FERTILITY AND ASSISTED REPRODUCTIVE TECHNOLOGY (ART)
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FERTILITY AND ASSISTED REPRODUCTIVE TECHNOLOGY (ART)

Theory, Research, Policy, and Practice for Health Care Practitioners

Eleanor L. Stevenson, PhD, RN
Patricia E. Hershberger, PhD, MSN, RN, FNP-BC
Editors

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To the women and men who have fertility challenges
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The agony and anguish fertility struggles wreak go right to the heart of what it means to be human. Being able to reproduce and bring forth new life is the basis of human biology; when this ability is damaged, our very existence is threatened. That is why problems with fertility often cut harder and deeper than other issues. Infertility is also far more than just a physical malfunction: It affects individuals profoundly at emotional, social, and cultural levels. It is not uncommon to hear those battling to become parents talking of how life loses all meaning; men describe feeling less of a man and, for women, the empty womb can challenge all notions of womanhood. Considering this, the importance of fertility care is paramount.

It is approaching 40 years since the world’s first “test-tube” baby was born in the United Kingdom; since then, assisted reproductive technologies (ARTs) have transformed our world for the better. Those who struggle with fertility challenges experience a very simple story: that of restoring the gift of life. However, as advances in ART, including in vitro fertilization (IVF), continue to improve success rates there is a growing threat for those unable to have children without medical assistance. Across the world, access to fertility treatment is being denied to those who cannot afford it, or those whose medical insurance does not cover it. Although we may applaud developments in ART, it would be a hollow victory indeed if novel fertility therapies were only available for the richest few in society.

I am one of the lucky ones who finally became a mother after struggling with fertility problems. I got the chance to try IVF. I want to see all others in need have the same opportunities. In my office, I have the following patient quote pinned up: “I can accept failure; everyone fails at something. But what I cannot accept is not trying.” The real challenge in the years ahead for fertility treatment will be making sure all who want to try to become parents via ART have the chance to do so.

Fertility and Assisted Reproductive Technology (ART): Theory, Research, Policy, and Practice for Health Care Practitioners addresses the many facets of infertility and fertility care around the world. Discussion of these topics will help physicians, nurses, and others who care for those with fertility challenges to not only increase awareness of the issues surrounding access and policy, but also highlight some key clinical
care considerations. The wide range of topics provides a wealth of information and helps to bring awareness of the many struggles and issues for people with fertility concerns.

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FOREWORD

Infertility is estimated to affect as many as 186 million people worldwide. On average, 9% of all reproductive-aged couples suffer from this condition. In some regions of the world, the rates of infertility are much higher, affecting as many as 30% of all couples. Infertility thus remains a challenging global reproductive health problem. Yet, in vitro fertilization (IVF)—the nearly 40-year-old assisted reproductive technology (ART) designed to overcome infertility—is still not readily available to those who need it, either in resource-poor settings or in countries such as the United States where lack of public funding of IVF remains a potent barrier to fertility care.

Fertility care is the main theme of this edited volume brought together by two professors of fertility nursing. Their notion of “care” is admirably broad and reflected in diverse and comprehensive chapters on a wide range of subjects. This welcome and much-needed interprofessional volume provides a state-of-the-art, cutting-edge overview of infertility and ART in the 21st century. Indeed, this volume presents a veritable treasure trove of useful information for both clinicians and scholars. Four key themes shine through the chapters.

CAUSATION

This volume clearly challenges the assertion that the causes of infertility have been completely discovered. Several chapters address both the most proximate (e.g., genetics and stress) and distal (e.g., global demographic shifts and delayed childbearing) causes of infertility, suggesting that more research is needed on the global epidemiology of infertility. Particularly welcome are chapters devoted to male infertility and polycystic ovary syndrome (PCOS). Both of these conditions are increasing in prevalence around the world, with male infertility contributing to more than half of all cases of childlessness. Both of these conditions also reflect the interaction of genes and environment. For example, most cases of severe male-factor infertility reflect genetic mutations or chromosomal abnormalities. But smoking and various environmental toxins also diminish men’s sperm profiles. Similarly, PCOS, which is related to insulin resistance and diabetes, is often triggered by lifestyle changes such as increased sedentarism and weight gain. Indeed, PCOS is a growing cause of women’s infertility around the globe, but one that has received insufficient scholarly attention.
Another issue that is particularly well addressed in this volume is the relationship between age and fertility, both maternal and paternal. As several chapters demonstrate, changing norms of marriage and cohabitation, increasing educational and professional opportunities for women, workplace policies that do not support parenting, and concomitant delays in childbearing are serving to increase the age of first pregnancy in many societies around the globe. In the United Kingdom, for example, the average age of first-time mothers is 30 years. In the United States, one out of every five women will become a first-time mother after the age of 35 years, an eightfold increase over the previous generation of women. These shifts toward older childbearing have, in effect, “caused” more infertility, with advanced maternal age (AMA) as one of the primary indications for IVF due to poor ovarian reserve and poor oocyte quality. At last, advanced paternal age is also being questioned for its links to poor fertility and child health outcomes. Like male infertility in general, advanced paternal age—including its effects on parenting and life expectancy—has been relatively neglected and misunderstood. Thus, the attention in this volume to all of these issues is quite laudable, suggesting that much more research, both on the basic science of infertility etiology and on the social science of gender norms and family formation, deserves to be undertaken.

ACCESS

This volume also prioritizes issues of access—namely, why millions of people worldwide face obstacles to receiving infertility diagnosis and care, including access to ART. ART access varies widely around the globe, due to the lack of IVF clinics in some regions (e.g., sub-Saharan Africa), and due to the lack of public IVF funding (i.e., state subsidization) in the majority of non-Western European countries. As a result, IVF and other ARTs are unaffordable for most people. In the United States, which is the main focus of this volume, the average cost of an IVF cycle exceeds $12,000 and is not covered by most health insurance plans. Furthermore, the few “mandate states” where IVF cycles are publicly financed are paradoxically being challenged by the Affordable Care Act (ACA), which does not cover infertility treatment. In the United States, as elsewhere, infertility is too often viewed as a “luxury” condition, making IVF an “elective” procedure. This view is strongly challenged by the reproductive rights focus forwarded in this volume, in which ART access is a form of reproductive justice for the infertile.

Several chapters in this volume highlight ART activism. Most notably, the low-cost IVF (LCIVF) movement—which is being promoted most forcefully by the Walking Egg nonprofit organization in Belgium—hopes to bring a very low-cost form of IVF to sub-Saharan Africa and other parts of the Global South. LCIVF also has great potential in “developed” countries such as the United States, where the unmet need for IVF among low-income and minority populations represents a potent reproductive health disparity. Eventually, LCIVF may serve to mitigate what has become a worldwide phenomenon of cross-border reproductive care (CBRC), or the reproductive travel of infertile patients across national borders. As shown in this volume, much CBRC is attributable to the search for affordable IVF care.
CARE

As mentioned earlier, care is the key trope of this volume. What does it mean to deliver high-quality care to those needing help with conception? This volume takes an expansive view of those needing help—not only infertile heterosexual couples in marriages or committed partnerships, but also same-sex couples (i.e., gay men needing gestational surrogates and gay women needing sperm donors), transgender individuals who may desire fertility preservation, adolescents who desire early childbearing, single women seeking oocyte cryopreservation for either medical or elective fertility preservation, and couples facing genetic conditions (e.g., sickle cell disease), where IVF-related preimplantation genetic diagnosis may prevent genetic disease in their offspring. As the remit of (in)fertility services for ever-more-diverse populations grows wider, the need for clinically, psychologically, socially, culturally, and religiously “competent,” “patient-centered” (in)fertility care and ART services will continue to expand. Fortunately, this book offers much guidance and advice for those working in the clinical realm. Several chapters are oriented toward psychologists and nurses, demonstrating what a crucial role they play in helping to relieve patient anxiety, in developing effective clinical teamwork, and in introducing patients to helpful adjunct services such as support groups and complementary and alternative medicine (CAM). In addition, patient-centered infertility care involves understanding the lifeworlds of patients themselves—their psychological distress, their social and structural vulnerabilities, and their special needs for support, including those after the birth of their children. For example, as shown in this volume, parenting after oocyte donation may require special clinical skills and psychological reassurance to women who have grieved the loss of their biogenetic reproductive potential. These women deserve to be supported in their mothering roles, so they may form strong and positive attachments to their children through pregnancy, childbirth, and breastfeeding.

OUTCOMES

In other words, the “aftermath” of ART—the actual outcomes of infertility services, including the successful births and the reproductive failures—requires more scholarly attention and care. As this volume makes abundantly clear, new ARTs are continuously on the horizon. This includes, for example, IVF through uterine transplantation, mitochondrial transfer to overcome inherited mitochondrial disease, ovarian tissue freezing, and ovarian tissue transplant. How will these new technologies change the face of fertility care as well as the families created by them? This volume suggests that much research will need to be undertaken, not only on the “new” reproductive technologies, but also on the ART outcomes already in our midst. This includes the high rates of excess embryo transfer and iatrogenic multifetal pregnancies in many parts of the world. Moreover, with egg donation already firmly in place, and with egg freezing increasingly being undertaken by women in their late 30s and 40s, more research on age, ART outcomes, and “peri-menopausal parenting” will need to be conducted.
FOREWORD

Overall, this collection speaks to the emergence of much that is new, vital, wondrous, and amazing in the world of assisted reproduction. Yet, many issues are still troubling, ambiguous, ethically questionable, unfair, and unresolved in the second decade of the new millennium. Those who read this volume will have a much better understanding of the multiple issues at stake. Thus, this book is an invaluable resource for clinicians, scholars, and lay readers who care about infertility, assisted reproduction, and reproductive justice in the 21st century.

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Fertility and the process of bearing children are a significant experience in most individuals’ lives. A substantial number of individuals and couples struggle with challenges with their fertility and ultimately in building the families they desire. Infertility, the inability to conceive after 1 year of unprotected intercourse (Zegers-Hochschild et al., 2009), affects between 49 and 70 million couples around the world (Boivin, Bunting, Collins, & Nygren, 2007; Mascarenhas, Flaxman, Boerma, Vanderpoel, & Stevens, 2012). In the United States, survey studies have found that there are approximately 2 million infertile couples, which is about 9% of the married couples with females aged 15 to 44 years. According to the National Survey of Family Growth (National Center for Health Statistics, n.d.), about 6% of married women are infertile (12 months or longer without birth control and without a pregnancy). Additionally, about 12% of women (both married and single) aged 15 to 44 years had an impaired ability to have children (impaired fecundity) in 2013 (National Center for Health Statistics, n.d.). This latter increase is, in part, likely indicative of the delay in childbearing found in the contemporary couple population base in which significant age-related increases in infertility and impaired fecundity have been reported. The Healthy People 2020 (revised, 2013) goal is to reduce impaired fecundity to 11.4% (Healthypeople.gov, 2013). The medical specialty area known as assisted reproductive technology (ART), encompassing the field of reproductive endocrinology and infertility, has a global goal of improving family building outcomes for those with infertility and fertility challenges.

Although the treatment of infertility is the hallmark of care in ART, advances in physiological sciences have led to novel approaches that are not limited to the specific treatment of infertility. These novel treatment options expand the scope of care to include strategies for the preservation of future fertility and advanced options for examining the genetic structure of embryos before implantation. These ever-expanding treatment options allow a growing number of individuals, especially young women, the ability to preserve fertility (Practice Committees of the American Society for Reproductive Medicine and the Society for Assisted Reproductive Technology, 2013). Individuals with diseases such as cancer, lupus, and sickle cell now have fertility preservation options available to them (Lee et al., 2006; Raptopoulou, Sidiropoulos, & Boumpas, 2004; Roux et al., 2010; Sonmez & Oktay, 2004). People at risk of transmitting genetic disorders can now opt to have embryos tested during in vitro fertilization (IVF) procedures to decrease the likelihood of transmitting the disorder to future offspring (Baruch, Kaufman, & Hudson, 2008; Hershberger, Schoenfeld, & Tur-Kaspa, 2011). These advances, made possible
by cutting-edge breakthroughs in reproductive sciences, were unseen in prior generations. However, as the physiological sciences advance and treatment options become available to more individuals, there is less consideration of the impact of this cutting-edge science on those for whom it is intended to help, nor is there adequate discussion of the contemporary issues that these families, health care professionals, and other interested individuals, scholars, and scientists face.

To fill this critical gap, we set out to explore contemporary health care perspectives related to the health care of individuals, couples, and families dealing with infertility and fertility challenges including, but not limited to, those who are treated with advanced technologies such as IVF, intrauterine insemination, and oocyte preservation. We, as nurses, have had the profound opportunity to provide clinical nursing care for the growing number of people who are struggling with infertility and fertility challenges in today’s modern world. We care deeply about people with fertility and infertility challenges and view this book as an extension of that care.

We hope that health care practitioners, public health officials, women’s health experts, scientists, students, scholars, and other interested individuals from across the globe will find the information valuable. To that aim, we sought collaborators from a wide range of disciplines to help us enhance awareness, spur discussion, and invoke solutions for improving care of people throughout the world. Our collaborators represent eight countries (Australia, Belgium, Israel, New Zealand, Sweden, The Netherlands, the United Kingdom, and the United States) and nine states within the United States. We also purposely included collaborators who were at various stages in their careers—from those who are well established and leaders in ART, to those who are launching careers, including several students. Their collective voices provide a wealth of perspectives and a broad scope of ideas and information.

