THE EFFICACY OF THE COPING WITH INFERTILITY SELF-HELP PROGRAM ON SEXUAL AND RELATIONSHIP SATISFACTION

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Abstract

Infertility affects one in six Canadian couples and is associated with elevated psychological, relational and sexual problems. Sexual problems may not only exacerbate infertility-related distress in couples but may also reduce intercourse frequency and pregnancy likelihood for those not using fertility treatments. The Coping With Infertility (CWI) Program was developed by the Reproductive Mental Health Research Unit to target the infertility-related distress of individuals assigned female at birth and is currently being tested in an ongoing randomized controlled trial. Because few studies focus on the sexuality of infertile couples, this study aimed to examine sexual and relationship satisfaction among CWI trial participants and their partners. Independent t-tests calculated the effects of intervention on self-report measures of distress and sexual and relationship satisfaction in AFAB participants. General linear models examined potential moderators of the treatment effects. Though baseline characteristics were identical among the two treatment groups, participants assigned to the treatment group (n = 15) reported significantly higher sexual and relationship satisfaction after the intervention than the control group (n = 19). Baseline scores, age, time spent trying to conceive, and use of fertility treatments did not significantly interact with these effects. Qualitative feedback highlighted benefits related to positive behavioural change, improved communication, and increased partner support. Though the number of participants is low, these preliminary results are promising and suggest that the CWI program improves the unique concerns of infertile couples.

Keywords: infertility, sexual satisfaction, relationship satisfaction, couples, self-help intervention

Acknowledgments

Five years ago, I was an educator for a sexual health clinic and dreamed of finishing the science degree I had long given up on. After attending a public event where Dr. Jennifer Gordon discussed her research on reproductive hormones and mood disorders, I was thrilled to learn there was a feminist psychologist at the University of Regina (U of R) studying issues many of my clients were suffering from. This motivated me to return to the U of R and switch majors to study psychology. I am incredibly grateful for the opportunity Dr. Gordon has given me to work in her lab and carry out this project. Thanks to her support and guidance, I am (finally) graduating. I also acknowledge the Reproductive Mental Health Research Unit students who helped me throughout this process, especially Ashley Balsom, Megan Poulter, Maija Kiviharju, and Sarah Gulash. It has been wonderful to work with great people who also care about reproductive rights and gender and sexual diversity. Returning to school as a mature student was difficult, but I received endless encouragement from my friends, family, and colleagues at Planned Parenthood Regina. Finally, I would not have been able to accomplish this goal without the unconditional support of my loving and patient partner, Jay.

The Efficacy of the Coping With Infertility Self-Help Program on Sexual and Relationship Satisfaction

An estimated one in six reproductive-aged couples in Canada experience infertility, defined as the inability to conceive despite 12 months of regular intercourse (Bushnik et al., 2012). Infertility is associated with an increased risk of psychological disorders and lower quality of life at levels similar to people with health conditions such as cancer and cardiovascular disease (Malina et al., 2016). Without adequate coping skills, the daily stress of infertility can strain a couple's relationship, increasing conflict and reducing emotional support (Galhardo et al., 2011; Rossi et al., 2023). Notably, couples struggling to conceive are more likely to develop sexual dysfunction than the general population, potentially further reducing their chances of pregnancy (El Amiri et al., 2021; Luk & Loke, 2015; Patel & Kumar, 2021; Schmidt, 2006; Starc et al., 2019).

Sexual problems in the context of infertility are not adequately studied or addressed by healthcare providers (Luk & Loke, 2015; Rossi et al., 2023; Starc et al., 2019). However, psychological and relationship problems are the most frequently reported reasons for discontinuing fertility treatments (Gameiro et al., 2012). Not only is there a strong association between sexual dysfunction and depression (Basson & Gilks, 2018), but these conditions also increase the challenges infertile couples experience (Nelson, 2008; Patel & Kumar, 2021; Rossi et al., 2023). Nevertheless, fertility specialists often dismiss sexual and mental health concerns, considering them less important than the physiological aspects of infertility (Starc et al., 2019). Additionally, infertility research is less likely to focus on sexual issues and include both members of the couple (El Amiri et al., 2021; Facchin et al., 2019; Nakić Radoš et al., 2022), which limits the conclusions drawn and their contributions to the development of effective

interventions. As such, the psychological impact of infertility should be studied within the context of the relationship and examine aspects of sexuality.

Infertility-Related Distress

Many couples report that experiencing infertility was the most stressful event of their lives, and women often experience worse outcomes than their partners (Nelson et al., 2008). A qualitative study by Dube et al. (2021) developed a model of infertility-related distress which highlights five themes of infertile women's psychological experiences: (1) anxiety, (2) mood disturbance, (3) threat to self-esteem, identity and purpose, (4) deterioration of the couple, and (5) weakened support system. Women reported experiencing dismissal by healthcare providers, strained relationships with family and friends, social stigma and isolation, which often led to further reliance on their partner for support. Increased conflict due to differences in coping, financial burdens related to the high cost of fertility treatments, disagreements on which treatment steps to pursue next, and negative changes to their sex life were the main problems faced by couples. These findings are in line with prior studies investigating the everyday struggles of couples experiencing infertility (El Amiri et al., 2021; Galhardo et al., 2013; Gana & Jakubowska, 2016; Luk & Loke, 2015; Nakić Radoš et al., 2022; Malina et al., 2016; Rossi et al., 2023).

Relationship Satisfaction

Relationship satisfaction is the subjective appraisal of one's relationship and is positively associated with psychological well-being and quality of life (Byers, 2005; Hendrick, 1988). Though many couples report a decline in relationship satisfaction in the context of infertility, there is also evidence that for many infertile couples, relationship satisfaction remains the same or even increases (Balsom & Gordon, 2022; El Amiri et al., 2021; Luk & Loke, 2015). The

couple's relationship is strengthened through shared adversity rather than weakened (Dube et al., 2021). Understanding the underlying differences between couples who function well during adversity and those who do not is a prominent area of relationship research (Friehart et al., 2019). Karney and Bradbury's (1995) vulnerability-stress-adaptation (VSA) model suggests that relationship satisfaction changes are directed by a couple's interactions, determined by enduring vulnerabilities, past experiences, and ability to manage stress (McNulty et al., 2021; Rossi et al., 2021). For example, Rossi et al. (2023) found that couples who believed fertility problems meant they were sexually incompatible used more negative coping strategies relative to those who believed challenges were meant to be faced together.

Sexual Satisfaction

Sexual satisfaction is a critical component of sexual well-being, which improves psychological, relational, and physical health (Friehart et al., 2019; Sanchez-Fuentes et al., 2014). Lawrance and Byers (1995) define sexual satisfaction as the subjective feelings one has about their sexual experiences and relationships. Their interpersonal exchange model of sexual satisfaction (IEMSS) proposes that individuals evaluate their sexual relationships by comparing sexual rewards and costs, expectations and experiences, and perceived equality within the relationship. Before the IEMSS, sexual satisfaction was considered a component of individual sexual function related to desire, arousal and orgasm, but now it is primarily viewed as relational (Friehart et al., 2020). Indeed, robust evidence supports a strong bidirectional association between sexual and relationship satisfaction (Friehart et al., 2020; Lawrance & Byers, 2005; Luk & Loke, 2015; Mallory, 2022; McNulty et al., 2016; Quinn-Nilas, 2020; Sanchez-Fuentes et al., 2014; Pascoal et al., 2018; Zhao et al., 2022). Conversely, studies of infertile couples report mixed results on the strength and direction of the association between sexual and relationship

satisfaction (Gana & Jakubowska, 2016; Nelson et al., 2008; Rossi et al., 2023). This suggests that the context of infertility may introduce complexities that need further exploration.

Sexual dysfunctions are characterized by significant distress due to reductions in desire, lubrication or erection, orgasm, or satisfaction (American Psychiatric Association, 2022). Sexual dysfunctions may cause discomfort or pain, lower the quality of sexual experiences, and often lead to the avoidance of sexual activity (Basson & Gilks, 2018; Friehart et al., 2020). An estimated 43%-90% of women and 48%-58% of men struggling to conceive met the criteria for sexual dysfunctions, which is significantly higher than the prevalence among fertile individuals (Starc et al., 2019). Members of a couple may differ in how sexually satisfied they are, which can be influenced by gender (El Amari et al., 2021), time spent trying to conceive (TTC; Balsom & Gordon, 2022), the use of timed intercourse (Facchin et al., 2019; Smith et al., 2015), and the source of infertility (Luk & Loke, 2015; Mendonca et al., 2017; Nelson et al., 2008). Many couples do not seek treatment for sexual dysfunction (Mallory, 2022; Pascoal et al., 2018; Starc et al., 2019), and these problems may become an additional burden to couples struggling to conceive, further challenging their relationship and ability to cope.

The Coping With Infertility Self-Help Program

A recent meta-analysis by Dube et al. (2023) found that current psychological interventions for infertility have been minimally effective at reducing infertility-related distress. Additionally, many fail to target all five of its domains: anxiety, mood disturbance, threat to self, threat to the couple, and weakened social support. To address these gaps, the Reproductive Mental Health Research Unit (RMHRU) at the University of Regina developed the Coping With Infertility (CWI) Self-Help Program for intended gestational carriers (i.e., women, transgender men, and non-binary individuals assigned female at birth [AFAB]). The program includes seven

weekly modules comprising 10-minute slideshow videos with voiceover and homework. The content is based on cognitive behavioural therapy (CBT), with two modules targeting couple interactions. The pilot study testing its effectiveness showed large improvements in anxiety, depression, and fertility-related quality of life (Gordon et al., 2023).

