

MINDFULNESS FOR CHILDREN AND ADOLESCENTS WITH HEALTH-RELATED  
CHALLENGES: A SYSTEMATIC LITERATURE REVIEW

by

Morgane Le Pouesard, Honours B.Sc. University of Toronto, 2013

A Major Research Paper

Presented to Ryerson University

in partial fulfillment of the  
requirements for the degree of

Master of Arts  
in the program of  
Early Childhood Studies

Toronto, Ontario, Canada, 2014

## AUTHOR'S DECLARATION

I hereby declare that I am the sole author of this MRP. This is a true copy of the MRP, including any required final revisions.

I authorize Ryerson University to lend this MRP to other institutions or individuals for the purpose of scholarly research.

I further authorize Ryerson University to reproduce this MRP by photocopying or by other means, in total or in part, at the request of other institutions or individuals for the purpose of scholarly research.

I understand that my MRP may be made electronically available to the public.

# MINDFULNESS FOR CHILDREN AND ADOLESCENTS WITH HEALTH-RELATED CHALLENGES: A SYSTEMATIC LITERATURE REVIEW

© Morgane Le Pouesard 2014

Master of Arts  
Early Childhood Studies  
Ryerson University

## ABSTRACT

This systematic literature review examined the current research on mindfulness for the well being of children and adolescents with health-related challenges, for the purpose of identifying best practices. Rigorous methods were applied to select evidence published in the past 10 years, resulting in 19 studies eligible for inclusion in the review. These studies were then presented, organized by the children's different diagnoses, in order to provide a critical overview of the current evidence. Prominent themes in the literature were reviewed, including adaptations to mindfulness programs for use with children, scales employed to measure mindfulness, and gaps in research. Implications for practice were presented, such as the importance of including caregivers in children's interventions, the need to incorporate play and games, and the necessity that interventions be delivered by individuals experienced in mindfulness meditation.

Keywords: *mindfulness, evidence-based practice, children, well being, adolescents, best practices, health.*

## **Acknowledgements**

I am grateful to my supervisor, Prof. Donna Koller, for mentoring me throughout this process. I would like to thank her for her advice, guidance, and thoroughness in reviewing draft after draft in detail. I would also like to thank Prof. Rachel Berman, my second reader, for accepting to be a part of this endeavour by critically reviewing my paper. Sincere thank you to Prof. Mehrunnisa Ali as well, for contributing her expertise to my oral examination. Thank you to Prof. Marni Binder for the books, advice, and for connecting me with useful resources throughout the way. Thank you to Sara Marlowe for inviting me into her home and sharing her wisdom and expertise in practicing mindfulness with children.

I am eternally in debt to my family for all their help. Thank you to my parents, Isabelle and Gilles, for not only enabling me to pursue higher education, but for being my most loyal supporters every step of the way. I am so very grateful to my mother for introducing me to the world of spirituality and planting the seed for my interest in mindfulness. Thank you to my father for being the first person to voluntarily read an entire draft of this paper. Thank you to my siblings for always being there and providing comic relief. Last but not least, thank you Michael for the countless times you listened, loaned me your quiet apartment, and cooked me comforting meals.

## Table of Contents

Author's Declaration	ii
Abstract	iii
Acknowledgements	iv
List of Tables	viii
List of Appendices	ix
Introduction	1
Purpose	2
Definitions and Common Misconceptions	5
Defining Mindfulness	5
Common Misconceptions	5
State Mindfulness versus Trait Mindfulness	6
Mindfulness versus Relaxation	6
Defining Mindful Parenting and Caregiving	7
Defining Health-Related Challenges	9
Defining Well Being	10
The Importance of Relationships to Children's Well Being	10
Theoretical Considerations	11
Research Methods	12
Mindfulness For the Well Being of Children and Adolescents	15
Chronic Medical Conditions	15
Pain	17
Depression and Anxiety	19
ADHD and Learning Disabilities	23
Psychiatric Disorders	28

Caregiver Mindfulness	31
Mindful Parenting	32
Parents of Children with ASD	33
Parents of Children with Chronic Conditions	36
Mindfulness for Health Care Professionals	39
Contributions and Limitations	44
Practical Implications	45
Adaptations of Mindfulness	45
Adaptations for Health-Related Conditions	47
Challenges to Mindfulness Practice	47
Including Parents and Caregivers in Mindfulness Interventions	50
Incorporating Games, Play, and Interactive Activities	51
Program Delivery By an Individual Experienced in Mindfulness	53
Discussion	54
Future Research Priorities	54
Research with Younger Children	54
Replicating Adult studies with Child Populations	55
Issues in Research Methods	56
Scales for Measuring Mindfulness With Children and Adolescents	56
Relevance to Youth	58
Overrepresentation of Females in the Research	58
Scarcity of Rigorous Research Methods	60
Ethical Considerations	60

Conclusion	61
Research Needs	61
Incorporating Qualitative Data	62
A Comprehensive Approach to Research and Practice	62
Child Participation and Ongoing Support	63
Table 1	65
Appendices	79
References	81

## **List of Tables**

Table 1. Studies Included in this Review	65
--	----



## **List of Appendices**

Appendix A.	Glossary of Terms	79
-------------	-------------------	----

# Mindfulness For Children and Adolescents With Health-Related Challenges:

## A Systematic Literature Review

Mindfulness is a type of meditation, consisting of paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally (Kabat-Zinn, 1990.) Although mindfulness is an ancient contemplative tradition, stemming from Buddhist teaching, it has only gathered attention in the Western academic world over the past few decades due to its benefits for well being. The evidence for the benefits of mindfulness in adult populations cites positive effects such as alleviating stress, diminishing pain, reducing anxiety and depression, and affecting neural circuitry by lowering reactivity and increasing control over cognitive patterns (Greenberg & Harris, 2012.) Furthermore, these effects are observed not only in healthy adult populations, but also among adults suffering from various illnesses, challenges, and disabilities (Greenberg & Harris, 2012.).

Since Jon Kabat-Zinn's development of the mindfulness-based stress reduction (MBSR) program in 1979 (Kabat-Zinn, 1982), several other mindfulness-based interventions have been proven beneficial for various psychological and physical conditions. These include acceptance and commitment therapy (ACT) (Zettle & Rains, 1989), dialectic behaviour therapy (DBT) (Linehan, 1993), mindfulness-based cognitive therapy (MBCT) (Teasdale, Segal, & Williams, 1995), and mode deactivation therapy (MDT) (Apsche, Evile, & Castonguay, 2002.) A close examination of each of these therapies is out of the scope of the present review. However, their existence highlights the Western medical world's growing interest in mindfulness.

Despite this growing interest, research on mindfulness for children and adolescents is lacking (Thompson & Gauntlett-Gilbert, 2008.) Research is especially scarce on the topic of mindfulness for children and adolescents with health-related challenges such as physical illness,

disability, and psychological or emotional difficulties (Thompson & Gauntlett-Gilbert, 2008.) In 2002, Ott (2002) observed that there did not exist empirical research on the use of mindfulness with children. This lack of research may be due to several reasons. First, researchers began studying mindfulness in the context of adult populations, and have only demonstrated its benefits in recent decades (Burke, 2010.) Second, although Kabat-Zinn (1990) has secularized the practice of mindfulness by extracting it from its Buddhist roots, there may still exist concerns among certain populations, such as people of different faiths, regarding the spiritual and religious origins of the concept of mindfulness (Greenberg & Harris, 2012.) Finally, applying mindfulness with children requires certain adaptations, based on the children's ages, developmental considerations, and interest levels (Greenberg & Harris, 2012; Lagor, Jackson Williams, Block Lerner, & McClure, 2013.)

In spite of these concerns, the body of research examining the application of mindfulness with child and adolescent populations has slowly been growing: by 2010, Burke (2010) reviewed 15 peer-reviewed studies on the topic, in both clinical and educational settings. Two years later, Harnett and Dawe (2012) identified 24 such studies. Researchers have now begun to specifically study the application of mindfulness for children and adolescents facing health-related challenges, examining the value of mindfulness as a resource for their well being. This has resulted in a new body of research, which has yet to be systematically reviewed.

### **Purpose**

The purpose of this review is to present the current available literature on the topic of mindfulness for children and adolescents with health-related challenges, assessing its quality by following rigorous guidelines. The intended outcome is to begin to identify best practices in the area of mindfulness for children and adolescents with health-related challenges. Health

practitioners, parents, or caregivers of children and adolescents with health-related challenges may use this review as a resource. This review follows the tradition of evidence-based practice (Rycroft- Malone et al., 2003.)

Evidence-based practice originated in medicine and has now moved beyond to other disciplines (Rycroft- Malone et al., 2003.) Evidence-based practice statements have traditionally tended to focus on quantitative data, but it has recently been recognized that individuals' personal experiences, as well as the experiences of professionals, are valuable in informing the evidence base of practice. (Rycroft- Malone et al., 2003) Therefore, considering qualitative data can facilitate the identification of best practices. Further, best practices are constantly evolving, which reinforces the need to examine innovative interventions such as mindfulness, both quantitatively and qualitatively.

Although the term “best practices” connotes the idea that a single set of practices may be universally applicable, it is important to highlight that there exists a range of applicability in mindfulness. Indeed, while the purpose of his review is to identify best practices as highlighted in the current literature, these practices are not meant to be understood as a rigid guide for applying mindfulness with children and adolescents. Instead, they are meant to provide suggestions as to how to best tailor mindfulness for use with younger populations. As will be discussed later, one important factor in successfully applying mindfulness with children with health-related challenges is to adapt the intervention to the population at hand. Therefore, while the term “best practices” may connote universality, the sole best practice in the context of this review is to consider the population receiving the intervention, and tailor mindfulness to their needs and preferences.

This review begins with defining mindfulness, providing clarification as to the boundaries of what constitutes a mindfulness-based intervention. The term “well being” will then be examined, drawing out some of its complexities. In the body of the review, the research on mindfulness for the well being of children and adolescents with health-related challenges will be synthesized. Based on the findings of the selected studies, adaptations of mindfulness for children, as well as potential challenges to mindfulness practice, will be presented. Finally, gaps in the literature, future directions, and implications for practice will be discussed.

What differentiates the present review from previous attempts at systematically examining the literature will be the analysis of the benefits of caregivers’ mindfulness on both their own and the children’s well being. In this paper, the term “caregivers” will refer to the parents, family members, and health professionals in the life of a child. It appears that the potential effects of mindfulness are not limited to a direct application with the child or adolescent patient, but rather can hold positive direct or indirect effects in both the patient and his or her family when fostered in caregivers (Beer, Ward, & Moar, 2013.) Drawing from bidirectional and systemic theories (Pardini, 2008; Stafford & Bayer, 1993) supports the notion of a transactional relationship between children and their caregivers (Pardini, 2008; Stafford & Bayer, 1993), in which children and caregivers influence one another. This informed the decision to include caregivers in this review. This focus will provide a more comprehensive review of the possible effects associated with applying mindfulness to improve the well being of children and adolescents with health-related challenges.

## **Definitions and Common Misconceptions**

### **Defining Mindfulness**

Scholars have struggled with providing a clear and comprehensive definition of mindfulness. The most widely used definition in the literature appears to be Kabat-Zinn's (1990.) He defines mindfulness as paying attention in a particular way; on purpose, in the present moment, and nonjudgmentally (Kabat-Zinn, 1990.) Being nonjudgmental in the context of mindfulness involves simply observing one's own thoughts, without labeling them (Kabat-Zinn, 1990.) It is an important component of mindfulness, as it differentiates it from other forms of meditation or relaxation that do not emphasize being nonjudgmental. A similar definition developed by Bishop et al. (2004) portrays mindfulness as a two-component model, the first component being the self-regulation of attention so that it is maintained on immediate experience, and the second being adopting a particular orientation towards one's experiences in the present moment, characterized by curiosity, openness, and acceptance (p. 232.) This definition is similar to Kabat-Zinn's (1990), with its emphasis on the present moment and acceptance, but uses more concrete, measurable terms such as curiosity, acceptance, and openness, rendering it a suitable operational definition for some studies.

**Common misconceptions.** The term "mindfulness" is often mistaken with the vernacular notion of "being mindful." To clarify, it may be useful to conceptualize mindfulness as a mode rather than a trait or a state (Bishop et al., 2004.) Mindfulness as a trait would refer to a person holding qualities of thoughtfulness, care, and self-awareness, which are not constructs encompassed in either Kabat-Zinn's (1990) or Bishop et al.'s (2004) definitions. Although mindfulness as a trait may be developed through a mindfulness practice, is it important to distinguish between the two.