The book is organized into four parts (theory, research and reviews, policy, and practice) where various aspects of health care for those seeking fertility evaluation and treatment are presented. The theoretical part forms the foundation for the book, with chapters that articulate new ways of conceptualizing key concepts and processes that affect infertile people and those at risk of fertility loss. For example, the concept of adaptation is described as a basis for a comprehensive theory of infertility, and the concept of family structure is examined from various theoretical perspectives. The second part, research and reviews, includes chapters in which current research findings and comprehensive reviews provide up-to-date information about contemporary issues in ART. Psychological stress and fertility, delayed parenting, patient and provider perspectives on multifetal pregnancies, and how rabbinic law affects ART procedures are a few of the important topics discussed in this part. The third part advances to chapters covering burgeoning areas in policy that discuss important contemporary considerations such as same-sex relationships and issues related to access to care in the United States and globally. The last section, Part IV, discusses emerging practice considerations including information about treatment options, polycystic ovary syndrome, the unique needs of infertile men, and the specialty practice of fertility nurses in the United Kingdom. The book also offers four case study exemplars that will help readers synthesize areas previously addressed by offering relevant and thought-provoking examples from today’s care practices.
Written in response to the ever-evolving science that surrounds the field of ART, this book provides insight about issues and perspectives surrounding contemporary family formation that involve advanced fertility and infertility treatments. We hope readers will find the information valuable and that it will aid in our resolve to improve the health care of the increasing number of individuals and families who find themselves interfacing with the evolving landscape of modern reproductive treatments.

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REFERENCES


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There are many reasons why we wanted to provide a book about worldwide contemporary fertility issues. Foremost, as nurses, we view this book as an extension of our nursing care. In today’s contemporary fertility settings, there are a growing number of individuals and couples who seek complex fertility treatments that surround assisted reproductive technologies (ARTs). Ushered in with modern ARTs are a host of issues including the concern that fertility treatments are unobtainable for many individuals and couples worldwide. This book is written to ultimately improve the health care of all individuals and couples by presenting a sampling of thoughtful views, novel conceptualizations, research reports, comprehensive reviews, public health and policy perspectives, and innovative care practices to the forefront for discussion by a large global audience. Foremost, we are indebted to each of our collaborators who shared our vision and who were able to contribute their time, effort, and expertise toward our cause of helping those with fertility and infertility challenges in the modern world. We would like to thank them, too, for their willingness to revise and “improve” their chapters, and hope they are aware of our deep gratitude.

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CHAPTER 1

A TEMPLATE FOR A COMPREHENSIVE THEORY OF INFERTILITY: A ROY ADAPTATION MODEL PERSPECTIVE

Jacqueline Fawcett

The purpose of this chapter is to offer a template for developing a comprehensive psychosocial theory of infertility within the context of the Roy Adaptation Model (RAM) of nursing (Roy, 2009). The chapter begins with an overview of the purpose of all research with regard to theory development and the way in which conceptual models guide theory development. The chapter continues with an overview of the RAM and a description of electronic searches for theoretical and empirical literature about psychosocial experiences of infertility. The concepts identified in the retrieved literature are then linked with the concepts of the RAM to create a template for a comprehensive theory. The physiological, psychological, and social factors that may be responsible for infertility; technological advances in treating these conditions; and correlates of options for overcoming infertility, such as adoption, surrogacy, or in vitro fertilization, are beyond the scope of this chapter.

THEORY DEVELOPMENT, RESEARCH, AND CONCEPTUAL MODELS

Theories, which are made up of relatively concrete and specific concepts and propositions, are typically developed by means of empirical research (Fawcett & Garity, 2009). The starting point for the research that leads to theory development is a conceptual model, which is made up of relatively abstract and general concepts and propositions. The function of the conceptual model is to guide research, and therefore, theory development, by providing a distinctive frame of reference, “a horizon of expectations” (Popper, 1965, p. 47), and to help the researcher to “ask the right questions” (Glanz, 2002, p. 556) throughout all phases of a research project.

The Roy Adaptation Model

Inasmuch as the RAM (Roy, 2009) has been the guide for my program of research for almost 40 years (Clarke & Fawcett, 2014), I selected this conceptual model to guide the development of a template for a comprehensive theory of infertility. The RAM focuses on changes experienced by human beings as they respond to internal and
external environmental stimuli to maintain their physiological, psychic, spiritual, and social integrity. The concepts of the RAM are listed and defined in Box 1.1 and are depicted in Figure 1.1.

**BOX 1.1 SUMMARY OF THE ROY ADAPTATION MODEL**

**Environmental Stimuli**—The pooled effect of the stimuli is the adaptation level, that is, the final outcome of adapting to the stimuli.

- The **focal stimulus** most immediately confronts the human being.
- **Contextual stimuli** are all other environmental factors that influence a situation.
- **Residual stimuli** are factors that have an unknown influence on the situation and, as such, are typically not included in research.

**Coping Processes**—Stimuli pass through two types of coping processes.

- The **regulator coping subsystem** processes stimuli through “neural, chemical, and endocrine coping channels” (Roy, 2009, p. 41) of the autonomic nervous system.
- The **cognator coping subsystem** processes stimuli through “four cognitive-emotive channels: perceptual and information processing, learning, judgment, and emotion” (Roy, 2009, p. 41).

**Modes of Adaptation**—Stimuli are indirectly related to four interrelated modes of adaptation through the coping processes and also are directly related to the four modes.

- The **physiological mode** addresses physical integrity and is concerned with responses to stimuli through “all the cells, tissues, organs, and systems comprising the human body” (Roy, 2009, p. 90).
- The **self-concept mode** addresses psychic and spiritual integrity and pertains “to the personal aspect of human systems” (Roy, 2009, p. 95), including the physical self (body sensations and body image) and personal self (self-consistency, self-ideal, and the moral–ethical–spiritual self).
- The **role function mode** addresses social integrity and pertains to activities that are associated with ascribed and acquired roles (Roy, 2009).
- The **interdependence mode** addresses social integrity and focuses on “interactions related to the giving and receiving of love, respect, and value” (Roy, 2009, p. 45).

![FIGURE 1.1](https://via.placeholder.com/150)  
**FIGURE 1.1** The Roy Adaptation Model: concepts and propositions.
Searches of the Literature

An electronic search of the literature from multiple disciplines yielded an impressively large number of studies of psychosocial aspects of infertility. The report of an initial search of PubMed/MEDLINE is shown in Table 1.1; filters yielded 408 publications. The report of a second search of PubMed/MEDLINE is shown in Table 1.2; this search yielded 225 publications. The report of a search of the Cumulative Index to Nursing and Allied Health Literature (CINAHL Complete), using the search terms [name of conceptual model of nursing] AND infertility, is shown in Table 1.3; this search yielded seven publications. The sources of theory concepts that were

<table>
<thead>
<tr>
<th>SET #</th>
<th>SEARCH TERMS AND FILTERS</th>
<th>RESULTS</th>
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<tr>
<td>3</td>
<td>#1 AND #2</td>
<td>1,256</td>
</tr>
<tr>
<td>5</td>
<td>#3 AND #4</td>
<td>830</td>
</tr>
<tr>
<td>6</td>
<td>#5 NOT ((“Animals”[MeSH]) NOT (“Animals”[MeSH] AND “Humans”[MeSH]))</td>
<td>822</td>
</tr>
<tr>
<td>8</td>
<td>#7, Filters: English, 2004-</td>
<td>408</td>
</tr>
</tbody>
</table>

Note: Search conducted by Adrianne Leonardelli, August 12, 2014.
selected from the plethora of literature were theoretical articles (Cunningham &
Cunningham, 2013; Ridenour, Yorgason, & Peterson, 2009); a systematic review of
multidisciplinary literature (Greil, 1997); a multidisciplinary meta-analysis (Jordan &
Revenson, 1999); reviews of literature included in and/or the findings of studies
conducted by nurses or members of other disciplines (Arslan-Özkan, Okumuş, &
Buldukoğlu, 2014; Galhardo, Cunha, & Pinto-Gouveia, 2013; Gonzalez, 2000; Hirsch &
Hirsch, 1989; Johnson, 1996; Naab, 2011; Özkan, Okumuş, Buldukoğlu, & Watson,
The Template for a Comprehensive Theory

A template for development of a comprehensive theory of the psychosocial experience of infertility is shown in Table 1.4. Given the emphasis in this chapter on the psychosocial experience of infertility, the RAM concepts of the regulator coping subsystem and the physiological mode of adaptation are not considered. In addition, residual stimuli were not considered inasmuch as these, like residual variance in statistics, are not identifiable. As seen in Table 1.4, the RAM concepts provided a way to categorize the theory concepts that were extracted from the literature. The categorization of theory concepts according to the RAM concepts is admittedly arbitrary and not always in keeping with what was done by authors of RAM-guided studies. For example, both Ciambelli (1996) and Zbegner (2003) included theory concepts that they linked with the RAM physiological mode of adaptation (Ciambelli—physical demands and Zbegner—physical energy). For the purposes of this chapter and based on their definitions of those concepts, physical demands were interpreted as functional status and were linked with the role function mode; physical energy was also linked with the role function mode.

Some distinctive theory concepts found in the reviewed literature represent the RAM concept of adaptation level (Box 1.1). These concepts are adjustment, relinquishing infertility, resilience, restitution, and quality of life or subjective well-being. Arslan-Özkan et al. (2014) included adjustment as a theory concept in their study of 103 Turkish women. They defined adjustment in women with a diagnosis of infertility as “the ability of individuals to maintain their attitude towards the probability of not having children in behavioural, cognitive and emotional terms” (pp. 1802–1803). In her synthesis of the findings of three qualitative descriptive studies, Sandelowski (1995) discovered that relinquishing infertility was experienced as couples who were diagnosed as infertile made “efforts to divest themselves of the identity, thoughts, feelings, and behavior patterns they had developed in response to their encounter with infertility” (p. 123).

Ridenour et al. (2009) included resilience, which they defined as “developing strengths in the face of adversity” (p. 35), as the central concept in their theory of infertility. They regarded resilience as both a process and an outcome for couples experiencing infertility, explaining:

Couple resilience to infertility may be defined as a process, such as relationship cohesion or positive communication during the ambiguous times following diagnosis. For example, resilience may be displayed by remaining close as a couple despite failure to conceive a child, or becoming accustomed to the idea that one will never have children…. Resilience to infertility also may be considered as an outcome of the interconnections between the external factors,
individual influences, and collective interactions and perceptions [of their theory]… Consequently, resilience depends on the individual’s and couple’s ability to effectively modify previous views, resulting in acceptance of infertility regardless of existent external influences or infertility treatment outcomes. (p. 37)

Restitution emerged from González’s (2000) study of the meaning of infertility for 25 women who had a medical diagnosis of infertility. She explained:

Participants described a process of restitution, in which they accepted the reality of their physical inability to bear a child and attempted to put the pain of the infertility behind them. The participants did not describe themselves as having reached a stage of resolution, a term used historically in the infertility literature to refer to the subsiding of the pain of the loss engendered by infertility… The participants described this restitutional process as a relinquishing or disengaging from the fantasy of pregnancy and bearing a biological child. (p. 626)

For the purposes of her study of 176 women who had received treatment for infertility, van den Akker (2005) defined quality of life as a “multidimensional construct of happiness or satisfaction, from the perspective of ‘an individual’s sense of well being which stems from satisfaction/dissatisfaction with areas in life that are important to her’” (Ferrans, as cited in van den Akker, 2005, p. 184). Ciambelli (1996) included subjective well-being in her RAM-guided test of a middle-range theory of adaptation of marital partners who were experiencing fertility problems. She defined subjective well-being as a health-related outcome focusing on “how people evaluate various domains of their lives, including a summary or overall evaluation of life-as-a-whole... [and] as their personal assessment of their quality of life-as-a-whole, health and appearance, and personal life” (p. 32).

Formulating the Theory

The theory concepts shown in Table 1.4 may be used collectively as a comprehensive theory of the psychosocial experience of infertility. Empirical testing of this theory would be guided by the RAM propositions, which are listed here:

- Focal and contextual stimuli are related to coping processes.
- Coping processes are related to the modes of adaptation.
- Focal and contextual stimuli are related to the modes of adaptation.
- The modes of adaptation are interrelated.

Theory propositions, which would be deduced from the RAM propositions, would include all of the theory concepts representing each of the RAM concepts (Table 1.4). Testing a theory with so many concepts would, of course, require a large sample and a large number of questionnaires; therefore, it is most likely not feasible.

