324–2331.
- GOLOMBOK S, BREWAEYS A, GIAVAZZI MT, GUERRA D, MACCALLUM F, RUST J.** The European study of assisted reproduction families: The transition into adolescence. *Hum Reprod* 2002; 17: 830–840.
- GOLOMBOK S, JADVA V, LYCETT E, MURRAY C, MACCALLUM F.** Families created by gamete donation: follow-up at age 2. *Hum Reprod* 2005; 20: 286–293.
- GOLOMBOK S, MACCALLUM F, MURRAY C, LYCETT E, JADVA V.** Surrogacy families: parental functioning, parent-child relationships and children's psychological development at age 2. *J Child Psychol Psychiat* 2006; 47: 213–222.
- GOLOMBOK S, PERRY B, BURSTON A, MURRAY C, MOONEY-SOMERS J, STEVENS M, GOLDING J.** Children with lesbian parents: a community study. *Develop Psychol* 2003; 39: 20–33.
- GREENFELD DA.** Changing attitudes towards third-party reproductive techniques. *Curr Opinion Obstet Gynecol* 2002; 14: 289–292.
- HALLIDAY J.** Outcomes of IVF conceptions: are they different? *Best Pract Res Clin Obstet Gynaecol* 2007; 21: 67–81.
- HAMMARBERG K, ASTBURY J, BAKER HWG.** Women's experience of IVF: a follow-up study. *Hum Reprod* 2001; 16: 374–383.
- HANSON FM, ROCK J.** The Effect of Adoption on Fertility and Other Reproductive Functions. *Am J Obstet Gynecol* 1950; 59(2): 311–320.
- HJOLLUND NH, BONTIS J, HENRIKSEN TB, GIWERCMAN A, OLSEN J.** The Danish First Pregnancy Planner Study Team. Reproductive Effects of Male Psychologic Stress. *Epidemiol* 2004; 15(1): 21–27.
- JANTKE A.** Unerfüllter Kinderwunsch: Rationelle Diagnostik und Therapie. *CME Prakt Fortbild Gynakol Geburtsmed Gynakol Endokrinol* 2005; 1: 54–62.
- JEKER L, MICONI G, RUSPA M.** Kinderwunsch bei sterilen Ehepaaren: Einige psychodynamische Hypothesen. In: Kemeter P, Lehmann F (Hrsg). *Psychosomatik der Infertilität*. Berlin, Heidelberg, New York: Springer 1989: 25–32.
- KENTENICH H, HÖLZLE C, SCHMIADY H, STAUBER M.** Psychosomatische Begleitung der IVF-Paare: Erfahrungen und Ergebnisse. In: Kemeter P, Lehmann F (Hrsg). *Psychosomatik der Infertilität*. Berlin: Springer 1989: 65–83.
- KENTENICH H, HENNING K, HIMMEL W, ITTNER E, KOCHEN MM, KRAUSE W, NINGEL K, STAMMER H, STRAUß B, WISCHMANN T.** Praktische Therapie bei Fertilitätsstörungen – Manual für Frauenärztinnen und Frauenärzte aus psychosomatischer Sicht. In: Strauß B (Hrsg). *Ungewollte Kinderlosigkeit. Psychologische Diagnostik, Beratung und Therapie*. Göttingen: Hogrefe 2000; 225–240.

