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Mindfulness-Based Intervention and Sexuality: A Systematic Review

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Mindfulness-Based Intervention and Sexuality: A Systematic Review

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ABSTRACT

Introduction: Mindfulness has generated considerable interest in the last two decades in clinical and research settings. The efficacy of mindfulness has been evaluated for the sexual dysfunctions recognized by the DSM-5 and other sexual problems, such as compulsive sexual behavior disorder (CSBD), also known as sex addiction or hypersexuality. Here, we review the evidence for various mindfulness-based treatments as mindfulness-based cognitive-behavioral treatment or mindfulness-based relapse prevention for different problems related to sexuality to respond our question: “Are Mindfulness-Based Treatments (MBT) effective in reducing the symptomatology of sexuality-related disorders?”.

Methods: Through a systematic search conducted following the PRISMA guidelines, we found 11 studies that met the inclusion criteria: (I) articles using MBT for sexuality-related problems, (II) clinical population, (III) no date range limits were applied, (IV) only empirical studies were included, (V) language and (VI) quality of studies.

Results: Evidence shows that mindfulness practice could be effective for some sexual disorders, such as female sexual arousal/desire disorder. However, due to scarcity of studies on other sexual problems such as situational erectile dysfunction, genitopelvic

pain/penetration disorder, childhood sexual abuse or compulsive sexual behavior disorder, the findings cannot be generalized.

Conclusions: Mindfulness-based therapies provides evidence to reduce the symptomatology associated with various sexual problems. However more studies are needed for these sexual problems. By last, future directions and implications are discussed.

Keywords: sexual disorders, aware, treatments, evidence, sexual dysfunctions.

Introduction

Mindfulness conceptualization

In the last two decades, mindfulness has generated considerable interest in clinical and research settings(1–5).It has been defined as "the ability to pay attention in a particular way, in the present moment to the body and mind, with purpose and without judgment" (6). From a scientific perspective, mindfulness has been described as a mental function that allows us to keep the focus of our attention on an immediate experience of the present (7). According to Miró (8) mindfulness implies “being free of worries and anticipations. It requires attention to what is happening to us and what is happening, to look and formulate the intention to see”.

Mindfulness works through four main mechanisms: attentional regulation, changes in the perspective of oneself, emotional regulation and body awareness (9). These mechanisms have been used in in a wide range of psychiatric disorders, such as depression, stress, insomnia, anxiety and binge eating disorder, with promising results (10–14).

Mindfulness and sexual difficulties

Sexual dysfunctions are a heterogeneous group of disorders that are characterized by a clinically significant disturbance in a person's ability to respond sexually or to experience sexual pleasure(15). The Diagnostic and Statistical Manual of Mental Disorders (DSM-5) covers the following sexual dysfunctions: delayed ejaculation, erectile disorder, female orgasmic disorder, female sexual interest/arousal disorder, genitopelvic pain/penetration disorder, male hypoactive sexual desire disorder and premature (early) ejaculation (16). However, the categorization of both male and female sexual dysfunctions underwent several modifications in the transition from DSM-IV-TR (15) to DSM-5 (16). First, two of the disorders named "female hypoactive desire disorder" and "female arousal disorder" in the DSM-IV-TR (15) were lumped into a single disorder in the DSM-5: "female sexual interest / arousal disorder" (16). Another change was to include dyspareunia, vaginismus and male sexual pain (15) in one disorder called "genitopelvic pain / penetration disorder" (16). In addition, a small change was to eliminate the word "male" in the erectile disorder (16). Lastly, the "male orgasmic disorder" (15) was modified with "delayed ejaculation" (16).

