

THE INTERNATIONAL JOURNAL OF HUMANITIES & SOCIAL STUDIES

The Effectiveness of Imagery Rescripting in Treating Depression

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Abstract:

Depression is a significant contributor to the global mortality of psychopathological disorders. This severe mental illness has been highlighted as having high relapse rates across the lifetime which revolves around the presence of intrusive distressing mental imagery. Research in this area has managed to correlate the presence of memory intrusions with the worsening of depressive states. Therefore, there is a need to structure imagery based interventions which will be aimed at challenging the universal presence of distressing intrusive imagery in depression. This study aimed at testing the effectiveness of imagery rescripting in the treatment of depression. The results of this study showed that, challenging existing intrusive imagery through imagination leads to an improvement in depression.

Keywords: Depression, Mental illness, Memory Intrusions, Distressing mental imagery, Imagery rescripting

1. Introduction

Intrusive sensory imagery of high negative emotion valence is an intrinsic feature of many psychopathological disorders (e.g., Hirsch & Holmes, 2007; Mansell, Harvey, Watkins, & Shafran, 2009). It is now well established by research on mental imagery that, the presence of distressing intrusive imagery is a common feature of depression and other psychopathological disorders. The manifestation of intrusive imagery in depression has been linked as, closely resembling mechanisms in post-traumatic stress disorder (PTSD). Of importance in these disorders is the manner in which intrusive mental imagery intrudes into consciousness enhancing negative affect. Apart from this, individuals who suffer from these disorders have also reported the inability to disengage from such imagery. An upsurge of distressing intrusive imagery seems to be synonymous with a matched surge in depressive cognition (McMullen, 2013). The nature of intrusive distressing mental imagery operates in such a way that there is a depletion of resource allocation to other cognitive functions such as updating the contents of memory, set shifting, and inhibiting irrelevant material from entering into memory. This may suggest that, there are spillover effects of distressing intrusive memory that may translate into the worsening of depressive episodes via dysfunctions and deficits in other cognitive abilities.

Depression is a disorder that is affected by a constellation of dysfunctions and deficits in the cognitive processing of information and responses to constant fluctuations of affective states. Dysfunctional mechanisms in depression have been commonly observed in the regulation of emotion (e.g., Ehring, Fischer, Schnulle, Bosterling, & Tuschen-Caffier, 2008; Gross & John, 2003; Joormann & Gotlib, 2010), overgeneral memory recall (e.g., Conway & Pleydell-Pearce, 2000; Prebble, Addis, & Tippett, 2013; Summer, Mineka, & Adata, 2014); rumination (e.g., Driscoll, Lopez, & Kistner, 2009; Martin & Tesser, 1996; Nolen-Hoeksema, 1991), and cognitive inhibition (e.g., Gotlib & Joormann, 2010; Hollenstein, Granic, Stoolmiller, & Snyder, 2004; Kashdan & Rottenberg, 2010; Robinson, Wilkowski, Kirkeby, & Meier, 2006). Research findings from these studies suggest that, the above factors seem to occur in cohorts of self-sustaining toxic tendencies, which may, underlie the onset, maintenance, and recurrence of depression. However, in spite of these empirical findings, a majority of research in these areas has made it customary to study these factors in solitude limiting the probability of discovering important linkages that might coexist across different symptoms and cause spillover effects. Discovering underlying links that act as maintaining factors in depression may help to bridge the gap between research and treatment in clinical settings. In order to understand the presence of spillover symptoms in mood disorders, depression has been linked to have shared similarities with other mood disorders (e.g., PTSD, anxiety, social phobias). There are postulations that, intrusive mental imagery represent memories loaded with high negative valence which involuntarily enter into consciousness which will maintain sustained negative affect and anhedonia (Speckens, Ehlers, Hackmann, Ruths, & Clark, 2007). Therefore, intrusive mental imagery denotes the psychological ability to mentally access visual information from the vast stores of autobiographical memories enabling an individual to relieve past events with their original emotional valence or create new experiences through imagination. The ability to create new novel experiences through imagination that may have emotional significance is thought to present a unique avenue to use imagery based interventions in designing potent therapeutic interventions. In support of this revelation, there is evidence that cognitive mechanisms seem to be more responsive to visual stimuli than they are to verbal stimuli. Research conclusions drawn from experimental studies found that, a majority of what is retrieved or recalled as memories is in the form of visual mental images (e.g.,

Birrer, Michael, & Munsch, 2007). To this effect, it can be said that mental imagery is associative of the amplified negative emotional valence often reported in depression and other psychopathological disorders. Similarly, Holmes (2013) and colleagues operationally studied the various domains of mental imagery using self-report measures (Pearson, Deeprouse, Wallace-Hadrill, Heyes, & Holmes, 2013). The authors concluded that, the things that seem realistic to most people are the mental images they possess in their mind. This is due to the fact that visual imagery even in the absence of perceptual stimuli is associated with emotional valences which seem to have a profound influence on behaviour.

