A Protocol for Mindfulness Training in Children with Behavioural Difficulties

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Introduction

Mindfulness processes
Mindfulness and acceptance-based approaches take the view that attempting to change the content of incapacitating thoughts is less productive in the long term than learning to develop control over the processes that maintain them. The consensus in the literature defining mindfulness is that mindful attention requires a deliberate and non-judgemental focus on events experienced from moment to moment. The main purpose of such training in the clinical context is to develop a degree of self-awareness, self-acceptance, and a sense of control over emotional reactivity (Cayoun, 2011).

In training, people begin with a set of breath concentration exercises which require the development of three main attentional skills, selective and sustained attention, and attention shifting, also called response re-engagement (See Cayoun, 2010, for impaired processes in children with ADHD). They develop the ability to quickly recognise and inhibit their typical response to intrusive thoughts to prevent distractibility and refocus on the breath. This control over the process of thinking requires metacognitive awareness (Teasdale, 2003) and what is commonly conceptualised as inhibitory control in executive functions (Barkley, 1997). This alone enables a more objective appraisal that thoughts are just "thoughts", rather than "truths."

Trainees are then taught to scan their body systematically and develop an ability to feel both salient and more subtle sensations while purposefully inhibiting habitual, learned, responses; often defined as automatic reactions. As they do with their thoughts, they develop an increasing ability to accept whatever arises in their body from moment to moment, while remaining as nonreactive as possible. From a behavioural perspective, this entails a process of systematic desensitisation to internal cues or a deprogramming of established reactive habits in the central Nervous System (CNS).

Based on Posner and Raickle's (1997) model of attention networks, developing these skills involves the training of functions which may engage the vigilance network (dorsolateral region of the prefrontal cortex and its reciprocal connections to a centralised area of the striatum) and the executive control network (orbital-frontal regions of the prefrontal cortex and its reciprocal interconnections with the ventromedial region of the striatum).

Mindfulness in children
The utility of mindfulness as a mode of therapeutic change in young children (aged 5 to 12 years of age) has scarcely been explored. However, the potential benefits of a mindfulness-based therapy for children justify further exploration. Since mindfulness training teaches to sustain attention and inhibit automatic reactions to internal cues and their associated common stressors, there seem to be good grounds for implementing it in children with deficits in attention and those whose difficulties controlling their behaviour.

Nevertheless, there are potential difficulties in engaging young children in mindfulness training. A central problem is finding a methodology that will enable children to attend to and enhance awareness of internal cues. This is particularly true for children with attentional deficits because the neural networks necessary for the task are likely to be impaired in those with attentional problems. This applies to children with anxiety problems given the decrease in attention capacity during anxious states.

On the other hand, it is also expected that such training leads to neuroplasticity in these networks, since there is an increasing and lasting ability to detect subtle sensorimotor cues undetectable prior to training in normal adults (Cayoun, 2011). If mindfulness training also facilitates plasticity in areas of dysfunction, this approach may be a valuable tool to assist in conventional treatments, or could even be used as a substitute treatment for children who do not benefit from conventional methods of therapy.

In attempting to train mindfulness in children, we will use an approach that draws attention to the natural rhythmicity of breath, a common focal point for a variety of meditation techniques. The aim of this simpler methodology is to enhance the child's awareness of proprioceptive cues associated with his or her breath, and to observe these cues as body sensations without changing them or changing the process of breathing. This method should facilitate the subvocalisation of internal cues in young children, with an effort to promote the experience of mindfulness in a variety of settings including home and school.

With practice, children should gain greater awareness of body sensations which may historically have acted as triggers for dysfunctional responses and behaviours, and be able to use these as cues to make better choices in any present circumstances.

Protocol

Participants

Twenty children aged 5 to 12 years representing a subset of children attending a government-funded child and adolescent mental health facility and children provided a similar quality of service in a local privately-funded psychology practice will participate in the pilot trial. Children should meet criteria for a disruptive behaviour disorder.

Materials

A pre, post, and follow-up measure of behaviour will be used to assess change over time. Self-report measures will include the Clinical Assessment of Behavior (CAB; parents and teacher versions), the Behavior Rating Inventory of Executive Functions (BRIEF; parents and teacher versions), and a session-by-session measure of perceived change in symptomatology, self efficacy and overall progress.

Method

Session 1

1. The child and family should undertake a formal clinical assessment to determine the nature of the child's problems, including a functional analysis of specific problems of most concern.
2. A set of target behavioural problems for evaluation should be devised and the

frequency and intensity of such behaviours should be assessed by questionnaire. Common behavioural questionnaires could be used to assess a range of externalising and internalising behaviours both at home and school. This data set would provide a baseline measure of behaviour before implementation of mindfulness training.

3. The child's motivation for change and persistence should be assessed by interview. These are important considerations because mindfulness training requires motivation and persistence in order to learn the method. This task could otherwise be undertaken during Session 2. Parents are told that we use a systemic approach and that we require their involvement.
4. The child, together with one or both parents or carers, receives educational information on the benefits of mindfulness training for behavioural self-regulation, and an overview of the methodology. Particularly important is the need to convey that it is an attempt to stop behavioural problems from seemingly having a life of their own allowing the child to exercise control over behaviour he or she felt was beyond their control. Pre and post evaluation and the requirement for ongoing monitoring are explained.
5. The child's school teacher is made aware of the procedure and told that a set of written recommendations will be sent to the school. The purpose of this systemic approach is to enable cross-context reinforcement of the child's attempts for self-control.

