

Mindfulness, compassion, and prosocial behavior

Paul Condon

Northeastern University

In press

Mindfulness in social psychology

Edited by J.C. Karremans & E. Papies

Psychology Press

Address correspondence to:

Paul Condon, PhD
Northeastern University
Department of Psychology
360 Huntington Ave
125 Nightingale Hall
Boston, MA 02115
p.condon@neu.edu

Abstract

Scientific studies have documented a plethora of personal benefits resulting from mindfulness, but few studies have investigated the social benefits of mindfulness. Yet a primary goal of meditation practices in their spiritual contexts centers on prosocial qualities such as compassion and kindness. Recent social psychological research has yielded fresh perspectives on the role of meditation in social outcomes, providing encouraging evidence that mindfulness and related practices can increase compassion and prosocial behavior. This chapter will review this emerging literature, and in so doing, consider the relationship between secularized mindfulness-based interventions and ethics, which has been a topic of great debate.

Word count: 100

Historically, the cultivation of mindfulness is intertwined with virtues such as compassion, love, and wisdom. Buddhist traditions evolved through philosophical argumentation that resulted in detailed understandings of the mind and contemplative practices to promote relief from suffering. The cultivation of virtuous mental states, such as compassion, was a central goal of many contemplative practices. While the scientific discourse surrounding mindfulness has acknowledged the importance of pro-social, virtuous qualities (Davidson & Harrington, 2002), early scientific work did not empirically examine such qualities, instead focusing on the cognitive benefits, neural correlates, and health outcomes associated with mindfulness (see Davidson, 2010, for a review).

The relationship between mindfulness and compassion has gained substantial interest in recent years within a growing debate about mindfulness and ethics. According to various Buddhist scholars, mindfulness originally had ethical connotations, but this has not been emphasized in modern contexts (e.g., Gethin, 2011). Modern conceptualizations of mindfulness emphasize an ethically *neutral* orientation, suggesting that the endorsement of a particular ethical framework would be inappropriate in clinical and secular contexts, instead leaving ethics as a matter of personal choice (Monteiro, Musten, & Compson, 2015). Yet an ethically neutral approach could lead to problematic applications of mindfulness-based training. Mindfulness practice motivated by personal gain or self-improvement, for example, could fertilize the self-centered processes that are thought to contribute to one's own chronic dissatisfaction (i.e., *greed*, *hatred*, and *delusion*; Gethin, 1998). The question of ethics has thus raised concerns about the fidelity of modern applications of mindfulness in secular settings.

Contemporary psychological literature characterizes mindfulness as present-centered and non-judgmental (e.g., Kabat-Zinn, 2011) whereas certain Buddhist styles of mindfulness involve

the discrimination of virtuous and non-virtuous mental states, suggesting a possible divergence between contemporary and traditional perspectives. In the traditional view, the ability to observe and define mental contents allows the practitioner to relate experience to a system of mental states distinguished as virtuous and non-virtuous (i.e., the Abhidharma; Bodhi, 2011). In this sense, “right mindfulness” includes discrimination about mental qualities, intentions, and the conviction to engage in purposeful action. This approach is contrasted with the contemporary notion of mindfulness as *non-judgmental* awareness (Kabat-Zinn, 2011). Scholars have thus questioned whether modern mindfulness based interventions that lack an ethical framework merely provide symptomatic relief rather than insight into the roots of suffering (Monteiro, Musten, & Compson, 2015).

In light of the debate about ethics in mindfulness, some Buddhist scholars have traced the origins of non-judgmental awareness to Buddhist sources. In particular, the concept of non-judgmental awareness appears to stem from a category of *non-dual* meditation practices that view mental states as absent of subject-object duality (Dunne, 2015). From this *non-dual* perspective, all mental states are constructions or representations, independent of the desirability of the content of a mental state (i.e., virtuous vs. non-virtuous). The non-dual style of mindfulness merely witnesses the arising and falling of mental states, leading to the insight that all states are mental representations, rather than reflections of an objective reality. This approach appears to have had direct influence on the style of practice found in contemporary mindfulness programs (Dunne, 2015; Kabat-Zinn, 2011). Nevertheless, non-dual traditions assume that the success of these practices is dependent on the allegiance to an ethical code in one’s lifestyle (Dunne, 2015). As such, ethics could play a key role in promoting benefits associated with mindfulness. The empirical study of mindfulness and virtuous outcomes remains of great interest.

