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## BRIEF REPORT



# A pilot study of mindfulness-based relapse prevention for compulsive sexual behaviour disorder

PAWEŁ HOLAS<sup>1\*</sup> , MAŁGORZATA DRAPS<sup>2</sup>,  
EWELINA KOWALEWSKA<sup>3</sup>, KAROL LEWCZUK<sup>4</sup> and  
MATEUSZ GOLA<sup>2,5</sup>

<sup>1</sup> Faculty of Psychology, University of Warsaw, Warsaw, Poland

<sup>2</sup> Institute of Psychology, Polish Academy of Sciences, Warsaw, Poland

<sup>3</sup> Department of Psychiatry, Centre of Postgraduate Medical Education, Warsaw, Poland

<sup>4</sup> Institute of Psychology, Cardinal Stefan Wyszyński University, Warsaw, Poland

<sup>5</sup> Swartz Centre for Computational Neuroscience, University of California San Diego, CA, United States

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## ABSTRACT

**Background and aims:** Compulsive sexual behaviour disorder (CSBD) is a medical condition that can impair social and occupational functioning and lead to severe distress. To date, treatment effectiveness studies of CSBD are under-developed; typically, treatment for CSBD is based on guidelines for substance or other behavioural addictions. Mindfulness-based relapse prevention (MBRP) is an evidence-based treatment for substance addiction aimed at, among other things, reducing craving and negative affect—i.e. processes that are implicated in the maintenance of problematic sexual behaviours. However, to our knowledge no prior research has been published evaluating mindfulness-based intervention (MBI) in the treatment of CSBD, except two clinical case reports. Therefore, the aim of the current pilot study was to examine whether MBRP can lead to clinical improvement in CSBD. **Methods:** Participants were 13 adult males with a diagnosis of CSBD. Before and after the eight-week MBRP intervention, participants completed a booklet of questionnaires including measurements of porn viewing, masturbation and emotional distress. **Results:** As expected, we found that after MBRP participants spent significantly less time engaging in problematic pornography use and exhibited a decrease in anxiety, depression and obsessive-compulsive (OC) symptoms. **Discussion and Conclusions:** The findings indicate that MBRP could be beneficial for CSBD individuals. Further clinical effectiveness studies with bigger sample sizes, delayed post-training measurements and randomised control trial design are warranted. In conclusion, MBRP leads to a decrease in time spent watching porn and a decrease in emotional distress in CSBD patients.

## KEYWORDS

Mindfulness-Based Relapse Prevention, MBRP, mindfulness, CSBD, porn addiction

## INTRODUCTION

Compulsive sexual behaviour disorder (CSBD), especially the problematic use of pornography, is a relatively new and still poorly understood clinical phenomenon and societal challenge (Gola & Potenza, 2018). For most people pornography viewing is a form of entertainment; for some, however, problematic pornography use is accompanied by excessive masturbation and results in negative consequences in other areas of life, which is a reason to seek treatment and to diagnose CSBD (Gola, Lewczuk, & Skorko, 2016).

Diagnostic criteria for CSBD were only recently proposed by the World Health Organisation in the upcoming ICD-11 classification (Kraus et al., 2018; WHO, 2019). Due to the fact that

\*Corresponding author.  
E-mail: pawel.holas@psych.uw.edu.pl

CSBD is a fairly new phenomenon, there is lack of empirically verified models of its treatment (Efrati & Gola, 2018). One review of the literature (Efrati & Gola, 2018) found no controlled studies for the treatment of CSBD or problematic sexual behaviours, except for the one published in 1985 (McConaghy, Armstrong, & Blaszczynski, 1985). There is hope that mindfulness training might be suitable for CSBD individuals as it targets craving and negative affect, potential core mechanisms of CSBD (Blycker & Potenza, 2018).

### Mindfulness-Based Relapse Prevention

A fairly recently established treatment for addiction, mindfulness-based relapse prevention (MBRP; Witkiewitz, Marlatt, & Walker, 2005) combines the techniques of cognitive behavioural therapy focused on increasing relapse prevention skills (Marlatt & Gordon, 1985) and mindfulness training in the tradition of mindfulness-based stress reduction (MBSR; Kabat-Zinn, 1990).