- KERR J, BROWN C, BALEN AH.** The experiences of couples who have had infertility treatment in the United Kingdom: results of a survey performed in 1997. *Hum Reprod* 1999; 14: 934–938.
- KLEINSCHMIDT D, THORN P, WISCHMANN T (Hrsg).** Kinderwunsch und professionelle Beratung. Das Handbuch des Beratungsnetzwerkes Kinderwunsch Deutschland (BKID). Stuttgart: Kohlhammer 2008.
- KRAAIJ V, GARNEFSKI N, VLIETSTRA A.** Cognitive coping and depressive symptoms in definitive infertility: A prospective study. *J Psychosom Obstet Gynecol* 2008; 29(1): 9–16.
- KUPKA MS, FELBERBAUM RE, VAN DER VEN HH, BÜHLER K, DAHNKE W, FRIESE K.** Prognosefaktoren der assistierten Reproduktion. *Der Gynäkologe* 2004; 8: 686–694.
- LAMB EJ, LEURGANS S.** Does adoption affect subsequent fertility? *Am J Obstet Gynecol* 1979; 134: 138–144.
- LANCASTLE D, BOIVIN J.** Dispositional Optimism, Trait Anxiety, and Coping: Unique or Shared Effects on Biological Response to Fertility Treatment? *Health Psychol* 2005; 24(2): 171–178.
- LECHNER L, BOLMAN C, VAN DALEN A.** Definite involuntary childlessness: associations between coping, social support and psychological distress. *Hum Reprod* 2007; 22: 288–294.
- LEUNENS L, CELESTIN-WESTREICH S, BONDUELLE M, LIEBAERS I, PONJAERT-KRISTOFFERSEN I.** Follow-up of cognitive and motor development of 10-year-old singleton children born after ICSI compared with spontaneously conceived children. *Hum Reprod* 2008; 23: 105–111.
- LINTSEN AME, VERHAAK CM, EIJKEMANS MJC, BRAAT DDM.** The prognostic value of psychological factors on the outcome of IVF. *Hum Reprod* 2006; 21(Suppl 1): 171.
- LITT MD, TENNEN H, AFFLECK G, KLOCK S.** Coping and Cognitive Factors in Adaptation to in vitro Fertilization Failure. *J Behavior Med* 1992; 15: 171–187.
- LOBEL M, DEVINCENT CJ, KAMINER A, MEYER BA.** The impact of prenatal maternal stress and optimistic disposition on birth outcomes in medically high-risk women. *Health Psychol* 2000; 19(6): 544–553.
- LYCETT E, DANIELS K, CURSON R, CHIR B, GOLOMBOK S.** Offspring created as a result of donor insemination: A study of family relationships, child adjustment, and disclosure. *Fertil Steril* 2004; 82: 172–179.
- MCQUILLAN J, GREIL AL, WHITE L, JACOB MC.** Frustrated Fertility: Infertility and Psychological Distress Among Women. *J Marriage Fam* 2003; 65: 1007–1018.
- MICHELMANN H, HIMMEL W.** Das Machbare erwägen – aber das Vertretbare tun: Zur Problematik des Reproduktionstourismus. *J Reproduktionsmed Endokrinol* 2007; 3: 118–123.
- MÖLLER A.** Infertility and sexuality – An overview of the literature and clinical practice. *Scand J Sexol* 2001; 4(2): 75–87.
- MURRAY C, GOLOMBOK S.** Solo mothers and their donor insemination infants: follow-up at age 2 years. *Hum Reprod* 2005; 20: 1655–1660.
- NACHTIGALL RD, BECKER G, WOZNY M.** The effects of gender-specific diagnosis on men's and women's response to infertility. *Fertil Steril* 1992; 57: 113–121.
- NYBOE ANDERSEN A, GOOSSENS V, FERRARETTI AP, BHATTACHARYA S, FELBERBAUM R, DE MOUZON J, NYGREN KG AND THE EUROPEAN IVF-MONITORING CONSORTIUM FOR THE EUROPEAN SOCIETY OF HUMAN REPRODUCTION AND EMBRYOLOGY.** Assisted reproductive technology in Europe, 2003. Results generated from European registers by ESHRE. *Hum Reprod* 2008; 23: 756–771.
- O'DONNELL E.** Making room for men in infertility counseling. *Sexuality, Reproduction & Menopause* 2007; 5: 28–32.
- OLIVIUS C, FRIDEN B, BORG G, BERGH C.** Why do couples discontinue in vitro fertilization treatment? A cohort study. *Fertil Steril* 2004; 8: 258–61.
- PASCH LA.** Confronting fertility problems: Current research and future challenges. In: Baum A, Revenson T, Singer J (Hrsg). *Handbook of Health Psychology*. Mahwah: Lawrence Erlbaum Associates 2001: 559–570.
- PETERSON BD, NEWTON CR, ROSEN KH.** Examining congruence between partners' perceived infertility-related stress and its relationship to marital adjustment and depression in infertile couples. *Fam Proc* 2003; 42(1): 59–70.
- PURDUE MP, DEVESA SS, SIGURDSON AJ, MCGLYNN KA.** International patterns and trends in testis cancer incidence. *Int J Cancer* 2005; 115(5): 822–827.
- REPOKARI L, PUNAMAKI R-L, UNKILA-KALLIO L, VILSKA S, POIKKEUS P, SINKKONEN J, ALMQVIST F, TIITINEN A, TULPPALA M.** Infertility treatment and marital relationships: a 1-year prospective study among successfully treated ART couples and their controls. *Hum Reprod* 2007; 22: 1481–1491.
- SCHEIB JE, RIORDAN M, RUBIN S.** Choosing identity-release sperm donors: the parents' perspective 13–18 years later. *Hum Reprod* 2003; 18: 1115–1127.
- SCHMIDT L.** Infertility and assisted reproduction in Denmark. Epidemiology and psychosocial consequences. Copenhagen: Lægeforeningens Forlag 2006.
- SCHRÖDER AK, KATALINIC A, DIEDRICH K, LUDWIG M.** Cumulative pregnancy rates and drop-out rates in a German IVF programme: 4102 cycles in 2130 patients. *Reprod BioMedicine Online* 2004; 8: 600–606.
- SEGEV J, VAN DEN AKKER O.** A review of psychosocial and family functioning following assisted reproductive treatment. *Clin Effect Nursing* 2006; 9(Suppl 2): e162–e170.
- SEIBEL MM, TAYMOR M.** Emotional aspects of infertility. *Fertil Steril* 1982; 37: 137–145.
- SHEARD C, COX S, OATES M, NDUKWE G, GLAZEBROOK C.** Impact of a multiple, IVF birth on post-partum mental health: a composite analysis. *Hum Reprod* 2007; 22: 2058–2065.
- SÖDERSTRÖM-ANTILLA V, SAJANIEMI N, TIITINEN A, HOVATTA O.** Health and development of children born after oocyte donation compared with that of those born after in-vitro fertilization, and parents' attitude regarding secrecy. *Hum Reprod* 1998; 13: 2009–2015.
- SPEIDEL H.** Kritische Gedanken zur Psychosomatischen Medizin. In: Söllner W, Wesiack W, Wurm B (Hrsg). *Soziopsychosomatik*. Berlin: Springer 1989: 115–124.
- SPIEWAK M.** Wie weit gehen wir für ein Kind? Im Labyrinth der Fortpflanzungsmedizin. Frankfurt/Main: Eichborn 2005.

