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Mindfulness Based Psychological Interventions

Developing Emotional Awareness for Better Being

Abstract: *This paper presents and discusses the psychological interventions that are primarily based on the development of mindful awareness as a psychotherapeutic tool. Mindfulness based psychological interventions are defined and situated in their historical context, in the larger perspective of the evolution of psychotherapies in the Western world in the last two decades. A special focus is given to mindfulness based stress reduction (MBSR, Kabat-Zinn, 1982) and to mindfulness based cognitive therapy (MBCT, Segal, Williams & Teasdale, 2002). The structure and core elements of these interventions are presented. Then, we examine their effectiveness in improving psychological and physical well-being. In the next section, we speculate about the underlying psychological mechanisms that might account for the effects of mindfulness based interventions. Special attention is devoted to the cognitive processes underlying emotion regulation and self-awareness. Finally, we examine how a first person approach might contribute to the understanding of mindfulness based interventions.*

Keywords

Mindfulness, psychological interventions, psychotherapy, cognitive therapy, first person approach

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The last two decades have seen the development of mindfulness based interventions (MBI) in health and clinical psychology. They have been originally proposed as an approach to better deal with stressful live situations (Kabat-Zinn, 1982) or as functional forms of emotion regulation strategies (Baer, 2003). In essence, MBI aims to develop the capacity to be aware of one's own present experience and to explore it with an open-minded attitude. Clearly, this constitutes direct clinical application of a first person approach to one's own emotional and affective life.

In the present contribution, we will present MBI in clinical psychology and relate them to the first person approach developed by Varela and Shear (1999). First, the notion of mindfulness, as understood in that specific context will be defined and located in its historical background. Next, we will present two short term MBI, Mindfulness Based Stress Reduction (MBSR, Kabat-Zinn, 1984; 1994) and Mindfulness Based Cognitive Therapy (MBCT, Segal *et al*., 2002). Then, we will examine the effectiveness of these programs and speculate about the underlying factors that might be active in such interventions. Finally, we will discuss the reciprocal insights that MBI and first person approaches might offer to each other.

Mindfulness from a Clinical Psychology Perspective

Kabat-Zinn has defined mindfulness as a state of awareness resulting from 'paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally' (Kabat-Zinn, 1994, p. 4) or 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). Every component of these definitions is necessary to understand the use of mindfulness in the domain of clinical interventions.

First, mindfulness does not refer to any specific content, but rather to a kind of consciousness resulting in a state of awareness that can be applied to any aspect of lived experience. It is thus a process, a way of relating to one's experience, whatever it is, without any attempt of generating a certain type of experience or of reaching a specific state. In this sense, mindfulness is fundamentally different from relaxation (Ost, 1987) or autogenic training (Schultz & Luthe, 1959), which seeks to reach a specific mental state and content.

Second, mindfulness emerges from the mental act of voluntarily orienting attention towards a specific target. Mindfulness is thus intentional and voluntary, and as such, it can be directly accessed. It

does not refer to a state of consciousness that can only be accessed indirectly or unpredictably, like ecstasy, or that is dependent of a mediator, like hypnosis. The mere enactment of the intention of being mindful generates the state of mindfulness.

Third, attention is directed towards what is actually and presently experienced by the subject. Concretely, this means focusing all attention resources on a specific target (e.g., breathing or bodily sensation), and developing a reflexive awareness of any information arising from any sensory modality, as well as to the thoughts and mental images that spontaneously come to awareness. In mindfulness training, participants are first encouraged to focus on certain types of information, for instance, bodily sensations, or sensations generated by breathing. Further along in the training, the focus of attention might be directed towards a specific source of information (e.g., spontaneously occurring thoughts) while remaining aware of the other sources of information in the background (e.g., somesthetic sensations from posture, breathing sensations, etc.).

Fourth, a special note is given to the fact that these informational inputs, qualifying present experience, are changing from moment to moment. Thus, mindfulness is not only being aware of the present sensations, thoughts, and mental images, but also being aware of how they fluctuate in time and how the phenomenal world is always new and changing.

Finally, and perhaps most importantly, mindfulness is nonjudgmental. This does not mean that mindfulness practitioners must inhibit attitudes or judgments that are spontaneously and automatically generated by what comes to their mind. A painful sensation or thought will automatically trigger an aversive attitude and judgment, which are part of what the individual experiences at that time, and it would be non-mindful to attempt to change this experience. Rather, the mindful attitude is to take note of the automatically triggered attitudes and judgments, but not to 'follow them,' that is, to not allow them to automatically direct attention and trains of thought in a direction congruent with them. What is central in mindfulness is that the subject aims to govern his/her attention and to prevent it from being captured by affectively loaded sensations, thoughts, or mental images. Mindfulness practitioners seek to keep an open mind to any aspect of their experience and to explore it for what it is, be it painful or pleasant, attractive or repulsive. Thus, the nonjudgmental aspect does not primarily refer to a moral quality, but rather to a psychological capacity of voluntarily allocating attention to the present experience as it is, while preventing the capture of attention by automatic processes.