<table>
<thead>
<tr>
<th>ROY ADAPTATION MODEL CONCEPTS</th>
<th>FOCAL STIMULI</th>
<th>CONTEXTUAL STIMULI</th>
<th>COGNATOR COPING PROCESSES</th>
<th>SELF-CONCEPT MODE</th>
<th>ROLE FUNCTION MODE</th>
<th>INTERDEPENDENCE MODE</th>
<th>ADAPTATION LEVEL</th>
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</thead>
<tbody>
<tr>
<td>Theory concepts</td>
<td>Desire for a biological child</td>
<td>Duration of infertility</td>
<td>Ways of coping/coping strategies/coping effectiveness</td>
<td>Lethargy/chronic fatigue</td>
<td>Parenthood motivation</td>
<td>Marital relationships</td>
<td>Adjustment</td>
</tr>
<tr>
<td>Involuntary childlessness</td>
<td>Duration of treatment</td>
<td>Cognitive dissonance</td>
<td>Pain</td>
<td>Life roles</td>
<td>Marital satisfaction</td>
<td>Relinquishing infertility</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>Personal expectations</td>
<td>Body image</td>
<td>Career roles</td>
<td>Marital status</td>
<td>Resilience</td>
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<tr>
<td>Age</td>
<td>Surprise</td>
<td>Personal identity</td>
<td>Self-efficacy</td>
<td>Social interaction</td>
<td>Restitution</td>
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<tr>
<td>Career stage/employment status</td>
<td>Disbelief</td>
<td>Self-concept</td>
<td>Functional status</td>
<td>Social support</td>
<td>Quality of life/subjective well-being</td>
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<tr>
<td>Personal finances/socioeconomic status</td>
<td>Frustration</td>
<td>Self-esteem</td>
<td>Physical energy</td>
<td>Social conflict</td>
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<tr>
<td>Beliefs about infertility</td>
<td>Disappointment</td>
<td>Self-preservation</td>
<td>Interactions with other parents’ children</td>
<td>Social stigmatization</td>
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<tr>
<th>ROY ADAPTATION MODEL CONCEPTS</th>
<th>FOCAL STIMULUS</th>
<th>CONTEXTUAL STIMULI</th>
<th>COGNATOR COPING PROCESSES</th>
<th>SELF-CONCEPT MODE</th>
<th>ROLE FUNCTION MODE</th>
<th>INTERDEPENDENCE MODE</th>
<th>ADAPTATION LEVEL</th>
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<tbody>
<tr>
<td>Culture/social norms</td>
<td>Decision making</td>
<td>Hope</td>
<td>Awareness of loss of desired parental role</td>
<td>Loss of social status</td>
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<td>Perceptions of infertility</td>
<td>Psychological distress</td>
<td>Powerlessness</td>
<td>Isolation</td>
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<tr>
<td>Stress</td>
<td>Feeling less like a woman</td>
<td>Loneliness</td>
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<td>Anxiety</td>
<td>Feeling less like a man</td>
<td>Alienation</td>
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<tr>
<td>Fear</td>
<td>Feeling less desirable</td>
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<td>Mourning/grief</td>
<td>Feeling incomplete</td>
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<td>Denial</td>
<td>Feeling empty</td>
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<td>Anger</td>
<td>Feeling unworthy</td>
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<td>Hostility</td>
<td>Feeling defective</td>
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<tr>
<td>Desperation</td>
<td>Feelings of failure</td>
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<tr>
<td>Guilt</td>
<td>Sexual identity problems</td>
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<tr>
<td>Depression</td>
<td>Sexual dysfunction</td>
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<td>Religiosity/spirituality</td>
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A more feasible approach is to select a few of the concepts that are of particular interest to a researcher for testing. For example, the relations among the theory concepts representing the focal stimulus and one or more of the theory concepts representing the self-concept mode of adaptation could be studied. Or, the relations among some of the theory concepts representing the modes of adaptation could be studied.

Examples of feasible theory testing are the RAM-guided theory development and testing work by Ciambelli (1996) and by Zbegner (2003). They tested the relations among various concepts of their middle-range theories of adaptation to infertility. The theory propositions are listed as hypotheses in Box 1.2.

**BOX 1.2 TWO ROY ADAPTATION MODEL–GUIDED MIDDLE-RANGE THEORIES OF ADAPTATION TO INFERTILITY**

*Ciambelli (1996) tested nine hypotheses.*

1. Types of coping strategies and levels of coping effectiveness reported by partners with fertility problems will be related to levels of physical demands; self-esteem; home and work functioning; and social support.
2. Partners’ physical demands will be inversely related to subjective well-being and marital satisfaction.
3. Partners’ self-esteem levels will be positively related to their subjective well-being and marital satisfaction.
4. Partners’ home and work functioning will be positively related to their subjective well-being and marital satisfaction.
5. Partners’ social support will be positively related to their subjective well-being and marital satisfaction; and partners’ social conflict is inversely related to subjective well-being and marital satisfaction.
6. Partners’ subjective well-being will be positively related to their marital satisfaction.
7. Wives’ subjective well-being will be positively related to husbands’ subjective well-being and wives’ marital satisfaction is positively related to husbands’ marital satisfaction.
8. Partners’ coping use and effectiveness, physical demands, self-esteem, home and work functioning, social support and social conflict, and spousal subjective well-being will explain a significant amount of variance in their subjective well-being.
9. Partners’ coping use and effectiveness, physical demands, self-esteem, home and work functioning, social support and social conflict, and spousal marital satisfaction will explain a significant amount of variance in their marital satisfaction.

*Zbegner (2003) tested two hypotheses.*

1. The linear combination of the adaptive mode variables of physical energy level (physical mode), self-esteem (self-concept mode), marital satisfaction (interdependence mode), and parenthood motivation (role function mode) predict coping behaviors better than any one variable alone.
2. The contextual stimuli of age, education, income, and total length of time in treatment are related to the adaptive mode variables of physical energy level, self-esteem, marital satisfaction, and parenthood motivation.
CONCLUSION

The approach used in this chapter for development of a psychosocial theory of infertility can be replicated using other conceptual models of nursing as overarching frameworks for categorizing theory concepts extracted from the literature and as guides for development of theory propositions that can be empirically tested.

The international, multidisciplinary literature used for development of the RAM-guided theory of the psychosocial experience of infertility spanned several years, from 1987 to 2014. It is noteworthy that few new theory concepts emerged over the years. Apparently, the psychosocial experience of infertility as it relates to adaptation has not changed over time. What has, of course, changed are the technological options now available for women and men who desire a biological child. A review of the psychosocial effects of those options is recommended.

ACKNOWLEDGMENT

I am indebted to Adrianne Leonardelli, MLIS, for her creative search of much of the literature retrieved for this chapter.

REFERENCES


CHAPTER 3

A THEORETICAL APPROACH TO MULTIDIMENSIONAL STRESS EXPERIENCED DURING PREGNANCY BY WOMEN WHO CONCEIVE VIA IN VITRO FERTILIZATION

Eleanor L. Stevenson and Kristina Cobb

In vitro fertilization (IVF) has been available in most developed nations for just more than three decades, with larger numbers of women using IVF in roughly the past 15 years due to refinement of the science and greater insurance coverage (Reddy, Wapner, Rebar, & Tasca, 2007). Even as the number of IVF procedures and success of these procedures increase, many women who become pregnant through IVF are simply told to “go home and have a healthy baby” (Klock & Greenfeld, 2000, p. 1159). Given the increasing number of IVF pregnancies, researchers need to develop a greater understanding of these pregnancies, particularly the stress that may be associated with them. DiPietro, Ghera, Costigan, and Hawkins (2004) state that one significant, but largely unrecognized, methodological issue in the measurement of stress during pregnancy is the fact that pregnancy has unique psychological and social challenges. Failure to measure pregnancy-specific sources of stress can lead to underestimating maternal distress. Although limited, some researchers have begun to assess pregnancy-related anxiety, specifically the potential impact on adverse pregnancy outcomes (Wadhwa, Sandman, Porto, Dunkel-Schetter, & Garite, 1993; Yali & Lobel, 2002). This review is concerned with both general and pregnancy-specific stress.

The general pregnancy literature has examined stress extensively (Giurgescu, Penckofer, Maurer, & Bryant, 2006; Jomeen & Martin, 2005; Lobel & Dunkel-Schetter, 1990; Stark & Brinkley, 2007; Yali & Lobel, 2002), but little is known, conceptually or methodologically, about stress in women who become pregnant via IVF. The data that are available on stress in the IVF population are conflicting, with some disagreement over whether this population experiences more stress than those who conceive without assistance. Sufficient data do indicate that getting pregnant via IVF is a stressful experience (Coughlan, Walters, Ledger, & Li, 2014; Lawson et al., 2014; Turner et al., 2013). This stress might disappear once pregnancy is achieved, leaving women with an experience similar to that of a woman who conceives without assistance. However, there are no data to either support or reject this hypothesis.
Both qualitative and quantitative research indicates that women with IVF pregnancies perceive and experience their pregnancies differently from women who conceive unassisted. For instance, researchers of one qualitative study found that infertile couples put forth significant effort to normalize their pregnancies and to make themselves feel special; these couples described their pregnancies as equal to, more complicated than, or even superior to pregnancies achieved by those able to conceive naturally (Sandelowski, Harris, & Black, 1992). Other qualitative researchers found that the majority of the sample (75%) of women who became pregnant through fertility treatments perceived their pregnancies differently from those without fertility issues (Hjelmstedt, Widström, Wramsby, & Collins, 2003a). In particular, the women believed that those without fertility issues could achieve another pregnancy again but that the current pregnancy was probably the only pregnancy they themselves would be able to achieve. One participant stated, “for us it is so complicated to start again” (p. 159). Similar to the qualitative research, quantitative data also indicate that the women pregnant via IVF experience their pregnancies differently from other women; however, the differences are challenging to quantify. When examining stress from a quantitative perspective, even defining stress in a standardized way is difficult. As leading stress researchers have noted, inconsistencies in both the conceptual and operational definitions of stress lead to difficulties in drawing meaningful conclusions about it (Lobel, 1994; Lobel, Dunkel-Schetter, & Scrimshaw, 1992).

One approach to defining stress in a robust way is to use a multidimensional construct. Lobel et al. (Lobel, 1994; Lobel et al., 1992) conceptualize stress as being composed of three components: stimulus/environmental, perceptual, and emotional response, all of which fit into Lazarus’s transactional model (Lazarus, 1966). These components, measured collectively, create a comprehensive evaluation of stress. Currently, no single measure exists that accounts for the multiple dimensions of stress; therefore, this chapter examines the existing literature about stress during pregnancies conceived by IVF in order to ascertain the extent to which this literature supports Lobel et al.’s conceptualization of stress.

THEORETICAL MODEL

Research indicates that IVF is stressful. However, it is unknown whether the stress of the IVF procedure carries into the pregnancies that result, and it is also unknown whether the stress levels are higher than those of women who conceive without assistance. A multidimensional conceptualization of stress proposed by Lobel et al. (1992), as described earlier, can be used to understand the stress women may experience during pregnancies after undergoing IVF. The multidimensional definition of pregnancy stress proposed by Lobel et al. (Lobel, 1994; Lobel & Dunkel-Schetter, 1990; Lobel et al., 1992) forms the conceptual framework for this review. Lobel et al.’s work was based on that of Lazarus and Folkman, whose transactional model of stress and coping (Lazarus, 1966; Lazarus & Folkman, 1984; Lazarus & Launier, 1978) defines stress as the product of a dynamic interaction or relationship between the individual and the environment that takes into account both the characteristics of the person and the nature of the environmental event (Lazarus, 1966; Lazarus & Folkman, 1984; Lazarus & Launier, 1978). In Lobel’s conceptualization (1992),
the three components of stress, when taken together, represent an individual’s overall level of stress. The relationships found by Lobel and Dunkel-Schetter (1990) between the three components may be the result of various relationships, both unidirectional and bidirectional, between each of these variables.

The first component of the multidimensional stress model, the stimulus/environmental element, is typically measured in terms of life events that require the individual to make major changes or adjustments. The second component, the perceptual, involves an individual’s perception of an event or events as stressful (Lobel, 1994; Lobel & Dunkel-Schetter, 1990; Lobel et al., 1992). As Cohen, Kamarck, and Merlmeinstein (1983) state, “perceived stress can be viewed as an outcome variable, measuring the experienced level of stress as a function of objective stressful events, coping processes, personality factors, etc.” (p. 386). The third component of the stress model is the emotional response, which occurs when an individual is confronted with an event that she perceives as stressful. The most frequently measured negative emotional response is anxiety (Lobel, 1994), with the contextually related form of anxiety being pregnancy-related anxiety.

RESULTS

After an exhaustive search of the literature, 13 studies were designed to measure at least one of the three components of stress in women who were pregnant via IVF. These 13 studies were evaluated in terms of whether and how they measured stress in women with IVF pregnancies. Of the studies, none considered the environmental component of stress; one study evaluated the perceptual component, and 13 considered the emotional response component. The only one of the three stress dimensions that has been evaluated by multiple researchers in women with IVF pregnancies is the emotional response component, which encompasses both general and pregnancy-related anxiety. Of those that examined emotional response, 10 studied general anxiety and eight studied pregnancy-specific anxiety (see Tables 3.1 and 3.2 for more detail about these studies). In the review of these studies, the factors of interest were as follows: whether the women in the samples had previous pregnancies, which country was the setting of the study, and when in the pregnancy the variables were measured.

