Therapeutic Applications of Mindfulness in Pediatric Settings

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Declaration of Interest

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Abstract. Mindfulness is a meditation practice defined as a specific way of paying attention, which has been adapted from Buddhist traditions to Western secular use (stress reduction, health promotion, treatment of psychological disorders). Despite its widespread utilization in adult populations, mindfulness remains a neglected topic in the psychological interventions designed for children and adolescents, namely those suffering from psychological disorders and/or chronic physical conditions. In pediatric settings, a parent-child perspective may be useful in facilitating adaptation processes and improving pediatric outcomes. Therefore, the conduction of mindfulness interventions in pediatric settings raises a number of issues and challenges, which include the developmental adequacy of mindfulness exercises, the operationalization of a parent-child perspective and the consideration of disease-, treatment- and caregiving-related specificities.

Learning objectives

1. To identify therapeutic applications of mindfulness in pediatric settings, within a parent-child approach.
2. To consider developmental specificities in developing mindfulness interventions with pediatric patients.
3. To describe the potential benefits of mindfulness practice for parents while caregiving for a child with a chronic health condition or disability.

MCQs

Please select the single best option for each question stem.

1. The therapeutic applications of mindfulness in pediatric settings:
    a. are limited to the treatment of psychological disorders
    b. may only be described for older patients (i.e., adolescents)
    b. are restricted to stress reduction programs
    d. encompass the improvement of psychological adjustment and adaptive coping
    e. cannot be described for chronic health conditions

2. Mindfulness-based interventions may be recommended for parents of children/adolescents with chronic conditions, as a means of:
    a. distracting them from their daily hassles and burdens
    b. correcting their cognitive distortions
    c. facilitating positive meaning-making
    d. improving their spirituality
    e. increasing control over aversive emotions

3. In comparison to treatments designed for adolescents, mindfulness-based interventions for school-aged children should:
    a. be essentially the same, because they are all "kids"
    b. include briefer exercises and more play
    c. be avoided, since children lack metacognitive skills
    d. be exclusively directed to parents
    e. always include formal meditation exercises.

4. Which of the following is not a dimension of mindful parenting?
    a. exerting self-regulation in parenting relationship
    b. directing compassion for the self and the child
    c. adopting a nonreactive attitude towards any problem behavior
    d. listening with full attention to the child
    e. developing emotional awareness of the self and the child

5. Which of the following best describe the current state of the art for mindfulness-based interventions in pediatric settings?
    a. there is increasing evidence for their feasibility and efficacy
    b. there is only anecdotal evidence for their efficacy in children
    c. there is only reliable evidence for their efficacy in adults
    d. there is no empirical evidence for the efficacy of mindful parenting programs
    e. there is evidence for their feasibility, but not for their efficacy

Cognitive-Behavioral Therapy (CBT) has evolved over three waves or generations of psychotherapeutic approaches since its roots in the 1950s. The first wave of scientifically-based psychotherapy is Behavior Therapy, which focused directly on the modification of behavior and emotion, based on conditioning principles. The second generation is Cognitive Therapy, when information-processing and meaning-making were seen as mediators between stressors and psychopathology, thus implying the therapeutic change of negative thoughts, cognitive distortions, irrational beliefs or dysfunctional schemas, by means of their restructuring (e.g., detection, correction, disputation) and testing. The third wave of CBT represents a fundamental paradigm shift, embedded in postmodernist philosophical theories, such as functional contextualism that assumes reality as a dynamic process of continuous change and thought content as largely irrelevant to psychological disturbance (Harrington & Pickles 2009; Hayes, 2004). Therefore, within third wave-CBT, case formulation is especially sensitive to the context and functions of psychological phenomena, and treatments highlight contextual and experiential change strategies, in addition to more direct and didactic ones (Hayes 2004).

