The transition of care from fertility specialists to obstetricians: maternal adjustment and postpartum depressive symptoms

DARWICHE, Joëlle, et al.
The transition of care from fertility specialists to obstetricians: maternal adjustment and postpartum depressive symptoms

Joëlle Darwiche*,1, Florine Maillard1, Marc Germond2, Nicolas Favez3, Deborah Lancastle4, Yves de Roten1, Patrice Guex1 & Jean-Nicolas Despland1

Aim: This study examines the transition from fertility to obstetrical care of women who conceived through IVF. Materials & methods: 33 women filled out questionnaires before IVF, during pregnancy and after birth on infertility stress, maternal adjustment and depressive symptoms. During pregnancy, they participated in an interview about their emotional experiences regarding the transition. Responses were sorted into three categories: Autonomy, Dependence and Avoidance. Results: Exploratory results show that 51.5% of women had no difficulties making the transition (Autonomy), 21.2% had become dependent (Dependence) and 27.3% had distanced themselves from the specialists (Avoidance). Women who became dependent had more trouble adjusting to motherhood and more depressive symptoms. Conclusion: Difficulty making the transition may be linked to decreased ability to adjust to motherhood and more postpartum depressive symptoms.
complicate the maternal adjustment process, or is it a welcome change?

In this exploratory study, we examined the transition of care from fertility specialists to obstetricians by interviewing women who conceived through IVF during their pregnancy about their emotional experiences. The 'care transition' period extended from when the specialists informed the women of their pregnancy to the date of the interviews, in the fifth month of pregnancy. Our objective was to categorize women's experiences during the care transition using qualitative observational methods, and to carry out an exploratory analysis of the link between those experiences and two variables that are commonly studied when examining the transition to parenthood: adjustment to motherhood and postpartum depressive symptoms. These variables were assessed through self-reported questionnaires [11,12]. We hypothesized that those women who experienced difficulties during the care transition would have more difficulty adjusting to motherhood and would experience more postpartum depressive symptoms compared with women who had no particular difficulties during the transition.

**Materials & methods**

**Participants**

The sample comprised 33 women who conceived through homologous IVF with or without recourse to intracytoplasmic sperm injection (ICSI), a test-tube procedure in which a sperm is directly injected into an egg to achieve fertilization. This sample is part of a larger project (supported by the Swiss National Scientific Research Foundation, grant no. 32003B-111985) assessing the transition from infertility to parenthood of couples starting IVF [13,14]. For that project, a sample of 86 women meeting the inclusion criteria was recruited between 2006 and 2009 from two fertility clinics in French-speaking Switzerland before the women's first IVF or ICSI treatment. In Switzerland, these fertility treatments are not reimbursed by health insurance plans, meaning that patients must bear the full cost.

To meet the inclusion criteria, parents had to be fluent in French and not already parents. The study design comprised three research sessions:

- Before the first IVF/ICSI treatment
- During the fifth month of pregnancy
- 9 months after birth

Of the 86 women who participated in the first research session, 33 women became pregnant in the year following their first IVF/ICSI treatment. The 1-year time period was chosen for reasons related to study length. All the women who achieved pregnancy agreed to continue the study until 9 months postpartum. The present paper analyzes data from this subsample of 33 women whose IVF/ICSI treatment was successful. The data relate to: the level of infertility-related stress before IVF/ICSI (first research session); maternal adjustment to pregnancy and emotional reactions to the care transition, assessed during pregnancy (second research session); and maternal adjustment to motherhood and depressive symptoms, assessed at 9 months after birth (third research session).

Women's mean age was 32.5 years (standard deviation [SD] = 3.0), and their socioeconomic status was mostly middle to upper-middle class (Hollingshead’s Index of Social Position). They had been in a stable relationship for approximately 5 years (mean = 5.75, SD = 3.15) and 81.8% were married. **Table 1** presents contextual data on current or past mental disorders, and infertility (duration of infertility workup, source of infertility and ICSI treatment), pregnancy (primiparous and multiparous women, pregnancies obtained following a fresh cycle and complications) and birth (type of delivery, complications and breastfeeding). The source of infertility was a male factor in half the cases, and less often a female factor, a mixed factor or unexplained. Consequently, approximately 80% of the treatments were IVF with ICSI. The incidence of male infertility factors in this sample is high, but similar to the 47% rate in Switzerland [101]. The majority of women were primiparous, one-third of them had pregnancy complications (at risk for miscarriage or preterm labor) and the delivery was by cesarean section in 60% of the cases.