Rationale for the Current Study

Though the CWI program does not explicitly target sexual concerns related to infertility, it does directly address common relationship concerns among infertile couples. Given the known bidirectional association between relationship and sexual satisfaction, the CWI program may benefit the couple's sexual relationship even if this is not a direct target. Therefore, this study aimed to examine the effects of the CWI program on sexual and relationship satisfaction among CWI participants and their partners. A secondary aim was to examine whether these effects were more pronounced among certain subgroups. This study also intended to overcome several limitations of past research in this area by recruiting a gender-diverse sample, using validated questionnaires for sexual satisfaction and infertility-related distress, and assessing both members of the couple.

Objectives and Hypotheses of the Proposed Study

My research questions were as follows:

1. Does the CWI program improve sexual and relationship satisfaction in participants and partners when compared to the waitlist?
2. Are treatment effects of the CWI program on sexual and relationship satisfaction moderated by the following characteristics: use of fertility treatments, age, length of time spent trying to conceive (TTC), and baseline levels of infertility-related distress, relationship satisfaction, and sexual satisfaction?

First, I hypothesized that participants who received the CWI program would show significant improvements in both sexual and relationship satisfaction when compared to the control group, with greater improvements in relationship satisfaction. The CWI program was expected to reduce distress and improve communication skills, both of which have been associated with higher relationship satisfaction (McNulty et al., 2021) and sexual satisfaction (El Amiri et al., 2021)

Second, I predicted that the partners of the treatment group participants would report greater improvements in sexual and relationship satisfaction compared to the partners of the control group participants. This was based on previous findings that individuals within a couple reported higher infertility-related sexual concerns when they perceived their partner was engaging in more negative than positive coping strategies (El Amiri et al., 2021). Changes in mood and coping in one member of a couple can influence partner interactions, which alters relationship and sexual satisfaction (Rossi et al., 2023). As such, reductions in distress and enhanced coping in participants who receive the CWI program may indirectly benefit their partners.

Third, I hypothesized that greater benefits of the program would be observed in participants with either higher levels of baseline distress, lower relationship satisfaction, or lower sexual satisfaction. This was inferred from studies reporting that participants with more severe psychological symptoms at baseline demonstrated larger improvements from self-help interventions (Bowers et al., 2013). Additionally, increased age was predicted to reduce sexual satisfaction because of age-related changes to sexual function, which may or may not influence relationship satisfaction (Friehardt et al., 2020). Longer time spent TTC was hypothesized to reduce relationship and sexual satisfaction because of its association with higher infertility-

related distress and sexual distress (Balsom & Gordon, 2022; Luca et al., 2021). Finally, fertility treatments were expected to affect sexual and relationship satisfaction more negatively than timed intercourse because of additional stress and possible sexual side effects (Luca et al., 2021).

Methods

Design

This study was part of a larger, single-blind, randomized controlled trial currently being conducted by the RMHRU to test the efficacy of the CWI program on fertility-related quality of life (Gordon et al., 2023). The Canadian Institutes of Health Research (CIHR) funded the project, which was approved by the University of Regina Research Ethics Board (#2023-210; see Appendix A). The trial was registered at clinicaltrials.gov (NCT06006936). Participants were randomly assigned using stratified block randomization to either the immediate treatment group or the treatment-as-usual (TAU) waitlist comparison group, which received the CWI program after follow-up. The University of Saskatchewan Clinical Research Support Unit determined the randomization scheme. To reduce potential population biases, groups were balanced based on whether they were attempting to conceive with or without fertility treatments. The larger trial included a battery of self-report measures assessed at baseline, mid-treatment, one-week post-treatment, and biweekly for a 16-week follow-up period. Due to a short timeline for the project, this study examined fewer outcomes assessed only at baseline and one-week post-treatment. The primary outcomes were sexual and relationship satisfaction.

Participants

Participants included Canadian individuals AFAB who were experiencing infertility. To include people who cannot access fertility treatments and those in same-sex couples unable to conceive through intercourse, infertility was defined as (a) the inability to conceive after 12 or

more months of regular, penis-in-vagina intercourse without contraceptive methods, or (b) requiring the use of fertility treatments (Gordon et al., 2023). Participants were required to be fluent in English and above the age of 18. They were recruited through targeted Facebook and Instagram advertisements, as well as posters that were mailed to Canadian fertility clinics. Participants received CAD 20.00 for completing post-treatment surveys and another CAD 20.00 for the post-treatment interview that is part of the larger clinical trial, for a total compensation of CAD 40.00. Participants were not excluded based on their self-reported levels of distress or suicidal ideation, nor asked to refrain from seeking other psychological services during the study. It should be noted that the larger RCT is recruiting individuals regardless of relationship status, but single participants were excluded from this study to examine couples.

Intervention

The CWI program was designed to target the cognitive, behavioural, and interpersonal challenges associated with infertility (Gordon et al., 2023). The initial version of the program was six weeks long, with a bonus relationship module. However, participants in the pilot study recommended that it be included in the full program, suggesting the importance of addressing relationship issues while targeting infertility-related distress. Additionally, the program content has recently been modified with inclusive language for diverse genders and sexual orientations, as well as images representing a variety of races, genders, and body sizes. The revised program consists of seven weekly modules, each containing a 10-minute video with slides, voiceover, and homework assignments.

Modules one to three promote cognitive restructuring, challenging negative core beliefs, and behavioural activation (Gordon et al., 2023). Module four addresses different styles of coping with grief and how partners can support each other while respecting their differences.

Homework for this module requires completing communication exercises with one's partner. The fifth module shares ways of strengthening relationships with psychoeducation on common relationship mistakes, different ways to respond during conflict, and how to make or respond to requests for affection. Module six explains how identifying and using values to guide decision-making and behaviour can enhance coping. Finally, module seven reviews and summarizes how thoughts, actions, and social interactions can improve well-being while experiencing infertility. Participants received access to each module via the recently developed CWI mobile app and sent text or email reminders with links to online surveys hosted via Qualtrics survey software.

Measures

Demographics and Reproductive Health History

Demographic information on age, race, sexual orientation, gender identity, relationship status, education, income, occupation, and reproductive health history were assessed using a survey created by the RMHRU (see Appendix B).

Sexual Satisfaction

Sexual satisfaction was measured by the 12-item New Sexual Satisfaction Scale Short Form (NSSS-S; see Appendix C; Štulhofer, et al., 2010). The NSSS-S is neutral regarding gender, sexual orientation, and relationship status. It was developed using the IEMSS framework and contains an Ego-Centred and Partner/Sexual Activity-Centred subscale. For each item, respondents are asked to rate their level of satisfaction with their sex life in the preceding six months, with responses ranging from 1 (not at all satisfied) to 5 (extremely satisfied). Higher scores represent higher levels of sexual satisfaction. The NSSS-S demonstrates high internal consistency (α = .90–.93) (Mark et al., 2014).

Relationship Satisfaction

The seven-item Relationship Assessment Scale (RAS) measured relationship satisfaction (see Appendix D; Hendrick, 1988). Sample items include: “How good is your relationship compared to most?” and “How many problems are there in your relationship?” Participants rate items on a scale from 1 (low satisfaction) to 5 (high satisfaction), and total RAS score is their average response. Higher scores indicate greater relationship stability, satisfaction, and quality. The RAS has also been shown to be reliable when used with individuals experiencing infertility ($\alpha = 0.83$; Maroufizadeh et al., 2018).

Infertility-Related Distress

Infertility-related distress was measured with the 9-item Copenhagen Multi-Centre Psychosocial Infertility–Fertility Problem Stress Scales (COMPI-FPSS; see Appendix E; Schmidt, 2006). Three subscales assess personal, marital, and social stress, with higher scores indicating more stress. For seven items, participants use a 4-point Likert scale ranging from 1 (*“Not at all”*) to 4 (*“A great deal”*) to indicate how much stress their fertility problems have contributed to a given domain. For two items, participants indicate the extent they agree or disagree with each statement, using a 5-point Likert scale ranging from 1 (*“Strongly disagree”*) to 5 (*“Strongly agree”*). The COMPI-FPSS demonstrates convergent and discriminant validity (Sobral et al., 2017) and strong internal consistency ($\alpha = 0.68$ and 0.86 (Yilmaz & Oskay, 2016).

Procedure

Recruitment materials directed those interested in participating to contact the research team to receive an identification (ID) number and link to the online eligibility survey created by the RMHRU (see Appendix F). If eligible, they were asked to provide contact information so a research assistant could schedule an online enrollment session hosted via Zoom Video Communications software. During the session, they viewed a short video introducing the study,

completed an online consent form (see Appendix G), and were asked if they had a partner interested in participating in a side study about partner experiences of infertility. Research assistants would email participants information and an online consent form to forward to their partners (see Appendix H).

Participants were then assigned to either the intervention or waitlist/TAU control condition, with approximately equal groups of those attempting to conceive through intercourse and those undergoing fertility treatments. The research assistant had two piles of opaque envelopes containing the assignments, one for each method of conception, and opened one in front of the participant. Participants then responded to several measures via Qualtrics survey software for the larger RCT, including the NSSS-S, COMPI-FPSS, and RAS for this study. Those assigned to the intervention were asked to download the CWI mobile app and share which day of the week they wanted to receive their weekly module throughout the study. Participants and their partners were assessed at baseline and eight weeks post-intervention. Couples assigned to receive the CWI program were asked in follow-up surveys if they watched any of the modules with their partner.