Perceptual Component

Only one study examined perceived stress in a sample of women who had become pregnant via IVF (Darwiche et al., 2014). In the study, researchers were interested in stress levels in an IVF population before prenatal testing as compared with a control sample of women who became pregnant without assistance. The IVF group had more perceived stress than controls as measured at 11 weeks gestation (Darwiche et al., 2014).

Emotional Response Component

The emotional response component is the only one of the three stress dimensions that was evaluated by multiple researchers in samples of women with IVF pregnancies.
<table>
<thead>
<tr>
<th>STUDY</th>
<th>DESIGN</th>
<th>PURPOSE</th>
<th>SAMPLE</th>
<th>METHODS</th>
<th>MEASURES</th>
<th>RESULTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Darwiche et al. (2014)</td>
<td>Prospective Study</td>
<td>To compare levels of general and pregnancy-specific anxiety related to well-being of child and psychological stress before noninvasive screening.</td>
<td>Fifty-one nulliparous women pregnant via IVF/ICSI compared with 54 women who conceived spontaneously during first trimester.</td>
<td>Participants completed questionnaires about their general and pregnancy-specific anxiety, and psychological stress at one time point. Demographic, obstetrical, and medical histories were obtained at recruitment.</td>
<td>Spielberger State and Trait Anxiety Inventory (STAI) for state anxiety; Pregnancy-Related Anxiety Questionnaire (PRAQ-R) for anxiety about well-being of child; Psychological Stress Measure (PSM) for psychological stress; Prenatal Psychosocial Profile (PPP) for stress related to psychosocial issues</td>
<td>Anxiety scores were higher in IVF/ICSI group; higher pregnancy-related anxiety about well-being of child in control group, but regression showed no difference in groups; higher psychological stress in IVF/ICSI group.</td>
</tr>
<tr>
<td>McMahon et al. (2013)</td>
<td>Longitudinal Cohort Study</td>
<td>To compare the prevalence of nausea and vomiting of pregnancy (NVP) in singleton and twin gestations conceived via IVF, and to analyze the impact of associated psychological factors.</td>
<td>Forty-five singleton gestations and 12 twin gestations, studied after confirmation of pregnancy (baseline), 10 to 12 weeks gestation, and 20 to 22 weeks gestation.</td>
<td>Participants completed three questionnaires evaluating NVP, anxiety, and depression during each encounter. Demographic, obstetrical, and medical histories were obtained at recruitment.</td>
<td>Pregnancy-Unique Quantification of Emesis and Nausea, Center for Epidemiologic Studies Depression Scale, and the STAI</td>
<td>Anxiety scores, but not depression, are higher in women with twin gestations who underwent IVF as compared with singleton gestations.</td>
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<th>STUDY</th>
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<th>METHODS</th>
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<th>RESULTS</th>
</tr>
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<tbody>
<tr>
<td>McMahon et al. (2011)</td>
<td>Prospective Study</td>
<td>To examine the impact of mode of conception and maternal age on adjustment during the transition to parenthood.</td>
<td>Women in their third trimester of pregnancy who conceived through ART ($n = 297$) or spontaneously ($n = 295$), stratified into three different age groups: “younger” (≤ 20–30 years); “middle” (31–36 years); and “older” (≥ 37 years)</td>
<td>Participants completed an interview, as well as questionnaires assessing socioeconomic status, personality, state and trait anxiety, pregnancy-focused anxiety, quality of partner relationship, and maternal–fetal attachment.</td>
<td>Socioeconomic and reproductive history variables (collected through phone interview), STAI, Edinburgh Postnatal Depression Scale, Baby Schema Questionnaire, and Maternal–Fetal Attachment Scale</td>
<td>No significant age group differences in the proportions of women with anxiety levels (state and pregnancy focused) in the clinical range ($p &gt; .10$).</td>
</tr>
<tr>
<td>Jahangiri et al. (2011)</td>
<td>Longitudinal Pilot Study</td>
<td>To compare the prevalence of NVP in singleton and twin gestations conceived via IVF, and to analyze the impact of associated psychological factors.</td>
<td>Forty-five singleton gestations and 12 twin gestations, studied after confirmation of pregnancy (baseline), 10 to 12 weeks gestation, and 20 to 22 weeks gestation</td>
<td>Participants completed three questionnaires evaluating NVP, anxiety, and depression during each encounter. Demographic, obstetrical, and medical histories were obtained at recruitment.</td>
<td>Pregnancy-Unique Quantification of Emesis and Nausea, Center for Epidemiologic Studies Depression Scale, and the STAI</td>
<td>Anxiety scores, but not depression, are higher in women with twin gestations who underwent IVF as compared with singleton gestations.</td>
</tr>
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</table>
### TABLE 3.1 Summary of Studies Included in Review (continued)

<table>
<thead>
<tr>
<th>STUDY</th>
<th>DESIGN</th>
<th>PURPOSE</th>
<th>SAMPLE</th>
<th>METHODS</th>
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<tr>
<td>Gameiro, Moura-Ramos, Canavarro, and Soares (2010)</td>
<td>Longitudinal Prospective Study</td>
<td>To examine the psychosocial adjustment of couples who conceived via artificial reproductive technologies.</td>
<td>Thirty-five couples who conceived via ART and 31 couples who conceived spontaneously studied at week 24 of pregnancy and 4 months postpartum</td>
<td>Participants completed questionnaires separately regarding perceptions of pregnancy and parenthood, psychological distress, quality of life, marital relationship, and parenting stress. Demographic and obstetrical history obtained through medical charts.</td>
<td>Perceptions questionnaire, Brief Symptom Inventory, World Health Organization Quality of Life brief instrument, ENRICH marital inventory, and Parenting Stress Index</td>
<td>No multivariate effects found regarding parents’ psychological distress or parenting stress. Couples who conceived through ART perceived their pregnancies to be more demanding and riskier, but also more rewarding than those who conceived spontaneously.</td>
</tr>
<tr>
<td>Cox, Glazebrook, Sheard, Ndukwe, and Oates (2006)</td>
<td>Limited Prospective Study</td>
<td>To examine self-esteem, anxiety, and parenting self-efficacy in IVF pregnancies.</td>
<td>Seventy women who conceived via ART and 111 women who conceived spontaneously, assessed at 18 and 28 weeks gestation and 6 weeks postpartum</td>
<td>Participants completed postal questionnaires regarding self-esteem and anxiety at 18 and 28 weeks gestation and were interviewed at 6 weeks postpartum</td>
<td>Self-Concept Questionnaire, Hospital Anxiety and Depression Scale, Parenting Self-Efficacy Scale</td>
<td>No significant differences between groups in levels of anxiety during pregnancy and postpartum period. Self-esteem scores significantly increased between 18 and 28 weeks for both groups ( F(1,142) = 15.0, p &lt; .001 ).</td>
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<td>STUDY</td>
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<tr>
<td>Poikkeus et al. (2006)</td>
<td>Prospective Study</td>
<td>To compare the prevalence of severe fear of childbirth and pregnancy-related anxiety in second trimester in groups of ART and spontaneously conceiving women with singleton pregnancies.</td>
<td>Three hundred and sixty-seven women (260 nulliparous) who conceived via ART and 379 women (135 nulliparous) who conceived spontaneously, studied during second trimester of pregnancy</td>
<td>Participants completed a set of questionnaires at a mean of 20 weeks gestation. Medical and obstetric histories were obtained, including previous infertility treatments.</td>
<td>Fear of Childbirth Questionnaire, Pregnancy Anxiety Scale, demographic data, obstetric history, and somatic symptoms</td>
<td>Frequency of severe fear of childbirth and anxiety did not differ between groups. Nulliparity associated with increases in severe anxiety only in controls. In nulliparous, partnership of more than 5 years decreased risk of severe fear of childbirth. In nulliparous ART group (OR: 0.3, 95% CI [0.2–0.7]), 7 or more years if increased risk of severe fear of childbirth (OR: 4.4, 95% CI [1.2–16.9]).</td>
</tr>
<tr>
<td>Hjelmstedt, Widström, and Collins (2006)</td>
<td>Subset of a Larger Longitudinal Project.</td>
<td>To compare prenatal attachment and its relationship with psychosocial variables.</td>
<td>Fifty-six IVF women from IVF clinics and 41 control women from antenatal clinics assessed in gestational weeks 26 and 36</td>
<td>Participants completed self-rating scales that measured prenatal attachment, personality, marital relationship, anxiety, and depression.</td>
<td>Prenatal Attachment Inventory, STAI, Karolinska Scales of Personality, Edinburgh Postnatal Depression Scale, Barnett Scale, Emotional Responses to Pregnancy Scale</td>
<td>State anxiety was not correlated with prenatal attachment at either week 26 or 36; anxiety about losing the pregnancy ($R = -0.22$, $p = .024$) was only correlated at 36 weeks and not 26 weeks. No associations between prenatal attachment and trait anxiety or depression were found.</td>
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(continued)
Hjelmstedt et al. (2003a)  
**Longitudinal Study**  
To compare emotional response to pregnancy and expectations of and attitudes toward pregnancy, parenthood, and children.  
Fifty-seven IVF women and 43 controls at gestational week 13; 56 IVF women and 41 controls at gestational week 26; and 52 IVF women and 38 controls at gestational week 36. Participants completed a psychological assessment at pregnancy weeks 13, 26, and 36. The IVF group was recruited from IVF units between two hospitals in Stockholm. The control group was recruited nonrandomly from four separate antenatal clinics in the suburbs and inner city of Stockholm. Emotional Responses to Pregnancy Scale, Wikman Attitude Scale, single question regarding anxiety about whether the baby would be injured during birth, nonstandardized scale regarding the experience of the pregnancy, and the Infertility Reaction Scale.  
Study group had higher anxiety about losing pregnancy ($F = 15.60$, $df = 1$, $p < .001$). Both groups had decrease in anxiety as pregnancy progressed, with significance between weeks 13 and 26 ($p < .0001$) and 13 and 36 ($p < .0001$).

Hjelmstedt Widström, Wramsby, Matthiesen, and Collins (2003b)  
**Prospective Study**  
To compare personality factors and emotional responses to pregnancy among women who conceived after IVF and those that conceived spontaneously.  
Fifty-seven women pregnant after IVF and 43 women who conceived spontaneously, studied between 11 and 17 weeks of gestation. Participants completed scales of personality traits, anxiety, emotional responses to pregnancy, marital adjustment, and reactions to recalled infertility. These participants were recruited from IVF and antenatal clinics in Stockholm. Infertility Reaction Scale, Barnett Scale, Karolinska Scales of Personality, STAI, Emotional Responses to Pregnancy Scale.  
No differences between groups in mean state or trait anxiety (IVF women: $33.2 \pm 6.7$, control women: $31.1 \pm 6.3$); the study group was more anxious about losing the pregnancy ($F = 31.58$, $df = 1$, $p < .0001$) and was less anxious over the baby not being healthy ($F = 4.01$, $df = 1$, $p < .05$) than the control group.
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<tr>
<td>Klock and Greenfeld (2000)</td>
<td>Prospective Longitudinal Study</td>
<td>To determine whether women who conceived via IVF differ psychologically from women who conceived spontaneously.</td>
<td>Seventy-four women pregnant via IVF and 40 women who conceived without any medical intervention, assessed at 12 and 28 weeks gestation</td>
<td>Participants completed self-report questionnaires that were mailed to be received during weeks 12 and 28 of pregnancy. Participants were recruited from outpatient infertility and obstetric practices.</td>
<td>Demographic questionnaire, health history, marital adjustment, Beck Depression Inventory, STAI, Rosenberg Self-Esteem Scale, and Rewards and Concerns of Pregnancy</td>
<td>No significant differences between groups on anxiety. Within-group changes over time indicated that women pregnant via IVF had an increase in self-esteem and decrease in anxiety during pregnancy.</td>
</tr>
<tr>
<td>McMahon, Ungerer, Beaurepaire, Tennant, and Saunders (1997)</td>
<td>Prospective Longitudinal Study</td>
<td>To compare the prevalence of anxiety and quality of prenatal attachment during IVF and spontaneously conceived pregnancies.</td>
<td>Seventy women who conceived via IVF and 63 matched controls, studied around 30 weeks gestation and again at 4 and 12 months postpartum</td>
<td>Participants were mailed questionnaires regarding anxiety and prenatal attachment that were to be filled out independently at home and brought in for structured interview between 28 and 33 weeks gestation. Participants were later assessed again at 4 and 12 months postpartum. Participants were recruited from IVF units and through an obstetrician at the same hospital.</td>
<td>STAI, Baby Schema, Antenatal Bonding Questionnaire, Courtauld Emotional Control Scale, and obstetric history</td>
<td>State anxiety higher in IVF group ($F = 3.36, df = 1,123, p = .07$); specific anxiety about pregnancy higher in IVF group (“anxieties concerning health and defects in child” [$F = 7.23, df = 1,120, p = .008$]; trusted the survival of the pregnancy later [$F = 14.2, df = 1,120, p = .000$]; delayed telling others about the pregnancy later [$F = 4.59, df = 1,120, p = .034$]; threats to child during birth process [$F = 12.93, df = 1,120, p = .000$]; more negative feelings toward birth [$F = 8.99, df = 1,120, p = .003$])</td>
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TABLE 3.1 Summary of Studies Included in Review  (continued)