**Procedure**

At the end of the routine counseling session prior to starting the first IVF/ICSI treatment [15], the infertility counselor gave the women an informational letter about the study. The counselor specified that the medical staff, including the counselor, would not be aware of their participation. The researcher then called the women and fully explained the study. Women who agreed to participate received a written consent form to return before the first research session. During the first research
session (before IVF/ICSI), the women filled out a self-reported questionnaire about their infertility-related stress. During the second research session (fifth month of pregnancy), they filled out a self-reported questionnaire about their adjustment to pregnancy and participated in the ‘Reaction to Infertility Interview’, a semi-structured interview that includes questions about emotional reactions to the care transition. Finally, during the third research session, they filled out self-reported questionnaires about their adjustment to motherhood and their depressive symptoms. The study received ethical review and approval from the Ethics Committee of the Faculty of Medicine of the University of Lausanne in 2004.

**Assessment tools**

**Reaction to Infertility Interview**

The Reaction to Infertility Interview (RII) is a 20–30 min semi-structured interview adapted from the Reaction to Diagnosis Interview, which was originally developed and validated for women whose child had received a medical diagnosis [16] [Pianta RC, Marvin RS, Unpublished Data], and whose reliability has been described as satisfactory (coefficient of concordance of 0.80, Kendall’s W test) [14].

The version of the RII used during pregnancy included eight questions: five were similar to the RII and investigated the emotional reactions to a medical diagnosis [14], and three were specifically developed and analyzed for the present study to explore the transition of care from fertility specialists to obstetricians. These three questions were:

- **What was it like to go back to your obstetrician after being treated at the medically assisted procreation (MAP) center?** To make the transition from intensive to routine care?
- **Was it clearly explained to you at the MAP center that your care provider would change once you became pregnant?** (Yes/no)
- **How would you describe your relationship with the MAP center team and how has that relationship changed now that you are going to be a mother?**

**Questionnaires**

Infertility-related stress before starting IVF

Women’s stress before starting IVF was assessed using the Fertility Problem Inventory [17]. This 46-item questionnaire produced a global score of perceived infertility-related stress for each woman that ranged from 46 to 276, with higher scores representing higher stress. This global score assesses five aspects of infertility: social, sexual and relationship anxiety, need for parenthood and feelings about living a child-free life. The internal consistency of the original questionnaire is high (Cronbach’s α = 93) and was satisfactory in our sample (Cronbach’s α = 85). Test–retest reliability, discriminant validity and convergent validity with measures of depression, anxiety and marital adjustment were all described as satisfactory [17].

Adjustment to pregnancy & adjustment to motherhood

Women’s adjustment to pregnancy at the fifth month of pregnancy and adjustment to

| Characteristic | Women, n (%) |
|---------------|-------------|
| Current or past mental disorders | 8 (25) |
| **Infertility** | |
| Duration of infertility workup, M (SD) | 1.6 (2.2) |
| Source of infertility | |
| – Female factor | 3 (9.1) |
| – Male factor | 17 (51.5) |
| – Mixed factor | 10 (30.3) |
| – Unexplained | 3 (9.1) |
| ICSI | 27 (81.8) |
| **Pregnancy** | |
| Primiparity | 27 (81.8) |
| Multiparity | |
| – Miscarriage | 4 (12.1) |
| – ETOP or MTOP | 2 (6.1) |
| Fresh cycles | 20 (60.6) |
| Complications | |
| – At-risk for miscarriage | 6 (18.2) |
| – Preterm labor | 4 (12.1) |
| – No complications | 23 (69.7) |
| **Birth** | |
| Type of delivery | |
| – Cesarean | 20 (60.6) |
| – Vaginal | 13 (39.4) |
| Complications | |
| – Yes† | 18 (54.5) |
| – No | 15 (45.5) |
| Breastfeeding | |
| – Yes | 25 (75.8) |
| – No | 8 (24.2) |