The sexual dysfunctions for which the possible effectiveness of mindfulness has been evaluated are the following: female sexual arousal/desire disorder, genitopelvic pain/penetration disorder, and erectile dysfunction (ED). Female sexual arousal/desire disorder is displayed mainly by a reduced interest in sexual activity or by a absent sexual arousal or pleasure (16). This disorder can be manifested in one of the two following ways: (a) decreased genital sexual response in the absence of genital awareness (physiological) or (b) decreased sexual affect (subjective sexual arousal) with a negative mental engagement during sexual activity (16). Genitopelvic pain/penetration disorder can be presented in a number of ways (16). One of them is the so-called vestibulodynia

(vulvar vestibulitis), which is an increased sensitivity to pain at the vaginal opening (vestibule) to the point that even light touch or stimulation is painful (17). To be more specific, provoked vestibulodynia (PVD) is the term used to describe superficial pain confined to the vulvar vestibule, provoked by touch (18). ED refers to the persistent inability to achieve or maintain an erection or a reduction in erection rigidity (16). Situational ED therefore, occurs when that disability is due to the situation, couples or certain types of stimulation, rather than being a generalized disability (16).

In addition to the use of mindfulness to address the sexual dysfunctions recognized by the DSM-5 (16), the efficacy of mindfulness has also been evaluated for other sexual problems, such as compulsive sexual behavior disorder (CSBD), also known as sex addiction or hypersexuality. With the arrival of the 11th edition of the International Classification of Diseases (19), CSBD was approved as a specific category within impulse control disorder. The defining criteria proposed are the following: (a) repetitive sexual behaviors that become the main focus of the person's life, (b) numerous unsuccessful efforts to control or significantly reduce your sexual behavior, (c) continue to engage in sexual conduct despite the adverse consequences and (d) continues with sexual behavior even when pleasure is not derived from it or it is very little (19).

By last, in the scientific literature, it is already known that both biological and psychological factors are related to sexual dysfunctions. Childhood sexual abuse (CSA) has been identified as a precipitating factor for impaired sexual functioning in adulthood. Although sexual difficulties related to an history of CSA are common, scarce are the studies that have evaluated effective treatments addressing sexual distress (20).

Distressing sexual interactions may produce negative thoughts and judgments (21). Traditionally, treatments in the field of sexual medicine have tried to increase the connection with the body. Mindfulness complies with these elements producing changes

in the perspective of oneself and body awareness (9). Therefore, mindfulness may be an effective way of re-routing one's focus away from negative memories or anticipated sexual problems and onto the sensations that are unfolding in the moment (21) For this reason, in recent years, mindfulness has been incorporated into sexual medicine (22). Based on the first promising results about the use of mindfulness in clinical sexology, it seems interesting to review the efficacy of Mindfulness Based Treatment (MBT) on sexual medicine.

Therefore, the main aim of the present systematic review conducted following the PRISMA guidelines, was to assess the efficacy of the MBT in sexual dysfunctions (hypoactive sexual desire, sexual arousal disorders, sexual pain disorders, ED) and other sexual problems (sexual abuse and/or CSBD) in men and women clinical population. Thence, our review question was: "Are MBT effective in reducing the symptomatology of sexuality-related disorders?".

Material and methods

Information sources and search strategy

The search was undertaken in the metasearch engine of the Biblioteca de Universidad de Navarra (UNIKA). This metasearch includes the following multidisciplinary databases: Scopus, Web of Science, Dialnet; and also specialized bibliographic databases: Pubmed and PsycINFO.

The search terms used in the present systematic review were: "Mindfulness" AND ("Sexuality" OR "Sexual dysfunctions" OR "Sex Therapy" OR "Sexual Problems" Or "Sexology" OR "Sexual Difficulties").

Eligibility criteria

This systematic review followed the following eligibility criteria: (I) articles using MBT for sexuality-related problems (sexual dysfunctions included in the DSM-5: hypoactive sexual desire, sexual arousal disorders and orgasmic disorders, CSBD included in ICD-11 and other sexual related problems as sexual abuse); (II) clinical population: adults (>18 years old), men and women with sexual problems; (III) no date range limits were applied. The last search was conducted in January 8, 2023; (IV) only empirical studies were included; (V) language: English and Spanish; (VI) strong or moderate quality, measured by the Quality Assessment Tool for Quantitative Studies (23).