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<tr>
<td>Stanton and Golombok</td>
<td>Prospective Study</td>
<td>To examine the degree of anxiety experienced by women pregnant via IVF as well as their attitudes toward pregnancy and the strength of their prenatal attachment.</td>
<td>Fifteen women who conceived via IVF and 20 women who conceived spontaneously, participating at 20 weeks of gestation.</td>
<td>Participants were randomly selected or recruited from various clinics after 20 weeks gestation.</td>
<td>STAI, Maternal–Fetal Attachment Scale, and Childbearing Attitudes Questionnaire</td>
<td>No statistically significant differences between the groups were found for state or trait anxiety. Furthermore, there were no statistically significant associations between state or trait anxiety and either maternal–fetal attachment or adjustment to motherhood.</td>
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ART, assisted reproductive technology; ENRICH, Evaluating and Nurturing Relationship Issues, Communication, Happiness; ICSI, intra-cytoplasmic sperm injection; IVF, in vitro fertilization.
**TABLE 3.2 Summary of Findings Regarding Stress Outcomes During IVF-Initiated Pregnancies Versus Non-IVF-Initiated Pregnancies**

<table>
<thead>
<tr>
<th>OUTCOME MEASURED</th>
<th>SUMMARY OF FINDINGS</th>
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<tr>
<td>Perceived stress</td>
<td>Higher psychological stress in IVF/ICSI group (Darwiche et al., 2014)</td>
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<tr>
<td>General anxiety</td>
<td>IVF/ICSI group had higher levels of state anxiety than group that conceived without assistance (Darwiche et al., 2014)</td>
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<tr>
<td>Pregnancy-related anxiety</td>
<td>No differences between groups in state or trait anxiety over time (Hjelmstedt et al., 2003b; Klock &amp; Greenfeld, 2000; Stanton &amp; Golombok, 1993)</td>
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<td>No significant differences between the IVF and control group in terms of anxiety during pregnancy and in the postpartum period (Cox et al., 2006)</td>
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<td>Significant decrease in state anxiety during pregnancy within the IVF group over time (T1 = 35.2, T2 = 32.0, t = 2.62, p &lt; .03) (Klock &amp; Greenfeld, 2000)</td>
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<td>Women who conceived via ART had significantly lower STAI scores in their third trimester of pregnancy (state, p &lt; .01, trait, p &lt; .05). (Coughlan et al., 2014)</td>
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<td></td>
<td>State anxiety higher in IVF group (F = 3.36, df = 1,123, p = .07) (McMahon et al., 1997)</td>
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<td>A trend toward higher anxiety scores among twin pregnancies starting at 10 to 12 weeks (p = .05), which became significant at 20 to 22 weeks (p = .035). These scores did not differ throughout the study period. Scores for singleton pregnancies decreased significantly from baseline to 20 to 22 weeks (p = .027) (Jahangiri et al., 2011)</td>
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<td>No associations between prenatal attachment and trait anxiety, state anxiety, or depression were found (Hjelmstedt et al., 2006)</td>
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<td></td>
<td>Lesser tendency for IVF mothers to report feelings of anxiety and depression (McMahon et al., 1997)</td>
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<td></td>
<td>No significant differences between groups (Darwiche et al., 2014; Poikkeus et al., 2006)</td>
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<td></td>
<td>Anxiety about losing the pregnancy (R = 0.24, p = .016) was only correlated at 36 weeks and not 26 weeks (Hjelmstedt et al., 2006)</td>
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<td>IVF group was more anxious about losing the pregnancy (F = 31.58, df = 1, p &lt; .0001; F = 15.60, df = 1, p &lt; .001, respectively) (Hjelmstedt et al., 2003a, 2003b)</td>
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<td></td>
<td>IVF group was less anxious over the baby not being healthy (F = 4.01, df = 1, p &lt; .05) than the control group (Hjelmstedt et al., 2003b)</td>
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<td></td>
<td>Specific anxiety about pregnancy was higher in the IVF group (“anxieties concerning health and defects in child” [F = 7.23, df = 1,120, p = .008]; the IVF group trusted the survival of the pregnancy later [F = 14.2, df = 1,120, p = .000], delayed telling others about the pregnancy later [F = 4.59, df = 1,120, p = .034], had concerns about threats to child during birth process [F = 12.93; df = 1,120, p = .000], and had more negative feelings toward birth [F = 8.99, df = 1,120, p = .003] than the control group (McMahon et al., 1997)</td>
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(continued)
The research investigated both general and pregnancy-related anxiety in terms of three factors that impact general and pregnancy-related anxiety levels in women with IVF pregnancies: previous pregnancies; country of origin, ethnicity, and cultural identity; and gestational age. The following section discusses these three factors in turn, first in terms of general anxiety and then pregnancy-specific anxiety.

### Impact of Previous Pregnancies on Anxiety

Researchers have investigated whether previous pregnancies impact a woman’s levels of general anxiety in 10 studies, and findings are mixed. Two found IVF samples to experience increased general anxiety compared with controls (Darwiche et al., 2014, McMahon et al., 1997), whereas others in this review found no difference in general anxiety (Cox et al., 2006; Gameiro et al., 2010; Hjelmstedt et al., 2003b; Klock & Greenfeld, 2000) even when assessed at multiple time points throughout pregnancy. However, the higher age of the women in the IVF group was statistically significant, as was the fact that they had more previous miscarriages or ectopic pregnancies and fewer previous abortions than controls (Hjelmstedt et al., 2003b).

Interestingly, some research suggested that women pregnant through IVF actually experience less general anxiety than the controls do (Coughlan et al., 2014). In one study, women in the IVF group had more previous miscarriages than the controls, and reported more complications in the current pregnancy, such as bleeding, hypertension, and gestational diabetes; the general state anxiety was lower during the third trimester in this group (McMahon et al., 2011, 2013).

The two other studies that evaluated general anxiety during pregnancy recruited samples of women who were either nulliparous or multiparous (Jahangiri et al., 2011; Stanton & Golombok, 1993). Because researchers of one of these studies found IVF samples to have more anxiety (Jahangiri et al., 2011) and the other found no difference (Stanton & Golombok, 1993), the mixed parity of the recruited sample may have influenced results; women who had previous births may have had a different experience of pregnancy than women who were pregnant with their first child.

### TABLE 3.2 Summary of Findings Regarding Stress Outcomes During IVF-Initiated Pregnancies Versus Non-IVF-Initiated Pregnancies (continued)

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<tr>
<th>OUTCOME MEASURED</th>
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<tr>
<td>Numerous previous IVF attempts (≥4) decreased the risk of severe fear of childbirth (OR: 0.06, 95% CI [0.005–0.07]) (Poikkeus et al., 2006)</td>
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<tr>
<td>No differences in psychosocial adjustment between couples that conceived via ART versus couples that conceived spontaneously, with no multivariate effects regarding psychological distress or parenting stress (Gameiro et al., 2010)</td>
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<tr>
<td>No significant age group differences in women with pregnancy-related anxiety during pregnancies conceived via ART (McMahon et al., 2011)</td>
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ART, assisted reproductive technology; ICSI, intra-cytoplasmic sperm injection; IVF, in vitro fertilization; STAI, Spielberger State and Trait Anxiety Inventory.
Although 10 studies dealt with general anxiety, only eight studies examined whether women pregnant via IVF had different levels of pregnancy-specific anxiety than comparison groups of women who conceived without assistance. Overall, many researchers found increases in pregnancy-specific anxiety in women in the IVF groups over controls. Researchers compared pregnancy-specific anxiety between women pregnant via IVF to comparison women and found that the IVF group had more anxiety, with no differences across age groups (McMahon et al., 2011, 2013). In another study, researchers found that their IVF group members had more anxiety about losing their pregnancies. Furthermore, they found a weak correlation in the IVF group between recalled infertility distress and higher anxiety about losing the pregnancy (Hjelmstedt et al., 2003b).

The pregnancy-specific anxiety measured indicated that when women are pregnant via IVF, they are more likely to negatively perceive various aspects of the pregnancy or upcoming birth, such as health and health defects of the baby, fears about damaging the baby during birth, negative feelings toward birth (McMahon et al., 1997), and about losing the pregnancy (Hjelmstedt et al., 2003a, 2006). Women with long durations of infertility (greater than or equal to 7 years) had more severe fears of childbirth, although numerous IVF attempts (four or more) decreased this risk (Poikkeus et al., 2006). In only one of the studies did the control have higher levels of anxiety about the child’s well-being, although the regression analysis showed no difference between the groups (Darwiche et al., 2014). Pregnancy-specific anxiety seems to be higher in samples of women pregnant via IVF.

Impact of Country of Origin, Ethnicity, and Cultural Identity on Anxiety

Ten studies examined general stress among pregnant women in various countries and cultures around the world. When conducting this literature review, it was important to identify the country in which each study of anxiety was conducted because the cultural differences among study populations may impact the ability to compare study results.

Of the two studies that recruited women from a U.S. population, researchers of one found some indication of differences in general anxiety levels between the two groups, particularly halfway through the pregnancy (Jahangiri et al., 2011) whereas the other found no difference (Klock & Greenfeld, 2000). These two studies were the only ones reviewed to provide data about the racial breakdown of the study sample, which is likely reflective of the increased diversity in the United States compared with many more homogeneous countries (Jahangiri et al., 2011; Klock & Greenfeld, 2000). In the two studies conducted in the United Kingdom (Cox et al., 2006; Stanton & Golombok, 1993), data showed no differences in general anxiety scores. Additionally, data from three studies conducted in Australia showed no increase in anxiety in those pregnant via IVF versus without assistance (McMahon et al., 1997, 2011, 2013). Three other studies dealing with general anxiety were conducted in Sweden, Switzerland, and Portugal, and showed mixed results: with no difference in the Swedish study (Hjelmstedt et al., 2003b) and more anxiety in the IVF group in the Swiss and Portuguese studies (Darwiche et al., 2014; Gameiro et al., 2010). Ultimately, in comparing the studies on general anxiety during pregnancy, no
clear trend within or between countries was found. Even among studies conducted within the same country, there was no definitive trend in anxiety levels between women who became pregnant with or without IVF.

In addition to general anxiety, eight studies (none in the United States or United Kingdom) looked at pregnancy-specific anxiety. Data from several studies using Swedish and Australian samples showed that women who were pregnant through IVF had more pregnancy-specific anxieties than their counterparts who did not require assistance to conceive (Hjelmstedt et al., 2003a, 2003b; McMahon et al., 1997, 2011, 2013).

Impact of Gestational Age on Anxiety

Ten of the 13 studies examined the general anxiety of women pregnant via IVF at varying points in pregnancy, with fetuses at different gestational ages. In the first half of pregnancy, women pregnant with twins through IVF experienced more anxiety than singletons (Jahangiri et al., 2011), those with singletons conceived via IVF had similar levels of anxiety to those pregnant without assistance (Cox et al., 2006; Hjelmstedt et al., 2003b; Klock & Greenfeld, 2000; Stanton & Golombok, 1993), and sometimes anxiety was even less in women pregnant through IVF (McMahon et al., 2011, 2013). The eight studies that examined pregnancy-specific anxiety at various points in the pregnancy suggest that women pregnant via IVF have more pregnancy-specific anxiety than those who conceive without assistance, and this holds in all three trimesters (Darwiche et al., 2014; Hjelmstedt et al., 2003a, 2003b, 2006; McMahon et al., 1997, 2011, 2013).

DISCUSSION

The purpose of this review was to examine the existing literature about stress during pregnancies conceived by IVF and to ascertain the extent to which this literature supports Lobel et al.’s three-pronged conceptualization of stress as having environmental/stimulus, perceptual, and emotional response components (Lobel, 1994; Lobel et al., 1992). Of the 13 studies that were designed to measure stress in populations of women pregnant by IVF, none was designed using Lobel’s (1994) multidimensional approach. In terms of individual treatment of the three dimensions of stress, no studies evaluated the environmental component, one study evaluated the perceptual component, and 13 studies evaluated the emotional component. Of the emotion studies, some considered general anxiety, others considered pregnancy-specific anxiety, and some considered both, with a general trend of no difference in general anxiety between groups and those in IVF groups experiencing increases in pregnancy-specific anxiety. The lack of research involving the first two components of stress during pregnancy (environmental/stimulus and perceptual) indicates a discernable deficiency in researchers’ understanding of stress during the IVF experience, particularly during the pregnancy that results from a successful IVF procedure.

Of the 13 studies included in this analysis, it is difficult to draw conclusions about the perceptual component of stress because only one study examined this
component, and that study had a relatively small sample size (IVF = 51, control = 54). However, several studies did examine the emotional response component: 10 evaluated general anxiety and eight evaluated pregnancy-specific anxiety. The majority of researchers found no differences in general anxiety between IVF and control groups, although there were differences in samples including parity, country of origin, and time during pregnancy when they were evaluated. Furthermore, the majority of researchers found higher pregnancy-specific anxiety in pregnant IVF groups than those who conceived without assistance. Again, there were variations within the studies in terms of parity, country of origin, and time during pregnancy at which the measurement was conducted. The stress component that has been most widely measured in the pregnant IVF population, albeit not extensively, is the emotional component. Studies have investigated both general and pregnancy-related anxiety. However, it is challenging to draw significant conclusions about these women’s experience of anxiety due to the limited number of studies; the discrepancies among studies; the equivocal results of some studies; and the differences among samples in terms of previous pregnancy, country of origin, instrument used to assess anxiety, and time during pregnancy that anxiety was measured.