Although there is no consensual classification of which psychotherapeutic approaches constitute "third-wave CBT", there seems to exist a considerable agreement in including Dialectical Behavior Therapy (DBT; Linehan 1993), Acceptance and Commitment Therapy (ACT; Hayes *et al* 1999) and Mindfulness-Based Cognitive Therapy (MBCT; Segal *et al* 2002), under that umbrella term (cf. Kahl *et al* 2012; Öst 2008). Among the common features shared by these therapies (e.g., the focus on mindfulness, acceptance, the person's values in life), mindfulness is arguably the most transverse characteristic. In this paper, we aim to illustrate the potential therapeutic applications of mindfulness to pediatric health contexts - in the most general sense of encompassing pediatric psychological disorders and chronic physical conditions, inasmuch as targeting parents' and their children's needs – and to provide clinical guidelines for effectively conducting

mindfulness-based interventions in pediatric settings. The paper starts with a functional definition of mindfulness and its spectrum of therapeutic indications, followed by the presentation of essential guidelines and clinical examples for mindfulness in practice, while translating a dyadic parent-child approach to mindfulness-based intervention strategies and processes.

What is mindfulness?

Mindfulness is defined as "paying attention in a particular way: on purpose, in the present moment, and non-judgmentally" (Kabat-Zinn 1994, p. 4). In clinical terms, mindfulness is perhaps best understood as the "awareness that emerges" from the process of nurturing three interrelated skills (Williams 2008, p. 721):

- Intentionally paying attention to moment-by-moment events, as they unfold in the internal (i.e., mind, body) and external world;
- Noticing one's immediate, often impulsive and repetitive reactions to those events that tend to elicit aversion or sticking, which in turn are likely to result in maladaptive behaviors, such as avoidance and rumination;
- Adopting an attitude of open curiosity and compassion directed at the events and one's reactions to them.

Accordingly, the phenomenology of mindfulness as a moment-by-moment process embodies a single, inter-dynamic relationship between three conceptual pillars or axioms: intention, attention, and attitude (Shapiro *et al* 2006). However, two additional remarks are especially noteworthy for the axiom of intention. The first is that "intention" may be applied, in a strict sense, for the volunteer nature of the mindful way of paying attention (i.e., one is aware of where the attention is focused on, and then willingly redirects it), and in a broader sense, to the motivations underlying the practice of mindfulness (e.g., the intention for practicing mindfulness may be the achievement of greater self-regulation, self-

exploration or self-liberation) (Shapiro *et al* 2006). The second remark clearly distinguishes the volunteer nature of paying attention from aiming to control attention itself: during mindfulness exercises involving the redirection of attention, when one is noticing where his/her attention is directed at (e.g., an intrusive thought) and wants to escort it back to another event (e.g., the soothing physical sensations of breathing), this will be done in a most kind, gentle tone (e.g., "ah, there you are… come here again…"), as opposed to a cold, coercive tone (e.g., "just focus on this!", "stay there!", "don't go that way!"). The rationale for this is strongly supported by the counterproductive effects of thought or mood suppression, simply because our thoughts and emotions are not amenable to verbal ruled-control. From this perspective, willingness is the alternative to control (Hayes *et al* 1999). In fact, mindfulness inherently embraces "an affectionate, compassionate quality within the attending" (Kabat-Zinn 2003, p. 145).

Finally, a negative operational definition of mindfulness may be helpful in applying the concept for reframing a number of daily and clinical situations. Examples of such mindlessness behaviors include: pressing the elevator's button incessantly to make it arrive faster; shouting at children to teach them that shouting is not appropriate; tormenting oneself over the remaining daily agenda, while being stuck in the hospital waiting room; eating when one is no longer hungry; speaking to children or adolescents using an intimidating tone, in order to reduce their anxiety or increase their compliance.

Mindfulness put into clinical practice

Although its origins are founded in Buddhist meditation practices, mindfulness has been adapted for secular use in Western societies, namely in stress reduction and mental health settings. In this sense, even if mindfulness tends to be typically linked with meditation, the point of view endorsed here is that any technique that increases attention to the present moment and an attitude of acceptance, is to be considered a mindfulness

technique (Hayes & Shenk 2004). In fact, mindfulness can be developed with the therapeutic training of "psychological and behavioral versions of meditation skills usually taught in Eastern spiritual practices", which are essentially centered on "observing, describing, participating, taking a nonjudgmental stance, focusing on one thing in the moment, being effective" (Linehan 1993, p. 114).

These core mindfulness skills may be grouped into "what" and "how" skills. The "what" skills include: observing (i.e., noticing, paying attention to experience); describing (i.e., labeling experience with words); and participating (i.e., focusing full attention on current activity). The "how" skills encompass: accepting without evaluation (i.e., non-judgmentally); behaving with undivided attention (i.e., one-mindfully); and doing what works (i.e., effectively). Box 1 presents a series of exercises targeting each of these mindfulness core techniques, which can be performed while developing mindfulness-based interventions for pediatric patients and/or their parents.

