Université de Montréal

A Longitudinal Investigation of the Emotional Experience of Men using Assisted Reproductive Technologies

Par
Ariel Trépanier Freire (20181080)

Département de psychologie

Faculté des arts et des sciences

Essai doctoral présenté en vue de l'obtention du doctorat en psychologie, option clinique (D. Psy)

Novembre, 2023

Université de Montréal
Doctorat : Département de psychologie, Faculté des arts et sciences

Cet essai intitulé

A Longitudinal Investigation of the Emotional Experience of Men using Assisted Reproductive Technologies

Présenté par

Ariel Trépanier Freire

A été évalué par un jury composé des personnes suivantes

Dominique Meilleur

Président-rapporteur

Katherine Péloquin

Directrice de recherche

Beata Bothe

Membre du jury

Résumé

Le diagnostic médical d'infertilité ainsi que les traitements de procréation médicalement assistée (PMA) peuvent occasionner d'importantes répercussions sur le plan psychologique, physiologique et émotionnel auprès des couples souffrant d'infertilité. Toutefois, peu est connu sur l'expérience émotionnelle des partenaires hommes qui ont recours à la PMA. La présente étude a donc examiné l'expérience affective de 154 hommes nord-américains (âge moyen = 34,12 ans, *ÉT* = 5,22) envers leur partenaire en contexte de PMA à l'aide d'un nouveau questionnaire (JEFT-Q ; Péloquin & Brassard, 2019) et ce, au cours de 12 à 18 mois de PMA. Les résultats indiquent que tout au long des traitements, les participants endossent grandement l'expérience d'émotions positives, telles que la gratitude, la compassion et l'admiration envers leur partenaire. Néanmoins, après un an de traitement, il y a une diminution significative de ces expériences et à l'inverse, une augmentation significative d'expériences négatives telles que du souci, de l'impuissance, du ressentiment et un sentiment d'aliénation envers la partenaire. Cette nouvelle exploration longitudinale utilisant un grand échantillon d'hommes nord-américains permet de mieux comprendre le vécu des patients masculins qui indiquent souvent se sentir incompris ou négligés dans le processus médical. Ultimement, le but serait d'intégrer ce type de connaissances dans les pratiques des professionnels travaillant auprès de cette clientèle vulnérable.

Mots-clés : Infertilité, traitement de fertilité, procréation médicalement assistée (PMA), expériences émotionnelles, hommes, couples.

Abstract

The medical diagnosis of infertility and the assisted reproductive technologies (ART) can have significant psychological, physiological, and emotional repercussions for couples suffering from infertility. However, little is known about the emotional experience of male partners who undergo ART with their partner. The aim of the present study was thus to investigate the emotional experience of 154 North American men (mean age = 34.12 years old, *SD* = 5.22) towards their partner in the context of ART using a newly developed questionnaire (JEFT-Q; Péloquin & Brassard, 2019) over the course of 12 to 18 months. The results indicate that participants strongly endorsed various positive experiences towards their partner, such as gratitude, compassion, and admiration. After one year of ongoing treatment however, there was a significant decrease in said experiences and conversely, a significant rise in the endorsement of negative states such as concern, helplessness, resentment, and a feeling of alienation towards the partner. This new longitudinal exploration using a large sample of North American men allows us to better understand the perspective of male patients who often report feeling misunderstood or neglected in the medical process. Ultimately, the goal would be to integrate this type of knowledge into the practices of professionals of all sorts working with this vulnerable clientele.

Keywords: Infertility, fertility treatments, assisted reproductive technologies (ART), emotional experiences, men, couples.

Tables des matières

List of tables

List of figures

Lists of acronyms

ART- Assisted reproductive technologies

CEREP – Committee for research ethics in education and psychology

IVF – In vitro fertilization

JEFT-Q – Joint experience of fertility treatment questionnaire

MANCOVA – Multivariate analysis of covariance

MAR – Medically assisted reproduction

SPSS – Statistical package for the Social Sciences

Abbreviation list

F – F-value

M – Mean

η^2 = Partial Eta Squared

p – P-value

SD – Standard Deviation

T- T-value

Acknowledgments

I want to begin by thanking two driving forces behind the production of this research project. First, I would like to give my thanks to my research director, Katherine Péloquin, who has been a crucial mentor in the making of this article. She was extremely supportive in the face of hardship and her precious contribution never went unnoticed. Not only did she actively encourage me to believe and deepen my research skills, but she also provided multiple opportunities for me to flourish in this domain. I consider myself lucky to have been able to learn from her vast knowledge and expertise in this field.

A second significant helper I want to personally acknowledge in this research process is Laurie Beauvilliers. Her patience, her cheerfulness, and her dedication were always so precious to behold. I was very fortunate to have been able to depend on such a talented fellow researcher. I am forever grateful to both these remarkable individuals for all their hard work and assistance. They were both present for me when I needed it the most.

I would also like to thank all my friends and family members who were there for me when I needed support in its various forms; whether it was to vent, to help me explicitly with research material or to provide me with the means to pursue my work in a favourable and safe environment. Last but not least, I want to thank my wonderful mother, who, from the very beginning, has always been there to inspire me and encourage me to achieve my goals.

Avant-propos

As first author of the present article, I have developed the research questions, participated in data collection, analyzed the data, interpreted the results, and finally, wrote the entirety of the article.

This study is part of a larger research project led by Dr. Katherine Péloquin. I would also like to acknowledge the contribution of the co-authors, Dr. Audrey Brassard, Dr. Nathalie Rosen, Laurie Beauvilliers and Dr. Sophie Bergeron. They have been instrumental with regards to data collection, assistance with statistical analysis and revision of the article. Finally, I want to thank all the participants who have made the production of this research effort possible.

This article will be submitted to the *American Journal of Men's Health*

Article

A Longitudinal Investigation of the Emotional Experience of Men using Assisted Reproductive Technologies

Ariel Trépanier Freire, Department of Psychology, Université de Montréal

Audrey Brassard, Department of Psychology, Sherbrooke University

Nathalie O. Rosen, Department of Psychology & Neuroscience, Dalhousie University

Laurie Beauvilliers, Department of Psychology, Université de Montréal

Sophie Bergeron, Department of Psychology, University of Montréal

Katherine Péloquin, Department of Psychology, Université de Montréal

Acknowledgements: The authors would like to thank the men and women who participated in the study, as well as all the research assistants who contributed to data collection.

Declaration of Conflicting Interests: The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding: This work has been supported by the Canadian Institutes of Health (IRSC) [under Grant number PJT-162196]

Corresponding author: Katherine Péloquin, Department of Psychology, Université de Montréal, C.P. 6128, Succursale Centre-Ville, Montréal, Québec H3C 3J7, Canada. Email: Katherine.peloquin@umontreal.ca

Introduction

Infertility is described as the inability to conceive a child after at least one year of regular unprotected sexual intercourses (CDC, 2021) and it is estimated that 1 in 6 Canadian couples experiences it (Government of Canada, 2019). It can occur due to female factor infertility (e.g., endometriosis, ovarian failure, anatomical problems), male factor infertility (e.g., low sperm count, varicoceles, congenital defects) or a combination of both. In a minority of couples (approx. 15%), infertility remains unexplained (Leaver, 2016). Although not every couples dealing with infertility seek assisted reproductive technologies (ART) to circumvent this health problem, in the United States, a census at a national level revealed that a third of Americans know someone or have themselves used ART (Pew Research Center, 2018). Due to the prevalence of infertility and the fact that it impedes on an important milestone for many individuals, namely achieving parenthood, a lot of attention has been devoted to understanding how couples reconcile with a diagnosis of infertility and adjust to the demanding nature of ART (Dancet et al., 2010; Gameiro et al., 2013). The focus of this research has often been placed on the physical and psychological adjustment of women given that the bulk of medical procedures involves the female body, even in the case of male factor infertility. Women also experience greater lifestyle interruption given the numerous treatment implications (e.g., appointments to the clinics, adhesion to medication) and sustain most of the medication side effects (Cousineau & Domar, 2007; Fisher & Hammarberg, 2012). Unsurprisingly, psychosocial interventions offered in the context of infertility are largely optimized with a feminine perspective (Culley et al., 2013, Mikkelsen et al., 2012). However, much less is known about men's experience of involuntary childlessness and fertility treatments, and their adaptation to it. There are psychological, cultural, and biological factors that may impact how men and women consider and react to such

predicament. The main purpose of this study was thus to shed light on the experience of male partners in infertile couples using ART, in an effort to inform future practice among men who have trouble coping with this health issue.