In sum, within the domain of MBI, mindfulness is defined as a psychological concept, involving psychological processes, mainly attention, perception, and consciousness. It is distinct from any spiritual, moral, or esthetic connotations. MBI can thus be defined as a psychological training program aiming at developing the capacity of being aware of one's on-going experience, including any automatic thoughts and processes that might otherwise remained unnoticed. This approach is akin to the basic stance of Varela and Shear (1999) when they state 'There are numerous instances where we perceive phenomena pre-reflexively without being consciously aware of them, but where a 'gesture' or method of examination will clarify or even bring these pre-reflexive phenomena to the fore. (…) Exploring the pre-reflexive represents a rich and largely unexplored source of information and data with dramatic consequences' (p. 3). In this perspective, MBI offer a structured training in developing conscious awareness of pre-reflexive phenomena.

The Historical Background of Mindfulness Based Psychological Interventions

The concept of mindfulness originates in the earliest Buddhist teachings (Gira, 1989) and it has been described as the heart of Buddhist meditation (Thera, 1962). This millenary tradition as been translated into a Western lay program by John Kabat-Zinn (1982) who sought to develop a short term group program to help people suffering from chronic health conditions to cope with resulting stress. Kabat-Zinn's program, MBSR, is almost exclusively based on mindfulness and consists of a progressive set of exercises and reflection upon these, aiming at developing a capacity to be mindful as defined in the previous section. MBSR has been applied to a large variety of patient populations, presenting with somatic or emotional health problems (Baer, 2003). It is now applied in hundreds of hospitals in North America and Europe.

MBSR has been adapted and manualized by Segal, Williams, and Teasdale (2002) who were designing an intervention for preventing depressive relapse. Their program, MBCT, is specifically targeting people who have suffered from recurrent depressive episodes in the past but who are presently remitted. It consists in an adaptation of the MBSR program with the addition of some psycho-educative and cognitive therapy components proper to depression. This program will be more extensively described in the next section.

MBSR and MBCT are considered as the two forms of psychological intervention that are predominantly based on mindfulness (Baer, 2003). However, other interventions include elements of mindfulness while not being predominantly based on it. One such intervention is the Dialectal Behavior Therapy (DBT), designed by Linehan (1993) as a treatment for borderline personality disorder. DBT's tenet is to promote a dynamic towards a central synthesis between acceptance and change. The basic idea is that for personal and emotional change to occur, people must first accept their own emotional experience and who they are, while actively working to change their behavior and environment to construct a life to which they aspire. Among the many skills taught in DBT is mindfulness, as a capacity to synthesize acceptance and change. Indeed, mindful observation of one's thoughts and feelings foster their acceptance while changing one's attitude towards them. Given its heavily disturbed target population, DBT is more progressive and longer in duration (around 50 weekly sessions) than MBSR or MBCT (8 weekly sessions).

Related ideas have been adopted by Marlatt (1994) in his program to prevent relapse in substance dependence. Marlatt (1994) focused on the notion of 'urge' for the substance as a prototypical example of non-acceptance of a present state of craving. As a cure, Marlatt proposed to develop the capacity to accept the discomfort of craving by adopting a mindful attitude of observing how the sensations, thoughts, and emotions related to the urge are changing from moment to moment. In this context, he has developed the notion of 'urge surfing.' Clients have to imagine that urges are ocean waves that grow gradually until they crest and subside. The client 'rides' the waves without giving in to the urges, thus learning that urges will pass.

Another form of intervention that includes elements of mindfulness is Acceptance and Commitment Therapy (ACT), developed by Hayes (1994). Together with non-judgment, acceptance is the most basic attitude necessary for the development of mindfulness (Kabat-Zinn, 1990). The notion of acceptance developed by ACT is identical to interventions that are primarily based on mindfulness. Clients are taught to develop an observing self that watches their bodily sensations, emotions, thoughts, and actions as distinct phenomena from who they really are. For instance, people are encouraged to consider that they have the thought that they are unworthy, rather than thinking 'I am unworthy.' In this perspective, they are encouraged to non-judgmentally observe their thoughts and emotions as they arise, without attempting to change or avoid them. However, unlike interventions primarily based on mindfulness, ACT does not propose

meditation-type exercises. ACT also encompasses an important component related to 'commitment'. It consists of identifying personal values and goals of clients and in helping them to change the contingencies of their daily life in order to act more congruently according to these values and goals.