[Insert_Box_1_Here]

How mindfulness works

There is now widespread evidence for the efficacy of mindfulness-based therapy for a variety of psychological problems (especially stress, depression and anxiety), across physical/medical conditions, psychological disorders and non-clinical populations (Khoury *et al* 2013). From a behaviorist point of view, these beneficial effects of mindfulness are explained through the process of modifying the stimulus functions of internal experiences, such as the ways people react to their thoughts, feelings, bodily sensations and urges. Specifically, the following mechanisms have been formulated to explain how mindfulness training results in therapeutic change (Baer 2003; Shapiro *et al* 2006):

- Reperceiving and decentering: mindfulness involves a crucial "shift in perspective", by enabling the individual to approach his/her internal and external experiences with greater distance, clarity and broadening of attention;
- Exposure: mindfulness encourages a nonjudgmental attitude towards negative emotional states, thoughts and urges, thus counteracting the individual's attempts to avoid those states, which often result in increased distress;
- Reducing dysfunctional psychological processes: mindful acceptance of thoughts and affective states represents an effective alternative to counterproductive efforts to gain control over those experiences, such as rumination or thought suppression;
- Increasing adaptive psychological processes: mindfulness implies the acknowledgement of the universality of human suffering, and thus may be regarded as an act of loving kindness directed towards oneself (i.e., self-compassion); in addition, mindfulness decreases emotional and behavioral reactivity to unpleasant events (often linked to ineffective outcomes and self-criticism), while allowing the individual to respond to such events in agreement with his/her goals and valued living directions.

Therapeutic indications of mindfulness in pediatrics

Mindfulness-based interventions are currently implemented in a variety of health contexts, to essentially address "universal vulnerabilities": "those mental or behavioral habits that undermine well-being and maintain chronic feelings of dissatisfaction because of certain universal aspects of being human: having language, taking such language literally, using thought-based processes to elaborate, solve or escape from problems, and persisting in using such strategies even if these do not solve the problem" (Williams 2008).

The applications of mindfulness to the treatment of psychological disorders (including child and adolescent psychopathology) are well-known and encompass the following psychopathological dimensions: mood (anxiety, depression); intrusions

(ruminations, hallucinations, memories); behaviors (binge eating, addiction, self-harm, violence); problems of relating (attitudes, empathy); and problems of self (self-consciousness, self-hatred) (Mace 2007).

In addition to the intervention needs of children and adolescents suffering from mental disorders, the authors gained insights from their clinical and research practice that broadened the spectrum of therapeutic indications of mindfulness in pediatric settings, in order to also target the difficulties and challenges experienced by parents (or other family caregivers) and their children with a chronic physical condition. In this sense, the authors strongly endorse a classic recommendation for pediatric training (Allmond *et al* 1979), while asserting that any pediatric clinician is to be mindful of the fact that he/she will be almost always working with (at least) two patients simultaneously – a child and a parent. Although necessarily interrelated, potential indications of mindfulness for pediatric patients with chronic physical conditions, as well as their parents, are listed in Box 2.

[Insert_Box_2_Here]

Developmental considerations

From a developmental perspective, if it seems unhelpful to regard children as "little adults" (Thompson & Gauntlett-Gilbert 2008), then one may equally assume the inadequacy of approaching adolescents as "grown up children" (Carona *et al* 2013). In fact, children and adolescents have distinct cognitive abilities and face different maturation issues and developmental tasks. Accordingly, the exercises delivered in pediatric mindfulness-based interventions have to be adapted to fit different ages and their corresponding abilities. There is no consensus on the age from which mindfulness should be delivered to children: on the one hand, there are exercises available for children aged 5 years old (Snel 2013); on the other hand, some authors endorsed a Piagetian perspective in arguing that mindfulness would be impracticable before the attainment of "formal

operations" stage (i.e., from around the age of 12), where abstract and hypothetical reasoning is achievable (Wagner *et al* 2006). Given the current state-of-the-art on the feasibility of mindfulness-based interventions with children, and based in our own clinical experience, we support the idea that clinically meaningful work is viable with children within the "concrete operations" stage (i.e., from around the age of 7 to 12). From this stance, a number of clinical guidelines (cf. Semple *et al* 2006; Silverton 2012; Thompson & Gauntlett-Gilbert 2008) gain special relevance for improving the effectiveness of mindfulness-based interventions with pediatric patients:

- Attention and memory abilities are less developed in younger children, and so the therapeutic sessions should be briefer and include more repetition;
- Children have limited verbal fluency and abstract reasoning, and therefore intervention protocols should include greater variety of games, practical activities and storytelling;
- Children's development is largely shaped by his/her family environment, thus implying the distinctive importance of promoting parents' involvement in mindfulness-based intervention processes;
- Like many adults, children and adolescents may have difficulties in linking the relevance of mindfulness exercises to their daily difficulties, which calls for greater explanation and discussion of the rationale;
- The use of age-related metaphors is to be highly valued (metaphors may include cartoons, pop music videos or situations seen in football or other sports).

At the end of this section, Box 3 presents a summary of key-messages for ensuring the developmental validity of mindfulness-based therapy with pediatric populations.

[Insert_Box_3_Here]

Mindfulness exercises for children and adolescents

The use of metaphors in pediatric mindfulness-based therapy is valuable not only in illustrating the explanation of the rationale for intervention, but also in guiding and developing the intervention process itself. Age-appropriate metaphors are useful means of translating abstract ideas or concepts into concrete terms that are easily understood by children. Here are some examples of metaphors that we have found especially useful in clinical practice:

- "The possibility of radical acceptance" (Ciarrochi & Bailey 2008): this metaphor comes in the form of visual analogy, using a sequence of three funny cartoon scenes, which may be applicable to school-aged children, adolescents or adults. In the first scene, a battle between a man and monster is presented in the form of a "Tug of War" (i.e., the fight of the individual with his/her own negative emotions, such as fear, for example); the second scene portrays the exhaustion of both sides after a period of battle (i.e., the counterproductive effects of the efforts to control or avoid intrusive thoughts or negative emotional states); in the last scene, we see the individual inviting the monster to come along with him, and the monster assuming a manageable, even unwilling attitude (i.e., thoughts and emotions may "calm down" if one just accepts them as part of a situation and of life itself).

- Mindfulness and mindlessness outside the therapy room (Thompson & Gauntlett-Gilbert 2008): this illustration of rationale for intervention simply involves the humorous discussion of daily situations where we realized (fortunately, on time!) that we were getting "mindless" (e.g., suddenly realizing we are exhausted or need to go to the toilet; being in the heat of a discussion with our girlfriend/boyfriend, without remembering how it started). The illustration of the link between mindfulness exercises in the therapy room and the outside world can also be achieved with the acknowledgement of the need of

pop singers and top football players to concentrate and practice in private, in order to, afterwards, give astonishing performances out in public.

- "The Mindful Warrior" (Ciarrochi *et al* 2012): the cool image of a "mindful warrior" (pretty close to that of a samurai or a ninja) conveys a sense of courage and energy, and may turn the invitation for learning mindfulness rather appealing to adolescents. Moreover, it is argued that "mindful warriors are BOLD" (p. 10) – an acronym that synthesizes the core mindfulness skills to be developed, namely "Breathing deeply and slowing down", "Observing", "Listening to your values", and ""Deciding on actions and doing them".

In addition to metaphors, practical exercises are needed for the experiential development of core mindfulness skills in pediatric patients (see clinical illustrations in Table 1 – Case vignettes). The following are some examples that we have found both effective and funny:

- "The Fruit Game" (Silverton, 2012): this game can be played with children, adolescents and adults; ideally, you can play it in the therapy room with parents and their child, but it can also be performed in small groups of children. You will need a lemon (or other fruit/vegetable, such as tangerines or potatoes) for each participant. First, ask all players to close their eyes, preferably also tying a scarf or a kerchief as blindfold. Second, participants take one lemon each, and examine it carefully: feeling its size, shape and texture, smelling it and even tasting it. This can last around three minutes and may be guided by your instructions. Third, collect all of the lemons and mix them up in a bowl. Finally, invite each participant to identify his/her particular lemon. As noted by the original author, most of us would tend to expect that we would never find out "our lemon"; however, through the mindful use of our senses, we become very familiar with "our lemon" and it is often easy to identify our own one.

