



Effects of mindfulness on psychological health: A review of empirical studies[☆]

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ABSTRACT

Within the past few decades, there has been a surge of interest in the investigation of mindfulness as a psychological construct and as a form of clinical intervention. This article reviews the empirical literature on the effects of mindfulness on psychological health. We begin with a discussion of the construct of mindfulness, differences between Buddhist and Western psychological conceptualizations of mindfulness, and how mindfulness has been integrated into Western medicine and psychology, before reviewing three areas of empirical research: cross-sectional, correlational research on the associations between mindfulness and various indicators of psychological health; intervention research on the effects of mindfulness-oriented interventions on psychological health; and laboratory-based, experimental research on the immediate effects of mindfulness inductions on emotional and behavioral functioning. We conclude that mindfulness brings about various positive psychological effects, including increased subjective well-being, reduced psychological symptoms and emotional reactivity, and improved behavioral regulation. The review ends with a discussion on mechanisms of change of mindfulness interventions and suggested directions for future research.

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Mindfulness is the miracle by which we master and restore ourselves. Consider, for example: a magician who cuts his body into many parts and places each part in a different region—hands in the south, arms in the east, legs in the north, and then by some miraculous power lets forth a cry which reassembles whole every part of his body. Mindfulness is like that—it is the miracle which can call back in a flash our dispersed mind and restore it to

wholeness so that we can live each minute of life. Hanh (1976, p. 14).

Mindfulness has been theoretically and empirically associated with psychological well-being. The elements of mindfulness, namely awareness and nonjudgmental acceptance of one's moment-to-moment experience, are regarded as potentially effective antidotes against common forms of psychological distress – rumination, anxiety, worry, fear, anger, and so on – many of which involve the maladaptive tendencies to avoid, suppress, or over-engage with one's distressing thoughts and emotions (Hayes & Feldman, 2004; Kabat-Zinn, 1990). Though promoted for centuries as a part of Buddhist and other spiritual traditions, the application of mindfulness to psychological health in Western medical and mental health contexts is a more recent phenomenon, largely beginning in the 1970s (e.g., Kabat-Zinn, 1982). Along with this development, there has been much theoretical and empirical work illustrating the impact of mindfulness on psychological health. The goal of this paper is to offer a comprehensive narrative review of the effects of mindfulness on psychological health. We begin with an overview of the construct of mindfulness, differences between Buddhist and Western psychological conceptualizations of mindfulness, and how mindfulness has been integrated into Western medicine and psychology. We then review evidence from three areas of research that shed light on the relationship between mindfulness and psychological health: 1. correlational, cross-sectional research that examines the relations between individual differences in trait or dispositional mindfulness and other mental-health related traits, 2. intervention research that examines the effects of mindfulness-oriented interventions on psychological functioning, and 3. laboratory-based research that examines, experimentally, the effects of brief mindfulness inductions on emotional and behavioral processes indicative of psychological health. We conclude with an examination of mechanisms of effects of mindfulness interventions and suggestions for future research directions.

The word *mindfulness* may be used to describe a psychological trait, a practice of cultivating mindfulness (e.g., mindfulness meditation), a mode or state of awareness, or a psychological process (Germer, Siegel, & Fulton, 2005). To minimize possible confusion, we clarify which meaning is intended in each context we describe (Chambers, Gullone, & Allen, 2009). One of the most commonly cited definitions of mindfulness is the awareness that arises through “paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally” (Kabat-Zinn, 1994, p. 4). Descriptions of mindfulness provided by most other researchers are similar. Baer (2003), for example, defines mindfulness as “the nonjudgmental observation of the ongoing stream of internal and external stimuli as they arise” (p. 125). Though some researchers focus almost exclusively on the attentional aspects of mindfulness (e.g., Brown & Ryan, 2003), most follow the model of Bishop et al. (2004), which proposed that mindfulness encompasses two components: self-regulation of attention, and adoption of a particular orientation towards one's experiences. Self-regulation of attention refers to non-elaborative observation and awareness of sensations, thoughts, or feelings from moment to moment. It requires both the ability to anchor one's attention on what is occurring, and the ability to intentionally switch attention from one aspect of the experience to another. Orientation to experience concerns the kind of attitude that one holds towards one's experience, specifically an attitude of curiosity, openness, and acceptance. It is worth noting that “acceptance” in the context of mindfulness should not be equated with passivity or resignation (Cardaciotto, Herbert, Forman, Moitra, & Farrow, 2008). Rather, acceptance in this context refers to the ability to experience events fully, without resorting to either extreme of excessive preoccupation with, or suppression of, the experience. To sum up, current conceptualizations of mindfulness in clinical psychology point