The notion of “psychological mindedness” can also be confounded with mindfulness (Bishop et al., 2004; Mikulas, 2011) Langer (1989) uses the term “mindfulness” to describe a range of psychological processes such as being sensitive to content and perspectives, creating new categories, challenging assumptions, getting involved, and taking responsibility. Langer’s (1989) construct of mindfulness is different from the mindfulness that has been used as a therapeutic intervention. Langer’s (1989) construct is closer to psychological mindedness, which refers to self-knowledge, self-awareness, and insight (Bishop et al., 2004.) Again, a mindfulness practice may lead to psychological mindedness, as one may become more aware of one’s own thought patterns and habitual cognitions. However, while the term psychological mindedness refers to a personal quality or trait, the construct of mindfulness as conceptualized in this study refers to a practice of paying attention in a particular manner (Kabat-Zinn, 1990.)

***State mindfulness versus trait mindfulness.*** There is an important difference between conceptualizing mindfulness as a state rather than a trait, as the way mindfulness is conceptualized influences the way it is operationalized in research. Conceptualizing mindfulness as a personality trait implies stability, suggesting that mindfulness is a fixed outcome rather than a constantly evolving practice. In contrast, Bishop et al. (2004) prefer to conceptualize mindfulness as a “psychological process” or skill, which becomes easier with regular and consistent practice (p.234.) Mindfulness as conceptualized in this review is a particular way of paying attention (Kabat-Zinn, 1990), which is closer to a state or process than to a personality trait or a fixed outcome. This distinction is especially important with regard to operationalization and measurement, as will be discussed later in this paper.

***Mindfulness versus relaxation.*** While mindfulness is a form of meditation, which is lauded for its relaxing properties, and while some meditations may hold relaxation as their

central construct, mindfulness is not an intervention aimed directly at inducing relaxation. This difference was demonstrated by Jain et al. (2007) as they compared the impact of a mindfulness meditation training (consisting of exercises such as mindful walking and guided mindfulness meditations) versus somatic relaxation training (consisting of breathing techniques, muscle relaxation, and guided imagery.) The authors found that, while both interventions led to significant decreases in distress across participants, the mindfulness intervention had the unique effect of decreasing rumination of negative thoughts. This process was not observed in the relaxation group. This finding highlighted that mindfulness meditation led participants to observe and become familiar with their own thought processes, enabling them to subsequently recognize and alter negative mental states such as rumination. Thus, it appears that mindfulness differs from relaxation primarily through its focus on observing thoughts and mental habits. While relaxation may be an outcome of a mindfulness practice, the two constructs require differentiation.

### **Defining Mindful Parenting and Caregiving**

Kabat-Zinn and Kabat-Zinn (1997) developed the concept of mindful parenting, defining it as paying attention to one's child and parenting in a particular way: intentionally, here and now, and non-judgmentally (Kabat-Zinn & Kabat-Zinn, 1997.) A mindful parenting practice enables parents to recognize and potentially reduce automatic negative reactions, a process called de-automatization (Kang, Gruber, & Gray, 2013.) When a child is sick and where emotions are likely to be intense, the ability to focus on the present and to override automatic reactions may be highly beneficial to both the parents' and the child' well being (van der Oord, Bogels, & Peijnenburg, 2012.)



Duncan, Coatsworth, and Greenberg (2009) proposed a model of mindful parenting comprising of five broad practices: listening with full attention, non-judgmental acceptance of self and child, emotional awareness of self and child, self-regulation in the parenting relationship, and compassion for self and child. Mindful parenting interventions do not significantly differ from regular mindfulness-based programs. They incorporate the same elements of mindful walking, guided mindfulness practices, etc., but with a special focus on parenting and on parents practicing mindfulness during interactions with their children (Benn, Akiva, Arel, & Roeser, 2012; Ferraioli & Harris, 2013.)

Mindfulness has been also applied to caregivers of sick children in the form of Mindfulness-Based Stress Reduction (MBSR) (Kabat-Zinn, 1982.) MBSR comprises of basic mindfulness training exercises, such as mindful walking and guided mindfulness practices, as well as additional elements such as gentle yoga, visualization exercises, and breathing exercises (Minor, Carlson, Mackenzie, Zernicke, & Jones, 2006.) Earlier, the distinction between mindfulness and relaxation was discussed, and MBSR appears to be a blend of the two. Studies that have used MBSR as the basis of intervention have targeted both parents and health professionals (Bazzano et al., 2010; Jing Hou et al., 2014; Minor et al., 2006.) Other studies have strictly targeted health professionals; in order to both reduce their stress levels and avoid burnout, as well as improving the quality of the care they dispense to patients (Cohen-Katz, Wiley, Capuano, Baker, & Shapiro, 2005; Moody et al., 2013.) Such studies have used mindfulness-based interventions to train professionals in basic mindfulness practices (Moody et al., 2013) or MBSR-based programs for health professionals (Cohen-Katz et al., 2005.)

In summary, mindful parenting interventions incorporate basic mindfulness training into the specific context of parenting, urging parents to employ a mindfulness practice when

interacting with their children. MBSR has been used with both parents and health professionals, incorporating basic mindfulness training with some relaxation-based elements such as yoga, visualizations, or breathing techniques. Both mindful parenting and MBSR for parents, caregivers, and health professionals have been applied in pediatric clinical settings. Such interventions target both the stress levels and well being of the caregivers themselves, as well as the subsequent quality of care that they are able to offer to the child with health-related challenges.

### **Defining Health-Related Challenges**

The population of children (and their caregivers) included in this review are those with health-related challenges specifically, rather than children in general. The body of research on mindfulness as a therapeutic intervention has been growing, and necessitates separate examination from the research on mindfulness for children in educational settings, which targets all children. While this is not intended to suggest that mindfulness interventions should be delivered in a segregated manner, targeting specific groups separately, it is important to establish whether or not mindfulness is useful for children facing health-related challenges. It is also valuable to consider which adaptations, if any, may be required when working with this population.

The term “health-related challenges” incorporates various illnesses, medical conditions, disabilities, and psychological, mental, or emotional difficulties. While certain disorders, such as attention deficit hyperactivity disorder (ADHD), might not appear to be directly related to health, conditions that can obtain a medical diagnosis have been included under the term “health-related challenges” for the sake of convenience. Other diagnoses included in this review are chronic

medical conditions, pain, depression and anxiety, ADHD, learning disabilities, autism, and psychiatric disorders.

### **Defining Well Being**

Well being is a complex and multifaceted concept (Pollard & Lee, 2003, p. 60) with several interrelated variables acting upon it (Axford, 2009.) This makes it difficult to define. It is generally understood that well being comprises happiness, health, a certain quality of life, and a sense of satisfaction (Dodge, Daly, Huyton, & Sanders, 2012), yet a precise definition of well being remains hard to achieve. Child well being may be even more difficult to conceptualize, as some argue that there has been too much of a focus on external factors affecting child well being rather than seeking children's subjective points of view (McAuley, Morgan, & Rose, 2010.)

Axford (2009) proposed five key concepts related to child well being: needs, rights, social exclusion, poverty, and quality of life, but also highlighted that there exist a myriad elements that can change the impact of these concepts on well being, rendering it highly difficult to not only define, but also predict child well being in a scientific manner. Dodge et al. (2012) highlighted the problematic tendency for well being to be described rather than properly defined, and proposed a new definition, that of well being as “the balance point between an individual's resource pool and the challenges faced” (p.230.) Using this definition, it follows that the presence of challenges in an individual's life would require an existing pool of sufficient resources to maintain well being, or the addition of new resources in order to restore balance. This definition is well suited for the purpose of this review, as it posits mindfulness as a potential resource for improving the well being of children and adolescents with health-related challenges.

**The importance of relationships to children's well being.** Relationships play an important role in children's definition of well being (Amerijckx & Humblet, 2013; McAuley et

al., 2010.) McAuley et al. (2010) found that children identified family as having considerable importance for their well being, and that relationships and social belonging were crucial influences as well. Furthermore, Amerijckx and Humblet (2013) lamented the tendency to adopt an individualistic lens when approaching the concept of well being, rather than focusing on its collective dimension. This is especially relevant in the context of this review, as it considers the effects of caregivers' mindfulness on the well being of children and adolescents. Mindfulness may be more beneficial to well being when practiced not only by the individual child, but by his or her caregivers as well. Indeed, because relationships are so central to children and adolescent's well being (McAuley et al., 2010), mindfulness interventions may be more efficient at improving children's well being if they include a focus on the quality of their relationships with their caregivers.

### **Theoretical Considerations**

The aforementioned decision to include the effects of caregivers' mindfulness on children's well being was informed by bidirectional theory (Pardini, 2008; Stafford & Bayer, 1993). Studies have historically focused on the socializing influences of parents on their children (Pardini, 2008.) However, bidirectional theory emphasizes the often-overlooked influence that children and adolescents have on their parents' behaviours and well being (Pardini, 2008.) Indeed, viewing children as autonomous agents capable of exerting agency on their surroundings highlights that children's behaviours have the power to influence their parents', or caregivers', behaviours (Pardini, 2008.) Bidirectional theory stresses the transactional nature of the caregiver-child relationship (Stafford & Bayer, 1993), through which behaviours and attitudes may be transmitted between children and caregivers.

In the context of mindfulness, bidirectional theory holds two important implications. First, following traditional ideas about parents' socializing influences on their children, bidirectional theory suggests that caregivers' mindfulness may be transmitted to the children in their care. This has been demonstrated in the research, with children modeling mindful behaviours from their parents (van de Weijer-Bergsma et al., 2011.) Second, considering the influence that youth can have on their caregivers, bidirectional theory implies that children with a mindfulness practice may lead their caregivers to become more mindful as well. Overall, bidirectional theory emphasizes the transactional nature of the caregiver-child relationship (Pardini, 2008; Stafford & Bayer, 1993), and suggests that the effects of mindfulness interventions will not be limited to either the children or their caregivers, and instead that they will be transmitted between both parties. Accordingly, including an examination of the effects of caregivers' mindfulness on children's well being is justified in this review.

### **Research Methods**

A comprehensive search of the literature was conducted in several databases including PsycINFO, PubMed, ProQuest, CINAHL, Medline, and ERIC. A variety of keywords were used to conduct the search, such as *mindfulness, well being, well-being, relaxation, mental health, children, hospital, clinical, therapy, sick children, MBCT, MBSR, child\*, mindful parenting, health professional, health, pediatrics, medication, meditation*. These keywords were searched together in different combinations on a bi-weekly basis over the course of six months (November 2013- April 2014.) The search also included keywords relating to various health-related challenges, including *OCD, chronic illness, bulimia, suicide, anorexia, cancer, leukemia, depression, anxiety, autism, muscular dystrophy, multiple sclerosis, ADHD, Down's Syndrome, HIV, AIDS, asthma, diabetes, eating disorders*, etc. The initial search was undertaken with the

guidance of the appointed Ryerson Master's of Arts in Early Childhood Studies librarian. The librarian was experienced in the process of researching for systematic literature reviews, and offered several suggestions regarding keywords, search combinations, and possible spelling differences in terminology across databases.

All search results were limited to peer-reviewed articles published between January 2003 and April 2014, covering the period of the last 10 years. Articles studying mindfulness for children and adolescents in educational settings were excluded, and only studies examining mindfulness for the well being of children and adolescents with health-related challenges were considered. This parameter was decided upon in order to identify specific best practices in the context of children and adolescents with health-related challenges, which may differ from best practices for the general child and adolescent population. However, mindfulness interventions for such children are sometimes delivered in the school setting for practical reasons, and therefore studies in which the mindfulness intervention was carried out on school grounds were included, but only if the youth receiving the intervention were specified to be facing health-related challenges. Articles pertaining to mindful parenting or mindful caregiving in the general population were also excluded, including only studies targeting mindful parenting and mindful caregiving by caregivers of children and adolescents with health-related challenges.

