UNIVERSIDADE CATÓLICA PORTUGUESA

Perspectives on Infertility and a Childless Lifestyle: Its Associations with Intimacy in Infertile Couples

Dissertation presented to Universidade Católica Portuguesa in order to obtain

Master's Degree in Psychology with expertise in Clinical and Health Psychology

by

Inês Morgado Novo Capela

Faculdade de Educação em Psicologia

Porto, November of 2021

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Acknowledgments

First, I would like to show my appreciation and gratitude to my tutor Prof. Doctor Maria Raul Xavier for your enthusiasm throughout all stages of my dissertation. Your passion for teaching and medically assisted procreation made me want to choose you to be my tutor. Our meetings allowed me to confirm that I had an extremely resilient, dedicated, and knowledgeable person. Thank you very much Prof. Doctor Maria Raul Xavier.

I would like to thank Prof. Doctor Carla Martins for being so helpful, available, and capable of using a "statistical" language that I could understand. Professor Doctor Carla Martins made me want to learn more about Spss and statistical procedures.

I am very thankful to GIPMA (*Grupo de Intervisão de Psicologia em Procriação Medicamente Assistida*) and Ethical Boards of the hospitals to allow me to use their data in my study.

I would like to thank my dear colleagues and friends Rita Mendonça e Joana Caldas for their data gathering collaboration in my dissertation. I had the opportunity to solidify my friendship with both of you and I must tell you that I think that you are amazing, and I could not be prouder of being able to share this journey with the two of you. I want to keep you both in my life. Thank you so much!

Sofia Ferreira, I am very thankful for your friendship, words of encouragement and for your capability of making me laugh even in stressful moments.

Inês Ferreira, I wanted to let you that I really appreciate our friendship, our conversations, and your support. You contributed to my well-being and peace of mind. Thank you.

Sofia Fernandes, thank you for your friendship, for all the talks, all those lunchtimes. I want to know how much I appreciate you.

Jessica Marques Batista, thank you for believing in me, for always being kind and always have the right thing to say. These are the traits that make you a great friend and an even better future psychologist. We are so close to get what we worked for. Thank you for being part of this adventure.

Last but not least, I want to thank my parents, my sisters and my auntie for their unconditional love and for encouraging me to continue to "fight" for my convictions and my life goals.

I wanted to dedicate my dissertation to Gabriela Duarte and Ema Amorim as they provided me with the life tools I needed to keep on trying even when I did not believe I was capable of more. Gaby, I will not forget you and I wish you knew this.

"Your success and happiness lies in you. Resolve to keep happy, and your joy and you shall form an invincible host against difficulties".

Helen Keller

Abstract

Infertility is a condition that affects many couples around the world. Most studies on infertility focus on individual experience of infertility and fertility treatments related stress, rather than study the associations of the different dimensions of the couples' experience when facing infertility related struggles and the gender differences. This study aims to characterise the following variables: rejection of a childless lifestyle, need for parenthood, acceptance of infertility and intimacy dimensions (sexual intimacy, emotional proximity, communication and social intimacy) and explore the correlation between those variables. This study's participant sample consisted of a group of Portuguese infertile couples (N=70 participants) with primary infertility that were on the waiting list for fertility treatments or starting their first fertility treatment cycle. The exploratory data analysis was conducted using Descriptive and inferential Statistics, Spearman Correlation Analysis and other non-parametric tests.

There results findings indicated that rejection of a childless lifestyle, high levels of need for parenthood and difficulty in accepting infertility was associated with adaptive levels of intimacy in all four dimensions (sexual intimacy, emotional proximity, communication and social intimacy). Additionally, there was not significant difference between male and female participants across the variables analysed (rejection of childless lifestyle, need for parenthood, acceptance of infertility, sexual intimacy, emotional proximity, communication and social intimacy). These findings offer a new perspective on infertility and infertile couples that suggests that sharing hardship and adversity related to infertility might strengthen intimacy.

Keywords: Infertility; Rejection of a Childless Lifestyle; Need for Parenthood; Acceptance of Infertility and Intimacy.

Resumo

A infertilidade é uma condição que afeta muitos casais em todo o mundo. A maioria dos estudos sobre a temática centra-se no *stress* relacionado com a experiência individual de infertilidade e os desafios inerentes aos tratamentos de fertilidade, em vez de estudar as associações entre as várias dimensões da vivencia da infertilidade no casal e eventuais diferenças de género. O presente estudo visa explorar a correlação entre a rejeição de um estilo de vida sem filhos, necessidade de paternidade, aceitação da infertilidade e dimensões de intimidade (intimidade sexual, proximidade emocional, comunicação e intimidade social) e explorar as correlações das mesmas. A amostra deste estudo consistiu num grupo de casais portugueses inférteis (N=70 participantes) com infertilidade primária que se encontravam em lista de espera para tratamentos de fertilidade ou a iniciar o seu primeiro ciclo de tratamentos de fertilidade. A análise exploratória dos dados foi conduzida utilizando Estatística descritiva e inferencial, Análise de Correlação de *Spearman* e outros testes estatísticos não paramétricos.

Os resultados indicaram que a rejeição de um estilo de vida sem filhos, altos níveis de necessidade de paternidade e dificuldade em aceitar a infertilidade estava associada a níveis de intimidade adaptativos nas quatro dimensões (intimidade sexual, proximidade emocional, comunicação e intimidade social). Ademais, não houve diferença significativa entre os participantes masculinos e femininos nas variáveis analisadas (rejeição de um estilo de vida sem filhos, necessidade de paternidade, aceitação da infertilidade, intimidade sexual, proximidade emocional, comunicação e intimidade social). Estes resultados oferecem uma nova perspetiva sobre a infertilidade e os casais inférteis que sugere que a partilha das dificuldades e adversidades relacionadas com a infertilidade pode fortalecer a intimidade de casal.

Palavras-Chave: Infertilidade; Rejeição de uma Vida sem Filhos; Necessidade de Parentalidade; Aceitação da Infertilidade e Intimidade.

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Glossary

_F - Females

_M - Males

ART - Assisted Reprodutive Technology Treatments

BMI - Body Mass Index

FPI - Fertility Problems Inventory

GIPMA - Grupo de Intervisão de Psicologia em Procriação Medicamente Assistida

ICSI - Intracytoplasmic Sperm Injection

IVF - In Vitro Fertilisation

MAR- Medically Assisted Reproduction

PAIR- Personal Assessment of Intimacy in Relationships inventory

PGT – Preimplantation Genetic Testing

SCREENIVF - Screening of In-Vitro Fertility Treatments

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Introduction

According to the literature, infertility is a condition that affects approximately 8% to 12% of couples of childbearing age (e.g., Inhorn & Patrizio, 2015; do Nascimento & Térzis, 2010; Drosdzol & Skrzypulec, 2009). Despite the increasing number of individuals and couples seeking infertility treatments in developed countries in the last decade (e.g., Moura et al., 2009; Salama et al., 2018), it is known that the success rates of medically assisted reproduction (MAR) tend to vary from 10% to 40% (Nyboe Andersen et al., 2008; Schorsch et al., 2013). This means that many couples undergoing fertility treatment are confronted with the idea of a childless lifestyle and might in fact end up childless (Goisis et al., 2019).

Infertility challenges both the individual's wellbeing and the couple in many aspects (Donkor & Sandall, 2007; Jansen & Saint Onge, 2015). The way individuals deal with the challenges of infertility can be a source of disagreements, subsequently, those divergences might jeopardise the quality of the relationship (Luk & Loke, 2015; Chaves et al., 2019). There is a consistent body of evidence that identifies a strong correlation between infertility and psychological burden (e.g., Fallahzadeh et al., 2019), as well as between infertility and poorer levels of communication, sexual and emotion proximity (e.g., Soleimani et al., 2015). Peterson and colleagues (2003) have suggested that consensus regarding to need for parenthood was related with greater emotional proximity and communication (e.g., reciprocal emotional support and collaborative seeking for solutions to problems). It has also been suggested that coherence and consensus concerning parental needs is a key-factor for optimal levels of emotional proximity (e.g., Vick, 2009). Moreover, there are scholars that have highlighted the fact that social intimacy, having a mutual social network and a social network outside the relationship, is an important buffer against infertility-related stress (e.g., Kiesswetter et al., 2019; Ying and Loke, 2016).