Social Psychology is uniquely positioned to evaluate the role of mindfulness and meditation in promoting virtuous outcomes. Social psychology is known for its theoretical and methodological innovations for measuring social processes and behavior in settings that reflect the world in which people live. Moreover, virtuous states and behaviors most often occur in social and relational contexts (see also Karremans & Kappen, this volume). Hence, social psychological methods offer an ideal approach to test the causal influence of mindfulness on compassion and prosocial behavior. This chapter will review the current scientific research investigating the impact of mindfulness and related meditation techniques on compassion and prosocial behavior and identify open questions for future research.

Defining mindfulness

A thorough exploration of mindfulness constructs is beyond the scope of this chapter (for review, see Karremans & Papies, Ch 1, this volume); however, one definitional issue is germane to the present chapter. The Buddhist traditions that inspired contemporary mindfulness interventions do not offer a unified or authoritative account of mindfulness, leading to confusion in the psychological literature about what exactly mindfulness is (Dunne, 2011, 2015; Gethin, 2011; Lutz, Jha, Dunne, & Saron, 2015;). Instead, Buddhist scholars have suggested that “mindfulness” represents a family of related but divergent practices and skills (Gethin, 2011; Dunne, 2015; Lutz et al., 2015). One perspective, for example, differentiates mindfulness practices that aim to calm and focus the mind (e.g., focused attention, Lutz, Slagter, Dunne, & Davidson, 2008) and enhance the ability to monitor activity of the mind (e.g., open monitoring, Lutz et al., 2008). These skills are trained in programs such as Mindfulness-Based Stress Reduction (Kabat-Zinn, 2011), but they are also featured in programs related to compassion- and loving-kindness meditation.

A variety of meditation programs draw from distinct but related mindfulness- and compassion-based contemplative models (Lavelle Heineberg, 2016). In the history of the modern mindfulness movement, dating to Jon Kabat-Zinn's introduction of the Mindfulness Based Stress Reduction program, the emphasis on compassion was often implicit, through language encouraging a "non-judgmental" and "accepting" approach to one's own negative emotional states, which is thought to create a compassionate context or frame (Dunne, 2015). More recently, however, compassion has become explicitly thematized in secular mindfulness programs, such as the Mindful Self-Compassion program (Neff & Germer, 2013). In addition, mindfulness skills are often the initial elements of programs that explicitly state compassion as a primary goal (e.g., Cognitive Based Compassion Training; Sustainable Compassion Training, Heineberg, 2016). Mindfulness is not an isolated skill, but is often developed in the context of additional contemplative techniques that directly emphasize compassion.

Defining compassion

Historically, the term *compassion* has been used interchangeably with terms such as *empathy*, *empathic concern*, and *sympathy* (e.g., Wispé, 1986). Yet many authors now differentiate *compassion* from *empathy*. Empathy typically refers to processes that allow an individual to understand another person's mental state, either through perspective-taking (also called "cognitive empathy", "theory of mind", "mental state attribution", or "mentalizing") or through emotional contagion (also called "affective empathy", or "experience sharing") (Zaki & Ochsner, 2012). Compassion can be differentiated from empathy based on the motivations that underlie one's resonance with another's mental state. Here, compassion is defined as an other-oriented emotional state that arises in response to another's suffering and motivates one to alleviate another's suffering (Goetz, Keltner, & Simon-Thomas, 2010). A large body of research

suggests that other-oriented states of compassion increase the likelihood of prosocial behavior (e.g., Batson, 2011). In the following section, I review empirical evidence that links mindfulness, compassion, and prosocial action.

Empirical investigations of mindfulness, compassion, and prosocial action

Researchers in social psychology and related disciplines have demonstrated that a variety of mindfulness and related meditation interventions increase compassionate states and prosocial behaviors. Many of these studies examined the impact of meditation curricula that included explicit aspirations related to love and compassion (e.g., Loving-Kindness Meditation, Compassion Meditation). In the following section, I review the impact of various meditation-based programs to provide a sense of the literature as a whole.