An interesting finding from the vast array of studies which have focused on the presence of intrusive memory in depression is the manner in which distressing intrusive memories are experienced across mood disorders (e.g., Birrer, Michael, & Munsch, 2007; Reynolds & Brewin, 1999). Since depression is thought to share common overlapping similarities with other psychopathological disorders, it is thought that the presence of distressing mental imagery can be used as a predictive marker for the onset, maintenance, and recurrence of depressive episodes (Harvey, Watkins, Mansell, & Shafran, 2004). If this is the case, the use of imagery based interventions such as imagery rescripting may prove to be beneficial in the treatment of depressive disorders. Imagery rescripting is a transdiagnostic intervention technique whose sole aim is to reduce the disturbing negative emotional valence aroused by intrusive mental imagery (Long & Quevillion, 2009). In so doing, imagery rescripting aims at changing the negative emotional experiences of distressing intrusive imagery by challenging the meanings linked to the intrusions through imagination. As benevolent as these literature findings have been, mental imagery is a grossly underexplored field of study which holds a significant bearing on emotional well-being. There is a lack of experimental studies in depression that have employed imagery rescripting. However, there are few studies that have found significant promising results while using imagery rescripting in depression (e.g., Brewin, Wheatley, Patel, Fearon, Hackmann, Wells, Fisher, & Myers, 2009; Wheatley, Brewin, Patel, Hackmann, Wells, Fisher, & Myers, 2007).

In light of these literature conclusions, the ensuing study sets out to explore the effectiveness of imagery rescripting with clinically depressed patients who reported severe intrusions of memories that possessed high distressing negative emotional valence. The effectiveness of imagery rescripting was tested to see if it will yield any preliminary significant effect size on depression, rumination, and emotion regulation. The study hypothesized that, the symptoms and level of depression will be related to these memory intrusions. Moreover, it was expected that there would be notable improvements in the baseline scores post imagery rescripting intervention.

2. Method

2.1. Sample

The study was conducted on a clinically diagnosed outpatient sample of depressed participants. The participants reported experiencing distressing sensory imagery over a one-month period. The sample was selected from an ongoing study using imagery rescripting as a standard treatment for depression. In order to be considered for this treatment, the participants had to score <13 on the Beck depression inventory (BDI-II: Beck, Steer, & Brown, 1996). The sample consisted of 5 females and 3 males with an age range of 18-27 ($M = 22.63$, $S.D. = 2.97$). The mean BDI score for the participants was $M = 26.71$, $S.D. = 8.90$. The exclusion criterion for this study was (a) patients with bipolar disorder (b) current or past psychotic features (c) substance abuse (d) learning disabilities (e) neurological disorders. Of the 8 participants who were selected for this study, 1 dropped out after the first session because they found it to be too emotionally stressful. None of the participants reported having comorbidity of disorders.

Measures

2.2. Beck Depression Inventory – II (BDI-II)

Participants completed the self-report BDI-II in order to get baseline scores of their depression symptoms over a one-month period. The BDI-II consists of 21 items which are scored on values ranging from 1 -3. The cut off points are denoted as a score of 0-13 (minimal depression), 14-19 (mild depression), 20-28 (moderate depression), and 29-63 (severe depression). The BDI-II has been found to have a strong correlation with other measures of depression (e.g., Hamilton depression rating scale- Pearson $r = .71$). The test was also shown to have a high test-retest reliability over a one-week period (Pearson $r = .93$) suggesting that the test is not sensitive to daily alterations in mood.

2.2.1. Emotion Regulation Questionnaire

The Emotion Regulation Questionnaire (ERQ: Gross & John, 2003) was administered following BDI-II. The ERQ is designed to assess individual differences in the habitual use of two emotion regulation strategies i.e. cognitive reappraisal and expressive suppression. The scale consists of 10 items that measure the respondents' tendencies to regulate their mood in two ways i.e. cognitive reappraisal and emotion suppression. Each item in this scale has responses measured on a 7-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree). The scoring for this questionnaire was done based on response to the reappraisal items (1, 3, 5, 7, 8, 10) and the Suppression Items (2, 4, 6, 9). The ERQ has been found to have a good alpha reliability score for reappraisal (.79) and suppression (.73). The ERQ also had a good test-retest reliability of .69 for both reappraisal and suppression across a 3-month period.

2.2.2. Rumination Response Scale

The rumination response scale is a 22 item scale that consists of a 4 point Likert scale that was derived from the response styles theory (RST: Nolen-Hoeksema 1991). The rumination response scale has been extensively used to measure thinking styles during depressive episodes. The items in this scale are centered around the meaning of rumination, on the individual feelings related to their depressed

mood, symptoms, and on the consequences as well as causes of the depressed mood. This scale has been shown to have good internal consistency (Cronbach's $\alpha = .82$), moderate to high test-retest reliability over 1 year ($r = 0.47$, $p < .001$) and validity for predicting depression (Just & Alloy, 1997; Kuehner & Weber, 1999; Nolan, Roberts, & Gotlib, 1998).