MBCT, DBT, Marlatt's relapse prevention program, and ACT all belong to what is conceived of as the 'third wave' of cognitive and behavioral therapies (CBT). These therapies share important premises. While classical CBT focuses on directly changing dysfunctional behaviors and cognitions and replacing them with more functional ones, the aim of the 'third wave' is to change the clients' attitude toward their behaviors and cognitions rather than specifically targeting behaviors and cognitions. For instance, rather than attempting to change an irrational cognition such as 'I am unworthy unless I act perfectly' into a more rational one, 'third wave' therapies attempt to change the attitude toward the cognition, considering it as just a thought (i.e., a product of the mind activity that does not necessarily reflect reality). The assumption here is that changes in dysfunctional behaviors and cognitions will result from this change in attitude.

Third wave psychotherapies also promote a different form of therapeutic relationship. While in classical CBT, therapists are experts who apply well established knowledge and procedures in a rather directive way, in 'third wave' interventions, therapists are coaches who encourage clients to explore their personal experiences and emotions. In MBI, therapists are encouraged to have a personal practice in mindfulness, applying to themselves the exercises they prescribe to their clients. Thus, socializing clients to this type of psychotherapy is not to convey well established knowledge, like in classical CBT, but rather to guide and explore personal experiences shared by the client and the therapist. This implies important differences in therapist training. Being trained in MBI is much more personally involving than being train to CBT.

To summarize, referring to the definition of psychotherapy proposed by Castonguay and Beutler (2005), MBI can be distinguished from classical CBT by the following facets: (a) While classical CBT focuses on symptom reduction, MBI focuses on developing self-awareness; (b) In classical CBT, the therapist has a more directive attitude than in MBI where his/her role is almost exclusively to facilitate exploration; (c) CBT stresses controlling and reducing the intensity of emotion, while MBI favors the of the attitude of allowing emotions. However, beyond these distinctions, it is important to note that there is no opposition between classical CBT and 'third wave'

psychotherapies (Barlow *et al*., 2004). As cognitive therapy came as an addition to behavior therapy, 'third wave' psychotherapies must be considered to complement classical CBT rather than replacing it (Teasdale, 2005).

Description of the MBCT Program

MBCT is an adaptation of Kabat-Zinn's (1982) MBSR program. The latter has been designed as a general program for dealing with stress in populations suffering from chronic conditions. MBSR has been described by Kabat-Zinn (1982; 1990), but it has not been published as a standardized treatment manual. MBCT however, has been specifically designed to prevent depressive relapse and has shown efficacy especially for individuals who have suffered from 3 or more depressive episodes (Teasdale *et al*., 2000). MBCT has been published with a detailed session by session description (Segal *et al*., 2002). In this section, we will briefly describe it, as an illustration of a structured MBI.

MBCT consists of eight weekly group sessions lasting two and a half hours. Each session is structured around the same caveat: it directly starts with a 15 to 30 minute mindfulness exercise in which participants practice their ability to focus their attention on their present experience non-judgmentally. The focus of attention varies according to the exercise: bodily or breathing sensations, auditory or visual perceptions, thoughts, and emotions.. Following the exercise, participants are invited to discuss their experience with the exercise, and then to share their experience completing the homework exercises that had been assigned for the past week. The instructor then raises the specific topic of the session, rooting it in the comments and experiences just shared by the participants. One such topic, for instance, the concept of 'automatic pilot,' which is the propensity of our mind to function automatically and to govern our behavior without us being aware of it. Another topic is 'to stay present' to ongoing experience, while the natural tendency of the mind is to wander elsewhere. The session topic is embodied in a new mindfulness exercise that is practiced in session. Finally, homework is assigned (including 45 minutes of daily practice) and the session is closed with a short mindfulness exercise.

MBCT sessions are taught in a specific way. Analytical theorizing or abstract discourse is avoided. Rather, teaching always stems from the concrete personal experiences of participants and, if possible, from their direct experience with exercises practiced in session, or as homework during the previous week. Therefore, the importance of a regular and intense (45 minutes daily) practice during MBCT training

is particularly stressed. In their comments and questions, participants are invited to stay as close as possible to their personally felt experiences and to refrain from abstract generalization. The instructor models this mental attitude. In other words, the mindful attitude of being aware of what is concretely experienced here and now, is practiced during the entire session.