The review found that recent research on general anxiety in pregnancy does not adequately capture the full intensity and depth of the experience (Buss, Davis, Hobel, & Sandman, 2011; Huizink, Mulder, Robles de Medina, Visser, & Buitelaar, 2004); for this reason, a more appropriate variable for researchers to study in pregnant women may be pregnancy-specific anxiety. Indeed, the literature on preterm birth shows a positive relationship between pregnancy-related anxiety and preterm birth (Dominguez, Dunkel-Schetter, Glynn, Hobel, & Sandman, 2008; Dunkel-Schetter, 2011; Glynn, Schetter, Hobel, & Sandman, 2008), although this relationship has not been studied in the pregnant IVF population. It is possible that the pregnant IVF population may be at greater risk of pregnancy-specific anxiety based on the length of time required and the procedures undergone to achieve the pregnancy. Researchers performing qualitative work have indicated that women who become pregnant by IVF may view their pregnancies differently from women who conceive without assistance (McMahon, Tennant, Ungere, & Saunders, 1999; Sandelowski et al., 1992). Other researchers indicated that these pregnancies were perceived as hard-won, special, and devastating to lose (Olshansky, 1990). The process of conception was described as distressing, and those feelings often extended well into the second trimester of pregnancy (Sandelowski, Harris, & Holditch-Davis, 1990). Moreover, women who conceived by IVF were more anxious about the pregnancy and baby than their nonassisted counterparts (Hjelmstedt et al., 2003b).

The stress of non-infertile pregnant women has been studied extensively and very often from a multidimensional perspective, with particular attention to poor obstetrical and neonatal outcomes. The researchers have found relationships between psychological stress and adverse outcomes such as difficulty transitioning to motherhood and attaching to the infant (Bernstein, Lewis, & Seibel, 1994; Niemelä, 1992; Stanton & Golombok, 1993); poor outcomes in the baby, such as delayed motor development, cognitive disorders, and behavioral disorders (Huizink, Robles de Medina, Mulder, Visser, & Buitelaar, 2003; Kinsella & Monk, 2009); neonatal stress reactivity after birth (Leung et al., 2010); and emotional problems (O’Connor, Heron, Golding, Beveridge, & Glover, 2002). Researchers have found associations between
stress (measured by pregnancy-related anxiety) and both lower motor maturity in neonates (Standley, Soule, & Copans, 1979) and greater infant irritability (Van den Bergh, 1990). Increased stress has been found to increase the risk of premature delivery (Dailey, 2009; Hedegaaard, Henriksen, Sabroe, & Secher, 1993; Kramer et al., 2009; Mackey, Williams, & Tiller, 2000; Nkansah-Amankra, Luchok, Hussey, Watkins, & Jiu, 2010; Tegethoff, Greene, Olsen, Meyer, & Meinlschmidt, 2010), and increased anxiety has been associated with low birth weight (Nkansah-Amankra et al., 2010; Pagel, Smilkstein, Regen, & Montano, 1990; Tegethoff et al., 2010; Wadhwa et al., 1993). Researchers approaching stress multidimensionally have frequently found a relationship between increases in stress and increased risk of premature delivery (Copper et al., 1996; Hedegaaard et al., 1993; Lobel et al., 1992). Such research into stress during pregnancy is necessary because nurses and other health care practitioners need to be able to identify patients at risk of such stress.

Although considerable attention has been given to adverse obstetrical and neonatal outcomes in the general pregnancy population, little work has been done to measure, from a multidimensional approach, the stress of women pregnant through IVF. Such research would provide a more robust understanding of stress during IVF pregnancies. Although data indicate that pregnancies conceived after the assistance of IVF are at increased risk of delivering prematurely (Helmerhorst, Perquin, Donker, & Keirse, 2004; Jackson, Gibson, Wu, & Croughan, 2004; McDonald, Murphy, Beyene, & Ohlsson, 2005; McGovern, Llorens, Skurnick, Weiss, & Goldsmith, 2004), no reason has been found to account for this trend. This problem may become more widespread as IVF becomes increasingly more popular.

Although this review was comprehensive, it should be reviewed with caution. An important limitation to point out is the age of the majority of research cited in this review. Much of the research that has examined the experience of pregnancy that follows successful IVF treatment was conducted in the 1990s and 2000s. This time period parallels the point during the IVF technology at which success rates dramatically began to improve and usage of this treatment increased (Society for Assisted Reproductive Technology, 2013); therefore, it was logical and appropriate for scientists to try to understand the psychosocial aspects of this emerging technology. The challenge, however, is making those conclusions relevant today in the ever-changing landscape that includes complex variables such as expanded technologies, reimbursement changes, and even shifting focus on family dynamics and structure.

CONCLUSION

As science advances, so do the success rates of IVF, resulting in more pregnancies conceived via IVF each year (Society for Assisted Reproductive Technology, 2013). At present, no current standards exist in nursing or in medicine for identifying increases in stress during the IVF process and resulting pregnancies. Very often, patients are not seen by clinical psychologists as part of their treatments unless the patients are considering the use of donor eggs, sperm, or gestational carriers. Meanwhile, research is unclear as to whether a woman who becomes pregnant by IVF is the same as the one who conceives without assistance, and thus, whether common wisdom about pregnancy applies to these women.
The gap in research and practice hinders the work of health care providers caring for this population, who must adequately be able to assess patients’ psychological adaptation to pregnancy after IVF. The care team interacts with women extensively during prenatal visits while patients are under the care of reproductive endocrinologists, obstetricians, and midwives. If women are experiencing significant amounts of stress during the infertility process and resulting pregnancy, providers can intervene directly with the patient and provide appropriate referrals as they transition to their primary obstetrician or midwife, who can then follow the patient through the course of the pregnancy. Women who experience stress during pregnancy are at risk of a difficult transition to motherhood and attachment to their infant may be impaired (Bernstein et al., 1994; Niemelä, 1992; Stanton & Golombok, 1993), but early identification can help women to deal with this stress early on in the pregnancy, thus preventing potential negative outcomes. In this context, well-designed studies can contribute to research and practice in improving identification of and treatment for increases in stress. It is essential that research determine whether standardization of care is necessary for managing the psychological needs of women who become pregnant through IVF, so that stress does not exact long-term harm on women and their babies.

REFERENCES


CHAPTER 7

THE ILLUSION OF NORMAL FERTILITY:
WOMEN’S EXPERIENCES OF PREGNANCY
AND BIRTH AFTER OOCYTE DONATION

Astrid Indekeu and Ken Daniels

Assisted reproductive technology (ART) with donor oocytes was introduced in 1984 to allow women with ovarian insufficiency to become pregnant (Lutjen et al., 1984). The success of the technique led to a broadening of the treatment’s scope, after about one decade of use, to include indications of repeated in vitro fertilization (IVF) failure, advanced maternal age, or inheritable diseases (Rosenwaks, 1987). Pregnancy and birth rates after ART with donor oocytes are now among the highest of any in infertility treatment, with successful pregnancies occurring in the United States in 56% of embryo transfers, compared with 37% to 46% for standard IVF treatment. What is also remarkable about this high success rate is that in women who are using their own eggs, the IVF success rate drops sharply with age after a woman passes the age of 42 years (Centers for Disease Control and Prevention [CDC], 2012). Similar trends are found in Belgian data regarding pregnancy and birth rates after IVF with donor oocytes (BELRAP, 2014). Despite these positive results, donor-oocyte pregnancies are associated with an increased risk of pregnancy-induced hypertension and first trimester vaginal bleeding (Stoop et al., 2012). Pregnancies with donor oocytes appear also to be associated with relatively high incidence of complications, including preeclampsia, gestational diabetes, preterm delivery, labor induction, and caesarean section. Yet, these complications do not seem significantly increased compared with intracytoplasmic sperm injection (ICSI) pregnancies with autologous (i.e., derived from the same individual) oocytes (Stoop et al., 2012).

Women prefer fertility treatment with donor oocytes to other options of family building, such as adoption, because of the opportunity to experience pregnancy itself, the ability to feel “normal,” and the potential to nurture and establish a bond with the child during the prenatal period (Applegarth et al., 1995; Bartlett, 1991; Hershberger, 2007). Data suggest that donor-conceiving couples emphasize the similarities with couples conceiving with their own gametes, such as the presence of a gestational link and giving birth, while ignoring those aspects that are incongruous with traditional family structure, such as the absence of a genetic tie (Indekeu et al., 2013; Isaksson et al., 2011; van den Akker, 2001).
In alternative family forms, there has been an emphasis on appearing similar to traditional (i.e., genetically related) families. In couples conceiving with donor sperm, Grace, Daniels, and Gillett (2008) observed that emphasizing similarities to more traditional family forms supported the establishment of normative perceptions of “family” by donor sperm recipients. Donor-oocyte recipients’ health care professionals (e.g., physicians, psychologists) highlighted the similarities of pregnancies with donated oocytes to pregnancies with autologous oocytes by presenting data that women who give birth to children created through oocyte donation are in fact [emphasis added] able to breastfeed (Applegarth et al., 1995; Söderström-Anttila, Sajaniemi, Tiitinen, & Hovatta, 1998). Breastfeeding is also promoted in other alternative family forms in which there is no biological connection between mother and child (e.g., adoptive mothers, see www.breastfeedingwithoutbirthing.com). Breastfeeding seems to be promoted by health professionals not only because it is healthy and beneficial to the child but also because it promotes good bonding and develops women’s feeling of “being a good mother” (Marshall, Godfrey, & Renfrew, 2007). Although discourse emphasizes breastfeeding as best, women are exposed to a considerably more diverse set of values and influences from health professionals, their social networks, and the wider social and structural context of their lives (such as work) that will form their view on breastfeeding. For women, breastfeeding is generally equated with good mothering when the baby is seen as healthy and happy. However, when a baby is not seen as healthy or contented (either in terms of behavior or measurable outcomes, such as weight), this can undermine women’s confidence and leave them open to the charge of bad mothering (Marshall et al., 2007).

Pregnancy with donor oocytes can seem to easily create the illusion of normal fertility and a normal pregnancy to the pregnant woman, her partner, and family as well as to those in her professional and social circles. Yet, IVF with donor oocytes represents a special case in the treatment of infertility in many ways. The pregnancy is unique, as it is achieved from an embryo that is immunologically foreign to the mother and the treatment involves a third party, an oocyte donor, which makes the treatment ethically and psychologically more complicated than traditional IVF with one’s own oocytes (Söderström-Anttila, 2001). This contrast between “illusion of normalcy” and “uniqueness” of the treatment, and the resulting pitfalls thereof, can make it challenging for nurses and other health care professionals to offer the appropriate and necessary care to donor-oocyte recipients.

Hershberger’s (2004) integrative review on the limited existing research on egg donation identified six focused areas of research: (a) motivation; (b) desired donor characteristics; (c) selection of a known versus an anonymous donor; (d) recipient’s demographic, educational, and psychosocial profiles; (e) disclosure of the mode of conception to family, friends, and offspring; and (f) relationship between the recipient and her offspring. These foci were supported in other research (e.g., Greenfeld & Klock, 2004; Isaksson, Sydsjö, Skoog Svanberg, & Lampic, 2012; Lampic, Skoog Svanberg, & Sydsjö, 2014; Laruelle, Place, Demeestere, Englert, & Delbaere, 2011; Murray, MacCallum, & Golombok, 2006; Söderström-Anttila, Sälevaal, & Suikkari, 2010; Stuart-Smith, Smith, & Scott, 2012; Yee, Blyth, & Tsang, 2011). Although investigators have made some strides in the field, research regarding women’s experience during an oocyte-donation pregnancy and their pre-, peri-, and postnatal

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experiences remains very limited (Guillou, Séjourné, & Chabrol, 2009; Hershberger, 2007; Hershberger, Klock, & Barnes, 2007). Nurses and other health care providers are left with little empirical evidence from which to guide clinical practice (Hershberger, 2007).

This chapter focuses on oocyte recipients’ experiences of their pre-, peri-, and postnatal periods. These experiences can support and guide nurses and other health care professionals in their clinical practice.

METHODS

An applied thematic analysis approach was used in this research. Applied thematic analysis is a rigorous, yet inductive, set of procedures designed to identify and examine themes from textual data in a way that is transparent and credible while presenting the stories and experiences voiced by study participants as accurately and comprehensively as possible (Guest, MacQueen, & Namey, 2012). Qualitative research involves an interpretive approach of the world (Denzin & Lincoln, 2008; Hennink, Hutter, & Bailey, 2011); it occupies with “the inside” perspective (of the participant), the intersubjective perspective (the participant in its often shared social, cultural, historical, or personal context) and, lastly, acknowledges that people’s perception and experiences of reality are subjective. As a result, multiple perspectives on reality can exist rather than a single truth as in a positivist paradigm.