Data Analysis

Descriptive Statistics and Correlations. Statistical analyses were performed using SPSS Version 28. Preliminary analyses involved calculating descriptive statistics for all demographic questions, COMPI-FPSS, NSSS-S, and RAS scores, and inter-scale correlations among study measures. Reversals were required for two of the RAS items. Randomization success was assessed by comparing demographic characteristics with independent samples t-tests.

Hypothesis 1: The treatment group will report improvements in sexual and relationship satisfaction compared to the control group, with greater improvements in

relationship satisfaction. Independent samples t-tests determined if there were statistically significant differences in post-treatment NSSS-S and RAS scores between the intervention arm and waitlist control group. Qualitative feedback was also collected from the treatment group via open-ended survey questions regarding how the program influenced their relationship.

Hypothesis 2: Treatment effects will be moderated by the use of timed intercourse, age, time spent TTC, and baseline levels of infertility-related distress, relationship satisfaction, and sexual satisfaction. General linear models measured the interactions between covariates and assigned groups. A Bonferroni correction was applied to limit the familywise error rate (Gordon et al., 2023).

Results

Participants

At the time of data collection, 106 AFAB participants were enrolled and completed baseline measures, while 34 completed post-treatment measures. Of the 22 partners enrolled, five completed post-treatment surveys. The analysis of partner results was excluded because the small sample size would limit statistical power and validity. Data collection is ongoing, so the following results are preliminary and should be interpreted cautiously.

Sample Characteristics

Sociodemographic. The mean age was approximately 34 years, ranging from 29 - 38 years old. One respondent identified as genderfluid, while all other participants were women. There was greater variance in sexual orientation than gender, with 83% identifying as heterosexual, 10% bisexual or pansexual, and 3% asexual. All participants were either married or living common law with a partner, while one participant was polyamorous and had more than one partner. As for racial background, 72% were White, 11% South Asian, 8% Black, and 6%

Indigenous. Regarding annual family income, $113,000 and greater was declared by 59%, $90,000 to $112,999 by 17%, and $70,000 to $89,999 by 9%. In summary, most participants identified as women, heterosexual, married, white, and having an income greater than $113,000. For a complete summary of sociodemographic characteristics, refer to Table 1.

Fertility-Related Factors. Participants were able to choose multiple fertility methods and sources of infertility. The majority of this sample (65%) reported using medically assisted reproductive (MAR) treatments, such as ovulation induction (38%), intrauterine insemination (36%), or egg retrieval (25%), while 35% relied on timed intercourse alone. The most frequently selected sources of infertility were unexplained (42%), polycystic ovarian syndrome (26%), and male factor (24%). Approximately 5% of our sample reported experiencing social infertility, which is often defined as the inability to conceive due to relationship factors, such as being in a same-sex partnership or lacking an opposite-sex partner (Murphy, 1999). Additionally, 12% of our sample met the cut-off score of 18 for the COMPI-FPSS, distinguishing clinically relevant depression associated with infertility-related distress. This cut-off was found to have 88% sensitivity and 66% specificity by Pedro et al. (2019). Finally, the mean time spent TTC was 34 months.

Randomization Success

There were no statistically significant differences between the control and intervention groups regarding age (p = .34), time spent TTC (p = .48), use of fertility treatments (p = .77), and baseline scores: NSSS-S (p = .85), NSSS-Self subscale (p = .82), NSSS-Partner subscale (p = .84), RAS (p = .76), and COMPI-FPSS scores (p = .10).

Inter-Scale Correlations

Table 2 presents correlations between the study measures. All were significantly correlated at the .01 level.

Principal Analyses

NSSS-S and RAS scores for each group were normally distributed, as assessed by Shapiro-Wilk's test ($p > .05$). Sexual satisfaction was greater in the treatment group ($M = 46.1$, $SD = 6.3$) compared to the control group ($M = 36.0$, $SD = 14.5$), with a statistically significant difference, $M = 10.07$, 95% CI [18.23 – 1.90], $t(25.73) = 2.51$, $p = .01$, and large effect size ($d = .87$). Similarly, relationship satisfaction was greater in the treatment group ($M = 30.87$, $SD = 3.66$) than in the control group ($M = 27.00$, $SD = 6.95$), with a statistically significant difference, $M = 3.87$, 95% CI [7.66 - .07], $t(28.37) = 2.09$, $p = .05$, and large effect size ($d = .67$). For a graphical representation of these results, see Figures 1 and 2.

Qualitative Feedback

Comments on relationship benefits after completing the CWI program highlighted positive behavioural change, improved communication, and increased partner support (see Table 3). These themes were observed intuitively without formal qualitative data analysis methods.

Moderation Analyses

None of the covariates analyzed were found to moderate treatment effects. GLM found a non-significant interaction between the treatment group and the use of fertility treatments on sexual [$F(1, 32) = 1.60$, $p = .22$] and relationship satisfaction [$F(1, 32) = 0.50$, $p = .49$]. Likewise, time spent TTC did not moderate group differences in sexual [$F(1, 32) = 1.82$, $p = .19$] or relationship satisfaction [$F(1, 32) = 3.09$, $p = .09$]. Linear regression found that age did not predict group differences [β(SE) = -.03(.45), $p = .95$]. Baseline sexual satisfaction did not predict post-treatment relationship satisfaction [β(SE) = .07(.05), $p = .53$]. Similarly, baseline

relationship satisfaction did not predict post-treatment sexual satisfaction [β(SE) = -.60(.31), p = .17]. Additionally, baseline infertility-related distress was not a significant predictor of post-treatment sexual [β(SE) = -.59(.12), $p < .01$] or relationship satisfaction [β(SE) = -.25(.06), $p < .01$].

Discussion

The two objectives of the present study were to test the efficacy of the CWI program on sexual and relationship satisfaction in couples struggling with infertility and to identify moderators of the treatment effects. Unfortunately, not enough partners were recruited during data analysis for this study to include both members of the couple. Regarding the first objective, these results indicated significant increases in sexual and relationship satisfaction in the AFAB treatment group when compared to the control group. Concerning the second objective, none of the covariates (i.e., age, time spent TTC, use of fertility treatments, baseline scores of infertility-related distress, sexual satisfaction, and relationship satisfaction) moderated treatment effects based on group assignment. This was unexpected based on the previously mentioned literature, which suggested that these characteristics may predict psychological outcomes in people struggling to conceive (Peloquin et al., 2024). However, it is possible that the post-treatment sample size was too small (n = 34) to detect interactions between these variables. Different results may be revealed when the complete RCT data are analyzed. In the following section, I will explore the objectives of this study further by evaluating my hypotheses based on the current results and discussing how components of the CWI program may drive the treatment effects.

Relationship Satisfaction

The observed increases in relationship satisfaction following the CWI program were consistent with previous literature on the benefits of psychological treatment for infertile

individuals and couples (Peloquin et al., 2024). The program recommends ways to avoid conflict, approach difficult conversations positively, and communicate in ways that increase emotional intimacy between partners. Therefore, these findings may be explained by the VSA model, which proposes that when one partner is better able to cope with difficult events (e.g., a negative pregnancy test or the high financial costs of treatment), the couple becomes less susceptible to distress and more likely to interact in ways which lead to positive evaluations of their relationship (Karney & Bradbury, 1995). In contrast, these findings may be explained by the program's content to understand differences in coping with grief. Different coping styles between partners may be perceived negatively, leading to conflict and feeling less supported by the relationship (El Amiri et al., 2021). The CWI module on grief could promote greater empathy toward partners with dissimilar coping styles, leading to changes in perception of their relationship. A recent machine learning study by Joel et al. (2020) found that 45% of predictable variance in baseline relationship quality could be explained solely by a person's judgments about the relationship, which were most likely based on conflict and sexual satisfaction. Taken together, the CWI program may primarily influence relationship satisfaction by changing how individuals view their relationship within the context of infertility. This may or may not be due to actual changes in relationship dynamics with their partner.

Sexual Satisfaction

Improvements in sexual satisfaction found by this study were expected, given the strong association between sexual and relationship satisfaction (Friehart et al., 2019), which was confirmed by the high correlation between NSSS-S and RAS scores. Contrary to my prediction, greater improvements were observed in sexual satisfaction. There may be something unique about the CWI program increasing NSSS-S instead of RAS scores. The program promotes

behaviour change by encouraging participants to engage in pleasurable activities they previously enjoyed. Though not stated explicitly, this may include partnered sexual activity for some. For example, when asked how the program benefitted their relationship, one participant said, “[I] started changing my behaviours and doing things for pleasure with my partner, especially sexually, rather than worrying about infertility.” Less worrying could be attributed to the cognitive restructuring component of the program. Previous findings suggest cognitive restructuring can also alleviate poor body image and mental distractions associated with lower pleasure during sex (Bancroft et al., 2003; Brotto et al., 2016). These explanations reflect self-focused behaviour changes. Applying the IEMSS to the context of infertility highlights relational explanations for these findings.

