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A Randomized Study Comparing Video-Based Mindfulness-Based Cognitive Therapy With Video-Based Traditional Cognitive Behavioral Therapy in a Sample of Women Struggling to Achieve Orgasm

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ABSTRACT

Introduction: This study examines the effectiveness of integrating mindfulness-based techniques within therapy for women suffering to achieve orgasm. Although widely applied in psychotherapy, this approach has only recently been introduced in the treatment of female sexual dysfunction.

Aim: To compare the effectiveness of a video-based self-administered treatment, rooted within the cognitive behavioral treatment (CBT) framework, with a video-based self-administered mindfulness treatment applying cognitive behavioral sexual therapy (mindfulness-based cognitive therapy), the latter of which was specifically created to increase women's ability to achieve orgasm.

Methods: A convenience sample of 65 women suffering from difficulties to achieve orgasm, aged 18 to 58 years (mean = 32.66, standard deviation = 9.48), were randomly allocated using a randomization procedure to either a mindfulness-based cognitive therapy (N = 35) or CBT (N = 30) group. Each participant completed questionnaires before and after the start of treatment and 2 months after its completion.

Main Outcome Measure: We applied repeated-measure general linear models to compare the 2 groups (ie, between participant factor) on each dependent variable across time (ie, the within-participant factor). Compare mean analyses for paired samples were only conducted when the interaction effect between condition and time was significant (ie, $P < .05$).

Results: Statistical analyses show that women in both groups presented increased sexual functioning ($P = .001$) and decreased sexual distress ($P < .001$), as well as improved desire, arousal, orgasm, and sexual satisfaction ($P < .05$) after their respective treatments. Contrary to our hypothesis, significant reductions in sexual pain were only observed in CBT participants.

Clinical Implications: To the best of our knowledge, this is the first study to apply a randomized allocation procedure to evaluate the effectiveness of a video-based mindfulness intervention for women struggling to achieve orgasm. These results should guide clinicians' decisions with respect to evaluating the relevance and the real added value of proposing mindfulness exercises to their patients with such difficulties.

Conclusion: When women suffering from difficulties to achieve orgasm are randomly assigned to a mindfulness group or an active control, improvements in sexual functioning and reductions in sexual distress can be observed after both treatments. **Adam F, De Sutter P, Day J, et al. A Randomized Study Comparing Video-Based Mindfulness-Based Cognitive Therapy With Video-Based Traditional Cognitive Behavioral Treatment in a Sample of Women Struggling to Achieve Orgasm. J Sex Med 2020;17:312−324.**

Key Words: Mindfulness; Anorgasmia; MBCT; CBT; Sexual Dysfunction; Sexual Distress

INTRODUCTION

A large number of women have never experienced orgasms and/or frequently express difficulties in achieving them. Orgasmic disorder, or anorgasmia, represents the second most common sexual difficulty experienced by women. Approximately 24% of all women have either always suffered from orgasmic dysfunction (primary anorgasmia) or have experienced this difficulty in a transient manner (secondary anorgasmia).[1] The

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female orgasmic disorder is characterized by a difficulty in experiencing orgasms and/or markedly reduced intensity of orgasmic sensations during 75% to 100% of all sexual activity.[2] In addition, this sexual difficulty is known to considerably, and negatively, impact women's quality of life, causing both personal distress and conflicts within the couple.[3] In fact, orgasmic dysfunction also strongly relates to communication difficulties with one's partner about sexuality.[4]

The etiology of orgasmic dysfunction is often multifactorial. As a result, the clinical evaluation inquires for information regarding diagnostic criteria, the development of the disorder, and its emotional, cognitive, behavioral, and relational repercussions. Clinicians must also account for the woman's age, stimulations received, and general sexual experience.[5] Women with these difficulties often present a general lack of the latter, including the learning and use of masturbation.[6]

Several studies report that women struggling to achieve orgasms also show a greater tendency toward engaging in cognitive distraction.[7–10] In fact, they present a higher number of dysfunctional cognitive schemas and self-focused negative beliefs, which subsequently lead to negative emotions.[11] Compared with orgasmic women, these women also demonstrate less focus on their own bodily sensations, less referral to erotic thoughts during sexual activities with a partner,[12] and more negative emotions such as shame, guilt, anxiety, and emotional distress.[13] The resulting negative thoughts and emotions may be monopolizing women's attentional resources by diverting them from the present moment and, therefore, reduce their interoceptive awareness.[14,15] In addition, the latter is lower at baseline in women suffering from anorgasmia, implying that they struggle to perceive their bodily sensations when they are physically excited.[16]

The importance of focusing one's attention during sexual encounters was originally brought to light by Masters and Johnson.[17] The authors coined the term *spectatoring*, which refers to fully observing one's own sexual and physiological reactions during sexual activities (lubrication, erection …), rather than being immersed in the sensory and erotic aspects of them (worries, sensations, emotions …). Masters and Johnson[17] recommended the use of the *sensate focus* to their patients, to overcome performance-related or fear of failure cognitions. Multiple cognitive behavioral treatments (CBTs) for orgasmic disorder have been developed based on this principle, including directed masturbation,[18] and the 12-step *Becoming orgasmic* self-administered treatment,[19] which borrows strategies from cognitive behavioral sexual therapy (eg, elaboration of fantasies, masturbation) to enhance the sexual abilities of the woman and her partner. Systematic desensitization,[20] coital alignment,[21,22] and sexual communication[23] constitute examples of other commonly used techniques within the program.