Exercises practiced in session and for homework are diverse. They include the body scan, which consists of examining the body, part by part, in a relaxed, laying down position, while raising awareness of bodily sensations that may arise. Other exercises consist of various forms of sitting meditation in which participants focus their attention on a specific aspect of their present experience (e.g., bodily or breathing sensations, hearing or visual perceptions, thoughts, emotions, etc). Other exercises consist of accomplishing daily routine activities in a mindful way, for instance, brushing one's teeth while paying attention to any bodily sensation that may occur. From session to session, the exercises progress with the challenge they offer to participants. While the initial exercises use ample instructions and diverse sensory modalities or body parts as points of attentional focus, sessions gradually evolve by offering less instruction along with longer durations of attentional focus on body parts and sensations.

The MBCT program also encompasses psycho-educative and cognitive therapy components to specifically address depression. They consist of identifying symptoms of depressive relapse, the irrational thoughts characterizing depression, and the concrete strategies that could counteract the development of depression.

Efficacy of Mindfulness Based Interventions

It is beyond the scope of the present contribution to provide an exhaustive and systematic review of the effectiveness of MBI. The reader may refer to previously published systematic meta-analyses (e.g. Baer, 2004; Grossman, Niemann, Schmidt, & Walach, 2004). The general message of these reviews is that short term mindfulness interventions have an effect size of medium amplitude (average *d* around .60, i.e. that the means of MBI were on average 0.6 *Standard Deviation* higher than the means of the control groups) on psychological as well as somatic variables. This suggests that MBI are effective, over and above mere placebo effects. Yet, the amplitude of their impact is not as high as focused psychological interventions whose *d* are often above 1 (Ost, 2008). To date, we know of no RCT comparing MBI to a focused psychological intervention for a specific disorder.

However, it should be noted that the research on the effectiveness of mindfulness based interventions is confronted with several problems. First, with the exception of MBCT, designed for preventing depressive relapse, and DBT, designed to treat borderline personality disorder, most of the interventions studied were not designed for a specific disorder. This lack of a specific target implies more general, and hence, less sensitive outcome evaluation criteria, as specific effects might be diluted in general outcome measures. MBI might be at a disadvantage when comparing its efficacy with specific symptoms, while other interventions specially target these symptoms. In this sense, the effect magnitude of MBI designed for a specific condition (e.g. MBCT for depression) might be larger than 'general purpose' MBI.

An alternative strategy to validate MBI might rest in considering their impact on psychopathological processes rather than simply investigating the change they yield in terms of diagnostic criteria or in symptoms diminution. In other words, following a notion proposed by Barlow (2004), MBI should be validated in terms of processes rather than of symptomatology. Unfortunately, the processes by which MBI operate are still not well established. Baer (2004) has listed a number of potential processes (see next section) but this analysis is still speculative and the processes postulated are very general. Thus, even if research has established some efficacy for MBI, it has not yet provided a consensual model of the processes by which these effects might operate. As will be developed later, there are some indications that MBI may effect high order executive functions that are necessary for ending unhealthy rumination and other cognitive interlocks (Teasdale, Williams, & Segal, 1995). Still, the empirical validation of MBI would benefit from a sound theory accounting for the intervening factors and active ingredients.

Third, it should be noted that most MBI are very short term interventions (eight weekly group sessions for MBSR and MBCT). Their outcome should thus be appreciated in a 'dose-effect' perspective, keeping in mind that in a typical MBCT group of 15 participants, the total amount of therapist-hour per client is about 1.6. In this respect, MBI are very cost-efficient (Teasdale *et al*., 2000).

In sum, the efficacy of MBI is partly established, although more research is still needed. In particular studies with random assignment to treatment conditions and credible control interventions are still scarce. The active factors accounting for MBI efficacy still need to be established. In contrast, it should be noted that the social dissemination of MBI clearly precedes its scientific validation. While indication

criteria are largely unknown, and the efficacy is still under studied, there is a large enthusiasm for MBI in the public and in popular publications (e.g. Servan-Schreiber, 2007). Caution is thus recommended in the therapeutic application of MBI, especially as classic CBT intervention might be more effective than MBI in reducing symptoms in the case of acute disorders.

Underlying Factors Active in Mindfulness Based Interventions

As mentioned above, MBI primarily originated in a laic adaptation of a millenarian Buddhist tradition. They have not been directly derived from a psychological model that would specify *a priori* the processes by which MBI would operate. Nevertheless, different authors have speculated about the active processes in MBI.