Perceptions of relationship equality may be influenced by the greater physical and psychological burden often experienced by the intended gestational carrier, especially when undergoing fertility treatments (Gameiro et al., 2012). This was expressed by a participant who said her partner “doesn’t understand how the treatments affect my body and mind as much as I wish he did.” Infertility-related sexual concerns, such as reductions in desire and arousal, may lower the rewards individuals previously perceived from engaging in sexual activity (Luk & Loke, 2015). The uncomfortable side effects of fertility treatments and the daily stress of infertility can reduce arousal (Zhao et al., 2022), both of which may cause pain during intercourse (Starc et al., 2019). This could increase perceived costs related to sexual activity, prompting avoidance of sexual activities outside of the fertile window (Facchin et al., 2019). Couples may then struggle with feelings of guilt in one partner and rejection in the other, further reducing sexual and relationship satisfaction. The IEMSS interpretation emphasizes that sexual satisfaction could be enhanced in couples with fertility-related sexual concerns if they can

communicate in ways which manage expectations about their sex life and help each other understand differences in their experiences of sexual activity. Therefore, communication skills gained through the CWI program could be applied to address sexual issues and improve satisfaction within their relationship.

The findings of this study imply that psychological interventions can enhance sexual satisfaction without explicitly focusing on sexual concerns. Though many studies indicate interventions for infertile couples should target sexual concerns specifically (Peloquin et al., 2024), others suggest focusing on the emotional and relational challenges of infertility may facilitate improvements in sexual function and satisfaction (Balsom & Gordon, 2022; El Amiri et al., 2021). Indeed, there is evidence that increasing emotional intimacy within the couple is associated with higher sexual satisfaction in women (Luk & Loke, 2015). A study by Hoyer et al. (2009) found that many individuals who received CBT for a psychological disorder also reported improvements in comorbid sexual dysfunction.

Individual differences in priorities and comfort with addressing sexual issues should also be considered. Qualitative studies suggest some individuals want targeted interventions for fertility-related sexual problems (Rakhshaee et al., 2019), while others prefer to focus on attempts to conceive (Karakas et al., 2023). How distressing one finds their sexual and relationship issues and whether it limits their chances of pregnancy may underly these differences. Furthermore, relationship quality may be a significant predictor of whether someone is distressed by a sexual issue (Bancroft et al., 2003). However, the lack of moderating effects in these findings did not allow me to examine if variations in treatment effects were associated with different sample characteristics.

Implications

The results of this study suggest that the CWI program is a convenient and cost-effective intervention that significantly improves sexual relationships while only requiring the participation of one member to benefit the couple as a whole. These effects were observed even though sexual concerns were not explicitly addressed in the program. This may be valuable for those who are uncomfortable addressing sexual issues directly, have other priorities to focus on, or are not experiencing sexual distress. Further, the positive relational skills gained through this program may have long-term implications for their overall quality of life. More broadly, this study contributes to a greater understanding of how infertility influences sexuality and relationships while highlighting potential mechanisms for targeted interventions. Future research could involve developing and testing the effectiveness of a new module which addresses how to cope with sexual dysfunction in the context of infertility. Topics could include sexual communication skills (Fahami et al., 2015), patterns of initiation (Friehard et al., 2020), negative sexual attitudes and beliefs (Rossi et al., 2023), and mindfulness to increase pleasure during sexual experiences (Brotto et al., 2016).

Limitations and Future Directions

Though I presented multiple arguments for how the CWI program may have contributed to higher sexual and relationship satisfaction scores, this study was limited in several ways, which may influence these conclusions. First, evaluating the CWI program to waitlist/TAU control instead of another treatment did not allow for meaningful comparisons with other treatments. Second, sexual life or relationship quality before infertility diagnosis was not assessed, which limited inferences about the long-term impacts of infertility on couples. While self-report measures have many advantages, participants' responses may be inaccurate and influenced by biases. That said, this should be reduced because the scales chosen for this study

are valid and reliable. Selection bias may also limit the outcomes and generalizability of this study. Infertility studies frequently recruit homogenous samples, but the RMRHU has intentionally applied an inclusive definition of infertility to recruit diverse participants online (Gordon et al., 2023). The present study lacked gender, sexual and relational diversity. Future studies should target diverse populations directly. Additionally, this project was limited by a short follow-up time, which may not accurately capture the enduring effects of the CWI program. However, this will be addressed in the larger trial conducted by the RMHRU, which is currently recruiting a larger sample size for greater statistical power to detect treatment effects.

Conclusion

This study tested the efficacy of the CWI program on sexual and relationship satisfaction in couples struggling with infertility. When compared to the control group, participants assigned to the treatment group reported significantly higher sexual and relationship satisfaction after the intervention. Age, time spent TTC, use of fertility treatments, and baseline scores did not moderate treatment effects. However, the sample may have been too small to detect interactions between these variables. Qualitative feedback highlighted benefits related to positive behavioural change, improved communication, and increased partner support. Potential explanations for changes in sexual and relationship satisfaction were discussed using the IEMSS and VSA models. Overall, these preliminary results suggest that the CWI program improves the unique sexual and relational concerns of infertile couples.

Table 1

Sample Characteristics

	Control (n = 54)	Intervention (n = 52)	
Characteristic	*n* (%) or Mean (SD)		*P* Value
Gender			
Woman	53 (98.1)	52 (100)	
Genderfluid	1 (1.9)		
Age	33.6 (4.5)	34.4 (4.4)	.34
Race			
White	38 (70.4)	38 (73.1)	
Black	5 (9.3)	3 (5.8)	
Latin	3 (5.6)	1 (1.9)	
Indigenous	3 (5.6)	3 (5.8)	
South Asian	6 (11.1)	6 (11.5)	
Chinese	1 (1.9)	2 (3.8)	
Filipino	1 (1.9)	2 (3.8)	
Arab	1 (1.9)		
Korean		1 (1.9)	
Southeast Asian		1 (1.9)	
Sexual Orientation			
Heterosexual/straight	44 (81.5)	44 (84.6)	
Asexual	3 (5.6)		
Bisexual/pansexual	5 (9.3)	6 (11.5)	
Queer	1 (1.9)		
Annual Household Income ($)			
113 000 and greater	30 (55.6)	33 (63.5)	
90 000 to 112 999	9 (16.7)	9 (17.3)	
70 000 to 89 999	6 (11.1)	4 (7.7)	
50 000 to 69 999	4 (7.4)	1 (1.9)	

> 19 999	1 (1.9)	1 (1.9)	
Source of Infertility			
Male factor	13 (24.1)	12 (23.1)	
Polycystic ovarian syndrome (PCOS)	17 (31.5)	11 (21.2)	
Thyroid disorder	3 (5.6)	2 (3.8)	
Diminished ovarian reserve	5 (9.3)	11 (21.2)	
Repeat pregnancy loss	7 (13.0)	13 (25.0)	
Endometriosis	6 (11.1)	7 (13.5)	
Tubal blockage	8 (14.8)	1 (1.9)	
Social	4 (7.4)	1 (1.9)	
Other	12 (22.4)	10 (19.1)	
Unexplained	22 (40.7)	23 (44.2)	
Fertility Methods			
Timed intercourse	17 (31.5)	20 (38.5)	.77
Ovulation induction	27 (50.0)	23 (44.2)	
Intrauterine insemination (IUI)	19 (35.2)	19 (36.5)	
Egg retrieval (IVF or ICS)	13 (24.1)	14 (26.9)	
Embryo transfer	11 (20.4)	9 (17.3)	
Donor gametes	6 (11.1)	2 (3.8)	
Total time trying to conceive (months)	36.4 (27.8)	32.1 (24.6)	.48
Baseline scores			
NSSS-S	36.9 (12.6)	37.4 (11.0)	.85
Self subscale	18.5 (6.7)	18.8 (6.0)	.82
Partner subscale	18.5 (6.4)	18.7 (5.6)	.84
RAS	28.5 (5.4)	28.2 (5.2)	.76
COMPI-FPSS	23.9 (6.4)	25.6 (5.0)	.10
Post-Treatment scores	(n = 19)	(n = 15)	
NSSS-S	36.0 (14.5)	46.1 (6.3)	.01
Self subscale	17.6 (7.5)	23.8 (3.1)	.01
Partner subscale	18.4 (7.2)	22.3 (3.8)	.06
RAS	27.0 (36.9)	31.0 (3.7)	.05

COMPI-FPSS	25.2 (5.7)	22.1 (5.0)	.10

Note. All participants were either married or living common law. One participant was in a committed polyamorous relationship. NSSS-S = New Sexual Satisfaction Scale Short Form, RAS = Relationship Assessment Scale, COMPI-FPSS = Copenhagen Multi-Centre Psychosocial Infertility Research Program Fertility Problem Stress Scale.

Table 2

Baseline Correlations for Study Variables

Variable	NSSS-S	NSSS-Self	NSSS-Partner	RAS	COMPI-FPSS
1. NSSS-S	—				
2. NSSS-Self	.96**	—			
3. NSSS-Partner	.95**	.83**	—		
4. RAS	.57**	.52**	.57**	—	
5. COMPI-FPSS	-.36**	-.36**	-.33**	-.38**	—

** Correlation is significant at the .01 level (2-tailed)

Table 3

Relationship Benefits of the Coping With Infertility Program

Theme	Participant Feedback
Positive behavioural change	"[I] focused on pleasure and mastery activities that made our lives and relationship better."
	"I restructured my thoughts and started changing my behaviours and doing things for pleasure with my partner, especially sexually, rather than worrying about infertility."
	"I have learned more about myself through the program which carries through to how I interact with him (more positively)."
Improved communication	"We had deeper conversations than we would have had without [this program]."
	"I took more time to listen to my partner and be more present with him. I also worked on my own communication with him."
	"New changes in my mood made communication easy and lovely."
	"I've been able to approach conversations with him differently."
Increased partner support	"I listened more to his feelings and actively tried to do more activities that made us both happy."
	"[Through] improved communication, [we] realized how we can help each other...strengthened overall relationship."
	"I shared strategies with him along the way."
	"Open[ed] up discussions about how we grieve differently."