†Complications were: amniotic fluid complications, umbilical cord abnormalities, baby malpresentation or fetal heart-rate abnormalities. ETOP: Elective termination of pregnancy; ICSI: Intracytoplasmic sperm injection; M: Mean; MTOP: Medically indicated termination of pregnancy; SD: Standard deviation.
Depressive symptoms at 9 months postpartum
Women’s depressive symptoms were assessed at 9 months postpartum using the Edinburgh Postnatal Depression Scale [20,21]. Global scores for the 10-item questionnaire can range from 0 to 30, with higher scores indicating more depressive symptoms. Scores above 10.5 indicate possible clinical depression [21]. The internal consistency of the original questionnaire is satisfactory (Cronbach’s \( \alpha = 76 \)), as was the internal consistency with our sample (Cronbach’s \( \alpha = 77 \)). Test–retest reliability, criterion validity and convergent validity with the General Health Questionnaire-28 and Center for Epidemiologic Studies Depression Scale were described as satisfactory [21].

Qualitative observational analysis
A qualitative approach was used to analyze the three questions related to the transition of care. A conventional content analysis based on ten videotaped interviews was used to formulate clinically valid categories for the transition of care [22]. The coder also noted whether the emotional terms used by the women were positive (“I was relieved and happy”) or negative (“I felt stressed and worried”), and took into account the nonverbal behaviors. Nonverbal behaviors indicating the subject’s involvement in the discussion (body facing the interviewer, eye contact, smiles and facial expressiveness) were considered positive. Behaviors indicating the subject’s detachment (body turned away from the interviewer, limited eye contact, few smiles or polite smiles and little facial expressiveness) were considered negative [23]. The correspondence between the verbal and nonverbal indicators was also considered. This initial phase of inductive category development led to the creation of three categories for the transition of care, derived from the data.

Autonomy
The women in this category used few emotional terms to describe their experiences during the care transition. The terms were both positive and negative or neutral, but were always consistent with their nonverbal behavior. Overall, these women described the mixed feelings that may occur in such a situation (happy to begin a new phase, sad or uneasy about leaving the fertility team). They acknowledged and dealt with the element of separation in the care transition.

Dependence
The women in this category frequently used emotional terms to underscore the intensity of their relationship with the MAP team, and the terms were generally consistent with their nonverbal behavior. They expressed very strong positive feelings about their relationship with the team and could not imagine that relationship ending. Some of these women requested to continue to be monitored by the fertility specialist during pregnancy. The specialist was seen as their protector, offering a rigorous schedule of consults and exams and constant availability. These women did not acknowledge the element of separation in the care transition, but rather expressed the need to maintain close contact with the MAP team.

Avoidance
The women in this category used few emotional terms in their descriptions. They behaved defensively and evasively by spending little time on the subject, limiting their responses to facts or by failing to respond at all. They did not acknowledge the element of separation in the care transition, instead emphasizing the need to distance themselves from the MAP team. They also tended to minimize the contribution of the MAP team. Their descriptions were flat (i.e., lacking effect) or defensive, or they smiled politely while adopting a detached posture. The few emotions they described were generally inconsistent with their nonverbal behavior.
Inter-rater reliability
These categories were then used to code all the interviews. Inter-rater reliability was established through independent coding of eight interviews by the first author. The coders were blind to the questionnaire scores. Inter-rater reliability was assessed using two-way random intraclass correlation coefficients (ICC_{2,1}). The score was 0.93, p < 0.001 for coding the transition category.

Statistical analyses
To conduct an exploratory test of our hypothesis that adjustment to motherhood and the presence of postpartum depressive symptoms would vary by transition category, we performed a Kruskal–Wallis H test and used Mann-Whitney as the post hoc test to determine the specific differences between the categories. The effects on the transition category of sociodemographic data (age, socioeconomic status and length of the relationship), current or past mental disorders, infertility data (duration of infertility workup, source of infertility and ICSI treatment), pregnancy (primiparity versus multiparity, fresh versus frozen cycle and complications) and birth data (type of delivery, complications and breastfeeding) were examined using one-way analysis of variance. We also investigated the need to control for the women’s infertility-related stress before beginning IVF (using the Kruskal–Wallis H test and Mann-Whitney as the post hoc test), and for the women’s perception of whether the fertility specialists had clearly explained that once they were pregnant they would no longer be treated by the fertility center (using the $\chi^2$ test).