The five mechanisms identified by Baer (2004)

Baer (2004) has proposed five mechanisms by which MBI might reduce symptoms. First, MBI entail exposure, especially exposure to emotional experience and painful sensations and thoughts. Clients are encouraged not to avoid painful aspects of experience, but rather to explore them and to develop a deeper awareness of them. In this process, people learn that the painful experiences do not have the catastrophic consequences that they are often *a priori* envisioning (Craske *et al.*, 2008). In this sense, MBI work as a form of sensitive desensitization. Second, MBI promote cognitive changes by modifying the attitude towards thoughts and feelings. From a MBI perspective, thoughts have to be considered 'just as thoughts,' that is, as a creation of our mind, not as a reflection of truth or reality. Third, mindfulness training fosters self-management in several ways. The clients have to develop a strong personal discipline in order to fulfill the requirement of 45 minutes of daily mindfulness practice; they also have to learn to sustain uncomfortable states for extended periods of time (see the exposure point above). Fourth, although this is not an aim of MBI, in many cases, mindfulness practice often results in relaxation, which has been proven to be an effective approach for many psychological stressors (Carlson & Hoyler, 1993). Last, Bear (2004) mentions the acceptance component of mindfulness. Hays (2004) has defended the notion that acceptance, defined as 'experiencing events fully and without defence, as they are' (p. 30), is a major determinant of psychotherapeutic change. MBI greatly emphasise this aspect, encouraging participants to accept and explore (i.e., experience fully)

all aspects of experience, including painful sensations, thoughts, and emotion.

The processes outlined by Baer (2004) have the advantage to refer to a well-established literature of processes known to be active in psychotherapeutic change (Castonguay & Beutler, 2005). However, this analysis also presents some limitations. First, most of the processes considered are common to many psychotherapeutic approaches. It is unclear whether MBI operate through the same processes as other forms of intervention, or whether they have some proper mechanisms of action. Second, the range of processes considered is large. Further, it is not specified whether some of these postulated processes bear more weight than others in accounting for the efficacy of MBI. Third, the five items listed by Baer (2004) represent broad psychological phenomena that are sustained by many different processes; these phenomena as such are too super-ordinate to be considered as processes. For instance, exposure is not a process but rather a procedure that is likely to mobilize many different processes (different types of conditioning, cognitive restructuring, change in self-efficacy, etc.), the involvement and relative importance of which are still objects of controversy (Craske *et al*., 2008; McNally, 2007).

Mechanism of emotion regulation

In the perspective of overcoming some of these limitations, one way to further investigate how MBI operate is to approach them at a more molecular level: Which are the specific, concrete and operationalizable psychological processes that might account for the effectiveness of MBI? Our view is that MBI such as MBCT can be conceived of as prevention interventions aiming at developing psychological abilities that are central in emotion regulation and/or in preventing emotion dysregulation. These abilities address specific psychological processes that are involved in preventing or counteracting ruminations and other cognitive interlock phenomena that precipitate negative mood and promote emotional avoidance (Barlow *et al*., 2004; Borkovec & Sharpless, 2004; Teasdale *et al.*, 1995). We propose that three types of such processes are particularly trained during MBI, each sustaining a specific ability. These abilities are attentional control, reflexive awareness, and the capacity to suspend automatic/immediate responses. They will be briefly reviewed in the following paragraphs.

Attentional control. MBI encompasses an extensive training of attentional abilities. In particular, every exercise that is part of the

MBI curriculum implies the training of (a) the ability to voluntarily focus attention on a specific object/sensation/thought, i.e. attentional engagement, (b) the ability to maintain attention on that object/sensation/thought, i.e., sustained attention, and (c) the ability to disengage attention from automatically activated content, i.e. attentional disengagement. These capacities are central to the cognitive regulation of emotion, especially as regards the capacity to disengage from automatic and recursive thoughts activated by emotion and to focus on situationally adaptive processing (for a full discussion of this point, see Philippot *et al*., 2007).

Reflexive awareness. Another capacity that is systematically trained by MBI is reflexive awareness of personal experience. This is primarily accomplished through raising the awareness of body state and of automatically activated cognition and emotion during the mindfulness exercises, together with preventing the stream of consciousness to be carried away by automatic thoughts/judgements/perceptions. MBI also encourage participants to develop this type of awareness in their daily life and routines. Large individual differences exist in the ability to perceive bodily sensations (Pennebaker, 1982), as well as in emotional awareness (Lane, 2000). These individual differences bear important clinical consequences as poor emotional awareness has been related to negative health consequences, both at the somatic and mental levels (Taylor & Bagby, 2004; Ward *et al*., 1988). It should be noted that several psychological models of emotional awareness locate its genesis in the conscious perception of bodily changes induced by emotion. For instance, Lane (2000; Lane *et al.*, 1990) has proposed that the most rudimentary level of emotional awareness rests in the perception of unspecified physiological arousal, and then evolves in the perception of specific body sensations, further followed by the perception of their integration in action tendencies. Higher levels of awareness include the perception of simple and then complex or blended emotional feelings. It is remarkable that MBI such as MBSR or MBCT are following a very similar path in raising awareness: During the first exercises, participants are encouraged to focus on their body sensations, first as separate entities, than as a whole body state. In later exercises, attention focus is extended to thoughts and emotional feelings.