Data collection process

A two-step process was used to assess the results of the literature search. First, two reviewers (AMC and AV) screened all potential articles individually using title and abstracts prior to retrieval of full text. For the second level of the screening, articles identified for full review were further screened according to the eligibility criteria. Differences of opinion between both reviewers were resolved through consensus.

Data items

We extracted data including the full reference of articles, main aims, sample characteristics and sample size, description of methodology, study design, and results.

Results and discussion

Study selection

A total of 818 records were retrieved from our literature search. After removing 404 duplicates, 363 of 414 remaining articles were excluded based on title and abstract screening. The remaining 51 articles were screened at the full-text level. From the 51 articles screened, 11 were finally included in the present review (see Figure 1).

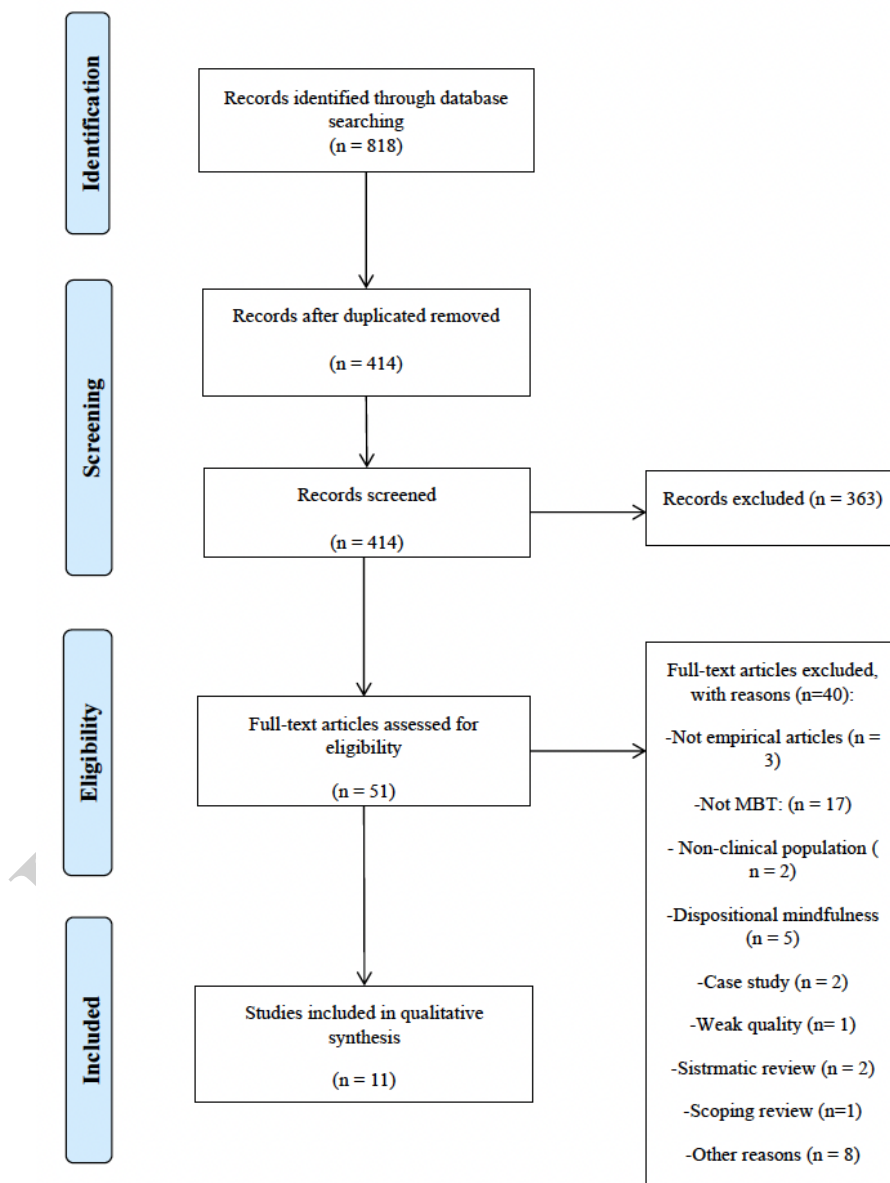


Figure 1. PRISMA flow diagram

Study characteristics

The main characteristics of the studies (first author/s and year of publication, study design, sample and sample size (N), purpose of the study, procedure, measures and results) are presented by a table (see Table 1).