Participants

This study was approved by the Commission for Medical Ethics of the University Hospitals Leuven, Leuven, Belgium. This chapter reports on a subset of participants of a larger (partly longitudinal) research project situated in Belgium which focused on heterosexual men and women using donor gametes (sperm or oocytes) to build their families. Participants were recruited at Leuven University Fertility Center and through advertisement in a women’s magazine. For a full description of the sample and setting of the overall study see Indekeu (2013). The subset reported here consists of two women who were midwives themselves and one woman who was intensely supported by a midwife who was a close family member. This created the unique opportunity to gain “insiders’ insight” and to collect information from infertile women with enhanced medical and professional knowledge, who could express their needs as patients and could reflect knowledgeably on the received care and the care they would give as professionals to others. All of the women were treated in different clinics in Belgium. Infertility was due to idiopathic premature-ovarian failure in all cases. The women were all married and were 27 (participant #1), 33 (participant #2), and 40 (participant #3) years of age at the time of the birth of their donor-conceived child. At the time of the interviews, they were respectively 38, 40, and 41 years of age. Two women selected an anonymous oocyte donor and one woman selected a donor known to her. All women experienced complications during pregnancy such as hypertension, thrombosis, or multifetal pregnancy with loss. Due to the focus of the study, no further medical data were collected.
Context

In relation to the professional care oocyte recipients receive during treatment through birth, the following information was collected: no specific care pathways or guidelines are known to Belgian midwives/nurses regarding the (psychological) care of donor-oocyte pregnancies. Donor-oocyte pregnancies are treated “as other low/high risk pregnancies” (Flemish Organization for Midwives, personal communication, September 18, 2014). Information regarding the donor-conceived nature of the pregnancy is usually written down in the letter to the primary health care professionals (e.g., general practitioner, gynecologist) who will provide care for the woman during her pregnancy. Yet, in Belgium, the fertility specialists who carried out the donor-oocyte treatment can respect a woman’s explicit request not to mention the donor-conceived nature of the pregnancy in the referral letter. As a result, it is not known for certain if the health care professionals who assume care for the pregnant woman at the maternity center are aware of the donor-conceived nature of the pregnancy. In Belgium, information regarding the medical file of a patient can be shared between physicians, but an independent midwife is not included in this information exchange. Another possibility is that, out of respect to the woman’s privacy, some health care professionals assuming care for the pregnant women might decide not to share information about the donor conception with all members of the health care team, such as midwives/nurses (anonymous, Head of Department of Reproductive Medicine, personal communication, September 22, 2014).

Data Collection and Analysis

A narrative in-depth interview style (Kvale & Brinkmann, 2008) was used asking participants to share their story. According to a narrative interview style, participants’ responses dictated the course of the interview, yet an aide memoire (interview guide) existed containing broad topics to be discussed (see Table 7.1). All interviews were semi-structured, audiotaped, and lasted 1.5 to 2 hours and were carried out by the first author (A.I.). To avoid dropout, home interviews were scheduled based on the belief that participants would invest more time and feel more at ease at home to openly discuss these topics. Interviews were scheduled during evening and weekend hours in an effort to maximize participation. The interviewer was introduced as a researcher with professional expertise in medical psychology and sexology, to demonstrate the researcher’s familiarity with the topic. Participants often mentioned that this information helped them to discuss the topic. After each interview, observations were recorded as memos. A narrative interview was conducted by the researcher, asking the participants to tell about their infertility experience, the choice and experience of an IVF with donor gametes, their experience and perception of the donor, and the question regarding disclosure of the donor conception to the offspring and/or others. Although the interviewer did not probe systematically about received care by midwives, the interviewer did pursue questions about it when participants raised concerns related to midwifery or nursing care.
Participants #1 and #2 participated in two interviews and were interviewed when their donor offspring were, respectively, 10 years and 8 years old. Participant #3 participated in three interviews that occurred during the last trimester of the pregnancy, 3 months after birth, and 1.5 years after birth. Interviews were audio-taped, transcribed verbatim, and checked for accuracy. After corrections were made, the interview data were analyzed using a thematic analysis approach (Braun & Clarke, 2006).

### RESULTS

Four major themes emerged from the women’s narratives, which focused on the pre-, peri-, and postnatal care periods and are as follows: (a) experiencing of “forcing the boundaries of nature”; (b) the importance of “a birth to be proud of”; (c) “breastfeeding is not obvious”; and (d) the absence of a place where emotions other than happiness and thankfulness could be addressed. In the following, the four themes and exemplar quotes from the participants themselves are provided.

#### The Experience of: “Forcing the Boundaries of Nature” and “This Pregnancy Is Not Natural”

Although a donor-oocyte pregnancy carried an illusion of normalcy, the pregnancy was perceived in a different way by these women. Complications caused the pregnancy to be experienced as “forcing the boundaries of nature” and consequently perceived as not obvious. This caused the pregnancy to be stressful and not enjoyable. Birth was seen as potentially a first moment of relief and joy.

The participants reported that treatment with donor oocytes was often presented to them as “a makeable and successful solution” (“we can solve your problem, we have a solution”) and resembling procreation with own gametes (“normal”

<table>
<thead>
<tr>
<th>TABLE 7.1 Aide Memoire of Interview Topics</th>
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<tr>
<td>The interview started with the questions “Can you tell me your story about your infertility experience and choice for a treatment with donated eggs?”</td>
</tr>
<tr>
<td>Topics that needed to be covered during the interview were:</td>
</tr>
<tr>
<td>• Experience of choice for donated eggs</td>
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<tr>
<td>• Experience of pregnancy</td>
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<tr>
<td>• Experience of birth</td>
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<tr>
<td>• Bonding experience with the child and the emerging family bonds</td>
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<tr>
<td>• Reactions from their intimate and broader social contexts (e.g., what was the first reaction to the baby, experience of resemblance remarks)</td>
</tr>
<tr>
<td>• Experience and perception of the donor</td>
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<tr>
<td>• Disclosure question</td>
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</tbody>
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procreation). Although the resulting birth was personally perceived as reaching their goal of having a child, the complications they were faced with during pregnancy (e.g., hypertension, preterm birth) were experienced as reminders that this pregnancy was not like normal pregnancies and could not be taken for granted. The participants also interpreted the experienced complications as tokens of “forcing the boundaries of nature”: a sign “that I was not meant to be pregnant,” and/or a reminder that this pregnancy was different from normal pregnancies. The distinctiveness mostly referred to the pregnancy not being natural because it was manipulated (“It’s manipulated, it’s because of all this medication you have to take, the pregnancy was heavily directed by medication”—participant #3) and not inherent to the body (“It’s nature saying this is actually something foreign to the body and the body wants to reject it a bit”—participant #2).

Participant #3, who as a midwife was familiar and knowledgeable about fertility treatments, explicitly stated that the pregnancy had been mentally and physically “heavier” than expected, mainly referring to the fact that the pregnancy was so intensely and medically controlled. She had also been confronted with reactions from family, friends, and colleagues that corresponded with and supported her initial expectations of carrying a seemingly normal pregnancy. Some family members and friends had taken the pregnancy for granted. When complications arose, she described being struck by the fact that family members and friends had forgotten about her infertility. During the pregnancy, she had the impression that the health care professionals approached her pregnancy as normal and had forgotten that it was a highly technological complex pregnancy. As a midwife, she was well aware of the risks and she had expected to be able to share this with her professional colleagues, yet she felt left unrecognized and unsupported in her worries and feelings: “You are pregnant, problem solved. What are you still worrying about? Well, there are some side effects.” Later on, the staff had admitted that they had been walking on the tips of their toes the whole time. That they had hoped the end of the pregnancy would come as soon as possible and that it all would end well, because everyone was aware of the complications and their implications. (Participant #3)

The complications during pregnancy made them fearful and anxious about the outcome of the pregnancy (“It’s so fragile,’ ‘this will not end well,’ ‘what’s next?’”—participant #2) and the implications of it for the yet unborn child. For participant #1, the complications she experienced and her perceived risk made her give up her desire for a second child.

Moreover, these women expressed feeling responsible for the possible consequences because making the decision to fulfill their desire for a child in this manner was their own personal decision.

Did I make the right decision to force my body anyway? Because nature didn’t grant me to be pregnant. Maybe I should have listened to my
body. I was getting confused by it. Are we doing well? Aren’t we taking
too many risks? (Participant #3)

Furthermore, the characteristics of the treatment process when using an oocyte
donor, such as the shortage of donors and the resulting long waiting list to start
treatment, enhanced the level of pressure: “This is our diamond, our ‘once in a life-
time.’ Someone else can say ‘I’ll give it another go.’ That’s not possible for us.”
Consequently, pregnancy was more colored by fear than joy (“9 months of stress,”
“a nightmare”), which disabled them to enjoy the pregnancy and this could prolong
until childbirth:

I wasn’t tired of being pregnant, I was worried. That’s something
totally different. It was a relief I could give birth, although I remained
cautious during labor, but at least it started and afterwards we could
begin to enjoy it. (participant #3)

When it was clear that the baby was healthy, the mothers expressed relief to
have reassurance their baby was healthy. Participant #3 had noticed the relief of
her supporting health care team as well: “Everyone was relieved, when he uttered
his first breath, everyone sighed ‘it’s okay.’ Everyone said it was quite a long 9
months.”

The Importance of: “A Birth You Can Be Proud of”

After experiencing an infertility diagnosis and a pregnancy with complications, the
women expressed high expectations of the delivery. Birth could offer opportunities
to repair some of the previous feelings of failure and a sense of regaining control.
Yet, simultaneously birth could entail specific challenges. Just as the pregnancy had
not been obvious and was strongly medically managed rather than experienced as
a natural process, concerns existed whether giving birth would be so obvious. For
example, participant #3 said,

Because I can’t be pregnant spontaneously, the next question is “can I
deliver spontaneously?” My body might not be able to or needs to be
forced to. It’s not natural because you don’t have the hormones needed
for labor. They needed to give me a lot of medication before my body
would go into labor.

All the women wished for a “natural” delivery, a “good” birth, a birth they
“could be proud of”: Participant #3 stated, “This I can do. I myself put him on
to the world and I’m proud of it. That I managed to do.” Being able to give birth
was for some experienced as an opportunity to regain some of the self-confidence
as woman and mother that was lost during the diagnosis of infertility and diffi-
cult pregnancy (“I even can’t carry a child properly”—participant #1). Even when
the expectations of a “natural, good” birth could not be met (e.g., an epidural
treatment was required), remarks from midwives could help them to see positive
contributions they made and could support their self-confidence. Participant #1
described: “I wasn’t proud of the epidural. That was a shame, I felt really bad. The only thing I liked was the midwife saying ‘Oh my, you haven’t panicked at any time!’ That was nice.”

Being able to play an active role felt important in the context of feeling like a mother. Being in some way active in the conceiving process made them feel necessary in the procreation process and seemed to create the feeling they were entitled to be called mother. Participant #3 said, “Birth itself directly gave me a mommy feeling—without me this wouldn’t have been successful—I was not just the packaging for my child but I played my part in putting him into the world.” Participant #2, who had to undergo a nonelective cesarean section, emphasized her contribution to the conceiving process by highlighting the necessity of her body during the pregnancy: “We always thought ‘this happens in my body, it’s because of me that he is born. If my body didn’t cause him to grow, he would have never been here.’” Moreover, she described how she coped with a culture in which a cesarean birth is perceived to cause less bonding with your child: “I had a cesarean section but I had an immediate bond with my child. I’ve never been afraid of that.” Evidence that she had carried him and therefore had played a role in his conception (“I still have a scar from the cesarean.” “Each month we took pictures of my belly”) seemed to highlight the importance of feeling part of the procreation process in some way.

Participants felt the need to not only regain self-confidence but also to regain control over their life. IVF was experienced as taking control over the procreation process as well as parts of their life due to treatment protocols.

My biggest fear was a cesarean cause then I had to give the care of my child out of my hands. It was important to me that I could do it myself. That I was not too dependent on other people. (participant #3)

“When You Become a Mother It Is Obvious That You Breastfeed”
Yet “Breastfeeding Is Not Obvious”

All women presented conflicting experiences regarding breastfeeding: on the one hand, they faced physical difficulties with breastfeeding; on the other hand, they were confronted by cultural and personal expectations in which breastfeeding was the norm. Not reaching this norm was felt to be very stressful and there seemed few opportunities available to discuss their feelings.

Similar to their experience with carrying a pregnancy and giving birth, breastfeeding was perceived as something people take for granted (“When you become a mother it’s obvious that you will breastfeed”—participant #1). Only participant #3 was cautioned by her gynecologist that breastfeeding might be physically difficult. Her previous experiences of body processes that failed and deviated from the norm made her realize that breastfeeding was no certainty: “No one knows how a body works … so in terms of breastfeeding we had to wait and see if it would work or not.” Despite the caution, she felt very disappointed when breastfeeding turned out extremely difficult. Participants #1 and #2 had not received such cautions by their gynecologist or nursing/midwifery professionals and had high expectations regarding breastfeeding. Not being able to achieve the “obvious” and to meet
up to their own and/or others’ expectations (“They all expect you will succeed,” “I wanted to succeed as woman”—participant #1) created feelings of failure and sadness. These feelings could come on top of the previous failure experiences during pregnancy and childbirth. “Because the pregnancy was disappointing I had hoped that this part would turn out better, that I succeeded at least in something, I failed already in so many things” (participant #1).

