Research Paper: Psychological Treatment of Major Depression: An Analysis of the Sexual Desire

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ABSTRACT

Objective: Sexual dysfunction is frequently reported as a side effect of many antidepressant medications. As a result, for those depressed patients to whom sexual desire is important, psychological treatment may be a better intervention. Thus, the present study aimed to determine the possible changes in sexual desire following psychological treatments in depression, when focus of therapy is not on sexual function.

Methods: This is a quasi-experimental study, which was conducted in Tehran, Iran. A total of 281 depressed patients in the remission phase underwent psychological treatments, either cognitive behavioral therapy (CBT, n=131) or mindfulness-based cognitive therapy (MBCT, n=150). The therapy did not focus on any aspect of sexual function. Using a single item measure before and after treatment, sexual desire of the patients was categorized into intact, mild, moderate, or severe decline. A total of 255 participants completed the study questionnaires and were randomly assigned to CBT (122) and MBCT groups (133). Before therapy, 128(50.2%) participants were categorized in intact sexual desire group, 73(28.6%) in mild sexual desire dysfunction group, 40(15.7%) in moderate sexual desire dysfunction group, and 14(5.5%) in severe sexual desire dysfunction group. Logistic regression was used for analyzing the data by SPSS-16.

Results: Low sexual desire in depression remission was predicted by age (P<0.001, OR=0.21, CI=0.01–0.03), presence of comorbid anxiety disorder (P<0.04, OR=-0.13, CI=-0.46–0.02), and global assessment of functioning (GAF) (P<0.001, OR=-0.23, CI=-0.03–0.01). Clinical improvement in sexual desire was predicted by the type of intervention (P=0.023, OR=0.351, CI=0.142–0.869) and GAF (P=0.003, OR=0.927, CI=0.881–0.975).

Conclusion: CBT might be superior to MBCT in improving sexual desire in patients with depression. Further studies using validated sexual function questionnaires are necessary.

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1. Introduction

High rate of sexual dysfunction which is associated with depression (Baldwin, 2001; Kennedy & Rizvi, 2009) may be either the symptom of very depressive illness or the side effect of the medications used to treat depression (Ferguson, 2000; Kennedy & Rizvi, 2009).

Some types of sexual problems were found in 26%, 45%, and 63% of normal subjects, non-treated depressed patients, and treated depressed patients, respectively (Angst, 1998). This side effect has been attributed to the interference of the antidepressant medications with several parts of the sexual response (Ferguson, 2000; Kennedy & Rizvi, 2009). Different types of research, such as case reports, retrospective studies, and double-blind clinical trials support this issue (Kennedy & Rizvi, 2009; Laurent & Simons, 2009). This negative effect is however minimal in some medications like nefazodone and bupropion (less than 10%) (Ferguson, 2000; Segraves et al., 2000) and maximum for some such as sertraline (up to 60%), but it develops very early after medication initiation, and persist until the end of the treatment phase. Because of sexual dysfunction, a considerable part of patients discontinue their medication prematurely (Segraves et al., 2000).

Growing attention to the detrimental effects of antidepressants on sexual function has led to more interest in treatment approaches with no or less sexual side effects (Baldwin, 2001). One is cognitive therapy (CT) with high efficiency (DeRubeis, Siegle, & Hollon, 2008; Posternak & Miller, 2001), longer lasting effects (Dobson et al., 2008), less relapse (Tang, DeRubeis, Hollon, Amsterdam, & Shelton, 2007) and costs (Dobson et al., 2008), as well as benefits for patients who have a partial response to adequate antidepressant therapy (Rupke, Blecke, & Renfrow, 2006). As CT does not use any medication (DeRubeis et al., 2008), it might be a better choice as regards sexual function, especially for those to whom sexual function is a concern (DeRubeis et al., 2008; Fabre & Smith, 2012).

Although all types of sexual disorders cause morbidity in depressed patients (Laurent & Simons, 2009), most of these people would like to be sexually active (Traish, Hassani, Guay, Zitzmann, & Hansen, 2011) and a considerable proportion face loss of sexual interest as a predominant sexual dysfunction (Fabre & Smith, 2012).