The literature on infertility and the use of ART indicates that among couples going through this process, several dimensions of their functioning are negatively impacted by it (e.g., on a cognitive level, somatic level, sexual activity, and quality of life; Aarts et al., 2011; Cousineau & Domar, 2007; Luk & Loke, 2015; McQuillan et al., 2003). However, just as Peterson and Petok (2022) note in their review of the research in this field, women are repeatedly found to have higher rates of depression and anxiety compared to their male partners as well as the more general population (Holter et al., 2007; Ramezanzadeh et al., 2004; Wischmann et al., 2001). For instance, Pasch and her colleagues (2016) found that among 352 women and 274 men undergoing fertility treatment, 56.5% of women scored in the clinical range for depressive symptoms and 75.9% scored in the clinical range for anxiety symptoms. Among the male partners, 32.1% of them scored in the clinical range for depression symptoms and 60.6% reported clinical levels for anxiety symptoms. Indeed, studies in this field often place an emphasis on mental illness as the main indicator of distress for couples going through this process and tend to report a discrepancy between men and women (Fisher & Hammarberg, 2012; Greil & Schmidt, 2014; Verhaak et al., 2005). It is therefore regularly implied that men are less adversely affected by a diagnosis of infertility and the fertility treatments when compared to women (Greil & Johnson, 2014; Lund et al., 2009). However, more and more scholars are cautioning against coming to that conclusion and suggest using alternative methods to investigate men's experience of involuntary childlessness and ART (Culley et al., 2013; Peterson & Petok, 2022; Wischmann & Thorn, 2013).

Indeed, quantitative studies using more varied measures of psychological adjustment to infertility and well-being (i.e., as opposed to using standardized measures of depression and anxiety) have provided evidence for the psychological distress experienced by men in the context of infertility. For instance, in a study by Wichman and colleagues (2011), whereas on average men undergoing IVF with their partner were not in the clinical range with regards to symptoms of depression, anxiety, anger, and perceived stress, 50% of them did report mild or greater infertility-specific distress. This distress entailed engaging in avoidance-type of behaviours and having intrusive ideation related to infertility. When considering the relationship dynamic among couples receiving a diagnosis of male-factor infertility, Hammarberg and colleagues (2010) found that a quarter of men stated that the diagnosis had a negative impact on their relationship intimacy and 32% reported diminished sexual satisfaction. Moreover, the men who considered their condition as having a detrimental impact on their relationship were less satisfied with their lives. Similarly, Péloquin and colleagues (2017) found that men who blamed themselves for the fertility problem reported both lower relationship satisfaction and more symptoms of depression and anxiety. Furthermore, several studies reported that men, specifically, seem to be more likely to experience involuntary childlessness and ART through the effect that it is has on their partner (Greil et al., 2010). For instance, men report less infertility-related stress when their female partner perceives to be highly supported by her significant other (Martins et al., 2014). In addition, when their female partner blames herself for the fertility problem, men tend to report higher levels of depression and anxiety symptoms (Péloquin et al., 2017). Taken together, these results suggest that men are also concerned by infertility and fertility treatments, albeit they might express it differently than what has been previously conceived. It would thus appear important to use varying assessment tools and methods to better understand the different ways in

which men may describe their experience in the context of infertility, beyond psychopathology measures.

Increasing qualitative research efforts have investigated men's experience in the context of an infertility diagnosis and ART. Indeed, men seem to express how they feel in diverse ways. The notion of emotional roller-coaster has often been employed to describe this wide variability in the context of infertility (Richard et al., 2017; Throsby & Gill, 2004). A study looking at an online discussion board for men facing fertility problems revealed that many men admitted not knowing how to discuss their feelings or concerns with their partner and so, they often opted not to (Richard et al., 2017). This suppression was evident amongst their outer social circles as well because they feared that other people would judge them or stigmatize them. This led them to report feeling even more isolated and disconnected from close relatives. Moreover, when the primary cause of infertility was a male factor, various men reported feeling blamed by their partner for their failure to conceive.

When specifically questioning men's opinion concerning medically assisted technologies, general trends concerning treatment compliance and general satisfaction also seem to surface. For instance, during interviews among 13 couples using in vitro fertilization (IVF), some male partners described their role as very "passive", "doing it for their wives", or merely following what was expected of them by their female partner (Throsby & Gill, 2004). Some men reported discontentment, even shame, with their part in the treatment process; they felt as though their purpose in the fertility treatment was limited to masturbation in often awkward conditions (e.g., public toilet, presence of pornography). When men are free to fully and anonymously express how they feel on an online discussion board, themes such as feelings of neglect, unimportance, and isolation are repeatedly found among male discourse (Malik & Coulson, 2008). They admit

regularly feeling as though others around them (e.g., medical staff, relatives, friends, even spouse) view them as merely "spectators" to the treatment proceedings, which further enforces their sense of being "overlooked" and their beliefs that people do not understand what they are going through. Overall, this broad range of negative experiences (e.g., isolation, powerlessness, foregoing self-disclosure, feeling of inadequacy) that men report with regards to both their journey in the fertility treatments as well as their partner's implication in the process, further strengthens the notion that men can experience distress in this context. It is therefore crucial to investigate other indicators of emotional adjustment, as there appears to be many.

The abovementioned findings highlight a wide variety in emotional responses as well as the salient relational factor that comes with a diagnosis of infertility and the journey through ART. It is a health problem where the patient is the couple, as both members are undertaking many interrelated steps to achieve a common goal, that of parenthood (Schmidt, 2006). To better understand the nature of men's distress in relation to infertility matters, it is therefore essential to look beyond psychopathology and to consider their experience within the context of the relationship. Very few quantitative studies have adopted this angle to capture the full range of men's experience with infertility and ART. Moreover, in addition to being limited in its comprehension of men's variable experiences, much of the literature in this domain consists of cross-sectional studies that do not consider changes in emotional states over time. Indeed, it is reasonable to believe that as partners undergo repeated unsuccessful treatment outcomes for instance, their emotional adjustment deteriorates over time (Pasch et al., 2016; Maroufizadeh et al., 2015; Verhaak et al, 2005), hence the importance of using prospective research designs. Examining how men's emotions, thoughts or behaviours in their relationship change over the

course of a year of treatment can inform future practice by providing a more detailed picture of what to expect for men who decide to go through this process.