Self-reported effects of meditation. Many studies have examined the impact of mindfulness, loving-kindness, or compassion training on self-reported compassion and social connection. Experimental studies have demonstrated that mindfulness training resulted in increased self-reports in empathy and compassion, for example among medical students completing the MBSR curriculum (Shapiro, Schwartz, & Bonner, 1998) and middle-aged adults completing the Mindful Self Compassion curriculum (Neff & Germer, 2013). Elsewhere, MBSR resulted in increased self-reported self-compassion, but not other-oriented compassion following training (Birnie, Speca, & Carlson, 2010). Some studies have also reported strong correlations between self-reported dispositional mindfulness and empathy and compassion (Cameron & Fredrickson, 2015; Dekeyser, Raes, Leijssen, Leysen, & Dewulf, 2008). Compassion and loving-kindness training also produced increases in self-reported compassion (Jazaieri et al., 2013, 2015; Sahdra et al., 2011; Wallmark, Safarzadeh, Daukantaite, & Maddux, 2013).

In a notable series of studies, Fredrickson and colleagues (Fredrickson, Cohn, Coffey, Pek, & Finkel, 2008; Kok et al., 2013) demonstrated that 6-weeks of loving-kindness meditation (LKM), compared with a wait-list control (WLC), increased daily self-reported positive emotions throughout training (Fredrickson et al., 2008; Kok et al., 2013). Furthermore, these increases in positive emotion accounted for increases in a variety of personal resources, including self-reported positive relations with others and perceived social connection (Fredrickson et al., 2008; Kok et al., 2013). These studies provided initial evidence that meditation might increase qualities related to compassion and prosocial action. Nevertheless, scientists are well-aware of the need to move beyond measures that rely on self-report, especially in the domain of mindfulness, where self-report measures are likely to conflate achievement with aspiration (Grossman & Van Dam, 2011; see also Alberts, this volume). Thus, despite the encouraging results described above, it remained an open question as to whether mindfulness and meditation-related practices produce changes in social behavior. To move beyond self-report, a number of researchers have investigated the neural underpinnings of meditation.

Neural effects of meditation. A number of neuroimaging studies have examined the neural effects of long-term and short-term meditation training. One notable study compared the effects of eight-weeks of training in mindfulness, compassion, or an active control group on participants' reactivity during non-meditative states after the course (Desbordes et al., 2012). Among participants with no prior meditation experience, those completing mindfulness training exhibited decreased amygdala response to people in negative settings whereas those completing compassion meditation exhibited increased right-amygdala responses to negative images. This work provides strong evidence that mindfulness and compassion meditation alters neural responses to others, even in a non-meditative ordinary state independent of experimenter

instructions. These findings are also consistent with a growing number of studies showing the effects of compassion meditation on empathic reactivity to others' suffering (Klimecki, Leiberg, Lamm, & Singer, 2013; Klimecki, Leiberg, Ricard, & Singer, 2014; Lutz, Brefczynski-Lewis, Johnstone, & Davidson, 2008; Mascaro, Rilling, Tenzin Negi, & Raison, 2013; Weng et al., 2013). Collectively, these studies provide compelling evidence that relatively brief training in mindfulness and other forms of meditation increase one's ability to identify another's suffering, but here again, it remained unclear whether neural effects would translate to actual social behavior. Methods from social psychology and behavioral economics have helped move this line of investigation forward.

Behavioral effects of meditation. A number of studies have employed behavioral measures to indirectly assess compassion and prosocial action resulting from mindfulness training. Indirect measures used to assess prosocial tendencies in the meditation literature have included non-verbal behaviors indicating affiliation, interest, or a lack of hostility toward one's spouse (Kemeny et al., 2012), and expressions of sadness in reaction to others' suffering (Rosenberg et al., 2015). These studies demonstrated that short-term training in mindfulness enhanced outcomes that could be indicative of prosocial motivation (i.e., nonverbal behaviors).