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Table 1. Summary of included articles

First author/s and year	Study design	Study quality	Sample	Sample size (N)	Study purpose	Procedure	Measures	Results
(24) Brotto, L. A., Heiman, J. R., Goff, B. (2007)	Quantitative, transversal	Strong	Women with sexual arousal disorder	22	To analyse the effectiveness of a brief psychoeducational intervention in women with sexual arousal disorder	Three sessions of 1h combined elements: cognitive and behavioural therapy with education and mindfulness training.	DASA, FSFI, FSDS, DAS, BDI, SF-36, Film Scale, VPA. ¹	Significant increase: desire, arousal, orgasm and satisfaction subscales of the FSFI (as well as total score), mental sexual excitement and genital tingling/throbbing measured using the FSFI. Sexual distress significantly decreased (FSDS). Women who were initially more depressed, showed a more marked improvement in pleasant sexual genital sensations (DAA).
(25) Brotto, L.A., Basson R, Luria M. (2008)	Quantitative, transversal	Strong	Women with sexual desire/interest and/or sexual arousal disorders related to cancer.	26	To study the effectiveness of mindfulness in women with sexual desire / interest disorder and / or sexual arousal disorders not related to cancer.	90-minute sessions, spaced 2 weeks apart.	FSFI, FSDS, SIDI ² , DASA, DAS, BDI, the film scale.	Significant increase on the desire (measured by FSFI, SIDI & FSDS) and on the genital wetness (subscale of DASA)
(26) Brotto, L.A., Seal, B.N. (2012)	Quantitative, transversal	Strong	Women with an history of childhood sexual abuse and sexual distress.	20 (n=8 CBT ³ vs. n=12 MBT) ⁴	To compare a brief intervention of CBT and MBT in women with sexual difficulties and distress related to an history of abuse	20 women were randomized to two sessions of either a CBT or MBT.	FSDS, FSFI, Assessment of Child Sexual Abuse History, VPA.	Significant decrease on sexual distress in both groups. MBT group significantly increase on concordance between genital and subjective sexual arousal by increasing the amount of subjective sexual arousal compared to CBT group and pre-treatment.

¹Detailed Assessment of Sexual Arousal (DASA; Basson & Brotto, 2001), Female Sexual Function Index (FSFI, Rosen et al., 2000), Female Sexual Distress Scale (FSDS; Derogatis, Rose, Leiblum, Burnett & Heiman, 2002), Dyadic Adjustment Scale (DAS; Spanier, 1976), Beck Depression Inventory (BDI; Beck & Beamesderfer, 1974), SF-36 Quality of Life Questionnaire (SF-36; Ware & Sherbourne, 1992), Film Scale (Heiman & Rowland, 1983), Psychophysiological recording by vaginal pulse amplitude (VPA).

² Sexual Interest and Desire Inventory (SIDI)

³ Cognitive-behavioral treatment (CBT)

⁴ Mindfulness-based treatment (MBT)