Objectives

The present study sought to offer a more extensive portrayal of men's experience of infertility and ART. To achieve this, we used the Joint Experience of Fertility Treatments Questionnaire (JEFT-Q; Péloquin & Brassard, 2019), which acknowledges the relational aspect of infertility and the treatments and captures key parts of the subjective experience that have been identified in the scientific literature and clinical practice with couples dealing with infertility. Indeed, the JEFT-Q assesses a broader range of emotionally charged experiences, both positive and negative, that partners undergoing treatments for infertility may experience in relation to one another. As such, the JEFT-Q addresses some limitations in the infertility literature as it goes beyond the traditional psychopathology measures regularly used in quantitative research among couples undergoing ART. In addition, in contrast to qualitative studies that used smaller samples to collect information regarding men's experiences, our study relied on a large group of participants, therefore allowing for more generalizability of the data to the North American male population. Finally, to acquire a better sense of men's experience throughout the ART journey, we used a prospective design, which no study of this nature has done to this date. In sum, this exploratory study's main objective was therefore to describe what North American men facing infertility and ART with their female partner report in terms of their emotional experiences and explore how these experiences change over a 12-months fertility treatment period. In turn, the information gathered for the purposes of this study will help inform the practice of professionals working alongside this clientele with specific needs.

Methods

Participants

This study was part of a larger prospective study which aimed to investigate the factors that predict adjustment in couples entering fertility treatment. To participate, couples had to be within 6 months of their first visit to a fertility clinic. Participants needed to have access to internet to complete the questionnaires, speak or read either French or English, be of at least 18 years of age, and to seek treatment in a fertility clinic in Canada or the United States. Couples were excluded if one or both individuals presented severe psychiatric disorders (e.g., psychosis, bipolar disorder) that were not well controlled for (e.g., with the use of medication or psychological treatment) as self-reported by the participants themselves.

For the purposes of this study, only the data from the male partners collected in the first year of the study were used (recruited between December 2019 and October 2021). As a result, the initial sample of our study consisted of 277 men. We removed three men who did not report medical infertility (e.g., same-sex partners, etc.). Three men were removed because they had separated from their partner before completion of the study and therefore discontinued fertility treatment. Finally, 117 were excluded because their partner became pregnant or gave birth during the 12-month period, therefore stopping treatment.

The final sample included 154 men who were involved in fertility treatments over a 12-to-18-month period. These participants did not significantly differ from those who were excluded on the basis of their age, socioeconomic status, relationship duration, and cohabitation duration. The only significant difference concerned the duration of attempting to conceive ($t(260) = 2.261$, $p = .025$). More specifically, those who were included in the final sample have been attempting to conceive a child longer on average than those who were excluded.

For the final sample, the age range was 19 to 56 (M = 34.12, SD = 5.22). More than half of the sample were Native English speakers (62.1%), 32.7% were native French speakers, and 5.2% learned another first language (e.g., Arab, Spanish, Swedish). In terms of ethnic groups, the vast majority identified as white (88.3%), 3.9% identified as Black (e.g., African Canadian, African American, Haitian, Jamaican), 1.3% identified as Latino or of Hispanic origins, 1.3% identified as Asian (e.g., Japanese, Chinese, Vietnamese group. Almost half of the sample completed university studies (48.7%), 23.4% obtained a community college diploma, 18.8 % completed high school, 5.8% did not finish high school and 3.2% attained other forms of professional diplomas. Twenty-four percent of the men reported having an annual income of $49,999 *Canadian dollars* and less, 54.5% reported an annual income between $50 000 and $89 999 *Canadian dollars*, and 21.4% reported an annual income of $90 000 *Canadian dollars* and higher. On average, men were in their relationship with their partner for 8.34 years (SD = 4.59) and 66.3% reported being married.

With regards to their medical background assessed at the start of the study, a little over half of the participants consulted fertility clinics located in Nova Scotia (55.5%), 35% visited clinics located in Québec, 6.2% consulted clinics located in other Canadian provinces, and 2.4 % consulted American fertility clinics. Thirty-nine men (25.5%) reported being unable to conceive due to a male infertility diagnosis, 25.5% due to a female infertility diagnosis, 9.2% reported not knowing the cause of the infertility problem (e.g., the diagnosis was still under investigation, unexplained infertility), and 9.8% reported a mixed-factor infertility problem. Sixty-six men reported that they underwent at least one unsuccessful treatment cycle with their partner in the 6 months prior the start of the study. During the study period (i.e., 12 months), men reported on average experiencing 2.5 failed treatment cycles (ranging up to 14).

Measures

Joint Experience of Fertility Treatments Questionnaire (JEFT-Q)

The JEFT-Q (Péloquin & Brassard, 2019) assesses how each partner in the dyad might feel, perceive, and behave towards each other, specifically in the context of experiencing infertility and undergoing ART. The questionnaire was designed with a descriptive intent, which can be useful in clinical practice. It initially included 22 items describing experiences with emotional undertones that have often been reported by couples seeking counseling for fertility problems. Each item is rated on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), with higher scores indicating a strong endorsement of each type of experience. We conducted an exploratory factor analysis with the maximum likelihood method and oblimin rotation, which yielded a three-factor solution, explaining 46.96% of the variance. The KMO index (0.8) and Bartlett's Test of sphericity ($\chi 2(153) = 1405.20$, $p < .001$) supported the sampling adequacy of the data. Six items were not retained in the final solution because they did not significantly share a common variance with all the other items. The factor loadings for the final 16 items ranged from 0.314 to .829. The first factor, labeled "Positive experiences towards partner", included four items and encompassed emotional experiences that reflect a form of appreciation towards the partner (e.g., "I feel admiration towards my partner", "I feel grateful towards my partner", "I feel compassion towards my partner"). The Cronbach's Alpha for that subscale was 0.76. The second factor included four items and was labeled "Concern for the partner" because these items conveyed a sense of both being troubled and worrying for the other partner's experience (e.g., "I feel sorry for my partner", "I feel helpless towards my partner", "I am afraid of what could happen to our relationship"). The Cronbach's Alpha for that subscale was 0.65. The third factor included eight items and was titled "resentment/alienation from the

partner" because it conveyed a sense of dissatisfaction towards the partner, isolation, and loss of engagement in the relationship (e.g., "I feel anger towards my partner", "I feel disappointment towards my partner", "I am keeping my partner at a distance"). The Cronbach's Alpha for that subscale was 0.81. Table 1 presents all the final items retained in the questionnaire.

Procedures

To recruit participants, brochures and advertisement were distributed in both online platforms and on-site locations. Online platforms such as social media (Facebook, Reddit, Kijiji, Twitter, Instagram, etc.), personal blogs and websites of North American associations for infertility-related matters were solicited to share publicity about the study. At several fertility clinics, couples were also approached by a research assistant who provided a brief description of the study and determined eligibility for those interested, or by the clinics' staff who sought consent for those interested in being contacted at a later time by the research assistant.

Couples interested in participating were asked to reach out to research assistants by phone or e-mail. A research assistant conducted in phone interview to determine eligibility and explain the details of the study. After the completion of the screening procedure by phone and with the participants' initial verbal consent, both members of the couple were sent an email with the informed consent form to sign as well as the first baseline questionnaire to fill out individually within the same month, on a secure web platform. Embedded in the baseline questionnaire were measures on sociodemographic (e.g., age, relationship duration, income, medication for mood disorders or anxiety, etc.), medical variables with regards to fertility treatments and the JEFT-Q, among other measures not included in this present study. With the exception of the background questionnaire (i.e., demographics), the beforementioned measures were included in the follow-up surveys sent out after six months (i.e., time 2), and after 12

months (i.e., time 3). Therefore, participants could have different clinical follow-up durations (e.g., baseline could have been completed within the first 6 months of clinical follow-up, the second survey could have been completed within 6 to 12 months of clinical follow-up, etc.), but all participants received their questionnaires 6 months and 12 months after completing the first baseline questionnaire. Finally. each partner received a sum of up to $57 *Canadian dollars* for their participation. The study was approved by the researchers' institutional research ethics boards, namely the Committee for Research Ethics in Education and Psychology.