This *Becoming Orgasmic* treatment seems effective across 3 different formats. A study comparing the standard couple therapy, group therapy, and a self-administered bibliotherapy with minimal therapist contact established that all 3 versions significantly improved subjective satisfaction, as well as behavioral measures in women suffering from secondary orgasmic dysfunction.[24] When the treatment was performed with a partner, the program led to slightly superior results. However, the authors highlight the need for less expensive treatments (both in terms of time and money), endorsing the bibliotherapy approach as the preferred choice. Several meta-analyses also corroborate the efficiency of sexology bibliotherapy approaches for improving the female sexual response.[25–27]

In parallel, video-based CBT represents a promising, alternative treatment for sexual dysfunction. Stemming from traditional cognitive and behavioral approaches to sex therapy,[17,28] these interventions convey the additional advantage of guaranteeing both privacy and anonymity.[29] Jones and McCabe[29] established a 5-session Web-based CBT program for female sexual difficulties, entitled *the Revive Program*. The authors acknowledged 2 main limitations of their treatment, namely, the lack of contact with the therapist throughout the program and the absence of psychoeducation provided regarding female sexual functioning. In addition, they encouraged researchers to incorporate mindfulness-based exercises in future online interventions, a modality often missing.

In fact, the current literature shows that treatments for orgasmic dysfunction are grounded in a classical CBT approach consisting of cognitive modification and restructuring. However, third-wave CBT has integrated mindfulness exercises for many years now,[30] particularly in dialectic behavioral therapies and acceptance and commitment approaches[31] for depression and anxiety. Mindfulness is defined as "the awareness that emerges through paying attention, on purpose, in the present moment, and nonjudgmentally, to the unfolding of experience moment by moment".[32] In more concrete terms, the state of mindfulness results from the maintenance of one's attention on the present experience, such as bodily sensations, thoughts, and emotions that may spontaneously appear in one's consciousness. This curious and benevolent observation is accompanied by a nonjudgmental attitude for all aspects of the experience, whether they are pleasant or unpleasant.[33] Mindfulness allows individuals to escape a mode of thinking entitled the "automatic pilot," where one's attention is automatically captured by aspects of a specific experience.[34] Mindfulness encourages individuals to focus on their current experience instead.[32] Researchers believe this psychological skill can be trained.[35,36]

Among the numerous mindfulness-based interventions that currently exist, the most commonly used ones include the Mindfulness-Based Stress Reduction for chronic pain management[37] and the mindfulness-based cognitive therapy (MBCT) for depressive relapse prevention.[38] Mindfulness has demonstrated its effectiveness in the treatment of diverse psychopathological disorders,[37,39–42] particularly regarding the reduction of stress, anxiety, and depressive symptoms.[43] The technique expands attention skills,[44–46] promotes the management of intrusive thoughts and ruminations,[47] and encourages self-

acceptance and compassion. It also seems to reduce the intensity of one's emotions[48] and self-judgment.[49–51] In line with this, the results of a recent meta-analysis on the efficacy of MBCT for depressive symptoms[52] were 2-fold: the treatment was superior to nonactive control conditions (eg, wait-list) and led to similar outcomes compared to other active forms of therapies (eg, CBT), both immediately after treatment and at 6-month follow-up. Hence, it is surprising that mindfulness, although widely used across psychopathological disorders, has yet to be integrated into the treatment of orgasmic dysfunction.

Research on mindfulness-based approaches for the more specific treatment of female sexual difficulties is nonetheless on the rise. Interestingly, a study looking at women's mindfulness skills during dyadic sexual activities found that women with anorgasmia suffered from a deficit in the latter compared with orgasmic women.[53] Several studies show encouraging results regarding the effectiveness of mindfulness-based interventions for improving women's overall sexual response, with respect to desire, arousal, lubrication, orgasm, and sexual satisfaction.[54–56] Mindfulness also reduces both sexual distress[54,56,57] and sexual pain.[57,58] For example, an 8-week MBCT for sexuality (MBCT-S) program was evaluated in a sample of 26 women suffering from hypoactive sexual desire and lack of arousal.[55] Largely derived from the MBCT program,[38] the MBCT-S includes mindfulness exercises (body scan, mindful eating) and cognitive behavioral sex therapy techniques (sexual education and exercises), as well as homework prescriptions. The treatment led to significant improvements in sexual functioning but not in sexual pain, leaving preintervention and postintervention scores of the latter unchanged. The authors also observed reductions in the symptoms of depression after MBCT-S. More recently, a 6-session Web-based self-administered treatment (N = 26), which integrated frequent contacts with the study therapist, yielded similar results. Compared with a wait-list control group, it significantly improved both sexual functioning and sexual distress in women who reported suffering from these.[56]

Earlier studies examining the incorporation of mindfulness within sexological treatments[59,60] observed that it reduced cognitive distractions and performance anxiety during sexual activities, while increasing awareness of sexual stimuli. Indeed, mindfulness may promote interoceptive awareness[16,54] and remove 3 barriers to female sexual functioning (ie, lack of attention, self-judgment, and depressive symptomatology) that could otherwise also hinder access to this awareness.[16,55] Recently, a meta-analysis on the effectiveness of mindfulness for sexual difficulties[61] highlighted that mindfulness-based therapies significantly improve women's sexual functioning and, more specifically, the subjective perception of their sexual satisfaction and desire, which could subsequently increase sexual arousal. This research illustrates the benefit associated with the integration of mindfulness into the treatment of female sexual difficulties and, particularly, of orgasmic difficulties. However, it is important to note that most studies compare mindfulness-based treatments to wait-list control groups[54,57] or omit control groups entirely,[55,60] thereby prompting the need for careful interpretations of their results.