First author/s and year	Study design	Study quality	Sample	Sample size (N)	Study purpose	Procedure	Measures	Results
(27) Brotto, L.A., Erskine, Y. (2012)	Quantitative, longitudinal	Moderate	Women with distressing sexual desire and/or sexual arousal problems.	31	To evaluate a mindfulness-based cognitive behavioural intervention for sexual dysfunction in gynaecologic cancer survivors vs. waitlist	Three 90-minute MB-CBT ⁵ vs. two months of a wait-list control.	FSFI, FSDS, BDI, VPA, SFQ ⁶	Significant improvements in desire, arousal, lubrication, orgasm, satisfaction and FSFI total scores. The sexual distress decreased (FSDS)
(28) Brotto, L.A., Basson R. (2014)	Quantitative, longitudinal	Strong	Women with sexual desire problems	Immediate treatment n=68 vs. delayed treatment n=49	To study the effectiveness of MBT in women seeking treatment for low sexual desire and arousal.	Four 90-min group sessions of mindfulness-based cognitive behavioural sex therapy (MBCST)	SIDI, FSDS, FSFI, DASA, BDI, DAS, FFMQ ⁷	The treatment group (vs. control group) significantly improved sexual desire, sexual arousal, lubrication, sexual satisfaction, and overall sexual functioning. Sex-related distress, orgasmic difficulties and depressive symptoms significantly decreased in both conditions.
(29) Brotto, L.A. (2015)	Quantitative, longitudinal	Moderate	Women with PVD ⁸	Treatment (n=62) vs wait-list (n=23)	To evaluate mindfulness-based therapy as a treatment for PVD	Four-session group treatment ("IMPROVED") that relied on mindfulness meditation skills with education and cognitive theory.	Pain-related Endpoints Changes in allodynia, PISES ⁹ , PCS, PVAQ, FSDS, FSFI, BDI, FFMQ, STAI ¹⁰	Significant beneficial effects of a brief mindfulness-based group intervention for women with PVD on both cotton swab-induced vestibular pain and psychological measures of pain.
(30) Brotto, L.A. (2016)	Quantitative, transversal	Strong	Women with sexual arousal/desire difficulties	79	To examine the effects of mindfulness-based sex therapy on sexual arousal on concordance in a sample of women with sexual desire/arousal difficulties	Mindfulness-based sex therapy which integrate psychoeducation, sex therapy, and mindfulness-based skills.	Assessment of Psychophysiological and Subjective Sexual Arousal, Discrete Measure of Sexual Response and Affect ¹¹ , FSFI, SIDI, FSDS	Genital subjective sexual arousal concordance significantly increased from pre-treatment levels, with changes in subjective sexual arousal predicting contemporaneous genital sexual arousal (but not the reverse)

⁵ Mindfulness-based cognitive-behavioral treatment (MB-CBT)

⁶ The "treatment impact" subscale and the "relationship" subscale of the Sexual Function Questionnaire (SFQ)

⁷ Five Facet Mindfulness Questionnaire (FFMQ)

⁸ Provoked Vestibulodynia (PVD)

⁹ Painful Intercourse Self-Efficacy Scale (PISES), Pain Catastrophizing Scale (PCS), Pain Vigilance and Awareness Questionnaire (PVAQ).

¹⁰ State-Trait Anxiety Inventory (STAI).

¹¹ A 33-item self-report questionnaire was used to assess subjective arousal and affective reactions to the erotic films

First author/s and year	Study design	Study quality	Sample	Sample size (N)	Study purpose	Procedure	Measures	Results
(31) Paterson LQP (2017)	Quantitative, longitudinal	Strong	Women with a diagnosis of sexual interest/arousal disorder	26	To evaluate the efficacy of mindfulness-based cognitive therapy for sexuality (MBCT-S).	8-session group MBCT-S	SIDI, FSIDS-R, FSFI, FFMQ, BDI-II, SCS, MAIA, RRS, ASI-3 ¹²	Compared to baseline, women reported significant improvements in sexual desire, overall sexual function, and sex-related distress, regardless of treatment expectations, relationship duration and low desire duration. Depressed mood and mindfulness also significantly improved and mediated increases in sexual function.
(32) Bossio, J.A. (2018)	Quantitative, longitudinal	Moderate	Men with situational erectile dysfunction	10	Implement an adapted, empirically supported treatment protocol for female sexual dysfunction to men with situational ED	4-week mindfulness-based treatment group included: daily home-practice activities, psychoeducation, sex therapy, and mindfulness skills.	IIEF ¹³ , Relationship Assessment Scale, FFMQ.	Comparisons between Time 1 (prior to treatment) and Time 3 (6 months after treatment) self-reports suggested that this treatment protocol holds promise impacting erectile functioning, overall sexual satisfaction, and non-judgmental observation of one's experience
(33) Holas, P. (2020)	Quantitative, transversal	Moderate	Men with a diagnosis of CSBD ¹⁴	13	Examine if a MBRP ¹⁵ can lead to clinical improvement in CSBD	An eight-week MBRP intervention that included guided meditation, experiential exercises, inquiry, psychoeducation and discussion.	BPS, HADS, OCI-R ¹⁶	After the mindfulness intervention, participants spent significantly less time engaging in problematic pornography use. MBRP also resulted in a reduction of the symptoms of problematic pornography use, in emotional distress and reduced depressive symptoms