Focusing on sexual desire of depressed patients, we aimed to assess it at baseline, and its improvement or deterioration following CT. Moreover, we aimed to assess which demographic or other related variables could predict sexual desire. The results of present research may illuminate some pathways to understand sexual desire and its related variables. Furthermore, our findings may help clinical professions decide on how much attention they pay on pharmacotherapy or psychotherapy based on the individual's interest in sexual desire.

2. Methods

This is a quasi-experimental study, which was conducted in Tehran, Iran. The study was designed by University of Social Welfare and Rehabilitation Sciences, Tehran, Iran and University of Calgary, Calgary, Alberta, Canada. Grant of the trial was awarded by the University of Social Welfare and Rehabilitation Sciences upon the approval of the study protocol by the University Ethics Committee.

Participants were recruited through community advertisements, and clinical practices of physicians and psychotherapists in Tehran by convenient sampling method. Potential participants contacted a central number, where basic eligibility was determined (age, reading ability, understanding the purpose of the study). Inclusion criteria included major depression, aged 16-64, having at least 8 years literacy, being in remission period at least for 14 days before the intervention (not more than 5 symptoms from depression symptoms). Exclusion criteria included having bipolar disorder, suicidal thought, chronic pain, more than 2 sessions of treatment, somatization disorder, substance use disorder, psychotic disorders such as psychosis or schizoaffective, and borderline personality disorder according to DSM-IV. Eligible participants were given informed consent, and randomly (randomization was balanced block randomization) assigned to treatment. A total of 281 depressed patients entered the study.

A total of 281 depressed patients in the remission phase underwent CT, either cognitive behavioral therapy (CBT, n=131) or mindfulness-based cognitive therapy (MBCT, n=150). Sexual function was not the focus of the therapy.

Cognitive Behavioral Therapy (CBT) was developed by Beck (Beck, 1995) and founded in the cognitive theory. It is based on information processing and states that information in the human brain is organized in certain schemata that contain general knowledge about the world, others, and the person itself.

These schemata are used to select, interpret, and answer to information. According to the cognitive theory, mental disorders are caused and maintained by dysfunctional thought schemata or beliefs. Beck asserted that in

depressive disorders, loss and hopelessness are two main dysfunctional contents developed by dysfunctional schemata. The so-called depressive schemata are characterized by thoughts about one's own as worthlessness and guilt, the world as cold-heartedness and injustice, and the future as desperateness.

Thus, the most important purpose of CBT is identifying and correcting the negative automatic thoughts related to schemata and thereby alleviating the depressive symptoms. Besides, CBT also contains a behavioral part, which is based on the principle that depression is partly caused or maintained by a lack of pleasant or satisfactory activities (Cuijpers, Van Straten, & Warmerdam, 2007). Therefore in CBT, patients are encouraged to identify activities that have positive effects on their mood and engage in these activities more often. CBT is further characterized by a limited time span, a structured approach, and use of homework assignments (Beck, 1995).

The treatment protocol used in the present study is based on a CBT research protocol for the treatment of patients with depression (Van Straten, Tiemens, Hakkaart, Nolen, & Donker, 2006). The manual was rewritten solely for the purpose of treating depressive disorders. The main alteration for the current study was the activation of the patient in the first treatment phase.

Mindfulness-Based Cognitive Therapy (MBCT) was the result of concern about and assistance to depressed individuals vulnerable to repeated relapse and recurrence (Teasdale, Segal, & Williams, 1995). Its purpose is offering a program that would target cognitive vulnerabilities (Segal, Williams, & Teasdale, 2012). The intervention was designed to increase accessibility to effective relapse prevention. Table 1 presents the titles of sessions. Intervention comprised an 8-week training program. The goal of this procedure is to increase patients' awareness of present and moment-to-moment experience. By practicing MBCT techniques, patients learn to bring their attention back to the present, using a focus on the breath as an anchor. MBCT is a combination of Kabat-Zinn's mindfulness techniques with some techniques drawn from CT in a comprehensive treatment package, which is specifically tailored to train patients at risk of depressive relapse. MBCT is effective in depression treatment (Eisendrath et al., 2008; Ma & Teasdale, 2004; Smith, Graham, & Senthinathan, 2007).