To the best of our knowledge, only 2 studies have compared a mindfulness-based treatment with an active control group (eg, CBT). The first focused on a small sample of women suffering from both sexual distress and a history of childhood sexual abuse.[62] They were assigned to 2 treatment sessions of either MBCT (N = 12) or CBT (N = 8). MBCT participants reported significantly greater subjective sexual arousal responses after the sessions than those in the CBT group. However, both treatments were equally effective in reducing sexual distress. The second, more recent study allocated participants from a sample of women suffering from sexual pain (N = 130) to 1 of 2 8-week treatment groups, MBCT or CBT.[63] Although both treatments significantly increased feminine sexual functioning, MBCT appeared to be more effective in reducing associated sexual pain.

To the best of our knowledge, this is the first large randomized study comparing a self-administered video-based treatment, comprising mindfulness and specific cognitive behavioral sex therapy (MBCT) techniques and designed for women seeking help to achieve orgasms, with an active control group. The latter consisted of a similar self-administered treatment based solely on CBT. Our hypothesis is as follows: MBCT self-administered treatment videos should be more effective than CBT in improving sexual functioning and reducing sexual distress in women suffering from difficulties to achieve orgasm.

MATERIALS AND METHOD

Participants

A convenience sample of 106 women, aged 18 to 60 years (mean [M] = 33.95, standard deviation [SD] = 10.64), was recruited for participation. Inclusion criteria included individuals (1) being in an intimate and sexual relationship of at least 3 months and (2) being a minimum of 18 years of age. Participants were excluded from the study if they presented symptoms of acute depression, attentional disorders, recurrent panic attacks, psychotic disorders (hallucinations, delusions), dissociations, and psychological sequelae of physical, emotional, or sexual abuse.

Recruitment and Procedure

Participants were recruited on a voluntary basis between November 15th, 2014, and January 31st, 2015. An advertisement entitled *"Free self-administered treatment to facilitate the reach of orgasm: A study for women in relationships"* was posted on several websites and sent by email to contacts. We asked the latter to distribute it widely in the aim of initiating a snowball effect. The listing presented the study and its projected timeline (running from February to March 2015), after which it prompted participants for their contact information and for the completion of an informed consent form. A total of 157 French-speaking women responded to

the advertisement by completing the online questionnaire on LimeSurvey. Each was subsequently contacted by phone and email, by either a PhD student in psychology or a master's student in family and sexual sciences, both trained in mindfulness-based approaches. The researchers controlled for the inclusion and counter-indication criteria, explained the unfolding of the study, and answered participants' questions.

Before study onset, participants placed a 100-euro deposit onto a frozen bank account of the Université catholique de Louvain. The participants were to receive the down payment in its entirety 2 months upon study completion, after responding to the last set of questionnaires, or immediately upon abandonment of the study. The participants were randomly assigned to receive either the experimental (MBCT) or the control treatment (CBT). The randomization process was automated and online-based, allocating the participants to groups depending on the order in which we received the deposits: the first participant was assigned to the MBCT treatment and the second participant to CBT, alternating as such. The existence of the 2 conditions remained unbeknownst to the participants. The study itself then comprised 4 distinct stages.

Stage 1 (Preintervention)

2 weeks before the start of the program, the participants completed 3 online questionnaires: the Female Sexual Function Index (FSFI),[64] the Female Sexual Distress Scale − Revised (FSDS-R),[65] and the Sexual Five-Facet Mindfulness Questionnaire (FFMQ-S).[66] They then received login details for a website hosting their respective self-administered treatment videos, which were the only accessible and visible content to the participants.

Stage 2 (Self-administered Treatment)

A once-weekly email informed participants of a new video release. The women received a total of 7 videos, which they were required to watch in respect of the release order, as many times as they pleased. Each video concluded by the prescription of sexological exercises for the upcoming week, which participants were to perform alone and/or with their partner. The MBCT group completed additional mindfulness-based exercises. Both treatments are detailed in Appendix 1.

At any time throughout the program, it was also possible for participants to contact the researcher for any questions that might arise. 3 women originally requested help as they experienced difficulties accessing the first video. However, there were no other inquiries for the remainder of the study.

Stage 3 (Postintervention)

Immediately after the end of the self-administered treatment, the participants responded to the same online questionnaires presented in stage 1. In addition, we evaluated the frequency and duration of engagement in the prescribed home exercises (ie, sexological exercises for both groups and additional meditation exercises for MBCT participants), involvement and satisfaction with the self-administered treatment, and the proportion of videos viewed alone or with a partner. After completing the questionnaires, the participants received the first half of their deposit back (ie, 50 euros). All self-administered treatment videos remained accessible online between postintervention and the 2-month follow-up assessment.

Stage 4 (Follow-up)

2 months upon completion of the self-administered treatment, the participants filled out the same questionnaires in an effort to evaluate whether the intervention effects were maintained. Subsequently, they received the second half of their deposit (ie, 50 euros).

The study was approved by the Ethics Committee of the Psychological Sciences Research Institute.