Note. Participants responded to the question, “In what way(s) do you think your partner benefitted from the program?”

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Figure 1

Post-Treatment Mean Sexual Satisfaction Scores

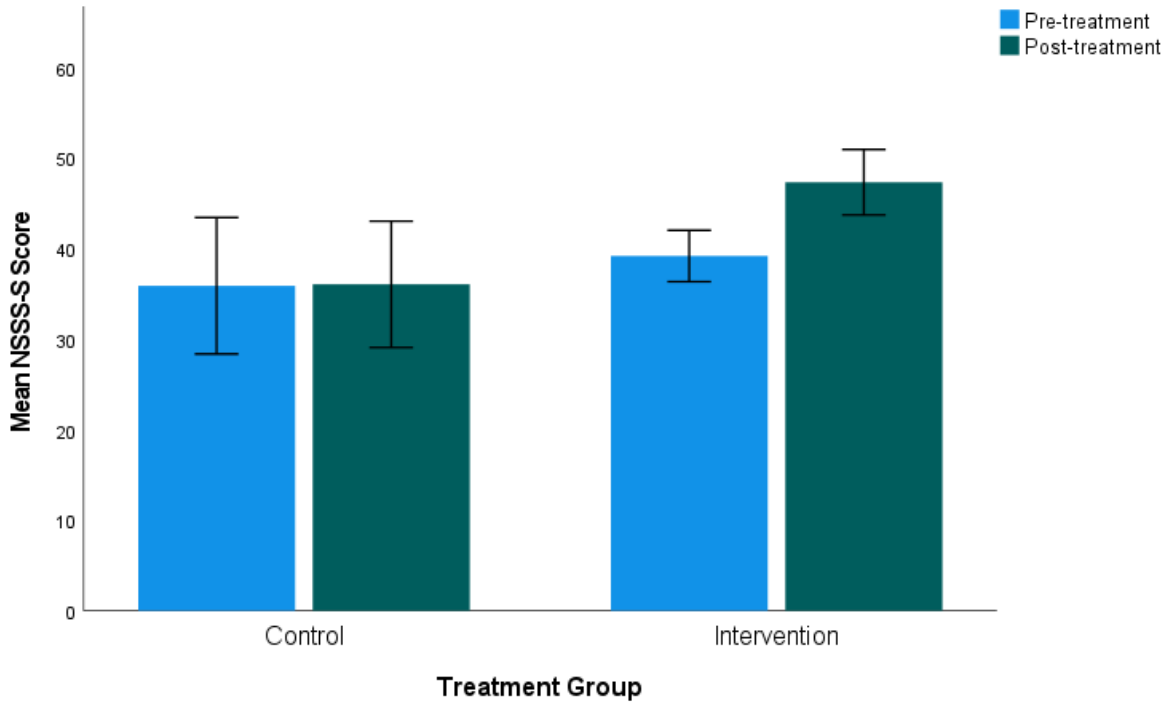
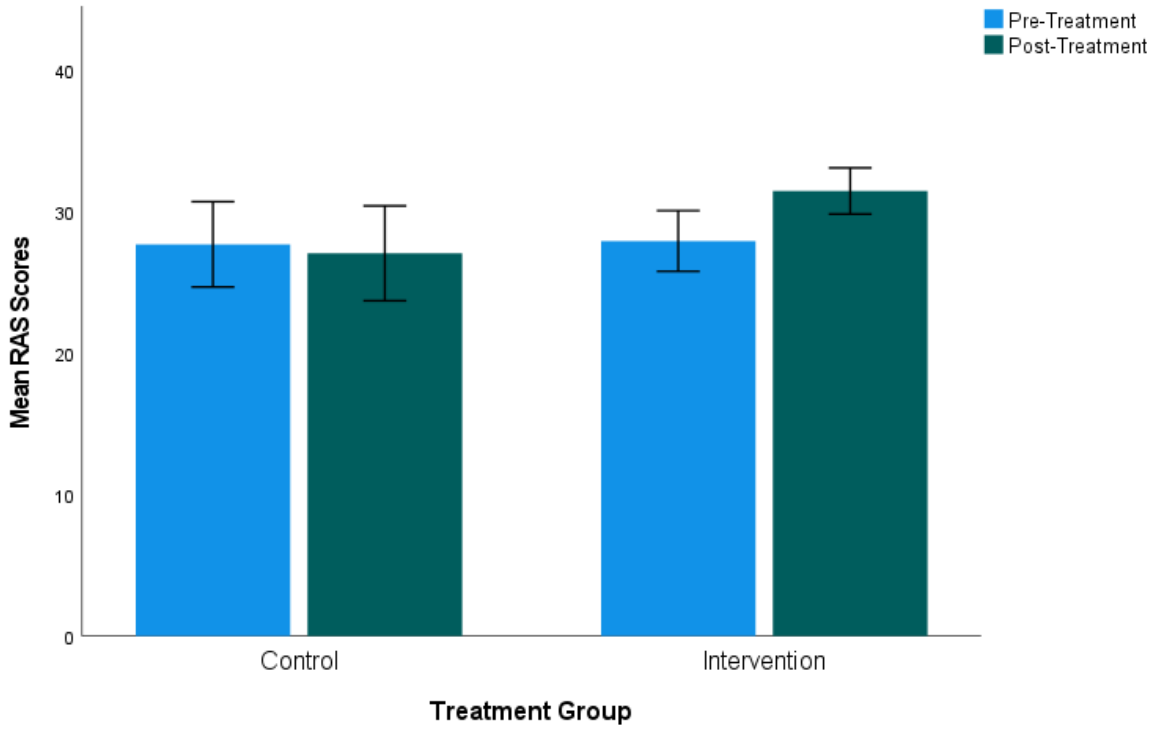


Figure 2

Post-Treatment Mean RAS Scores



Appendix A

University of Regina

PRINCIPAL INVESTIGATOR	DEPARTMENT	REB#
Megan Poulter	Psychology	210

SUPERVISOR
Jennifer Gordon

TITLE
Testing the Efficacy of the 'Coping with Infertility' Self-Help Program: A Randomized Controlled Trial

AMENDMENT APPROVAL OF:	NEXT RENEWAL DATE	AMENDMENT APPROVAL DATE
• Use of Calendy, scheduling platform and extension of recruitment to include Fertility Clinics across Canada • Recruitment Material (Social Media, Eligibility, treatment and follow-up Emails participant and Interview Invite Email Participant Partner, Letter to Fertility Clinics and Poster) • Addition of 9-item Copenhagen Multi-Centre Psychosocial Infertility – Fertility Problem Stress Scale (COMPI-FPSS) to Partner Survey at baseline and at follow up assessment for each arm (treatment and control) of participant partners • Participant and Partner Consent Forms • Addition of Taryn Wahl to study	August 22, 2024	January 19, 2024

Full Board Meeting ☐ Delegated Review ☒

AMENDMENT CERTIFICATION
The University of Regina Research Ethics Board has reviewed the changes to the above-named research project as outlined in your memo dated 2023-12-19, and they are approved.

Any significant changes to your proposed method, procedures or related documents should be reported to for Research Ethics Board consideration in advance of implementation.

ONGOING REVIEW REQUIREMENTS
In order to receive annual renewal, a status report must be submitted to the REB for consideration one month in advance of the current expiry date each year the study remains open, and upon study completion. Any significant changes to your proposed method, procedures or related documents should be reported to the REB for consideration in advance of implementation. ALL changes to research protocols, information, consent documents, advertisements, study instruments, etc. must have REB review and approval prior to implementation, except where necessary to eliminate immediate risk to study participants. Please refer to the following website for the renewal, amendment and closure forms:
https://www.uregina.ca/research/for-faculty-staff/ethics-compliance/human/ethicsforms.html

Appendix B

Demographics and Reproductive Health History Questionnaire

1. Select the option that best describes your current gender identity.
    - Woman
    - Man
    - Trans man
    - Trans woman
    - Nonbinary
    - Two-spirit
    - Genderfluid
    - I prefer not to answer
    - I don’t identify with any option provided
    - I identify as _____
2. Current age: _____
3. What is your ethnic origin? Please check all that apply to you.
    - North American Indigenous origins (e.g., First Nations, Inuit, Métis)
    - Other North American origins (e.g., Acadian, American, Canadian, New Brunswicker, Newfoundlander, Nova Scotian, Ontarians, Québécois)
    - Caribbean origins
    - African origins
    - Asian origins
    - European origins

- o Latin, Central, or South American origins
- o Oceania origins
- o Not listed: _____
- o I prefer not to answer

4. What is your racial background? Please check all that apply to you.

   Arab

   Black

   Chinese

   Filipino

   Japanese

   Korean

   Latin American

   South Asian (e.g., East Indian, Pakistani, Sri Lankan)

   Southeast Asian (e.g., Vietnamese, Cambodian, Laotian, Thai)

   West Asian (e.g., Afghan, Iranian)

   Indigenous/First Nations

   White

   Not listed: _____

   I prefer not to answer

5. What is your marital status?

   - o Never married/never living common law
   - o Married
   - o Living common law

