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## Mindfulness: an upward spiral process to combat depression

### Abstract

**Introduction:** Many studies proved detrimental effects of depression at the workplace in terms of reducing employee performance, increased absenteeism and other psychological, physical and mental distress. Organizations are driving specific interventions and training services to reduce potential negative outcomes of depression and one such intervention that needs to be researched is mindfulness. We postulate that a depressed individuals when engage in mindfulness practice, increases positivity and set an upward spiral processes that broaden the potentials that originate in mind and improves coping potential through positive reappraisal.

**Material and methods:** The participants (N = 155) enrolled in 8 week's Mindfulness Based Symptom Management (MBSM) program were contacted to take part in the study, 105 participants volunteered to take part in the study. The study used SPSS Amos to test the model.

**Results and conclusions:** The results indicate that mindfulness change reduces depression and the relation between mindfulness and depression was mediated partially through positive reappraisal. The study also tests competing model with change in rumination, although mindfulness program helped participants in reducing rumination it did not mediate the relationship.

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**Key words:** mindfulness, positive reappraisal, rumination, and depression

### Introduction

The turbulent, changing, complex, competing business environment is drowning employees into the death trap of depression. And many studies prove the detrimental effects of depression at the workplace such as reducing employee performance, increased absenteeism and other psychological, physical and mental distress. Globally 350 million people suffer from depression [1–3]. The highest category of people suffering from depression falls under the realm of corporate employees, around 42.5% of them suffer from depression. The reasons for depression are attributed to high competition to save job, low self-confidence, impractical expectations, and nutrient scarce

diet as some of them. Personal resources, such as physical health, social closeness, mindfulness, and resilience can be built over a time to overcome depression. It is estimated that people living with depression has increased by 18.5% [3]. On the other hand organizations are driving specific programs, intervention, and training services to reduce the potential negative outcomes of depression [1] and one such intervention that is attracting the interest of researchers and practitioners is mindfulness. Psychological and medical literature has proven record of using mindfulness interventions to reduce distress, pain and negative emotions among the patients [4]. Bear's review [3] encourages researchers to expand the mindfulness-based interventions to organizational context as it has proven efficacious clinically. Mindfulness as defined by [5] is about "paying attention in a particular way; on purpose, in the present moment and non-judgmentally". Mindfulness has its origin from the Buddhist concept of Sati, which syndicates awareness, attention, and memory with non-

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-judgment, acceptance, kindness and friendliness. Previous researchers have examined the predictors of positivity and suggest that trait resilience helps to create more positive emotions [6, 7] and conceptualized positive emotion can moderate the impact of life stressors on mental health [8, 9]. Studies have also identified positive linkages by building of good mental habits such as being more mindful, ability to consider different ways to achieve goals and solve problems [10], building social connections and relationships will reserve the inevitable hardships that people face leading to positivity [11]. Through mindfulness meditation practice managers might help employees to deal with depression that which is a major concern in today's competitive world. Based on, broaden and built theory, that postulated positive emotions widen individuals' thought-action repertoires, that enable them to have higher and wider level of percepts, thoughts, and moods [12]. As an individual practices mindfulness and results in higher and wider level of percepts, thoughts, and moods. Over a period develops mindfulness as a resource to deal with depression. Drawing from aforesaid literature, we would like to examine the growth in positive reappraisal by a change in mindfulness; second, change in positive reappraisal will predict the mindfulness change and at last, we want to test the consequence of mindfulness change on the decreased depression that is mediated by increased positive reappraisal. As an opposing hypothesis for the third hypothesis, we want to examine that changed mindfulness will lead to disruption in rumination, resulting in decreased depression [13].

## Review literature

### **Mindfulness**

Mindfulness includes self-regulation of mind, a metacognitive, attentive state, non-evaluative, nonreactive, and monitoring of each moment of cognition, perception, emotion and sensation deprived of fixing thoughts of past and future [5, 13, 14]. Buddhism conceptualized mindfulness as distinctive process that includes retention of objects of attention and the metaphysical understanding of absent reified self. The perspectives of modern psychology treat mindfulness as a thought to stimulate state of mindfulness that is characterized by a decentering and metacognitive awareness. Decentering is defined as the method of misidentification from cognitive thoughts, emotions, and sensations, and proved to lessen the distressing mental conditions [15]. Mindfulness state denotes a momentary situation wherein an individual become aware of their cognitive thoughts, emotions, and is able to stay attentive even when distractions arise. Mindfulness as a trait is more