MEASURES

Sociodemographic Questionnaire

Based on existing literature, the researcher developed an 11-item sociodemographic questionnaire. It comprised 4 basic information items (age, education level, duration of the current relationship, and gender of the partner), 1 medical item (medication intake), 1 therapy-related item (ongoing psychological treatment or meditation practice), and 5 items relating to sexual activity (frequency of sexual activities alone and with a partner, frequency of achieving orgasm alone or with a partner, and general ability to achieve orgasm). Each possible response consisted of either a dichotomous choice (yes or no) or a Likert scale, the latter of which ranged from "none" to "more than 10" or depicted numbered data ("number of months" to "number of years").

Female Sexual Function Index

The FSFI,[64] measuring female sexual functioning, is a self-report questionnaire composed of 6 subscales: desire (2 items), arousal (4 items), lubrication (4 items), orgasm (3 items), sexual satisfaction (3 items), and pain (3 items). The 19 items are answered on a 6-point Likert scale ranging from 0 (no sexual activity) to 5 (very high or very often) or from 1 (almost never or never) to 5 (almost always or always).

To calculate the score for each subscale, the individual item scores must be added up and then multiplied by the subscale factor. The sum of all 6 subscale scores represents the total score. The original questionnaire validation study showed a high internal consistency with a Cronbach alpha of 0.86.[64] This reliability was further confirmed within our sample, with a Cronbach alpha of 0.94 at preintervention and postintervention (T1-T2) and 0.95 at follow-up (T3). The Cronbach alphas for the subscales range from 0.79 to 0.95 (T1-T2-T3), thereby supporting the reliability of the tool as a measure of women's sexual functioning.

Female Sexual Distress Scale—Revised

The FSDS-R[65] was developed to provide a standardized quantitative measure of sexual-related personal distress. This questionnaire is composed of 13 items rated on a 5-point Likert scale (0 = never, 1 = rarely, 2 = often, 3 = very often, 4 = always). A total score equal to, or greater than, 11 signals the presence of sexual distress. The scale validation study showed a high internal consistency with a Cronbach alpha of 0.86. This tool thus seems to reliably discriminate between women with or without sexual distress. It was translated into French through a back-translation procedure, with the scale being independently translated by 2 people to prevent translation errors associated with the English version. Its reliability was confirmed within our sample, with a Cronbach alpha of 0.93 to 0.94 (T1-T2-T3).

Sexual Five-Facet Mindfulness Questionnaire

The FFMQ-S[66] is an adapted version of the Five-Facet Mindfulness Questionnaire,[67] specifically designed to assess women's ability for mindfulness during dyadic sexual activities. It is composed of 19 items divided into 5 facets: observing experience, describing experience, acting with awareness, nonjudgment, and nonreactivity on psychological phenomenon. Each item is ranked on a 5-point Likert scale ranging from 1 (never true) to 5 (always true). The total score and/or the individual scores of the 5 mindfulness facets can be used when interpreting its results. The items followed by "R" are reversed before the calculation of each facet score. The validation study showed a high internal consistency with a Cronbach alpha of 0.87.[66] This reliability was confirmed within our sample with a Cronbach alpha of 0.77 at preintervention (T1), 0.84 at postintervention (T2), and 0.81 at follow-up (T3).

Questionnaire of Involvement and Adherence to the Treatment

The researcher elaborated a specific post-treatment questionnaire that inquired about satisfaction and involvement in the self-administered treatment. Both groups responded to 1 yes or no item regarding treatment satisfaction ("Generally-speaking, were you satisfied with the self-administered treatment?") and to 4 items investigating participant engagement in the treatment, 2 of which were yes/or no options (ie, "Were the self-administered treatment videos viewed with the partner?" "Did you view all 7 videos of the self-administered treatment at least once?"). In addition, 2 questions investigated the time allocated weekly to the prescribed exercises at home, with response options ranging from "I did not engage in the prescribed exercises" to "> 60 minutes" (ie, "How much time per week did you engage in the sexological exercises (a) alone, (b) with your partner?"). Similarly, 1 supplementary item for the MBCT group asked about time dedicated specifically to the mindfulness exercises (ie, *How* much time did you allocate to mindfulness exercises per week?"), with possible responses ranging from "I did not follow the prescribed meditation exercises" to "> 60 minutes."

Intervention

The sexological content of both video-based treatments is predominantly grounded in CBT and the bibliotherapeutic manual *Becoming orgasmic*.[19] Their efficiency having been proven for the treatment of female orgasmic dysfunction, the programs aim to improve both the woman's sexual functions and her partner's. The treatments were entitled "*Facilitating the reach of orgasm*." The content for each video focused on 1 specific theme, namely (i) Understanding orgasm, (ii) Creating an erotic context, (iii) Enjoying foreplay, (iv) Developing your erotic imagination, (v) Stimuli favorable for orgasm, (vi) Living better with your body, and (vii) Moving smoothly. The videos in both groups featured sexological information and exercises, sexological prescriptions to be performed alone and/or with a partner, as well as 2 videos (corresponding to number 3 and 5) to watch as a couple.

