



Two Routes, One Destination: The Metacognitive and Affective Pathways Linking Dispositional Mindfulness To Mental Health

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Abstract

A considerable body of literature exists on dispositional mindfulness (DM), exploring various candidate mechanisms to elucidate its positive impact on mental health. The goal of this perspective article is to present a theoretical model of the interplay and collective contribution of various interrelated (but, as yet, isolated) mechanisms linking DM and mental health, such as decentring, non-attachment, emotion regulation difficulties, and positive and negative affect. Through the synthesis of isolated research findings, the present article postulates two interrelated yet distinct categories of mechanisms in explaining the beneficial impact of DM on mental health: meta-cognitive and affective mechanisms. This perspective article recommends empirical validation of the proposed model across diverse populations and demographic groups so as to facilitate tailored mindfulness interventions.

INTRODUCTION

In recent years, there has been an accelerated interest in mindfulness and an exponential growth in the number of psychological and medical researchers exploring its beneficial impacts on mental health (Galante *et al.*, 2023). The idea of mindfulness was initially conceived of as a meditative practice in the Buddhist meditation tradition, a component of the larger philosophical and spiritual foundation connected to Buddhism (Wallace and Bodhi, 2006). Mindfulness is primarily defined as a non-judgmental and nonreactive awareness of internal (e.g., thoughts, physical sensations) and external (e.g., sounds, smells) experiences occurring in the present moment (Baer *et al.*, 2006; Kabat-Zinn, 2005). Mindfulness-based interventions have been widely implemented in clinical practice (Karl *et al.*, 2022) and have been demonstrated to be beneficial in addressing a wide range of mental health problems (Fischer *et al.*, 2020). Its ease of application and efficacy in addressing common mental health problems (particularly anxiety and depression) in Western countries have resulted in significant growth in the area (Van Dam *et al.*, 2018). Mindfulness can be a disposition (i.e., a trait-like quality) or may be developed through meditation practice. Dispositional mindfulness

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(DM), a disposition/trait to be mindful, has been popularized as a multifaceted construct having qualities like *observing* (attending to internal & external stimuli), *describing* (labeling observed experiences with words), *acting with awareness* (attending to the activities of the moment), *non-judging* (taking a non-evaluative stance toward cognitions and emotions) and *non-reactivity* (the tendency to allow thoughts and feelings to freely surface) (Baer *et al.*, 2009). Earlier studies have shown that DM not only reduces negative health outcomes and a wide range of mental and physical health symptoms but also correlates strongly with different forms of positive psychological experiences (Keng *et al.*, 2011). Various aspects of mindfulness, like non-judgmental acceptance and awareness, have been negatively associated with common forms of psychological distress, like rumination, anxiety, worry, fear, anger, and so on (Hayes and Feldman, 2004). The number of applications and implications resulting from having and enhancing this seemingly simple attribute is astounding (Carpenter *et al.*, 2019).

In the context of DM, a fundamental question arises: How does this attribute function and what underlying mechanisms are responsible for its salutary effects on mental health? There is substantial literature on DM that uses a variety of research methodologies and different candidate mechanisms to explain its beneficial impact on mental health. DM has been observed to associate with variables that are potential correlates of fewer mental health problems and enhanced mental health. For example, emotional constructs like emotion regulation difficulties (ERD; Guendelman *et al.*, 2017), positive/negative affect (Dua, 1993), decentering (Bernstein *et al.*, 2015), and non-attachment (Whitehead *et al.*, 2018) potentially predict mental health on one hand and are predicted by DM on the other hand (Brown and Ryan, 2003; Keng *et al.*, 2011). This points to the possibility that the relationship between DM and mental health might be mediated by ERD, positive/negative affect, decentering, and/or non-attachment in an intricate interacting pattern that has yet to be recognized and explored. Despite the fact that various researches have investigated the roles of these components in the DM-mental health relationship when considered in isolation, a consolidated attempt to

explore their combined interactive impact is still lacking. The present paper aims to present a perspective on how the diverse mechanisms linking DM with mental health may intersect and interact, informed by the findings well-established in the literature. This article first reviews briefly the major implicated mechanisms studied in isolation and thereafter presents a theoretical model combining these disparate mechanisms to bring forth the intricate relationship between DM and mental health.