To move beyond indirect measures of compassion and prosocial action, researchers have employed tasks from behavioral economics to examine the effects of meditation training on generosity in monetary transactions. Various studies across laboratories have demonstrated that LKM enhances prosocial behavior in computer-based video games (Leiberg, Klimecki, & Singer, 2011) and online economic transactions (Weng et al., 2013; Weng, Fox, Hessenthaler, Stodola, & Davidson, 2015). A mindfulness-based kindness curriculum resulted in more donation of stickers among pre-school age children to peers (Flook, Goldberg, Pinger, & Davidson, 2015).

Of greatest interest, the neural effects of compassion training predicted increased altruistic behavior in an economic transaction (Weng et al., 2013). Though it remained unclear as to what extent economic generosity would extend to real world situations involving the suffering of another individual, these findings are encouraging of the role of meditation in promoting prosocial behavior.

Social psychological methods that model real-world scenarios offer the ability to overcome the limitations of self-report and demand characteristics. Through such an approach, researchers can employ measures of prosocial action when participants themselves are not aware that they are being observed. In an effort to link mindfulness and compassion training to prosocial action, my team constructed a paradigm designed to reduce demand by measuring behaviors outside of the laboratory context. Specifically, we examined whether participants helped a stranger in pain following training in a meditation curriculum compared with those in a control group (Condon, Desbordes, Miller, & DeSteno, 2013).

To construct a real-world measure of prosocial behavior in response to another's pain, we utilized confederates (i.e., actors and actresses ostensibly participating in research studies) to expose participants to the suffering of another individual outside the laboratory. Prior to the participant's arrival, two female confederates sat in a designated waiting area possessing three chairs. Upon arriving at the waiting area, the participant sat in the last remaining chair. A third female confederate then appeared with crutches and a large walking boot. She visibly winced while walking, stopped just as she arrived at the chairs, then audibly sighed in discomfort, and leaned back against a wall. The sitting confederates remained seated and did not acknowledge the presence of the crutch confederate or the participant. To assess prosocial action, we measured whether the true participant offered his or her seat to the suffering confederate, despite the

inaction of the sitting confederates. This scenario constitutes a classic “bystander” situation, in which the presence of non-responsive others typically leads to a reduction in helping behavior (Darley & Latané, 1968). In these situations, bystanders often look to each other for information about the appropriate course of action and thereby misinterpret each other’s apparent lack of concern and fail to intervene (Latané & Rodin, 1969).

After eight-weeks of training in either compassion- or mindfulness-based meditation, participants offered their seat to relieve the pain of the suffering confederate at a much higher rate (50%), compared with those in a wait-list control (15%) (Condon et al., 2013). Moreover, those completing compassion- and mindfulness-training were equally likely to provide help, suggesting that discussions of compassion that occurred within the compassion course were not entirely responsible for producing enhanced compassionate action. As is the case with many meditation studies (see also Alberts, this volume), the nature of this design required that one group (i.e., meditators) came together for repeated classes, thereby creating a context that afforded interaction with other individuals participating in the study, which may have produced social consequences that could account for increased levels of helping behavior relative to a wait-list control that had no possibility of such social interaction. To rule out this possibility, we measured the number of people that participants interacted with on a regular basis before and after training using the Social Network Index (Cohen, Doyle, Skoner, Rabin, & Gwaltney, 1997). Participants in the meditation group did not experience a growth in their social network as a function of participating in an organized class. Thus, the experience of participating in a group activity was unlikely to account for our central finding.

In a second study, we replicated these findings using mindfulness trainings delivered via mobile devices through a commercially available platform (“Headspace”) (Lim, Condon, &

DeSteno, 2015). Following just two weeks of training, those completing mindfulness training via the mobile-app demonstrated an increased rate of prosocial responding to the confederate in need (37%) compared with those in the active control group (14%). Importantly, the relative level of prosocial action in the active control group matched that of the wait-list control group (16%) from the first study (Condon et al., 2013), suggesting that the 23% increase in helping among meditating participants represents an increase from baseline.

Taken together, these results provided evidence that compassion and mindfulness-meditation can enhance prosocial responding in real-world settings even in a situation that is known to reduce prosocial action. In both studies, meditation training removed the impact of non-responsive bystanders, yielding helping rates that approximate those found in conditions with no bystanders present (Latané & Nida, 1981). Moreover, participation in a meditation class in a gathering of peers did not appear to account for the effect. Those who trained in mindfulness via a smartphone application did not practice with peers or a caring teacher in a social setting, yet still exhibited an increased rate of prosocial responding compared with an active control group.