- STAMMER H, VERRES R, WISCHMANN T.** Paarberatung und -therapie bei unerfülltem Kinderwunsch. Göttingen: Hogrefe 2004.
- STEPHENS P, EDWARDS R.** Birth after the reimplantation of a human embryo. *Lancet* 1978; 312: 366.
- STÖBEL-RICHTER Y, BORKENHAGEN A, WISCH S, BRÄHLER E.** Wissen und Einstellungen der deutschen Bevölkerung zu Aspekten der modernen Reproduktionsmedizin. Ergebnisse einer aktuellen Bevölkerungsbefragung. In: Stöbel-Richter Y, Ludwig A, Franke P, Neises M, Lehmann A (Hrsg). *Anspruch und Wirklichkeit in der psychosomatischen Gynäkologie und Geburtshilfe*. Gießen: Psychosozial-Verlag 2006: 163–171.
- STRAUß B, BRÄHLER E, KENTENICH H.** Fertilitätsstörungen – Psychosomatisch orientierte Diagnostik und Therapie. Leitlinie und Quellentext. Stuttgart: Schattauer 2004.
- SUNDBY J, SCHMIDT L, HELDAAS K, BUGGE S, TANBO T.** Consequences of IVF among women: 10 years post-treatment. *J Psychosom Obstet Gynaecol* 2007; 28(2): 115–120.
- SUTCLIFFE AG, LUDWIG M.** Outcome of assisted reproduction. *Lancet* 2007; 370: 351–359.
- SYDSJÖ G, WADSBY M, KJELLBERG S, SYDSJÖ A.** Relationships and parenthood in couples after assisted reproduction and in spontaneous primiparous couples: a prospective long-term follow-up study. *Hum Reprod* 2002; 17(12): 3242–3250.
- SYDSJÖ G, WADSBY M, SYDSJÖ A, SELLING KE.** Relationship and parenthood in IVF couples with twin and singleton pregnancies compared with spontaneous singleton primiparous couples – a prospective 5-year follow-up study. *Fertil Steril* 2008; 89(3): 578–585.
- THORN P.** Mehrlingsschwangerschaften – Das große Risiko der Reproduktionsmedizin. In: Kleinschmidt D, Thorn P, Wischmann T (Hrsg). *Kinderwunsch und professionelle Beratung. Das Handbuch des Beratungsnetzwerkes Kinderwunsch Deutschland (BKID)*. Kohlhammer: Stuttgart 2008a; 68–72.
- THORN P.** Familiengründung mit Samenspende. Ein Ratgeber zu psychosozialen und rechtlichen Fragen. Stuttgart: Kohlhammer 2008b.
- THORN P, DANIELS K.** Pro und Contra Kindesaufklärung nach donogener Insemination – Neuere Entwicklungen und Ergebnisse einer explorativen Studie. *Geburtsh Frauenheilk* 2007; 67(9): 993–1001.
- THORN P, WISCHMANN T.** Eine kritische Würdigung der Novellierung der (Muster-) Richtlinie der Bundesärztekammer 2006 aus der Perspektive der psychosozialen Beratung. *J Reproduktionsmed Endokrinol* 2008a; 1: 39–44.
- THORN P, WISCHMANN T.** Leitlinien für die psychosoziale Beratung bei Gametenspende. *J Reproduktionsmed Endokrinol* 2008b; 3: 147–152.
- VAN BALEN F.** Development of IVF Children. *Dev Rev* 1998; 18: 30–46.
- VAN BALEN F, NAAKTGEBOREN N, TRIMBOS-KEMPER T.** In-vitro fertilization: the experience of treatment, pregnancy and delivery. *Hum Reprod* 1996; 11: 95–98.
- VAN DEN AKKER OBA.** Psychosocial aspects of surrogate motherhood. *Hum Reprod Update* 2007; 13(1): 53–62.