Empirical evidence for the DM-mental health relationship

Extensive research has demonstrated the benefits of DM for both psychological and physical health (see Tomlinson *et al.*, 2018 for review). According to Dixon and Overall (2016), DM is a major psychological resource that plays a significant role in assisting individuals in coping with stress and adversity. Furthermore, according to Bajaj *et al.* (2016), these resources are related to the establishment of long-lasting changes in cognitive, emotional, or behavioral patterns. Earlier studies (e.g., Brown and Ryan, 2003; Cash and Whittingham, 2010; Tomlinson *et al.*, 2018) have consistently demonstrated that higher levels of DM are linked to a myriad of positive mental health outcomes. These outcomes encompass reduced psychopathological symptoms of anxiety (Hou *et al.*, 2015) as well as reduced anxiety sensitivity, trait and state anxiety, and social anxiety (Fisak and Von Lehe, 2012; Hou *et al.*, 2015), depression (Barnhofer *et al.*, 2011), post-traumatic stress disorder (Smith *et al.*, 2011), stress (Brown *et al.*, 2012), impulsivity (Rajesh *et al.*, 2013), neuroticism (Giluk, 2009), absent-mindedness (Herndon, 2008), dissociation (Baer *et al.*, 2006), borderline personality disorder symptomology (Fossati *et al.*, 2011), eating pathology (Adams *et al.*, 2012), difficulties in emotion regulation (Baer *et al.*, 2006), experiential avoidance (Baer *et al.*, 2004), alexithymia (Baer *et al.*, 2004), the intensity of delusional experience in psychosis (Chadwick *et al.*, 2008), and general psychological symptoms (Baer *et al.*, 2006).

DM is also linked to enhanced overall psychological well-being (Keng *et al.*, 2011), including higher levels of life satisfaction (Brown and Ryan, 2003), agreeableness (Thompson and Waltz, 2007), conscientiousness (Giluk, 2009), vitality, self-esteem,

sense of autonomy, competence, optimism, and pleasant affect or the feeling of happy emotions and moods (Brown and Ryan, 2003). This demonstrates mindfulness's ability to reduce maladaptive thought patterns, emotional reactivity, and psychological discomfort in a variety of conditions (Baer *et al.*, 2004; Baer *et al.*, 2006). Such findings of improved well-being and positive psychological experiences have been documented across diverse populations, including undergraduate students (e.g., Baer *et al.*, 2006; Brown and Ryan, 2003), community-dwelling adults (e.g., Brown and Ryan, 2003; Chadwick *et al.*, 2008), and clinical cohorts (e.g., Baer *et al.*, 2004; Chadwick *et al.*, 2008).

Considerable research has demonstrated that DM and its various domains predict psychological and subjective well-being (Mandal *et al.*, 2017). It is a multifaceted construct (Baer *et al.*, 2006) and it is evident from the research findings that the different facets of mindfulness will influence psychological health in different ways. For instance, Cash and Whittingham (2010) discovered that the ability to refrain from judging one's experience (*Non-Judge*) predicts lower levels of anxiety, stress, and depression, while acting with awareness (*Act Aware*) predicts only lower levels of depression. This study indicates that some of the components of DM are more relevant than others in predicting psychopathology symptoms. Therefore, it is important to ascertain which facets have a greater positive influence, as these can then be promoted with priority within the population. Similar findings reported from other studies made the significance of different facets in predicting mental health more evident as the findings reveal that most of the facets are negatively associated with psychological distress (Bergin and Pakenham, 2016), except the *Observing* facet, which does not correlate or sometimes even positively correlates with psychopathology (Baer *et al.*, 2009; Bergin and Pakenham, 2016). In general, longitudinal studies suggest that *Acting with Awareness* would be the most protective facet against depression (e.g., Calvete *et al.*, 2019), followed by *Non-Judging* (Petrocchi and Ottaviani, 2016) and *Non-Reacting* (Royuela-Colomer and Calvete, 2016).