The existing (in Belgium) cultural context in which breastfeeding is strongly promoted enhanced the pressure to succeed and the feeling of failure in case of nonsuccess. Being a midwife herself, participant #3 felt especially pressured to breastfeed because she was convinced of the benefits of breastfeeding herself as a professional and she knew colleagues would question her about it.

Yet, even with good intentions, endurance, and effort, continuation of the breastfeeding just seemed not feasible. Negative emotions would influence the mother–child bond (“In the end, I’d just been very unhappy toward my child cause I didn’t succeed”) or the child itself (“He just deteriorated and was so skinny”) and a decision to stop had to be considered.

This decision to stop breastfeeding and accept their limits was experienced by all women as extremely difficult for several reasons. Participant #3 described herself as a “down-to-earth” midwife, stating that she as a professional was aware and accepting that sometimes breastfeeding was just not feasible. Despite her attitude, she stated that it was extremely difficult to keep thinking rationally during the postnatal period: “All these hormones make you more emotional and make you act different than you normally would do.” Participant #1 described how difficult it was to be clear-sighted during that time: “When I look back at the pictures I’m ashamed, he was so skinny! When you’re in the middle of it, you just don’t see it!” Pressure from colleagues inquiring if she was still breastfeeding (“You do still offer breastfeeding? You aren’t giving up yet, are you?”) or a family-member midwife described as “Very well intended but a breastfeeding-freak. She said ‘you need to give it time, don’t give additional bottle milk because then it won’t get going!’” was also mentioned as hindering the decision-making process and respecting their own limits. Both women felt torn between their colleagues/family member midwives’ advice and their own personal experiences. Due to this, participant #3 not only felt very insecure and lonely in her decision process, she also felt she had to justify her decision to stop the breastfeeding and felt not recognized in all her attempts to continue breastfeeding. She felt inquiries about the breastfeeding could have been formulated more sensitively with less pressure to continue. This made her sad and she felt disappointed in her colleague’s reaction and lack of empathy. Participant #1 described how she perceived advice from a professional organization as an approval to change her mode of feeding. By following this professional advice she felt “a good mother taking good care of her child”: “Child and Family [governmental postnatal care service] came along. They insisted that I would offer bottles of infant formula! That was so comforting. I was allowed to give bottle milk! He started gaining weight and became healthy.”

Another reason that hindered the decision was related to Belgian labor laws. Options to enjoy paid breastfeeding leave exist. To receive this benefit, the mother has to provide proof that she breastfeeds her baby. Participant #3, who wanted to
breastfeed but who was physically unable to, felt enhanced pressure, as she would have to resume work sooner and thus be separated from her child sooner:

I experienced a lot of pressure from my department heads. I was on breastfeeding leave so it’s obvious that you breastfeed. For me that was important so I could stay longer at home with my child. So I would do anything to breastfeed.

Notwithstanding all the emotions aroused by the breastfeeding concerns, there seemed to be little space to express feelings other than positive ones. Participant #3 described how she felt she had to fit into the views on breastfeeding and there seemed just no other view available:

Breastfeeding that’s the greatest time of your life! That bond between mother and child. When you open up the books, every woman should experience that, it’s so wonderful! Sorry, I am pro-breastfeeding but that was not the greatest time of my life. Now I enjoy my child much more. But I dare not to say that out loud! Definitely not to midwives who think that way about breastfeeding.

“You Had to Toe the Line, There Was No Room for Something Else”

Some of the aforementioned emotions are the opposite of the emotions that are expected or perceived appropriate considering the whole context of oocyte donation such as thankfulness and happiness. The absence of a place where emotions other than happiness and thankfulness could be addressed left these women in a conflicted position and little other discourse to call on. Participant #3 stated: “You had to toe the line [stay positive and be thankful], … they just wouldn’t listen, there was no room for something else.”

Several elements unique to the practice of conceiving by means of an oocyte donor seemed to influence this: Thankfulness seemed appropriate toward all the efforts that the donor had made and the unique chance they were given by her donation (“Without the donor he wouldn’t been here, I would not have had a chance. We may regard ourselves lucky”—participant #2). It became even more difficult when the donor was a friend. Participant #1 described how she did not dare to tell the donor/her friend that she felt unhappy at the onset when she was still struggling to accept her infertility and the fact that this child was not genetically related to her. This would have seemed an insult to her friend.

Moreover, the efforts and challenges these women had endured to fulfill their desire for a child left little room for feelings of doubts, concerns, or sadness (“You have what you have been waiting for so long, now you need to be happy and feel good”—participant #1). Likewise, all three women referred to several incidents in their daily life in which they were confronted with remarks treating their donor conception as normal conception. People (e.g., family, friends, and professionals) seemed unaware of some of the unique implications donor conception has. Participant #3 stated that although all her colleagues/midwives were informed about the donor conception and the treatment procedure, she still received remarks like “with a second child
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everything will go smoother.” In this case, the remarks were experienced as rude, insensitive, and thoughtless regarding the fact that conceiving with donor oocytes is not self-evident. On another occasion, participant #2 witnessed a colleague/midwife commenting to an oocyte-recipient mother that her child did not look like either mother or father: “That must have hurt that lady so much. She made so much effort and then my colleague says ‘it doesn’t resemble one of you!’ That poor lady being so proud of her baby.” Being approached as “a pregnancy with autologous oocytes” could be experienced positive (“They accept us and see as normal”) or negative (“Your grief about the infertility and efforts are not being recognized”). The women themselves felt ambivalent about what reactions they preferred and it seemed to depend on how they felt at that particular time. Yet, feeling there was no room to express negative feelings was experienced by all as unhelpful. Above all, the expectation existed that at least colleagues, midwives/nurses in the field, would respond positively (or at least neutral) to donor-conceiving patients due to their expected knowledge about it, and feeling in general familiar and less awkward with the theme of infertility as family and friends might feel. This expectation did lead to additional disappointments when these expectations were not met.

DISCUSSION

Most of the scientific literature on donor-oocyte recipients involves research into the successes of the treatment (e.g., high success rates, healthy babies) and its similarity with “natural/normal” procreation (i.e., carrying pregnancy, giving birth, and breastfeeding). Oocyte-recipient treatment is indeed successful (BELRAP, 2014; CDC, 2012) and as it does help women to carry a desired pregnancy and to fulfill their desire for a child. However, our findings indicate that the biological success of donor-oocyte treatment is not sufficient for oocyte-recipient women to experience the treatment also as a psychological success. Despite the reintroduction of “normality” through establishing pregnancy, our findings support prior work delineating the need to acknowledge the pain and psychological injury due to the infertility and the contribution of a third person in the conception (Guillou et al., 2009; Hershberger et al., 2007).

Literature on the experiences of pregnancy, birth, and breastfeeding of oocyte-recipient women is almost nonexistent (Hershberger, 2004). Some of our findings are in line with women conceiving with their own oocytes, such as the participant’s experiences regarding breastfeeding in which normative, cultural frameworks on breastfeeding leave women with limited options for articulating and defining their subjective position. The most notable, “the good mother” and the “breast is best,” discourses, as expounded in antenatal classes, set women up to expect to breastfeed without difficulty (Ryan, Bissell, & Alexander, 2010). The problem is that when this is not a woman’s experience, she has few other discourses to call upon but the one who says “I failed, I feel guilty, I’ve let them down”; this causes a crisis in her sense of self. Ryan et al. (2010) have identified ways in which women are able to mentally rewrite the script they have of themselves from an uncomfortable position (“I fail”) to one that they felt or expect to feel more comfortable or socially acceptable (“I succeed/do well”). Yet, for these women to succeed a culture of openness is necessary.
to develop new subjective positions around infant feeding practices (Ryan et al., 2010). Listening to women’s narratives of their breastfeeding experiences may open up a way of thinking that leads to new ways of communicating about breastfeeding than solely in terms of success or failure (Ryan et al., 2010). Moreover, very little literature on breastfeeding after donor-oocyte pregnancies could be located and only emphasized that oocyte recipients were in fact being able to breastfeed (Applegarth et al., 1995; Söderström-Anttila et al., 1998). Specific meaning of breastfeeding following donor-oocyte pregnancies and its possible difficulties were not addressed. Finally, the assumptions on a positive role of breastfeeding on the mother–infant relationship are not supported by empirical evidence. Recommendations of breastfeeding should solely be based on its well-documented positive effects on infant and maternal health (Jansen, De Weerth, & Riksen-Walraven, 2008).

Women in this study were often dealing with loneliness and incomprehension and a need for more psychological support was expressed throughout the pre-, peri-, and postnatal periods, such as that reported by Guillou et al. (2009). Yet, in line with Sachs and Hammer Burns (2006), this chapter demonstrates that donor-oocyte treatments entail opportunities to restore self-esteem and self-image and to regain self-confidence and control among donor-oocyte-recipient women. Simultaneously, perceptions and interpretations of the infertility and subsequent treatment could be undermining forces, sometimes persisting throughout the process of pregnancy and after birth (Sachs & Hammer Burns, 2006). Women in this study provide additional understanding on how experiences regarding pregnancy, birth, and breastfeeding—beyond the experience of infertility and the treatment—entail opportunities to regain self-confidence and self-control.

Although biologically comparable to a normal pregnancy (pregnancy with autologous oocytes), the participants’ experiences convey four themes in which the events of pregnancy, birth, and breastfeeding are given unique psychological meanings as a result of the infertility and subsequent treatment with donor oocytes. Approaching a donor-oocyte pregnancy as a normal pregnancy will cause these specific meanings to be overseen, even when the biological higher risks associated with donor-oocyte pregnancy are pointed out (Stoop et al., 2012) and the donor-oocyte pregnancy is approached according to a protocol for high-risk pregnancies. When these experiences are not addressed adequately, they risk the development of failure experience on top of the previously felt failure experiences. Reasons for overlooking these experiences seemed partly due to “the illusion of normal fertility,” the presence of normative views (regarding mode of delivery, breastfeeding), and the organization of the health care in which care for a patient can be divided over different professional teams (fertility clinic and maternity). Information about the fertility history is needed to approach the patient in an appropriate and adapted manner, yet might not always be available or given the necessary attention. Transfer of this information might be hindered between the various professionals (e.g., physicians, midwives, nurses) due to nondisclosure of the mode of conception by the woman herself or other health care professionals. Being focused on one specific event (e.g., pregnancy, birth, breastfeeding) can cause thinking about the history of the conception or the long-term consequences to be challenging. Finally, knowledge about the meaning and impact of infertility and donor-oocyte conception on the experience of pregnancy, childbirth, and breastfeeding might be lacking.
Although the number of participants is small, the homogeneity of the group and its uniqueness (“insiders position”) result in unprecedented in-depth insight into the experiences of donor-oocyte-recipient women’s experiences. Two of the participants were interviewed 8 to 10 years after donor-egg conception and their recall about their experiences may have been limited or modified. However, Quigley, Hockley, and Davidson (2007) have shown that women’s recall about significant life events is highly reliable and that being familiar with perinatal events and terminology, as these participants were, enhanced the reliability. We do provide a novel in-depth description of oocyte-recipient women’s experiences of pregnancy, birth, and breastfeeding. Further research regarding the psychological effects of pregnancy complications and the experience of breastfeeding after oocyte donation is necessary.

**IMPLICATIONS FOR PRACTICE**

Since the first report of a live birth from oocyte donation in 1984, the request for treatment with donor oocytes has increased worldwide. In the United States, the number of oocyte-recipient pregnancies represents almost 12% of all ARTs (CDC, 2012). Nurses are confronted with oocyte-recipient women in different health care settings, including fertility clinics, prenatal, maternity, and pediatric centers. Nurses caring for oocyte-recipient women need to be informed about the unique psychological aspect of oocyte donor conception. Moreover, nurses and other health care providers should be aware of the significant role that they play in supporting oocyte-recipient women to cope with their infertility and to regain confidence and restore self-esteem. Nurses can improve clinical care by anticipating the needs of donor-oocyte recipients as they move through pregnancy, birth, and into the postpartum period. Collaboration with other professionals, including mental health professionals pointing out the psychological specificities of a donor-oocyte pregnancy, may also improve care, especially when formulating guidelines or models of care for oocyte-recipient women.

Continuous awareness, self-reflection, and sensitivity to the pitfall of the illusion of normality and the presence of normative views (e.g., view on breastfeeding) are needed to be able to support the patient in her management of her infertility and the development of a confident concept of motherhood. Team supervision can address the impact of normative frameworks, their suitability for oocyte pregnancies, and openness to different views.

**CONCLUSION**

Limited research has been done regarding the experience of pregnancy, birth, and breastfeeding of oocyte-recipient women. The results of this study provide a beginning and understanding of the specific psychological processes that take place during the pre-, peri-, and postnatal periods of oocyte-recipient women. The experiences presented in this chapter raise the issue of a special care pathway for pregnancies after oocyte donation is recommended to foster the development of a confident maternal identity. Greater awareness and understanding of the distinctive psychological qualities of oocyte-recipient pregnancies and the cultural expectations
regarding breastfeeding and oocyte-recipient treatment are needed during the pre-, peri-, and postnatal periods to provide appropriate care.

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