Session 2

1. The child's counting ability is assessed by determining the highest number to which he or she can count. The child is then provided a target number, which is 60% of the maximum countable number, with a ceiling of 60 where the child can count to 100. Fluency in counting to this target number is checked and recorded for each child.
2. The surrounding must be as silent and undisturbing as possible to prevent distractibility. The child begins the training by lying on the floor or slouching in a chair, whatever is most comfortable. The child is instructed to "breathe normally without trying to change the breath in any way by breathing hard or deeply." Provided the child is agreeable, a parent places their hand on the child's abdomen as a visual cue to exhalation and counts sequentially out load each time the child exhales, evident by the parent's hand dropping. This step is intended to model behaviour the child will eventually undertake for themselves. However, if the parent's touch is not welcome, the child places his or her own hand on the abdomen.

   If the child correctly associates counting with exhalation, the parent then transfers the counting responsibility to the child and the child is instructed to count aloud on each exhalation up to the target number while watching their own diaphragm deflate (their own hand dropping). When the child reaches the target number he or she starts over and keeps counting until they are instructed to stop. If the child does not learn to associate counting with exhalation, the parent is to persist in directing the child's counting until such a response is learned. A single, short, praise is offered with each attempt. Each success is rewarded with more elaborate praise. Success is defined as a single full-length series of maximum values uninterrupted (i.e., up to 60% of maximum countable number).
3. The parent is instructed to monitor the child's counting out aloud with each exhalation twice per day (morning and evening) for a duration of 15 minutes. The parent is also asked to rate the various behavioural forms and collect the forms filled by the main teacher.

Session 3

1. Monitoring of child (and parent) motivation and homework task compliance. Administer child and parent ratings of progress.
2. The child begins to internalise the 'out loud' counting learned in the last session and practiced throughout the past week. Although the normal respiratory rate for normal school-aged preadolescent children is approximately 20 breaths per minute, the respiratory rate for this age-group of children with problem behaviour is not clear. Therefore, the parent should estimate the reliability of the child's ability for accurate subvocal counting by also counting subvocally while the child proceeds. If there are doubts about the child's ability to count subvocally, the parent assists by counting aloud with the child.
3. The child is instructed to "breathe normally, without trying to change the natural breath by breathing harder or deeper." The child is told: "until your concentration improves, your mind will wander, sometimes all over the place, and you will probably think about a lot of different things. As soon as you realise that you have stopped counting your breathing, go straight back to counting from the last number you remember counting and count from there."
4. The parent is instructed to monitor by being present with the child while the child counts internally. The duration of this task sequentially increases by 5 minutes each day. On the first day the child is expected to do this twice for 15 minutes, on the second day, 20 minutes, on the third, 25 minutes, and so on up to a theoretical maximum of 30 minutes twice daily. From this week, the child practises their mindfulness exercise while sitting.

Sessions 4 – 5

1. Problem-solving and monitoring of child (and parent) motivation, homework task compliance, and child and parent ratings of progress.
2. The child is taught to practise eyes closed and without proprioceptive feedback from the hand. This procedure should enable internalisation of focus when counting, and limit proprioceptive feedback to the sole movement of the abdomen, encouraging narrower focus.
3. In any case, the parent still remains in the company of the child during these two weeks.
4. Teacher training for cueing the child to breath awareness during potential disruptions in the classroom is provided.

Session 6

1. Counting is replaced with "mere observation" of the breath for the same amount of time previously spent on counting. Breath awareness is performed closed eyes. The parent is encouraged to remain in the same room and practise with the child if possible (preferred). This challenging stage is likely to be difficult for the child because intrusive thought will keep on emerging. The "hand technique" may be used if the child is in the younger age-group or has great difficulty with the task. In the hand technique, the child is asked to monitor the breath and raise his or her dominant hand when a thought emerges, and lower it back to it relaxed position when the thought is passed and attention is redirected to the breath. This method reduces the attentional effort by including the aid of proprioceptive feedback.
2. Problem-solving and monitoring of child (and parent) motivation, homework task compliance, and child and parent ratings of progress.
3. Begin transferring most responsibility to the child and lessen parent monitoring if there is *compelling evidence* that the child can complete the internal counting task unaided. Otherwise, a parent should assist.
4. The child is encouraged to monitor his or her breath during the day, especially

during periods of silence and periods of stress. Parents are reminded of rewarding the child's effort and achievements.

5. Teacher feedback is sought and the further training for cueing the child to breathe awareness during potential disruptions in the classroom is provided.

Session 7

1. In addition to mindfulness of breathing, the child is now encouraged to monitor any sensorimotor cue (body sensations) that may emerge during the practice, as well as during stressful periods of the day. The inclusion of this feature is to enhance interoceptive awareness and acceptance, a central skill to develop in mindfulness training, allowing detection of early cues of agitation and stress.
2. Problem-solving and monitoring of task compliance/persistence.
3. Teacher feedback is sought and training for cueing the child to body sensation awareness and acceptance during potential disruptions in the classroom is provided.
4. Post-training questionnaire evaluation

Session 8

1. Problem-solving and monitoring of task compliance/persistence.
2. discuss 3-6 month review questionnaire evaluation with parents and teacher
3. Celebrate end of training. A certificate is given to the child, and another to the parents.
4. Promote a "mindful parents" group, in which parents can practice mindfulness with a CD and get encouraged to support their child's effort and change.