everlasting capability of an individual to enter a mindfulness perspective at his/her will. As a trait, a mindful individual identifies their cognitive thoughts, thinking, and emotions, accepts the situations without being judgmental, and focuses on present. Mindfulness practice is process to shrink emotional bias of stimulus by being non-evaluative with phenomenological experience [16], that results in stimuli awareness with fewer distractions and fewer reactivity related to emotional valence [17]. And mindfulness state is broadened cognition. The degree of mindfulness practice leads to broadened awareness, by mutual links between cognition thoughts and emotions [18]. Mindfulness activates positive emotions [19, 20]. Mindful coping model by Garland [13] have postulated that by practicing mindfulness will facilitates positive reappraisal, i.e. the strategy that is an adaptive process by which an individual reconstructs a stressful events as beneficial, munificent, and/or eloquent. This strategy of benefit-finding is associated with lower distress and enriched mental health outcomes and also impact physiological characteristics related with stress [21]. Therefore, we propose that mindfulness is positively related to positive reappraisal.

### **Positive reappraisal**

The theory of psychological stress and coping postulated that, an individual engages in positive appraisal when faced by stressful situation [22] and reconstructs that situations as positive [23]. The prior research proved several ways to deal with negative events through coping and one of the ways that need to be researched in through positive reappraisal [24]. Positive reappraisal denotes attaching a positive meaning to an event for personal growth. Carver [25] found positive association between positive reappraisal with optimism, self-esteem, and negative association with anxiety. Positive reappraisal is well researched in the medical field and proved efficacious in reducing distress [26]. Further, previous literature established the negative relation between negative events like guilt and positive reappraisal [27]. Therefore, based on other research studies we speculate that even during the negative situation like depression individual will develop positive reappraisal and through the practice of mindfulness it propagates over a period of time and becomes a resource that will help an individual to overcome depression.

### **Depression**

Depression is conceptualized to transpire at least in some cases in reply to ability of hopelessness and helplessness following an episode reflected as a important loss [22] or failure [28]. Behaviorally, it manifests by withdrawal

and inactiveness [29] and the debilitated capability to start self-protective activities. Cognitively, depression is marked by pessimism, self-denigration, suppositions, flawed decisions, and beliefs. Affectively, it is noticeable either as an individual passes through a time of grief, resentment, anxiety, shame of failure or due to anhedonia a sense of reduced pleasure. Physiologically, depression disrupts functioning of neuroendocrine system in the body [30]. Aforesaid reasons attributes for depression and sometimes they mutually reinforce each other leading to downward spiral process that is characterised as self-perpetuating [31, 32].

### **Rumination**

Rumination is defined as a thought that is repetitive in nature, an uncontrollable process leading to narrow down the attention focus on the cause and consequences of feeling low or depressed about a negative even [33, 34]. Rumination denotes profuse thinking about thoughts and emotions associated with the negative occurrence. Studies exhibited that rumination is associated to advanced levels of depression [35]. Previous studies proved a strong association of rumination with negative affect [36]. Problem-focused coping could vent out the negative behavior like rumination and building on positive thoughts i.e. positive reappraisal could reduce the rumination and the area need to empirical tested.

### **Depression, rumination, mindfulness, and positive reappraisal**

Depressed individuals will be biased toward cognitive process interpreting, understanding of event, persons and objects and more likely to misinterpret as in negative way [37, 32] and ruminate on negative attributes [38]. Such rumination propagates and supports distress, dysphoria, and self-loathing. That in turn creates pathological unbalancing condition that errands negativity over positivity. Researchers have proved thought problem-focused coping is one of the way to cope with negative emotions and another way is by engaging in positive emotions that will pawn the malicious effects of anxiety and depression. Positive thoughts might ameliorative motivated by negative emotions as established by researchers. Salvaging on positive constructs reduces attention biasness to negative thoughts and emotions [39]. Moreover, positive emotions facilitate cognitive reappraisal that enables an individual to see positive meaning in negative situations [21] i.e. what is termed as positive reappraisal. Researchers have focused much on such feeling of positivity during negative events but neglected to examine the effect of rumination and positive reappraisal during negative effect of depression. Hence, we guess that the broadened cognition through

positive reappraisal may encounter depressed and rumination by disengaging in negative stimuli, that will allow awareness of the enjoyable aspects of experience over negative events.