Results
Preliminary analyses
The preliminary analyses to investigate the need to control for the effects on the transition category of sociodemographic data (age, socioeconomic status and length of the relationship), current or past mental disorders, infertility data (duration of infertility workup, source of infertility and ICSI treatment), pregnancy (primiparity versus multiparity, fresh versus frozen cycle and complications) and birth data (type of delivery, complications and breastfeeding) did not reveal any significant effects.

Care transition
Analysis of the interviews produced the following distribution among the transition categories: autonomy (51.5%); dependence (21.2%); and avoidance (27.3%). The excerpts below are characteristic of the descriptions given for each of the three categories.

Autonomy
Excerpt 1:
“You get attached to the staff at the center, so it wasn’t easy to leave them, but I was happy to see my gynecologist again because it’s more personal and he takes more time.”

Excerpt 2:
“It’s a relief to be back to normal, but on the other hand the medical team was important; it was just a 1-month treatment, but that was crucial. I miss that personal contact now; sometimes I want to go back and give them an update.”

Excerpts 1 and 2 illustrate the mixed feelings of the women in this category: difficulty separating from the fertility specialists who played a key role for them, but also satisfaction at going back to the obstetrician (excerpt 1) or routine care (excerpt 2).

Excerpt 3:
“The center told us, ‘Ok, you’re pregnant, we won’t be seeing you anymore,’ even though we had grown accustomed to the doctors and the team. I didn’t know what to expect going back to the gynecologist who we hadn’t seen in 3 years. I was afraid he wouldn’t understand all we’d been through.”

Excerpt 3 illustrates the connection with the MAP team (“we’d grown accustomed to the doctors and the team”) and also the woman’s concerns that the obstetrician would not understand them, not having been involved in the pre-pregnancy process.

Dependence
Excerpt 1:
“I asked to remain under the care of the gynecologist who I saw during treatment. I couldn’t imagine going elsewhere; I wanted someone who knew what I’d been through.”

Excerpt 2:
“It made sense for us to stay at the center because they had done everything and it was rewarding for the nurses to see how it turns out for once.”
The women in excerpts 1 and 2 requested to continue treatment at the MAP center, while the woman in excerpt 3 below left the center. The MAP team nonetheless remains very important to her.

Excerpt 3:

“The Center is a happy place; I tear up every time I pass by it.”

In the Dependence category, we also saw cases where the fertility specialist was the attending physician for the pregnancy and was described as very supportive and available.

Excerpt 4:

“The doctor gave me his mobile phone number and said I could call him, even on Saturdays or Sundays.”

In other cases, it was the lack of support from the obstetrician that was emphasized:

Excerpt 5:

“In the beginning I was uneasy, I felt like the doctor [obstetrician] wasn’t monitoring us enough. We would have liked to have seen him more often, especially early in the pregnancy. If only we could have checked every day that the baby was alright!”

Avoidance

Excerpt 1:

“It’s already forgotten: it was clear from the beginning in the center’s paperwork.”

(in an uptight tone of voice)

The women in this category also sometimes minimize the MAP team’s contribution, giving the impression of distancing themselves from their feelings.

Excerpt 2:

“There was no transition for us; our gynecologist was always Dr S. He just delegated to the center what he couldn’t do himself.”

(lacking affect, detached posture)

Excerpt 3, about a letter from the MAP center to the obstetrician:

“If you read between the lines, they were congratulating themselves on me being pregnant. I told my doctor [obstetrician]: I want it to be very clear to everyone that I am pregnant…naturally. They…you could say that they had nothing to do with it, to be quite clear.”

Pretreatment stress & clarity of the explanation of the transition

Results did not show any difference by transition category in women’s infertility-related stress before beginning IVF ($\chi^2 = 1.40$, not significant) (Table 2). Moreover, 100% of the women in the sample stated that they had received a clear explanation of the transition in care that would follow conception.

Care transition: exploratory results on the adjustment to pregnancy & motherhood & on postpartum depressive symptoms

Table 2 shows the scores by transition category from the questionnaires on the adjustment to pregnancy and motherhood and on postpartum depressive symptoms. The adjustment to pregnancy did not vary according to the transition category, however, at 9 months postpartum, women in the Dependence category were having more difficulties adjusting to motherhood and had higher postpartum depressive symptom scores compared with women in the Autonomy category. These differences were statistically significant, but the global scores remained within the norms [24,25]. Five of the seven women in the Dependence category had maternal adjustment scores in the problematic range (top quartile), compared with three out of 17 in the Autonomy category and one out of nine in the Avoidance category. Furthermore, two out of seven of the women in the Dependence category scored higher than the cut-off of 10.5 on the Edinburgh postnatal depression scale questionnaire, compared with two out of 17 in the Autonomy category and one out of nine in the Avoidance category.