Studies argued that the importance couples place on parenthood was a predictor of both acceptance of infertility and treatment success (Verhaak et al., 2007). Nevertheless, it has been difficult to find evidence on the impact of accepting or the rejecting a life without children on infertile couples' intimacy (sexual intimacy, emotional proximity, communication and social intimacy). The lack of research on impact of the acceptance or the rejection of a life without children and its relations with intimacy in infertile couples, supports the pertinence of studying this investigation topic. This study contributes to the research activity of GIPMA (*Grupo de Intervisão de Psicologia em Procriação Medicamente Assistida*), this group is composed by: Psychologists from 4 of the 6 hospital that provide PMA services in Portugal (that are part of

the Portuguese National Health Service); researchers from one of the research teams of the CEDH (Centre for Research in Human Development) and researchers from the *Universidade Católica do Porto.* GIPPMA main focus has been the develop joint protocols, discuss clinical cases and scientific research. Another important aspect, related to what is being explained, that contributes to the pertinence of this study, is the fact that it intends to characterise the users of two MAR medical units and support the clinical practice of psychologists (the GIPMA Group) that work with couples diagnosed with infertility in two hospitals of the North region of Portugal.

Furthermore, negative emotional adjustment to infertility seems to be associated with poorer intimacy between couples (Soleimani et al., 2015). For that reason, it would be relevant to investigate the relationships between these variables need for parenthood, rejection of a childless lifestyle, acceptance of infertility and couple's intimacy. In fact, this dissertation is exploratory as it is concerned with aspects of infertile couples that have been neglected or not fully addressed in previous studies. This study findings intend to provide health and mental health professionals relevant information and potential insights to consider when conducting interventions with infertile couples, as well as pointing out suggestions to improve future research on this topic area.

Therefore, this dissertation aims to study infertile couples' views on the possibility of a childless lifestyle, need for parenthood and their acceptance of infertility, particularly how those views might impact the couples' intimacy dimensions such as sexual intimacy, emotional proximity, communication and social intimacy. The aims and research hypothesis are further explained in another section of this dissertation. The following sections of this dissertation include a literature review of the research topic at stake, a methods section, a results section and, lastly, a discussion and conclusion sections.

Literature Review

Infertility Associated Factors, Treatment Options and Outcomes

Infertility is the failure to accomplish clinical pregnancy after a year or more of regular unprotected sexual encounters (Zegers-Hochschild et al., 2009). It is estimated that it affects 13% of women and 10% of men worldwide (Barbieri, 2019). Primary infertility is infertility in a couple that has never conceived a child and secondary infertility regards to the failure of conceiving following a previous pregnancy (Zayed & El-Hadidy, 2020).

There are several factors that have been associated with infertility in women and men. It is believed that lifestyle choices, genetics, exposure to certain medical procedures, sexual behaviour and postponing childbearing play a determinate role in whether or not the individual is fertile (Brugo-Olmedo et al., 2001). In women age is a very important factor in fertility, as it occurs an age-related decline in natural fertility after the early 30s. For that reason, women in their late 30s and 40s tend to have significantly lower success rates when undergoing medically assisted reproduction treatments (MAR) (Liu et al., 2011). In Europe postponing childbearing has become a wide trend, which means that women are becoming mothers later than ever before (Sobotka, 2017). Postponing childbearing may origin difficulties conceiving as a result of the fertility decline that naturally occurs as women age, therefore birth postponement has been associated with higher probability of unintended permanent childlessness (MacDougall et al., 2013). Research shows that factors such as more time in education has been associated with delays in childbearing, which increases the chances of childlessness (Clarke and Hammarberd, 2005). Preisner and colleagues (2018) also identified career advancement, financial stability and market conditions to be associated with childlessness in several European countries.

In addition to age, there are more factors that affect follicular availability, such as genetic factors, autoimmune diseases, chlamydia exposure, smoking, chemotherapy or radiation therapy exposure (Brugo-Olmedo et al., 2001). Other authors have also identified that the prevalence of overweight and obesity in infertile women is very significant, which is believed to be associated with the higher incidence of menstrual dysfunction and anovulation in overweight and obese women (Ozcan Dag & Dilbaz, 2015; Pasquali et al., 2007). However, there are many cases of infertility in women that have unrecognised cause, which is referred as idiopathic infertility (Spandorfer et al., 2001).

In men, smoking and alcohol abuse have been proven to interfere with semen quality leading to spermiogram alterations (Brugo-Olmedo et al., 2001). Another factor that has been associated with infertility in men is obesity, as the concretion of sperm per ejaculation is significantly decreases with increasing body mass index (BMI) (Pasquali et al., 2007). Also,

abnormal sperm parameters, varicocele, and hypogonadism have been reported to cause infertility (Thilagavathi et al., 2013). Nevertheless, approximately half of the cases of male infertility are classified as idiopathic (Singh & Jaiswal, 2011). Moreover, the use of contraception methods is associated with an increase in sexual intercourse frequency and increase number of sexual partners, which exposes couples to higher risks of sexually transmitted diseases that can create tubal-peritoneal infections, which has negative effect on fertility (Brugo-Olmedo et al., 2001).

Nowadays, there are several medical techniques frequently used in MAR that are referred as assisted reproductive technology treatments (ART), such as in vitro fertilisation (IVF), preimplantation genetic testing (PGT), intracytoplasmic sperm injection (ICSI), cryopreservation of embryos and gametes (Zegers-Hochschild et al., 2017). Other types of treatments used in MAR include assisted insemination and hormonal treatments, such as ovulation stimulation or induction (Zegers-Hochschild et al., 2017). The number of individuals and couples seeking infertility treatments in developed countries has increased in the last decades (Salama et al., 2018; Moura et al., 2009), which is believed to be associated with increasing number of hospitals and clinics that provide fertility treatment services. In addition, there is a growing concern of the society, the governments and the social media about the decrease in fertility rates across developed countries, which also affected by the greater number of couples choosing not to have children. However, it is known that the success rates of medically assisted reproduction (MAR) tend to vary from 10% to 40% (Nyboe Andersen et al., 2008; Schorsch et al., 2013). A study conducted in the United States of America presents evidence suggesting that from 115,392 MAR procedures started, only 34 % of these procedures resulted in live-birth delivery (Wright et al., 2005). This means that many infertile individuals are not able to conceive a child, despite undergoing MAR procedures (Goisis et al., 2019).

Infertility, Intimacy and Dyadic Adjustment

Infertility can be a highly challenging condition in various aspects. For instance, the financial pressure of fertility treatments, the anxiety about the treatment results, the fear of negative repercussions in the couples' interactions and the confrontation with the possibility of no motherhood/fatherhood (Najafi et al., 2015).The life stressors identified test the couples' relationships in several respects, such as the couple's dyadic cohesion and consensus (e.g., supporting one another, agreeing over matters of importance), as well as their social intimacy (maintenance of friendships that the couple has in common and other social relationships outside the relationship) and emotional proximity (Vick, 2009).

Intimacy has been regarded as bond that emotionally connects individuals (Reis & Patrick, 1996). In romantic relationships, intimacy is associated with self-disclosure, responsiveness to each other's needs and affective reciprocation (Reis & Patrick, 1996). According to Sternberg (1986) romantic relationships are based upon three main components: (a) intimacy that is associated with feelings of closeness and connectedness, representing the emotional proximity of the couple; (b) passion which is related with attraction and sex and (c) commitment which is a conscient decision to maintain a long-term relationship. Nowadays, intimacy is understood differently, many authors use the term intimacy in a multidimensional sense, considerind emotional, sexual, social and communication aspects of a relationship as manifestations of intimacy (e.g., Birnie-Porter & Lydon, 2013; Gross, 2005; Yoo et al., 2014). In this study intimacy is considered to integrate the following dimensions: sexual intimacy, emotional proximity, communication and social intimacy.

