Reasons for Dropout in Infertility Treatment

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Key Words

Subfertility · Infertility treatment discontinuation · Physical burden · Psychological burden

Abstract

Background: The objective of this study was to explore the reasons why couples discontinue fertility treatment. **Methods:** A retrospective exploratory study was performed at the Leuven University Fertility Centre, a university hospital-based fertility center. Women who discontinued treatment between September 2000 and December 2001 were contacted in 2004–2005 by telephone for a standardized interview which covered 9 dropout reasons. For each reason, its importance on the decision to stop treatment was measured on an 11-point Likert scale. **Results:** On average, psychological burden ($x = 5.96$) had the highest impact on the decision to stop treatment followed by physical burden ($x = 4.48$) and female age ($x = 3.64$). Perceived lack of staff expertise ($x = 1.84$), negative impact on social contacts ($x = 2.12$) and financial burden ($x = 2.16$) had the lowest impact on the decision to stop treatment. Longer duration of infertility was significantly positively correlated with a higher rating of physical burden as a reason to discontinue treatment ($r = 0.48$; $p <$

0.05). **Discussion:** On average, psychological burden appears to be most frequently named as the number one reason to discontinue infertility treatment, whereas financial burden had the lowest impact. Longer duration of infertility is associated with more externalizing reasons to discontinue treatment.

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Introduction

Subfertile couples consulting fertility clinics are commonly regarded as highly motivated to achieve conception [1]. Although fertility centers offer a wide array of treatments to help them, it has been shown that even in these motivated couples dropout rates are fairly high, varying from 23 [2] up to 45 [3] and 60% [4]. In one Dutch centre, the passive (patients are stopping treatment out of their own volition) and active (patients are forced to stop treatment by the physician or the team) dropout rates after three treatment cycles were 48 and 14%, respectively [5]. However, Swedish investigators [6] reported that 65% of couples did not complete the full treatment program of three fully reimbursable IVF cycles after they failed to

conceive. Finally, an Australian group reported that even though up to six IVF cycles were offered free of charge, patients on average only started three cycles [7].

It is difficult to compare dropout rates between centers and countries, due to heterogeneity with respect to cost, reimbursement policies, accessibility to infertility services, etc. Furthermore, most fertility specialists are interested in positive outcomes and success rates, and tend to ignore or wish to forget about the 'invisible' patients stopping treatment. Consequently, from a medical perspective, passive dropout is often seen as a negative event that needs to be prevented or reduced because of its negative impact on cumulative success rates. The categorization of dropout as passive or as active reflects a non-neutral terminology which fails to recognize the interactive nature of a patient's decision to stop treatment.

The phenomenon of dropout in fertility treatment has scarcely been investigated. Within the group of mainly couple-focused dropout, the reasons and determinants of the couples' decision to continue or discontinue treatment are poorly understood. Dropout can be a positive, rational, healthy decision for many couples. Participating at least once in an IVF treatment cycle can be experienced as a kind of 'ritual' in the mourning process of childlessness, a self-imposed act in order to prevent future feelings of regret 'not having tried everything to have a child'. This approach is largely absent in the current literature. Furthermore, the reasons (both positive and negative) for dropout are not well documented in the literature. The lack of a standardized instrument to assess patient discontinuation in an infertility clinic is remarkable. Although a link between dropout and the demanding character of the treatment has been postulated [6], most retrospective, quantitative studies on dropout have shown a differentiation in reasons for dropout. Olivius et al. [6] investigated potential reasons for IVF discontinuation in a prospective cohort study by asking patients about the main reason for termination and only one reason was registered. The questions were divided into three categories (1 = economic reasons, 2 = medical reasons and 3 = social reasons), with preselected answers for patients to check. The main reason for discontinuation was psychological burden, followed by poor prognosis. Malcolm and Cumming [4] collected data retrospectively for 550 couples in a fertility clinic, and patients were contacted by telephone to ascertain whether a pregnancy had occurred and, if not, whether there was a reason the couple decided not to return to the clinic. Reasons for discontinuation included pregnancy, 'gave up', adoption, personal, financial reasons, divorce or separation, clinic reasons, change