Only research articles published in English were reviewed. Furthermore, only studies using secular contemplative mindfulness meditation-based techniques, such as MBSR, MBCT, or mindfulness-based interventions were included, excluding studies solely based upon transcendental meditation, yoga, and other forms of meditation. Studies examining ACT (Zettle & Rains, 1989), DBT (Linehan, 1993), and MDT (Apsche, Evile, & Castonguay, 2002) were not included in this review because, although they are based upon mindfulness meditation, they

incorporate other therapeutic elements that are out of the scope of the present review. The final search was completed in April 2014.

Searches revealed over 200 citations, most of which were overlapping or only distantly related to the topic. Over the course of 2 months, the results were examined for overlap and relevance, by reading titles and abstracts. This left 66 citations, which included quantitative and qualitative studies, literature review articles, and theoretical discussions of mindfulness and its applications with children. Review articles were used to crosscheck reference lists and ensure that all relevant literature had been acquired. Theoretical articles and papers discussing definitions and applications of mindfulness with children were applied for the introduction and discussion sections of this review, with the quantitative and the qualitative studies (n=38) left to both be examined and rated for inclusion in this systematic review.

Traditionally, evidence-based practice statements have tended to focus heavily on quantitative data, particularly in health-care (Rycroft- Malone et al., 2003.) However, Rycroft-Malone et al. (2003) argue that evidence-based practice must be informed by patients' and caregivers' experiences, in order to achieve the highest standards of care. They propose that it is important to incorporate individuals' personal experiences as valid sources of knowledge that inform the evidence base of practice. Accordingly, it was especially important to include qualitative studies, as obtaining children's perspectives and feedback is a crucial element in successfully introducing them to a mindfulness practice (Liehr & Diaz, 2010.) Qualitative data also enables researchers and practitioners to understand which adaptations are useful when working with mindfulness and children, from the children's own perspectives (Greenberg & Harris, 2012; Lagor et al., 2013.) Thus, obtaining qualitative feedback from children and their families is beneficial for the success of interventions, and for developing future interventions.

Selection criteria were determined by scoring articles using the Quality of Study Rating Form (Gibbs, 1989) for quantitative studies, and the Qualitative Study Quality Form (Gibbs, 2003) for qualitative studies. These scales guide the assessment of peer-reviewed articles based upon several criteria, such as the use of a control group, outcome measure reliability, and statistical significance of results for quantitative studies. For qualitative studies, assessment guidelines include identification of theoretical framework, statement of purpose and research questions, recruitment procedures, and potential author bias. Each criterion received a score of either 0 or the total number for the category, with no intermediate points being allotted. Articles that received a rating of 60 or over out of 100 possible points were selected for inclusion in this review. For articles that scored above 55 points, the opinion of a second rater confirmed inclusion or exclusion. In total, 19 articles met the selection criteria.

### **Mindfulness For the Well Being of Children and Adolescents**

The following section contains a synthesis of the research selected for inclusion, consisting of two parts. In the first section, the research will be organized by diagnosis, or type of challenges with which a child or adolescent may be faced. These include chronic medical conditions, pain, depression and anxiety, ADHD and learning difficulties, and other psychiatric disorders. In the second section, research about caregivers will be examined under two categories: mindful parenting, and mindfulness for health professionals caring for children and adolescents with health-related challenges.

#### **Chronic Medical Conditions**

Chronic medical conditions are of long duration and generally slow progression (World Health Organization, 2012), and include diseases such as diabetes, asthma, acquired immunodeficiency syndrome (AIDS), etc. The term “chronic medical conditions” was chosen to



differentiate between medical conditions affecting the physical body, and other chronic conditions such as depression that may or may not be expressed somatically. Sinha and Kumar (2010) stated that there exists a lack of research on mindfulness for children and adolescents with chronic medical conditions, which was evident in the literature. Chronic medical conditions can have a pervasive negative impact on the well being of both the ill individual and his or her family (Sinha & Kumar, 2010.) This may take the form of negative experiences, medical interventions, worries, intrusive health demands, and fear of being judged by others (Lagor et al., 2013.) Furthermore, chronic medical condition of a parent or family member may adversely affect a child's well being (Sinha & Kumar, 2010), especially in light of the importance children place on family in influencing their well being (McAuley et al., 2010.)

In an American mixed methods preliminary study examining the feasibility and acceptability of mindfulness, Lagor et al. (2013) recruited 15 students, ages 8 to 18, in a specialized school for pupils with chronic medical conditions. The sample comprised a range of diagnoses such as diabetes, asthma, HIV, hemophilia, etc. The mindfulness intervention consisted of a 6-week program of weekly mindfulness sessions lasting 50 minutes each, incorporating exercises such as mindful eating, mindful walking, mindful touching, focus on breath, and sorting thoughts into imaginary boxes.

The authors used a semi-structured interview with the participants upon completion of the program to obtain feedback. Fifty percent of the participants found mindfulness to be useful tool for their own behavioural control, 21% reported increased awareness, and 14% identified mindfulness as a tool for stress reduction (Lagor et al., 2013, p. 152.) 43 percent also reported a preference for interactive, rather than solitary, mindfulness exercises, such as group mindful eating (p. 152.) One participant was disappointed that mindfulness did not diminish the intensity

of her emotions (p. 152.) Thirteen out of 15 participants completed the program, a good retention rate (p.152.) The authors administered the Beck Youth Inventories- 2<sup>nd</sup> edition (Beck, Beck, & Jolly, 2005) pre- and post- intervention, and found a statistically significant decrease in anxiety ( $p=.028$ ), but no other significant improvements. However, these results should be considered with caution as a result of the study's small sample size of 15 and lack of a control group.

In summary, the scarcity of research precludes an evaluation of the efficacy of mindfulness for youth with chronic medical conditions. Lagor et al. (2013) found a mindfulness intervention to lead to decreases in anxiety in a sample of children with chronic medical conditions. Their study's high retention rate and positive feedback from the children underscored mindfulness as a good fit in the context of pediatrics. Further research is required to establish the effects of mindfulness for youth with chronic medical conditions. Last, comparative studies are required to explore potential differences in the ways children with different chronic medical conditions respond to mindfulness.

## **Pain**

Chronic medical conditions often entail a degree of pain, yet research has yet to examine the effects of mindfulness for children with chronic medical conditions specifically with regard to pain. Pain is complex phenomenon; best understood and approached through a biopsychosocial framework that recognizes the interactions between the numerous biological, psychological, and social factors of pain (Jastrowski Mano et al., 2013.) In addition, there exists a distinction between chronic, or recurring, pain, and acute or isolated pain. As mentioned earlier, data on mindfulness and pediatric pain are missing, yet one study was accepted for inclusion in this review because the study focused on pediatric chronic pain.

In a randomized controlled pilot study of MBSR for pediatric chronic pain, Jastrowski Mano et al. (2013) examined the results of MBSR training versus psychoeducation (education about pain) on six adolescents, ages 12 to 18, who were currently being treated for any pediatric chronic pain condition having lasted at least 3 months. The MBSR intervention consisted of weekly 90-minutes sessions over a duration of 6 weeks, and comprised of exercises such as basic yoga, body awareness, body-scan meditation, walking meditation, and non-judgmental observation of thoughts. Participants were asked to record their impressions in a journal, and homework was assigned in the form of home-practice. The psychoeducation group covered various topics, such as the nature of chronic pain in terms of anatomy and physiology, and stress management techniques.

Measures for both groups were taken at pre-treatment, post-treatment, 4-week follow-up, and 12-week follow up. Scales included the Pain Frequency-Severity-Duration scale (Hainsworth, Davies, Khan, & Weisman, 2007), a five-item youth-report measure to assess participants' expectations about the benefits of their respective group before the study, and their actual level of satisfaction after study completion, and the State-Trait Anxiety Inventory for Children (Spielberger, Edwards, Lushene, Montuori, & Plaztek, 1973.) The results of the interventions on these groups were inconclusive as each participant exhibited different results, which the authors were able to present individually due to the small sample size of 6.

Although no trends emerged in either group, Jastrowski Mano et al. (2013) found that participants exhibited positive expectations of MBSR, and that adolescents in the MBSR group attended more sessions than those in the psychoeducation group, on average. The authors also discussed that they had planned to conduct the study in five waves, but that only three waves were possible due to difficulties in recruitment and high attrition before the start of either group.

They stated that their recruitment difficulties were due to the challenges posed by chronic pain conditions, such as psychosocial stress, and recommended that focus groups be undertaken to determine the kind of adaptations to MBSR that could be beneficial in the specific context of pediatric chronic pain (Jastrowski Mano et al., 2013.)

In summary, the evidence for the use of mindfulness in the context of pediatric pain needs to be developed. Jastrowski Mano et al. (2013) did not find significant differences between adolescents in a MBSR group and in a psychoeducation group in terms of their experiences with chronic pain conditions. Furthermore, they reported recruitment difficulties, and suggested that mindfulness interventions for pediatric pain be tailored to suit the specific requirements of children and adolescents experiencing pain. Pain is a complex phenomenon, and therefore mindfulness research is required not only on the topic of pain in the context of pediatric chronic medical conditions, but also on other types of pain, such as acute pain or procedural pain.

### **Depression and Anxiety**

Depression and anxiety are common mental health problems affecting children. Research has demonstrated an association between anxiety, depression, and psychosocial impairments including inattention, concentration problems, academic difficulties, poor peer relations, low self-esteem, and low social competence (Liehr & Diaz, 2010.) These associations are reminiscent of the complexity of the construct of well being, as they highlight the interrelated nature of various factors in affecting an individual's health.

Lee, Semple, Rosa, and Miller (2008) evaluated the impact of Mindfulness-Based Cognitive Therapy for Children (MBCT-C) (Semple & Lee, 2008) on a subclinical sample of 25 “inner-city” children aged between 9 and 12 years exhibiting internalizing (psycho-emotional) and externalizing (behavioural) symptoms. The authors were not able to include children with a

clinical diagnosis of either anxiety or depression due to the lack of empirical research on MBCT-C (Semple & Lee, 2008) at the time. The researchers applied a wait-list control design, with participants randomly assigned to either the treatment or wait-list control group.

Assessment was conducted in three waves- baseline measures for the first group of participants at Time 1, treatment effects for the first group, and baseline measures for the second group at Time 2, and treatment effects for the second group at Time 3. Measures included the Child Behavior Checklist to be completed by parents (Achenbach, 1991), the State-Trait Anxiety Inventory for Children (Spielberger et al., 1973), and the Reynolds Child Depression Scale (Reynolds, 1989.) In addition, the children and parents each received feedback questionnaires about the program. The MBCT-C (Semple & Lee, 2008) intervention consisted of the traditional MBCT model developed by Segal et al. (2002), with adaptations for children such as shorter sessions (90 minutes rather than 120), more sensory-based activities such as mindful eating, smelling, walking etc., and parental support as well as a reward system for attendance and homework completion (Lee et al., 2008.)

Lee et al. (2008) did not find any significant decreases in anxiety, depression, or internalizing symptoms among treatment completers, but they did find a significant decrease in externalizing symptoms post-intervention ( $p=.07$ .) While the quantitative evidence of the benefits of mindfulness was limited, the qualitative feedback obtained from participants indicated a high degree of satisfaction with the program: 94% of children either “liked” or “loved” the program, and 88% of parents rated the program as “high” or “very high” (p. 23.) The qualitative data also revealed that several children started using mindfulness techniques in school (p.24.) The feasibility and acceptability of the program appeared high, with only 32% of

participants dropping out despite transportation difficulties and the financial constraints of inner-city life (p.25.)

Building on the work of Lee et al. (2008), Liehr and Diaz (2010) investigated the effects of mindfulness on depression and anxiety for children from “minority” cultural backgrounds in Florida. The authors used an experimental design to compare children receiving a Mindfulness Intervention (MI) with others receiving a control health education intervention (HEI). The participants (n=17) were mostly from Caribbean and Central American countries, with an average age of 9.5 years (p.69.) Both interventions consisted of 50 minutes daily sessions for two weeks. Of the 50 minutes, 15 to 20 minutes were used for the group to come together before the 15-minute intervention, followed by documenting the session in personal notebooks. The MI program was taught by an experienced teacher with a daily mindfulness practice, and included attention to breath and mindful movement activities. The HEI consisted of lessons on the importance of exercise, healthy eating, and stress-management.