The MBCT experimental condition contained additional instructions and exercises. Specifically, we adapted the *MBCT* protocol[38] for women seeking help to achieve orgasm. Each session began with a classic mindfulness exercise (breathing awareness, body scan …), before proceeding with giving directions on being mindful throughout sexual activities (eg, mindful awareness of the movement of the pelvis or of one's genitals). As a result, all sexological exercises and prescriptions in the MBCT self-administered treatment were to be done in mindfulness. For example, although both groups were asked to perform the reciprocal sensual back massage (sensate focus), MBCT participants had the additional instruction of being mindful throughout it (See session 3, Appendix 1). In addition, MBCT participants practiced 3- to 12-minute-long mindfulness meditation exercises, after which they provided feedback on their own experience of the exercise, reporting on thoughts, feelings, or bodily sensations (See Appendix 1, column 1). The complete programs of both treatments are available in Appendix 1, including the specific mindfulness instructions.

RESULTS

Before study onset, 2 women withdrew from the study for personal reasons. In addition, women no longer in a relationship (N = 3) and those reporting they usually achieve orgasm during sexual activities (N = 36) were excluded from the analyses. A total of 65 women suffering from difficulties to achieve orgasm, aged 18 to 58 years (M = 32.66, SD = 9.48) and in relationships ranging from 4.8 months to 34 years (M = 7.91, SD = 8.48), were randomly allocated to the MBCT (N = 35) or CBT (N = 30) group. Most women were heterosexual (80%) and were highly educated (92.2% were in possession of at least a bachelor's degree). The participants presented a mean FSFI score of 23.41 (SD = 6.39) and mean sexual distress score of 21.18 (SD = 11.72), thereby confirming that, on average, they suffered from clinical female sexual dysfunction and clinical sexual distress (clinical levels indicated by scores below 26 and equal to or above 11, respectively).[64,65]

As expected from participant randomization, samples across the 2 conditions did not significantly differ across any of the questionnaires (FSFI, FSDS-R, FFMQ-S), as well as in terms of age, level of education, medication intake, frequency of sexual activities (alone or with the partner), sex therapy counseling, couples therapy, and meditation practice (Table 1).

After treatment, participants across the 2 conditions did not significantly differ in terms of self-involvement in treatment, treatment satisfaction, frequency and time spent viewing videos, and completion of prescriptions, both alone and with a partner. Most women were satisfied with the self-administered treatment (MBCT = 86%, CBT = 97%) and viewed all videos at least once (MBCT = 91%, CBT = 90%), most often with their partner (MBCT = 54%, CBT = 77%). Within the CBT group, fulfillment rate of the prescribed sexological exercises to be completed alone was as follows: on a weekly basis, 7%, 20%, 46%, 20%, and 7% of the participants reported, respectively, not dedicating any time to the latter, less than 5 minutes, 5 to 10 minutes, 10 to 20 minutes, and 20 to 30 minutes practices. In terms of the sexological exercises to be completed with the partner, 26% of the women reported not completing any, 23% spent less than 5 minutes, 17% spent 5 to 10 minutes, 23% spent 10 to 30 minutes, and 10% spent 30 to 60 minutes engaging in them. In contrast, the MBCT group reported the following weekly time allocated to sexological exercises to be completed alone: 32%, 20%, 17%, 14%, 15%, and 12% of the women reported, respectively, not engaging in any of the exercises, dedicating less than 5 minutes, 5 to 10 minutes, 10 to 20 minutes, and 20 to 30 minutes to their practice. With respect to the exercises prescribed with the partner, 40% of the participants refrained from completing them, 20% reported less than 5 minutes, 14% spent 5 to 10 minutes, 15% spent 10 to 30 minutes, and 12% spent 30 to 60 minutes on these exercises, on a weekly basis. Regarding the between-session mindfulness exercises set in the MBCT group, 23% of the women did not perform any meditation of any kind, 29% spent less than 5 minutes per week on meditation, 17% spent 5 to 10 minutes, 17% spent 10 to 20 minutes, and 14% spent more than 20 minutes per week.

After checking for significant outliers, normality (ie, kurtosis and skewness statistics), and homogeneity of variances, we applied repeated-measure general linear models using SPSS (IBM SPSS Statistics, New York, NY), version 25, to compare the 2 groups (ie, between participant factor) on each dependent variable across time (ie, the within-participant factor). Compare mean analyses for paired samples were only conducted when the interaction effect between condition and time was significant (ie, $P < .05$).

Improved Sexual Functioning

As shown in Table 2, our results show a main effect of time between T1 (preintervention) and T2 (postintervention) on the total FSFI score ($F(1, 63) = 13.171$; $P = .001$; $\eta^2 = 0.173$), which was maintained at follow-up (Table 2).

The results also reveal a main effect of time between T1 and T2 on 5 dimensions of the FSFI: sexual desire ($F(1, 63) = 6.029$; $P = .017$; $\eta^2 = 0.087$), sexual arousal ($F(1, 63) = 7.463$; $P = .008$; $\eta^2 = 0.106$), lubrication ($F(1, 63) = 7.103$; $P = .010$; $\eta^2 = 0.101$), orgasm ($F(1, 63) = 20.440$ $P = .000$; $\eta^2 = 0.234$), and sexual satisfaction ($F(1, 63) = 8.910$; $P = .004$; $\eta^2 = 0.124$) (Table 2). Between postintervention (T2) and the 2-month follow-up, the effects for sexual desire, arousal, orgasm, satisfaction, and general sexual functioning are maintained. However, a time effect was observed for both sexual pain ($F(1, 63) = 4.057$; $P = .048$; $\eta^2 = 0.060$) and lubrication ($F(1, 63) = 4.471$; $P = .038$; $\eta^2 = 0.017$). At follow-up, lubrication decreased, while pain scores increased.

