

Mindfulness as psychological dimension: Concepts and applications

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Mindfulness has been discovered as a psychologically relevant dimension within the last 25 to 30 years. As mindfulness-based psychological interventions are increasingly perceived as being beneficial, they are more and more integrated into different areas of applied psychology, ranging from health care to staff development. However, the theoretical foundations of the mindfulness construct are ambiguous and require further clarification of operational definitions. The article reviews several developments in this area, takes a critical look at existing operational definitions, their translation into mindfulness self-report scales and their validity. It then provides an outlook on emerging developments and critical aspects, discussing the usefulness of separating mindfulness from outcomes resulting from mindfulness. Finally, suggestions are offered as to how this area could be developed to realise the potential many see in integrating mindfulness-based interventions into applied psychology.

Introduction

In psychological terms, mindfulness has been described as “the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment” (Kabat-Zinn, 2003, p. 145), and is “characterized by dispassionate, nonevaluative and sustained moment-to-moment awareness of perceptible mental states and processes. This includes continuous, immediate awareness of physical sensations, perceptions, affective states, thoughts, and imagery” (Grossman, Niemann, Schmidt, & Walach, 2004, p. 36). Brown et al. condense these conceptualisations by defining mindfulness as “a receptive attention to and awareness of present events and experience” (Brown, Ryan, & Creswell, 2007a, p. 212).

Within applied psychology, mindfulness emerged as a powerful concept over the last 25 to 30 years (Brown & Engler, 1980; Deatherage, 1975; Kabat-Zinn, 1984; Kabat-Zinn, Lipworth, & Burney, 1985), largely due to the work of Jon Kabat-Zinn and colleagues, who developed and promoted the Mindfulness-Based Stress Reduction Programme (MBSR). Initially, the MBSR was primarily aimed at patients with different

chronic ailments like chronic pain and fibromyalgia, but was soon extended into other areas, including the treatment for cancer, anxiety disorders, substance abuse, and skin diseases (Kabat-Zinn et al., 1985; Kabat-Zinn, Lipworth, Burney, & Sellers, 1987; Kabat-Zinn et al., 1992; Kaplan, Goldenberg, & Galvin-Nadeau, 1993). More recently, mindfulness-based interventions have also been used adjunct to, or in combination with, counselling or psychotherapy, in particular with cognitive behavioural therapy (e.g., Salmon et al., 2004; Teasdale, Segal, & Williams, 1995; Teasdale et al., 2000).

In general, and within the aforementioned settings, mindfulness is supposed to be developed or cultivated through systematic meditation practice. While the specific meditation techniques may differ, a typical mindfulness meditation will require the participant to sit in an upright position while attempting to maintain the focus of attention on a particular object or sensation. The sensation of breathing, either the rising and falling of the abdomen, or the feeling of air passing the nostrils when in- and exhaling, are commonly used. In this way the focus of attention gets 'anchored'. Whenever attention moves away from this anchor towards inevitably arising thoughts or emotions, the mere task of the meditator is to acknowledge this and, without further elaboration, to direct the focus of attention back to the chosen anchor. Thus, the heart of the practice is to cultivate a dispassionate, observant state of mind, where all arising thoughts and emotions are recognised as mental events without ascribing any specific value to them.

This form of meditation has to be distinguished from other types of meditation, especially purely concentration-based types, as, for instance, Transcendental Meditation (Mahesh Yogi, 1963; Travis, Tecce, Arenander, & Wallace, 2002), where the practice consists of increasing one's concentration by purely focusing on a specific object or repeated sound (mantra). While the aspect of focusing may be similar, the decisive difference is that mindfulness meditation requires the meditator to develop a clear awareness of all arising thoughts, feelings, and sensations and treat them as equal, while during concentration-based meditation one would limit one's attentional focus and exclude all other arising experiences. In this sense, mindfulness meditation may be understood as an expansion of clear awareness, while in purely concentration-based meditations one cultivates a contraction of awareness.

MBSR, the most popular package used for eliciting mindfulness in a clinical setting, is usually applied as a group programme running for about eight weeks. The programme also includes a psychoeducative component, where the participants receive information about psychological and physiological aspects of stress. In addition to discussing and practicing various types of mindfulness meditations during the sessions, the participants are required to do 'homework', that is, to formally and informally implement mindfulness practice into their daily routines (Bishop, 2002).