in priorities, ongoing ART, physician reasons, emotional distress as well as practical reasons (e.g. moved away, distance to clinic, etc.), side effects, referred to other provider, alternative therapy, etc. The authors concluded that couples are committed to achieving a pregnancy when they feel hopeful about conceiving. Furthermore, factors including distance to the clinic, inconvenience, emotional distress, side effects from treatment, physician and financial reasons were rarely mentioned as reasons to discontinue. Rajkhowa et al. [8] conducted a questionnaire study with the number of couples who discontinued treatment as the main outcome measure and the reasons for discontinuation including live birth, lack of success, lack of funding, psychological stress, medical advice, physical discomfort, personal and other reasons. A total of 515 couples had discontinued treatment at the time of response, with 266 (52%) having achieved a live birth. The authors concluded that though funding is an important issue, factors including lack of success and psychological stress play a greater role in influencing the decision to discontinue treatment.

Parenthood is an important developmental milestone that highly motivates couples consulting in an infertility clinic. Despite their efforts, some patients drop out of treatment and the reasons why are not well understood. Gaining insight into the dropout phenomenon will allow professionals to help couples resolve issues in decision making and provide a more tailored and sensitive approach for fertility treatments. It can help couples in their decision making process to make informed and healthy decisions in their unique situation. In order to improve insight into the phenomenon of dropout in infertility treatment, this study aimed to quantitatively explore 9 different reasons why women discontinued fertility treatment at the Leuven University Fertility Centre (LUFC). These reasons were based on the available literature and included: occurrence of spontaneous pregnancy, relational burden, social relationships, no longer an acceptable choice of treatment, psychological burden, physical burden, support and expertise of the fertility centre staff, financial cost, woman's age, medical considerations and an alternative realization of the child wish (e.g. adoption) [5].

Methods and Materials

A query was performed in 2004 to determine the women who started any kind of infertility treatment and voluntarily left the LUFC without a pregnancy/baby between September 2000 and December 2001. Four years after initiating their infertility treat-

ment (between December 2004 and March 2005), these women were contacted by telephone for a standardized interview. The structured interview was performed by one single researcher (L.H.) who was not a staff member of the fertility clinic. This study had been approved by the Commission for Medical Ethics from the Faculty of Medicine, Leuven University. Patients who consulted in another fertility centre were excluded from the study because they merely dropped out at the LUFC but not out of infertility treatment. Patients who became pregnant spontaneously and whose pregnancy was their single reason to drop out were also excluded. Finally, only those patients who completed all of the 9 questions in the structured interview were included in the study. Due to the ethical and sensitive nature of the study, it was expected that not all women would want to participate in the study: specifically questioning women about their infertility history and their reasons for stopping treatment could possibly evoke painful feelings. Infertility is a life crisis that can take years to integrate into the couple's future without the desired child.

The questions used for the telephone interview were derived from both clinical experience and a literature review on reasons for dropout in fertility treatment. The reasons for dropout covered in the interview were: women's age, psychological burden, relational burden, physical burden, financial cost, negative impact on social contacts, openness towards other alternatives, perceived lack of expertise of the fertility centre's staff, perceived lack of empathy of the fertility centre's staff. All 9 dropout reasons were covered and participants were asked to estimate to which extent each of these reasons impacted their decision to drop out from fertility treatment. For each reason, its importance on the decision to stop treatment was measured on an 11-point Likert scale ranging from 'not important' (0) to 'extremely important' (10). In order to determine whether a particular reason had an impact on the decision to stop treatment, we used cut-offs. A score of 0 indicated no impact on or no relevance to the decision to stop treatment; a score of 1–3 indicated minimal impact or relevance, a score of 4–6 indicated moderate impact or relevance; a score of 7–10 indicated severe impact or relevance.

The last three questions dichotomously (yes/no) addressed the occurrence of spontaneous pregnancies and fertility treatment at other fertility centers.