Measures were obtained immediately pre- and post- intervention, using self-report scales such as the Short Mood and Feelings Questionnaire (Angold et al., 1995), and the State Anxiety Inventory for Children (Spielberger, Gorsuch, & Lushene, 1970). The authors found a significant interaction between group and time for depressive symptoms, with children in the MI group reporting lower levels of depression over time compared to children in the HEI group ( $p=.03$ .) Results for anxiety were inconclusive, with both groups reporting decreased anxiety over time, but descriptive data indicated that children in the MI group experienced greater decreases in anxiety than those in the HEI group.

In a recent British study of MBCT for depression in adolescents, Ames, Richardson, Payne, Smith, and Leigh (2014) evaluated the benefits of an 8-week MBCT group for 7

adolescents (aged between 12 and 18 years) who had received treatment for a mood disorder in the past, and who were currently experiencing residual depression. The participants took part in an 8-week MBCT program, comprising of sensory exercises and mindfulness training, and requiring home practice. Measures were two-fold: acceptability measures using semi structured interviews, and efficacy measures using a battery of established tests such as the Moods and Feelings Questionnaire (Angold et al., 1995), the Pediatric Quality of Life Enjoyment and Satisfaction Questionnaire (Endicott, Nee, Yang, & Wohlberg, 2006), and the Penn State Worry Questionnaire (Meyer, Miller, Metzger, & Borkovec, 1990.)

Ames et al. (2014) found that mindfulness fared well with the adolescents, as feedback was mostly positive. All participants reported increased awareness, and relating to thoughts and feelings more productively. In terms of efficacy, the authors reported modest decreases in worry and rumination, as well as an increase in self-rated quality of life. However, they highlighted the limitations of these findings due to the small sample size of the study.

To summarize, the evidence on mindfulness for children with anxiety and depression remains mixed. Lee et al. (2008) found no effects of an MBCT-C intervention for children on anxiety, internalizing symptoms, or depression, but participants in their study reported high levels of satisfaction with the program. Liehr and Diaz (2010) found greater decreases in depression for minority children following a 2-weeks mindfulness intervention compared to a control group. Descriptive data in Liehr and Diaz's (2010) study also suggested decreases in anxiety, which was supported by Ames et al.'s (2014) report of modest decreases in anxiety for adolescents following an 8-week MBCT program in the UK. Overall, mindfulness appears to hold value for decreasing anxiety and potentially depression in youth, but further research is required.

## **ADHD and Learning Disabilities**

Children with ADHD have difficulties maintaining attention over long periods of time, holding goals in mind, and concentrating (van der Oord, Bogels, & Peijnenburg, 2012.) For these reasons, they tend to behave in an impulsive, hyperactive, and inattentive manner. ADHD is highly heritable, and therefore parents of children with ADHD often display ADHD characteristics as well (van der Oord et al., 2012.) Learning Disabilities (LD) are neurobiological disorders affecting the ability to acquire and retain information (Haydicky, Wiener, Badali, Milligan, & Ducharme, 2012.) Although ADHD and LD are considered different disorders, the two are often co-morbid. This is due to the overarching deficit that characterizes them: impaired executive functioning (EF) at the neurological level, EF being the set of cognitive processes that attend to goal-directed behaviour, organization, working memory, attention, and progress monitoring (Haydicky et al., 2012.)

In an American pilot study examining the feasibility and acceptability of a 5-week mindfulness intervention in a sample of 34 adolescents (ages 13 to 18) diagnosed with LD, Beauchemin, Hutchins, and Patterson (2008) found that mindfulness led to decreased anxiety, enhanced social skills, and improved academic performance in their sample. The study used a pre- and post- no control design to examine the effects of the mindfulness intervention. The intervention consisted of an initial 45-minute mindfulness training, with exercises such as breathing and an explanation of mindfulness principles such as non-judgmental observation, followed by 5-10 minute mindfulness meditation sessions before each class period 5 days per week for 5 consecutive weeks.

Measures included the Social Skills Rating System (SSRS) (Gresham & Elliot, 1990), a multi-rater approach studying social skills and problem behaviours, the State-Trait Anxiety



Inventory (Spielberger et al., 1973), and a feedback form gauging the adolescents' attitudes towards the program. The authors found that trait and state anxiety scores were significantly higher at pre-test than post-test ( $p < .05$ .) Student SSRS forms showed significant improvements in social skills from pre-test to post-test ( $p < .05$ ), data which were supported by the teacher SSRS ratings. Teachers also reported higher academic performance at post-test than at pre-test. 100% of the students reported positive feelings about mindfulness, and expressed that it led to feelings of calm, peacefulness, and relaxation (Beauchemin et al. 2008, p.41.) The attrition rate was 0%, suggesting high acceptability of mindfulness for adolescents with LD (p.41.)

Dutch researchers van de Weijer-Bergsma, Formsma, de Bruin, and Bogels (2011) examined the effectiveness of parallel adolescent and parent mindfulness training on behavioural problems and attentional functioning in adolescents with ADHD. van de Weijer-Bergsma et al. (2011) recruited 10 adolescents (5 males and 5 females, aged 11 to 15 years) with the DMS-IV classification of ADHD, and their parents. The adolescent mindfulness training consisted of 8 weekly 1.5 hour sessions, in groups of 4 to 6, comprising of various exercises such as body scan, sitting meditation, breathing, and of specific exercises targeting ADHD symptoms, such as becoming aware of distractibility in various situations. The authors adapted the mindfulness intervention to the specific challenges of ADHD, by delivering the training in a stimulus-free environment, keeping sessions highly structured and constant (p.778.) The parental training was also an 8-week intervention, run in a different room than the adolescent training. Parents were taught to be consciously present in the here-and-now with their adolescent in a non-judgmental way, to take care of themselves, to accept difficulties with their adolescent, and to respond rather than react to difficult behaviours. The importance for the parents to practice daily and embody

mindfulness for their adolescents was strongly emphasized in the training. Eight weeks after the last session, parents and adolescents received a refresher session together.

Measures were taken at pre-test and immediately at post-test. There were two follow-up tests, at 8 and 16 weeks post-test respectively. Adolescents, parents, and tutors (teachers or home tutors) reported on adolescents' symptoms. Measures included the Child Behavior Checklist (Youth Self Report and Teacher Report Form) (Achenbach, 1991), the Behavior Rating Inventory Executive Function (Goia, Isquith, Guy, & Kenworthy, 2000), the Mindful Attention and Awareness Scale (MAAS) (Brown & Ryan, 2003), and the Parenting Stress Index (Abadin, 1983.) Self, father, and tutor reports indicated a decrease in behavioural problems, and improvements in attention and executive functioning ( $p < .10$ ). Fathers, but not mothers, reported lower parenting stress post-training ( $p < .01$ .) The effects of mindfulness training became stronger at the 8-weeks-follow-up, but decreased at the 16-weeks-follow-up. van de Weijer-Bergsma et al. (2011) explained the discrepancy between mother and father ratings of their adolescent as being the result of lowered parenting stress in fathers, which may have led fathers to rate their child more positively. The authors also explained the finding that no improvements were observed on the MAAS for both parents and adolescents by highlighting the difference between trait and state mindfulness. They explained that, while the MAAS was designed to assess one's general tendency to be mindful (trait mindfulness) the study encouraged participants to use a mindfulness practice in stressful situations (state mindfulness) and therefore the MAAS was not a valid measure in this study.

Another Dutch study examined the effects of mindfulness training for children with ADHD and mindful parenting for their parents (van der Oord et al., 2012.) van der Oord et al. (2012) utilized a quasi-experimental within-group wait list control to examine the impact of an 8-

week mindfulness training course for 22 children, aged between 8 and 12 years, and of a parallel mindful parenting course for 22 of their parents. The control group had to wait at least 6 weeks for treatment, and pre-test was conducted one week before the intervention, with post-test measures being taken directly after the last session, and a follow-up 8 weeks later. Measures included the parent and teacher versions of the Disruptive Behavior Disorder Rating Scale (Pelham, Gnagy, Greenslade, & Milich, 1992) to assess children's ADHD symptoms, the Parenting Stress Index (Abadin, 1983), the MAAS (Brown & Ryan, 2003) for parents, and parental reports of their own ADHD symptoms. Both parent and child interventions were modeled on the MBCT (Segal et al., 2002) and MBSR (Kabat-Zinn, 1990) programs, incorporating elements of both, such as mindful eating, body scan, breathing, and home practice. Similarly to the van de Weijer-Bergsma et al. (2011) study, adaptations were made to the program to suit the needs of ADHD populations, such as structured sessions, group rules, and using a room as free from distractions as possible. Parents received a compact disc, and in the first, sixth, and last sessions, some exercises were done together by parents and children.

Children's ADHD symptoms, rated by their parents, significantly reduced after training ( $p < .05$ .) Parents' own inattention and hyperactivity symptoms were also reduced, and these reductions of ADHD symptoms in both parents and children were maintained at follow-up ( $p < .05$ .) Unlike the van de Weijer-Bergsma et al. (2011) study, parents in this study did show an increase between pre- and post- test on the MAAS ( $p < .05$ ), indicating increased mindful awareness after the intervention. There was no effect of wait list, meaning that the changes observed cannot be attributed to the passing of time alone. However, teacher ratings did not report reduced ADHD symptoms in the children, despite reporting decreased inattention symptoms ( $p = .10$ .) Parents were not blind raters, and teachers' and parents' ratings did not

match, which could lead readers to doubt the reliability of these results. However, parental reports of change in their children's behaviour could also be due to increased mindfulness and attunement to their child, which the teachers may be lacking as a result of not having received the intervention.

As stated previously, ADHD and LD are often co-morbid, due to their shared impairments in executive functioning (Haydicky et al., 2012.) Canadian researchers Haydicky et al. (2012) investigated the effects of a mindfulness-based martial arts intervention (MMA) for adolescents with learning disabilities and co-occurring ADHD or anxiety. The authors recruited 60 boys, aged between 12 and 18, from a children's mental health centre in Toronto, Canada. The children had previously been diagnosed with LD and were enrolled in or on the waitlist for the MMA program. The MMA program was designed by Badali, one of the authors of the study (Haydicky et al., 2012), and consisted of weekly 1.5 hour sessions over 20 weeks, combining elements of mindfulness, cognitive behavioural therapy, and mixed martial arts. The key mindfulness constructs emphasized were nonjudgment, acceptance, letting go, and focusing on the moment. These were imbedded into mixed martial arts training. Both MMA instructors for this program were experienced practitioners of mindfulness meditation, and each session included a sitting meditation and body scan, rendering the program eligible to be considered a mindfulness-based intervention.

Five data phases were gathered for this study, each consisting of an MMA and a WL group of approximately 8 participants each. Data were collected at pre-test, post-test, and cognitive and academic assessments were conducted at any time between weeks 1 and 20. Measures included the Behavior Rating Inventory of Executive Function (Goia, et al., 2000), and the Child Behavior Checklist and Youth Self-Report (Achenbach, 1991.) Results indicated

significant time effects for all measures, but there appeared to be no effects attributable to the MMA program alone. Subgroup analyses were conducted to determine potential differences in results between youth with LD and ADHD and youth with LD and anxiety. Youth with co-occurring LD and ADHD improved on parent-rated oppositional defiant problems and conduct disorders ( $p < .05$ ) compared to WL boys. Adolescents with LD and anxiety reported decreased anxiety post-intervention ( $p < .01$ .)

In summary, it appears that mindfulness holds promise as a treatment for children and adolescents with ADHD, LD, and co-occurring related difficulties. van de Weijer-Bergsma et al. (2011) reported improvements in adolescents with ADHD's executive functioning and attention tasks, and van der Oord et al. (2012) found that children's ADHD symptoms significantly reduced after mindfulness training. Parents' own inattention and hyperactivity symptoms also reduced after mindfulness training (van der Oord et al. (2012.) van der Oord et al.'s (2012) findings hold theoretical relevance for the use of bidirectional theory and the importance of including caregivers in mindfulness interventions. Beauchemin et al. (2008) found that anxiety scores were significantly diminished in adolescents with LD following a mindfulness intervention. Finally, Haydicky et al. (2012) found lowered anxiety in participants with LD following a martial-arts mindfulness program.

### **Psychiatric Disorders**

This systematic reviewed revealed a lack of research on how mindfulness can be applied for children and adolescents with specific psychiatric disorders such as schizophrenia, borderline personality disorder, mood disorders, obsessive-compulsive disorder, etc. The search yielded two studies examining the use of mindfulness with clinically heterogeneous child and adolescent psychiatric patients.