- VAYENA E, ROWE PJ, GRIFFIN PD (Hrsg).** *Current Practices and Controversies in Assisted Reproduction*. Geneva: WHO 2002.
- VERHAAK CM, SMEENK JMJ, EVERS AWM, KREMER JAM, KRAAIMAAT FW, BRAAT DDM.** Women's emotional adjustment to IVF: a systematic review of 25 years of research. *Hum Reprod Update* 2007; 13(1): 27–36.
- VON OTTE S.** Neue Entwicklungen in der Reproduktionsmedizin. *CME Prakt Fortbild Gynakol Geburtsmed Gynakol Endokrinol* 2007; 3: 16–25.
- WINKLER D.** Psychische, physische und sozioökonomische Folgen für Familien nach der Geburt höhergradiger Mehrlinge (Dissertation, unveröffentlicht). Frauenklinik Großhadern. Ludwigs-Maximilians-Universität München 2005.
- WIRTBERG I, MOLLER A, HOGSTROM L, TRONSTAD S-E, LALOS A.** Life 20 years after unsuccessful infertility treatment. *Hum Reprod* 2007; 22: 598–604.
- WISCHMANN T.** Psychosoziale Aspekte bei Fertilitätsstörungen. *Gynäkologe* 2003; 36: 125–136.
- WISCHMANN T.** Psychologische Aspekte beim Einsatz reproduktionsmedizinischer Verfahren – Achterbahn der Gefühle. *Gynakol Geburtsh* 2004; 5: 38–39.
- WISCHMANN T.** Psychogenese von Fertilitätsstörungen: eine Übersicht. *Geburtsh Frauenheilk* 2006a; 66: 34–43.
- WISCHMANN T.** Ungewollte Kinderlosigkeit – Ein brennendes Problem: Aus psychologischer Sicht. In: Paulitz H (Hrsg). *Adoption. Positionen, Impulse, Perspektiven*. 2. Aufl. München: Beck 2006b; 32–42.
- WISCHMANN T.** Die Zukunft der menschlichen Reproduktion – »Krieg der Klone«? *Geburtsh Frauenheilk* 2006c; 66: 192–195.
- WISCHMANN T.** Psychologische Aspekte bei Endometriose und Kinderwunsch – einige kritische Anmerkungen. *Geburtsh Frauenheilk* 2008a; 68: 231–235.
- WISCHMANN T.** Implications of psychosocial support in infertility – a critical appraisal. *J Psychosom Obstet Gynecol* 2008b; 29: 83–90.
- WISCHMANN T.** Psychosoziale Aspekte der Spendersamenbehandlung. *Geburtsh Frauenheilk* 2008c; 68: 1147–1153.
- WISCHMANN T.** Psychosoziale Entwicklung von IVF-Kindern und -Eltern. *J Reproduktionsmed Endokrinol* 2008d; 6: 329–334.
- WISCHMANN T.** Unerfüllter Kinderwunsch und sexuelle Störungen. In: Lang H (Hrsg). *Gestörte Sexualität. Ursachen, Erscheinungsformen, Therapie*. Würzburg: Königshausen & Neumann 2008e (im Druck).
- WISCHMANN T, SCHERG H, BRÄHLER E.** Beziehungsmuster ungewollt kinderloser Paare im Gießen-Test. *Z Klin Psychol Psychiatr Psychother* 2002; 50: 409–426.
- WISCHMANN T, SCHERG H, STROWITZKI T, VERRES R.** Psychosocial characteristics of women and men attending infertility counselling. *Hum Reprod* 2009; 24: 378–385.
- WISCHMANN T, STAMMER H.** *Der Traum vom eigenen Kind. Psychologische Hilfen bei unerfülltem Kinderwunsch*. 3. Aufl. Stuttgart: Kohlhammer 2006.
- WISCHMANN T, STAMMER H, GERHARD I, VERRES R.** »Heidelberger Kinderwunschsprechstunde« – Ein Modell