Statistical Analyses

Preliminary analyses including an exploratory factor analysis, descriptive statistics, and correlations among the study's variables were conducted using SPSS 27.0. Missing data were addressed using the multiple imputation (MI) method to ensure robustness in the analysis and mitigate potential biases arising from incomplete data. Next, a repeated measure multivariate analysis of covariance (MANCOVA) was conducted to evaluate whether the three types of emotional experiences as measured in the JEFT-Q (i.e., positive experiences, concern for partner, resentment/alienation from partner) significantly differed across the three time points (i.e., baseline, 6 months, 12 months). When significant differences were observed, post-hoc contrast analyses were conducted. Effect sizes (partial eta-squared, η^2) were calculated to evaluate the practical significance of the observed effects. Three covariate variables were considered in the analysis: the number of failed fertility treatment cycles, medication for mental disorders (*yes/no*), and past or present psychotherapy for infertility related matters (*yes/no*). These variables were chosen given the potential effect they could exert on the psychological adjustment over time in the context of fertility treatments (Faramarzi et al., 2013). In the present sample, 10.4% of the

participants reported taking medication for a mood or anxiety disorder, and 16.9% of the men reported undergoing present or past psychotherapy with their partner for infertility related issues.

Results

All variables were normally distributed, except for the resentment/alienation variable at Time 1, which showed a slight right-skewed distribution. Data were missing for 5 participants at baseline, 34 participants at T2 and 38 participants at T3 (missing at random). Missing data were addressed using multiple imputation (50 datasets).

The first objective of the study was to describe the subjective experience of North American men undergoing fertility treatments with their female partner. Descriptive statistics on the three dimensions of the JEFT-Q at the beginning of the study are presented in Table 3. Within six months of their first visit to a fertility clinic, men endorsed on average, more positive experiences (e.g., admiration, gratefulness, and compassion towards their partner) as opposed to both more resentful like experiences and concern for their partner. Indeed, 79% of the sample endorsed positive experiences towards their partner (i.e., 5 or higher on the 7-point rating scale). With regards to the "concern for partner" dimension, 21% of the men rated 5 or higher for this dimension. In other words, men generally did not strongly endorse a sense of fear, helplessness, or being sorry for their partner at the start of the study. Finally, nearly all participants rated their answer as 4 or lower (94.6% or 99.3%) on the dimension "resentment/alienation from partner", indicating either neutrality or varying degrees of disagreement with the statements. Only one man had an average score of 5 across the items encompassed in that dimension. As a secondary objective, a repeated measures multivariate analysis of covariance (MANCOVA) was conducted to examine changes in men's emotional experiences (i.e., positive emotions, concern for partner, and resentment/ alienation from partner) across three measurement periods (i.e., baseline, 6

months, and 12 months) while controlling for the effects of three covariates (i.e., number of fertility treatment failures, medication for mood disorders, and psychotherapy). The multivariate test yielded a statistically significant effect, $F(6, 75) = 26.34$[1], $p < 0.001$, $\eta^2 = 0.681$. Follow up univariate tests indicated that for the "concern for the partner" scale, there was a significant main effect of time, $F(2, 84) = 5.76$[2], $p = 0.004$, $\eta^2 = 0.067$. Post-hoc analyses revealed no significant difference between baseline and time 2 (i.e., 6 months; $p = 0.43$), but concern for the partner did increase significantly from time 2 (i.e., 6 months; $M = 4.39$, $SD = 1.61$) to time 3 (i.e., 12 months; $M = 4.91$, $SD = 1.25$, $p = 0.023$) (see Figure 1).

The analysis for "resentment/alienation from partner" revealed a significant main effect of time, $F(2, 84) = 12.42$[3], $p < 0.001$, $\eta^2 = 0.134$. Subsequent post-hoc analyses indicated a significant increase between baseline ($M = 1.71$, $SD = 0.87$) and time 2 ($M = 2.29$, $SD = 1.77$, $p < 0.001$), but no significant difference from time 2 to time 3 ($p = 0.55$).

With regards to the experience of positive emotions, a significant main effect of time was observed, $F(2, 84) = 37.40$[4], $p < 0.001$, $\eta^2 = 0.319$. Follow-up post-hoc analysis revealed that endorsement of positive emotions did not change significantly between baseline and time 2 ($p = 0.58$), but it decreased significantly from time 2 ($M = 6.15$, $SD = 1.02$) to time 3 ($M = 4.92$, $SD = 0.87$, $p < 0.001$). Finally, none of the three covariates (i.e., number of treatment failures, medication for mood disorders, and past or present psychotherapy) were significantly associated with change in all three forms of emotional experiences over time.

Discussion

[1] The F-values for the 50 imputed datasets varied between 23.09 and 35.59.
[2] The F-values for the 50 imputed datasets varied between 4.86 and 9.62.
[3] The F-values for the 50 imputed datasets varied between 8.97 and 14.25.
[4] The F-values for the 50 imputed datasets varied between 22.12 and 40.14.

The current study sought to describe the subjective experience of North American men towards their partner over the course of one year of ART using both a systematic and quantitative approach. It was found that men report a wide range of nuanced emotional experiences towards their partner and that there are significant changes in their affective states as they undergo months of fertility treatments. These results contribute to our better understanding of the multifaceted experience of men seeking reproductive technologies with their partner, as well as corroborate some of the findings reported in prior qualitative studies that have used smaller samples.

The Subjective Experience of North American Men

Analyses conducted on the JEFT-Q revealed three types of experiences that men might endorse when undergoing ART with their partner: (1) positive emotional experiences akin to an appreciation towards the partner, (2) concern for the partner, and (3) resentment/alienation from the partner.

In the present study, positive experiences that were highly endorsed by the respondents, specifically at time 2 (i.e., within 6 to 12 months of the first visit to a clinic), involved feelings of admiration, gratefulness, and compassion towards the partner. Moreover, a large effect size was observed for these reported experiences, with the passage of time explaining approximately 31.9% of the variance. Given that most of the treatment process revolves around women's body, it comes as little surprise that the men of this sample would report feeling high levels of gratitude towards their partner for accepting to undertake such a responsibility. Similarly, feelings of compassion and admiration could also arise as men witness their partner undergo painful or demanding procedures. After 12 to 18 months of ongoing treatment (i.e., at T3), there was a significant decrease in the endorsement of those feelings towards the partner. However, despite

this decline over time, the majority of the participants maintained varying degrees of agreement to the statements regarding positive feelings towards their partner. Future research could examine whether experiencing these positive affective states could serve as a protective factor for both partners' psychological and relationship adjustment over the process of fertility treatments. This would be coherent with the results of studies indicating that for some individuals, their journey through ART has had a positive impact on them and their relationship. For instance, in a qualitative study among couples having recently gone through fertility treatments, Sauvé and colleagues (2018) found that couples reported a sense of being more engaged to one another given the shared ordeal and an increased feeling of closeness and understanding towards the partner. Moreover, most participants felt reassured by their partner's commitment to the relationship as they saw their partner choosing to stay in the relationship regardless of treatment outcome. The study also revealed that participants developed supportive interactions in their couple (e.g., communication patterns, helpful behaviours) and felt a strengthening faith in their relationship as they handled life challenges together. In a similar vein, Peterson and colleagues (2011) found that among 1406 Danish couple going through ART over a 5-year period, nearly a third reported increased marital benefit even in the light of unsuccessful outcomes. Moreover, couples adjusted better when various positive coping strategies were used in the face of joined hardship. It could be that the experience of positive emotions such as those investigated in this research project becomes one way to foster adaptative relationship interactions or marital benefits during the process of fertility treatments. Future studies could potentially bridge the gap by including other measures of relationship welfare in addition to the examination of similar affective experiences towards the partner. Ultimately, the literature along with this current study's results do suggest that it is possible for couples going through fertility

treatments over longer periods of time to experience favourable emotional interactions and sense a strengthening of the relationship.