The constraints mentioned previously (e.g., financial struggles, anxiety about treatment procedures) increase the chances of infertile couples to experience intimacy issues and feel negative emotions, such as guilt, shame and anger or resent towards themselves or their partners (Soleimani et al., 2015). In order to cope with negative emotions individuals might seek social support, find new meanings or self-regulate their emotions (Peterson & Place, 2019). These strategies are believed to have a positive effect in the individual and in the relationship. On the contrary, coping strategies such as avoidance, accepting responsibility, confrontation, social withdraw, and cognitive distancing from the problems seem to be less beneficial for the individual and, consequently, for the relationship (Peterson & Place, 2019; Shani et al., 2016).

Thereby, it is believed that conflict in a relationship starts to occur when a couple fails to satisfy each other attachment needs (e.g., emotional, intellectual, sexual or affective intimacy), which can lead to the deterioration of the bond that existed previously between two partners (Soleimani et al., 2015). In fact, there are several academics that defend that the way one partner reacts to the infertility and the fertility treatments cannot be dissociated from the reactions of the other partner concerning these matters (e.g., Donarelli et al., 2012; Moura-Ramos et al., 2017).

It has been suggested that enhanced levels of dyadic adjustment and coping are positive predictors of overcoming the psychological and relationship challenges that infertility can lead to (Donarelli et al., 2019). A couple's dyadic adjustment is related to their dyadic consensus, dyadic cohesion and dyadic satisfaction, as well as their affectional expression (Zurlo et al., 2019). A couple's dyadic coping presupposes that both partners are committed to ensure the other's well-being and satisfaction (Bodenmann, 2005).

There are other findings that also emphasised the protective role of perceiving the couple's relationship as gratifying and satisfactory to counteract the negative impact of the stressful and adverse life events associated with infertility (de Mendonça et al., 2017).

There are many authors that found that communication is a key-factor for both relationship satisfaction and infertility-related stress. Couples who have optimal levels of communication tend to have higher relationship satisfaction, are more able to express their needs to their partner, feel more supported and have lower infertility-related stress (Martins et al., 2019; Chaves et al., 2019). Hence, unsatisfactory communication between partners is associated with infertility related stress (Schmidt et al., 2005). Glover and colleagues (2009) defend that intercommunication is essential for infertile couples to express support, make decisions, solve problem and mutual reassurance. Indeed, many authors have also identified a mutual supportive (emotional support and supportive behaviours) as a protective factor that correlates negatively with stress (e.g., Chang and Mu, 2008; Peterson et al., 2003). In fact, there are authors that suggest that women tend to employ positive coping strategies (such as social support, communication and emotional support) more often than men (e.g., Berghuis & Stanton, 2002). Meyers and colleagues (1995) argue that men favour action over conversation, as well as seem to adopt distancing and planful problem-solving rather than reaching for social and emotional support (Peterson et al., 2006).

Additionally, Ying and Loke (2016) suggest that when couples share the hardship and the adversity of infertility they can experience relationship benefits, and experience improvements in their quality of life and psychological well-being. Therefore, it is believed that infertile couples that are able to express love, share their emotions, understand the other partner's feelings and mutually reassure each other through the different phases of treatment will have an overall better relationship and tend to adapt better to the diagnosis and, consequently, to the treatments (Peters et al., 2011).

There are scholars that highlighted that optimal levels of love, attraction and affection throughout the course of a couple's relationship correlates positively with partnership and support during treatments for infertility (de Faria et al., 2012). Vizheh and colleagues (2013) emphasises the importance of interpersonal skills (e.g., mutual respect, active listening, applying conflict management skills) to deal with the hardship of infertility.

Social support reduces the levels of stress experienced by infertility couples, as it assists couples to deal with infertility (Ying and Loke, 2016). There are studies that suggest that lack of social support or social exclusion contributes to the psychological burden of infertility

(Kiesswetter et al., 2019). This means that social intimacy having a mutual social network and a social network outside the relationship is an important buffer against infertility-related stress (e.g., Kiesswetter et al., 2019; Ying and Loke, 2016). Women report to adjust better to infertility-related stress when they perceive higher support from their partner, family and friends (Martins et al., 2011). Lund and colleagues (2009) also reported that social support was associated with lower rates of depression in men. Interestingly, low family support was identified as a predictor for treatment dropout after a year for both men and women (Vassard et al., 2012).

To understand sexual intimacy, it is necessary to acknowledge that sex is, usually, a spontaneous desire and natural manifestation of intimacy and emotional closeness (Birnie-Porter & Lydon, 2013). On the other hand, when sexual activity is the means for conceiving, it can become stressful due to the pressure that the couple feel to procreate, which can lead to frustration (Steuber & Solomon, 2008). Additionally, couples undergoing fertility treatments are advised to follow certain sex routines (e.g., scheduling intercourse according the woman's ovulatory cycle) to maximize the chances of a successful conception (Monga et al., 2004). Indeed, there are authors that indicate that with the despair couples feel to conceive, sexual intercourse becomes a chore accompanied by preoccupations and fear of failure (Lee, 2010).

Sexual dysfunction is a difficulty experienced by an individual or a couple at any stage of normal sexual activity, such as physical pleasure, desire, arousal and orgasm (Campbell, 2013). Infertility can be the cause to sexual dysfunction and can also affect a person sexual self-concept (Zayed & El-Hadidy, 2020; Riazi et al., 2020). Sexual self-concept is influenced by sexual motivation and sexual satisfaction, as well as it is influenced by how one perceives their sexual performance (sexual self-efficacy) and how one perceives their sense of self as a sexual being (sexual esteem) (Riazi et al., 2020). These components (sexual motivation, sexual satisfaction, sexual self-efficacy and sexual esteem) tend to be affected in infertile individuals, which has negative consequences on their sexual function (Riazi et al., 2020).

Feelings of guilt, blame and anger towards the condition of being infertile can cause one element or both elements of the couple to restrict their sexual demand, which has a negative impact on their sexual desire (Tao, 2011). Abdolmanafi, and colleagues (2018), suggest that negative thoughts and worrying during sexual activity compromises one's sexual enjoyment and satisfaction. Indeed, there is strong evidence that there is a positive correlation between psychological burden and sexual dysfunction (Berger et al., 2016; Chaudhury & Mujawar, 2017; Lotti & Maggi, 2018; Ho et al., 2020; McCabe et al., 2016).

Research has been suggesting that men tend to report less enjoyment during sexual relations and felt pressured to have sex during their partner's fertility peaks (e.g., Monga et al., 2004), which might cause them performance anxiety and worrying (Steuber & Solomon, 2008). Wincze (2015) shown that men in infertile couples tend to report erectile dysfunction and/or premature ejaculation, which is contributes to the maintenance of the infertile condition. Additionally, other findings revealed that infertile men tend to have low desire and body images concerns regarding to the penis size and shape (Kruljac et al., 2019).

Interestingly, women undertaking fertility treatments also reported less interest in sex, more difficulties reaching orgasm and, an overall, decrease in their perceived satisfaction with their sex life (Smith et al., 2015). Other authors found that women with infertility are mostly affected in sexual function domains such as sexual desire, arousal, dyspareunia and negative body image (Latif & Diamond, 2013; Luk & Loke, 2015).

The gratification obtained from sexual relations is fundamental for the individual's relationship satisfaction (Young et al., 1998). As a result, those who are more satisfied with their sexual life tend to demonstrate higher levels of relationship satisfaction (Young et al., 1998). In fact, sexual satisfaction is responsible for positive emotions, beliefs, impressions, positive sexual communication and positive attitude towards sexual function (Riazi et al., 2020).

Another factor that has been associated with great levels of sexual function is sexual motivation. Sexual motivation is an important factor in initiating sexual intimacy and sexual behaviours, infertile couples with a wider range of sexual motivations (e.g., pleasure, love, commitment, wanting to have a child) tend to be more satisfied with their sexual lives (Gabr et al., 2017).

Parenthood, Infertility Acceptance and Childless Lifestyle

Moura-Ramos and colleagues (2016) believe that sociocultural constructs play a key-role on couples views on parenthood, therefore it has been advocated that countries with predominately traditional views on family and gender roles tend to value parenthood the most. Nishioka (2003) reported that many European countries, including Portugal, held strong beliefs about traditional families and traditional gender roles.