1. Procedure

The treatment sessions followed prior procedures by Brewin et al., 2009 in line with their findings from the work of Hackmann (1988), Smucker & Dancu (1999/2005), and Wild et al., 2008. The study took the pre/post-test design in order to effectively address the nature of memory intrusions as well as to ensure adequate time in exploring the frequency of distressing imagery. Imagery rescripting was carried out over three consecutive sessions of forty-five minutes to an hour long. The first session was dedicated to having participants orally narrate their intrusive memories (descriptions of what they saw, how it made them feel as well as the meanings their intrusions meant to them). After giving the oral description of their intrusions, the participants were asked to give a narration of an outcome that would have been more acceptable to them and what they needed to change about their current intrusive imagery to have that outcome. Participants were helped to introduce the changes to their intrusive images while taking care that they do not lose contact with reality and drift off into their intrusions. The following sessions were dedicated to checking the extent to which memory retrieval favored the newly modified memories. The final session of the intervention was utilized for further rehearsal of the modified memories as well as taking measures for the end of treatment scores.

2. Analysis

The pre/post-test scores were statistically analyzed using SPSS V. 20 for mean, S.D. The main effect size of treatment on the variables of this study was calculated using Becker (2000)'s effect size calculator.

3. Post-test Results

The mean scores on the BDI-II, rumination and emotion regulation were measure for baseline scores as well as end of treatment scores to assess if there was any significant changes post treatment. The results indicated that the scores on the measures declined significantly except for emotion suppression. Results for the analysis are presented in the table below

	Pre-test Baseline Score		Post-test Final Score		Pre/Post effect size (d)
	Mean	S.D.	Mean	S.D.	
Depression	26.71	8.90	9.85	4.48	2.39
Rumination	63.00	5.85	48.28	8.19	2.07
Emotion Reappraisal	24.14	4.49	29.00	3.05	-1.27
Emotion Suppression	18.28	6.99	15.28	4.82	0.49

Table 1: Showing the Means (S.D.) of the Baseline and Final score and treatment effect size

Table 1 indicates that there was a significant reduction in the post-test score across the different measures of this study except for emotion suppression. An observation of the post-test mean scores show that depression ($M = 9.85$, $S.D. = 4.48$, $d = 2.39$), rumination ($M = 48.28$, $S.D. = 8.19$, $d = 2.07$) and emotion reappraisal ($M = 29.00$, $S.D. = 3.05$, $d = -1.27$) showed an improvement in the baseline scores over three treatment sessions of imagery rescripting. These results are encouraging in clinical settings where patients may present with distressing intrusive sensory images in depression.

6. Discussion

Imagery rescripting is a common therapeutic intervention in studies that have explored the nature of intrusive memories in psychopathological disorders. The results of this study are evidence of the universality of distressing sensory imagery in depression which present in a similar pattern commonly observed in post-traumatic stress disorder (Brewin, Hunter, Carroll, & Tata, 1996). An observation of such magnitude denotes that distressing sensory imagery is indeed a maintaining factor in depression that holds a significant influence on the outcome of basic cognitive behavior therapy treatment. In this regard, Brewin (1999) found an association between the frequency of intrusive imagery and the persistence of depressive episodes (Brewin, Reynolds, & Tata, 1999). The participants of this study are part of an ongoing research using imagery rescripting as intervention in depression. Thus, the observed changes in the baseline scores of this study after only three sessions prove the potential of imagery rescripting as an underlying factor that determines the course and duration of depressive episodes. Moreover, the positive changes in the baseline scores might mean that intrusive imagery may interact with rumination to repetitively recycle the distressing content of the intrusions. This interaction will lead to an increase in attempts to suppress emotion experience leading a worsening of depressive episodes. Thus, the findings of Table 1 show the linkage between the factors affecting depression and the severity of depressive episodes (Pearson et al., 2008).

In summary, the findings of this study have proven that indeed there are underlying mechanisms that link the potent factors in depression in the form of distressing intrusive imagery. Visual mental imagery is thought to elicit emotions via the same neural pathways as visual perception (Holmes, Mathews, Mackintosh, & Dalgleish, 2008). Therefore, this conceptualization represents the distressing negative emotional valence elicited by distressing intrusive imagery. Moreover, the results of this study are proof that imagery rescripting is a potent imagery intervention technique with sub-samples of depression in different subcultures. This suggests that imagery rescripting is a globally acceptable treatment for depression. Employing imagery rescripting in clinical settings may help to account for the high prevalence rates of depression epidemiology and recurrence of depressive episodes. However, it is noteworthy

to mention that, there is a need for more empirical studies to prove the findings of this study. Although the results of this study are proof of initial treatment, there is still a need to include follow up sessions to test the stability of treatment effects. Because we used an outpatient sample for this study, a follow up session was constrained by factors beyond the control of the authors. This should however not undermine the promising findings of the study.

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