In summary, this body of research demonstrates that mindfulness and related practices can increase compassion and prosocial action. Yet this literature spans different types of meditation and mindfulness curricula. In turn, we do not know whether—or to what extent—various elements of mindfulness account for increases in compassion and prosocial action. Going forward, a major challenge for the field will involve isolating the active ingredients that account for these effects. In the following section, I speculate on mechanisms that might explain the relationship between mindfulness, compassion, and prosocial action.

Mechanisms of Mindfulness

A number of factors have been conceptualized as mechanisms that explain how mindfulness produces various cognitive and emotional benefits (e.g., Hölzel et al., 2011; Lutz et al., 2015), many of which may be relevant to interpersonal behaviors and one's readiness to help others in need. Three mechanisms appear particularly relevant. One of the most common elements of mindfulness includes the capacity to regulate and sustain attention on a given object for a sustained period of time, often called *focused attention* meditation or *samatha* (Lutz et al., 2008). As part of training in focused attention, the practitioner is encouraged to calmly notice when the mind wanders and simply return attention to the selected object. A number of studies have empirically demonstrated that mindfulness-based meditation does increase attention capacities (e.g., Slagter et al., 2007; Tang et al., 2007). In social contexts, enhanced attention capacities may increase the ability to attend to the needs of others, thereby increasing the likelihood that one would recognize an opportunity or need to engage in action to help others.

A second key mindfulness-induced mechanism is heightened body awareness, which includes the ability to notice subtle fluctuations in bodily sensations (Hölzel et al., 2011). Awareness of the body is a key target of many Buddhist traditions, perhaps because the ability to ground subjective experience in the activity of the body may represent one avenue to insight into the transient nature of phenomena (Hölzel et al., 2011; Lutz et al., 2015; Farb et al., 2015). In the psychological and neuroscience literature, awareness of bodily sensations, also referred to as interoceptive awareness, may play a key role in awareness of emotional experience (e.g., Craig, 2003), thereby guiding decision-making and self-regulation. Although behavioral data suggest that meditation may not increase awareness of bodily sensations, neuroscience evidence is suggestive that meditation training does increase activity in the insula (Farb et al., 2007), a key brain region involved in interoceptive awareness (Craig, 2003). Moreover, the insula is also

involved in processing others' emotional experiences and information related to risk and uncertainty (see Singer, Critchley, & Preuschoff, 2009 for a review). In social scenarios, heightened awareness of one's own bodily processes may also increase empathic processing, increasing the likelihood that one may act to help others.

A third mechanism that appears promising to explain the link between mindfulness, compassion, and prosocial action is that of dereification, a capacity that all styles of mindfulness meditation train (Lutz et al., 2015; see also Papies, this volume). Lutz and colleagues defined dereification as “the degree to which thoughts, feelings, and perceptions are phenomenally interpreted as mental processes rather than as accurate depictions of reality” (p. 639, Lutz et al., 2015).¹ As Lutz and colleagues describe, high reification occurs when thoughts are taken to be real, as if the object or situation described by the thought is occurring in the present moment. For example, reification occurs in a state of rumination when the thought “I am a failure” appears to represent an accurate description of the self, and as a consequence, depressed mood and negative affect is enhanced (Lutz et al., 2015). However, with dereification, thoughts are experienced simply as mental events in a field of sensory, affective, and somatic feeling tones. Through dereification, one can engage flexibly with thoughts without reifying them as the only perspective on a situation. One potential result is higher cognitive flexibility, including outcomes such as creative problem solving and perspective-taking (Colzato, Ozturk, & Hommel, 2012).