The assumption that underlies the use of mindfulness-based approaches as psychological intervention is that through practice one will develop the ability to non-judgementally observe one's own thoughts and feelings during stressful situations. Without engaging in negative thought patterns, it will then be possible to step out of the vicious cycle that would usually escalate a cascade of stress responses and contribute to the experience of emotional distress.

However, without appropriate conceptualisation and operationalisation of the implied processes, it will not be possible to confirm (or refute) these assumed principles,

ultimately blocking the advancement of these promising developments.

Historically, the concept of mindfulness dates back at least about 2,500 years. It is an essential aspect of buddhist mind training, and has been outlined in much detail in classical buddhist texts, as, for instance, the satipatthana sutta, where the four foundations of mindfulness practice are described (Analayo, 2003). Following this tradition, also contemporary buddhist masters emphasise mindfulness as a corner stone for buddhist practice (e.g., Gunaratana, 2002; Hanh, 1987; Thera, 2005).

As Bishop (2002) concludes, the descriptions of mindfulness used in the psychological literature are for the most part consistent with these traditional buddhist conceptualisations. However, a successful implementation of mindfulness approaches within the context of applied psychology requires more than a consistency between ancient texts and practices and their modern interpretations. It has to be based on scientific scrutiny and rigorous evaluation of its effectiveness (Baer, 2003; Bishop, 2002; Bishop et al., 2004; Grossman et al., 2004). To achieve this aim, the construct of mindfulness needs to be clearly defined with precise, testable operational definitions, allowing measurement and validation (Brown, Ryan, & Creswell, 2007a, 2007b).

Acknowledging these requirements, several authors put forward theoretical accounts of mindfulness. Most influential, a consensus panel convened for this purpose proposed an operational definition of mindfulness, which is based on two components (Bishop et al., 2004). The first component stresses the self-regulation of attention, a process that maintains the focus of attention on immediate experience. Several aspects of attention are involved here, as, for instance, the ability to focus and sustain attention, the re-orienting of attention when it wanders off, and a non-elaborating awareness of experiences. The second component is concerned with the orientation towards one's experiences that should be characterised by curiosity and acceptance, regardless of the valence and desirability of those experiences. The authors, furthermore, highlight the importance of distinguishing the construct of mindfulness from several outcomes that may be related to enhanced mindfulness, as, for instance, patience, trust, non-reactivity or calmness, self-knowledge, and compassion.

While the consensus panel took a theoretical position, a recent psychometric study investigated the facets of mindfulness by analysing the responses to five different mindfulness self-report scales (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006). This study suggests a five-factor structure of the construct. Four of these factors ('acting with awareness', 'non-judging', 'observing' and 'describing') are at the foundation of the Kentucky Inventory of Mindfulness Skills (KIMS; cf. Baer, Smith, & Allen, 2004), and draw the majority of items from that scale, whereas the items contributing to the fifth identified factor 'non-reactivity' were derived from the Freiburg Mindfulness Inventory (FMI; cf. Buchheld, Grossman, & Walach, 2001; Buchheld & Walach, 2002) and the Mindfulness Questionnaire (MQ; cf. Chadwick et al., 2005, cited in Baer et al., 2006). As is evident, the conceptualisations presented by Bishop et al. (2004), and those extracted from the exploratory psychometric study by Baer et al. (2006), differ considerably. Baer et al.'s facet of non-judging is assessed by items like "I tell myself that I shouldn't be feeling the way I'm feeling", and may well map onto aspects of the component orientation towards one's experiences. Their facet observing is assessed by items like "I pay attention to sensations, such as the wind in my hair or sun on my

face” and highlights an attentional awareness in daily activities, possibly reflecting the integration of the self-regulation of attention component into daily life. However, the remaining three facets, namely, acting with awareness, describing, and non-reactivity do not readily align with the two-component model. Within the conceptualisation of Bishop et al. (2004) these facets are more likely to reflect outcomes that result from enhanced mindfulness. While this may be the case, one may also argue that it is the only way of assessing the experiential quality of mindfulness, as we may be limited by the intrinsic problem that self-report scales have to rely on declarative knowledge. In other words, to measure levels of mindfulness, it may be necessary to assess the effects of enhanced mindfulness as they manifest in experience and behaviour, because direct, declarative access to this experiential quality may not be possible. Assessing mindfulness directly may furthermore be affected by the fact that the understanding of mindfulness is likely to change in the process of practicing meditation. The same item of a questionnaire may have very different meaning to somebody who actively practices mindfulness meditation and somebody who has not been exposed to these concepts (also see Grossman, 2008). From a conceptual point of view, and for understanding the underlying mechanisms, it would thus be important to specify as to which aspect one is assessing, mindfulness or the expression of mindfulness in daily experience and behaviour. If this ambiguity is clarified, one could then investigate possible alternative routes for assessing mindfulness components directly.

