Minding the Mechanisms: A Discussion of How Mindfulness Leads to Positive Outcomes at Work

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Hyland, Lee, and Mills (2015) asserted that the many benefits of mindfulness practices have been underutilized and understudied at work. We agree with the focal article's stance that more research is needed on mindfulness at work. We extend this argument to include a request that future research pays attention to the mechanisms responsible for the effects of mindfulness at work. In this commentary, we (a) briefly discuss the practical importance of understanding the mechanisms by which mindfulness practices lead to positive outcomes, (b) outline the mediating mechanisms proposed by the leading theoretical model of mindfulness effects and how those mediators apply to work, and (c) argue that more rigorous, empirical research is needed to understand the mechanisms through which mindfulness practices lead to positive work outcomes.

The Mechanisms Matter

Understanding the causal mechanisms responsible for the positive outcomes associated with mindfulness practices is important for both researchers and practitioners. By developing an understanding of the mechanisms, researchers can use this information to inform the choice of interventions and training programs implemented within organizations. Knowing the mechanism responsible for a particular outcome will allow practitioners and researchers to carefully craft mindfulness-training programs geared toward the most desirable outcomes for their organization. Furthermore, understanding the mechanisms will allow for troubleshooting of failed mindfulness-training programs. With an understanding of the mediators, practitioners may be able to amend their intervention in a more deliberate manner, which will result in more effective training programs in the workplace.

As mentioned in the focal article, mindfulness-training programs are often diluted to accommodate the time constraints present in an organizational setting. Therefore, understanding the mechanisms responsible for the

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positive effects of mindfulness will help guide how training programs can be condensed while retaining the essence of mindfulness. Understanding the mechanisms will also allow researchers and practitioners to make informed, testable hypotheses about outcomes that may be associated with mindfulness practices.

The Underlying Mechanisms of Mindfulness

As comprehensively discussed in the focal article, there are many benefits of mindfulness in the workplace, and unfortunately, those benefits are understudied. Similarly, the causal mechanisms through which mindfulness leads to positive outcomes have received little empirical attention. Here, we will discuss one of the most prominent models of causal mechanisms (Gu, Strauss, Bond, & Cavanagh, 2015) in hopes of spurring more empirical research in this area. Undoubtedly, empirical testing of the self-awareness, self-regulation, and self-transcendence (S-ART) model (Vago & Silbersweig, 2012) in workplace samples will be beneficial to understanding the usefulness of mindfulness in the workplace. Furthermore, the development and consideration of potential alternative models of mindfulness will be beneficial to advancing the understanding of mindfulness practices at work. Therefore, we ask that researchers consider and test this leading model in the workplace, as well as consider alternative models that may better fit the data.

The S-ART model builds on the assumptions proposed by Hölzel et al. (2011) regarding the mechanisms through which mindfulness effects occur. Specifically, Hölzel et al. stated that the four underlying mechanisms responsible for the effects of mindfulness are changes in attention regulation, body awareness, emotion regulation, and perspective of the self. Vago and Silbersweig later refined the model proposed by Hölzel et al. to address the paucity of empirical evidence surrounding mindfulness bodily awareness studies and therefore trimmed bodily awareness as a mechanism from the model (Khalsa et al., 2008; Nielsen & Kaszniak, 2006). As such, Vago and Silbersweig's resultant model proposes three mechanisms through which mindfulness effects occur: development of self-awareness, self-regulation, and self-transcendence. Each of these proposed causal mechanisms leads to positive outcomes (e.g., stress reduction, increased well-being), albeit through different avenues.

Self-Awareness

According to the S-ART model, a change in self-awareness is one mediator of the relationship between mindfulness and positive outcomes. Self-awareness is defined by Vago and Silbersweig (2012) as awareness of one's own awareness. Importantly, self-awareness has been linked to both mindfulness practices (Vago & Silbersweig, 2012) and positive outcomes at work (Reb, Narayanan, & Ho, 2013; Zamahani & Rezaei, 2014). However, to our

knowledge, the mediating role of self-awareness in the relationship between mindfulness and positive work outcomes has never been investigated in a single study. This is unfortunate considering both classical and contemporary practices of mindfulness contend that developing high levels of self-awareness through mindfulness practices can help people to develop a skillful way of responding to mental processes that account for maladaptive behavior and emotional distress. For instance, self-awareness equips individuals with the ability to be aware of and to control cognitive impulses that often cause anxiety and induce distress (Bishop et al., 2004; Buddhaghosa, 1991; Kabat-Zinn, 2011). Empirical literature notes that managerial self-awareness is positively associated with managerial effectiveness and career development (McCarthy & Garavan, 1999). Career development can be perceived in terms of individual agency, which involves an individual actively directing and managing his/her career. Individuals who showcase higher levels of self-awareness also demonstrate high levels of emotional intelligence, which is essential for establishing personal relationships and increasing managerial effectiveness (Goleman, 1996, as cited in McCarthy & Garavan, 1999). Managers who are self-aware are able to critically examine their own work behaviors, cultivate positive management styles, and gauge the impact of their management styles on subordinates and peers (Atwater & Yammarino, 1992). Individuals who are self-aware are inclined to assess their own strengths and weaknesses. Hence, self-aware individuals have insight into their developmental needs, which makes them employees who actively participate in developmental activities and training programs (Noe & Wilk, 1993). McCarthy and Garavan (1999) assert that developmental and training programs that do not focus on development of self-awareness within their training design are less likely to bring about change and managerial effectiveness. Therefore, mindfulness-training programs can be one of the promising means to help employees develop a sense of self-awareness.