Inhibition of prepotent response. Finally, MBI are also training the capacity to suspend automatic/immediate responses, in order to create a mental buffer in which to practice reflexive awareness. The notion is that automatic chains of stimulus-response are to be interrupted in order to allow for new, non automatized responses to take place

(Hays, 1994; Linehan, 1993). The notion that life challenges can be confronted via an automatic or an effortful route is a hallmark of psychology, especially in the domain of psychological and attitudinal change (e.g. Petty & Cacioppo, 1986). In the context of psychopathology, relationships have been established between impulsivity and the development of psychological disorders (Schachar & Logan, 1990). For instance, impulsivity is a characteristic of borderline personality disorder for which one of the most indicated treatment is DBT, a mindfulness based intervention developed by Linehan (1993). In MBI, the capacity to withhold automatic responses is developed by training the participants to observe and develop their awareness of the automatically activated action tendencies, without acting on them. This capacity thus directly entails the two previous ones: the capacity to focus attention (here on automatically activated action tendencies) and the capacity to raise awareness of the ongoing processes.

In a clinical context, the capacity to suspend automatic/immediate responses also implies the capacity to tolerate the emotional discomfort generated by not giving in to the urge to immediately respond. This is relevant for all types of MBI, but even more specially so in the case of the relapse prevention of Marlatt (1993). This capacity is akin to the notion of hardiness (Kobasa, 1979) or of resilience (Davidson, 2000). It refers the capacity of individuals to sustain stressful and negative experiences in a positive spirit, i.e. without loosing hope or developing negative affectivity. This capacity has been shown to be an important moderator of the impact of negative life events on subsequent health and psychopathological problems.

In sum, several psychological processes are intensively trained during MBI. For instance, in MBSR and MBCT, this training represents a minimum of 45 minutes a day during eight consecutive weeks. A significant psychological literature relates the three types of psychological processes to outcomes in terms of emotion regulation, as well as of somatic and psychological well-being. It is also noteworthy that the types of processes identified all refer to executive functions (Baddeley, 1996; Miyake *et al*., 2000). This suggests that MBI are specifically targeting executive processes that are involved in emotion regulation.

Evidence of the implication of emotion regulation processes in MBI

There are some recent research suggesting that indeed, MBI act on the above mentioned processes and that these might mediate the clinical outcome of the interventions. In a large clinical study, Bogels *et al.*

(2008) investigated mindfulness training as a new treatment for attention and impulsivity problems in adolescents with a variety of externalizing disorders. After MBI, participants self-reported substantial improvement on a diversity of variables including self-control, attention problems and mindful awareness. Importantly, they also performed better on a sustained attention test. Their parents corroborated these improvements. In addition, increased adolescent awareness after MBI predicted longer-term improvement.

Specifically addressing attentional focus, Jha *et al.* (2007) observed that mindfulness training modified subsystems of attention. In a control study, they examined three attentional subsystems: alerting, orienting, and conflict monitoring. They report that participants in an MBSR course improved the ability to endogenously orient attention as compared to a control group. Likewise, Valentine and Sweet (1999) observed that individuals trained in mindfulness meditation were displaying superior performance in sustained attention as measured by Wilkins' counting test, as compared to matched controls.

Regarding the capacity to disengage from automatic response patterns, some of our recent studies have started to explore whether the specific processes just outlined are active in MBCT intervention. For instance, Heeren and Philippot (2009) has shown that improvements in psychopathological symptoms following MBCT training were mediated by the reduction of unhealthy rumination, especially characterized by abstract and analytical thinking. Another study (Heeren, Van Broeck, & Philippot, 2009) has shown that MBCT training results in increased executive performance, especially in terms of semantic fluency, and that such executive improvement partly mediates MBCT effect on the improvement of healthy emotion processing capacities, such as the capacity of re-evoking emotional experiences at a high level of specificity (Williams *et al.*, 2000).

Obviously, this is just the beginning of the exploration of the processes sustaining MBI and a lot of work is ahead. Still, these preliminary investigations are promising and support the notion that MBI train some executive functions that might be specifically needed in the cognitive regulation of emotion.

Contribution of Mindfulness Based Interventions to a First Person Perspective

In this last section, three questions will be discussed. First, we will examine the extent to which MBI can be considered as a first person approach. Then, we will turn to a tenet of first person approach:

raising awareness of lived experience, and we will examine whether developing this capacities results in clinical benefits. Finally, we will speculate about how a first person approach might contribute to the understanding of MBI.