- "Animal Breathing" (Race 2013): this exercise is especially tailored to younger children, and aims to teach them the importance of breath and breathing, through the imitation of breathing of various animals. It can be completed with a good storytelling (or reading) and it's prone to developing mindfulness skills while having a good laugh. Examples include, but are by no means restricted to, the following: "Bumblebee Breath" (i.e., inhaling through the nose, then exhaling with a humming sound by putting the lips together); "Snake Breath" (i.e., inhaling through the nose, and then making a prolonged hiss with teeth together); and "Lion Breath" (i.e., inhaling through the nose, then exhaling through the mouth, with one's tongue hanging out). The additional ideas of developing "Wolf Breath" or "Bear Breath" are a just matter of creativity and improvise: the key-message here is for children to develop awareness over the usefulness of a deep and slow breath.

- "Choosing not to listen to the mind machine" or "Never mind my mind" (Ciarrochi *et al* 2008): originally proposed as a self-help guideline for adolescents, this exercise is useful for addressing the core mindfulness skill of "describing". First, the adolescent is asked to recall situations where his/her mind was telling him/her one thing, and they did the other, often the opposite (e.g., mind urging you to lose control, like hitting or insulting someone, but you chose not to reply; mind telling you that you would fail the exam, but you did it anyway and got a good mark; mind repeating you that you were too tired or bored to study or go out, but you did it anyway). Then, teaching the adolescent to label his thoughts in a practical, even jokey way: "ah, there you are again, long time no see! – I'm having the thought that I'm worthles"; or "thank you, Mind, for telling me once again that I will fail at school".

[Insert_Table_1_About_Here]

Mindfulness exercises for parents

Although caregiving is an essential component of normative parenting, the demands and strains implied by caring for a child with a chronic health condition or disability may be over and above the ones experienced by parents of a typically developing child. Nevertheless, positive and negative psychological states are likely to co-occur during caregiving processes, and the experience of positive emotions in that context may facilitate meaning-based coping (i.e., positive reappraisal, problem-focused coping, and creation of positive events) and sustain adaptive coping mechanisms (Folkman 1997). In this context, intentional mindfulness has been recommended to generate positive emotions in those parents, which then "broaden and build" their coping repertoires and resources (Larson 2010). In fact, a number of clinical guidelines have been outlined for the conduction of mindfulness-based psychotherapy with these parents (Carona 2013). Apart from the fact that mindfulness exercises developed in third-wave CBT for adults (see: Wells 2006; Williams & Penman 2011) may be easily adapted and applicable for the aforementioned purpose, the current section aims to provide complementary therapeutic exercises and techniques, which the authors found particularly effective when working with parents in pediatric settings.

"Socratic Questioning" is one of the most classic methods in CBT. Interestingly, this method of guided discovery has been adapted for promoting mindful acceptance in the context of third-wave CBT (Ciarrochi & Bailey 2008). Here are some questions that may be useful in developing a mindfulness-based Socratic dialogue:

- What have you been struggling with?
- How have you tried to overcome that?
- How did those efforts work out? (in the short-term and afterwards)
- What have you given up because of these difficulties?
- Why is it so hard to change your thoughts and feelings?

- If trying to change your thoughts and feelings doesn't work, then what can you do?
- What are the other ways out besides the one you keep avoiding or struggling with?

In addition to increased caregiving burdens, parents of children with chronic health conditions may have a limited experience of caregiving uplifts or gratifications, which are likely to serve as important stress buffers (Carona 2013). Although primarily described as a "positive CBT tool" (Tarrier 2010), the use of "broad-minded affective coping" (BMAC) has been commented to improve the focus of attention, improve emotional regulation and increase awareness of how attention affects emotions (Johnson *et al* 2013); therefore, from the theoretical standpoint adopted in this article, BMAC may be regarded as a therapeutic technique addressing the development of mindfulness skills. Although its intervention rationale and procedure are described elsewhere (Tarrier 2010), a general outline of BMAC is presented in Box 4.