The main reasons to cultivate mindfulness as a part of addiction treatment are to develop awareness of external and internal triggers of addictive behaviour and to improve the ability to tolerate challenging emotional, cognitive and physical experiences (Bowen et al., 2009). More broadly, mindfulness training is a type of systematic practice for enhancing individuals' metacognitive abilities including that of decentring from challenging mental events (Jankowski & Holas, 2014). Indeed, studies have shown that mindfulness practices taught in MBRP may lead to greater attentional (Chambers, Lo, & Allen, 2008) and inhibitory (Hoppes, 2006) control by teaching patients to observe challenging or uncomfortable emotional or craving states without habitually reacting to them. MBRP has been shown to be effective in the treatment of a variety of substance addictions (Witkiewitz, Lustyk, & Bowen, 2013). In recent years, some initial empirical evidence has emerged demonstrating that mindfulness awareness training based on an MBRP programme led to improvements in the lives of problem gamblers (e.g. Chen, Jindani, Perry, & Turner, 2014).

The effectiveness of MBRP in CSBD, however, have yet to be established, which led us to conduct this pre-post pilot study. Investigating the effectiveness of novel treatment modalities for CSBD seems particularly important, since concerns regarding uncontrolled sexual behaviours are increasing due to the growth in Internet pornography consumption (e.g. Kor, Fogel, Reid, & Potenza, 2013), and since there is no validated treatment for this challenging societal problem.

### The present study

To our knowledge, although it has been proposed that mindfulness-based interventions (MBIs) were potentially effective in treating CSBD (Blycker & Potenza, 2018), only one clinical case report describing the effects of meditation awareness training (MAT) in sex addiction has been published (Van Gordon, Shonin, & Griffiths, 2016). The authors found clinically significant improvements in CSBD, as well as reductions in emotional distress. In addition, Twohig & Crosby (2010) found that acceptance and commitment

therapy (ACT), an intervention that incorporates mindfulness exercises, led to decrease of time viewing pornography and reduction on obsessive-compulsive (OC) measures.

Therefore, in the current pilot study we pursued this theme by investigating the effectiveness of MBRP in patients seeking help for CSBD. The research has exploratory nature but based on evidences from other addiction trials and the modest literature described above, we expected that MBRP reduces emotional distress (depression, anxiety), decrease OC symptoms and, in addition, leads to decrease of excessive pornography viewing.

## METHODS

### Participants

Participants ( $N = 13$ ), Caucasian, white men aged between 23 and 45 years ( $M_{\text{age}} = 32.69$ ;  $SD_{\text{age}} = 5.74$ ), were recruited from men seeking treatment for compulsive sexual behaviour through an advertisement posted on the Internet.

### Measures

Before and after training, participants completed the following measures:

*Brief Pornography Screener (BPS; Kraus et al., 2017)*. This is a short (five-item) self-report scale developed to detect problematic use of pornography (PPU) among clinical and non-clinical samples. Specifically, it assesses problematic pornography use in the previous six months. Individuals provide answers on a scale from 0 to 2. Reliability as assessed by McDonald's  $\omega$  (Dunn, Baguley, & Brunson, 2013): baseline,  $\omega = 0.93$ ; 2nd measurement,  $\omega = 0.93$ . Reliability indices were computed using R package Psych, version 2.0.7 (Revelle, 2014).

*Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983)*. The HADS is a 14-item questionnaire measuring symptoms of depression and anxiety. Seven items measure depression and seven measure anxiety. Participants are instructed to read each statement and to choose the response that best describes how they felt during the past week. Each item is scored using a 0–3 scale. Reliability, depression scale: baseline,  $\omega = 0.92$ ; 2nd measurement,  $\omega = 0.67$ ; anxiety scale: baseline,  $\omega = 0.91$ ; 2nd measurement:  $\omega = 0.70$ .

*Obsessive-compulsive inventory-revised (OCI-R; Foa et al., 2002)*. The OCI-R is an 18-item self-report measure that assesses symptoms of Obsessive-Compulsive Disorder (OCD). Items are rated on a 0 to 4 scale. Reliability indices: baseline,  $\omega = 0.91$ ; 2nd measurement,  $\omega = 0.91$ .