In fact, these pronatalist views or thoughts reinforce the societal pressures that exist regarding to reproduction and exalt the sociocultural emphasis given to motherhood (Benyamini et al., 2017). Despite of the majority of societies worldwide being pronatalists, societies tend to differ in prevailing assumptions about childlessness (Greil et al., 2011a).

Hence, most developed countries view childlessness as more legitimate and couples without children are often presumed voluntary childfree, while developing countries view childlessness as involuntary and tend to assume infertility as the cause (Dyer et al., 2002). Therefore, stigma regarding to infertility tends to be greater in developing countries (Dyer et al., 2002).

An example of the ideology that behind pronatalism is the premise that a woman role and destiny involves maternity and that is the man duty to ensure that this happens (Venkatesan & Murali, 2019).These views might lead women to feel incomplete, absent, abnormal and invisible (Benyamini et al., 2017), as well as might lead men to relate infertility with lack of virility and to assume that being infertile is humiliating and emasculating (Dudgeon et al, 2003).

Benyamini and colleagues (2017) found that individuals in pronatalists' cultures have more difficulty in "normalising" and accepting their infertility condition, also it was found more challenging in pronatalists' cultures to redefine life goals and readjust one's identity. The acceptance of infertility has been identified as a predictor of the individual emotional response to fertility treatments (Verhaak et al., 2007). These scholars point out that negative emotional responses to infertility were correlated with poorer treatment outcomes and, therefore, enhanced the possibility of permanent childlessness (Verhaak et al., 2007).

The term childlessness refers to both the involuntary childless lifestyle - which can occur as a result of an infertile condition - where a child cannot be conceived despite the individuals willingness and attempts to bring offspring, and the voluntary childless lifestyle where a women or men decides not to have a child, or it can be a consensual decision between the couple not to have a child (Berrington, 2017). For the propose of this study aims this literature review will be focusing on the former definition (involuntary childlessness) rather than on the latter (voluntary childlessness). Nonetheless, Berrington (2017) emphasises that the involuntary childless lifestyle and voluntary childless lifestyle are not mutually exclusive, this means that an individual or the couple might desire to have a child, but not reject the possibility of a meaningful and fulfilled life without having a child. Indeed, it has been suggested that cognitions that reject the idea of a life without children were associated with decreased emotional functioning, which was identified as a predictor of lower quality of life during fertility treatments (Fekkes et al., 2007).

It has also been claimed that it is possible to deal with infertility by normalising it, which includes expanding individuals' life goals, focusing on the well-being of the self and the couple and avoiding the financial constraints and psychological burden that results from several failed fertility treatments (Benyamini et al., 2017). In fact, these scholars argued that there is a positive correlation between the normalisation of infertility and great levels of well-being and quality

of life, as well as found that normalisation of infertility correlates negatively with distress. Grube (2020) also emphasised that by taking a new "normal" the couple is capable of redirecting life goals and find contentment in life. In order to do so couples need to define themselves less on their ability to parent and more on other aspects of life.

Indeed, it has been defended that is advantageous for infertile individuals to reinvision their future, reject traditional views on family and parenthood, establish clear personal boundaries, increase sense of personal responsibility for their healing process and health, as well as increasing their self-control, reinvest their energy in other life goals, renew their relationship commitment and, lastly, invest in meaningful and supportive social networks (Daniluk, 2001).

There are other scholars that argue that women undergoing involuntary childlessness need to grief and accept the various losses of not becoming a mother in order to move forward with their lives and accept their reality (e.g., Wirtberg et al., 2007). The grieving and the acceptance are believed to be a continuous process throughout infertile women lifetimes, as they witness people around them achieving developmental milestones related to parenting roles (e.g., seeing other people's children developing and others becoming a grandparents) (Wirtberg et al., 2007).

Moura-Ramos and colleagues (2016) suggest that the importance placed on parenthood influences the way individuals perceive infertility and the possibility of a childless lifestyle. A childless lifestyle is usually associated with investing more time in work related concerns and affairs, as well as focusing on other activities and personal interests (e.g., travelling, sport activities or others) (Glover et al., 1999; Wright et al., 1991). There are authors that argue that men tend to more readily accept a life without children and adapt faster to a childless lifestyle (e.g., Wright, 1991). It has been argued that women tend to submit themselves to several MAR treatments and continue to undergo treatments even after unsuccessful attempts (Ulbrich et al., 1990). Gameiro and colleagues (2008) believe that women's commitment to MAR treatments and resilience after failed attempts is related with the tendency of women taking longer to both accept infertility and redefine their life purposes to better adapt to non-motherhood.

In addition, Peterson and colleagues (2003) found that couples with identical perspectives on the importance of parenthood showed higher levels of relationship satisfaction, in comparison with couples that reported ambiguities related to their need for parenting. Hence, these findings support the idea that consensus among partners, regarding stressful experiences and means to overcome them, can increase the success of their coping strategies (Peterson et

al., 2003). Chang and Mu (2008) also argue that partners should agree about wanting a child and should agree the extent of the treatments, as that prevents conflicts and enhances mutual support. Nevertheless, constantly discussing the subject "infertility" can aggravate couples' feelings of helplessness and, as a result, lead them to further crystallise the belief that life will only be meaningful or complete if they were able to bear a child (Verhaak et al., 2007; Lechner et al., 2007). Verhaak and colleagues (2007) defend that a healthy adaptation to unsuccessful fertility treatments in women is to shift from a treatment-focusing coping strategy to a cognitive coping strategy (by readjusting important life goals). This means that women might have to consider the benefits of childlessness, as that helps them to truly face the loss of their life goal (motherhood) and start to accept childlessness (Verhaak et al., 2007). The acceptance of a childless lifestyle has also been associated with greater dyadic adjustment and less infertility-related stress in men (Grover et al., 2009).

Methods

Research Design

This study has an exploratory research design that analyses the differences and associations of two or more variables at one point in time (cross-sectional), rather than inferring causality (MacDonald et al., 2014). An empiricist framework is more adequate, as obtaining responses to relational questions within the variables in this research is the main aim of this study (Creswell, 2003).

Aims of the study

Considering the literature review presented above and the reasons for the study described in the introduction section, this dissertation aims to study a group of Portuguese infertile couples regarding to their views on the possibility of a child-less lifestyle, their perceived need for parenthood, their acceptance of infertility and dimensions of intimacy, namely sexual intimacy, emotional proximity, communication and social intimacy, considering gender. In addition, it is aimed to study how variables related to fertility/infertility correlates with the presented intimacy dimensions.

Specific Research Objectives are:

1- Characterize a group of Portuguese infertile couples regarding to their views on the possibility of a childless lifestyle, their perceived need for parenthood, their acceptance of infertility and dimensions of intimacy, namely sexual intimacy, emotional proximity, communication and social intimacy.

2- Explore gender differences in terms of the participants' views on the possibility of a childless lifestyle, perceived need for parenthood, acceptance of infertility and intimacy (sexual intimacy, emotional proximity, communication and social intimacy).

3- Study the relation between views on the possibility of a childless lifestyle, need for parenthood and acceptance of infertility, and intimacy (sexual intimacy, emotional proximity, communication and social intimacy) in a group of Portuguese infertile women.

4- Study the relation between views on the possibility of a childless lifestyle, need for parenthood and acceptance of infertility and intimacy (sexual intimacy, emotional proximity, communication and social intimacy) in a group of Portuguese infertile men.

5- Study the relation between views on the possibility of a childless lifestyle, need for parenthood and acceptance of infertility and intimacy (sexual intimacy, emotional proximity, communication and social intimacy) between men and women.

Hypothesis

According to the literature presented in previous sections of this research, it has been hypothesised that:

H1 - Men will display a less prominent need for parenthood than women (e.g., Wright et al., 1991)

H2 – Men present better acceptance of a childless lifestyle than women (e.g., Glover et al., 1999 Wright et al., 1991).

H3 - Women will report more reluctance than men in accepting infertility (e.g., Wirtberg et al., 2007).

H4 - Men and women will report no differences in sexual intimacy satisfaction (Smith et al., 2015; Steuber & Solomon, 2008)

H5 - Women will show higher levels of emotional proximity, communication and social intimacy than men (e.g., Berghuis & Stanton, 2002).