Nevertheless, even though there was generally a high degree of endorsement with positive experiences towards the partner throughout the study, a significant decrease in those instances were recorded after prolonged exposure to fertility treatments. Happening simultaneously was a subtle but significant rising concern for the partner's well-being throughout the treatment process. After 12 to 18 months of ART, participants were increasingly susceptible to feel helpless towards their partner, feel sorry for their partner, feel guilt for the couple's difficulty in conceiving, and fear what could happen to the relationship if the treatments did not work. Although feeling uneasiness or concern towards the partner does not preclude the experience of positive interactions, months of medical procedures and cycles of hope and losses can have a considerable emotional toll on couples going through the motions (Lok & Luke 2015; Maroufizadeh et al. 2015; Pasch et al., 2016). Indeed, couples starting ART may be specifically hopeful or enthusiastic about their journey and its outcome. In that state, men could potentially express more compassion and admiration towards their partner who is at the center of this process. As couples undergo repeated unsuccessful treatment cycles however, or as male partners assist their significant other with all the arduous medical procedures (e.g., taking medication, numerous appointments, hormonal injections), they may begin to feel a heightened sense of helplessness, sorry towards their loved one or concern about their relationship's future (Patel & al., 2019; Peterson & Petok, 2022). In line with this, Richard and colleagues (2017) found that male members of an online board actively solicited information about how to provide support to their female partner in the treatment process because they described feeling inadequate and "clueless" as to how to effectively aid their partner. Indeed, it has been found that men whose

partner feels both responsible for their fertility problem and fatigue ensuing the treatment process voiced greater helplessness in their ability to assist their partner (Malik & Coulson, 2008). In addition, men going through fertility treatments with their partner often express "doing everything that one can do" for their partner in order to overcome their feeling of guilt (Schick et al., 2016). At the same time however, they also report being limited in terms of what they can do to help. Likewise, the men of our sample also reported feelings of guilt towards their partner. Finally, contrary to what other studies have found (Sauvé et al 2018; Schick et al. 2016), the men of the present study were more inclined to agree with a fear of what could happen to their relationship if treatments did not work. As can be seen from prior qualitative research efforts and this current study, closer examination of the male discourse on infertility and ART underlines that men go through a wide variety of aversive affective states and it can be quickly oversighted when employing limited methods of assessments (e.g., measures of psychological symptomatology).

A third type of affective experience that was examined among the men of our sample was "resentment and alienation from the partner". This included feelings of anger or frustration towards the partner, feeling disappointment towards the partner, blaming the partner for the difficulty in conceiving, having the impression that the partner is the sole decision maker, having the impression that one is enduring the partner's decisions, keeping the partner at a distance, hesitating to share personal information by fear of being judged, or feeling that one is making more sacrifices than the partner. Taken together, these statements were the least endorsed of all at the beginning of the study. After a year of ongoing fertility treatments however, there was a significant change; men were less likely to endorse strong disagreement with the statements and instead, chose more ambivalent forms of agreement. These results are on par with the findings of

Patel and colleagues (2019) in their investigation of online forums for men dealing with infertility and ART. Men of the online community shared experiencing negative emotions such as frustration, isolation and being misunderstood. Some men even depicted their journey as a "lonely battle or war that needs to be won". Others explained how they experienced important emotional strain that later led to increased hostility and lack of patience towards their partner. A general theme that emerged from the forums, however, was the tendency for men to supress their own inner struggles in order to better support their partner.

Overall, the men of the present study reported more positive emotional experiences (e.g., compassion, gratitude) and concern towards the partner than negative emotional experiences such as resentment and alienation. Of note, the effect sizes observed for the two types of negative emotional experiences (e.g., concern and resentment) were small to medium. Indicating that there are significant changes in said experiences albeit not extreme.

One potential explanation for this underreporting of more conflictual affective experiences could have to do with the role of emotional caregiver that men often assume with their female partner in the context of ART (Herrera et al., 2013; Hudson & Culley, 2013; Patel et al., 2019). This entails becoming the "good husband" (Thompson, 2005) who adopts a stoic front and provides the bulk of the emotional support to the partner. Men describe it as a duty to not worsen their partners already loaded mood by not sharing their own adverse feelings with regards to infertility matters and the treatment procedures (Herrera et al., 2013; Thompson, 2005). In that regard, men could have learned to embody that form of sympathism or accentuated concern while avoiding getting in touch with more hostile or conflictual sentiments towards their partner. As it was found in a qualitative study conducted by Schick and colleagues (2016) among 13 German men, participants often stated that their main role in the fertility treatment process

was to support their wife. As the authors note, men seem to have internalized that they must be "strong" for their female partner, and this often implies suppression of emotions to not burden their partner. These types of findings can perhaps shed light as to why some participants in the present study did not endorse emotional experiences or interactions of a more conflictual nature towards their partner. It could also be that men do not readily volunteer information about their negative feelings toward their partner and the ART process, given than their partner is often sustaining most of the treatment burden and as a result, they do not feel the right to "complain". However, it could also be that the men of this sample, like those of the abovementioned studies, are those who adapt relatively well in the face of infertility and ART. Continued research efforts should be carried out in order to better differentiate and understand those men who adjust better and those that express increasing distress over time. In turn, information of this kind can enhance the clinical practice of various professionals that work with that clientele.

Strengths and Limitations

The present study is the first in the literature that has taken a relational approach when examining men's nuanced emotional experiences towards their partner as they are undergoing ART and that has also examined the fluctuations of said experiences throughout a 12 to 18-month period of ongoing fertility treatments. Indeed, several previous studies were done with a retrospective approach, cross-sectionally or among men at different treatment stages. Although there are increasingly qualitative studies in the field providing rich information regarding a male perspective on the experience of medical infertility and ART, these studies have often limited generalizability given the smaller sample sizes. This study's contribution to the literature was thus an exploration of male partners using a newly developed questionnaire based on the literature and clinical work with couples using fertility treatments. In addition, a good number of

North American couples were recruited for this study, allowing for greater generalizability than before.