Interestingly, there was no main effect of time between T1 and T2 for the sexual pain dimension, but a time*group interaction effect was nonetheless observed ($F(1, 63) = 7.890$; $P = .007$; $\eta^2 = 0.111$). The mean paired comparison tests imply that the sexual pain dimension significantly decreased between T1 and T2 in the CBT group, with an average effect size ($t(30) = 3.604$, $P = .001$, $d = -0.54$). However, there were no significant changes in sexual pain for MBCT participants between T1 and T2 ($t(35) = .766$, $P = .449$, $d = 0.14$). Thus, CBT appears to be more effective for reducing sexual pain than MBCT (Tables 2 and 3).

Sexual Distress Decrease

Our results show a main effect of time on the FSDS-R score between T1 and T2 ($F(1, 63) = 18.034$; $P < .001$; $\eta^2 = 0.223$), which is maintained at follow-up (Table 2). The decrease in sexual distress seems to be equivalent across both groups.

DISCUSSION

To the best of our knowledge, this is the first study to examine the effects of incorporating mindfulness elements to a video-based CBT intervention for women suffering from difficulties to achieve orgasm. Our hypothesis asserted that a video-based MBCT would be more effective than a video-based traditional CBT in improving female sexual functioning and reducing sexual distress.

Contrary to our initial hypothesis, the statistical analyses revealed that sexual functioning significantly increased across both treatment groups between preintervention and post-intervention. In fact, we observed a 16% and 9% increase in the score in the CBT and MBCT groups, respectively. This effect was maintained at the 2-month follow-up. Regarding the FSFI subscales, it appears that sexual desire (10% and 8% change), arousal (9% and 13%), lubrication (8% and 11%), sexual satisfaction (11% and 14%), and, more importantly, orgasm (34% and 43%) significantly, and respectively, increased for participants in MBCT and CBT groups. Moreover, a significant reduction in sexual pain (20%) was observed for participants benefiting from the CBT — but not MBCT — self-administered

Table 1. Mean equivalence at preintervention (T1) across MBCT and CBT groups

	MBCT (n = 35)				CBT (n = 30)					
Measures	Min	Max	M	SD	Min	Max	M	SD	t	ddl
Age	18.0	52.0	32.22	8.48	19.0	58.0	33.16	10.65	−0.395	63
Education	2.0	6.0	4.62	0.73	2.0	5.0	4.33	0.77	1.045	63
Medication intake	1.0	2.0	1.62	0.49	1.0	2.0	1.76	0.43	−1.210	62.95
Relationship length	0.5	28.0	8.43	8.11	0.4	34.0	7.31	8.99	0.529	63
Frequency of sexual activity with the partner	2.0	5.0	3.02	0.95	1.0	5.0	3.43	1.10	−1.585	63
Frequency of sexual activity without the partner	1.0	4.0	1.60	0.81	1.0	4.0	1.93	0.82	−1.636	63
Sexotherapy	1.0	2.0	1.88	0.32	1.0	2.0	1.90	0.30	−0.182	63
Couples therapy	1.0	2.0	1.97	0.16	1.0	2.0	1.93	0.25	0.721	63
Psychological treatment	1.0	2.0	1.80	0.40	1.0	2.0	1.83	0.37	−0.340	63
Meditation practice (Zen, Buddhism, Mindfulness)	1.0	2.0	1.80	0.40	1.0	2.0	1.83	0.37	−0.340	63
Sexual functioning: total FSFI	11.0	31.4	23.00	5.80	3.2	30.6	23.89	7.09	−0.557	63
Sexual desire: FSFI	1.2	5.4	3.68	1.17	1.2	6.0	4.12	1.27	−1.427	63
Sexual arousal- FSFI	1.2	6.0	3.66	1.28	0.0	6.0	4.16	1.57	−1.383	63
Lubrication: FSFI	1.2	6.0	4.38	1.51	0.0	6.0	4.88	1.67	−1.262	63
Orgasm: FSFI	1.2	5.6	2.28	1.18	0.0	6.0	2.02	1.23	0.860	63
Sexual satisfaction: FSFI	1.2	6.0	4.09	1.29	0.8	6.0	4.20	1.32	−0.334	63
Pain: FSFI	1.2	6.0	4.89	1.38	0.0	6.0	4.50	1.90	0.940	63
Sexual distress: total FSDS-R	2.0	47.0	23.00	11.87	1.0	39.0	19.06	11.38	1.357	63
Capacity for mindfulness during sexual activities: total FFMQ-S	43.0	88.9	60.48	10.37	52.0	76.0	64.56	6.85	−1.894	59.40

CBT = cognitive behavioral treatment; FFMQ-S = Sexual Five-Facet Mindfulness Questionnaire: high FFMQ-S scores show better mindfulness capacities during sexual activities with the partner; FSDS-R = Female Sexual Distress Scale − Revised: high FSDS scores indicate higher sexual distress; FSFI = Female Sexual Function Index: high FSFI scores reveal a better sexual functioning; M = mean; MBCT = mindfulness-based cognitive therapy; Min = minimum; Max = maximum; SD = standard deviation.
P-value < .05.