After recruitment of the participants, they were informed about the purpose of study, and their voluntary participation. Then, written informed consents were obtained from them. Afterwards, structured clinical interview for diagnostic and statistical manual of mental disorders, fourth edition axis I disorders (SCID-I) (First, Spitzer, Gibbon, & Williams, 1994) was used to evaluate history of their primary problem (past major depressive disorder), psychosis, substance use, or current suicidal ideation or plans. The general assessment of functioning scale (GAF) was used to assess the severity of depression. This measure assesses the individual's overall functioning on a rating scale that ranges from 0 to 100 (Association, 2000). Beck depression inventory was another instrument that was completed by participants.

Structured Clinical Interview for Diagnostic (SCID-I) is a semi-structured instrument for assessing a selected range of axis I mental disorders according to the criteria of the diagnostic and statistical manual. Its inter-related reliability has been reported to be acceptable (r=0.70) (First et al., 1994; Sharifi et al., 2007).

Beck Depression Inventory (BDI-II) is a 21-item self-report measure that assesses affective, cognitive, and somatic symptoms of depression. Patients choose from a group of sentences that best describes how they have been feeling in the past two weeks. Higher scores indicate higher levels of depressive symptoms (Beck, Steer, & Carbin, 1988). Its internal consistency (α coefficient=0.86) and psychometric properties have shown to be acceptable (Beck, Epstein, Brown, & Steer, 1988; Beck et al., 1988). Internal consistency and test-retest reliability of Persian version have been reported to be 0.91 and 0.81, respectively (Fata, Birashk, Atefvahid, & Dabson, 2005).

Sexual desire was determined using a single item measure, and categorized into intact, mild, moderate, and severe dysfunctions. It was administered before the 8-week series of classes, and again after the 8th session. However any change in sexual desire was reported, for assessing determinants of clinical changes. We considered at least 2 grades of improvement or deterioration in sexual desire. Single item measure of sexual desire has been previously used in the literature (Broeckel, Thors, Jacobsen, Small, & Cox, 2002).

Data analyses were performed using SPSS-16. A frequency analysis was carried out for the baseline data, sexual desire before treatment, after treatment, and its change following treatment. The frequencies of all sexual desire data were reported separately for males, females, and treatment groups. Furthermore, logistic regression was done for prediction of sexual desire.

3. Results

In CBT group, 131 patients entered the intervention, among those, 9 participants did not complete the study be-

Table 1. Session of two interventions.

Sessions	Content	
	CBT	MBCT
1	Introduction and an overview of the prevention model The value of monitoring mood and activity	Automatic pilot
2	Mood and activity review Risks for depression: Research evidence and your experience What are you avoiding? Setting action goals	Dealing with barriers
3	The role of activity in relapse: What choices are you making? Problem solving and coping with stress Activity scheduling to maintain routines, overcome inactivity and avoiding	Mindfulness of the breath (and the body in movement)
4	The role of negative automatic thoughts in depression Using activity scheduling to overcome rumination and worry	Staying present
5	The role of cognitive distortions in depression The 3 essential questions in CBT: Examining evidence	Acceptance and allowing/letting be
6	The role of attribution in depression (responsibility shame) Using the 3 questions to address attributions: Evidence and alternatives	Thought are not fact
7	Meaning in life: The meaning in your life Goals and goal setting: "A journey begins with a single step"	How can I best take care of myself
8	Review of "What have I learned?" and personal triggers and strategies Saying good-bye to the group	Using what have been learned to deal with future