Nevertheless, there are a few elements worth mentioning when interpreting the findings of this study. First, for the purpose of the present investigation, only the men who remained in their relationship for the full length of the study period were retained in the final sample. In other words, the men who separated from their partner during the study period or those who decided to stop the treatment for other reasons were excluded from the sample. However, these individuals' narrative may also offer an important facet of the male perspective regarding medical infertility and the use of ART—they could speak of those men who did not adapt well to ongoing fertility treatment and therefore, were more likely to underreport positive experiences towards the partner and increasingly endorse negative interactions with their partner. A second element to consider pertains the use of the newly developed questionnaire (JEFT-Q; Péloquin & Brassard, 2019) in this study. Preliminary factor analyses were conducted, however more studies are needed to support the validity of the JEFT-Q and confirm the structure of the questionnaire. A final aspect to bear in mind is a recurrent limitation that arises when conducting research among male participants. Compared to women, men often tend to report lower levels of emotional distress or are less comfortable disclosing their emotional states to researchers (Greil & Johnson 2014; Slade et al., 2007). This could be particularly relevant in this context given the stigma surrounding masculinity and infertility (Greil, 2014). Indeed, the whole notion of anonymity and greater freedom to express how they feel seem to be of crucial importance for men (Malik & Coulson, 2008; Patel et al., 2019). More specifically, online spaces (e.g., forums, discussion boards) seem to offer a safe venue for men to vent and self-disclose their various emotional experiences in more details as opposed to self-report questionnaires which have limited response

options or interviews conducted by researchers and sometimes, with the partner present in the same room (Hanna & Gough, 2018; Herrera et al., 2013; Malik & Coulson, 2010). Therefore, although the data collecting methodology of the present study (i.e., a self-report questionnaire) has various advantages, it can also have certain limitations when it comes to fully capturing the male experience or can influence how male participants report their experience.

Future Directions and Clinical Implications

The findings of this study support the notion that men going through fertility treatments with their partner can experience nuanced and various emotional states throughout the medical process. More specifically, it was found that it is possible for male partners to maintain high levels of positive feelings such as compassion, admiration, and gratitude towards their partner throughout a year of treatment. There is, however, evidence indicating that these experiences, after a 12-month period, are subject to decrease and instead, there can be a significant rise in more troublesome affective experiences such as concern, helplessness, frustration, and alienation towards the partner. It would thus be important to closely investigate the journey of male partners whose treatment journey extends past 12 months to better understand what could account for a shift in their emotional experience, and optimally, offer guidance to the couples facing these challenges. In an effort to achieve this, future research could monitor these men using a weekly diary to record the unfolding of subjective experiences as couples struggle with unsuccessful treatment cycles or repetitive intrusive medical procedures with their partner. This could potentially provide meaningful material on the different perspectives resulting from the two roles needed (i.e., woman at the center of the medical procedures and the assisting partner) in this arduous and often lengthy journey to parenthood.

Ultimately, investigating men's experiences of involuntary childlessness and assisted reproductive treatments can significantly influence the way professionals of all sorts (e.g., doctors, nurses, psychologists) provide support to them. As Petok (2015) mentions in his literature review on counseling men with infertility, even though there are resources currently available, many men will not use this offered help. The author suggests that one explanation could entail that these interventions might not be best suited to their needs given that they are predominantly based on studies regarding psychological distress and effective therapeutic methods among female patients. Yet there is empirical evidence supporting that men often complain they are not properly informed on the medical vernacular surrounding fertility treatments by the clinical staff or they feel excluded from the whole process (Arya & Dibb, 2016; Van Empel et al., 2010). As a result, men express feeling disengaged in the medical process, feeling isolated, and misunderstood (Patel et al., 2019; Richard et al., 2017). Findings such as these underly the need of coming to really understand the male perspective on infertility and ART. In turn, future counselling approaches could potentially benefit from including psychoeducation to both members of the couple on the various types of emotional experiences that can arise when undergoing fertility treatments. This seems particularly relevant given men's tendency to supress their affective responses as a way to assist their female partner while female partners express a desire to hear more about their male partner's experiences (Herrera 2013; Peterson & Petok, 2022). In the end, interventions best tailored for both men and women are of crucial importance given the interplay between each partner's emotional adjustments (Martins et al., 2014).

Theoretical Implications and Concluding Remarks

The present study has made an important contribution to the current infertility literature as it has used a newly developed questionnaire investigating diverse emotional experiences in the

context of a relationship across a large sample of North American men and over an extended period of 12 months. As the findings have highlighted, men can report important fluctuations in both positive and negative experiences when going through fertility treatments with their significant other. Indeed, the male experience of ART can be very nuanced and future research efforts should be carried out to better capture the many facets of this journey for both members of the relationship.

References

Aarts, J.W.M., van Empel, I.W.H., Boivin, J., Nelen, W.L., Kremer, J.A.M., & Verhaak, C.M. (2011). Relationship between quality of life and distress in infertility: A validation study of the Dutch FertiQoL. *Human Reproduction, 26*(5), 1112-1118. http://www.doi.org/10.1093/humrep/der051

Arya, S. T., & Dibb, B. (2016). The experience of infertility treatment: The male perspective. *Human Fertility*, *19*(4), 242–248. https://doi.org/10.1080/14647273.2016.1222083

Beaurepaire, J., Jones, M., Thiering, P., Saunders, D., & Tennant, C. (1994). Psychosocial adjustment to infertility and its treatment: Male and female responses at different stages of IVF/ET treatment. *Journal of Psychosomatic Research,* 38(3), 229-240. doi: 10.1016/0022-3999(94)90118-x.

Centers for Disease Control and Prevention. (2021, April 13). Reproductive Health. https://www.cdc.gov/reproductivehealth/infertility/index.htm

Cousineau, T.M., & Domar, A.D. (2007). Psychological impact of infertility. *Best Practice & Research Clinical Obstetrics and Gynaecology, 21*(2), 293-308. http://www.doi.org/10.1016/j.bpobgyn.2006.12.003

Culley, L., Hudson, N., & Lohan, M. (2013). Where are all the men? The marginalization of men in social scientific research on infertility. *Reproductive BioMedicine Online, 27*(3), 225-235. http://dx.doi.org/10.1016/j.rbmo.2013.06.009

Dancet, E.A.F., Nelen, W.L.D.M., Sermeus, W., De Leeuw, L., Kremer, J.A.M., & D'Hooghe, T.M. (2010). The patients' perspective on fertility care: A systematic review. *Human reproduction Update, 16*(5), 467-487. http://www.doi.org/10.1093/humupd/dmq004

Fisher, J.R.W., & Hammarberg, K. (2012). Psychological and social aspects of infertility in men:

An overview of the evidence and implications for psychologically informed clinical care and future research. *Asian Journal of Andrology, 14*(1), 121-129. http://www.doi.org/10.1038/aja.2011.72

Galhardo, A., Pinto-Gouveia, J., Cunha, M., & Matos, M. (2011). The impact of shame and self-judgment on psychopathology in infertile patients. *Human Reproduction, 26*(9), 2408-2414. http://www.doi.org/10.1093/humrep/der209

Gameiro, S., Canavarro, M.C., & Boivin, J. (2013). Patient centred care in infertility health care: Direct and indirect associations with wellbeing during treatment. *Patient Education and Counseling, 93*(3), 646-654. http://dx.doi.org/10.1016/j.pec.2013.08.015

Government of Canada. (2019, May 28). *Fertility*. https://www.canada.ca/en/public-health/services/fertility/fertility.html#shr-pg0

Greil, A.L., & Johnson, K.M. (2014). Gender Attitudes: Infertility. *In The Wiley-Blackwell encyclopedia of health, illness, behavior, and society.* https://doi.org/10.1002/9781118410868.wbehibs046

Greil, A., McQuillan, J., & Slauson-Blevins, K. (2011). The social construction of infertility. *Sociology Compass*, *5*(8), 736–746. https://doi.org/10.1111/j.1751-9020.2011.00397.x