H6 – Both men and women that strongly reject the idea of a childless lifestyle will have poorer intimacy (e.g., Fekkes et al., 2007 and Glover et al., 2009; Moura-Ramos et al., 2016)

H7 – Both men and women with higher parenthood need will have poorer levels of intimacy (e.g., Moura-Ramos et al., 2016).

H8 - Both men and women with higher levels of acceptance of infertility have been hypothesised to related to stronger levels intimacy (e.g., Verhaak et al., 2007).

H9 – There will be significant associations between need for parenthood, levels of rejection of childless lifestyle, acceptance of infertility and intimacy (sexual intimacy,

emotional proximity, communication and social intimacy) in men and in women (e.g., Fekkes et al., 2007 and Glover et al., 2009; Moura-Ramos et al., 2016).

Participants

This study participant's sample is non-probabilistic, as there is no random selection of participants (Tongco, 2007). The researcher selects a sample that is most suitable and convenient to the research purposes, which is regarded as purposive sampling (Tongco, 2007). The participants in this study are patients of two public medically assisted procreation facilities localised in the North of Portugal that were on the waiting list or starting the first treatment cycle.

The inclusion criterion for this study's sample is that participants must be heterosexual couples that have no children (primary infertility) and are either on their first cycle of MAR treatments or on the waiting list to start the treatments are users of these two clinics. This means that homosexual couples or women independently seeking for fertility treatments are excluded in this study, as well as couples that already have a child within their current relationship or that have children from previous relationships.

The *n* of this study consists of 35 couples, meaning 70 participants (35 males and 35 females). All participants are 28 years old or over (men: *M*=37.62*; SD*=4.71 and women: *M*=35.48; *SD* = 4.00). The majority of couples have been in a relationship for over a decade, the mean of the relationships' duration is 14.05 (*SD* = 4.83). In this participant sample there is more women with an undergraduate degree than men. There is only one participant that reported to be unemployed. Regarding to marital status, thirteen participants are married, ten participants have a non-marital partnership (meaning that live together but are not married) and the others did not provide information. The table of contents bellow shows the sociodemographics of the participants (cf. Table1).

Table 1

Sociodemographics of Portuguese infertile couples (n= 70)

Demographic Information		Men N(%)	Women N(%)
Age	28-32	3 (8.57%)	8 (22.87%)
	33-37	3 (8.57%)	7 (20.00%)
	38-42	8 (22.82%)	10(28.57%)
	43-47	2 (5.71%)	0 (0%)
	Missing Data	19 (54.29%)	10 (28.53%)
Duration of the Relationship	4	1 (.03%)	1 (.03%)
	8-12	8 (22.86%)	8 (22.86%)

Demographic Information		Men N(%)	Women N(%)
	13-17	8 (22.86%)	8 (22.86%)
	18-22	2 (.06%)	2 (.06%)
	23	2 (.06%)	2 (.06%)
	Missing Data	14 (40.00%)	14 (40.00%)
Education Levels	Basic	0 (0%)	0 (0%)
	Lower Secondary (5th Grade to 9th Grade)	10 (28.57%)	6 (17.14%)
	Upper Secondary	7 (20.00%)	5 (14.28%)
	Undergraduate Degree	2 (.06%)	9 (25.71%)
	Missing Data	16 (45.71%)	15 (42.86%)
Employment Status	Employed	22 (62.86%)	22 (62.86%)
	Unemployed	1 (.03%)	1 (.03%)
	Missing Data	12 (34.29%)	12 (34.29%)
Marital Status	Married	13 (37.14%)	13 (37.14%)
	Non-Marital Partnership	10 (28.57%)	10 (28.57%)
	Missing Data	12 (34.29%)	12 (34.29%)

Instruments

The GIPMA - MAR Pre-Treatment Protocol (GIPPMA, 2020) and three validated self-report instruments were used, namely the Fertility Problems Inventory (FPI) (Moura-Ramos et al., 2008), Personal Assessment of Intimacy in Relationships inventory (PAIR) (Moreira et al., 2009) and Screening of In-Vitro Fertilisation treatments (SCREENIVF) (Lopes et al., 2014).

GIPPMA –MAR Pre-Treatment Protocol

All participants answer to several semi-structured interview questions as part of the pre-treatment protocol, where sociodemographic information is asked (e.g., age, relationship status, relationship duration and education level). Fertility information is also asked, as well as (in)fertility related questions – such as duration of infertility and number of previous fertility. This instrument was designed by the GIPMA group (*Grupo de Intervisão de Psicologia em Procriação Medicamente Assistida,* briefly described before) and it is used in psychology appointments (the GIPMA group will be further addressed in the data gathering section).

FPI - Fertility Problems Inventory

The FPI original version was developed by Newton and colleagues (1999) and validated for the Portuguese population by Moura-Ramos and colleagues (2008) to evaluate fertility problems associated *stress*. This instrument has 46 items divided in five scales, such as need

for parenthood, rejection of a life without children, sexual intimacy, relationship satisfaction and social concerns.

For the purpose of this study will be only used the following scales: need for parenthood, rejection of a life without children and sexual intimacy (the other intimacy variables were evaluated using another instrument that is described below). This instrument was chosen to evaluate these variables, as it was designed and validated to be used in men and women diagnosed with infertility that undergo MAR and, therefore, it is more suitable and adapts better to the characteristics of the population under investigation (Moura-Ramos et al., 2008).

All items are evaluated using a 6-point Likert scale ranging from 1-Strongly disagree to 6-Strongly agree. The final score of each scale is obtained by adding up the classification of every item (ranging from 1 to 6), this means that the higher the result is the higher the stress of individual is on a particular scale. This FPI has adequate internal consistency and construct validity according to both Newton and colleagues (1999) and Moura-Ramos and colleagues (2008).

The Cronbach's alpha of this instrument is above 0,70 in all of the scales, which supports the internal consistency of this instrument (Newton et al., 1999).

The Cronbach's alpha in the need for parenthood scale is 0,84, in the rejection of a life without children scale is 0, 80 and in the sexual intimacy scale is 0,77 (Newton et al., 1999).

PAIR - Personal Assessment of Intimacy in Relationships inventory

The PAIR inventory original version was developed by Schaefer & Olson (1981) and validated for the Portuguese population by Moreira and colleagues (2009). This instrument was designed to evaluate dyadic functioning and intimacy related aspects, it is an adequate and useful tool in both clinical settings and investigation purposes (Moreira et al., 2009). This instrument has shown to be reliable and to have adequate construct validity (Moreira et al., 2009). This instrument will be used to evaluate three of the four dimensions of intimacy that are addressed in this study (emotional proximity, communication and social intimacy), which corresponds respectively to three of the main psychometric scales compose this instrument that will be used personal validation (14 items); communication (10 items) and social intimacy (5 items). In the personal validation scale of this inventory measures the emotional proximity of the couple, mutual interests and activities, as well as their perception of the acceptance received by the other partner. The communication related items measure the expression of opinions, feelings and desires within the relationship. Social intimacy scale measures friendships outside the relationship and existence of mutual friends of the couple. Lastly, there is a conventionality

sub-scale serves to measure social desirability, therefore, it accounts for social desirability bias that might be present in de individuals' answers. This sub-scale was not use as it does not match the aims of the study. The items in this inventory are evaluated using a 5-point Likert scale ranging from 0-Strongly Disagree to 4-Totally Agree. The final score of each scale obtained by adding up the classification of every item (raging from 0 to 4). Higher the scores on the scales relate to higher levels of intimacy.

The Cronbach´s alpha in the personal validation scale is 0,88, in the communication scale is .87 and the social intimacy scale is .71.

SCREENIVF - Screening of In-Vitro Fertilisation treatments

The SCREENIVF original version was developed by Verhaak and colleagues (2010) and validated for the Portuguese population by Lopes and colleagues (2014). Lopes and colleagues (2014) version of the SCREENIVF demonstrated construct validity and reliability for both men and women that are undergoing infertility diagnosis or treatments. This instrument is composed by 34 items that are divided in 5 scales designed to assess the risk of maladjustment to the infertility condition, those scales are: anxiety (10 items), depression (7 items), helplessness cognitions (6 items), acceptance of infertility cognitions (6 items) and social support (5 items). The items in this scale are evaluated using a 4-point Likert scale ranging from 1- Do Not Agree to 4-Agree Very Much.