By means of the broaden-and-build effect, positive emotions seems to propagate over a time that will lead to decreased depressive symptoms and enhance subjective well-being [12, 18]. We postulate that a mindfulness practices will broaden the potentials of mind and improves an individual's coping ability, that will propagate positive reappraisal that moves in an upward spiral process through which an individual can overcome negative thoughts and emotions and ruminating effect of negative events. Indeed, it is proved that such self-generating positive emotions occur over the course of 7-weeks mindfulness programs will decrease depressive symptoms in a randomized, controlled trial tested a non-clinical sample [18], therefore same may be applicable in this study.

### **Material and methods**

Mindfulness programme given by a certified trainer and a clinical consultants was contacted to guide and administer the study. The mindfulness programme was designed to engage participants in experiential practices for every day life. The participants (N = 155) enrolled for 8weeks program during April- May 2019 were contacted to take part in the study. Around 105 participants volunteered to take part in the study. The programme caters to people experiencing stress, mental health issues such as anxiety, depression, and others interested to become mindfulness practitioners like social workers, doctors, psychotherapists. The programme covers mindfulness meditation to make one aware about once emotions, thoughts, sensation and asses, accept the current mindful perspective without judgement and reactions to life, to have healthy life and build once wellbeing. Ethical clearance for the study was approved by the external trianer and team of clinical consultants.

### **Measurements**

#### **Mindfulness state**

Five Facet Mindfulness Questionnaire (FFMQ) scale with a Cronbach's  $\alpha = 0.81$  was used to measure mindfulness state [40]. The five dimensions include nonreactivity to internal experiences that denotes an individual's capability to persist objective and calmness when counters with cognitive thoughts and emotions that require provoking emotional retorts and an item from the scale is "I watch my feelings without getting lost in them", second dimension obsering covers an individual's propensity to be aware of and distinguish their cognitive thoughts and emotions

and an item from the questionnaire is "I pay attention to sensations, such as the wind in my hair or the sun on my face", acting with awareness is individual's capability to stay aware and present in the current moment while disregarding distractions and an item measuring the dimension is "I find myself doing things without paying attention", describing and discriminating refers to an individual's ability to identify and name the cognitive thoughts and emotions that he/she experience and item measuring it include "I'm good at finding words to describe my feelings", nonjudging of experience denotes an individual's propensity towards objective consideration of cognitive thoughts and emotions and rejecting of assigning values to them, tapped by one of the item "I tell myself I shouldn't be feeling the way that I am feeling".

#### Positive reappraisal

The positive reappraisal subscale of Cognitive Emotion Regulation Questionnaire (CERQ) and an item from the questionnaire include "I think I can learn something from the situation" [41].

#### Rumination

Remuniation was measured using subscale of CERQ, a four items scale and an item include "I often think about how I feel about what I have experienced"[41].

#### Depression

The PHQ 2 consisting of 2 items to screen depression was used to measure depression among participants. The scale has 97% sensitivity and 67% specificity [42]. Participants with positive results were only considered for the analysis purpose.

#### Analysis

To examine the change over time paired *t* test was performed. To test mindfulness change promote positive reappraisal and vice-versa hierarchical regression was carried out (hypotheses 1 & 2). Two regressional models depicting change in scores over period were used for the analysis in the study. The first model, dependent variable was (T2) positive reappraisal, and in first step positive reappraisal (T1) was processed followed processing mindfulness change. In model second, T2 dependent variable was mindfulness, first step mindfulness was processed (T1) followed by positive reappraisal change (Table 3). AMOS was used to do the path analysis examining the third hypothesis, the mediating effect of positive reappraisal/rumination change between the mindfulness and depression change. The overall model fit was examined by chi-square statistic, comparative fit index [43] value between 0–1, with value close to 1 indicating good model fit and root mean squared error of approximation index [44] with value close to 0 indicating better model fit.

#### Results

##### Sample demographics

The demographic characteristics of the sample majorly represented female (63.%) and married (77%) with mean age of 40.8 years. Over 70% of them were graduates and post-graduates with an average income of 7 Lakhs per annum indicating the sample represented highly educated and middle income group of population.