Measuring mindfulness

Several mindfulness self-report scales have been developed and are currently in use, some of which have been already discussed above. Six scales assess mindfulness as a trait, reflecting longer lasting mindfulness states. The Freiburg Mindfulness Inventory (FMI; see Buchheld et al., 2001; Buchheld & Walach, 2002; Walach, Buchheld, Buttenmüller, Kleinknecht, & Schmidt, 2006) has 30 items, assessing a uni-dimensional construct of mindfulness, and has been designed for use in meditating populations (but see Lau et al., 2006). The Kentucky Inventory of Mindfulness Skills (KIMS; Baer et al., 2004) consists of 39 items that tap the four factors acting with awareness, non-judging, observing, and describing. The Revised Cognitive Affective Mindfulness Scale (CAMS-R; Hayes & Feldman, 2004) is a 12-item scale, loading on the four factors attention, awareness of internal experiences, acceptance of internal experiences, and present-focus, which again load on the second-order factor mindfulness. The Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003; Carlson & Brown, 2005) has 15 items loading on one general mindfulness factor. The Mindfulness Questionnaire (MQ; Chadwick et al., 2005, cited in Baer et al., 2006) employs 16 items to assess a mindful state in relation to distressing situations. Finally, the Five-Factor Mindfulness Questionnaire (FFMQ) was developed by pooling the items of all previously mentioned mindfulness-scales (Baer et al., 2006). The validation on two large-scale samples suggests a five-factor structure. The 39 selected items are related to the five sub-scales non-reactivity (7 items), observing (8 items), acting with awareness (8 items), describing (8 items), and non-judging (8 items). In addition to these trait measures of mindfulness, two scales were designed for measuring momentary mindfulness states. The state-MAAS (Brown & Ryan, 2003) uses five slightly rephrased items from the MAAS. The development of the Toronto

Mindfulness Scale (TMS; Lau et al., 2006) directly builds on the conceptual definition of mindfulness by the consensus panel described above (Bishop et al., 2004). The TMS has 13 items, subdivided into the two sub-scales curiosity and decentering (also called disidentification). Despite its theoretical home, validation studies of the TMS did not confirm the first component of active self-regulation of attention to immediate experience (Lau et al., 2006). This could possibly highlight a difficulty in directly assessing this component with self-report measures, although further studies will have to investigate to what extent this interpretation holds for other scales designed for directly measuring mindfulness, as, for instance, the MAAS.

Validity of mindfulness constructs

The different operationalisations of the mindfulness construct that are underpinning these self-report scales certainly reflect conceptual disparities. Furthermore, and as already mentioned, the measurement of mindfulness may bear the intrinsic problem that mindfulness scales rely on declarative knowledge, while it may not be justified to assume that the experiential quality of mindfulness can fully be expressed in this way (Brown et al., 2007a). As a first step, it will nevertheless be useful to scrutinise the construct validity of different mindfulness scales by analysing their relation to other constructs and variables.

Several validation studies carried out for different mindfulness scales indicate that the constructs correlate in the expected direction with a number of psychologically relevant dimensions, as, for instance, personality factors, psychological and physical well-being, mood, perceived stress, and anxiety (Baer et al., 2004; Brown & Ryan, 2003; Lau et al., 2006). The majority of studies in this field, though, focus on establishing the efficacy of MBSR within various settings. One recent meta-analysis provided a useful methodological critique of existing evaluation studies and concluded that “the available evidence does not support a strong endorsement of this approach at present” (Bishop, 2002, p. 71). However, subsequent meta-analyses, that also provided a quantitative assessment (Baer, 2003; Grossman et al., 2004), were more optimistic, and cautiously concluded that their “results suggest that MBSR may help a broad range of individuals to cope with their clinical and nonclinical problems” (Grossman et al., 2004, p. 35). Furthermore, Brown reviewed the salutary effects of mindfulness, highlighting possible positive effects on mental health and psychological well-being, physical health, behavioural regulation, and also on relationships and the quality of social interactions (Brown et al., 2007a). While these findings may be encouraging, for establishing mindfulness as a useful psychological concept it will be important to distinguish between (a) the efficacy of mindfulness-based interventions, (b) the processes underlying these positive changes, (c) the construct and operationalisation of mindfulness itself, and, as discussed above, (d) various indicators of increased mindfulness that may be required for indirectly determining levels of mindfulness.