All data were imported into an Excel file for statistical analysis. Statistical analysis was performed using SPSS, v11.5. Descriptive statistics are shown as means $\pm$ standard deviations. A non-parametric test (Spearman correlations) was used to study correlations because of the small sample size ($n = 25$ in final dataset) in our study. Statistical significance was defined as a p value of less than 0.05.

Results

A query performed in 2004 demonstrated that 146 women voluntarily left the LUFC without a pregnancy/baby between September 2000 and December 2001. From those, 66 women were not included in the study for practical reasons: 61 remained inaccessible due to absence of telephone number, change of address, no answer, etc. A

further 5 women were not sufficiently fluent in Dutch to participate in the interview. Out of the remaining 80 women, we excluded patients who consulted in another fertility centre ($n = 9$) because they merely dropped out at the LUFC but not out of fertility treatment. Furthermore, patients who became pregnant spontaneously and whose pregnancy was their single reason to drop out were excluded ($n = 2$). Out of the remaining 69 women, 12 refused to answer any question and 32 failed to respond to the complete interview (dropout from the study because of lack of time, calling at a bad time, too emotional to continue with the questions, etc.). Finally, 25 women participated in the interview and responded to all 9 questions to determine the relative importance of the possible reasons for dropout.

The 25 interviewed participants had a mean age of 36.7 (range: 27–45; SD 4.8) years and a mean duration of infertility of 7.4 years (range: 4–16; SD 2.8). At the time of their treatment at the LUFC, 14 women had primary and 6 women secondary infertility (unknown in 5 patients). However, at the time of the telephone interview, 15 out of 25 women had a child, whereas 10 women were still childless. Eight out of 25 respondents became pregnant spontaneously after having stopped treatment at the LUFC.

Table 1 shows the dropout reasons according to their degree of impact with respect to both percentages and mean score. Analysis of the mean score for dropout reasons revealed that psychological burden ($x = 5.96$) had the highest impact on the decision to stop treatment followed by physical burden ($x = 4.48$), female age ($x = 3.64$) and relational burden ($x = 3.40$). Perceived lack of staff expertise ($x = 1.84$), and social ($x = 2.12$) and financial ($x = 2.16$) burden had the smallest impact on the decision to stop treatment. Perceived lack of staff empathy ($x = 2.52$) and openness to alternatives for child wish ($x = 2.36$) had a moderate impact on the decision to stop treatment.

Analysis of the proportion of women identifying a specific dropout reason to have a severe impact on their decision to stop treatment revealed similar results to the mean score analysis. Psychological burden was found to have a severe impact on the decision to drop out of treatment for 52% of the women. Physical burden and female age, negative impact on social contacts and perceived lack of staff empathy, and financial burden had a severe impact on discontinuing treatment for 36, 12 and 8% of women, respectively.

An analysis of the correlations (table 2) between the 9 dropout variables, women's age and duration of infertility revealed a number of significant correlations:

Table 1. Analysis of dropout reasons according to degree of impact (as reported on a visual analogue scale)

Dropout reasons (n = 25)	Minimal impact (0–3)	Moderate impact (4–6)	Severe impact (7–10)	Mean $\pm$ SD
Psychological burden	7 (28)	5 (20)	13 (52)	5.96 $\pm$ 3.24
Physical burden	10 (40)	6 (24)	9 (36)	4.48 $\pm$ 3.47
Woman's age	15 (60)	1 (4)	9 (36)	3.64 $\pm$ 4.18
Relational burden	15 (60)	5 (20)	5 (20)	3.40 $\pm$ 3.57
Perceived lack of staff empathy	18 (72)	4 (20)	3 (12)	2.52 $\pm$ 3.13
Openness to alternatives for child wish	19 (76)	0 (0)	6 (24)	2.36 $\pm$ 4.21
Financial burden	18 (72)	5 (20)	2 (8)	2.16 $\pm$ 2.74
Negative impact on social contacts	19 (76)	3 (12)	3 (12)	2.12 $\pm$ 2.74
Perceived lack of staff expertise	21 (84)	0 (0)	4 (20)	1.84 $\pm$ 3.14

Figures in parentheses indicate percentages.