A key subtype of dereification includes what some have referred to as changes in perspectives on the self (Hölzel et al., 2011; Lutz et al., 2015). In Buddhist traditions, fixation on a particular identity or narrative about an autonomous, enduring self is a key contributor to

¹ Dereification is similar to “defusion” and “decentering” in the psychological literature. Lutz et al (2015) noted that these terms conflate dereification and meta-awareness, which involves monitoring experience. Dereification is distinguished from meta-awareness, which can occur even in states of high reification (such as anxiety).

afflictive motivations and desires, such as greed and aversion. As such, many contemplative practices are designed to deconstruct the self (Hölzel et al., 2011; Dahl, Lutz, & Davidson, 2015). From a contemplative perspective, deconstructing the self appears to be one important avenue that allows for opening up to the experiences of others, engaging in perspective-taking, and experiencing compassion. Dereification may also explain the prosocial effects of mindfulness by promoting emotion regulation capacities. By experiencing emotions as representations, dereification engendered by mindfulness may reduce negative affect (Krishnakumar & Robinson, 2015) and automatic, reactive responses (see also Barsalou, this volume). Consistent with this view, mindfulness may increase compassion by reducing automatic aversion to others' suffering. A recent experimental study examined participants' facial expressions in reaction to others' suffering and found that meditators did not exhibit aversive facial expressions to others' suffering, compared with those in a wait-list control (Rosenberg et al., 2015).

Mechanisms of mindfulness in bystander contexts. The review of mindfulness mechanisms raises questions about how they could help overcome social pressures that typically reduce helping in bystander contexts. Although speculative, we can develop a number of hypotheses regarding how mindfulness-based mediators might reduce the bystander effect and enhance prosocial actions despite the inaction of others. Classic social psychological theory and research postulated a number of processes that interfere with helping in bystander contexts (Latané & Darley, 1970), which could be modulated by mindfulness-based mechanisms. Three processes in particular interfere with helping behavior when other bystanders are present. First, *social influence* refers to the process by which people look to others as sources of information when faced with an ambiguous situation. In bystander scenarios, it may be unclear whether another individual is in need. Thus, people look to others to determine the appropriate course of

action, notice that no one is moving to help the person in need, and thereby decide not to help. The collective outcome of non-intervention has also been called “pluralistic ignorance” (Latané & Darley, 1970). As reviewed above, mindfulness may increase the relevance of another’s suffering through attention regulation and body awareness. Through enhanced attentional capacities, mindfulness may simply make people more aware of another’s suffering, thereby reducing the ambiguity of the situation. In our hallway scenario, for example, it may be that mindfulness increases the capacity to notice the individual in need, noticed subtle expressions of suffering, and engage in action to help. Enhanced body awareness may also increase prosocial action by increasing empathic awareness of another’s suffering, thereby reducing the ambiguity of the situation, leading to reduced reliance on the social environment to determine the correct course of action.

The second key process that reduces helping in bystander contexts is *audience inhibition* or *evaluation apprehension* (Latané & Darley, 1970). Bystander situations incur a high risk of embarrassment because the potential helper’s actions could be viewed and evaluated in a negative manner by the bystanders or the victim. People not only look to others for the appropriate course of action, but also fear embarrassment of acting in such a way that may violate social norms or annoy the target in need of help. In fact, negative social evaluation is a robust cause of subjective and physical stress (Dickerson, Mycek, & Zaldivar, 2008). In the hallway scenario reported above, participants might believe it would be impolite to offer the seat to the confederate on crutches. Mindfulness may reduce evaluation apprehension through dereification and its impact on the self-concept. As such, participants may be less likely to reify narratives about the self that would be targeted in social evaluations. In line with this perspective, prosocial action and cooperation appears to be an intuitive action (Rand et al., 2014).

Dereification of the self may yield more confidence to act in decisive manner despite inaction of others. In fact, in our paradigm, most participants who offer their seat to the suffering confederate do so within 15 seconds.

Finally, the third process that interferes with helping is *diffusion of responsibility* (Latané & Darley, 1970). When others are present in a helping scenario, the potential costs to the self of not acting, such as threats to one's reputation, are reduced. Any given individual will bear less responsibility for not acting because there were also other individuals in the context who did not help. The costs for not acting are therefore spread out among a number of individuals, reducing the likelihood that any given individual will come to aid. To the extent that mindfulness meditation promotes a deconstruction of the self, via dereification, it may also promote greater willingness and readiness to take on the responsibility to help others. Enhanced empathic processing via body awareness may also increase the likelihood of experiencing compassion and thereby taking personal responsibility for action.