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cause of the closing of the center (n=5), migration (n=1), and their inaccurate assessments (n=3). In MBCT group, of 150 patients, 133 participants entered the study, and 17 participants did not finish the study because of the closing of the center (n=9), migration (n=3), and their inaccurate assessments (n=5). Most patients were female (84.3%), married (51.4%), unemployed (60.8%), having child (50.2%), and attended university (44.3%). Comorbid axis I diagnosis, comorbid anxiety disorder, and comorbid dysthymia were present in 49.8%, 42%, and 13.7%, respectively (Table 2). Mean±SD age was 33.7±10.5 years. Patients had experienced 2.2±1.3 episodes of depression. Their GAF was recorded to be 69.8±9.7 and mean BDI was 21.4±11.8.

Table 2. Baseline categorical data in study population (n=255).

Variable		Frequency	%
Sex	Male	40	15.7
	Female	215	84.3
Marital status	Married	131	51.4
	Separated	1	0.4
	Divorced	17	6.7
	Common-law	1	0.4
	Single	103	40.4
	Widowed	2	0.8
Employment status	Employed full-time outside of home	65	25.5
	Employ part-time outside of home	5	2.0
	Full-time homemaker	30	11.8
	Unemployed	155	60.8

Variable		Frequency	%
Number of children	0	127	49.8
	1-2	96	37.6
	3 or more	32	12.6
Number of other dependents	0	144	56.5
	1	7	2.7
	2	43	16.9
	3	61	23.9
Education status	Completed elementary school	9	3.5
	Completed some high school	21	8.2
	Completed high school	85	33.3
	Attended college/technical school	26	10.2
	Attended university	113	44.3
	Missed	1	0.4
Presence of comorbid axis I diagnosis	Yes	127	49.8
	No	128	50.2
Presence of comorbid anxiety disorder	Yes	107	42.0
	No	148	58.0
Presence of comorbid dysthymia	Yes	35	13.7
	No	220	86.3

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Baseline sexual desire

Before therapy, sexual desire was intact in 128(50.2%) participants, mild sexual desire dysfunction in 73(28.6%), moderate sexual desire dysfunction in 40(15.7%) and severe sexual desire dysfunction in 14(5.5%). These frequencies have been also presented separately for each gender and treatment groups (Table 3). Logistic regression showed baseline sexual desire was predicted by age (P<0.001, OR=0.21, CI=0.01 to 0.03), presence of comorbid anxiety disorder (P<0.04, OR=-0.13, CI=-0.46 to 0.02), and GAF (P<0.001, OR=-0.23, CI=-0.03 to 0.01).

Change in sexual desire following CBT

Comparing before and after therapy, 3 grades deterioration was seen in 4 individuals (1.6%), 2 grades deterioration in 9(3.5%), 1 grade deterioration in 23(9.0%), no change in 135(52.9%), 1 grade improvement in 58(22.7%), 2 grades improvement in 19(7.5%), and 3 grades improvement in 7(2.7%). After therapy, sexual desire was intact in 158(62.0), mild sexual desire dysfunction in 71(27.8%), moderate sexual desire dysfunction in 18(7.1%), and severe sexual desire dysfunction in 8(3.1%). These frequencies have been also presented separately for each gender and treatment group (Table 3). Logistic regression showed that clinical improvement in sexual desire (n=26, 10.2%) was predicted by the type of CT (P=0.023, OR=0.351, CI=0.142 to 0.869) and GAF (P=0.003, OR=0.927, CI=0.881 to 0.975). Clinical deterioration of sexual desire (n=13, 5.1%) was not predictable by any of the study variables.

4. Discussion

Before therapy, in the remission phase of depression, nearly half of the patients reported mild to severe decline in sexual desire, and it is more prevalent in patients with higher age and GAF and also presence of comorbid anxiety disorder. Following 8 weeks of CT, with respect to 2 grades change as clinically important, most patients (85%)

Table 3. Frequency (%) of sexual desire dysfunction among 255 depressed patients [male (40), female (215)] before and after cognitive behavior therapy.