For instance, although evidence supporting the efficacy of various mindfulness-based interventions may be mounting, as long as no unequivocal operational definition of mindfulness has been achieved, there is no solid basis for measuring and concluding that the observed positive changes are actually effected by increased mindfulness. In addition, the range of operationalisations of mindfulness that are currently in use makes

it almost impossible to reliably compare outcomes across studies.

As it stands, available validation data thus simply indicate that different operationalisations of mindfulness bear some merit and warrant further investigation. In this sense, the brief overview below merely provides a first indication as to what areas may be of relevance when assessing the validity of mindfulness constructs and its measurement once it has been clearly defined.

Meditation and mindfulness

Most approaches to developing and strengthening the quality of mindfulness involve different meditation-based techniques and interventions, resting on the assumption that mindfulness is developed or refined by this form of meditation training. We would thus expect that measures of meditation experience, or even meditation quality, are related to levels of mindfulness. Such a link is supported by a survey that utilised Piron's Meditation Depth Questionnaire (MEDEQ; Piron, 2001, 2003), which has been developed to assess the quality or depth of meditation a practitioner may experience. In 484 buddhist meditators the correlations between the MEDEQ and all KIMS scales ranged between 0.27 and 0.53, with all $p < 0.001$ (Malinowski, in preparation). Indications for good concurrent validity of the KIMS comes from a study that showed highly significant differences (all at $p < 0.001$) between buddhist meditators and a matched meditation-naive control group on all KIMS measures of mindfulness (Moore & Malinowski, 2009), indicating that the KIMS is able to discriminate between meditators and non-meditators.

Attention and mindfulness

Mindfulness is described as a state of heightened attention and awareness. Two recent laboratory-based behavioural studies support a possible relation between mindfulness and different measures of attentional performance. Jha, Krompinger, and Baime (2007) compared performance on a computer-based test that taps into central attentional functions. Compared to a control group, participants in a one-month mindfulness meditation retreat improved on receptive attentional skills, whereas participants in an eight-week MBSR programme particularly improved their ability to endogenously orient attention. Another study compared a group of buddhist meditators experienced in mindfulness meditation with a meditation-naive matched control-group (Moore & Malinowski, 2009) on the Stroop task (MacLeod, 1991; Stroop, 1935) as well as the d2 Test of Attention (Brickenkamp, 1962; Brickenkamp & Zilmer, 1998), and asked all participants to complete the KIMS. The study reports clear between-group differences in attentional functions that reflect differences in the ability to focus attention, in processing speed, the amount of automatisisation, and mindfulness skills. Furthermore, there were moderately strong to strong correlations between mindfulness skills and the employed measures of attentional performance. Overall, these data suggest that the KIMS taps a construct that is related to attentional functions, which are thought to play a fundamental role in mindfulness.

Happiness and mindfulness

One of the most central assumed salutary effects of high mindfulness is psychological well-being. The already-mentioned survey of almost 500 buddhist meditators (Malinowski,

in preparation) found a correlation of 0.39 between the Subjective Happiness Scale (Lyubomirsky & Lepper, 1999) and the overall mindfulness score of the KIMS, with slightly smaller correlation coefficients for the different sub-scales. However, no relation between mindfulness and the Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985) was found, suggesting a differential relation between mindfulness and different aspects of subjective well-being. Interestingly, a similar dissociation between satisfaction with life and subjective happiness was found in a study relating meditation experience of about 190 buddhist meditators to several aspects of well-being (König, Asendorpf, McIlroy, Tydecks, & Malinowski, submitted).

As a whole, these data indicate that the KIMS is related to several measures and constructs mindfulness should, on theoretical grounds, indeed be related to.