¹² Self-Compassion Scale (SCS), Multidimensional Assessment of Interoceptive Awareness (MAIA), Rumiative Responses Scale (RRS), Anxiety Sensitivity Index-3 (ASI-3).

¹³ International Index of Erectile Functioning (IIEF)

¹⁴ Compulsive sexual behavior disorder (CSBD)

¹⁵ Mindfulness-based relapse prevention (MBRP)

¹⁶ Brief Pornography Screener (BPS), Hospital Anxiety and Depression Scale (HADS), Obsessive-compulsive inventory-revised (OCI-R)

¹⁷ Halbert Index of Sexual Desire (HSID)

¹⁸ Sexual Self-Disclosure Questionnaire (SSDQ)

First author/s and year	Study design	Study quality	Sample	Sample size (N)	Study purpose	Procedure	Measures	Results
								and decrease obsessive-compulsive symptoms. Not find a decrease in time spent in masturbation or dyadic sex.
(34) Rashedi, Sedigheh (2022)	Quantitative, longitudinal Randomized parallel-group clinical trial	Strong	Women with a diagnosis of sexual desire disorder	70	To determine the effect of mindfulness-based cognitive-behavioral sex therapy (MBCST) on improving sexual desire, distress, self-disclosure and function in women with sexual desire disorder.	Four 90–120 minutes long weekly group sessions. Questionnaires were completed immediately, four and 12- weeks after the interventions.	HSID ¹⁷ , FSDS-R, FSFI, SSDQ ¹⁸	The treatment group (vs. control group) significantly improved sexual desire, sexual distress, self-disclosure and sexual function during and after (4 and 12 weeks) the intervention.

Sexual arousal disorder and sexual desire disorder

Most of the articles included in this systematic review explored the effectiveness of mindfulness in sexual arousal or sexual desire disorder in women. These articles suggest that mindfulness exercises or MBT reduce the symptomatology of these disorders. However, they assessed effectiveness using different psychometric instruments.

Regarding sexual arousal disorder, two types of samples were included: women with sexual arousal disorder and women with sexual arousal disorder following a gynecologic cancer. Mindfulness was effective to improve sexual arousal in these women. In addition, it has been suggested that a psychoeducational intervention including CBT with psychoeducation and mindfulness training, may improve subjective sexual arousal (24). In (30), they used a mindfulness-based sex therapy which integrated psychoeducation, sex therapy, and mindfulness-based skills, and they found that the increase of genital sexual arousal is indirectly related to the increase in subjective sexual after the mindfulness intervention. Therefore, if there is a prior subjective sexual arousal, genital arousal may increase. According to these results it can be said that mindfulness practice can help increasing sexual arousal in women not only directly (increasing genital arousal) but also indirectly (increasing subjective or mental arousal and consequently, genital arousal).

With regard to sexual desire, a significant improvement in sexual desire for women survivors of gynaecological cancer and for women with low sexual desire has been described, in comparison with baseline and with healthy control group. This finding has been observed in different types of treatment, such as MB-CBT and mindfulness-based cognitive therapy for sexuality (27,28,31). It has also been seen that in women with low sexual desire, after a mindfulness-based cognitive-behavioral sex therapy (MBCST),

the sexual desire, sexual distress and self-disclosure significantly improved (34). Also the sexual function domains improved (including sexual arousal, lubrication, orgasm, satisfaction) in the intervention group (vs. control group) (34).