Table 2. Correlation matrix (Spearman correlations) of the nine dropout reasons, female age and duration of infertility

	Female age	Duration of infertility	Psychological burden	Relational burden	Physical burden	Financial burden	Negative impact on social contacts	Lack of expertise of staff	Lack of empathy of staff	Openness to alternatives	Woman's age
Female age	1.00	0.12	0.06	–0.26	0.04	–0.06	–0.04	–0.29	–0.13	–0.05	0.68
p value		NS	NS	NS	NS	NS	NS	NS	NS	NS	0.000
Duration of infertility		1.00	–0.08	0.42	0.48	0.23	0.15	0.38	0.09	–0.02	0.04
p value			NS	NS	0.026	NS	NS	NS	NS	NS	NS
Psychological burden			1.00	0.12	0.41	0.22	0.19	0.07	0.01	0.29	0.12
p value				NS	0.038	NS	NS	NS	NS	NS	NS
Relational burden				1.00	0.03	0.32	0.11	0.28	0.40	–0.04	–0.21
p value					NS	NS	NS	NS	0.044	NS	NS
Physical burden					1.00	0.44	0.14	0.48	0.12	0.09	0.13
p value						0.024	NS	0.015	NS	NS	NS
Financial burden						1.00	0.61	0.60	0.37	0.29	0.05
p value							0.001	0.001	NS	NS	NS
Negative impact on social contacts							1.00	0.26	0.12	0.55	0.31
p value								NS	NS	0.004	NS
Perceived lack of staff expertise								1.00	0.64	0.17	–0.13
p value									0.001	NS	NS
Perceived lack of staff empathy									1.00	0.12	–0.03
p value										NS	NS
Openness to alternatives										1.00	0.35
p value											NS
Woman's age											1.00

(1) Duration of infertility was positively correlated with physical burden ($r = 0.48$; $p = 0.03$).

(2) Psychological burden was positively correlated with physical burden ($r = 0.41$; $p = 0.04$), which in turn was positively correlated with perceived lack of staff expertise ($r = 0.48$; $p = 0.01$), and with financial burden ($r = 0.44$; $p = 0.02$).

(3) Financial burden was also positively correlated with perceived lack of staff expertise ($r = 0.60$; $p = 0.001$) and with negative impact on social contacts ($r = 0.60$; $p =$

0.001), which was in turn positively correlated with consideration of alternatives for child wish (e.g. adoption; $r = 0.55$; $p = 0.004$).

(4) Relational burden was positively correlated with perceived lack of staff empathy ($r = 0.40$; $p = 0.04$).

(5) Finally, there were positive correlations between actual female age and female age as dropout reason ($r = 0.68$; $p < 0.001$) and between perceived lack of staff expertise and perceived lack of staff empathy ($r = 0.64$; $p = 0.001$).

Discussion

In this exploratory study to determine the impact of 9 possible dropout reasons on the decision to discontinue infertility treatment, psychological burden was on average named as the number one reason to discontinue infertility treatment, followed by physical burden and female age. Perceived lack of staff expertise, negative impact on social contacts and financial burden had the lowest impact on the decision to stop treatment.

The reasons for dropout are complex, as 21 out of 25 women did not drop out for one single reason, but reported that they discontinued treatment for a combination of reasons. The decision to (dis)continue fertility treatment is probably the result of a process of decision making in which several elements mostly related to psychological burden, physical burden and women's age are taken into account.

Female age can be interpreted as a more rational element in the decision to stop treatment. Indeed, female age was positively correlated with female age as a reason to discontinue treatment. Since most treatment centers in Belgium rarely offer treatment beyond a female age of 43, it is likely that these women had either personal objections to continue treatment at their age, or that they were counseled by the gynecologist to consider cessation of therapy.