Biegel, Shapiro, Warren Brown, and Schubert (2009) used a randomized clinical trial to assess the effect of an MBSR program for 102 adolescent psychiatric outpatients, aged between 14 and 18 years, who had received a diagnosis for any psychiatric disorder. Psychiatric diagnoses included mood disorders, anxiety disorders, and other unspecified psychiatric disorders. The study used a waitlist control group, with participants randomly assigned to either of two conditions: MBSR as an adjunct to usual psychiatric treatment, and treatment-as-usual (TAU.) Measures were obtained at three times: baseline, immediately after treatment, and at three months following the post-test.

The MBSR program consisted of 8 weekly classes, meeting 2 hours per week, for a period of 8 weeks. The primary focus of the class was mindfulness practice; using exercises such as body scan meditation, sitting meditation, yoga, and walking meditation. Adaptations to the MBSR program were made for adolescent participants. These included reducing home practice length, the exclusion of a day-long retreat, and presentations on topics relevant to adolescent with psychiatric disorders such as self-image, self-harming, and social difficulties. Waitlist participants received treatment as usual, which were varied in nature and unspecified by the authors. Measures included clinical measures of mental health made by blind clinicians, and self-reports of mental health such as the Perceived Stress Scale (Cohen & Williamson, 1988), the Hopkins Symptoms Checklist (Derogatis, 1977) for psychiatric symptoms, and the Rosenberg Self-Esteem Scale (Rosenberg, 1989.) At the end of the program, an evaluation was completed using open-ended questions. Participants were also asked to keep mindfulness practice diaries to record their home practice.

MBSR participants showed significant improvements over time in state and trait anxiety, perceived stress, self-esteem, and certain indicators of psychopathology such as somatic,

obsessive-compulsive, interpersonal sensitivity, and depressive symptoms ( $p < .05$ ) (Biegel et al., 2009, p. 862.) Furthermore, relative to control participants, MBSR adolescents were much more likely to show diagnostic improvement over the course of the study: 54% of MBSR participants showed diagnostic improvement, versus only 1% in TAU participants (p.862.) MBSR participants experienced a significantly lower rate of mood disorder ( $p < .01$ ) in particular (p.863.) Finally, it appears that the length of home practice sessions was related to treatment efficacy, as more days of practice predicted declines in depression and anxiety symptoms from baseline to follow-up ( $p < .05$ ) (p. 863.)

In a Canadian qualitative study examining the feasibility and benefits of an arts-based mindfulness-based program for young people “in need”, Coholic (2011) recruited 50 children, aged between 8 and 12, from a child protection agency and a child mental health centre. The sample of children had various behavioural concerns including ADHD, social difficulties, impulsivity, difficulty expressing emotion, hoarding food, and substance abuse. Using a grounded theory approach, Coholic (2011) evaluated the impact of a 12 week arts-based mindfulness program, consisting of 2 hour weekly sessions including activities such as creating a Jar of Thought with coloured beads in a jar of water (p.309), drawing a Feelings Inventory by colouring a circle to represent various emotions (p.309), and using art supplies to facilitate discussions about mindfulness as well as meditative exercises.

The qualitative findings of this study were based on the analysis of post-intervention interviews with 31 of the children and 18 of their parents/foster parents. Data were transcribed and coded using the software NVivo 8. The main category that emerged from interviews was that the program was “fun” (Coholic, 2011, p. 310.) Children reported enjoying the group, and enjoying themselves as well as making friends. The creative aspect of the program was also

enjoyed by the children (p.310.) Parents and children reported increased self-confidence in the children post-program (p.310), and 4 parents reported easier communication and interactions with their children. Seven foster parents highlighted noticeable improvements in school (p.312.) Although some children experienced difficulties with the quiet meditation in early sessions, 11 children specifically stated that the meditative exercises in particular were useful in helping them relax and become more mindful (p.312.) Only 4 children out of 50 dropped out of the group, a low attrition rate consistent with participants' positive feedback.

In sum, the application of mindfulness for the well being of children and adolescents with various psychiatric disorders or difficulties appears beneficial. Biegel et al. (2009) found that MBSR led to significant improvements in adolescent psychiatric outpatients. Coholic (2011) reported highly positive feedback and, improvements in self-esteem, communication, and interpersonal interactions in children with various difficulties following an arts-based mindfulness program. Overall, it appears that children and adolescents with various psychiatric disorders and difficulties benefit from a mindfulness practice, although more research is needed with regard to specific disorders.

### **Caregiver Mindfulness**

McAuley et al. (2010) found that children identified relationships as having considerable importance for their well being. This suggests that caregivers' mindfulness may hold repercussions for children's well being, as mindfulness may enable more attunement in interpersonal relationships. This section will examine articles in which caregivers of children with various health-related difficulties have adopted a mindfulness practice, studying the impact of their mindfulness practice on both their own well being and that of the child in their care.



For the purpose of this review, the term “caregivers” will refer to the parents, family members, and health professionals actively caring for a child. This decision was based on the research available, which focuses primarily on parents or health professionals, with few studies including extended family or close friends. Therefore, this section of the review will be divided into two parts: mindful parenting for parents of children with health-related challenges, and mindfulness for health professionals caring for children.

### **Mindful Parenting**

Studies document the numerous stresses that impinge on the lives of families of children with health-related difficulties (Benn et al., 2012; Ferraioli & Harris, 2013; Jing Hou et al., 2014; Minor, et al., 2006.) Mindfulness presents itself as a potential tool for enhancing parents’ well being. However, and equally important, helping parents develop a mindful practice may facilitate their children’s own journey with mindfulness. Indeed, children often learn through modeling, and it is easier for them to develop a mindfulness practice, and subsequently reap its various benefits, if their parents embody mindfulness at home and in their interactions with the child (van de Weijer-Bergsma et al., 2011.) This follows bidirectional theory, which highlights the transferability characteristic in caregiver-child relationships (Pardini, 2008; Stafford & Bayer, 1993.)

Mindful parenting has been defined as “paying attention to your child and your parenting in a particular way: intentionally, here and now, and non-judgmentally” (Kabat-Zinn & Kabat-Zinn, 1997.) A mindful parenting practice enables parents to recognize and thus avoid automatic negative reactions, a process called de-automatization (Kang, Gruber, & Gray, 2013), which is beneficial to both the parents’ and the child’s well being (van der Oord, Bogels, & Peijnenburg, 2012.) Mindful parenting interventions usually do not significantly differ from other

mindfulness-based programs, and incorporate similar elements of mindful walking, guided mindfulness practices, etc. However, they present a special focus on parenting and on the importance of parents practicing mindfulness during interactions with their children (Benn et al., 2012; Ferraioli & Harris, 2013.)

The research on mindfulness for parents of children with health-related challenges appears to be divided into two categories: mindful parenting for parents of children with Autism Spectrum Disorder (ASD), and for parents of children with chronic conditions. As reviewed earlier, some programs for children with ADHD incorporate parental participation due to the genetic basis of ADHD (van der Oord et al., 2012; van de Weijer-Bergsma et al., 2011), which is another area in the research on mindful parenting. The narrow focus on these three areas in the research on mindful parenting for parents of children with health-related challenges is unexplained by researchers but, in the context of ADHD, may be due to the genetic basis of the condition (van der Oord et al., 2012.) One study was found on the use of MBSR to improve the well being of parents of children with developmental disabilities (Bazzano et al., 2010.) It did not meet criteria for inclusion in this review, but highlighted a potential area for further research on the topic of mindful parenting; that of parents of children with developmental disabilities.

**Parents of children with ASD.** Parents of children with Autism Spectrum Disorder (ASD) tend to experience more stress, anxiety, and depressive symptoms than parents of children without developmental difficulties, Down's syndrome, and developmental delays other than ASD (Beer, Ward, & Moar, 2013; Ferraioli & Harris, 2013.) In a study of 28 parents of children with ASD, Beer et al. (2013) examined the relationship between mindful parenting and parents' stress, anxiety, and depression symptoms, as well as children's behavioural problems. This study, unlike others reviewed here, did not include the delivery of a mindfulness training

program, but rather observed the effects of existing levels of parental mindfulness. Mindful parenting was assessed utilizing a 31-item scale based on Duncan et al.'s (2009) five dimensions of mindful parenting (listening with full attention, non-judgmental acceptance of self and child, emotional awareness of self and child, self-regulation in the parenting relationship, and compassion for self and child.) Open-ended questions regarding parental use of various mindfulness techniques were also included. Scales utilized were the Nisonger Child Behavior Rating Form (Aman, Tasse, Rojahn, & Hammer, 1996), the Questionnaire on Resources and Stress-Friedrich Short Form (Friedrich, Greenberg, & Crnic, 1983), and the Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983.) Relationships between these various variables were established using Pearson's correlations.

The authors found that parents scoring higher on mindful parenting reported lower levels of depressive symptoms and stress, but not lower levels of anxiety than parents with lower levels of self-reported mindful parenting ( $p < .05$ ) (Beer et al., 2013, p. 106.) Higher levels of child behavioural problems were correlated with lower levels of mindful parenting, suggesting that developing a mindfulness practice may be more difficult for parents of children with severe ASD, potentially due to their elevated stress levels. Total mindful parenting scores were significantly negatively correlated to total child behaviour problems, ( $p < .05$ ) (p. 106.) The authors explained that parental stress has been shown to exacerbate child behaviour problems (p.110), and thus reduced parental stress would logically diminish behavioural problems in their children. This finding illustrates the benefits of parental mindfulness for children's well being.

Another finding of this study was that parents' self-compassion levels were negatively correlated to parental distress ( $p < .05$ ) (p. 106), highlighting the theme of self-care, which will be further explored in the section on mindfulness for health care professionals. Overall, this study

demonstrated benefits of parental mindfulness on both parents of children with ASD and their children, emphasizing the importance of mindfulness being studied as a broader concept rather than as an isolated intervention for children alone. This echoes the transactional aspect of the child-parent relationship, in line with bidirectional theory (Pardini, 2008; Stafford & Bayer, 1993.)

Another study focused on comparing the effects of a mindfulness-based and a skills-based parent training program in alleviating parental stress and enhancing meaningful parent-child interactions (Ferraioli & Harris, 2013.) Fifteen parents of children under 18 with ASD were randomly assigned to either a mindfulness-based training or skills-based training group, each group consisting of an 8-week program. The mindfulness-based training's primary intention was for participants to incorporate mindfulness techniques into their daily lives, such as nonjudgmental acceptance, staying present, and observing thoughts. Each session included a didactic element, teaching a new skill, practice exercises, a group discussion, and homework for the following week. The skills-based training followed a similar structure, but taught practical strategies to parents, such as reinforcement and direct instructions, and reviewed topics such as evidence-based treatments of ASD.

Measures were taken at three times: pre-intervention, immediately post-intervention, and 3 months after the completion of the program. Scales included the Parenting Stress Index (Abidin, 1983), the General Health Questionnaire (Goldberg, 1978), the Mindful Attention Awareness Scale (Brown & Ryan, 2003), and a rating of treatment received comprising of Likert-type questions. Results indicated that parents in both groups exhibited lower stress levels at Time 2 than Time 1, but that the mindfulness group experienced greater reductions in stress than the skills group ( $p=.011$ ), with no group differences persisting at Time 3 (Ferraioli & Harris,

2013, p. 94.) Parents in the mindfulness group demonstrated significantly greater improvements on the General Health Questionnaire than parents in the skills group ( $p=.008$ ) (p. 94.) Only parents in the mindfulness group scored higher on the MAAS at Time 2 than Time 1, highlighting that the mindfulness intervention was efficient at promoting parental mindfulness. Overall, it appears that the mindfulness intervention was more efficient than the skills-based intervention at reducing stress and improving general health in parents of children with ASD.

The evidence suggests that teaching mindfulness techniques to parents of children with ASD may be beneficial in two ways: improving levels of parental stress, and ameliorating children's own problematic behaviours. Parents scoring higher on mindful parenting demonstrated lower levels of depressive symptoms and stress than parents with lower levels of mindful parenting, and the higher parental mindfulness, the lesser the amount of child behavioural problems (Beer et al., 2013.) Furthermore, mindfulness training reduced parental stress in parents of children with ASD more efficiently than a skills-based training (Ferraioli & Harris, 2013.)