Provoked vestibulodynia

In (29), they analysed a four-session mindfulness-based group treatment for women suffering from PVD. The treatment relied on mindfulness meditation skills with education and cognitive theory. After the brief mindfulness-based group intervention, a significant beneficial effect for women with PVD on vestibular pain and psychological measured of pain was found. Therefore, the mindfulness-based treatment not only helped to reduce the sensation of physical pain, but also was effective to reduce subjective pain.

Situational erectile dysfunction

There is no specific mindfulness-based treatment for ED. Therefore, (32) implemented an adapted, empirically supported treatment protocol for female sexual dysfunction to men with situational ED. This four-session group treatment integrated elements of mindfulness, sex therapy, and psychoeducation. Comparisons between pretreatment self-reports and 6 months posttreatment suggested that this protocol is promising with regard to erectile function, general sexual satisfaction, and non-judgmental observation of one's own experience.

Compulsive sexual behavior disorder

There are few studies that talk about the application of mindfulness in patients with CSBD, two studies talk about the relationship between dispositional mindfulness and hypersexuality, showing that they are inversely and negatively related (35,36) and

other include case studies indicating improvements in symptomatology (37). On the other hand, no empirical studies have been done to analyze the effectiveness of a treatment based on mindfulness for patients with CSBD. The study included in this review is a pilot study that examine if a MBRP can lead to clinical improvement in 12 males with CSBD(33). The results indicate that after the intervention, participants spent significantly less time engaging in problematic pornography use. The intervention also reduced the symptoms of problematic pornography use, emotional distress, depressive symptoms and obsessive-compulsive symptoms. Nevertheless, there is not a decrease in time spent in masturbation or dyadic sex. This first study examining a mindfulness-based treatment in the context of CSBD provides promising preliminary results. Nonetheless, more studies are needed which include samples largest and statistically most powerful to have more reliable and generalizable results.

Sexual abuse

As has been seen throughout this review, there is growing evidence about the benefits of mindfulness in treating sexual difficulties. However, no randomized controlled studies have been done in a population with an history of sexual abuse. Therefore, a pilot study with women who suffered childhood sexual abuse, where they compared two sessions of a MBT (N=12) with CBT (N=8), where MBT proved to be significantly more effective than CBT in improving the concordance between genital sexual arousal and subjective sexual arousal (26).

After an analysis based on hierarchical linear modeling to assess changes in concordance between subjective and genital sexual arousal, women in the MBT group experienced a significantly higher subjective sexual arousal response compared to the CBT group and before treatment (26). Additionally, both groups experienced a significant

decrease in sexual distress (26). Therefore, these pilot study support the further study of mindfulness-based approaches in the treatment of sexual difficulties related to an history of childhood sexual abuse characterized by a disconnection between genital and subjective sexual response.

Our research has several strengths and clinical implications: 1) It is the first study that makes a rigorous systematic review of the effectiveness of mindfulness in the sexual domain 2) It includes different sexual issues that had not been reviewed to date such as CSBD 3) It offers a broad overview of the different options that exist for the treatment of patients suffering from sexual difficulties using mindfulness as the treatment of choice 4) It offers a broad sample of detailed resources and programs that mindfulness can incorporate for treatment.

Limitations and future studies

This work has some limitations to bear in mind. First, most of the included studies focus on women with sexual problems who have sought treatment. Consequently, the findings are not generalizable to women who have not sought treatment. Second, there is limited literature on MBT in men, for which reason future studies could focus on men. Finally, further studies are required for each of the sexual problems included in this review in order to draw firm conclusions about the efficacy of MBT. However, more than a limitation, for this study it could be a strong point that almost all the studies are from the same group, allowing firm conclusions to be drawn for them.

Conclusion

The present systematic review provides evidence on the efficacy of mindfulness-based treatments to reduce the symptomatology associated with various sexual problems

such as sexual arousal disorder and/or sexual desire disorder, PVD and sexual abuse in women, or situational ED and hypersexuality in men. However, more studies are needed in this line to obtain solid conclusions in this respect.

Declaration of conflicting interests

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