psychosomatischer Beratung von Paaren mit unerfülltem Kinderwunsch. *Geburtsh Frauenheilk* 1997; 52: 405–412.  
**WRIGHT J, DUCHESNE C, SABOURIN S, BISSONNETTE F, BENOIT J, GIRARD Y.** Psychosocial distress and infertility: Men and women respond differently. *Fertil Steril* 1991; 55: 100–108.  
**WUNDER D.** Fehlbildungen nach assistierter Reproduktionsmedizin. *Gynäkologe* 2005; 38: 33–38.  
**ZART B.** Paare stärken. *Deutsche Hebammenzeitschr* 2008; 9: 32–35.  
**ZEHETBAUER S.** Ich bin eine Frau ohne Kinder. Begleitung beim Abschied vom Kinderwunsch. München: Kösel 2007.



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The psychotherapist and psychoanalyst Dr. Tewes Wischmann studied psychology at Heidelberg University, where he completed his diploma in 1984. Dr. Wischmann has been a member of the scientific staff of the Institute since 1990. From 1994 until 2000, he was project director of the “Heidelberg Fertility Consultation Service” (together with Prof. Dr. Rolf Verres and Prof. Dr. Ingrid Gerhard). In 1998, Dr. Wischmann became a Dr. sc. hum., and habilitated in 2005 to become PD at the Medical Faculty of Heidelberg with the “*venia legendi*” in “Medical Psychology”. Dr. Wischmann is co-author of the guidelines “Fertility Disorders – Psychosomatic Oriented Diagnosis and Therapy” of the AWMF (Assoc. of Scientific Medical Societies in Germany) as well as the “Guidelines for Counselling in Infertility” of the ESHRE. Apart from many articles in scientific journals, Dr. Wischmann has also worked as a co-author on the following reference books: “Der Traum vom eigenen Kind. Psychologische Hilfen bei unerfülltem Kinderwunsch” and “Paarberatung und -therapie bei unerfülltem Kinderwunsch”. He is head of the expert commission “Psychosomatics in Reproductive Medicine” of the German Federation for Reproductive Biology and Medicine (DVR), as well as a founding member and member of the board of directors of the Counselling Network for Infertility Germany (BKID).