[Insert_Box_4_Here]

Finally, it is worth noting that "mindful parenting" is a recently proposed approach to parenting that can be defined as a set of parental practices or skills that seek to enhance moment-to-moment awareness in the parent-child relationship. Specifically, mindful parenting encompasses five core elements: (1) listening with full attention to the child; (2) adopting a non-judgmental acceptance attitude towards the self and the child; (3) developing emotional awareness of the self and the child; (4) exerting self-regulation in the parenting relationship; and (5) directing compassion for the self and the child (Duncan *et al* 2009). Recently, Bögels and Restifo (2014) proposed a mindful parenting course targeted at

parents who are under conditions of high stress (e.g., conflicting parent-child relationship, parental or children's psychopathology). In each session, parents are instructed to complete several exercises (e.g., gratitude practice, imagination exercises, holding strong emotions with kindness) and formal meditation practices (e.g., body scan meditation, loving-kindness meditation, mindfulness of the breath, sounds, emotions, and thoughts), consistent with the theme of each session. In addition, parents are encouraged to practice meditation and other exercises between sessions and, when appropriate, in the interactions with their child. To illustrate the practice of mindfulness in the interpersonal context of parent-child relationships, an exercise from this course is briefly described in Box 5.

[Insert_Box_5_Here]

Practical issues in delivering mindfulness-based interventions

There are different perspectives on the issue of clinician's personal practice of mindfulness and the delivery of mindfulness-based therapy. Some approaches advocate the imperative need for continuing personal practice and supervision: "[mindfulness] cannot be taught to others in an authentic way without the instructor practicing it in his or her own life" (Kabat-Zinn 2003, p. 149). Other models place an emphasis on the clinician's mastery of mindfulness skills, based on his/her empirical learning (Dimidjian & Linehan 2003). In any case, the depth of the clinician's knowledge on mindfulness practice seems essential for giving appropriate guidance and compassionately responding to patients' difficulties during the implementation of mindfulness-based interventions. Therefore, it is suggested that clinicians willing to train mindfulness in their patients should themselves be mindful of the following requisites: experiential training or supervision on mindfulness practice; deep knowledge on the theoretical models supporting the incorporation of mindfulness in psychotherapy; ability to establish compassionate therapeutic relationships based on

mindfulness-related skills and attributes; and a regular update of the scientific developments of mindfulness therapeutic models and interventions. Perhaps as important is the suggestion that mindfulness may be a promising venue for promoting a "compassionate pediatric healthcare". In fact, the term "total care" has been coined to describe a model of care that encompasses the physical, psychological, social and existential dimensions of pain and suffering of patients and their caregivers (Halifax, 2011).

State-of-the-art and future directions in research

Mindfulness research in adult populations has flourished over the last couple of decades; however the empirical study of its applications to children and adolescents is still in its infancy. Quite expectedly, the first studies conducted in this area were aimed at ascertaining the feasibility of mindfulness-based interventions for children and adolescents; although this was ultimately established, those studies gathered few empirical evidence of the efficacy of these interventions (Burke, 2010). More recently, the amount of studies targeting pediatric populations (often implying a parent-child perspective) has increased, with promising evidence for the feasibility and efficacy of mindfulness-based interventions in a number of conditions such as HIV, Asperger syndrome, substance abuse, ADHD, depression and conduct disorder (Harnett & Dowe 2012; Singh *et al* 2007). Complementarily, mindful parenting intervention programs have proven to be efficacious in promoting a more positive parent-child relationship, the quality of parenting, and the psychological functioning of children and parents (Harnett & Dowe 2012).

In general, mindfulness-based interventions are currently regarded as a feasible and effective method of developing resilience in universal populations and in the treatment of disorders of pediatric populations (Greenberg & Harris 2011). Nevertheless, for advancing the state-of-the-art, the following research directions are highlighted: first, there is a need for conducting randomized controlled clinical trials; second, the contributions from

developmental psychology should be valued and incorporated in pediatric psychology research; and third, the study of mechanisms of change and intervention outcomes could be improved with the simultaneous examination of intrapersonal (i.e., "Self in process" – e.g., self-compassion, values clarification, acceptance) and interpersonal variables (i.e., "Self in context" – e.g., prosocial behavior, peer problems, quality of parent-child relationship).

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Box 1. Exercises for developing mindfulness core techniques in pediatrics

Observing

▪ **Key point:** To notice the experience without reacting to it; to develop a "Teflon mind" (i.e., thoughts may come and go, without sticking to you mind).