In a recent meta-analytical study, Prieto-Fidalgo *et al.* (2022) tried to identify the longitudinal predic-

tive associations from DM facets to depression and anxiety symptoms in both adult and adolescent samples. Findings revealed that the facets of *Acting with Awareness*, *Non-Judging*, *Describing*, and *Non-Reacting* covaried significantly with depression and anxiety symptoms at time one, but only *Acting with Awareness* and *Non-Reacting* facets predicted a decrease in symptoms over time in adults. Due to the scarcity of studies using childhood and adolescent samples, only the role of *Acting with Awareness* predicting depression was evaluated, and the results indicated that this facet predicts a decrease in depression over time among adolescents. These results provide insight into the long-term relationships between the facets of DM and symptoms of depression and anxiety and suggest the importance of focusing attention on these facets in reducing the different psychopathological symptoms by concentrating on that particular facet of DM.

In short, the substantial body of research provides ample evidence supporting the fact that DM plays a crucial role in improving mental health and well-being among many populations. It is, thus, important to explore and understand the mechanisms linking DM with better psychological health. With growing pressure on mental health services, there is an increasing need to promote a proactive approach to health self-management among the general population (Gilbert, 2015). DM might be a resource that could be relied on in times of stress or symptomology to facilitate adaptive management of health and well-being (Bajaj *et al.*, 2016; Brown *et al.*, 2012). However, despite the rapidly-expanding literature exploring the relationship of DM and psychological health, a substantial amount of literature highlights the role of different isolated and candidate mechanisms (e.g., Burzler *et al.*, 201; Coffey *et al.*, 2010; Holzel *et al.*, 2011; Shapiro *et al.*, 2006). Therefore, this perspective article sought to classify these disparate mechanisms into meaningful higher-order groups and by doing so, propose categories of mechanisms as well as give a theoretical model interlinking the identified mechanisms of the DM-mental health relationship. But first, the following section describes key studies highlighting the potential psychological mechanisms underlying DM—the mental health relationship.

Potential pathways underlying DM–mental health relationship

As suggested by earlier researchers (e.g., Coffey *et al.*, 2010, Holzel *et al.*, 2011, and Shapiro *et al.*, 2006), there are multiple possible pathways that could explain the complex relationship between DM and mental health (Burzler *et al.*, 2019). The following are the identified major psychological mechanisms underlying DM–mental health relationship.

Emotion regulation difficulties

One potential factor that may explain the beneficial effect of mindfulness on mental health is the ability to regulate emotions or lower ERD (Tomlinson *et al.*, 2018). Initial research has shown that difficulties in emotion regulation can mediate the relationship between mindfulness and psychopathology (e.g., Ma and Fang, 2019). Multiple mental health issues, including depression (Gross and Munoz, 1995), anxiety disorders (Campbell-Sills *et al.*, 2006), post-traumatic stress disorder (McDermott *et al.*, 2009), and social dysfunction (Gross and Muñoz, 1995), have been linked to difficulties in emotion regulation or emotional dysregulation. ERD, thus, may be a critically important mediating mechanism for the beneficial effects of DM on psychological health.

Positive & negative affectivity

Different aspects of mindfulness help minimize the influence of daily challenges on both positive and negative emotions. DM has been found to predict an increase in positive affect (PA) and a decrease in negative affect (NA) (Brown and Ryan, 2003; Keng and Tong, 2016; Weinstein *et al.*, 2009). High levels of non-judgmental acceptance, in particular, prevent reductions in PA (Blanke *et al.*, 2018). DM also predicts greater emotional acceptance and awareness and an enhanced capacity to cope with negative affect in early and middle adulthood (Brown and Ryan, 2003; Creswell *et al.*, 2007). PA leads to cognitive flexibility (Qu and Zelazo, 2007), better coping behavior (Aspinwall and Taylor, 1997), readiness to information, and improvement in interpersonal problem-solving ability (Isen, 2002). While NA contributes to higher levels of stress, depression, poor psychological health, well-being, and low self-esteem (Cohen *et al.*, 2003; Kormi-Nauri *et al.*,