However, due to the purpose of this study only one scale of this instrument that will be used and it is the infertility acceptance scale, as it evaluates the perception of the individual about infertility. This scale (infertility acceptance) has a Cronbach's alpha of 0, 94. The score of every scale is obtained by adding up the classification on every item (ranging from 1 to 4). The cut-off values vary from scale to scale: anxiety scale (≥ 24); depression (≥ 4); helplessness cognitions (≥ 14); acceptance of infertility cognitions (≤ 11) and social support (≤ 15). If the score obtained on the scales is lower than their cut-off value it is attributed 0, however if the score obtained on the scales is the same of cut-off value or higher it is attributed 1. As there are 5 scales of maladjustment to infertility is evaluated from 0 (meaning not risk of maladjustment to infertility) to 5 (meaning that risk of maladjustment has been presented in every scale).

The advantage of using the SCREENIVF is that it is an instrument that focus on the living experience of people that undergo fertility treatments by tackling cognitions, emotions and support (Ockhuijsen et al., 2017).

Procedure

Data gathering

The GIPMA group is formed by psychologists from two medical units MAR services (situated in the North region of Portugal) and researchers that work collaboratively. They developed a pre-treatment protocol procedure to ensure that a standard assessment is given to users of the MAR psychology appointments' services. Another purpose of this group is related with scientific research on the topic area.

The study was presented to Ethical Boards of both hospitals. The use of Informed Consent was dismissed as fulfills the requirements accepted by the National Commission for Data Protection, such as: the non-existence of identification participants' data, the existence of researchers who are also part of the team that accompany the users; the collection of data corresponding to the usual monitoring procedures; existence of credible protection of personal health data (anonymization); the members of the research team who do not belong to the Psychologist team do not have direct contact with the participants/users and have access to the data in a previously anonymized database; the fact that the research is of direct public interest and the absence of major ethical risk.

The pre-treatment protocol includes mandatory psychological appointments before undergoing fertility treatments (e.g., In Vitro Fertilisation and Intra Cytoplasmic Sperm Injection). During the first and second appointments socio-demographic and fertility/infertility information are obtained as part of the pre-treatment protocol created by GIPMA. In order to evaluate the impact of infertility in the individual and in the relationship several self-report instruments are applied (FPI, PAIR and SCREENIVF).

Therefore, the data used in this study was collected by psychologists' team with the purpose of assessing these users, which means that the researcher is not involved in the process of data collection.

Analysis

In order to statistically analyse the data, the IBM SPSS version 24 was used. Descriptive statistics was used to describe sociodemographic data and (in)fertility related variables of the participants (e.g., gender, age, infertility type). To explore the associations and differences across the variables and participants' groups (men and women) inferential statistic was used (Martin, 2011). Due to this study's sample size, it was applied non-parametric statistic tests (Deshpande et al., 2017).

First, to characterise more precisely this study's sample, it was compared this study's sample with the validation sample of the instruments to address the variables under investigation - FPI (Moura-Ramos et al., 2008), PAIR (Moreira et al., 2009) and SCREEN-IVF

(Lopes et al., 2014). These calculations were performed using Clark-Carter equation (Clark-Carter, 1997). To provide further enlightenment on this statistical technique the Clark-Carter equation is presented below:

$$Z = \frac{\text{Mean of the Study Sample} - \text{Mean of the Population}}{\left(\frac{Standard\ Deviation\ of\ the\ Population}{\sqrt{Study\ Sample\ size}}\right)}$$

This equation allows for z-values to be found and through the use of z-probability table it is possible to obtain p-values that verify the existence or non-existence of significant differences between the groups (Clark-Carter, 1997). Also, it was taken into account the possible impact of sociodemographic factors on this study's results and to provide a better understanding of the characteristics of this study's sample. Nevertheless, due to the small sample size it was not possible to conduct statistical tests for most sociodemographic variables, subsequently, for that reason the only statistical test that was included relating to sociodemographic aspects was a Kruskal-Wallis Test - a non-parametric test used to compare more than two independent groups - conducted to compare the variables of interest according to the participants' education levels.

Second, to understand if there was a significant gender difference it was applied the Mann-Whitney Test - a non-parametric test is used to compare two independent groups (Bimbaum, 2020). The difference tests allow us to explore the existence of differences between independent groups, or alternatively, differences between different time periods or experimental conditions (Bimbaum,2020).

Third, a Spearman's Correlation test was used in order to explore the associations between variables (Thirumalai et al., 2017).

Results

The results will be presented following the order of the specific objectives of the study. Therefore, it is presented below the tables regarding to the characterisation of this study sample (which corresponds to the first objective). The table 2 shows the participants' mean and standard deviation along the seven variables of interest by gender. The tables 3, 4 and 5 show the comparison of the this study's sample with the validation samples of each instrument. Due to the small size of this study's sample, it was not possible to analyse sociodemographic factors

by gender. It was possible, however, to conduct a statistical test that showed participants' group differences across the variables by education levels (cf. Table 6).

Table 2

Variables Studied according to Gender

	Male Participants (*n*=35) Mean(SD)	Female Participants (*n*=35) Mean(SD)
Rejection of Childless Lifestyle	26.06(17.91)	27.83(16.47)
Need for Parenthood	23.74(14.33)	23.63(13.81)
Acceptance of Infertility	13.11(7.32)	11.94(6.86)
Sexual Intimacy	9.23(6.93)	9.77(5.70)
Emotional Proximity	32.59(19.10)	34.65(20. 27)
Communication	23.74(13,58)	24.91(12.42)
Social Intimacy	10.76(6.20)	11.59(5.90)

SD- Standard Deviation

The table 2 above presents the calculations aimed to compare this study's sample with another Portuguese population sample with similar characteristics. The participants of the validation sample of FPI and SCREEN-IVF were individuals with infertility starting their first cycle of treatments (Lopes et al., 2014; Moura-Ramos et al., 2008). The PAIR validation sample corresponds to non-clinical participant group that is representative of general population (Moreira et al., 2009). It was not possible to conduct these comparisons by gender as the validation studies of the instruments did not presented significant differences across gender or did not provide statistical information about it (Lopes et al., 2014; Moreira et al., 2009; Moura-Ramos et al., 2008).

Table 3

Comparison between the Study's Sample and the Validation Sample of FPI

	Sample N(70) M(SD)	FPI N(209) M (SD)	Z
Rejection of Childless Lifestyle	26.84(17.19)	33.22(6.98)	7.64***
Need for Parenthood	23.69(14.07)	42.35(8.31)	18.79***
Sexual Intimacy	9.50(6.31)	14.27(5.92)	6.74***

*p< .05; **p< .01

The table 3 shows that there are extremely significant differences between the means and standard deviations of the validation sample of the FPI and this study's sample. It is possible to verify that this study's participant sample has got lower means than the validation sample.

Table 4

Comparison between the Study's Sample and the Validation Sample of SCREEN-IVF

	Sample N(70) M(SD)	SCREEN-IVF N(291) (SD)	Z
Acceptance of Infertility	12.53(7.09)	15.68(4.68)	5.63***

***p< .001

Regarding to the table 4, there are extremely significant differences between the means and standard deviations of the sample used to validate the SCREEN-IVF instrument and this study's sample. This study's participant sample has got a lower mean than the population of the validation of SCREEN-IVF on acceptance of infertility.

Table 5

Comparison between the Study's Sample and the Validation Sample of PAIR

	Sample N(70) M(SD)	PAIR N(314) M(SD)	Z
Emotional Proximity	33.62(19.63)	37.76(9.33)	12.05***
Communication	24.32(13.00)	28.32(6.34)	5.28***
Social Intimacy	11.18(6.05)	12.66(3.54)	3.51***

***p< .001

There are extremely significant differences between the means and standard deviations of the sample used to validate the PAIR instrument and this study's sample. This study's participant sample has got a lower mean than the population of the validation of PAIR on acceptance on variables presented above.