- Separated
- Divorced
- Widowed
- Not listed: _____
- I prefer not to answer

6. What do you consider to be your sexual orientation?
    - Asexual
    - Bisexual
    - Gay
    - Heterosexual or straight
    - Lesbian
    - Pansexual
    - Queer
    - Two-spirit
    - Not listed: _____
    - Prefer not to answer
7. What is the **highest** level of education you have attained?
    - Some elementary
    - Completed elementary
    - Some high school
    - High school diploma or equivalent
    - Some college/trade school
    - College/trade school certificate or diploma

- Some university
- Bachelor's degree
- Master's degree
- Doctorate
- Not listed: _____
- Prefer not to answer

8. Total number of years of schooling (including elementary, high school, and higher education): _____
9. Which of the following best describes your current employment status?
    - Working full time
    - Working part time
    - Retired
    - Student
    - Sick leave/parental or other leave
    - Unemployed by choice (not seeking work)
    - Unemployed or laid off
    - Permanently unable to work/disability
    - Not listed: _____
    - Prefer not to answer
10. How much did **you** earn, before taxes and other deductions, **in the past year**? (The total earned on your last tax return.)
    - Less than 19 999
    - 20 000 to 34 999

- o 35 000 to 49 999
- o 50 000 to 69 999
- o 70 000 to 89 999
- o 90 000 to 112 999
- o 113 000 and greater
- o Don’t know
- o No response

11. Which of these categories best describes your total **combined family income in the last year**? (Include income (before taxes) from all sources, wages, rent from properties, social security, disability and/or veteran’s benefits, unemployment benefits, worker’s compensation, help from relatives (including child payments and alimony), and so on.)

- o Less than 19 999
- o 20 000 to 34 999
- o 35 000 to 49 999
- o 50 000 to 69 999
- o 70 000 to 89 999
- o 90 000 to 112 999
- o 113 000 and greater
- o Don’t know
- o No response

12. To your knowledge, what is/are the source(s) of your difficulties in getting pregnant?

Health condition			
Male factor infertility	☐Yes	☐ No	☐ Maybe/ unsure
Polycystic ovarian syndrome	☐ Yes	☐ No	☐ Maybe/ unsure
Thyroid disorder	☐ Yes	☐ No	☐ Maybe/ unsure
Diminished ovarian reserve	☐ Yes	☐ No	☐ Maybe/ unsure
Premature ovarian failure	☐ Yes	☐ No	☐ Maybe/ unsure
Blood clotting factor	☐ Yes	☐ No	☐ Maybe/ unsure
Cancer	☐ Yes	☐ No	☐ Maybe/ unsure
Repeat pregnancy loss	☐ Yes	☐ No	☐ Maybe/ unsure
Endometriosis	☐ Yes	☐ No	☐ Maybe/ unsure
Pelvic inflammatory disease	☐ Yes	☐ No	☐ Maybe/ unsure

Uterine abnormalities	☐ Yes	☐ No	☐ Maybe/ unsure
Tubal blockage	☐ Yes	☐ No	☐ Maybe/ unsure
Unexplained	☐ Yes	☐ No	☐ Maybe/ unsure
Social infertility	☐ Yes	☐ No	☐ Maybe/ unsure
Other (please specify):	☐ Yes	☐ No	☐ Maybe/ unsure

13. How many of the following have you experienced?

    Pregnancies: _____

    Early pregnancy losses (first 13 weeks gestation): _____

    Late pregnancy losses or stillbirths: _____

    Live births: _____

    Loss of an infant or child: _____

    Termination for medical reasons: _____

14. Regarding your current attempt, how long have you been trying to achieve pregnancy? For the purposes of this survey, please consider pregnancies that did not result in a live birth to be part of the current pregnancy attempt. Please subtract any extended “breaks” during which you were not actively pursuing conception.

    _____ years _____ months

15. Have you used any fertility treatments in your current pregnancy attempt? Please consider pregnancies that did not result in a live birth to be part of the current pregnancy attempt.

- o Yes. Please indicate all that apply:

	Ovulation induction (OI) – e.g., use of medication such as Clomid with timed intercourse
	Intrauterine insemination (IUI)
	Egg retrieval with fertilization via IVF or ICSI
	Fresh or frozen embryo transfer
	Donor gametes (including sperm, eggs, and embryos)
	Gestational carrier
	Other (please specify):

- o No

Appendix C

New Sexual Satisfaction Scale – Short Form (NSSS-S)

Thinking about your sex life during the last six months, please rate your satisfaction with the following aspects:

1. The quality of my orgasms

1	2	3	4	5
Unsatisfied		Moderately Satisfied		Extremely Satisfied

2. My “letting go” and surrender to sexual pleasure during sex

1	2	3	4	5
Unsatisfied		Moderately Satisfied		Extremely Satisfied

3. The way I sexually react to my partner

1	2	3	4	5
Unsatisfied		Moderately Satisfied		Extremely Satisfied

4. My body’s sexual functioning

1	2	3	4	5
Unsatisfied		Moderately Satisfied		Extremely Satisfied

5. My mood after sexual activity

1	2	3	4	5

Unsatisfied Moderately Satisfied Extremely Satisfied

6. The pleasure I provide to my partner

1	2	3	4	5
Unsatisfied		Moderately Satisfied		Extremely Satisfied

7. The balance between what I give and receive in sex

1	2	3	4	5
Unsatisfied		Moderately Satisfied		Extremely Satisfied

8. My partner’s emotional opening up during sex

1	2	3	4	5
Unsatisfied		Moderately Satisfied		Extremely Satisfied

9. My partner’s ability to orgasm

1	2	3	4	5
Unsatisfied		Moderately Satisfied		Extremely Satisfied

10. My partner’s sexual creativity

1	2	3	4	5
Unsatisfied		Moderately Satisfied		Extremely Satisfied

11. The variety of my sexual activities

1	2	3	4	5
Unsatisfied		Moderately Satisfied		Extremely Satisfied

12. The frequency of my sexual activity

1	2	3	4	5
Unsatisfied		Moderately Satisfied		Extremely Satisfied

Appendix D

Relationship Assessment Scale (RAS)

The following questions will ask about your primary romantic relationship. If you do not have a primary romantic relationship, please **click the blue arrow button** to skip to the next section. Select the number for each item which best answers that item for you.

1. How often does your partner meet your needs?

1	2	3	4	5
Poorly		Average		Extremely Well

2. In general, how satisfied are you with your relationship?

1	2	3	4	5
Unsatisfied		Average		Extremely Satisfied

3. How good is your relationship compared to most?

1	2	3	4	5
Poor		Average		Excellent

4. How often do you wish you hadn’t gotten in this relationship?

1	2	3	4	5
Never		Average		Very Often

5. To what extent has your relationship met your original expectations?

1	2	3	4	5
Hardly at all		Average		Completely

6. How much do you love your partner?

1	2	3	4	5
Not Much		Average		Very Much

7. How many problems are there in your relationship?

1	2	3	4	5
Very Few		Average		Very Many

8. How much are you and your partner on the same page when it comes to your fertility struggles?

1	2	3	4	5
Not Much		Average		Very Much

9. How much do you and your partner support each other in your fertility struggles?

1	2	3	4	5
Not Much		Average		Very Much

Appendix E

Copenhagen Multi-Centre Psychosocial Infertility – Fertility Problem Stress Scales (COMPI-FPSS)

How much stress has your fertility problem placed on the following:

	Not at all (1)	A little (2)	Some (3)	A great deal (4)
Your physical health? (Personal)	O	O	O	O
Your mental health? (Personal)	O	O	O	O
Your marriage/ partnership? (Marital)	O	O	O	O
Your sex life? (Marital)	O	O	O	O
Your relationships with your family? (Social)	O	O	O	O
Your relationships with your family in law? (Social)	O	O	O	O
Your relationships with friends? (Social)	O	O	O	O

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
It is very stressful for me to deal with this fertility problem. (Personal)	O	O	O	O	O
Childlessness has caused a crisis in our relationship. (Marital)	O	O	O	O	O

Appendix F

Eligibility Survey

The University of Regina's Reproductive Mental Health Research Unit is seeking individuals to participate in a 7-week self-help program for people who are struggling with the psychological impacts of infertility.

The questions you answer in this survey will help us determine if you fit the criteria that we are looking for for our study. If you have any questions about this process, please do not hesitate to reach out to us at rmh.research@uregina.ca.

Thank you for your interest!

1. To start, what is your participant ID number? _____
2. Are you above the age of 18?
   - Yes
   - No
3. Do you live in Canada?
   - Yes
   - No
4. Have you been trying to get pregnant for 12 months or more or are you undergoing fertility treatments?
   - Yes
   - No
5. Are you currently in regular (e.g., weekly) therapy?

- o Yes
- o No

6. Have you ever previously participated in a study on infertility through the Reproductive Mental Health Research Unit (previously the Women's Mental Health Research Unit)?
   - o Yes

     Please provide as much detail about this study as you can remember:

     _____

   - o No

Thank you for taking the time to complete this survey! Our team will review your eligibility and reach out to you within a few days at the same email address you used to contact us.
Below are just a few resources that have been recommended as being particularly well done among the mental health professionals specializing in infertility that we've consulted with.

Once you have reviewed these resources, **please click the blue arrow button** to submit your survey response.

One More Shot

This documentary following a couple's journey struggling with infertility can be found on Netflix.

dontcountyoureggs.typepad.com

This blog is from the perspective of a women struggling with infertility.