2013), PA leads to reduced mental health problems and enhances the quality of mental health and psychological well-being of individuals (Arora and Sharma, 2018). Thus, embracing mindfulness techniques not only serves to alleviate negative affect but also promotes the cultivation of positive emotional states, ultimately contributing to enhanced mental health and overall well-being

Decentering

Another widely-explored mechanism via which mindfulness impacts mental health is decentering. Decentering is a process through which one is able to step outside of one's immediate experience, thereby changing the very nature of that experience' (Safran and Segal, 1990, p. 117). It involves viewing one's feelings and thoughts as transient, distinct from one's self, and not a true picture of objective reality (Safran and Segal, 1990). Quite a number of studies (e.g., Carmody *et al.*, 2009; Gecht *et al.*, 2014; Pearson *et al.*, 2015) have proposed decentering as a key mechanism underlying the link between mindfulness and psychological health, contending that DM increases decentering, which in turn reduces distress, anxiety and depressive symptoms. Shoham *et al.* (2017) found a significant association between mindfulness and decentering, with decentering mediating the impact of mindfulness on reducing emotional arousal. Lee (2021) found that both non-judging and non-reactivity facets of DM were related to lower levels of psychological distress through higher levels of decentering. In summary, by promoting psychological distancing from distress and reducing symptoms of anxiety and depression, decentering acts as a mediator underlying the positive impact of mindfulness on mental health.

Non-attachment

Another related mechanism playing a role in the impact of mindfulness on mental health is non-attachment (Tran *et al.*, 2014). Non-attachment refers to a subjective quality characterized by a lack of fixation on concepts, images, or sensory objects as well as a lack of internal pressure to attain, maintain, avoid, or alter situations or experiences (Sahdra *et al.*, 2010). This encourages a less judgmental and more flexible manner of connecting to one's life experiences (Whitehead *et al.*, 2018), allowing one

to live with greater ease and satisfaction. Research suggests that DM and non-attachment may complement each other, with individuals who possess higher levels of DM also exhibiting greater non-attachment (Kudesia, 2018). This synergy between DM and non-attachment may contribute to enhanced well-being and greater psychological flexibility (Sahdra *et al.*, 2016). It, at least partially, mediates relationships between mindfulness and outcome measures of well-being and psychological distress in a variety of cultural contexts (e.g., Moussa *et al.*, 2021; Zhang *et al.*, 2021). Wang *et al.* (2015) found a link between non-attachment and reduced psychological distress, and Sahdra *et al.* (2010) and Chao and Chen (2013) reported that people who scored higher on non-attachment had lower levels of depression, anxiety, and stress. Non-attachment was also found to have negative correlations with difficulties in regulating emotions across both meditative and non-meditative sample groups (Feliu-Soler *et al.*, 2016; Sahdra *et al.*, 2010). Life satisfaction, PA, and NA, the three measures of subjective well-being, have all been found to be correlated with non-attachment (Sahdra *et al.*, 2010; Wang *et al.*, 2015).

The foregoing description briefly highlighted the potential mechanisms linking the beneficial effects of DM with good mental health. However, research into the combined effects of these mechanisms has been scarce. Though these mechanisms have been linked to each other (e.g., decentering linked to non-attachment (Feliu-Soler *et al.*, 2016), PA and NA (Milosch, 2019), and emotion regulation (UnluKaynakçı and YerinGuner, 2022); non-attachment linked to emotion regulation and NA (Sahdra *et al.*, 2010; Wang *et al.*, 2015)), the combined and interactive effects of these separately-proposed mechanisms remain relatively unexplored. Thus, there is a lack of a comprehensive model explaining how DM exerts its positive effects on mental health. Such an exploration into the interlinking of the individual mechanisms would also help assess the relative contribution of each mechanism in the mindfulness-mental health relationship. Thus, the present article proposes an inclusive model (see Figure 1) linking DM with mental health via the different mechanisms that have been empirically, but isolatedly, found to be associated with DM and mental health.