Discussion

This study provided insight into the emotional experiences of women who conceived through IVF with regard to the transition of care from fertility specialists to obstetricians. Our analysis revealed three different types of transition: autonomy, dependence and avoidance. Half the women in our sample were deemed to have made the care transition without any
notable difficulties, and acknowledged both the positive and negative aspects of the change (Autonomy category). The other half had more difficulty with the care transition, either because they had become dependent on the fertility specialists (Dependence category) or because they distanced themselves from the thoughts and emotions surrounding their time at the MAP center (Avoidance category). We hypothesized that the women’s adjustment to pregnancy and to motherhood and postpartum depressive symptoms would vary according to their transition category. Our exploratory analyses indicated that this hypothesis was confirmed at 9 months postpartum, but not during pregnancy. Our findings indicate that the women in the Dependence category had the greatest difficulties postpartum. Consequently, women who form a particularly strong bond with the MAP center may be more at-risk for increased difficulties adjusting to motherhood postpartum and experiencing more postpartum depressive symptoms. However, the scores remained within the norms for adjustment to motherhood and postpartum depressive symptoms.

The fact that the women in the Dependence category and not those in the Avoidance category experienced increased postpartum difficulties may suggest that very (i.e., overly) positive relationships between patients and MAP center care providers should receive attention. However, we cannot disregard the possibility that this result is due to a ‘dependent’ personality type, rather than to the care transition. More research is needed to assess the transition type and the women’s personality type.

This study has several limitations. First, our results are exploratory, as the size of the care transition groups is insufficient for drawing definitive conclusions about the differences between these groups. This categorization should be used in a larger sample of women so that the results can be generalized. Second, it is possible that other factors, such as personality, determine which transition category women fall into. For example, women who are predisposed to form dependent relationships would likely have more difficulty separating from the fertility specialist than women more naturally inclined to be autonomous in their interpersonal relationships. The patients’ personality types were not considered in the scope of this study; thus, the matter cannot be addressed definitively. In addition, other factors not considered in this study could also affect how patients handle difficulty with the care transition, such as the care providers’ personality, whether or not they tend to overprotect their patients, and their anxiety about pregnancies, generally considered as precious [25,26]. However, other important variables, such as the level of infertility-related stress measured prior to conception, might also play a role in the transition process.

### Table 2. Infertility-related stress before in vitro fertilization, adjustment to pregnancy and motherhood, and postpartum depressive symptoms by care transition category.

| Care-transition category       | Sample total, n = 33 | Autonomy (A), n = 17 | Dependence (B), n = 7 | Avoidance (C), n = 9 | Kruskal–Wallis independent samples |
|-------------------------------|----------------------|----------------------|----------------------|----------------------|-----------------------------------|
| M SD                          | M SD                 | M SD                 | M SD                 | M SD                 | χ² Post hoc (Mann–Whitney)         |
| FPI total score 131.13 27.94  | 131.25 23.17         | 120.33 36.03         | 138.11 31.09         | 1.40 ns               |
| MAMA prenatal mean score 1.83 | 1.79 0.32            | 1.96 0.31            | 1.80 0.35            | 1.83 ns               |
| MAMA postnatal mean score 1.71| 1.57 0.23            | 2.34 0.54            | 1.54 0.21            | 8.36 A, C<B*          |
| EPDS total score 4.70 3.89    | 4.17 4.05            | 7.80 2.84            | 3.75 3.54            | 4.76 A<B*             |

*p < 0.05.

EPDS: Edinburgh Postnatal Depression Scale; FPI: Fertility Problem Inventory; M: Mean; MAMA: Maternal Adjustment and Maternal Questionnaire; ns: Not significant; SD: Standard deviation.
To IVF, as well as the clarity of the explanation of the transition, did not explain the differences between the transition categories.