Table 2. Time and group effects across MBCT and CBT groups

				Time effect between T1 and T2			Time*group effect between T1 and T2			Time effect between T2 and T3			Time*group effect between T2 and T3		
Variable	n	*Ddl*	*Dld*	F	*P*	η^2	F	*P*	η^2	F	*P*	η^2	F	*P*	η^2
Sexual functioning															
Total FSFI	65	1	63	13.171	**.001**	.173	1.173	.283	.018	2.982	.089	.045	.151	.699	.002
Sexual desire															
FSFI score	65	1	63	6.029	**.017**	.087	.005	.944	.000	.198	.658	.003	.389	.535	.006
Sexual arousal															
FSFI score	65	1	63	7.463	**.008**	.106	.457	.501	.007	1.098	.299	.017	.052	.821	.001
Sexual lubrication															
FSFI score	65	1	63	7.103	**.010**	.101	.266	.608	.004	4.471	**.038**	.066	1.096	.299	.017
Orgasm															
FSFI score	65	1	63	19.273	**.000**	.234	.042	.838	.001	.653	.422	.010	3.158	.080	.048
Sexual satisfaction															
FSFI score	65	1	63	8.910	**.004**	.124	.137	.712	.002	1.137	.290	.018	.023	.879	.000
Sexual pain															
FSFI score	65	1	63	2.711	.105	.041	7.890	**.007**	.111	4.057	**.048**	.060	2.353	.130	.036
Sexual distress															
Total FSDS-R	65	1	63	18.034	**.000**	.223	.001	.977	.000	.006	.938	.000	.448	.506	.007

Bold indicates $P < .05$.

CBT = cognitive behavioral treatment; FSDS-R = Female Sexual Distress Scale — Revised; FSFI = Female Sexual Function Index; MBCT = mindfulness-based cognitive therapy.

Table 3. Differences in female sexual functioning and sexual distress at T1, T2, and T3 between MBCT and CBT Groups

			Preintervention (T1)		Changes at T2		Changes at T3		Improvement (%)	
Variable	Treatment	n	M	SD	M	SD	M	SD	T1-T2	T2-T3
Sexual functioning	MBCT	35	23	5.8	25.03	6.37	24.391	7.2	9	−3
Total FSFI	CBT	30	23.89	7.09	27.65	5.71	26.63	6.75	16	−4
Sexual desire	MBCT	35	3.68	1.17	4.04	1.01	4.16	1.36	10	3
FSFI score	CBT	30	4.12	1.27	4.46	1.14	4.44	0.94	8	0
Sexual arousal	MBCT	35	3.66	1.28	3.99	1.41	3.89	1.38	9	−3
FSFI score	CBT	30	4.16	1.57	4.7	1.16	4.54	1.47	13	−3
Sexual lubrication	MBCT	35	4.38	1.51	4.73	1.42	4.62	1.57	8	−2
FSFI score	CBT	30	4.88	1.67	5.4	1.2	5.07	1.52	11	−6
Orgasm	MBCT	35	2.28	1.18	3.06	1.51	2.74	1.61	34	−10
FSFI score	CBT	30	2.02	1.23	2.88	1.57	3	1.52	43	4
Sexual satisfaction	MBCT	35	4.09	1.29	4.54	1.07	4.38	1.4	11	−4
FSFI score	CBT	30	4.2	1.32	4.78	1.18	4.66	1.22	14	−3
Sexual pain	MBCT	35	4.89	1.38	4.65	1.82	4.58	1.78	−5	−2
FSFI score	CBT	30	4.5	1.9	5.42	1.32	4.92	1.85	20	−9
Sexual distress	MBCT	35	23	11.87	17.45	10.84	16.65	10.3	−24	−5
Total FSDS-R	CBT	30	19.06	11.38	13.6	9.56	14.23	10.74	−29	5

CBT = cognitive behavioural treatment; FSDS-R = Female Sexual Distress Scale − Revised; FSFI = Female Sexual Function Index; M = mean; SD = standard deviation; MBCT = mindfulness-based cognitive therapy.

treatment. At follow-up, these effects were not maintained for both lubrication and sexual pain. Indeed, scores for lubrication in the MBCT and CBT groups significantly decreased (2% and 6%, respectively), whereas sexual pain worsened (2% and 9%). Finally, a significant reduction in sexual distress of 24% and 29% between preintervention and postintervention was observed for MBCT and CBT groups, respectively. These effects appeared to be sustained after 2 months.

Our findings relative to the CBT group are in line with those of previous Internet- and CBT-based treatments for female sexual difficulties.[29] They also support previous studies that randomized participants between MBCT and CBT treatments[62,63] and in which both significantly improved feminine sexual functioning[63] and decreased sexual distress.[62] Several reasons for these equivalent effects across conditions could be proposed. To begin with, the CBT group completed sexological exercises that were closely related to mindfulness. For example, the sensate focus by Masters and Johnson,[17] proposed in both treatments, requires participants to focus their attention toward their own bodily sensations during sexual activities (eg, the massage sensate focus). As a result, it is possible that directing one's attention to the present moment, which was influenced by both treatments, may represent the core mechanism driving the similar results between the 2 groups.

Another possible explanation lies in the video duration across treatments. The MBCT self-administered treatment offered not only sexological exercises but also 3- to 12-minute-long mindfulness exercises to be directly performed during and between each video. This may have created an overload effect among MBCT participants. In fact, 7% and 26% of the CBT participants failed to complete any of the sexological exercises by themselves, nor with their partner, respectively. In contrast, these numbers rose to 32% and 40%, respectively, for the MBCT group. Despite this, we nonetheless observe a significant improvement in nearly all subtypes of sexual functioning, as well as a decline in sexual distress. In addition, although a telephone-based contact with the therapist was proposed throughout the treatment, as recommended in previous studies,[29] the participants overlooked this function. This absence of contact may therefore explain the lack of participant implication in the prescribed exercises (ie, sexological exercises performed alone or with one's partner, and the meditations specific to the MBCT group) and, consequently, in any differential effect between conditions.