Greil, A.L., Slausons-Blevins, K., & McQuillan, J. (2010). The experience of infertility: A review of recent literature. *Sociology of Health & Illness, 32*(1), 140-162. http://www.doi.org/10.1111/j.1467-9566.2009.01213.x

Hammarberg, K., Baker, H.W.G., & Fisher, J.R.W. (2010). Men's experiences of infertility and infertility treatment 5 years after diagnosis of male factor infertility: A retrospective cohort study. *Human Reproduction, 25*(11), 2815-2820. http://www.doi.org/10.1093/humrep/deq259

Hanna, E., & Gough, B. (2018). Searching for help online: An analysis of peer-to-peer posts on a male-only infertility forum. *Journal of Health Psychology*, *23*(7), 917–928. https://doi.org/10.1177/1359105316644038

Herrera, F. (2013). "Men always adopt": Infertility and reproduction from a male perspective. *Journal of Family Issues*, *34*(8), 1059–1080. https://doi.org/10.1177/0192513X13484278

Holter, H., Anderheim, L., Bergh, C., & Möller, A. (2007). The psychological influence of gender infertility diagnoses among men about to start IVF or ICSI treatment using their own sperm. *Human reproduction, 22*(9), 2559-2565. http://www.doi.org/10.1093/humrep/dem189

Hudson, N., & Culley, L. (2013). 'The bloke can be a bit hazy about what's going on': Men and cross-border reproductive treatment. *Reproductive BioMedicine Online, 27*(3), 253-260. http://www.doi.org/10.1016/j.rbmo.2013.06.007

Livingston, G. (2018, July 17). A third of U.S. adults say they have used fertility treatments or know someone who has. Pew Research Center. https://www.pewresearch.org/fact-tank/2018/07/17/a-third-of-u-s-adults-say-they-have-used-fertility-treatments-or-know-someone-who-has/

Luk, B. H.-K., & Loke, A. Y. (2015). The impact of infertility on the psychological well-being, marital relationships, sexual relationships, and quality of life of couples: A systematic review. *Journal of Sex & Marital Therapy*, *41*(6), 610–625. https://doi.org/10.1080/0092623X.2014.958789

Lund, R., Sejbaek, C.S., Christensen, U., & Schmidt, L. (2009). The impact of social relations on the incidence of severe depressive symptoms among infertile women and men. *Human Reproduction, 24*(11), 2810-2820. http://www.doi.org/10.1093/humrep/dep257

Malik, S. H., & Coulson, N. S. (2008). The male experience of infertility: A thematic analysis of an online infertility support group bulletin board. *Journal of Reproductive and Infant Psychology, 26*(1), 18-30. http://www.doi.org/10.1080/02646830701759777

Malik, S. H., & Coulson, N. S. (2010). Coping with infertility online: An examination of self-help mechanisms in an online infertility support group. *Patient Education and Counseling*, *81*(2), 315–318. https://doi.org/10.1016/j.pec.2010.01.007

Maroufizadeh, S., Karimi, E., Vesali, S., & Omani Samani, R. (2015). Anxiety and depression after failure of assisted reproductive treatment among patients experiencing infertility. *International Journal of Gynecology & Obstetrics*, *130*(3), 253–256. https://doi.org/10.1016/j.ijgo.2015.03.044

Martins, M.V., Peterson, B.D., Almeida, V., Mesquita-Guimarães, J., & Costa, M.E. (2014). Dyadic dynamics of perceived social support in couples facing infertility. *Human Reproduction, 29*(1), 83-89. http://www.doi.org/10.1093/humrep/det403

McQuillan, J., Greil, A.L., White, L.K., & Jacob, M.C. (2003). Frustrated fertility: Infertility and psychological distress among women. *Journal of Marriage and Family, 65*(4), 1007-1018. https://doi.org/10.1111/j.1741-3737.2003.01007.x

Pasch, L. A., Holley, S. R., Bleil, M. E., Shehab, D., Katz, P. P., & Adler, N. E. (2016). Addressing the needs of fertility treatment patients and their partners: Are they informed of and do they receive mental health services? *Fertility and Sterility*, *106*(1), 209-215.e2. https://doi.org/10.1016/j.fertnstert.2016.03.006

Patel, D., Blandford, A., Warner, M., Shawe, J., & Stephenson, J. (2019). “I feel like only half a

man": Online forums as a resource for finding a "new normal" for men experiencing fertility issues. *Proceedings of the ACM on Human-Computer Interaction*, *3*(CSCW), 1–20. https://doi.org/10.1145/3359184

Péloquin, K., Brassard, A., Arpin, V., Sabourin, S., & Wright, J. (2017). Whose fault is it? Blame predicting psychological adjustment and couple satisfaction in couples seeking fertility treatment. *Journal of Psychosomatic Obstetrics & Gynecology, 39*(1), 64-72. http://www.doi.org/10.1080/0167482X.2017.1289369

Peterson, B. D., & Petok, W. (n.d.). *Https://www.cambridge.org/core/books/fertility-counseli*

Peterson, B. D., Pirritano, M., Block, J. M., & Schmidt, L. (2011). Marital benefit and coping strategies in men and women undergoing unsuccessful fertility treatments over a 5-year period. *Fertility and Sterility*, *95*(5), 1759-1763.e1. https://doi.org/10.1016/j.fertnstert.2011.01.125

Peterson, B.D., Sejbaek, C.S., Pirritano, M., & Schmidt, L. (2014). Are severe depressive symptoms associated with infertility-related distress in individuals and their partners? *Human Reproduction, 29*(1), 76-82. http://www.doi.org/10.1093/humrep/det412

Petok, W.D. (2015). Infertility counseling (or the lack thereof) of the forgotten male partner. *Fertility & Sterility, 104*(2), 260-266. http://www.doi.org/10.1016/j.fertnstert.2015.04.040.

Ramezanzadeh, F., Aghssa, M.M., Abedinia, N., Zayeri, F., Khanafshar, N., Shariat, M., & Jafarabadi, M. (2004). A survey of relationship between anxiety, depression and duration of infertility. *BMC Women's Health, 4*(9), 9. http://www.doi.org/10.1186/1472-6874-4-9

Richard, J., Badillo-Amberg, I., & Zelkowitz, P. (2017). "So much of this story could be me":

Men's use of support in online infertility discussion boards. *American Journal of Men's Health, 11*(3), 663-673. http://www.doi.org/10.1177/1557988316671460

Sauvé, M.-S., Péloquin, K., & Brassard, A. (2020). Moving forward together, stronger, and closer: An interpretative phenomenological analysis of marital benefits in infertile couples. *Journal of Health Psychology*, *25*(10–11), 1532–1542. https://doi.org/10.1177/1359105318764283

Schick, M., Rösner, S., Toth, B., Strowitzki, T., & Wischmann, T. (2016). Exploring involuntary childlessness in men – a qualitative study assessing quality of life, role aspects and control beliefs in men's perception of the fertility treatment process. *Human Fertility*, *19*(1), 32–42. https://doi.org/10.3109/14647273.2016.1154193

Schmidt, L. (2006). Infertility and assisted reproduction in Denmark. Epidemiology and psychosocial consequences. *Danish Medical Bulletin, 53*(4), 390-417. PMID: 17150146.