In addition, we assessed how much time subjects spent on sexual activity, pornography consumption and masturbation during the week before and after MBRP.

### Procedure

All subjects were recruited among men seeking treatment for CSBD in sexology clinics in [DELETE for BLIND REVIEW]. The information about the study was sent to specialists from those clinics who delivered it further to their patients.



Potential participants contacted research staff by telephone, provided verbal consent for screening and completed a telephone eligibility screening. We were looking for individuals fulfilling 4 out of 5 hypersexual disorder criteria proposed by Kafka (2010) as the recruitment was conducted before CSBD criteria publication. After the initial interview, patients were screened using the SCID-I (Validity, 2004) for mood disorders, anxiety disorders, OCD, psychotic disorders, substance abuse/dependence. Only those men who met the criteria for hypersexual disorder and none of the other above-mentioned conditions were invited to participate. The exclusion criteria also included any type of psychiatric medication.

Eligible participants completed a web-based baseline assessment. The MBRP session took place in the private Centre for Mindfulness in [DELETE FOR BLIND REVIEW]. The MBRP was subsequently delivered by two certified and experienced mindfulness and cognitive-behavioural therapists, with participants meeting weekly for eight two-hour sessions. The sessions included guided meditation, experiential exercises, inquiry, psychoeducation and discussion. Participants were given CDs for daily meditation practice and exercises to do between sessions.

### Ethics

The Institutional Review Board of [DELETE FOR BLIND REVIEW] approved the study. All subjects were informed about the study and provided informed consent.

## RESULTS

Basic descriptive statistics along with Wilcoxon signed-rank test results for the outcome measures in Baseline and Measurement 2 (post MBRP-training) are presented in Table 1. Table 1 also contains the  $r$  effect sizes for corresponding rank comparisons (Cohen, 1988). As not all participants were available to complete the whole set of questionnaires, the sample sizes for each measure differ and are also reported in Table 1. In our analysis, we adopt a standard, 95% level of confidence and use two tailed tests,

although, as our results are based on a preliminary pilot study, we also highlight findings on a trend level.

The results obtained indicate that following the mindfulness intervention, participants spent significantly less time engaging in problematic pornography use (as indicated by reported use in the last week; large effect size:  $r = 0.64$ ). Additionally, problematic pornography use symptoms as measured by the Brief Pornography Screener decreased, the statistical comparison result being at the trend level ( $P = 0.075$ ; medium effect size:  $r = -0.40$ ). MBRP also resulted in reduced emotional distress as indicated by the anxiety subscale of HADS (results on a trend level:  $P = 0.062$ ; medium effect size:  $r = -0.47$ ) and reduced depressive symptoms (HADS  $P = 0.027$ ; large effect size:  $r = -0.52$ ). There was also a decrease in obsessive-compulsive symptoms (OCI-R) following the training (findings on a trend level:  $P = 0.052$ ; medium effect size:  $r = -0.43$ ). We found no decrease in time spent on masturbation or dyadic sexual intercourse ( $P > 0.100$ ).

## DISCUSSION AND CONCLUSIONS

Thirteen adult males suffering from compulsive sexual behaviours were assessed before and after a MBRP programme tailored to target compulsive sexual behaviours.

Overall, we found medium to large effect sizes ( $r$  of between 0.4 and 0.65; Cohen, 1988) for most comparisons of MBRPs effectiveness. In accordance with expectations, we observed a self-reported reduction in time spent viewing pornography, while symptoms of problematic pornography use as measured by the BPS decreased to trend level. Note, however, that the BPS considers a period of six months, which is far longer than the eight weeks of the MBRP. A reduction in pornography consumption was also found in the Twohig and Crosby (2010) study, with five out of six participants showing notable decrease in their viewing time post ACT intervention. We also noted non-significant decreases in time spent on masturbation and dyadic sexual activity, the results which may stem from the small number of participants. Future studies should include bigger, more statistically powerful, samples.