Moreover, mindfulness is a core psychological competence that requires thorough skill acquisition and regular training.[35,36] However, 20% of the participants in the MBCT group did not dedicate time to mindfulness practice outside the self-administered treatment videos. This could be explained by the fact that, unlike previous studies,[54,57,60,62] the women were randomly administered to the mindfulness group without accounting for the motivation required for appropriate application of the technique. Participants were informed that the self-administered treatment consisted of sexological information and exercises, without knowing that they would be performing mindfulness per se.

In addition, our results also show that the CBT group appeared to be more effective for sexual pain reduction than the MBCT group. This suggests a slight superiority effect for CBT with respect to pain-related outcomes. A possible explanation

worth mentioning is the nature of the mindfulness exercises per se. In fact, the latter promote exposure to—and less avoidance of—pleasant or unpleasant bodily sensations, emotions, and thoughts.[32] One could thus posit that the MBCT participants learned to become more aware of their own bodily sensations throughout treatment, including the presence of any sexual pain. In turn, this awareness may have led these participants to rate their pain more severely at postintervention compared with those in the CBT group, for whom pain may have been less detectable throughout the study. This could explain the reduction in sexual pain ratings observed only in the CBT group. Finally, pain ratings before treatment onset may be responsible for the lack of differential effect observed between groups. Indeed, the CBT participants presented higher sexual pain values than those in the MBCT group before the start of treatment (Table 1), which rendered an improvement in pain scores more feasible for the former. This suggestion replicates a study by Hucker and McCabe[56] reporting that a video-based mindfulness intervention for women with several female sexual problems was superior to a wait-list control group. The authors observed an improvement in sexual functioning, but not in sexual pain, and a reduction in sexual distress in the mindfulness group. They believe the lack of decrease in sexual pain was the result of their sample presenting, on average, pain scores approaching the minimum FSFI value. This implies that the women presented almost no sexual pain before treatment onset and that, consequently, a further improvement was almost impossible. Future studies should not only account for this but should also offer video-based treatments for women suffering more specifically from sexual pain.

In line with this idea, the results support the feasibility of the video-based intervention. Although dropout rates for face-to-face sex therapy for women suffering from sexual difficulties is usually 49%,[28] only 2 participants withdrew from our study, both before treatment onset. We hypothesize that the treatment format was influential in this finding. Participants were given access to the online self-treatment videos at their convenience, in complete respect of their privacy and anonymity, which represents a core advantage of self-administered treatments.

It is important to nuance our results in light of existing limitations concerning the methodology and issues regarding the mindfulness approach itself. Given that our study did not include a wait-list control group, caution is warranted regarding the interpretation of these results. In addition, our results cannot be generalized to a clinical population of women with anorgasmia as diagnosed by the *Diagnostic and Statistical Manual of Mental Disorders*.[2] In fact, our convenience sample is composed of women in relationships who report a general inability to achieve orgasm. Moreover, the use of self-report questionnaires and the absence of assessments obtained for both the partner involvement and treatment quality all represent variables that should be accounted for in future studies. Finally, mindfulness acts at the level of attentional processes and strives to modify well-entrenched automatic behaviors. Thus, it is likely that a 2-month follow-up does not offer sufficient long-term perspective to fully capture the impact of the mindfulness-based approach.

These observations generate new directions for future research. First, future studies should also propose mindfulness-based interventions for women suffering from clinical sexual distress and/or orgasmic disorder. Undoubtedly, this would allow for a better investigation of the impact of mindfulness across female sexual dysfunction and for clarification regarding whether these clinical populations could truly benefit from additional mindfulness components. Moreover, we believe that proposing a study entitled "*Facilitating the reach of orgasm through a psycho-bodily approach*," as opposed to "*Facilitating the reach of orgasm*," would generate greater engagement in the participants. In addition, it is imperative to insist on mandatory exercise completion between sessions. This would allow us to include participants characterized by high intrinsic motivation for this approach and, consequently, promote better treatment adherence and results. Similarly, it seems important to remove the sexological exercises in the CBT group that appear to be overlapping with mindfulness (eg, sensate focus). Furthermore, it is imperative to ensure that the time dedicated to the treatment videos and prescribed exercises is equivalent across both treatment conditions. These alterations could prevent a possible overload effect, while prompting interest for this technique in people originally lacking one. Methodologically, studies should include a wait-list control group to distinguish improvements specific to MBCT, as well as 6- and 12-month follow-up sessions to enable participants to fully consolidate mindfulness-related skill learning.

CONCLUSION

In conclusion, our results replicate previous studies that have examined the benefit obtained from incorporating mindfulness within treatments for female sexual difficulties.[56,62,63] The results indicate that video-based MBCT appeared as effective as video-based traditional CBT for women in relationships who report difficulties in achieving orgasms. Nonetheless, video-based MBCT could offer an alternative to face-to-face therapy for women with orgasm difficulties, for those interested in a psycho-bodily approach, and, more importantly, for those wishing to preserve their anonymity. Consequently, future studies should offer long-term evaluations and target clinical populations (eg, anorgasmia), which could further benefit from the self-administered MBCT.

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SUPPLEMENTARY DATA

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