Emerging categories of mediating mechanisms of DM-mental health relationship

Based on the review of the available evidence on the mediating mechanisms of DM and mental health, two major categories of mechanisms emerged. The first category is metacognitive mechanisms, which explain the significance of metacognitive skills (decentering and non-attachment), and the second one is affective mechanisms, which describe the importance of ERD and both PA and NA in explaining the salutary effects of DM on mental health. Figure 1 indicates how these two categories of mechanisms are likely to interact in bringing about the positive effects of DM on mental health. Notably, metacognitive mechanisms likely precede the affective mechanisms in impacting mental health due to DM. The reasoning behind such a sequencing is being discussed ahead.

It is evident from the literature discussed above that enhanced DM reduces mental health problems, improves mental health and psychological well-being directly (Keng *et al.*, 2011) as well as via many other pathways such as increased decentering (Gecht *et al.*, 2014; Pearson *et al.*, 2015), increased non-attachment (Ho *et al.*, 2022), and lower levels of ERD (Ma and Fang, 2019), which further reduce

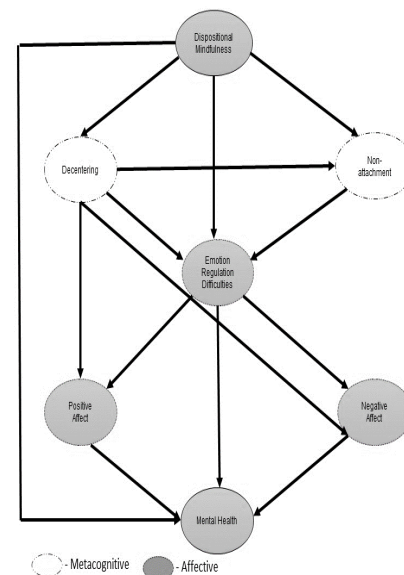


Figure 1: The proposed theoretical model explaining the interplay of underlying mechanisms (metacognitive and affective) in the mindfulness-mental health relationship

NA and enhances PA (Quoidbach *et al.* 2010). These mechanisms may be broadly classified into two categories of: metacognitive (application of higher-order reasoning to assess and regulate one's own cognitive processes) and affective (entail a variety of difficulties related to generation, regulation, and experience of emotions) mechanisms. Such metacognitive abilities as decentering and non-attachment would likely appear before the affective mechanisms that link DM and mental health are activated. For instance, Kiken and Shook (2012) have demonstrated that individuals with higher DM exhibit reduced susceptibility to negative cognitive processes, thereby mitigating the risk of emotional disorders. DM enhances the metacognitive ability to decenter by allowing people to take a step back from their immediate feelings and thoughts. It enables individuals to witness these cognitive occurrences without being completely engrossed or manipulated by them (Gecht *et al.*, 2015). The capacity to identify and acknowledge thoughts and emotions as transitory phenomena is enhanced by DM; this prevents automatic responses and promotes a more impartial viewpoint. Those who possess strong metacognitive abilities are capable of critically assessing their own thoughts and emotions, understanding the origins and outcomes of these processes, and effectively regulating their responses (Bernstein *et al.*, 2015). By implementing decentering as a metacognitive technique, individuals can enhance their ability to navigate difficult circumstances, diminish emotional reactivity, and generate more logical and adaptive decisions regarding their actions and reactions, which further leads to non-attachment (Feliu-Soler *et al.*, 2016). Decentering seems to be an intrinsic quality of non-attachment, a fundamental mechanism in the practice of mindfulness (Allen, 2013).

Non-attachment is a decrease in self-referential processing or selfless experiential processing, which entails processing the subjective experience of the present moment without considering one's own interests (Hadaş *et al.*, 2016). Thus, there appears to be a temporal sequence even between the metacognitive abilities of decentering and non-attachment (see Figure 1). Decentering, which involves adopting a present-focussed and non-judgmental attitude towards thoughts and feelings, is seen as

an essential initial step in achieving a detached perspective on experiences, known as non-attachment. It is believed that decentering occurs first in the temporal sequence, followed by non-attachment (Allen, 2013). As evidenced by a number of studies, metacognitive abilities such as decentering also reduce ERD (UnluKaynakçı and YerinGuner, 2022; Naragon-Gainey *et al.*, 2023) and NA, enhance PA (Milosch, 2019), and also lead to the other metacognitive ability of non-attachment (Feliu-Soler *et al.*, 2016). Non-attachment, in turn, has a direct impact on reducing ERD (Sahdra *et al.*, 2010), minimising NA, and enhancing PA (Wang *et al.*, 2015).