Examples of things to observe:

- The movements and sensations of breathing;
- Tastes, sensations, movements while eating;
- Sounds, scents, textures;
- What one can see around him/her;
- Urges (e.g., to scratch an itch, to change one's sitting posture).

Describing

▪ **Key point:** labeling, applying words to the things one observes; realizing that the mind is not the reality and it has a life of its own (i.e., thoughts are thoughts, feelings are feelings).

Examples:

- Labeling of internal experiences (e.g., "I am having the thought that I am different", "a feeling of despair has just come to me");
- Objectively describing the things one sees around (e.g., trees, paintings, animals, people passing by);
- Identify sequences of events and feelings (e.g., "my boyfriend didn't call me on time and I got annoyed", "my child started yelling and I felt embarrassed").

Participating

▪ **Key point:** immerse oneself in the present moment, in the current activity; the opposite of doing things in "automatic pilot" (i.e., mindlessly); it can be practiced with any activity.

Examples:

- Playing a tabletop game;
- Singing, dancing, listening to music;
- Practicing sports, physical exercise;
- Having a shower/bath;
- Studying, reading;
- Conversation.

Box 2. Parent-child perspective on the therapeutic indications of mindfulness to chronic health conditions

Children	Parents
• Psychological comorbidity • Coping with disease- and treatment related stressors • Therapeutic non-compliance • Pediatric pain management • Lifestyle-related exacerbating behaviors	• Psychological morbidity • Caregiving burdens • Modification of child's problem behavior • Work-family conflict • Caregiving gratifications, meaning-making and personal growth

Box 3. Key-messages of a developmental approach to mindfulness in pediatric settings

Key-Messages for Pediatric Clinicians
• Keep exercises brief: a rule of the thumb is one minute of mindfulness practice for each year of age. • Start gradually: start with bringing attention to concrete stimuli of the external environment, then move to the sensations of the body, and finally introduce meditation exercises with attention directed to the mind. • Be flexible and developmentally-appropriate: you cannot simply expect a 10-year old patient to meditate for 10 minutes, or all your patients to achieve the practice of sitting meditation. • Play, play and play: playing is a natural source of children's enjoyment, openness and curiosity – which is exactly what is encouraged in mindfulness. Whenever possible, involve parents in these playing activities. • Be fun and creative: you don't need to adopt a "guru attitude"; talk in a compassionate manner with the child/adolescent and his/her family, develop your own metaphors or exercises, and use humor abundantly.

Table 1. Examples of mindfulness-based interventions with children and adolescents

***Case vignette*: John, 9 years old**

John was referred to therapy because of his difficulties to stay quiet and concentrate, especially at school, and physical aggressive behavior directed to his peers; by the end of the first semester, a second retention in the 4th grade was a plausible scenario. In the first session, the therapist found John so reluctant to remain sited, that he invited him for a walk around the clinic gardens – which he readily accepted. After talking a little bit about John's likes and dislikes, the therapist invited John to play a game with him, which was to simply stay quiet and pay full attention to all sounds around them (the winner would be the one to notice more sounds). John enjoyed the competitive tone of the invitation, remained quiet for more than two minutes, and actually surpassed the therapist in recalling more different sounds.

In a next session, the therapist invited John to role-play with him the fighting he had been involved during that morning; when the therapist was playing the "the other guy", John was asked to scan for any body sensation or reaction, which could serve him as a signal that he was "under heat" and about to lose control. John immediately raised his both hands fisted. Without trying to modify that reaction, John was encouraged to notice his fisted hands as signal of energy and determination, which he could direct to other actions, instead of hurting his colleagues and ultimately himself. The image and attitudes of Cristiano Ronaldo in the field (of whom John was a huge fan), served to illustrate the purpose and importance of non-reacting and concentrating on one's will (e.g., "how does he react when under pressure?"; "hoes does he react when a referee acts unfairly?").

In the following sessions, a number of games were used (e.g., "Greif Zu!" [Grab it!], by Selecta Spielzeug) to foster non-reaction to urges and attention to the present moment. John's mother participated in some of these games, and later commented that she couldn't recall the last occasion she had cherished such pleasant and rewarding moments with her son. Throughout the therapeutic process, John abandoned his aggressive behavior towards his peers, and improved his academic performance to the point of passing to the elementary school with no negative grades.