#### Conflict of interest

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# CME – Continuing Medical Education

## Psychosocial aspects of infertile couples

### Question 1

Which answer is correct?

Which of the following women, at some point in their life, wait at least one year before becoming pregnant?

- a. None of the woman who wish to have a child.
- b. Every tenth woman who wishes to have a child.
- c. Every fifth woman who wishes to have a child.
- d. Every third to fourth woman who wishes to have a child.
- e. Every woman who wishes to have a child.

### Question 2

Which answer is correct?

Involuntarily childless couples:

- a. as a rule, suffer from a personality disorder,
- b. are recognizable due to specific relationship patterns,
- c. are usually psychogenically infertile,
- d. usually conceive spontaneously after adopting a child.
- e. None of the answers are correct.

### Question 3

Which answer is correct?

The general public's estimation of the success rates of assisted reproduction

- a. is clearly too low,
- b. is exactly right,
- c. is too high,
- d. has not been investigated.
- e. None of the answers are correct.

### Question 4

Which answer is correct?

After assisted reproduction, multiples

- a. have parents with more stable relationships than single offspring,
- b. show a better cognitive development than single offspring,
- c. have, as a rule, happier mothers,
- d. demonstrate fewer behavioral disorders than single offspring.
- e. None of the answers are correct.

### Question 5

Which answer is correct?

The aim of psychosocial fertility counseling should be

- a. to aid couples to find alternative perspectives,
- b. to increase the likelihood of pregnancy,
- c. to destabilize the relationship,
- d. to consistently advise against reproductive medical treatment,
- e. to exclusively explore "psychological blockades"

### Question 6

Which answer is correct?

Couples with a child or children conceived by donor insemination

- a. have a high separation rate,
- b. have usually informed their offspring on how they were conceived,
- c. report great developmental disorders in their children,
- d. have become increasingly reluctant during the last decade to inform their children about their conception.
- e. None of the answers are correct.

### Question 7

Which answer is correct?

- a. For many women, the period of waiting after embryo transfer is more stressful than the actual medical treatment.
- b. The rate of malformations in children after assisted reproduction is lower than that after spontaneous conception.
- c. Few women experience infertility as a crisis.
- d. The course of medical reproductive treatment does not influence the sexual life of couples.
- e. The influence of stress on fertility has been clearly established.

### Question 8

Which answer is correct?

A couple probably (partially) suffers from a psychologically based fertility impairment

- a. if the spermiogram is "continually postponed" for months,
- b. if the couple never have intercourse during the "fertile days",
- c. if the woman suffers from untreated anorexia,
- d. if the man continues to smoke a great number of cigarettes, despite his doctor's advice.
- e. All the answers are correct.

**Question 9**

Which answer is correct?

Couples that are permanently involuntarily childless

- a. generally have a tendency to commit suicide,
- b. usually separate when treatment is completed,
- c. have a good prognosis if they accept the situation,
- d. have a bad prognosis if they have a good social network,
- e. have a significantly worse life quality than couples with children.

**Question 10**

Which answer is correct?

Involuntary infertility will increase

- a. due to the increasing age of first-time mothers,
- b. due to the increase in chlamydia infections,
- c. due to the increase in young girls' weight,
- d. due to the increase in testicular cancer.
- e. All the answers are correct.