Psychological burden had a larger impact on the decision to stop treatment than physical burden. The psychological burden associated with fertility treatment appears to have an important impact on women's decision to stop treatment [1, 6, 9]. Many patients experience considerable psychological burden not only while participating in fertility treatment [10], but also following diagnosis and during the clinical investigation of infertility [11, 12].

Remarkably, financial burden was not identified as a significant reason to stop treatment. In Belgium, at the time of our study, the medication cost for ovarian stimulation was largely reimbursed, but the laboratory costs for IVF/ICSI were not reimbursed and patients had a considerable financial cost per cycle (about 1,500–2,000 EUR). It is possible that couples who perceive financial barriers may never consider fertility treatment as a realistic option for them. Alternatively, it cannot be excluded that there is a selection of patients with higher incomes at the LUFH (university hospital). Possibly, financial cost is a barrier to start treatment but does not have a severe impact on the decision to stop treatment. Furthermore, for many couples the goal of a pregnancy/baby may outweigh any financial burden that might arise. It would be interesting

to look at the impact of the new Belgian reimbursement system (full reimbursement of both medication cost and lab cost during a maximum of 6 cycles up to a maximum female age of 42 years) that exists since 1st July of 2003.

Correlational analysis revealed interesting correlations between the variables analyzed in our study. With longer duration of infertility, women reported that physical burden had a more severe impact on their decision to stop treatment. On the one hand, it seems likely that with longer duration of infertility, the physical side effects and burden of infertility treatment may increase, possibly encouraging couples to reconsider their efforts for treatment. On the other hand, it is our hypothesis that this could also be interpreted as an attribution mechanism. Furthermore, there seems to be a trend or cluster in our data between physical burden, financial burden and perceived lack of staff expertise. These are all strongly associated with duration of infertility, possibly indicating a mechanism of externalizing reasons (assigning the cause for discontinuing to an outside/external factor in the situation, not in the person themselves – as stated by F. Heider) to discontinue treatment. In fact, these three reasons are socially desirable or accepted reasons to stop treatment. These 'safe' reasons steer away from the more internalizing reasons (assigning the cause for discontinuing to factors within the person, making the individual responsible for the event – as stated by F. Heider) that are less socially acceptable and perhaps for patients more painful to admit. In addition, women who reported more negative impact on social contacts as a reason to drop out reported significantly more openness towards alternatives for child wish as a reason to discontinue treatment.

It is interesting to note that the more externalizing reasons (such as physical burden, financial burden and perceived lack of staff expertise) are correlated with a longer duration of infertility but are not correlated with openness towards alternatives for child wish. On the other hand, the more internalizing reasons (such as a negative impact on social contacts) are not correlated with a longer duration of infertility but are correlated with openness towards alternatives for child wish. It could be that couples who are more open towards alternatives might have had this attitude from the start. These women might have been open for dialogue and discussion with others, creating a more balanced attitude on the pros and cons of alternatives for child wish. On the contrary, couples who reported openness towards alternatives as having a minimal impact on their decision to stop treatment might have had a more private attitude towards their infertility issues, less open to consider alternatives and in turn more

prone to continue their infertility treatment efforts. Although this hypothesis is based merely on correlations and although it is impossible to make causal assumptions, it reflects our clinical experience in working with infertility patients. The difference between the desire to have a child and the need to have a child might be helpful in explaining this point: a desire signifies hoping but also entails the possibility and openness to non-fulfillment (and in turn openness to alternatives), whereas a need 'must' be fulfilled and is a one way trip [13].

In our study, as many as one third (8/25) of women became pregnant spontaneously after having stopped treatment. In the literature, the treatment-independent pregnancy rate in patients with severe reproductive disorders has been reported to be low by some investigators [14]: 2.4% for tubal subfertility, 5.9% for unexplained infertility and 6.6% for male subfertility. However, other authors have published a cumulative pregnancy rate of 27% [15] or a spontaneous live birth rate of 14% [16] after 12 months of untreated waiting time, and a spontaneous pregnancy of 20% after an unsuccessful fertility treatment [17]. It has been postulated that these spontaneous pregnancies might be attributed to 'stress relief': the effect of being on the waiting list for treatment might reduce stress levels due to the feeling of 'doing something' or 'being in good hands' [14]. However, these findings could also suggest that many patients starting IVF treatment still have a significant chance of becoming pregnant spontaneously and are starting fertility treatment because they find it increasingly hard to cope with the delay of their child wish.