Unsung Lullabies: Understanding and Coping with Infertility by Jaffe and Diamond

This book may help you cope with the unique challenges of infertility and can be found on Amazon.ca.

Don't Tell Her to Relax: 22 Ways to Support Your Infertile Loved One by Zahie El Kouri

This is a helpful guide for family members and friends from the perspective of a women struggling with infertility and can be found online at Chapters Indigo, and may be in stores as well.

The Mourners Bill of Rights by Alan Wolfelt

This short, helpful resource for individuals who have experienced loss and grief can be downloaded at www.centerforloss.com/wp-content/uploads/2016/02/MBR.pdf.

You can always call the following crisis hotlines 24 hours a day:

1-833-456-4566 (Crisis Services Canada)

1-800-273-TALK (8255) (Mental Health America)

Appendix G

Participant Consent Form

DEPARTMENT OF PSYCHOLOGY

Regina, Saskatchewan, Canada, S4S 0A2

Phone: (306) 585-4157/4221

Fax: (306) 585-4772

E-mail: psychology.dept@uregina.ca

www.uregina.ca/arts/psychology

Project Title: Testing an evidence-based self-help intervention for infertility-related distress

Researcher(s):

Principal Investigator: Dr. Jennifer Gordon, Associate Professor, Registered Clinical Psychologist, Department of Psychology, University of Regina, Phone – (306) 585-4389. Email: jennifer.gordon@uregina.ca

Masters Student: Megan Poulter, Masters Student in Clinical Psychology, Department of Psychology, University of Regina. Email: meganpoulter@uregina.ca

Research Assistant: Maija Kiviharju, Research Assistant, Department of Psychology, University of Regina. Email: rmh.research@uregina.ca

Honours Student: Taryn Wahl, Research Assistant and Honours Student, Department of Psychology, University of Regina. Email: rmh.research@uregina.ca

Purpose(s) and Objective(s) of the Research:

Infertility is an incredibly distressing experience for both men and women. Approximately one in five Canadian couples are currently infertile, defined as being unable to achieve pregnancy despite 12 or more months of attempts to conceive. Research has demonstrated that approximately one-third of women who undergo fertility treatments will meet clinical criteria for an anxiety disorder or major depressive disorder.

Our research is aiming to test a newly developed self-help program, designed to help individuals cope with the stresses of infertility. It has been designed to target the unique challenges that people face when struggling with infertility and was created in collaboration with a panel of women struggling with infertility themselves. We are inviting you to complete this program and to provide us with feedback about what you liked and disliked about the program, and how it might be further improved.

Procedures: Your involvement in this research will be in three phases:

Phase 1: Zoom Enrolment Session and Interview:

- The enrolment session lasts 30 minutes where we will explain the study procedures in detail and answer any questions you may have. We require visual contact with you during this enrolment session, meaning you must have your camera ON during the session.
- At the enrolment, you will be sent an online survey to complete that will ask you questions about your reproductive history, your thoughts and feelings, and your mood. Your responses will be linked to an ID number and this survey should take about 20 minutes to complete.

- Please note that the University of Regina uses a Canadian-located data centre for its Zoom real-time meeting traffic.
- After the enrolment session, you will also be asked to participate in an interview about your thoughts and feelings, your mood, and your everyday experiences. This interview is expected to take a maximum of 90 minutes and will be repeated at the end of the program and 16 weeks following the end of the program.

Randomization: Once you have completed the enrolment session, you will be randomly assigned to either begin the self-help program in the near future or to receive it after a 23-week treatment-free monitoring period. Whether you are assigned to the intervention right away or not is determined completely by chance and is out of the study staff's control.

Phase 2: 7-Week Program for Infertility-Related Distress:

- If you are randomized to the self-help program, for seven weeks you will be emailed a 10-minute video on a day of your choosing. Each video will focus on a specific psychological technique that will help you develop skills to cope with the stresses of infertility. You will be asked to confirm that you have watched the video.
- Homework will be assigned at the end of each video and is intended to be integrated into your daily life and may therefore take up to an hour, spread over the course of the week. A reminder about homework will be sent a few days after you've watched your video.
- During the fourth week of the program, you will be sent an online survey to complete that will ask you questions about your thoughts and feelings, and your mood. This survey should take about 20 minutes to complete.

Phase 3: Post-Program Surveys and Interviews:

- For 16 weeks following the end of the program, we will send you a biweekly survey about your thoughts and feelings, your mood, and your quality of life. We will also ask for your overall feedback on what you liked, disliked about the program as well as suggestions for improvement.

Treatment-free Monitoring Period: Even if you are not randomized to the self-help program, you will also be asked to complete the three interviews about your thoughts and feelings, your mood, and your everyday experiences. These interviews will take place as soon as possible after the enrolment session, eight weeks after your enrolment session, and 23 weeks after the enrolment session. You will also be asked to complete the same midway and biweekly surveys about your thoughts and feelings, your mood, and your quality of life, at four weeks after your enrolment session and then biweekly starting at eight weeks after your enrolment session.

Total Time Commitment:

The following time commitment can be expected for this study:

Enrolment session: 30 minutes

Baseline survey: 20 minutes

Baseline interview: 90 minutes

Weekly videos: 10 minutes each, for a total of 70 minutes

Homework: Up to 60 minutes each week, for a total of 420 minutes

Midway survey: 20 minutes

Follow-up surveys: 5-10 minutes each, for a total of 45-90 minutes

Follow-up interviews: 90 minutes each, for a total of 180 minutes

Total: Up to 15 hours over the course of 23 weeks

Funded by: Canadian Institutes of Health Research.

Potential Risks:

- Throughout the program, we may suggest that you try new things and take new approaches to talking to loved ones about infertility. Though previous literature has shown these techniques to be helpful in the vast majority of cases, trying new things can involve some risks: For example, difficult conversations may not go as planned, activities intended to make you feel better may not always work.
- Since this is a new program that has not yet been tested, there is no guarantee that it will be helpful. It is also possible that it may be helpful for some but not for you.

Risk(s) will be addressed by:

In this research study, we will be asking you questions about your mental state, both good and bad. This program is intended to be a self-help program; it is therefore intended to be completed without input from a therapist or the research team. It is entirely possible that we will not view your survey responses for several days after you complete a survey.

As researchers, we do not provide mental health services. However, in the event that you experience a decline in your mental health while undergoing the program or judge that you would be better served by an alternative resource, please **seek additional psychological help**.

Feel free to reach out to the study principal investigator, Dr. Jennifer Gordon (jennifer.gordon@uregina.ca), who can direct you towards alternative mental health resources in your area.

You can also consult the Canadian Mental Health Association (https://cmha.ca/find-help/find-cmha-in-your-area/) and/or Crisis Services Canada (https://www.crisisservicescanada.ca/en/).

Potential Benefits:

Preliminary studies of our program have found that it can have significantly benefit mental health and wellbeing. Your feedback on the program will also help us to further improve the program, which will be of benefit to other people struggling with infertility in the future.

Compensation:

You will receive a total of up to $140 for full participation in the study in the form of a cheque sent to you via mail: $10 per midway and post-program survey (X10 surveys) and an additional $20 per post-intervention interview (X2 interviews).

You reserve the right to keep your compensation even if you decide to withdraw from the study. If you participate in a portion of the study, you will be compensated based on your partial participation.

In order to issue the cheque, you will need to provide your date of birth, SIN, and mailing address.

Please indicate if we have your permission to use this information to issue your compensation.

- o I agree to provide my personal information so I can obtain the cheque.
- o I do not agree to provide my personal information so I can obtain the cheque.

Confidentiality:

- Your privacy and confidentiality will be protected by the use of an ID number. When you enter the study, you will be assigned a number and that number will be used to protect your identity. We will use that number instead of using your name. All electronic files will be saved on password protected computers.
- While data is still being collected, it will be accessible to the research team through the lab Qualtrics account, which is password-protected. Once the data is downloaded after the study is complete, it will be kept in a password-protected file in the lab's password-protected Dropbox account. Two different passwords will be used.
- Data will be retained indefinitely, for at least 7 years after publication.
- Any files linking your identity to your ID number or containing your contact information will be kept separate from study data and will be destroyed at the end of the study. Email messages from the research team to/from you will also be deleted upon the conclusion of the study or up to one month after the end of your participation in the study, whichever comes first.
- Only study personnel and the financial services personnel involved in issuing compensation to research participants will have access to your identifiable information.

- To be compensated as a research participant we will also require your Date of Birth and SIN as this payment is taxable and reported to the Canada Revenue Agency. Payment can be issued as a cheque or direct deposit; however, direct deposit will require further banking information to be provided. Please note that your information will remain in the University's system but no information that can link you to this study will be retained.
- The research team will send you the modules of the 7-week program via email but may also send reminders via SMS text message. We will keep our messages very generic, such that someone seeing the message would not know anything about the study.

  However, please note that email and text are not secure forms of communication and we therefore cannot guarantee that they will not be intercepted (e.g., if your email account is left logged in and someone else uses that computer). We therefore recommend that you use a personal email address and cell phone number rather than a work email or work phone and that you log out of your email account whenever you're finished using it. If you would prefer, we can encrypt any emails that we send – this would require that you enter a password before accessing the email.

Please indicate your preference with regard to email:

- o Please send me non encrypted emails (i.e., normal emails that are not password protected).
- o Please only send me encrypted (i.e., password-protected) emails.

Please indicate your preference with regard to text:

- o Please send me SMS text message reminders.
- o Please do not send me SMS text messages.