	All	Gender		Treatment	
		Men	Women	CBT	MBCT
Before therapy					
Intact sexual desire	128(50.2)	20(50)	108(50.2)	64(52.5)	64(48.1)
Mild sexual desire dysfunction	73(28.6)	10(25)	63(29.3)	27(22.1)	46(34.6)
Moderate sexual desire dysfunction	40(15.7)	9(22.5)	31(14.4)	24(19.7)	16(12.0)
Severe sexual desire dysfunction	14(5.5)	1(2.5)	13(6)	7(5.7)	7(5.3)
After therapy					
Intact sexual desire	158(62)	22(55)	136(63.3)	80(65.6)	78(58.6)
Mild sexual desire dysfunction	71(27.8)	13(32.5)	58(27)	30(24.6)	41(30.8)
Moderate sexual desire dysfunction	18(7.1)	4(10)	14(6.5)	10(8.2)	8(6.0)
Severe sexual desire dysfunction	8(3.1)	1(2.5)	7(3.3)	2(1.6)	6(4.5)
Change following therapy					
3 grades deterioration	4(1.6)	1(2.5)	3(1.4)	1(0.8)	3(2.3)
2 grades deterioration	9(3.5)	1(2.5)	8(3.7)	4(3.3)	5(3.8)
1 grade deterioration	23(9)	6(15)	17(7.9)	12(9.8)	11(8.3)
Remaining stable	135(52.9)	18(45)	117(54.4)	64(52.5)	71(53.4)
1 grade improvement	58(22.7)	10(25)	48(22.3)	23(18.9)	35(26.3)
2 grades improvement	19(7.5)	4(10)	15(7)	14(11.5)	5(3.8)
3 grades improvement	7(2.7)	0(0)	7(3.3)	4(3.3)	3(2.3)
2 grades or more Change					
Unchanged	216(84.7)	34(85)	182(84.7)	5(4.1)	8(6.0)
Deterioration	13(5.1)	2(5)	11(5.1)	99(81.1)	117(88.0)
Improvement	26(10.2)	4(10)	22(10.2)	18(14.8)	8(6.0)
Total	255(100)	40(100)	215(100)	122(100.0)	133(100.0)

CBT=Cognitive Behavioral Therapy.

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MBCT=Mindfulness-Based Cognitive Therapy.

remained stable. One of 10 participants experienced improvement, which was linked to the type of CT and GAF.

Similar to our results, the literature reports that half of the depressed patients experience a decrease in sexual desire and sexual performance (Ferguson, 2000). Epidemiological and clinical studies report impairments of sexual function and satisfaction also in untreated patients with depression (Ferguson, 2000). According to one study, in depressed patients, 65% of men and 48% of women reported disordered sexual interest or satisfaction (Zajecka et al., 2002). Lower rates have been also reported (Boyarsky, Haque, Rouleau, & Hirschfeld, 1999; Landen, Eriksson, Agren, & Fahlen, 1999). The findings of our study regarding the link between age and sexual desire is consistent with other study results (Seg-

raves & Segraves, 1991). Not only sexual desire, but also other types of sexual function decline with age (Hayes & Dennerstein, 2005).

To explain our findings that comorbid anxiety predicts low sexual desire in depressed patients, the literature reported anxiety as an inhibitory mechanism for sexual desire (Bozman & Beck, 1991; Schnatz, Whitehurst, & O'Sullivan, 2010). Subjects with low sexual desire present a moderate level of anxiety (Trudel, Landry, & Larose, 1997), and subjects with anxiety disorders report lower sexual desire and lower frequency of sexual contacts (Van Minnen & Kampman, 2000). Trait anxiety may be the cause of not only the sexual desire but also several types of sexual dysfunctions (Moon, Kim, & Kim, 1999). Also cognitive changes because of anxiety are mechanisms playing some roles in these processes (Barlow, 1986; Dove, 2000). In those with anxiety, fears

concerning sexual performance or relationship issues, such as intimacy and partner rejection lead to sexual avoidance (McCabe et al., 2010; Schnatz et al., 2010).