**Parents of children with chronic conditions.** Earlier, a distinction was made between chronic medical conditions and chronic conditions. "Chronic medical conditions" was the term chosen to refer to medical diseases of long duration and generally slow progression (World Health Organization, 2012), such as diabetes, asthma, or AIDS. "Chronic conditions," for the purpose of this review, is a broader term, including non-somatic based illnesses such as depression, anxiety, and other mental/emotional difficulties. Autism could be considered a chronic condition as well, but there exists sufficient research on the topic of mindfulness for parents of children with ASD to have dedicated a separate section of this review to autism. Because the research on mindfulness for parents of children with specific conditions is scarce,

the present section of this review will examine mindfulness for parents of children with chronic conditions in general, including chronic medical conditions and non-somatic chronic conditions.

A Canadian study examined the effects of MBSR on 44 caregivers of children with various chronic medical conditions recruited at an urban children's medical centre in Alberta (Minor et al., 2006.) The children's ages ranged from 3 to 18 years old (p. 102), and their conditions included asthma, diabetes, Down's syndrome, epilepsy, irritable bowel syndrome, cancer, and colitis. The MBSR program was modeled on Kabat-Zinn's (1990) format, with the addition of yoga. Each weekly group ran for 2 hours, over the course of 8 weeks, and participants were assigned a home activity each week.

Measures were taken at pre-intervention and immediately post-intervention; and they consisted of the Symptoms of Stress Inventory (Leckie & Thompson, 1979), and the Profile of Mood States (McNair, Lorr, & Droppelman, 1992) to assess fluctuating affective states over a 1-week period. Before the intervention, caregivers, most of whom were mothers (86.4 percent) (p. 102), reported very high levels of stress and mood disturbances. These significantly decreased upon completion of the program, with stress symptoms diminishing by 32% ( $p<.001$ ) (p. 103) and mood disturbances by 56% ( $p<.001$ ) (p. 103.) Although this study did not utilize a control group, its findings suggested beneficial effects of mindfulness on parental stress levels in parents of children with chronic illnesses.

In a Chinese study examining the effects of MBSR for caregivers of persons with chronic illnesses, Jing Hou et al. (2014) used a randomized experimental design to compare an 8-week MBSR group to a self-help control group. Although this study did not specifically examine parents of children with chronic conditions, it included parents ( $n=17$ ) in its sample. Participants ( $n=141$ ) received either a standard 8-week MBSR training, or self-help training consisting of

stress management techniques, skillful communication, and advice on mental health and a healthy lifestyle. Measures were taken pre-intervention, post-intervention, and at 3 months follow-up, assessing depression, perceived stress, caregiver self-efficacy, and self-compassion. The Chinese version of the State-Trait Anxiety Inventory was also utilized (Shek, 1988.)

Results indicated that, compared to participants in the control group, caregivers in the MBSR group had significantly greater decreases in depressive symptoms at post-intervention and at 3 months follow-up ( $p < .01$ ) ( $p .50$ .) Participants in the MBSR group also showed greater improvements on state anxiety symptoms at post-intervention, but not at follow-up ( $p = 0.007$ ) ( $p .50$ .) The authors also found a significantly larger increase in self-efficacy ( $p = 0.084$ ) ( $p .50$ ) among participants in the MBSR group at follow-up compared to the control group. No significant effects were found on perceived stress or self-compassion, which differs from findings on self-compassion in parents of children with ASD (Beer et al., 2013.)

An American study used a randomized controlled design to assess the efficacy of a 5-week mindfulness-training (MT) program, compared to a wait-list control group, for parents and educators of children with chronic conditions (Benn et al., 2012.) The authors recruited 60 participants (25 parents, 35 educators) ( $p .1477$ ) through the special education services office of the local school district. Participants were randomly assigned to receive the MT in the summer, or later in the fall (wait-list control group.) Measures were taken at baseline, at 1-week post-intervention, and at 2 months follow-up, assessing variables such as perceived stress, caregiving competence, relational competence, state anxiety, depression, self-compassion, and self growth. The Five-Facet Mindfulness Questionnaire (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006) was used to assess levels of mindfulness in participants.

The MT program implemented was based upon traditional MBSR (70 percent similar) (Benn et al., 2012, p.1479), but included additional content on emotion regulation, forgiveness, compassion, and specific issues related to parenting and teaching. The program met twice a week for 2.5 hours, over 5 weeks, with parents and educators in separate groups. Results indicated that participants in the MT program showed significant decrease in stress and anxiety, and increased mindfulness, self-compassion, and personal growth at program completion and at the two months follow-up in contrast to wait list controls (all  $p$ 's<.05) (p. 1481.) MT significantly increased caregiving competence and relational competence ( $p$ <.05) (p. 1481.) Mindfulness changes at program completion mediated outcomes at follow-up, suggesting that the MT caused the observed changes (p. 1482.) Overall, this study demonstrated numerous benefits of mindfulness training for parents and educators of children with special needs.

In summary, mindful parenting for parents of children and adolescents with chronic conditions appears to be beneficial to both parents and their children, supporting the application of bidirectional theory in the context of mindfulness-based interventions. Mindfulness training led to decreases in stress, anxiety, and mood disturbances among parents and educators of children with chronic medical conditions (Benn et al., 2012; Minor et al., 2006), and decreases in depressive symptoms and anxiety for caregivers of persons with chronic illnesses (Jing Hou et al., 2014.) Research is lacking on the topic of mindfulness for parents of children with specific chronic conditions.

### **Mindfulness for Health Care Professionals**

Health care professionals working with children can experience high levels of stress, and potentially burnout (Cohen-Katz et al., 2005, Moody et al., 2013.) Burnout is a syndrome of emotional exhaustion, depersonalization, and reduced feelings of accomplishment (Moody et al.,



2013.) This section will review the application of mindfulness for health care professionals, studying its impact on both the health professionals' well being, but also on the quality of care they provide to their child patients.

In a study examining burnout among 48 pediatric oncology staff, Moody et al. (2013) utilized a randomized experimental design to determine the effects of an 8-week Mindfulness-Based Course (MBC.) The authors conducted their study across two hospitals: one in New York City, and one in Petach Tikva, Israel, in order to yield more generalizable findings. Pediatric oncology staff included nurses, social workers, child-life specialists, physicians, nurse practitioners, and psychologists, and participants were randomly assigned to the MBC or no intervention (control.)

The MBC consisted of one initial 6-hour session, 6 weekly 1-hour sessions, and a final 3-hour session. Activities included didactic and experiential mindfulness education, such as a body scan, sitting meditation, mindful movement, loving kindness meditation, and a technique called the STOP technique (Stop, Take a Breath, Observe current state of mind and body, Proceed.) Participants were also asked to keep a diary of their personal practice. The course was delivered in a group setting and led by two experienced clinicians at each site. Measures were taken at baseline and upon completion of the MBC, and control measures were taken at baseline and after 8 weeks. The primary outcome measure was the Maslach Burnout Inventory (MBI) (Maslach, Jackson, & Leiter, 1996); other measures included the Beck Depression Inventory (Beck, Steer, & Brown, 2006), and the Perceived Stress Scale (Cohen & Williamson, 1988.) Data from diaries were analyzed using open coding to yield concepts, which were then grouped into categories.

The MBC did not lead to any differences in MBI, depression, or perceived stress between MBC participants and the control group. Data revealed that nearly 100% of the participants met

criteria for high levels of burnout (in the categories of diminished personal accomplishment and depersonalization) at baseline (Moody et al., 2013, p.278.) This suggests that pediatric oncology staff is a particularly vulnerable group, due to the difficult nature of their work. The authors speculated that these high levels of stress and burnout among this particular population may explain why quantitative data did not reflect changes, as baseline levels may have been too elevated to result in significant change within 8 weeks.

Qualitative analysis of the journals revealed six different themes: increased inner peace and calm, the experience of burnout, increased mindfulness and the ability to focus, increased gratitude, compassion, and appreciation, both at work and at home, added stress due to participation in the course in the beginning, and benefits of support offered by colleagues. Narratives recurrently described daily experiences of burnout, but participants also reported being better equipped to deal with these difficulties due to their mindfulness practice. Some discussed becoming able to deal with difficult interpersonal situations, such as delivering bad news to patients and family members. Others reported reflecting upon their own actions, and making plans before acting rather than simply reacting. In sum, although quantitative data did not reflect changes in burnout, depression, or perceived stress in MBC participants, their qualitative experiences of the program seemed to indicate positive changes. The pediatric oncology staff reported being more connected to their patients, and becoming more confident in providing meaningful care.

A three-part study examined the effects of MBSR on hospital staff stress and burnout (Cohen-Katz et al., 2005.) The first part of the study described the MBSR intervention, the second part examined quantitative results, and the third part qualitative data; this review will examine the second and third parts of the study. Both studies were conducted with the same

sample of staff at an American hospital in Lehigh Valley, who were randomly assigned to either an 8-week MBSR treatment, or a wait-list control group. Fourteen participants were in the MBSR group, and 13 in the control group (p.29.) The MBSR program followed the standard 8-week schedule, meeting for 2.5 hours a week and including a 6-hour daylong retreat towards week 6 of the intervention. Participants were asked to practice at home and were given audiotapes to facilitate this. The format included a combination of formal didactic instructions on topics such as communication skills, stress reactivity, and self-compassion, as well as experiential exercises.

The majority of the sample comprised of nurses (p. 29), but the sample also included social workers, respiratory therapy staff, and pastoral care. Although not specified, it is apparent that these professionals interacted with children, who were either their patients or their patients' family members. Measures included the Maslach Burnout Inventory (Maslach, Jackson, & Leiter, 1996), the Brief Symptom Inventory (Derogatis & Melisaratos, 1983), and the Mindfulness Attention Awareness Scale (Brown & Ryan, 2003.) Both the treatment and control groups were measured on these scales at baseline (T1), immediately after the treatment (T2), and at 3-months post intervention (T3.) A second cohort (n=11) received the intervention at T2, consisting of 7 wait-list participants and 4 new recruits. This second cohort was measured at T2, for baseline measures, and immediately after treatment, at T3. The authors also used weekly evaluation questionnaires including Likert-type items and open-ended questions, and a final questionnaire of similar design. Other data were also included, such as unsolicited feedback via e-mails, and a focus group with 7 participants.

Quantitative data indicated significant reductions in emotional exhaustion for the MBSR participants compared to the wait list participants ( $p=.05$ ), as well as increased feelings of

personal accomplishments ( $p=.01$ ) (Cohen-Katz et al., 2005, p.30.) There was also a trend towards lower depersonalization of patients for participants in the MBSR group compared to controls. No significant differences were found between both groups on the BSI. Qualitative data showed positive feedback from MBSR participants. Although participants did report some challenges to mindfulness practice, such as feeling restless and dealing with difficult emotions, in the early weeks of the program participants stated feeling more relaxed, peaceful, and slowing down. Participants did not report more benefits in weeks 3 and 4, but by week 5 themes such as self-acceptance, self-awareness, and self-care, which lasted through week 8 and the final evaluation.

In the focus group, participants listed different forms of self-care, such as taking time after work before focusing on their children (Cohen-Katz et al., 2005, p.83.) Six participants also reported becoming more nonreactive in their work; another theme was having more to give as well as being more focused on patients (p.84). Participants also reported positive effects in their home lives, such as being more attentive to their children, and teaching mindfulness techniques to family members (p.84.) Participants reported concerns about moving forward without the support of the group setting, a theme that was recurrent. One program graduate developed a group for her colleagues to practice a 20-minute meditation during their lunch hour, and the authors received several unsolicited emails from participants thanking them and reporting the intent to continue with their mindfulness practice.

These three studies with health care professionals highlighted that mindfulness may hold important benefits for their self-care, both at work and at home, but also for the service they provide to their patients. Pediatric oncology staff reported benefits such as increased inner peace and calm, better ability to focus, and increased gratitude, compassion, and appreciation, both at

work and at home following a mindfulness intervention (Moody et al., 2013.) Cohen-Katz et al. (2005) and Cohen-Katz et al. (2005) found that healthcare professionals showed decreased burnout compared to a control group following an 8-week MBSR intervention. Overall, it appears that mindfulness holds value for the well being, self-care, and preservation of health professionals. Self-reports from health professionals indicated that they felt better equipped to provide care as a result of mindfulness practice, suggesting that patients may indirectly be benefiting as well.