In addition to bystander situations, mindfulness might increase compassion and prosocial responses to others across various contexts. Through enhanced cognitive flexibility generated by dereification, for example, one may be able to entertain social targets as more than one's current representation. For example, while simulating the memory of a difficult co-worker, the thought "He's a jerk" might occur. In a moment of high reification, the thought of the other person as a jerk is taken to represent an accurate depiction of the other, as if that is the other's true nature or identity. However through dereification, one can come to entertain alternative conceptualizations of the co-worker, including the possibility of the deeper humanity of the other, who has similar desires to experience happiness and reduce suffering. This process is one of the key capacities trained in explicit compassion-based training protocols such as CBCT and SCT (Heineberg,

2016; see also Makransky, 2007). In this way, dereification may explain recent findings that meditation training reduces implicit bias toward outgroup members (Kang, Gray, & Dovidio, 2014; Lueke & Gibson, 2015). The process of dereification applied to one's own self-concept may also explain findings that individual differences in self-reported non-attachment predicts prosocial behavior as rated by peers (Sahdra, Ciarrochi, Parker, Marshall, & Heaven, 2015).

Laboratory studies that use simple manipulations may be particularly effective in isolating active ingredients and mechanisms responsible for psychological change and positive social outcomes. (see also Alberts, this volume). Recent work, for example, used laboratory-based instructions to investigate the process of dereification on responses to images of desirable food. Results indicated that simple instruction resulted in the ability to overcome impulsive reactions to desirable food (Papies, Barsalou, & Custers, 2012). A similar laboratory based approach could lead to insight about the elements of mindfulness that produce prosocial outcomes.

In this vein, a recent study employed a brief laboratory-based mindfulness induction and examined its effects on empathic accuracy and prosocial action (Tan, Lo, & Macrae, 2014). Participants listened to a 5-minute mindfulness manipulation, with instructions to facilitate focused attention on the breath and awareness of mind-wandering (such instructions could promote attention regulation, body awareness, and dereification to some degree). Participants then completed tasks that measured empathic accuracy and compassion. Those participants who listened to the mindfulness recording, compared with those who were simply instructed to immerse in their own thoughts and emotions, performed better on the test of empathic accuracy and demonstrated higher levels of compassion in handwritten notes to a confederate. Although the use of a simple low-dose manipulations may never approximate the training that constitutes

extended meditation practice, experimental studies such as these might prove helpful in isolating active ingredients involved in sustained contemplative training. Although this study did not isolate the exact mechanisms at play, a similar approach could be used in conjunction with measures of the relevant mechanisms.

Conclusion

In summary, meditation training in a variety of forms increases prosocial mental states and behavior. Secularized mindfulness and compassion-based training protocols thus offer an exciting avenue to increase compassion among people interested and willing to engage in meditation practice. As the empirical investigation of meditation grows, it will be important to note similarities and differences across studies based on divergent mindfulness- and compassion-based training protocols (e.g., MBSR, MSC, CBCT, SCT). It may also be the case that personality traits or other demographic characteristics impact the manner in which a person responds to such practices. Identifying the particular challenges and benefits that different individuals experience with different practices may provide important insights on the application of these practices in clinical or educational settings.

The research reviewed in this chapter falls within an ongoing dialogue concerning the growing popularity of mindfulness and the application of meditation in various secular settings (e.g., North, 2014). In its original Buddhist context, meditation is accompanied by ethical intentions and spiritual goals that are considered a key aspect that contributes to the efficacy of meditation practice. The translation of meditation to secular contexts presents a challenge that is unlikely to always produce the outcomes that meditation practitioners hope for (e.g., compassion, happiness). Indeed, mindfulness-based mechanisms of attention regulation, body awareness, and dereification are not inherently motivational phenomenon. Compassion involves the motivation

to care for others and the desire to alleviate suffering. The adoption of a particular mental framework (e.g., ethical intentions) in which contemplative practice is embedded may interact with mindfulness-based mechanisms to promote compassion and prosocial action. Yet the endorsement of a Buddhist ethical context would be inappropriate in secular settings. One viable alternative could center on the integration of mindfulness practices with discussions and activities based on the growing literature in psychology on social relations and well-being to create a prosocial, relational framework (Baer, 2015). In the end, our field awaits empirical investigations of the impact of intention and context on the downstream effects of meditation practice.

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