In our study, genders were similar as regards their sexual interest at remission of depression. Low sexual desire may be far more common in females than males (Segraves & Segraves, 1991), and the higher interest of males than females in sex, may be biologically or culturally determined (Baldwin & Baldwin, 1997).

Psychotherapy did not have any influence on sexual desire of 85% of our depressed patients which is very similar to results of other studies (Angst, 1998). However according to the literature, sexual dysfunctions (Alder et al., 2005; Penedo et al., 2007) such as sexual desire (Brotto, Heiman, et al., 2008) have been shown to be improved when CBT is used. We did not find any report of sexual improvement following MBCT.

Clinical improvement in sexual desire was predicted by type of CT and GAF, but not by gender. The literature suggests that there are some links between the type of depression treatment (Eisendrath et al., 2008), degree of improvement in depressive symptoms (Rupke et al., 2006), and gender (Boyarsky et al., 1999; Landen et al., 1999) with sexual desire/function improvement in depression treatment. Regarding gender, very few studies have shown equal improvement among genders (Ekselius & von Knorring, 2001), and many have shown the higher improvement in sexual desire in women than men (Boyarsky et al., 1999; Landen et al., 1999), or to be seen just in women (Piazza et al., 2014).

The difference between the basics of two modalities may explain why CBT is superior to MBCT in sexual desire improvement. CBT emphasizes on both cognitive and behavior changes. With regard to cognitive part, it uses skills-training approach (Coffman, Martell, Dimidjian, Gallop, & Hollon, 2007), and in behavior activation, it encourages increasing activity and approaching, rather than avoiding difficult situations (Markowitz, 2003). Approaching and solving problems are two behavioral techniques which may modify environmental context in which the person lives during treatment, thereby alleviating the potential negative events that could play as risk factors for depression (Dobson et al., 2008). Although CBT has the approach of change, in MBCT, the base is observance and acceptance with no need to change (Brown & Ryan, 2003; Collard & Walsh, 2008). MBCT has minimum or no effect in patients with fewer episodes (Ma, 2002; Teasdale, Segal, & Williams, 2003), and mean episodes of depression in our cases was 2.2.

Satisfied sexual expression is a crucial part of many human relationships which may improve the quality of life and provide a whole sense of physical, psychological, and social well-being (Baldwin, 2001). As a human, low sexual desire creates a low active sex life, decreased sexual and relationship satisfaction (Leiblum, Koochaki, Rodenberg, Barton, & Rosen, 2006), and poor marital/relationship satisfaction (Dennerstein, Koochaki, Barton, & Graziottin, 2006). As a depressed patient, sexual function affects compliance with depression treatment (Segraves et al., 2000). Therefore, as sexual desire did not show high rate of improvement in routine CT of depression, controlled treatment studies are needed in depression, with using desire-specific interventions (Ackerman, 1995). CT tailored for sexual function can be used (Brotto, Basson, & Luria, 2008), especially in patients for whom sexual dysfunction is a major concern (Segraves et al., 2000).

This study has some limitations too. A control group who was under treatment with registered depression medications could help to compare the results. Lack of follow up, and low number of men in this study were other limitations. Using a single-item measure for sexual desire and not considering other types of sexual dysfunctions has limited our results, too. For the diagnosis of hypoactive sexual desire disorder, not only decrease in sexual desire, but also the degree of caused distress should be asked (Dennerstein et al., 2006). However, most studies have used different questions to identify it (Bancroft, Loftus, & Long, 2003).

To conclude, in the remission phase of depression, half of depressed patients had low sexual desire. Following an 8-week CT, not focused on sexual function but depression, will bring sexual desire improvement in just 10% of patients. However, CBT was superior to MBCT, in this regard. Furthermore, more research is required to assess the other factors related to sexual desire and future studies may contribute to explain the findings of the present study by repeating this intervention in different samples or with individuals diagnosed with other disorders.

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Conflict of Interests

The authors declared no conflict of interests.

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