According to the S-ART model, self-awareness is a highly developed skill attained though the practice of sustained attention. Most mindfulness practices involve practitioners focusing on thoughts, feelings, and sensations as they arise in a nonevaluative manner (Gunaratana, 2011). Gradually, one's own awareness becomes the object of attention, and sustained attention to one's own awareness leads to development of self-awareness. It is important to recognize the assertion that self-awareness is gradually developed over extended mindfulness practices. As such, it is possible that development of self-awareness may not occur in mindfulness-training programs that are diluted for implementation in the workplace.

Self-Regulation

A change in self-regulation is another mechanism through which mindfulness might lead to positive effects. Self-regulation is the ability to

manage and alter one's responses and various impulses (Vago & Silbersweig, 2012). Developing self-regulation aids the mindfulness practitioner by rectifying attentional biases caused by dispositional factors or experiential factors (Vago & Silbersweig, 2012). Attentional biases can cause ruminating behavior, which can impede information processing ability and cause cognitive interference during tasks (Yiend, 2010).Various mindfulness practices have been shown to reduce negatively biased thoughts and perceptions that may impair self-regulation (Chiesa & Malinowski, 2011). Continued mindfulness practice also helps to facilitate approach behavior (as opposed to avoidance behavior), which typically leads to healthier outcomes by promoting interest, approval, and acceptance (Sin & Lyubomirsky, 2009; Waikar & Craske, 1997).

Mindfulness based practices have also been shown to have a profound effect on emotional regulation (Baer, Walsh, & Lykins, 2009; Carmody, 2009). Emotion regulation is an important part of self-regulation because it involves the ability to shift one's focus of attention at will while regulating ongoing emotional activity (Carver & Scheier, 2004; Koole, Van Dillen, & Sheppes, 2011). McEwen (2008) posits that mindfulness based practices allow one to regulate how they respond to situations. This helps break preservative and chronic responses to real or imagined stress related physiological and psychological stimuli. This form of self-regulation helps prevent allostatic load, which is cumulative stress that is placed on the body and the mind (McEwen, 1998). Allostatic load occurs from poor or mismanaged responses to stress and has a plethora of adverse health effects associated with it, such as suppression of the immune system, cardiovascular disease, weight gain, loss of bone density, sexual and reproductive impairments, decreased neurogenesis, and increased neural cell death (Jameison & Dinan, 2001; McEwen, 2008; Sapolsky, 2003).

Exercising self-regulation has various practical applications within the workplace. Self-regulation is key to achieve managerial excellence. Self-regulation within the managerial context involves standard setting, detecting discrepancies, and actively reducing these detected discrepancies. A manager's ability to actively assess the needs and goals of various stakeholders and his or her capability to actively seek feedback to gauge how his or her performance is assessed by others requires self-regulation. These persistent self-regulatory behaviors are shown to enhance managerial effectiveness (Ashford & Tsui, 1991). Impairment of self-regulation, which is characterized by ego depletion and experience of intrusive thoughts, renders employees vulnerable to engaging in unethical behaviors such as impulsively cheating on a problem-solving task. The lack of self-regulatory resources diminishes an individual's moral awareness, which heightens the tendency to engage in immoral and unethical behaviors (Gino, Schweitzer, Mead, & Ariely, 2011).

Self-Transcendence

Self-transcendence occurs when a person overcomes self-centeredness and values prosocial behavior (Vago & Silbersweig, 2012). Self-transcendence involves increasing prosocial characteristics, transcending self-focused needs, and improving the focus on others (Fiori, David, & Aglioti, 2014). These mechanisms have been shown to improve organizational citizenship behaviors and reduce workplace materialistic attitudes (Torlak & Koc, 2007). Several studies have posited that mindfulness can cultivate an interdependence of self in specific social settings that foster a supportive framework of empathy and mentalizing (Decety & Chaminade, 2003; Singer & Lamm, 2009). As such, increased mindfulness facilitates several aspects of prosocial behavior (Vago & Silbersweig, 2012). These tendencies toward interdependence and prosocial behavior may have a neuropsychological basis, because enhancements in functional activity in social-cognitive networks associated with mentalizing and empathy have been demonstrated in several studies with adult populations (de Greck et al., 2012; Fan, Duncan, de Greck, & Northoff, 2011; Singer & Lamm, 2009). Eisenberg, Eggum, and Di Giunta (2010) found that an individual's empathetic ability affects others' perceptions and feelings toward the individual, which promotes relationship building and maintenance among individuals. Furthermore, engaging in prosocial behaviors, as a result of attaining self-transcendence, is also shown to boost self-esteem, which is a proximal predictor of work related outcomes such as job satisfaction (Judge & Bono, 2001; Laible, Carlo, & Roesch, 2004). Prosocial behaviors are crucial from an organizational standpoint. Employees who engage in prosocial behaviors enhance organizational effectiveness, which is measured in the form of performance quantity and quality, financial efficiency indicators, and customer service indicators (Podsakoff, Mackenzie, Paine, & Bachrach, 2000).