The second category of mediating mechanisms identified in the present article involved affective mechanisms, which link DM to reduced mental health problems and better mental health and well-being, and is possibly preceded by metacognitive mechanisms. Research has reported the association between DM and ERD (Ma and Fung, 2019). Similar to metacognitive mechanisms, among these two potential affective mechanisms (ERD and PA/NA), there is likely to be a sequence whereby ERD precedes PA and NA in impacting mental health problems (see Figure 1). That is PA and NA act as mediators in the relationship of ERD with mental health. This is inferred as a decrease in ERD leads to enhanced PA and reduced NA (Quoidbach *et al.*, 2010) which evidently reduces mental health problems (Arora and Sharma, 2018; Kormi-Nauri *et al.*, 2013).

The preceding discussion gives a clear picture of the possible sequence of the two major mechanisms in explaining the positive impact of DM on mental health, as represented in Figure 1. Thus, the present perspective article is innovative in providing a more inclusive model and identifies two clusters of mechanisms and their possible sequence in bringing about the beneficial effects of DM on mental health. While increasing DM reduces mental health problems directly, it also works through a number of other important mechanisms that contribute to better mental health. This suggests giving priority to efforts that enhance DM, as such efforts can both directly and indirectly contribute to reduced mental health problems and better mental health through improvement in decentering, enhance-

ment of non-attachment, alleviation of difficulties in regulating emotions, enhancement of PA and reduction of NA. In fact, recent studies (e.g., D'Antoni *et al.*, 2022) have begun to show that mindfulness meditation can result in improving DM. DM acts as a mediator between mindfulness practices and clinical outcomes (Carmody *et al.*, 2009). Mindfulness intervention programs, therefore, should target enhancing DM, which will improve mental health via direct and indirect mechanisms. Attempts should also be made to enhance decentering and non-attachment, improving emotion regulation and PA, as well as reducing NA, each of which play some role in improving mental health.

FUTURE DIRECTIONS

Based on the proposed inclusive model, some possible future directions for research are being discussed below:

- *Empirical validation of the proposed model.* It is imperative to empirically examine the proposed theoretical model across diverse populations, including clinical and community samples. By examining its applicability in various contexts and groups (e.g., across genders; and on the basis of meditation experiences, such as naïve meditators, regular experienced meditators, and non-meditators), researchers can identify which aspects of the model remain invariant across populations, which will clarify the specificity of the pathways from DM to mental health outcomes.
- *Development and implementation of specific interventions for enhancing DM and various cognitive and affective mechanisms.* Building upon the insights gained from empirical validation of the proposed model, researchers could develop and deliver mindfulness interventions tailored to address specific mechanisms identified within different population groups. By targeting the mechanisms most salient to each population, interventions can be optimized for effectiveness and relevance.
- *Longitudinal studies and directions of the mechanisms.* Longitudinal research designs are needed to assess the long-term effects of

DM on mental health outcomes and to validate the causal specificity and temporal sequence of the construct in the proposed model, which posits that metacognitive abilities are placed first in the sequence and these lead to affective mechanisms which further reduce mental health problems.

By pursuing these future directions, researchers can advance the understanding of the mechanisms underlying the relationship between DM and mental health, ultimately contributing not only to the improved theoretical understanding of how DM works but also to the development of more effective interventions tailored to diverse populations.

CONCLUSION

The present perspective article provides an elaborate account of the beneficial impact of DM on mental health and classifies the most prominent underlying mechanisms, decentering, non-attachment, ERD, PA and NA, into two categories of metacognitive and affective mechanisms. The theoretical model proposed also elucidates (informed by previous literature) the possible directionality of the said two mechanisms, with metacognitive ones preceding affective mechanisms. It is necessary to evaluate the applicability of the suggested model empirically across different populations (clinical and community samples) and groups (such as male-female meditators, naïve meditators, and non-meditators) so as to design and provide mindfulness interventions targeting the specific mechanisms observed among different groups leading from mindfulness to mental health.

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