##### Pre and post mindfulness programme changes

As depicted in Table 1, the pre and post analysis of variables under the study revealed that after 8 weeks

**Table 1.** Pre-post changes of measurements

#	Pre M (SE)	Post M (SE)	<i>t</i> Value
Mindfulness	110.56 (1.25)	148.64 (1.18)	16.55***
Positive reappraisal	11.46 (.23)	13.64 (0.29)	8.65***
Depression	25.65(.41)	20.35 (0.29)	-8.99***
Rumination	7.99 (.11)	7.89(0.10)	-4.69***

# analysis done on dataset with N being adjusted for multiple inputs, SE is standard errors for pooled means across multiple inputs, \**p* < 0.05, \*\**p* < 0.01, \*\*\**p* < 0.001

**Table 2.** Correlation matrix

	Mindfulness	Postive reappraisal	Depression	Rumination
Mindfulness	1			
Postive Reappraisal	0.45***	1		
Depression	-0.49***	-0.27***	1	
Rumination	-0.36***	-0.08	0.46***	1

\*\*\**p* < 0.001

programme of mindfulness, the mindfulness had significantly increased,  $t(55) = 16.55$ ,  $p < 0.001$ , so did positive reappraisal,  $t(55) = 8.65$ ,  $p < 0.001$ , depression significantly reduced over the period of 8 weeks programme on mindfulness,  $t(55) = -8.99$ ,  $p < 0.001$  and rumination also reduced significantly,  $t(55) = -4.69$ ,  $p < 0.001$ .

### Correlations

From the Table 2 it is evident that mindfulness change was significantly positively related with positive reappraisal ( $r = 0.45$ ,  $p < 0.001$ ) and negatively related with depression ( $r = -0.49$ ,  $p < 0.0001$ ), and rumination ( $r = -0.36$ ,  $p < 0.001$ ). Depression was positively related with rumination ( $r = 0.46$ ,  $p < 0.001$ ) and negatively related with positive reappraisal ( $r = -0.27$ ,  $p < 0.001$ ).

### Mindfulness and positive reappraisal serially and mutually influence each other

Results from hierarchical regression indicated that (Table 3) mindfulness change significantly predicted (at time T2) positive reappraisal, controlling positive reappraisal at (at time T1). Similarly, positive reappraisal change predicted (at time T2) mindfulness controlling mindfulness ((at time T1). From this we infer that there exists a positive feedback loop between mindfulness and positive reappraisal, in which mindfulness and positive reappraisal mutually and successively promote each other through upward spiral process.

### Mediation effects of positive reappraisal and rumination between mindfulness and depression

To test the mediation effect first, the association between independent variable and dependent variable was significant i.e. change in mindfulness and depression ( $\beta = -0.40$ ,  $p < 0.001$ ). Then second, independent variable should be correlated to mediator i.e. association between mindfulness change and positive reappraisal ( $\beta = 0.37$ ,  $p < 0.001$ ). Further, controlling the rela-

tion between independent variable (mindfulness) and dependent variable (depression), the mediator (positive reappraisal) was related to outcome variable  $\beta = -0.19$ ,  $p < 0.05$  [45].

Finally, the relation between mindfulness and depression change was reduced by inclusion of mediator variable positive reappraisal but was still significant,  $\beta = -0.25$ ,  $p < 0.01$ , indicating partial mediation effect of positive reappraisal between mindfulness and depression. Multivariate path analysis, where change in positive reappraisal or rumination could mediate the effect of mindfulness on depression. Test results indicated good fit indices:  $\chi^2/df = 1.45$ ,  $p = 0.20$ ; RMSEA = 0.05 (0.00, 0.15), CFI = 0.95, AIC = 26.75. Fig 1 results indicated that relations between change in mindfulness and depression was mediated by change in positive reappraisal, whereas rumination was statistically insignificantly associated with depression but significantly associated with change in mindfulness. The model proved that positive reappraisal was partially mediating the effects of change in mindfulness on change in depression and as results of hierarchical regression proved upward spiral between mindfulness and positive reappraisal, alternate model testing the direct and indirect effect of change in mindfulness and rumination as competing model. The model results indicated poor fit of indices:  $\chi^2/df = 7.95$ ,  $p = 0.01$ ; RMSEA = 0.15 (0.05, 0.25), CFI = 0.84, AIC = 36.75. The model predicted positive reappraisal was significantly with change in mindfulness and partially mediated reduction in depression, although change in rumination did not mediate decrease in depression.

### Discussion

The study established that through mindfulness program participants were able to see a significant change in depression. The change in mindfulness predicts the increase in positive reappraisal, and also positive reappraisal change predicts mindfulness change.