How Your Data Will be Used:

- The main goal of this project is to use the feedback that you give us to improve the program in the future. However, we also want to examine whether the program has any psychological benefits. We will therefore also be interested in comparing your scores on the psychological questionnaires both before and after the program.
- Additionally, a subset of the data from this study (i.e., outcomes assessed before, midway through, and after the program) will be used in Megan's master's thesis.
- In any reports, scientific journal articles, or conference presentations, it is possible that we will show your individual score on certain questionnaires both before and after the program. However, your identity would remain anonymous.
- Similarly, we may include some of your direct quotes pertaining to your feedback for the program. Again, though, the identity of the person providing the quote will remain anonymous.

Right to Withdraw:

- Your participation is voluntary, and you can answer only those questions that you are comfortable with. You may withdraw from the research project for any reason, without explanation or penalty of any sort. You can do so simply by emailing the research team to inform them.

- Whether you choose to participate or not will have no effect on your access to services or how you will be treated.
- Please note that you are entitled to be compensated according to your participation in the project even if you choose to withdraw your data.
- Should you wish to withdraw, we will keep the data up until your withdrawal. Your data will be used unless if you indicate that you would like it to be destroyed. Your right to withdraw data from the study will apply up to one month after the end of your participation in the study – after this time, it is possible that some of your data will have been included in publications and it may be impossible to withdraw it.

Follow up:

- We may present the results of this study at scientific conferences and publish them in scientific journals. Direct quotes from the post-study interview may be published but your identity will remain protected. We will also report the results of this study on our website (www.rmhresearch.ca/) within one year of the conclusion of the study.

Questions or Concerns:

If you have any questions, comments, or concerns, please contact the researcher(s) using the information on page 1;

- This project has been approved on ethical grounds by the University of Regina Research Ethics Board on Month Day, Year. Any questions regarding your rights as a participant may be addressed to the committee at 306-585-4775 or research.ethics@uregina.ca. Out of town participants may call collect.

Consent

You indicate that you have read and understood the description provided, you have had any questions answered, and you consent to participating in this study. You have received a copy of this consent form for your records.

Regardless of whether or not you would like to participate in this study, would you be interested in hearing about other studies from our lab in the future?

- o Yes, I would like to be added to a database to be contacted about other studies.
- o No, I do not want to be contacted about other studies.

Appendix H

Participant Consent Form for Partners

Participant Consent Form

Project Title: Testing an evidence-based self-help intervention for infertility-related distress

Researcher(s):

Principal Investigator: Dr. Jennifer Gordon, Associate Professor, Registered Clinical Psychologist, Department of Psychology, University of Regina, Phone – 306 585 4389.

Email: Jennifer.gordon@uregina.ca

Study Personnel:

Megan Poulter, Masters Student in Clinical Psychology, Department of Psychology, University of Regina.

Maija Kiviharju, Masters Student in Clinical Psychology, Department of Psychology, University of Regina.

Sarah Gulash, Research Assistant, Department of Psychology, University of Regina.

Taryn Wahl, Honours Student, Department of Psychology, University of Regina.

Email: rmh.research@uregina.ca

Purpose(s) and Objective(s) of the Research:

- Infertility is very distressing for all genders and partners within a relationship.
- Our research is aiming to test a newly developed self-help program, called the Coping with Infertility program, designed to help individuals cope with the stresses of infertility. It has been designed to target the unique challenges that people face when struggling with infertility.
- Your partner has consented to completing this program. We are inviting you to participate as well because we would like to understand the partner's experience of the program.

Procedures: Your involvement in this research will include the following:

Initial survey:

- After consenting to this study, you will be directed to a 5-minute questionnaire about your demographic characteristics as well as your current mental health.

Follow-up survey:

- Approximately 8 weeks after completing the initial survey you will be emailed a link to complete a second survey that will again ask about your mental health and aspects of your relationship with your partner. If your partner was assigned to participate in the self-help program right away, you will also be asked questions about your impressions of your partner's participation in our program. This survey should take approximately 5-7 minutes.

Optional interview:

- Following completion of the follow-up survey, you may be invited to participate in an **optional** interview portion of the study. The interview would last approximately 30 minutes and would be audio and video recorded over Zoom. You do not need a Zoom account to join meetings as a participant. It would involve questions about your experience of infertility. If your partner was assigned to participate in the self-help

program right away, you will also be asked questions about your impressions of your partner's participation in our program.

Total Time Commitment:

The following time commitment can be expected for this study:

Baseline survey: 7 minutes

Follow-up survey: 7 minutes

Total: 14 minutes

Optional follow-up interview: no longer than 30 minutes

Funded by: Canadian Institutes of Health Research

Potential Risks:

- The surveys ask mental health related questions which you might find uncomfortable or mildly distressing. The risk of experiencing significant levels of distress are low, however, if you do experience distress there are resources (listed below) available to help. It is also important to note that you can drop out of the study at any time without penalty.

Mental Health Resources:

- Canadian Mental Health Association: https://cmha.ca/find-help/find-cmha-in-your-area/.
- Canadian Crisis Resources: https://talksuicide.ca; https://www.crisisservicescanada.ca/en/ call 1-833-456-4566 or text 45645

Potential Benefits:

- Preliminary studies of our program have found that it can significantly benefit the mental health and wellbeing of the person completing the program. Your feedback alongside your partner's completion of the study will help us judge how helpful our program is on supporting the partners of those completing our program's mental health. Results will help us improve the program, which will benefit other people struggling with infertility in the future.

Compensation:

- You will receive a $20 Amazon gift card for attempting the two study surveys ($10 for each). If you attempt the 30-minute interview, you will receive an additional $10. You reserve the right to keep your compensation even if you decide to withdraw from the study. Because you are not required to answer any questions you are uncomfortable with, you do not have to complete the full surveys or interview to receive full compensation.

Confidentiality:

- We will treat your personal information as confidential. Your privacy and confidentiality will be protected by the use of an ID number. A numeric ID will be assigned and utilized in place of your name during all study interactions to protect your identity. All electronic files will be saved on password protected computers.
- Your partner will not have access to any of your survey or interview responses.
- Any files linking your identity to your ID number or containing your contact information will be kept separate from study data and will be destroyed at the end of the study. Email messages from the research team to/from you will also be deleted upon the conclusion of the study or up to one month after the end of your participation in the study, whichever comes first.
- We collect survey data through the software Qualtrics, which uses servers with multiple layers of security to protect the privacy of the data (e.g., encrypted websites and password protected storage).
- Interviews will be audio and video recorded and transcribed over a University of Regina licensed Zoom account. Zoom ensures the security of the communication amongst all participants through encryption of data in transit and at rest, and meets industry and security organization standards (SOC 2; FedRAMP; GDPR,CCPA, COPPA, FERPA, and HIPAA; Privacy Shield Certified; and TrustArc Certified Privacy Practices and Statements). The University of Regina uses a Canadian-located data centre for its Zoom

real-time meeting traffic.

- All interviews will take place in a secure location to protect your privacy and the confidentiality of your responses. Upon entering the meeting, the interviewer will lock the Zoom room so no one else can enter. Recordings of the interview will be saved locally to the interviewer's device and deleted following transcription. Any identifying information will be removed from the transcripts to protect anonymity. Transcripts will be saved in a password protected file in the lab's password-protected Dropbox account.
- Communication for the purposes of the study and study compensation will take place over email. Since we cannot guarantee that your email will not be intercepted or viewed by others, we recommend that you use your personal email and log out after each use.
- Only study personnel and the financial services personnel involved in issuing compensation to research participants will have access to your identifiable information.
- Data will be retained indefinitely. Any personal information collected as a record of participant compensation will be stored in Financial Services and may be kept for 7 years in case the University of Regina is subjected to a financial audit.
- The results of this study may be presented in a scientific meeting or published, including quotes from the interviews, but your identity will not be disclosed.

Right to Withdraw:

- Your participation is voluntary and you can answer only those questions that you are comfortable with.
- In the (optional) interview, if you do not or no longer wish for your interview to be recorded, you will be withdrawing your consent to participate in the interview.
- You may withdraw from the research project for any reason, at any time without explanation or penalty of any sort. Whether you choose to participate or not will have no effect on your position or how you will be treated. You will be compensated for your involvement in the study, even if you choose to withdraw. Should you wish to withdraw, please email rmh.research@uregina.ca.
- Your right to withdraw data from the study will apply until 1 month after concluding your participation in our study. After this date, it is possible that some results have been analyzed, written up and/or presented and it may not be possible to withdraw your data.

Follow up:

- Results from this study will be posted on www.rmhresearch.ca within one year following study conclusion.
- Results may also be published in a scientific journal or presented at conferences and may be included in graduate student theses.

Questions or Concerns:

- Any questions or concerns can be directed to the researchers using the contact information listed above.
- This project has been approved on ethical grounds by the University of Regina Research Ethics Board on (insert date). Any questions regarding your rights as a participant may be addressed to the committee at (306-585-4775 or research.ethics@uregina.ca). Out of town participants may call collect.

It is recommended that you save this form for your records.

Consent:

Do you consent to participate in this study?

- o Yes, I consent.
- o No, I do not consent.

Would you be willing to participate in the optional 30-minute Zoom interview?

- o Yes, I am willing.
- o No, I am not willing.

[If consented]

What is your first and last name?

Name: _____

What is your partner's name?

Partner's name: _____

Please provide your email address. This will allow us to contact you directly rather than through your partner!

Your email address: _____

[Submit Button]