Several important limitations and weaknesses of the current study need to be discussed. First, the sample size is very small ($n = 36$) and the statistical analysis could only be done on a sample of 25 women. Therefore, it is difficult to make assumptions based on such a small sample size. Second, our study population consisted of women only. It would be interesting to perform the same study on men and couples. Differences between men and women regarding having children can complicate decision making with respect to openness towards the social environment, the kind and number of treatments, etc. [18]. Third, we did not differentiate between various treatment options. It is possible that the reasons to stop treatment after IUI are different from those to stop classical IVF or embryo reception. Fourth, we did not use a standardized and validated questionnaire but constructed our own questionnaire based on the available literature and our clinical experience. To the best of our knowledge, there is no standardized questionnaire available to assess reasons for

dropout. Therefore, it is very difficult to compare reasons for dropout between different fertility centers. Fifth, it turns out that 15 out of 25 women had children at the time of the study. This might have had an influence on their perception of the infertility period and their reasons to dropout. In the end, most women achieved their goal to create a family (through adoption, foster parenting, etc.), even though some might have wanted more children. The question whether dropout differs between primary and secondary infertility could not be determined in the current study because of the small sample size. It should be addressed in follow-up research since this might have an important impact on women dropping out of treatment. Sixth, we used a retrospective study design which is always prone to recall bias: participants may still be coping with their infertility history, feelings towards the fertility centre may not be resolved, etc. Many of these biases could influence what people think were the important factors motivating their decision to drop out of treatment, and with only a limited sample size of 25 women it is difficult to ascertain whether intervening factors (e.g. a pregnancy, adoption, etc.) impact on recollection.

It is striking that little attention is given to quantitative research on 'positive' factors in dropout. Both clinical experience and qualitative research demonstrate that many couples simply feel that 'they've done all they can' or that 'we can't say we didn't try', etc. These examples demonstrate that a couple's decision to drop out of treatment can also be interpreted in a positive way. The decision to drop out of treatment is always the result of careful consideration: patients have to weigh their own pros and cons. Voluntary dropout may also be considered as a self-protective measure, and from this point of view it is questionable whether we should try to prevent it. Treatment discontinuation in this regard might be a positive way of coping with involuntary childlessness. The high proportion of women unwilling to participate in this study (12 refused and 36 did not complete all the questions) is remarkable. Perhaps this could indicate that psychological difficulties remain present in coping with their current situation or with looking back to their infertility history. Those who did continue with the study noted that psychological burden had a large impact on the decision to stop treatment. Hence, the question arises whether counseling could be beneficial in patients discontinuing infertility treatment and whether we should focus on helping couples deal with the issues involved in the decision making process as well as explore what constitutes the psychological burden in their current situation. A prospective study performed by Verhaak et al. [19] found that the

emotional response to unsuccessful treatment was predicted out of vulnerability factors assessed before starting treatment. Neuroticism appeared to be a vulnerability factor in emotional response to a severe stressor. Additional risk factor in development of anxiety and depression after a failed fertility treatment were cognitions of helplessness and marital dissatisfaction. Protective factors were acceptance and perceived social support. The authors concluded that clinicians should take these multiple factors into account when counseling or screening patients before treatment as this might benefit patients at risk. This study provides valuable insight into predicting the emotional response to unsuccessful treatment which might have an impact on the decision making process of patients dropping out of infertility treatment. Furthermore, it highlights issues important in counseling patients.

In the LUFC, pre-IVF counseling is offered to all patients but is not mandatory. During infertility treatment,

a counselor/psychologist and a relaxation therapist are available on patient's own demand. Sometimes, the physician will discuss the uptake of counseling during consultation with the patients.