Thus, there exists a positive feedback loop between mindfulness and positive reappraisal, in which mindful-

**Table 3.** Hierarchical regression

Order predictor	F	T	df	B	$\sigma$	B	Model $R^2$
Dependent variable = Time 2 positive reappraisal							
Time 1 positive reappraisal	299.89***	9.99	1,432	0.69	0.06	0.39	
Change in mindfulness	156.89***	2.98	1,989	0.03	0.02	0.45	
Dependent variable = Time 2 mindfulness							
Time 1 mindfulness	245.76***	7.66	1,432	0.57	0.06	0.36	
Change in positive reappraisal	153.62***	3.69	1,989	1.26	0.40	0.49	

\*\*\* $p < 0.001$

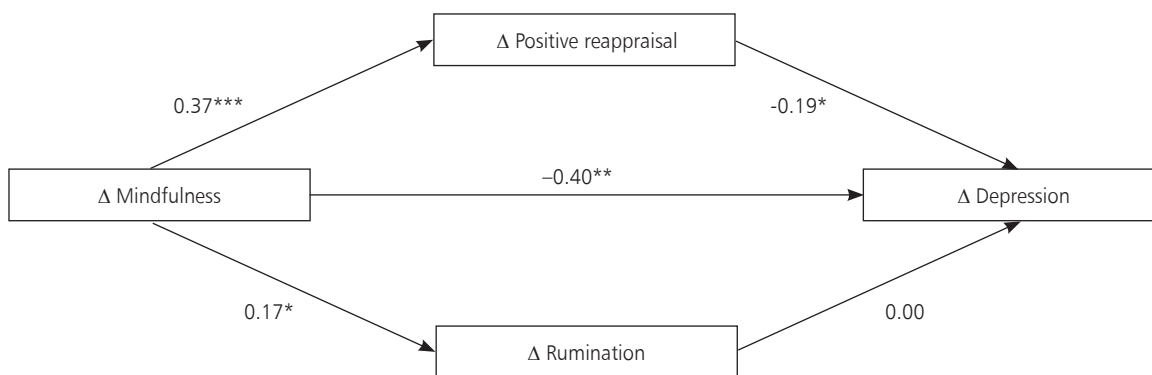


Figure 1. Path analysis results (Note: \* $p < 0.05$ , \*\*\* $p < 0.001$ )

ness and positive reappraisal mutually and successively endorse each other in upward spiral process. This results from unities with that of Fredrickson's broaden-and-build theory [13]. Further, after attending the 8-week mindfulness program, the participants had shown that mindfulness change reduces depression and the relation between mindfulness and depression was mediated partially through positive reappraisal. The study also tests competing model with change in rumination, although mindfulness program helped participants in reducing rumination it did not mediate the relationship, thereby it was found to be insignificant in predicting a decrease in depression.

The casual relationship established in the study in reducing the depression though mindfulness programme might not attribute directly because there might be other factors like change in socialization, time, placebo effect. The study is mere evidence for proving our hypotheses and offers researchers to explore further by conducting control group studies and applying other positive interventions, a combination of novel clinical interventions, cognitive-behavior therapy or a combination of such practices may yield better results. The study is limited to the set of participants for 8-week mindfulness programme, therefore, could not be generalized in another context. The study proves that positive psychological processes are engaged in an upward spiral model [18]. Conducting a more exhaustive study by taking control and experimental group may yield a better understanding of mindfulness meditation in day-to-day lifestyle. The findings prove that mindfulness help individual to be positive, non-reaction and non-judgemental through full awareness by positive reappraisal in devastating situ-

ations like depression. By practicing mindfulness, one can broaden once understanding of the situation and build reappraisal as a resource and lead a life they want.

#### Managerial implications

As depression among corporate employees is inevident by implementing mindfulness programs by managers could make a difference among the employees to fight and sustain difficult situations including personal and professional. As it develops into a resource over a period of time the employees might be engaged in the work, increasing their performance, job satisfaction, productivity, and develop overall well being. The study proves universality application of mindfulness and it adds to the literature of organizational behavior.

#### Conclusion

The study proves that mindfulness interventions could help employees to overcome depression as the results in this study indicate that mindfulness change reduces depression and the relation between mindfulness and depression was mediated partially through positive reappraisal. It also proves that mindfulness intervention will help to overcome rumination as proved by testing a competing model with change in rumination, although mindfulness program helped participants in reducing rumination it did not mediate the relationship.

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