Seale, C., Charteris-Black, J., Dumelow, C., Locock, L., & Ziebland, S. (2008). The effect of joint interviewing on the performance of gender. *Field Methods, 20*(2), 107-128. http://www.doi.org/10.1177/1525822X07313837

Slade, P., O'Neill, C., Simpson, A.J., & Lashen, H. (2007). The relationship between perceived stigma, disclosure patterns, support and distress in new attendees at an infertility clinic. *Human Reproduction, 22*(8), 2309-2317. http://www.doi.org/10.1093/humrep/dem115

Throsby, K., & Gill, R. (2004). "It's different for men": Masculinity and IVF. *Men and Masculinities, 6*(1), 330-348. http://www.doi.org/10.1177/1097184X03260958

Van Empel, I. W. H., Nelen, W. L. D. M., Tepe, E. T., Van Laarhoven, E. A. P., Verhaak, C. M., & Kremer, J. A. M. (2010). Weaknesses, strengths and needs in fertility care according to patients. *Human Reproduction*, *25*(1), 142–149. https://doi.org/10.1093/humrep/dep362

Verhaak, C.M., Smeenk, J.M.J., van Minnen, A., Kremer, J.A.M., & Kraaimaat, F.W. (2005). A longitudinal, prospective study on emotional adjustment before, during and after consecutive fertility treatment cycles. *Human Reproduction, 20*(8), 2253-2260. http://www.doi.org/10.1093/humrep/dei015

Wichmann, C.L., Ehlers, S.L., Wichman, S.E., Weaver, A.L., & Coddington, C. (2011). Comparison of multiple psychological distress measures between men and women preparing for in vitro fertilization. *Fertility and Sterility, 95*(2), 717-721. http://www.doi.org/10.1016/j.fertnstert.2010.09.043

Wischmann, T., Stammer, H., Scherg, H., Gerhard, I., & Verres, R. (2001). Psychological characteristics of infertile couples: A study by the "heidelberg fertility consultation service". *Human Reproduction, 16*(8), 1753-1761. https://doi.org/10.1186/1742-4755-7-3

Tables

Table 1.

Final items included in the Joint Experience of Fertility Treatments Questionnaire.

Thinking about our difficulty in conceiving or our experience with MAR, I feel…	1	2	3	4	5	6	7	n/a
1. … sorry for my partner.								
2. … anger/frustration towards my partner.								
3. … disappointment towards my partner.								
4. …helpless towards my partner.								
5. …grateful towards my partner.								
6. …guilty towards my partner.								
7. …compassion for my partner.								
8. I blame my partner for our fertility problem/ difficulty conceiving.								
9. I feel that my partner is making important decisions about our journey in MAR alone.								
10. I feel like I am enduring my partner's choices.								
11. I feel more often than not that I am the one who makes important decisions about our journey in MAR.								
12. I feel like I am keeping my partner at a distance.								
13. I hesitate to share my experience with my partner out of fear of being judged or injured.								
14. I feel that I am making more efforts or sacrifices than my partner.								
15. I am grateful for what my partner is doing in our MAR journey.								
16. I am afraid of what could happen to our relationship if fertility treatments do not work.								

Note. MAR stands for medically assisted reproduction; A score of 1 means "*strongly disagree*", a score of 4 means "*neutral*", a score of 7 means "*strongly agree"* and n/a means "*does not apply"*.

Table 2.

Bivariate correlations between emotional experiences at each time point.

Variable	1	2	3	4	5	6	7	8	9
1. Concern T1	-								
2. Concern T2	.445**	-							
3. Concern T3	.353**	.295**	-						
4. Resentment T1	.380**	.207**	.080	-					
5. Resentment T2	.102	.612**	-.017	.230**	-				
6. Resentment T3	.170	.127	.452**	.329**	.194*	-			
7. Positive experiences T1	-.034	-.024	.034	-.407**	-.164	-.099	-		
8. Positive experiences T2	-.047	.254**	.127	-.324**	.117	-.133	.465**	-	
9. Positive experiences T3	-.013	.038	.502**	-.081	-.060	.460**	.254**	.441**	-

Note. $N = 155$; data are expressed as combined coefficient correlations; T1 = Baseline survey; T2 = 6-months follow-up survey; T3 = 12-months follow-up survey

**$p < .01$

Table 3.

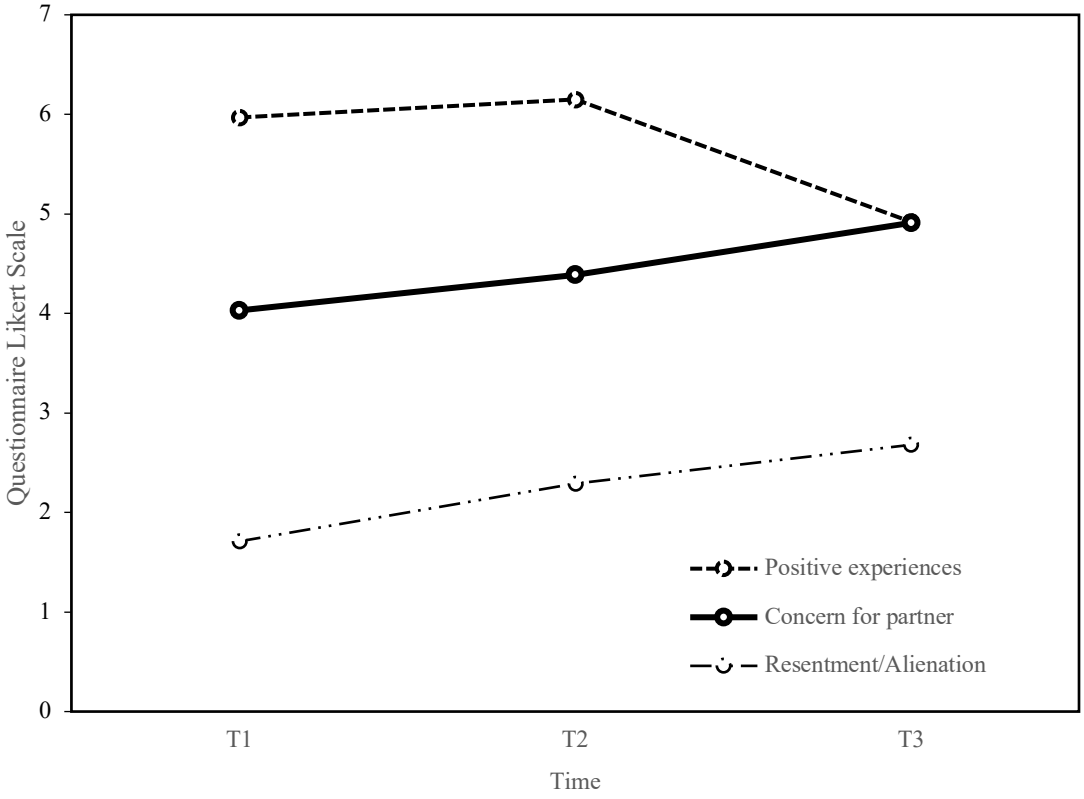
Descriptive statistics for the three types of emotional experiences captured by the Joint Experience of Fertility Treatments Questionnaire.

Variable	Baseline	6-months	12-months
Concern for partner	4.048 (.108)	4.375 (.132)	4.904 (.128)
Resentment & alienation	1.708 (.867)	2.288 (1.766)	2.686 (1.039)
Positive experiences	5.937 (.918)	6.146 (1.020)	4.917 (.872)

Note. $N = 155$; Data are expressed as combined estimated marginal mean (standard deviation)

Figure 1.

Change in the three dimensions of the Joint Experience of Fertility Treatments Questionnaire across time.



Note. T1 is onset of study, T2 is after 6 months, and T3 is after 12 months.