### **Contributions and Limitations**

This systematic literature review marks the first attempt to synthesize the literature on the application of mindfulness for children and adolescents with health-related challenges. This work contributes to the field of mindfulness in three ways. First, it provides an evaluation of the quality of the available research. Second, it is a repository of reliable evidence on the application of mindfulness for children and adolescents with health-related challenges. Third, it contains an analysis of research and practice implications, extracting best practices as well as highlighting areas necessitating further research.

The main limitation of this review is its reliance upon fixed criteria to determine inclusion of studies into the review: the Quality of Study Rating Form (Gibbs, 1989) for quantitative studies, and the Qualitative Study Quality Form (Gibbs, 2003) for qualitative studies. These two rating forms provide a standardized measure of ‘quality’ in the evaluation of studies and also promote inter-rater reliability. However, the use of pre-determined criteria to guide examination may have proscribed the inclusion of certain studies that, while not scoring adequately on the Gibbs scales (1989; 2003), may have provided additional insight. This

limitation was necessary in order to ensure that only reliable evidence be presented in this review, but future research may benefit from examining less rigorous yet valid studies.

### **Practical Implications**

Having systematically examined the evidence on the topic of mindfulness for children and adolescents with health-related challenges, important considerations in the application of mindfulness with youth can be addressed. The following practical implications emerged as the “best practices” in the research. However, as discussed earlier, these implications are intended to serve as suggestions for practice and research, rather than rigid guidelines.

### **Adaptations of Mindfulness**

Applying mindfulness with children and adolescents may require certain adaptations (Greenberg & Harris, 2012; Lagor et al., 2013.) Indeed, failing to consider what adaptations may be required to utilize mindfulness with a particular group may lead to low recruitment and retention rates, as exemplified by Jastrowski Mano et al. (2013) in their study of mindfulness for children with chronic pain. Common adaptations of mindfulness for children and adolescents include shorter sessions, more sensory-based exercises (such as mindful eating), more movement-based exercises (such as mindful walking), encouraging parental support at home, creating group rules (such as raising one’s hand to speak), and using incentives for homework and attendance (Coholic, 2011; Haydicky et al., 2012; Lee et al., 2008.)

Another adaptation that may be useful is making the intervention more fun, or play-like (Coholic, 2011, Liehr & Diaz, 2010.) Coholic (2011) utilized an arts-based approach to deliver mindfulness training to children with various challenges, incorporating mindfulness teachings into enjoyable, creative activities (see review for details.) This method of delivering the mindfulness intervention was well-received by the children, with qualitative analysis indicating

that the children found the program to be “fun” (p. 310.) The children in Coholic’s study also enjoyed the opportunity to make friends through the program, a theme which was echoed in Lagor et al.’s (2013) study of chronically-ill youth, in which forty-three percent of participants expressed preference for interactive exercises, such as mindful touching or mindful eating (p. 152.) Lagor et al. (2013) also reported that some participants found traditional mindfulness exercises to be “boring” or to make them “sleepy” (p. 152), emphasizing the need to render mindfulness interventions more stimulating for young people through various adaptations.

Finally, the children in Liehr and Diaz’s (2010) study were encouraged to suggest approaches for program delivery. They requested a popular game called “heads-up seven-up” (a game in which players have to guess who touched their thumbs) to be incorporated in the mindfulness training program they received. The children learned to play this game mindfully, and stated that this was a good way to use mindfulness techniques. It is important to note that the children in Liehr and Diaz’s (2010) study were active agents in developing the mindfulness intervention, resulting in adaptations that were personally meaningful to them.

In sum, it is advisable to adapt mindfulness interventions for use with children and adolescents. It is common to hold shorter sessions, more sensory-based exercises, more movement-based exercises, encouraging parental support at home, creating group rules, and using incentives for homework and attendance (Biegel et al., 2009; Coholic, 2011; Haydicky et al., 2012; Lee et al., 2008), as well as incorporating games, play, and fun elements (Coholic, 2011; Lagor et al., 2013; Liehr & Diaz, 2010.) Child participation is an important element of developing successful adaptations that are meaningful to children (Liehr & Diaz, 2010), and children should be able to influence approaches for program delivery.

**Adaptations for health-related conditions.** Further adaptations may be required when working with populations with health-related challenges, due to differing health-related demands (Biegel et al., 2009; van de Oord et al., 2012; van de Weijer-Bergsma et al., 2011.) In their respective studies of mindfulness for children with ADHD, van de Weijer-Bergsma et al. (2011) and van de Oord et al. (2012) discussed altering the mindfulness program to suit the unique needs of their participants. The adaptations included keeping sessions highly structured, consistent, and making the session outline visible to the children, establishing group rules and discussing them before each session, and keeping the meditation room as free of distractions as possible. These adaptations may have contributed to the acceptability of the treatment in both these studies.

Similarly, Biegel et al. (2009) adapted Kabat-Zinn's (1990) MBSR program to include discussions of issues predominant among adolescents with psychiatric disorders (their study population), such as self-harming, life transitions, and self-image. Biegel et al. (2009) did not suffer high attrition rates, suggesting treatment acceptability. In contrast, Jastrowski Mano et al. (2013) reported low recruitment and retention rates in their study of children with chronic pain. These authors did not make adaptations to the mindfulness intervention in their study, and ended their report by lamenting the lack of research available on what adaptations may have helped retain participants in the context of chronic pain.

### **Challenges to Mindfulness Practice**

It is common for participants to express difficulties in the early stages of developing a mindfulness practice (Cohen-Katz et al., 2005; Coholic, 2011; Moody et al., 2013.) However, initial challenges faced by participants are not necessarily indicative of contraindications to mindfulness. In an article examining potential contraindications to mindfulness practice with



adults, Dobkin, Irving, and Amar (2012) identified two main considerations: patient characteristics and teacher/therapist competence. Although the authors did not present any specific populations for whom mindfulness might be contraindicated, they advanced five suggestions to aid ensure a fruitful mindfulness intervention.

First, they advised screening patients for severe problems, in order to be aware of sensitive issues. Second, for patients with psychopathology, the authors suggested ensuring that participants are being treated by a qualified practitioner alongside the mindfulness intervention. Third, participants should be prepared vis-à-vis the types of practice and the homework involved, in order for them to anticipate the level of commitment required. Fourth, Dobkin et al. (2012) suggested a referral system be in place in case a participant experiences severe problems, and that the person delivering the intervention be aware of other community resources to which to direct patients. Finally, the authors emphasized the importance of recognizing that the patient ultimately knows what will work best for him or her self, and that people are responsible for their own being. They cautioned practitioners to remember that the individual is the primary focus, rather than the practice, and that even the best practices can be harmful if the instructor is not mindful of the participants' unique demands.

In line with the Dobkin et al. (2012) report, the literature presented in this review did not present any examples of mindfulness having adverse effects. Results were less promising among some patient populations, such as pediatric pain (Jastrowski Mano et al., 2013), and children with anxiety and depression (Ames et al., 2014; Lee et al., 2008), compared to other groups such as children with chronic illnesses (Lagor et al., 2013), ADHD and LD (Beauchemin et al., 2008; Haydicky et al., 2012; van de Weijer-Bergsma et al., 2011; van der Oord et al., 2012), psychiatric difficulties (Biegel et al., 2009; Coholic, 2011), parents of children with ASD or

chronic conditions (Beer et al., 2013; Benn et al., 2012; Ferraioli & Harris, 2013; Jing Hou et al., 2014; Minor et al., 2006), and health care professionals working with children (Cohen-Katz et al., 2005; Moody et al., 2013). Again, no group experienced any harmful effects due to mindfulness.

Some participants (in both child and adult populations) experienced challenges at the beginning of their mindfulness practice (Cohen-Katz et al., 2005; Coholic, 2011; Moody et al., 2013.) For example, children in Coholic's (2011) study almost all had difficulty focusing on meditative activities in the early stages of the mindfulness program, but most learned to engage in these exercises over time. In adult populations, health professionals reported restlessness, difficult emotions, and pain or physical issues at the beginning of the mindfulness program, which eased with time (Cohen-Katz et al., 2005). Pediatric oncology staff mentioned the added stress of taking on mindfulness coursework, which also improved with time (Moody et al., 2013.) These findings suggested that developing a mindfulness practice might be difficult at first, for both children and adults, but that discomfort and feelings of over-commitment tend to fade with time.

Some challenges were specific to the population at hand and their health-related difficulties. For example, children in Jastrowski Mano et al.'s (2013) study were too busy due to the many demands of chronic pain to commit to an MBSR program, and the authors experienced recruitment and retention difficulties as a result. Other challenges were specific to individual temperaments and preferences. For example, a child in Lagor et al.'s (2013) study expressed disappointment that the mindfulness practice did not diminish the intensity of her emotions. These challenges could be avoided or made manageable following Dobkin et al.'s (2012)

suggestions and screening patients for individual issues, as well as informing them about the program pre-intervention.

Maintaining a mindfulness practice post-intervention was another difficulty (Cohen-Katz et al., 2005; van de Weijer-Bergsma et al., 2012.) In their study of mindfulness for adolescents with ADHD, van de Weijer-Bergsma et al. (2012) stated that maintenance strategies are required for mindfulness to be effective in the long term. In the case of nurses, Cohen-Katz et al. (2005) declared that, in order for mindfulness to effect lasting changes in burnout and stress, ongoing support must follow the intervention. Similarly, a theme among adolescents in Ames et al.'s (2014) study was the desire to “keep mindfulness going” (p.77), but that this might be challenging without support. Some participants in Cohen-Katz et al.'s (2005) study independently organized a practice group post-intervention, but future interventions should anticipate this and facilitate the creation of mindfulness practice groups for ongoing support.

### **Including Parents and Caregivers in Mindfulness Interventions**

In a review of 24 studies on the contribution of mindfulness-based therapies for children and their caregivers in educational as well as clinical settings, Harnett and Dawe (2012) advanced that programs that target parents and caregivers appear to be beneficial in improving parental functioning, and in turn promoting child outcomes. This argument was supported by Beer et al.'s (2013) later findings that children with ASD demonstrated fewer behavioural problems when their parents reported higher levels of mindfulness. Bidirectional theory (Pardini, 2008; Stafford & Bayer, 1993) highlights the transactional nature of the relationship between children and their caregivers, further supporting the argument that including parents and caregivers in mindfulness interventions is beneficial to both the caregivers and the children in their care, as the benefits of mindfulness are shared by the children and their caregivers.

Another important reason to include caregivers in mindfulness interventions is that it may facilitate the children's own practice. Indeed, it is easier for children to develop a mindfulness practice if their parents or caregivers embody mindfulness in their interactions with the child (van de Weijer-Bergsma et al., 2011.) In reverse, the exclusion of parents and caregivers in programs may imply that, while the child is exposed to mindfulness concepts and techniques in the context of the intervention, he or she may be observing contradictory behaviours in their parents or caregivers, which could be confusing for the child.

Therefore, including caregivers in mindfulness interventions presents two main advantages. First, it enables caregivers to reap the benefits of mindfulness themselves, which can benefit the child through a transactional relationship (Pardini, 2008; Stafford & Bayer, 1993.) Second, it can render the child's process of acquiring a mindfulness practice easier, as he or she can learn through modeling (van de Weijer-Bergsma et al., 2011.)

### **Incorporating Games, Play, and Interactive Activities**

The benefits of incorporating play into mindfulness interventions for children and adolescents has been discussed, but merits being reemphasized. In their study of adolescents with chronic illnesses, Lagor et al. (2013) reported that some participants found traditional mindfulness exercises to be "boring" or sleep-inducing (p. 152), suggesting the need to ensure that mindfulness interventions be sufficiently stimulating for young people. One way to accomplish this can be to include games in program delivery (Liehr & Diaz, 2010.) The children in Liehr and Diaz's (2010) study, who suffered from various difficulties, requested for a popular game to be incorporated in the mindfulness training program they received and reported that this was a good way to apply mindfulness techniques. Liehr and Diaz (2010) considered the children to be active agents in the development of their intervention, ensuring that the mindfulness

program held meaning and relevance for the children in the study. Indeed, child participation is extremely important in developing interventions, and the inclusion of games or other activities is best accomplished by following children's suggestions (Liehr & Diaz, 2010.)