Applications of mindfulness

Reflecting the growing perception that mindfulness-based programmes are beneficial, they are implemented more and more widely. Within the health sector, where mindfulness packages were introduced first, treatment of an ever-growing variety of diseases and ailments can be observed (Carlson & Brown, 2005; Dimidjian & Linehan, 2003; Smith, Richardson, Hoffman, & Pilkington, 2005). Similarly, within counselling and psychotherapy, mindfulness-based approaches find more and more interest (Finucane & Mercer, 2006; Lau & McMain, 2005; Teasdale et al., 1995; Teasdale et al., 2000). Another area of application within a broadly-defined health sector is the treatment of unhealthy behavioural patterns, as, for instance, binge-eating (Baer, Fischer, & Huss, 2005; Kristeller & Hallet, 1999; Kristeller, 2003). One of the most recent developments are attempts to introduce mindfulness-based approaches also within the educational sector (e.g., Beddoe & Murphy, 2004; Holland, 2004; Napoli, 2004). As a further expansion mindfulness-based programmes are now gaining popularity within the corporate sector. For instance, our own 'mindfulness @ work programme', which was developed at Liverpool John Moores, University and is particularly tailored for the situations and requirements of the corporate world, is rapidly growing in popularity (Malinowski, unpublished).

However, as this article argues, from the perspective of evidence-based applied psychology, major theoretical and conceptual developments are required before the efficacy of such interventions can clearly be established, and the label of mindfulness-based interventions is fully justified.

Conclusions and outlook

Recent years saw a burgeoning interest in mindfulness, its cultivation and enhancement, which went hand in hand with a proliferation of publications on the topic. The majority of these reports focus on the use of mindfulness-based interventions, in particular the evaluation of its effectiveness, where several narrative reviews and statistical meta-analyses provide growing evidence of the efficacy of mindfulness-based interventions (e.g., Baer, 2003; Bishop, 2002; Grossman et al., 2004). Taking a step back from these accelerating developments, authors started highlighting the importance of clarifying the theoretical foundations of mindfulness as a concept, arguing that without a conceptual clarification of the construct, and without testable operational definitions, it would not

be possible to investigate the mediating role and underlying processes of mindfulness, or to develop instruments that are required to carry out these investigations (Bishop, 2002; Bishop et al., 2004; Brown et al., 2007a). Furthermore, the validity of efficacy studies will remain in doubt as long as no unequivocal operational definition of mindfulness is in place.

Several self-report scales have been developed to assess mindfulness traits, ranging in complexity from uni-dimensional scales with one factor, like the MAAS and the FMI, to four-factor scales (KIMS and CAMS-R) and a five-factor scale (FFMQ). Also, scales for assessing momentary mindfulness states like the TMS and the state MAAS are in use. This variety exemplifies existing differences in operationalising mindfulness.

Despite these conceptual disparities, some evidence for the validity of different definitions of mindfulness is available. While a simple and unequivocal theoretical construct of mindfulness is certainly required, the multitude of facets may reflect the wide range of relations mindfulness may have to other psychological dimensions and constructs. Given that the cultivation of mindfulness is considered to be of central importance within many traditions of buddhist contemplative practice, one may speculate that the observed variety in definitions reflects this key role of mindfulness.

This could indicate that the required task of clarifying the underlying construct may be a challenging one. However, as long as difficulties in operationalising mindfulness persist, this will need to be acknowledged and dealt with. As argued above, it will be of central importance to distinguish between (a) the efficacy of mindfulness-based interventions, (b) the processes underlying these positive changes, (c) the construct and operationalisation of mindfulness itself, and (d) various (indirect) indicators of mindfulness levels. This clarification process may reveal that mindfulness levels and their changes can only be assessed by relying on such indirect indicators. If so, these measures need to be as close as possible to the very construct of mindfulness, which implies that a widely accepted definition of mindfulness as a construct, and of the outcomes expected to be related to it, needs to be accomplished. By distinguishing between the FFMQ-facets non-judging and observing as possibly relating directly to mindfulness and the other three facets acting with awareness, describing, and non-reactivity as possibly representing mindfulness outcomes, first suggestions in this direction are provided here. Future discourse and studies will hopefully be able to build on this proposal.

A further problem that may need to be overcome is that a psychological definition of mindfulness which remains true to its historical roots may depend on an experiential understanding of mindfulness as a state of mind and/or even as a way of life. In the same way that a conceptual description of the taste of a good cup of coffee is something else than the very experience of it, the experience of advanced states of mindfulness are something else than their conceptualisation within psychological discourse. But, while the experience of a good cup of coffee can easily be acquired as long as a good Italian coffee bar is in reach, the experience of deep levels of mindfulness will usually require investing considerable effort. To cater for this important experiential aspect the involvement of experts with sufficient experience with mindfulness, as well as expertise regarding psychometric approaches and the related psychological discourse, will be required.

Realising the potential many see in mindfulness-based approaches will thus require concerted effort in tackling the issues outlined in this paper.

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