Table 1. Descriptive statistics and Wilcoxon signed-rank test results along with  $r$  effect sizes, comparing Baseline and Measurement 2 (post-training)

Variables	N	Baseline		Measurement 2		Wilcoxon sign test		$r$ effect size
		M	SD	M	SD	Z	P	
Time spent using pornography (last week, in min)	6	200.00	235.97	39.00	23.68	-2.20	0.028	-0.64
Time spent on masturbation (last week, in min)	7	5.86	2.80	4.00	3.00	-1.19	0.235	-0.32
Time spent on sexual intercourse (last week, in min)	5	22.40	42.88	3.60	3.58	-0.54	0.593	-0.17
BPS	10	6.00	3.30	4.20	3.46	-1.78	0.075	-0.40
HADS anxiety	8	8.88	5.30	4.63	2.13	-1.87	0.062	-0.47
HADS depression	8	6.25	4.53	3.00	2.07	-2.21	0.027	-0.55
OCI-R	10	15.80	10.49	11.20	9.11	-1.94	0.052	-0.43

Note. BPS – Brief Pornography Screener; OCI-R – Obsessive-Compulsive Inventory Revised; HADS – Hospital Anxiety and Depression Scale; STAI – State-Trait Anxiety Inventory;  $r$  effect size was computed using formula  $Z/\sqrt{n_x + n_y}$  (Pallant, 2007). Cohen's proposed interpretation of the  $r$  effect size strength is as follows: 0.1 – small effect; 0.3 – medium effect; 0.5 – large effect (Cohen, 1988).



As expected, we also found evidence of emotional distress reduction, reflected by decrease in depression and anxiety measures. This finding is consistent with meta-analyses showing that MBIs effectively reduce anxiety, depression and stress levels in a variety of clinical and nonclinical conditions (e.g. Goyal et al., 2014), including substance misuse and addictions (e.g. meta-analysis Li et al., 2017). Similarly to Twohig & Crosby (2010) study we also found reduction on OC measures in our CSBD individuals following the intervention.

Our findings are also in line with several studies showing negative correlations between mindfulness disposition and problematic sexual behaviour. For example, Reid, Bramen, Anderson, & Cohen (2014) showed an inverse relationship of mindfulness to hypersexuality over and above associations with emotional regulation, impulsivity and proneness to stress.

The mechanisms of the described beneficial change was not investigated in this study. Previous work suggested that MBI promotes open and acceptance awareness of any kind of experiences (e.g. Hoppes, 2006), which can be helpful both in reduction of emotional distress and in decreasing problematic pornography viewing. Increasing neuroscientific evidence indicates that MBRP affects both bottom-up limbic-striatal brain circuitry and top-down prefrontal networks serving metacognitive attentional control implicated in substance addiction disorder (for a review see Witkiewitz et al., 2013). Future studies should investigate the underlying neuro-behavioural mechanisms of porn consumption reduction following MBRP in order to test whether this is an effect of reduced craving, a function of improved tolerance to arousing stimuli, or both.

There are several limitations of the current research. First, no control group was used in this study and there was no follow up measurement. Second, the sample was small and consisted of Caucasian males only. A bigger and more ethnically diverse sample would enhance the statistical power and generalisability of the results, and may lead to other effects of the treatment being revealed that were not observed here. To ensure appropriate power of the study and increase its replicability, sample size in future studies should be dictated by a priori power analysis. Moreover, as we conducted several statistical comparisons, our pilot analysis has a higher risk of producing false positives (type I error) – future studies based on bigger samples should apply appropriate statistical corrections. Furthermore, all the data used were based on self-reports, which may have been influenced by the social demands imposed by the therapist or by the participant himself.

To develop a validated therapy protocol for CSBD, future trials of MBRP and other psychosocial interventions, should employ a randomised control design and use delayed measurement to investigate the sustainability of any training effects.

In summary, as the first MBI examined in the context of CSBD, the current study provides promising preliminary results on MBRP. It is hoped that future applied research on CSBD will produce data on the effectiveness of various methods of psychosocial and pharmaceutical treatment, singly

and combined, in order to identify the most effective and personalised therapies in this growing area of clinical concern.

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**Authors' contribution:** Study concept and design: MG, PH; data collection: MD, EK, analysis and interpretation of data: PH, MG and KL; statistical analysis: KL; study supervision: PH and MG; writing manuscript: PH, MG.

**Conflict of interest:** The authors declare no conflicts of interest.

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