Another limitation is that, owing to the interview occurring during the fifth month of pregnancy, the progress of the pregnancy could have had an impact on how the transition was perceived. We cannot discount the possibility that complications early in the pregnancy might negatively influence how the transition is perceived or trigger the formation of a bond with, or even dependency on, the attending physician. Nevertheless, our results do not indicate that the women in the Dependence category had more complications with their pregnancies than those in the other categories. Finally, it would be interesting to assess adjustment to motherhood and depressive symptoms at postpartum earlier, as symptoms of depression may be observed as soon as 2 weeks after delivery [27].

**Conclusion**

This study’s findings underscore the importance of taking into account not only the standard pre- and post-natal variables, but also factors related to the care experience when evaluating the transition to motherhood of women who conceived through IVF. Future research could focus on such factors as the experiences of doctors who monitor the pregnancies achieved through IVF and on the doctor–patient relationship. This research would refine our understanding of the dynamics at work in the care of women who conceive through IVF.

Furthermore, future research that includes analysis of the emotional experience during the care transition from fertility specialists to obstetricians could suggest possible improvements to help achieve effective transitional care in the field of MAP. In recent years, important efforts have been made to increase the quality of transitional care in different fields of medicine. Various strategies have been used, such as the development of individualized transition protocols with recommendations for medication or treatment plans for cancer patients transitioning from intensive care to primary care [3], for the elderly making the transition from hospitals to nursing homes [28] and for chronically ill patients who transition from pediatric to adult care [29]. In adult patients discharged from the hospital, other procedures have also been assessed, such as in-hospital discharge preparation, informational leaflets, liaison nurses and discharge coordinators, discharge planning protocols and improving communication between hospitals and primary care providers [30].

To improve the quality of transitional care in the MAP field, the women and their partners must be informed and prepared for the different phases of care during pregnancy, and be actively included in the decision-making (e.g., by making telephone calls in their presence, sending them copies of letters or setting the transition date together). Additionally, MAP professionals could increase their sensitivity to their patients’ needs in terms of pre- and post-natal support, because the specificity of the experience of conceiving through IVF may, in turn, shape the experience of the transition to parenthood [9]. The development of strategies to ease the transition from fertility care to obstetrical care and the evaluation of their efficacy is a move towards patient-centered reproductive medicine, which strives to be responsive to the individual woman’s needs and experiences [31,32].

**Future perspective**

In the MAP field, a large number of studies focus on the couples’ emotional reactions during medical treatment or after treatment failures. An as yet limited number of studies focus on pregnancy and the early postpartum period after IVF. More studies on this period are needed to increase our understanding of the specificity of the transition to parenthood following infertility and infertility treatments. Research on transitional care in reproductive medicine is also needed to assess patients’ needs and expectations broadly, and then set up and assess the efficacy of specific interventions to ease the care transition.

**Acknowledgements**

The authors would like to thank Sarah Zimmer for editing the English version of the manuscript.

**Financial & competing interests disclosure**

The research was supported by the Swiss National Scientific Research Foundation, grant No. 32003B-111985. The authors have no other relevant affiliations or financial involvement with any organization or entity with a financial interest in or financial conflict with the subject matter or materials discussed in the manuscript apart from those disclosed.

No writing assistance was utilized in the production of this manuscript.

**Ethical conduct of research**

The authors state that they have obtained appropriate institutional review board approval or have followed the principles outlined in the Declaration of Helsinki for all human or animal experimental investigations. In addition, for investigations involving human subjects, informed consent has been obtained from the participants involved.
Executive summary

Transition of care from fertility specialists to obstetricians after IVF
- After successful IVF, women typically leave the care of fertility specialists and their pregnancy is monitored by obstetricians.
- No previous research has examined the emotional experiences of women who conceived through IVF during the transition from fertility to obstetrical care.
- Studies in other fields of medicine indicate that the transition of care from intensive to routine medical care may create or enhance feelings of uncertainty and anxiety.
- The study’s hypothesis was that difficulties during the care transition would be associated with difficulties adjusting to motherhood and more elevated postpartum depressive symptoms.

Women’s emotional reactions to the transition of care were assessed during pregnancy
- A total of 33 women participated in a semistructured interview about their emotional reactions to the transition of care at the fifth month of pregnancy. Women’s responses were sorted into three categories: Autonomy, Dependence and Avoidance.
- Women also filled out self-report questionnaires that evaluated their infertility-related stress (prior to IVF), their adjustment to pregnancy (fifth month of pregnancy) and their maternal adjustment and depressive symptoms (9 months after birth).
- The effect of sociodemographic, infertility, pregnancy and birth data was investigated.