Table 6

Kruskal-Wallis Test – Education Levels Participants´ Groups Differences across Variables

	Lower Secondary (5^{th}-9^{th} Grade) (n=16) Mean	Upper Secondary (10^{th}-12^{th} Grade) (n=12) Mean	Undergraduate Degree (n=11) Mean	X^2
Rejection of Childless Lifestyle	32.07	7.92	20.00	14.16***
Need for Parenthood	26.00	11.00	17.73	7.84*
Acceptance of Infertility	13.60	6.42	10.64	7.080
Sexual Intimacy	9.60	4.00	7.73	5.05
Emotional Proximity	37.64	12.82	26.00	7.8*
Communication	28.21	9.36	19.73	9.48**

Social Intimacy	11.79	4.82	8.00	8.80*

X^2-Kruskal-Wallis H; p- Statistical Significance

The table 6 shows that this test revealed that there are statistically significant differences between rejection of childless lifestyle, need for parenthood, emotional proximity, communication and social intimacy across the three conditions of education levels (Lower Secondary - 5th Grade to 9th Grade; Upper Secondary – 10th to 12th Grade and Undergraduate Degree).

The table below (cf. table 7) correspond to the second specific objective of this study that is to explore gender differences amongst the variables.

Table 7

Mann-Whitney Test – Gender Participants' Groups Differences across Variables

	Male Participants (*n*=35) Mean(SD)	Female Participants (*n*=35) Mean(SD)	*U*
Rejection of Childless Lifestyle	26.06(17.91)	27.83(16.47)	569.50
Need for Parenthood	23.74(14.33)	23.63(13.81)	590.00
Acceptance of Infertility	13.11(7.32)	11.94(6.86)	545.00
Sexual Intimacy	9.23(6.93)	9.77(5.70)	572.00
Emotional Proximity	32.59(19.10)	34.65(20. 27)	523.00
Communication	23.74(13,58)	24.91(12.42)	546.50
Social Intimacy	10.76(6.20)	11.59(5.90)	539.50

SD - Standard Deviation

The Mann-Whitney Test did not reveal significant differences between men and women across the variables under investigation (cf. Table 7).

The table underneath (cf. table 8) presents the association between the variables in the women's sample group, which corresponds to the third specific objective of this study – that is to study the relations amongst the variables in the female participant group.

Table 8

Spearman Correlations in the Women's Group

	1	2	3	4	5	6	7
1. Rejection of Childless Lifestyle		.818**	.510**	.727**	.602**	,817**	,637**
2. Need for Parenthood			.342*	.664**	.462**	.720**	.673**
3. Acceptance of Infertility				.596**	.630**	.626**	.424*
4. Sexual Intimacy					.623**	.684**	.652**
5. Emotional Proximity						.828**	.759**
6. Communication							.692**
7. Social Intimacy							

*p< .05; **p< .01

The table 8 shows the Spearman correlation analysis shows that all of the variables are significantly correlated and positive in the female participants (cf. Table 8). The great majority of the correlations found between the variables under investigation were moderate or strongly correlated in the women's participant group.

The table underneath (cf. table 9) presents the association between the variables in the men's sample group, which corresponds to the fourth specific objective of this study – that is to study the relations amongst the variables in the male participant group.

Table 9

Spearman Correlations in the Men's Group

	1	2	3	4	5	6	7
1. Rejection of Childless Lifestyle		.648**	.461**	.645**	.508**	.587**	.605*
2. Need for Parenthood			.463**	.578**	.451**	.456**	.463**
3. Acceptance of Infertility				.545**	.844**	.803**	.582**
4. Sexual Intimacy					.533**	.595**	.445**
5. Emotional Proximity						.821**	.844**
6. Communication							.803**
7. Social Intimacy							

*p< .05; **p< .01

The table 9 displays that the Spearman correlation analysis is significant across all variables. Meaning that the correlations found between the variables under investigation are positive moderate or strongly correlated in the male participant group.

Lastly, the table below (cf. table 10) shows the relation between the variables of the women's and the men's samples groups, corresponding to the fifth specific objective of this study.

Table 10

Spearman Correlations between variables of the women's and the men's samples groups

	1_F	2_F	3_F	4_F	5_F	6_F	7_F
1. Rejection of Childless Lifestyle_M	.782**	.689**	.588**	.627**	.794**	.864**	.706**
2. Need for Parenthood_M	.660**	.463**	.539**	.516**	.630**	.641**	.620**
3. Acceptance of Infertility_M	.588**	.539**	.495**	.445**	.595**	.629**	.495**
4. Sexual Intimacy_M	.706**	.547**	.445**	.544**	.701**	.741**	.504**
5. Emotional Proximity_M	.864**	.800**	.595**	.679**	.899**	.906**	.840**
6. Communication_M	.889**	.846**	.629**	,728**	.853**	.939**	.871**
7. Social Intimacy_M	.804**	.807**	.596**	.729**	.767**	.844**	.862**

*p< .05; **p< .01

In table 10, it is possible to verify that the Spearman correlation analysis shows strongly significant positive correlations across all variables between the women's and men's samples groups.

Discussion

This present study aimed to characterise in a group of Portuguese infertile couples that was either on the waiting list for fertility treatments or starting their first treatment cycle. As well as, explore gender differences and study associations amongst the variables: rejection of childless lifestyle, need for parenthood, acceptance of infertility and intimacy (sexual intimacy, emotional proximity, communication and social intimacy).

There were significant differences between this study sample and the validation sample of the instruments used to address the variables of interest. These results are surprising as they characterise this study sample as having less infertility related stress (which is evaluated by FPI) than other similar Portuguese clinical samples (individuals with diagnosis of infertility starting their first cycle of treatments). This study's scores indicate less rejection of a childless lifestyle, need for parenthood and better acceptance of infertility than the validation sample of the instruments, meaning that the participants in this study differed significantly from the Portuguese clinical population of MAR users. The question remaining to answer is why does this study sample displays signs of better adjustment to infertility than other groups of Portuguese participants in similar circumstances?

For the purpose of this discussion, it has been hypothesised that these differences might be justified by the clinical accompaniment that is provided to the users of these two hospitals in the North Portugal. The MAR services in these two hospitals provide a multidisciplinary accompaniment of the users that is also marked by the importance attributed to the psychological support. The creation of GIPMA group arouse from the willingness of these health professional to provide the best accompaniment possible to the individuals that undergo fertility treatments. In order to do so, the psychologists' team focus on research to support their practices and it is constantly trying to find ways to improve the treatment protocol given to its users.

Interestingly, the scores obtained by this study's sample on emotional proximity, communication and social intimacy were significantly different from the validation sample of the instrument – a representative sample of the general population. These three intimacy variables had lower scores on this study's sample than the validation sample, which means that the participants in this study showed poorer levels of intimacy and dyadic adjustment than the

participants of the validation of the instrument. It is important to highlight that many studies point out that infertility and fertility treatments related stress has a negative impact on couples' intimacy (e.g., Najafi et al., 2015; Peterson & Place, 2019; Soleimani et al., 2015). Therefore, the fact that the levels of emotional proximity, communication and social intimacy differs from the general population (non-clinical sample) is corroborated by the literature on the topic area (e.g., de Mendonça et al., 2017; Vick, 2009).

According to the results, education levels seem to be a relevant sociodemographic factor as significant differences in five variables of interest were found across the three condition groups (Lower Secondary; Upper secondary and Undergraduate Degree) – (cf. Table 6). The Lower Secondary group (5^{th} to 9^{th} grade) had the higher scores on rejection of a childless lifestyle, need for parenthood, emotional proximity, communication and social intimacy. The lowest scores across all variables were found on the Lower Secondary (10^{th} to 12^{th} grade) group. The Undergraduate Degree group showed moderately high scores across all variables, the scores in this condition were not as high as the scores of Lower Secondary group and not as low as the Upper Secondary Group. There is evidence that suggests that higher education levels are associated to better adjustment to infertility and fertility treatments related stress (e.g., Zurlo et al., 2018). However, this study's finding contradict this idea, as the Upper Secondary group had the lowest scores in intimacy related variables (which means low emotional proximity, poor communication and low social intimacy). Also, another contradiction to this idea that higher education levels relate to better intimacy levels is the fact that the Lower secondary group had the highest scores on emotional proximity, communication and social intimacy. It is fair to argue that more analysis would have to be conducted to understand whether or not higher education levels are a predictor of better intimacy adjustment. Nonetheless, other aspects might also contribute to the differences found across the education levels' groups, such as sociocultural constructs on parenthood (e.g., Benyamini et al., 2017; Nishioka, 2003) and the couples' lifestyle choices (e.g., Berrington, 2017).