In conclusion, the results of our study demonstrate that most women do not drop out for one single reason, but for a combination of reasons, most importantly psychological burden, physical burden and female age. With longer duration of infertility, more externalizing reasons seem to cluster such as physical burden, financial burden and perceived lack of staff expertise. There is a need for good methodological prospective research to identify and describe the dropout phenomenon as well as analyze and gain insight into the reasons behind discontinuation of treatment. Both qualitative and quantitative research is needed to study the decision making process of couples continuing or discontinuing fertility treatment. This information can then be addressed and used when counseling patients before, during and after treatment.

References

- Domar AD: Impact of psychological factors on drop-out rates in insured infertility patients. *Fertil Steril* 2004;81:271–273.
- Redmond ML, Harrison RF: Evaluating practice at an Irish tertiary level fertility clinic 1995/98. *Ir Med J* 2000;93:112–114.
- Gleicher N, Vanderlaan B, Karande V, Morris R, Nadherney K, Pratt D: Infertility treatment drop-out and insurance coverage. *Obstet Gynecol* 1996;88:289–293.
- Malcolm CE, Cumming DC: Follow-up of infertile couples who dropped out of a specialist fertility clinic. *Fertil Steril* 2004;81:269–270.
- Land JA, Courtar DA, Evers JLH: Patient dropout in an assisted reproductive technology program: implications for pregnancy rates. *Fertil Steril* 1997;68:278–281.
- Olivius C, Friden B, Borg G, Bergh C: Why do couples discontinue in vitro fertilization treatment? A cohort study. *Fertil Steril* 2004;81:258–261.
- Hammarberg K, Astbury J, Baker H: Women's experience of IVF: a follow-up study. *Hum Reprod* 2001;16:374–383.
- Rajkhowa M, McConnell A, Thomas G: Reasons for discontinuation of IVF treatment: a questionnaire study. *Hum Reprod* 2006;21:358–363.
- Mahlstedt PP, Macduff S, Bernstein J: Emotional factors and the in vitro fertilization and embryo transfer process. *J In Vitro Fert Embryo Transf* 1987;4:232–236.
- 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.
- Eugster A, Vingerhoets A: Psychological aspects of in vitro fertilization: a review. *Soc Sci Med* 1999;48:575–589.
- Daniluk JC: Infertility: intrapersonal and interpersonal impact. *Fertil Steril* 1988;49:982–990.
- Demyttenaere K: Coping with Infertility. Evidence-Based Fertility Treatment. Dordrecht, Dorset Press, 1998, chapter 25, pp 345–353, 416.
- Evers JLH, de Haas HW, Land JA, Dumoulin JCM, Dunselman GAJ: Treatment-independent pregnancy rate in patients with severe reproductive disorders. *Hum Reprod* 1998;13:1206–1209.
- Snick HK, Snick TS, Evers JL, Collins JA: The spontaneous pregnancy prognosis in untreated subfertile couples: the Walcheren primary care study. *Hum Reprod* 1997;12:1582–1588.
- Collins JA, Burrows EA, Willan AR: The prognosis for live birth among untreated infertile couples. *Fertil Steril* 1995;64:22–28.
- Hennelley B, Harrison R, Kelly J, Jacob S, Barrett T: Spontaneous conception after a successful attempt at in vitro fertilization/intracytoplasmic sperm injection. *Fertil Steril* 2000;73:4:774–778.
- Hjelmstedt A, Andersson L, Skoog-Svanberg A, Bergh T, Boivin J: Gender differences in psychological reactions to infertility among couples seeking IVF and ICSI treatment. *Acta Obstet Gynaecol Scand* 1999;78:42–48.
- Verhaak CM, Smeenk JM, Evers AW, van Minnen A, Kremer JA, Kraaijmaat FWJ: Predicting emotional response to unsuccessful fertility treatment: a prospective study. *J Behav Med* 2005;28:181–190.