Emotional reactions of dependence toward the fertility specialists were associated with difficulties adjusting to motherhood & higher scores for postpartum depressive symptoms
- 51.5% of women had no difficulties making the transition (Autonomy category), whereas 21.2% had become dependent (Dependence category) and 27.3% had distanced themselves from the specialists (Avoidance category).
- Women in the Dependence category had more difficulties adjusting to motherhood than women in the Autonomy and Avoidance categories and had higher scores for postpartum depressive symptoms than women in the Autonomy category.
- No difference by transition category was observed concerning infertility-related stress.
- No difference was observed between transition categories in relation to sociodemographic, infertility, pregnancy and birth data.

Quality of transitional care may be improved
- Strengthening transitional care in the infertility field may be beneficial to all patients, and in particular to women who need special attention.
- Potential strategies are: informing the women and their partners about and preparing them for the different phases of care; including them in the decision-making process (e.g., setting the transition date together with the fertility specialist); and assessing their needs in terms of pre- and post-natal support.

An example of research on the transition to parenthood after medically assisted procreation that shows that women conceiving through assisted reproductive technology have a more complex experience of pregnancy compared with women who conceived spontaneously.

References
Papers of special note have been highlighted as:
- of interest
- of considerable interest
1. Coleman EA, Berenson RA. Lost in transition: challenges and opportunities for improving the quality of transitional care. Ann. Intern. Med. 141(7), 533–536 (2004).
2. Freyer DR. Transition of care for young adult survivors of childhood and adolescent cancer: rationale and approaches. J. Clin. Oncol. 28(32), 4810–4818 (2010).
3. Salani R, Andersen BL. Gynecologic care for breast cancer survivors: assisting in the transition to wellness. Am. J. Obstet. Gynecol. 206(5), 390–397 (2012).
4. Hewitt M, Ganz P. From Cancer Patient to Cancer Survivor: Lost in Transition. National Academies Press, Washington, DC, USA (2006).
5. Jacobson PB, Holland JC, Steensma DP. Caring for the whole patient: the science of psychosocial care. J. Clin. Oncol. 30(11), 1151–1153 (2012).
6. Matthias MS. Problematic integration in pregnancy and childbirth: contrasting approaches to uncertainty and desire in obstetric and midwifery care. Health Commun. 24(1), 60–70 (2009).
7. de Mouzon J, Goossens V, Bhattacharya S et al. Assisted reproductive technology in Europe, 2007: results generated from European registers by ESHRE. Hum. Reprod. 27(4), 954–966 (2012).
8. Hammarberg K., Fisher JRW, Wynter KH. Psychological and social aspects of pregnancy, childbirth and early parenting after assisted conception: a systematic review. Hum. Reprod. Update 14(5), 395–414 (2008).
- An early review of the empirical literature on psychological and social aspects of pregnancy, childbirth and the first postpartum year after medically assisted procreation that laid the groundwork for future research.
9. McMahon CA, Boivin J, Gibbon FL et al. Age at first birth, mode of conception and psychological wellbeing in pregnancy; findings from the parental age and transition to parenthood Australia (PATPA) study. Hum. Reprod. 26(6), 1389–1398 (2011).
- An example of research on the transition to parenthood after medically assisted procreation that shows that women conceiving through assisted reproductive technology have a more complex experience of pregnancy compared with women who conceived spontaneously.
10. Gameiro S, Moura-Ramos M, Canavarro MC, Soares I. Psychosocial adjustment during the transition to parenthood of Portuguese couples who conceived spontaneously or through assisted reproductive technologies. Res. Nurs. Health 33(3), 207–220 (2010).