***Case vignette*: Peter, 16 years old**

Peter was referred to therapy by his dermatologist, because of low self-esteem and high shame and self-criticism. He had a medical diagnosis of acne, which was getting more severe because of his skin-picking. In therapy sessions, especially when talking about anxiogenic issues, Peter would engage in skin-picking, which sometimes even resulted in bleeding. Whenever the therapist called his attention to his self-injuring behavior, he would stop for a moment a reply: "I just can't help it". The therapist then asked Peter to state a few things we all tend to do in our daily routines, without even thinking about them – i.e., we just do it. In order to develop his awareness over his "automatic pilot" mode, Peter was asked to teach his therapist walking, imagining that he never had walked before. Peter was then asked to reflect on the different components that constitute the most common, spontaneous behavior: for walking, one would need to lift his foot from the floor, moving it forward, and then put it back to the floor again. Afterwards, Peter was challenged to decompose his "unavoidable" skin-picking into "steps": first, noticing an

itching or uncomfortable sensation on the skin; second, to lift his arm and take his hand to the skin; third, to touch and search for the pimple; fourth, to start squeezing or scratching the pimple; fifth, to keep on squeezing, picking and scratching; and sixth, to stop skin-picking after seeing the blood in his fingers. By doing this, Peter was able to develop awareness of his movements related to skin-picking: every time he noticed an itch or other uncomfortable sensation on skin, he would "take two steps back", and then softly pose his hand on the affected area of the sin, just touching it, to alleviate the itch; when itching was not present, he got able to stop any movement of the hand to search for and squeeze the pimples.

Box 4. General outline of the Broad-Minded Affective Coping (BMAC) procedure (adapted from Tarrier, 2010)

- *Preparation*
  - In order to achieve a relaxed state that will facilitate the experience of positive emotions, patients are asked to perform a simple autogenic procedure, followed by focusing their attention on breathing (alternatively, a breath and body meditation can be used – cf. Williams & Penman, 2011).

- *Guided Imagery of Positive Memories*
  - Patients are asked to recall a specific memory of a positive event (which has been previously discussed with the clinician) as clear and vivid as possible. To achieve this, the clinician will prompt a series of questions to recall the situation details (this can be done subvocally). Sometimes this can be best achieved by guiding the patient to "look around" his/her memory and its details.

- *Engaging the senses*
  - Once the vivid mental image has been created, the patient is asked to recall any other sensory input, including smells, noises, textures and even tastes. Sometimes it is useful to ask about the weather (e.g., "Can you recall the sun on your face?") or "dear ones" (e.g., "Can you recall the smell of your child's hair when you were hugging her/him?).

- *Re-Experiencing the Associated Emotion*
  - Patients are now asked to recall their inner, emotional experience at the time. This process of identifying and labeling emotions can be facilitated with prompting from the clinician.

- *Interrogate the Memory*
  - This final stage is aimed at developing the patient's awareness over his interpretations and appraisals that resulted in the positive emotion. Therefore, patients are prompted to ask themselves what made them feel happy, proud, peaceful or cheerful. The clinician may then rephrase subvocally the patient's associations to reinforce his/her awareness.

- *Feedback and Debriefing*
  - After performing the exercise (nearly 20 minutes), the patients are gently asked to open his eyes and to stretch. Patients are asked about how they feel, and how they felt throughout each stage of the procedure. The subjective experience of the patient and the applications of the procedure are discussed. Practice outside the therapy room is encouraged.

Box 5. Parenting stress exercise: Bringing kindness to yourself (adapted from Bogels & Restifo, 2014)

- After closing their eyes, parents are instructed to imagine as vividly as possible a stressful interaction with their child;

- After imagining the situation, parents notice how they are feeling in the present moment (bodily sensations, feelings, thoughts, emotions);

- Parents are suggested to bring an attitude of self-compassion by comforting themselves physically (e.g., putting their hands over their heart or placing their arms around their shoulders) and/or in their inner dialogues (by saying to themselves, for instance: "this is a difficult moment", "I try hard to be a good parent but sometimes it may be very difficult");

- Parents are guided to remind themselves that all parents fail and make mistakes and that all humans are imperfect.