to two primary, essential elements of mindfulness: *awareness* of one's moment-to-moment experience *nonjudgmentally* and *with acceptance*.

As alluded to earlier, mindfulness finds its roots in ancient spiritual traditions, and is most systematically articulated and emphasized in Buddhism, a spiritual tradition that is at least 2550 years old. As the idea and practice of mindfulness has been introduced into Western psychology and medicine, it is not surprising that differences emerge with regard to how mindfulness is conceptualized within Buddhist and Western perspectives. Several researchers (e.g., Chambers et al., 2009; Rosch, 2007) have argued that in order to more fully appreciate the potential contribution of mindfulness in psychological health it is important to gain an understanding of these differences, and specifically, from a Western perspective, how mindfulness is conceptualized in Buddhism. Given the diversity of traditions and teachings within Buddhism, an in-depth exploration of this topic is beyond the scope of this review (for a more extensive discussion of this topic, see Rosch, 2007). We offer a preliminary overview of differences in conceptualization of mindfulness in Western usage versus early Buddhist teachings, specifically, those of Theravada Buddhism.

Arguably, Buddhist and Western conceptualizations of mindfulness differ in at least three levels: contextual, process, and content. At the contextual level, mindfulness in the Buddhist tradition is viewed as one factor of an interconnected system of practices that are necessary for attaining liberation from suffering, the ultimate state or end goal prescribed to spiritual practitioners in the tradition. Thus, it needs to be cultivated alongside with other spiritual practices, such as following an ethical lifestyle, in order for one to move toward the goal of liberation. Western conceptualization of mindfulness, on the other hand, is generally independent of any specific circumscribed philosophy, ethical code, or system of practices. At the process level, mindfulness, in the context of Buddhism, is to be practiced against the psychological backdrop of reflecting on and contemplating key aspects of the Buddha's teachings, such as impermanence, non-self, and suffering. As an example, in the *Satipatthana Sutta* (The Foundation of Mindfulness Discourse), one of the key Buddhist discourses on mindfulness, the Buddha recommended that one maintains mindfulness of one's bodily functions, sensations and feelings, consciousness, and content of consciousness while observing clearly the impermanent nature of these objects. Western practice generally places less emphasis on non-self and impermanence than traditional Buddhist teachings. Finally, at the content level and in relation to the above point, in early Buddhist teachings, mindfulness refers rather specifically to an *introspective* awareness with regard to one's physical and psychological processes and experiences. This is contrast to certain Western conceptualizations of mindfulness, which view mindfulness as a form of awareness that encompasses all forms of objects in one's internal and external experience, including features of external sensory objects like sights and smells. This is not to say that external sensory objects do not ultimately form part of one's internal experience; rather, in Buddhist teachings, mindfulness more fundamentally has to do with observing one's perception of and reactions toward sensory objects than focusing on features of the sensory objects themselves.

The integration of mindfulness into Western medicine and psychology can be traced back to the growth of Zen Buddhism in America in the 1950s and 1960s, partly through early writings such as *Zen in the Art of Archery* (Herrigel, 1953), *The World of Zen: An East-west Anthology* (Ross, 1960), and *The Method of Zen* (Herrigel, Hull, & Tausend, 1960). Beginning the 1960s, interest in the use of meditative techniques in psychotherapy began to grow among clinicians, especially psychoanalysts (e.g., see Boss, 1965; Fingarette, 1963; Suzuki, Fromm, & De Martino, 1960; Watts, 1961). Through the 1960s and the 1970s, there was growing interest within experimental psychology in examining various means of heightening awareness and broadening the boundaries of consciousness, including meditation.

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