Mindfulness-based interventions as first person approaches

Can MBI be conceived of as a direct application of the first person perspective in the psychotherapeutic domain? According to Varela and Shear (1999), the first person approach is characterized (a) by an object, i.e. phenomenal experience, (b) by a set of procedures that allow the observation and study of that object, and (c) by means for the expression and validation of the observation and resulting knowledge within the community of researchers who have familiarity with the procedures.

Regarding the object, Varela and Shear (1999) define first person events as 'lived *experience* associated with cognitive and mental events' (p. 1). This is the exact definition of the object of mindfulness, and most exercises proposed in MBI are focusing attention on this lived experience with associated sensations, cognitions, and emotions. As explained in the section describing MBCT, reference to personal experience as directly lived by the participants as well as the instructors is strongly emphasised in MBI. Analytical and distantiating discourse, which is characteristic of a third person approach, is discouraged. The object of MBI and first person approaches thus appears to be very similar.

Regarding the set of procedures, Varela and Shear (1999) insist that a method for raising awareness (or for clarifying pre-reflexive phenomena) and training to that method are essential in first person approaches. A crucial point in first person approaches is 'to overcome the "just-take-a-look" attitude in regards to experience'. A sustained examination is necessary to 'produce phenomenal descriptions that are rich and subtly interconnected. … The main question is: How do you actually do it?' (Varela & Shear, p. 2). MBI clearly consist in structured trainings which target the capacity to examine in a sustained manner phenomenological experience. They indeed produce rich and subtly interconnected knowledge about ones' self and emotions. Similarly, a basic attitude in first person methodology is to suspend ongoing mental processes and to redirect attention from content to mental processes. As describe above, this is again what is accomplished in any exercise which is part of the MBI curriculum. Both approaches are ultimately aiming at a meta-awareness: the awareness

of the mental process rather than of the mere content. However, MBI and first person approaches differ somehow in what is attended to. While MBI focus on the experience itself, first person approaches emphasize the very process of description itself. Indeed, a central epistemological aspect of first person approach is to specify how one can become aware and describe his or her own mental processes (Petitmengin & Bitbol, this issue).

The last point, expression and validation of the knowledge, is relevant for the development of a scientific method, but it is not so for clinical applications. The first person approach as a scientific endeavour aims at creating, expressing, and disseminating knowledge in the scientific community. In contrast, the aim of MBI is ultimately to develop better being for individuals through the development of a mindful attitude and capacity. In this clinical context, a significant part of the knowledge that is created by individuals participating in MBI is considered as private and thus protected by ethical principles. Still within MBI groups, teaching mostly relies on participants'sharing of their experience. In this context, the medium of expression mostly consists in verbal accounts. Some (e.g. Kabat-Zinn, 1990) also use poetry to carry the meaning of complex notions, such as acceptance, to the intervention participants.

In sum, regarding object and procedures, MBI perfectly correspond to the definition of a first person approach. The third aspect, is only very partially met: Expression and description mostly consist of verbal accounts and validation is a scientific concern that is largely irrelevant for clinical applications. MBI can thus be considered as the application of the first person perspective in the psychotherapeutic domain.

However, this analysis opens new perspectives regarding the third criterion of Varela and Shear. Considering that MBI consist in an intensive training in observing one's own ongoing experience, one could propose to individuals participating in MBI to take part in experiments using a first person approach. Using an interview approach (e.g. Petitmengin, 2006) that would preserve the privacy and anonymity concerns raised above, MBI participants could be interrogated on a variety of issues, for instance the different modes of attention, the rising of emotion, the experience of observer versus field perspective, the 'gestures' that allow to fully explore experience, including its pre-reflexive components. As MBI train awareness to these phenomena, they might constitute a particularly interesting pool of subjects for such experiments. A further point of interest would be to consider longitudinal studies that would examine individual before

and after MBI. This would allow to investigate how 'first person' knowledge evolves following an intensive mindfulness training, and thus, whether such training is effective in developing a set of procedure for observing phenomenal experience, i.e. the second characteristic of first person approaches as defined by Varela and Shear (1999). Another possibility is to recruit MBI instructors as participants in experiments using a first person approach. They indeed represent a population with extensive training in observing their present experience and in raising to awareness pre-reflexive processes.

Raising awareness as a therapeutic means

As developed above, first person approaches rest on the development of a specific type of awareness: the awareness of our mental processes, be it cognitions, emotions, or sensations. An important question is whether developing this type of awareness bears clinical consequences. This question has already been tackled in a previous section. Specifically, Bogels et al. (2008) have reported evidence that increased awareness following MBI predicts longer-term improvement in emotion regulation and psychological well-being in adolescents. Clearly, this question requires further empirical investigation.