Classical forms of mindfulness characterize different aspects of self-transcendence as the distinction between the experience of oneself and one's thoughts, emotions, and feelings (Varela, Thompson, & Rosch, 1992). This realization is described as "nonattachment" (Sahdra, Shaver, & Brown, 2010). Salzberg (2011) describes this as a transcendence of "self–object duality" by characterizing the self as empty and groundless. This type of self-transcendence is most commonly seen in MBCT (mindfulness based cognitive training), which involves a disengagement between one's immediate experience via an external observer's perspective (e.g., "I am not a smart person" vs. "I am having the thought that I am not a smart person"; Segal, Williams, & Teasdale, 2012). Safran and Segal (1996) point out that the insight provided by self-transcendence provides awareness that one's thoughts are always subjective and transient. This insight benefits the practitioner by

facilitating nonattachment, which helps to improve life satisfaction, well-being, and interpersonal functioning (Sahdra, Shaver, & Brown, 2010).

Current Empirical Research Needs More Rigor

Thus far we have discussed the leading causal model for the positive outcomes associated with mindfulness trainings. We will now discuss how future research might proceed to provide a better understanding of the mechanisms responsible for the positive effects of mindfulness trainings at work.

Because the mindfulness-training methods employed in workplace settings differ from those that have been tested in the laboratory, researchers must investigate, rather than assume, the effectiveness of mindfulness in the workplace. We feel that rigorous field experiments will be most beneficial to advancing the understanding of mindfulness at work. It is generally accepted that experimental designs are the most rigorous approach to determining intervention and training effectiveness (Boruch, 1997; Cook & Shadish, 1994). Although some aspects of experimental design are difficult to employ in field settings (Lipsey & Cordray, 2000), such as organizational settings, there is precedence that it is possible (for example see, Klatt, Buckworth, & Malarkey, 2008). Whenever possible, future research on mindfulness-training programs should ensure that groups are randomly assigned. It is also important that appropriate control conditions are used. One meta-analysis has shown that studies of the same types of interventions found different results when using random assignment compared with those using nonrandom assignment (Lipsey & Wilson, 1993). The groups to which participants are assigned should also be carefully considered to ensure use of appropriate control groups for comparison. Importantly, a simple no intervention or waitlist control group may not always be the best control group for comparison in workplace settings (Kinser & Robins, 2013). Further, because the workplace is host to many contextual factors, field studies investigating the effectiveness of mindfulness interventions ought to measure how interventions interact with the situational factors that are present.

Studies aiming to evaluate mindfulness-training program effectiveness should also include measures of the proposed mediating mechanisms (Carmody, Baer, Lykins, & Olendzki, 2009). As previously mentioned, workplace settings are ripe with contextual factors that may impede or enhance the effectiveness of mindfulness interventions. As such, the causal mechanism responsible for outcomes in a laboratory setting may not occur in a field setting. For example, if increased empathy is the mechanism by which a mindfulness-training program increases cooperative behavior in a laboratory setting, such an effect might not occur in a workplace setting that encourages and rewards cutthroat competition among employees. By identifying contextual factors like these, organizations will be better able to select

mindfulness-training programs that are most likely to be effective in their particular organization.

In addition to measuring the mechanisms of mindfulness, it is also important that all possible outcome variables are measured: for example, measuring both self-transcendence (the proposed mediator) and the predicted outcomes that might occur through self-transcendence (some examples might include occupational citizenship behaviors, counterproductive work behaviors, reduced work stress, increased worker well-being, employee retention). By understanding the mechanisms responsible for particular outcomes, the organization will be able to craft the mindfulness-training program to fit the unique needs of their employees.

Conclusion

We aimed to communicate why understanding the mechanisms are important, to describe the leading causal model, and to argue that more rigorous empirical research is needed to understand the mechanisms. Like the authors of the focal article, it is our hope that this issue inspires future research on mindfulness practices at work.

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Mind the Gap: The Link Between Mindfulness and Performance at Work Needs More Attention

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The concept of mindfulness has become the topic of heated debates among scholars and practitioners alike. Hyland, Lee, and Mills's (2015) focal article has an ambitious goal: distilling how mindfulness fits into workplace research and practice. This is laudable, and we are pleased that the authors

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