11. Williams KE, Marsh WK, Rason NL. Mood disorders and fertility in women: a critical review of the literature and implications for future research. Hum. Reprod. Update 13(6), 607–616 (2007).
12. Ross LE, McQueen K, Vigod S, Dennis CL. Risk for postpartum depression associated with assisted reproductive technologies and multiple births. A systematic review. Hum. Reprod. Update 17(1), 96–106 (2011).
13. Cairo S, Darwiche J, Tissot H et al. Family interactions in IVF families: change over the transition to parenthood. J. Reprod. Infant Psychol. 30(1), 5–20 (2012).
14. Darwiche J, Favez N, Maillard F et al. Couples’ resolution of infertility diagnosis before undergoing IVF. Swiss J. Psychol. (2013) (In Press).
15. Emery M, Béran MD, Darwiche J et al. Results from a prospective, randomized, controlled study evaluating the acceptability and effects of routine pre-IVF counselling. Hum. Reprod. 18(12), 2647–2653 (2003).
16. Marvin RS, Pianta RC. Mothers’ reactions to their child’s diagnosis: relations with security of attachment. J. Clin. Child Psychol. 25(4), 436–445 (1996).
17. Newton CR, Sherrard W, Glavac I. The fertility problem inventory: measuring perceived infertility-related stress. Fertil. Steril. 72(1), 54–62 (1999).
18. Kumar R, Robson KM, Smith AMR. Development of a self-administered questionnaire to measure maternal adjustment and maternal attitudes during pregnancy and after delivery. J. Psychosom. Res. 28(1), 43–51 (1984).
19. Börjesson K. Mental Illness: Relation to Childbirth and Experience of Motherhood (Doctoral dissertation, Stockholm). Karolinska University Press, Stockholm, Sweden (2005).
20. Cox J, Holden J, Sagovsky R. Detection of postnatal depression: development of the 10-item Edinburgh Postnatal Depression Scale. Br. J. Psychiatry 150, 782–786 (1987).
21. Guedeney N, Fermandian J. Validation study of the French version of the Edinburgh Postnatal Depression Scale: new results about use and psychometric properties. Eur. Psychiatry 15(2), 83–89 (1998).
22. Hsieh HF, Shannon SE. Three approaches to qualitative content analysis. Qual. Health Res. 15(9), 1277–1288 (2005).
23. Knapp M, Hall J. Nonverbal Communication in Human Interaction (7th Edition). Wadsworth, Boston, MA, USA (2010).
24. Windridge K, Berryman JC. Maternal adjustment and maternal attitudes during pregnancy and early motherhood in women of 35 and over. J. Reprod. Infant Psychol. 14(1), 45–55 (1996).
25. Allen C, Bowdin S, Harrison RF et al. Pregnancy and perinatal outcomes after assisted reproduction: a comparative study. Br. J. Med. Sci. 177(3), 233–241 (2008).
26. Jackson RA, Gibson KA, Wu YW, Croughan MS. Perinatal outcomes in singletons following IVF: a meta-analysis. Obstet. Gynecol. 103(3), 551–563 (2004).
27. Pearlstein T, Howard M, Salisbury A, Zlotnick C. Postpartum depression. Am. J. Obstet. Gynecol. 200(4), 357–364 (2009).
28. LaMantia MA, Scheunemann LP, Viera AJ, Busby-Whitehead J, Hanson I.C. Interventions to improve transitional care between nursing homes and hospitals: a systematic review. J. Am. Geriatr. Soc. 58(4), 777–782 (2010).
29. Rutishauser C, Aké C, Suris JC. Transition from pediatric to adult health care: expectations of adolescents with chronic disorders and their parents. Eur. J. Pediatr. 170(7), 865–871 (2011).
30. Mistiaen P, Francke AL, Poot E. Interventions aimed at reducing problems in adult patients discharged from hospital to home: a systematic meta-review. BMC Health Serv. Res. 7, 47–65 (2007).
31. van Empel IWH, Aarts JWM, Cohlen BJ et al. Measuring patient-centredness, the neglected outcome in fertility care: a random multicentre validation study. Hum. Reprod. 25(19), 2516–2526 (2010).
32. Dance EAF, Nelen WLD, Sermeus W, de Leeuw L, Kremer JAM, D’Hooghe TM. The patients’ perspective on fertility care: a systematic review. Hum. Reprod. Update 16(5), 467–487 (2010).
• A systematic review of the empirical literature that highlights the need for fertility clinics to become more patient-centered and to document interventions that aim to achieve this goal.

Website
101. Swiss Federal Statistical Office. Reproductive statistics, newborn health. www.bfs.admin.ch/bfs/portal/en/index/themen/14/02/03.html