There appears to be tendency that reveals that the higher the scores on rejection of childless lifestyle, need for parenthood the higher are the scores on emotional proximity, communication and social intimacy. This pattern found in the data would be interesting to analyse more deeply in future research on the topic area, as it might be possible to identify predictors that relate to this in larger sample groups.

Regarding to gender differences, according this study's hypothesis women would show higher levels of emotional proximity, communication and social intimacy than men (e.g.,

Berghuis & Stanton, 2002). Nevertheless, there is no evidence supporting that hypothesis as no significant differences between male and female participants was revealed across the variables under analysis (rejection of childless lifestyle, need for parenthood, acceptance of infertility, sexual intimacy, emotional proximity, communication and social intimacy).

These study's findings do not corroborate the hypothesises 1, 2, 3 and 5 and were, therefore, refuted as they assumed that gender differences would be found. This dissertation findings corroborate, however, with the validation studies of the instruments, where there was not found significant differences across genders (Lopes et al., 2014; Moreira et al., 2009; Moura-Ramos et al., 2008).

Concerning to sexual intimacy, it was hypothesised that both men and women would report sexual intimacy dissatisfaction (Smith et al., 2015; Steuber & Solomon, 2008). However, the results findings do not corroborate this hypothesis as the mean for sexual intimacy was 9,23 for male participants and 9,77 for female participants, which is a good indicator as lower scores signify less infertility and fertility treatments related stress affecting sexual intimacy (Moura-Ramos et al., 2008). This is a surprising finding as many authors argue that sexual activity tends to be less enjoyable, more worrisome, less spontaneous and even dysfunctional in infertile couples (e.g., Berger et al., 2016; Chaudhury & Mujawar, 2017; Lotti & Maggi, 2018; Ho et al., 2020; McCabe et al., 2016; Monga et al., 2004). This study's participant sample was on the waiting list or starting their first fertility treatment cycle which might have influence on the results as couples might not have experience all the procedures involved in fertility treatments and were just at the beginning of a usually long process. There are authors that corroborate these findings. For instance, there were found positive associations between emotional proximity, sexual satisfaction and communication (e.g., Yoo et al., 2014). In addition, Mahadeen and colleagues (2020) found that sexual satisfaction was positively correlated with social support. It is worthy to mention that the associations among these study's intimacy variables were strong, the strongest correlation found was between emotional proximity and communication. Interestingly, communication has been identified as a key- factor for relationship satisfaction and lower infertility-related stress (e.g., Chaves et al., 2019 Martins et al., 2019;). Glover and colleagues (2009) defend that intercommunication as essential for infertile couples to express support, make decisions, solve problem and mutual reassurance, which are constructs of emotional proximity.

As reported in the results section of this dissertation, there are strongly significant correlations between all the variables under analysis. In fact, high scores on rejection of a childless lifestyle, parenthood and difficulty in accepting infertility correlated (the scores in this

study's findings where above the cut-off point, meaning that there is signs of infertility acceptance related stress – Lopes et al., 2014) correlated positively with high levels of intimacy (sexual intimacy, emotional proximity, communication and social intimacy) within the male participants' group and within the female participants' group. So, these study's findings refute the hypothesis 6, 7 and 8 that stated that individuals who rejected the idea of a childless lifestyle and higher levels of parental need would poorer intimacy levels (e.g., Fekkes et al., 2007; Glover et al., 2009; Moura-Ramos et al., 2016; Verhaak et al., 2007). It should be noted that there are other authors that emphasised the protective role of perceiving the couple's relationship as gratifying and satisfactory to counteract the negative impact of the stressful and adverse life events associated with infertility (de Mendonça et al., 2017; Donarelli et al., 2019). Additionally, Ying and Loke (2016) suggested sharing hardship and adversity related to infertility can have relationship benefits, improve the quality of life and psychological well-being of couples.

It is noteworthy to mention that association between the male and female variables under investigation were all significative, meaning that is possible to accept hypothesis 9. This might emphasise that infertility can have relationship benefits, improve the quality of life and psychological well-being of couples (e.g., Ying & Loke, 2016) and strengthen the couple's dyadic cohesion and consensus (e.g., Vick, 2009). Indeed, this are encouraging findings, as it believed that infertile couples report good intimacy levels will have an overall better relationship and tend to adapt better to the diagnosis and, consequently, to the treatments (e.g., Peters et al., 2011).

Conclusion

This dissertation aimed to study a group of Portuguese infertile couples regarding the associations between their views on the possibility of a childless lifestyle, as well as their perceived need for parenthood and their acceptance of infertility, sexual intimacy, emotional proximity, communication and social intimacy. Additionally, this dissertation also aimed to explore gender difference across the seven variables of interest. As stated in the discussion presented above, it was found that rejection of a childless lifestyle, high levels of need for parenthood and difficulty in accepting infertility was associated with good levels of intimacy in all four dimensions (sexual intimacy, emotional proximity, communication and social intimacy). There was not significant difference between male and female participants across the variables analysed (rejection of childless lifestyle, need for parenthood, acceptance of infertility, sexual intimacy, emotional proximity, communication and social intimacy).

The findings presented in the results' section support the pertinence of the present study. For instance, there is a lack of research on infertile individuals' views regarding to a childless lifestyle. This dissertation found that rejection of a life without children correlated positively with high levels of need for parenthood, difficulty accepting infertility and high levels of intimacy. These findings might provide future research directions. This study's findings reinforced that idea that dyadic cohesion might promote higher levels of intimacy (e.g., Vick, 2009). There are relevant aspects that this study highlighted that health and mental health might want to consider when conducting interventions with infertile couples such as: the fact that high communication levels were very strongly associated with high levels of emotional proximity, as well as all four dimensions of intimacy were positively correlated. Indeed, the pertinence of the study lies very highly on the articulation between the research aims and the clinical appliance of the results' findings. For that reason, it is important to extract possible underlying meanings to clinical settings. This study's findings offer a new perspective on infertility and infertile couples that suggests that sharing hardship and adversity related to infertility might strengthen couples intimacy. This might be an aspect to value and preserve, which is a relevant to reflect upon and intentionally positively reinforce in clinical practice.

The exploratory questions that arise from this study's results that allow the development of new study aims that might lead to future research directions, along with new emerging research questions as a result of this study's findings. For instance, Do infertile couples continue to report positive intimacy levels after the first treatment cycle is complete?;Would there be significant differences across the variables analysed if this study were to compare first fertility treatment cycle participants with couples that were undergoing their second or over fertility treatment cycle?.

Moreover, it would particularly enlightening if there were comparisons between these results with the results of couples that were on their second treatment cycle. As couples filled in the instruments at early stages of the fertility treatments their scores might not be representative of their experience throughout the course of the fertility treatment. Another suggestion would be to give participants the same instruments (FPI; PAIRS; SCREEN-IVF) at two different given points in time, for instance at start of the treatment cycle and at the end of treatment cycle. This would mean using a longitudinal study design rather than a cross-sectional design.

It would be also interesting to further explore if there were significant differences between marital status groups (married versus non-marital partnership), employment status

groups (employed versus unemployed) and education levels groups in a larger sample of infertile couples.

The future research directions and suggestions emphasise some of the study limitations. This study sample is relatively small, which means that it is not possible to generalise findings and to perform other type of statistical tests. The GIPMA group plans to continue to gather participants' data to better understand infertile individuals and couples. A quasi-experimental design with a comparison group or a longitudinal research design would increase the scientific interest of the study. Being able to find causality directions within these variables would also contribute to a better understanding of the relations amongst the variables that were investigated in this study. Another suggestion would be to analyse the couple as a unit to better capture and comprehend dyadic adjustment of the couples (e.g., Maroufizadeh et al., 2018).

Despite its limitations this study contributes to the knowledge of the topic-area by contribution to characterise the participant sample and providing awareness on the associations amongst several variables of scientific interest.

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