Yet, useful information can be gathered in related forms of psychological intervention. For instance, Greenberg (2002) has designed a form of therapy aiming at developing emotional awareness: emotion focused therapy. Outcome studies on emotion focused therapy (e.g. Goldman *et al*., 2005) have shown that the depth of experiencing and exploring emotion theme in the last half of therapy is a significant predictor of reduced symptom distress and increased self-esteem. Similarly, Holmes *et al*. (2008) have observed that adopting an actor perspective during emotional imagery (which implies visually experiencing the imagined situation through the eyes of the person experiencing it) results in a beneficial emotional outcome, while this is not the case if one adopt an observer perspective (i.e. distancing from experienced emotion).

To conclude, although scarce or indirect, existing empirical evidence suggests that raising experiential awareness might contribute significantly to improvement in psychological well-being. Enhancement of self-knowledge and emotion regulation capacities might mediate this effect. Indeed, raising experiential awareness is likely to result in a greater awareness of one's actual self, i.e. who one actually is. Recent research (e.g. Roelofs *et al*., 2007), grounded on the Self-Regulatory Executive Function model of emotional disorders

(Wells & Matthews, 1994), has recently evidenced that discrepancies in self-perception were directly linked to symptoms of depression as well as indirectly via the cognitive process of rumination. Further, raising experiential awareness implies developing acceptance of one's experience, if only to just stay in the position of experiencing it. As developed in a previous section, acceptance is thought of as a major process in healthy emotion regulation (for a development of this claim, see Hayes, 1994). Still, more research is needed to investigate these largely speculative suggestions.

Direction for Future Research

Throughout this paper, we have repeatedly stressed that MBI require more research (a) to establish the extent of their efficacy and the conditions for which they are indicated and (b) to investigate the processes by which they operate. On this latter point, studies conducted in a first person perspective might offer a heuristic avenue for the understanding of MBI. As mentioned above, one difference between MBI and first person approaches is that the former focus directly on lived experience itself, while the latter consider the thought processes that enable the description of lived experience. Bridging these two perspectives, the focus of participants to MBI trainings could be directed to their ongoing thought processes as they attempt to develop their awareness of their lived experience.

As mentioned above, first person approaches have developed rigorous procedures to collect precise verbal descriptions of lived experience, for example, through interviews (Petitmengin, 2006), and to extract invariants from reports of multiple experiences from multiple individuals. These techniques would enable the MBI researcher to collect descriptions of a given type of mental process, and then to analyse and compare the collected descriptions in order to detect possible generic structures and variants of the process in question. Such an approach could be applied, for instance, to the executive process operant in MBI.

For instance, traditional research at the third person is attempting to understand the higher order (executive) processes that come into play in emotion regulation and self-awareness. Presently, this research is importing concepts and measures that cognitive research has developed for the investigation of non-emotional problem-solving and processing. It might be that this conceptual framework is only partly adequate for the study of emotion regulation and self-awareness in clinically significant conditions. By a careful observation of the

attentional processes and of their dynamics, a first person approach might usefully contribute in defining the exact processes that are mobilized during mindfulness training.

Very concretely, such an approach could tackle the following questions: Is it the capacity to focus and sustain ones' attention on a specific object that is central to the training, or is it the capacity for divided attention between a specific object (focal attention) and a broad state of alertness (open attention), or is it the capacity to move back and forth between these two types of attention? Using a first person approach, MBI participants could be interviewed regarding how they direct their attention to their ongoing experience and regarding the experiential consequences of different modes of attention (or attentional 'gestures'). These experiential consequences could concern emotional feeling (their nature and intensity), the types of cognitions (mental image and thoughts) that are automatically generated in a given attentional mode, etc. Another question that could be pursued pertains to the mental gestures that allow to establish a direct contact with one's experience and those that distantiate from it. Here again, the attentional mode might be of importance (see Genoud, this issue), but also the perspective adopted (field versus actor perspective). Participants could be interviewed about the steps that are necessary to come in touch mindfully with their experience. In a more fundamental perspective, MBI participants could be interviewed, using a first person methodology, on what, in their personal experience, makes mindful observation of their own experience therapeutic.

Conversely, as suggested earlier, MBI instructors as well as individuals who have been trained in MBI might constitute a particularly interesting subject pool for first person researchers. On the one hand, they have undergone an intensive training in mindful observation of their own ongoing experience. On the other hand, they constitute a wide and diversified array of individuals from the general population. Indeed, MBI are proposed to people of all ages and socio-economical conditions. Although most of these people are confronted with a difficult psychological or somatic condition, a significant proportion engage in MBI in self-development perspective.

To conclude, MBI and first person approaches are likely to cross-fertilize each other. MBI offer to first person approaches a structured training to develop and deepen the awareness of mental processes. Conversely, first person approaches provide an alternative (or rather complementary) rigorous scientific method to explore the processes by which MBI operate.

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