Another way to render mindfulness interventions more stimulating for young people is to rely on a play-based approach (Coholic, 2011.) Coholic (2011) utilized an arts-based approach for children with various difficulties, incorporating mindfulness teachings into enjoyable, creative activities. This method of delivering the mindfulness intervention was well-received by the children, with qualitative analysis indicating that the children found the program to be "fun" (p. 310.) Although Coholic (2011) did not report including the children in the creation and development of the intervention, the creative nature of the activities employed enabled children to express themselves in the intervention. More explicit child participation may have rendered Coholic's (2011) intervention even more enjoyable for the children, as in Liehr and Diaz's (2010) study.

Last, the children in Coholic's (2011) study reported enjoying the opportunity to make friends through the program. This theme was echoed in Lagor et al.'s (2013) study, in which 43% of participants expressed preference for interactive exercises, such as mindful touching or mindful eating (p. 152.) These findings imply the importance of balancing mindfulness self-practice with group-based activities when working with young people.

In summary, incorporating games, play, and fun activities in mindfulness interventions appears to be successful when working with young people. The literature contained in this review did not address the use of technology in mindfulness; hence, it remains a potential area for research. Relying on child participation in developing and adapting interventions is an important consideration that should not be overlooked in future research. Finally, including

interactive activities in programs appears to be an important element of creating enjoyable mindfulness experiences with children and adolescents.

### **Program Delivery By an Individual Experienced in Mindfulness**

In a review of MBSR and MBCT interventions with children and adolescents, Burke (2010) discussed the importance of mindfulness teachers having a personal experience of mindfulness practice, and an embodiment of the foundations of mindfulness before beginning to teach the practice to clients. Requirements for MBSR teachers, as outlined by Kabat-Zinn (1990) include having an established personal mindfulness practice, professional training, regular supervision, attendance at meditation retreats, and ongoing professional development (Center for Mindfulness, 2014.) The Centre for Mindfulness website (2014) highlights that “the teaching of mindfulness is never a matter of merely teaching or operationalizing techniques. Mindfulness is a way of being in a wiser relationship to one's experience, not one particular mental state to be pursued and attained.” Mindfulness is an embodied practice (meaning that is expressed not only verbally but also through one's attitudes) that requires an experienced teacher, and cannot be communicated fully by a person without experiential knowledge of what mindfulness entails.

There also exist ethical as well as practical reasons as to why mindfulness interventions must be delivered by trained professionals with a personal mindfulness practice. First, Burke (2010) rightfully advanced that the delivery of mindfulness interventions by untrained or inexperienced teachers implies that treatment fidelity cannot be assured. Indeed, untrained teachers may be more likely to misunderstand mindfulness teachings and miscommunicate important concepts, which compromises the reliability of the research, and the practice effects. Second, and specific to the context of mindfulness for children and adolescents, professionals with a personal practice are more likely to embody mindfulness teachings, which in turn can help

children model mindful behaviours and develop their own mindfulness practice more easily. van de Weijer-Bergsma et al. (2011) found that it was easier for children to progress in their mindfulness practice when their parents embodied the practice for them, and the same follows in the case of the professionals delivering the intervention.

In summary, ensuring that mindfulness interventions are delivered by trained professionals with a personal practice is important in three respects. First, it follows Kabat-Zinn's (1990) recommendations as outlined by the Center for Mindfulness (2014.) Second, it ensures higher fidelity to mindfulness teachings, and therefore more rigorous evidence. Last, having a teacher who embodies mindfulness principles may facilitate children's own mindfulness practice, as they can model the teacher's behaviours.

## **Discussion**

This paper provided a systematic review of evidence on mindfulness for the well being of children and adolescents with health-related challenges. In order to inform best practices, practical applications for working with children and adolescents with health-related challenges were examined. Future research priorities and predominant issues in the research will be addressed in this section.

### **Future Research Priorities**

**Research with younger children.** There is problematic dearth of research on the topic of mindfulness with younger children. The youngest of the children among the 19 studies included in this review were 8 years old (van der Oord et al., 2012.) This gap may be due to concerns such as young children lacking the patience, self-awareness, or meta-cognitive capacities to engage in a mindfulness practice. It could also be a result of the lack of a scale measuring mindfulness in children below age 9, with the only scale measuring mindfulness in children being targeted at

children above 9 years old (Greco et al., 2011.) As a consequence, the development of measurement instruments of mindfulness with younger children, as a trait and as a state separately, is an area requiring future examination.

Furthermore, researchers should attempt applying mindfulness with younger children, in order to determine the feasibility of mindfulness with children below 8 years of age. Currently, adaptations to mindfulness training programs have been developed and shown to be successful with children aged 8 and older (Biegel et al., 2009; Coholic, 2011; Haydicky et al., 2012; Lee et al., 2008; Liehr & Diaz, 2010; van de Oord et al., 2012; van de Weijer-Bergsma et al., 2011), but different adaptations may be required for younger children

**Replicating adult studies with child populations.** There exist numerous studies on mindfulness as an intervention for various health-related challenges in adults lacking replication in child and adolescent populations. The keywords to conduct the search for this review included a number of disorders for which mindfulness had been studied in adult populations alone, such as psoriasis (Kabat-Zinn et al., 1998), cancer (Birnie, Garland, & Carlson, 2009) obesity and eating disorders (Godsey, 2013), organ transplant recipients (Kreitzer, Gross, Ye, Russas, & Treesak, 2005), obsessive-compulsive disorder (Hertenstein et al., 2012), Williams Syndrome (Miodrag, Lense, & Dykens, 2013). The topic of children with eating disorders and mindfulness is certainly an area necessitating investigation, as the practice of mindful eating has shown promise in adult populations (Godsey, 2013.) The practice of mindful eating was found enjoyable by children in Lagor et al.'s (2013) study, suggesting feasibility with children and emphasizing the need to apply mindful eating for children with eating disorders. Last, the topic of mindfulness for various types of pediatric pain is severely lacking research as well.



## **Issues in Research Methods**

Not only does the research on mindfulness for the well being of children and adolescents with health-related challenges present lacunas in terms of breadth, but it also lacks rigour in terms of research methods. Several problematic trends in research methods will be discussed in the present section. These trends include validity issues surrounding the use of scales to measure mindfulness, the overrepresentation of female participants in the research, and the scarcity of rigorous research methods.

**Scales for measuring mindfulness with children and adolescents.** Empirically studying mindfulness is a complex endeavor as it is difficult to operationalize. Despite this, a range of scales has been developed to measure mindfulness. However, these scales tend to operationalize mindfulness as a trait rather than a state. A number of self-report measures of mindfulness exist, including the Freiburg Mindfulness Inventory (FMI; Buchheld, Grossman, & Walach, 2001), the Kentucky Inventory of Mindfulness Skills (KIMS; Baer, Smith, & Allen, 2004), the Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003), the Southampton Mindfulness Questionnaire (SMQ; Chadwick, Hember, Mead, Lilley, & Dagnan, 2008), the Revised Cognitive and Affective Mindfulness Scale (CAMS-R; Feldman, Hayes, Kumar, Kamholz, Greeson, & Hebert, 2005), the Philadelphia Mindfulness Scale (PHLMS; Cardaciotto, Herbert, Forman, Moitra, & Farrow, 2008), the Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006), and the Comprehensive Inventory of Mindfulness Experiences beta (CHIME-beta; Bergomi, Tschacher, & Zupper, 2013). As mentioned, these scales assess mindfulness as a trait-like quality (that is, they measure one's general tendency to be mindful in everyday life), rather than as a state or a process, which is at odds with Kabat-Zinn's definition of mindfulness

as a particular way of paying attention (1990.) The use of scales that conceptualize mindfulness as a trait can lead to validity issues in the research.

Such validity issues were illustrated by van de Weijer-Bergsma et al.'s (2011) study of adolescents with ADHD, in which results did not portray increases in mindfulness following a mindfulness intervention. The authors explained that the scale used, the MAAS (Brown & Ryan, 2003) was designed to assess one's general tendency to be mindful (trait mindfulness), but that their study encouraged participants to use a mindfulness practice in stressful situations instead (state mindfulness.) While state mindfulness, over time, may contribute to the development of trait mindfulness, the two must be distinguished in the context of mindfulness-based interventions. In this review, mindfulness is considered a resource with which to cope with health-related challenges, and therefore scales that conceptualize mindfulness as a trait might not be valid instruments for measuring the efficacy of mindfulness interventions. Furthermore, validity issues surrounding measurement instruments could explain certain studies' failure at demonstrating significant changes quantitatively, but yielding positive qualitative results (Lee et al., 2008; Moody et al., 2013.)

In contrast, Bishop et al. (2004) conceptualized mindfulness as a state-like phenomenon, which led to the development of the Toronto Mindfulness Scale (TMS), "in which the response to items would be in reference to an immediately preceding session involving the practice of mindfulness techniques" (Lau et al., 2006, p. 237.) Bishop et al. (2004) operationalized mindfulness as a two-component model: the first being the self-regulation of attention so that it is maintained on immediate experience, and the second being adopting a particular orientation, characterized by curiosity, openness, and acceptance. This definition was the basis for the TMS (Lau et al., 2006.) This conceptualization is better suited to the purpose of this review, in which

mindfulness is conceptualized as a resource for coping with the variety of challenges that can affect the quality of well being. Researchers who examine the impact of mindfulness as a tool to ameliorate children's well being should be careful in selecting their measurement instrument, and remain aware of the difference between scales that conceptualize mindfulness as a personality trait, and scales that conceptualize it as a state or a mode.

***Relevance to youth.*** Another important consideration in measuring mindfulness with children and adolescents is the use of a scale that is both age-appropriate and relevant to the lives of youth. Some of the scales mentioned earlier include items not applicable for children, such as driving a car “on autopilot”(Greco, Baer, & Smith, 2011, p. 607) or items necessitating advanced vocabulary and meta-cognitive abilities, such as “criticizing oneself for having irrational thoughts” (p. 607.) The lack of a scale specifically designed to measure mindfulness in children led Greco et al. (2011) to create a scale called the Child and Adolescent Mindfulness Measure (CAMM), intended for use with youths over the age of 9 years. The authors tested the CAMM to be developmentally appropriate, as well as reliable and valid (p. 611) However, similarly to other popular scales, with the exception of the TMS, the CAMM measures mindfulness in children as a trait-like quality, and therefore may not be a valid instrument for detecting mindfulness treatment effects, or for evaluating the usefulness of mindfulness as a tool for well being (p.612) This indicates the need to develop a scale, like the TMS, measuring state mindfulness in children specifically. Finally, as mentioned earlier, no scale currently exists for measuring mindfulness in children below the age of 9, either a trait or as a state, which might explain the scarcity of research on mindfulness with younger children.

***Overrepresentation of females in the research.*** Females are overrepresented in the research samples of the studies examined in this review. Only five studies out of the 19 reviewed

had samples consisting of at least 50% male participants (Beauchemin et al., 2008; Haydicky et al., 2012; Liehr and Diaz, 2010; van der Oord et al., 2012; & van de Weijer-Bergsma et al., 2011.) The other studies' samples comprised of 60% female participants (child, adolescent, or adult) or more. Biegel et al. (2009), whose sample consisted of 70% female adolescents, stated that their study did not demonstrate gender differences in responsiveness to MBSR, but that research with "more balance gender compositions" (p. 864) would be required in the future.

This trend in the research is problematic in terms of generalizing research results to male populations. Furthermore, it is also unfortunate that this overrepresentation of females is more pronounced among older participants. Indeed, studies in this review that examined the impact of mindfulness for adult caregivers presented even more disproportionate ratios of female to male participants than studies with adolescents and younger children. Cohen-Katz et al.'s (2005) sample of nurses was 100% female (p.81), while Moody et al.'s (2013) pediatric oncology staff were 80% females. In studies examining non-professional caregivers of children with health-related challenges, the lowest proportion of females participants, relative to males, was 66.6% (Ferraioli & Harris, 2013), with the highest being 94% (Jing Hou et al., 2014.)

While the authors of these studies did not speculate as to why this might be the case, the overrepresentation of female caregivers in the research might be explained in two ways. First, it could be due to the phenomenon that females tend to occupy caregiver roles more than males in general, both professionally as well as at home. Second, in order to explain why the overrepresentation of females in the research on mindfulness seems to increase with participants' ages, one might propose that younger male participants may feel less stigma to engage in a mindfulness practice than older males. While mindfulness is not targeted to either gender, some may feel it is a more feminine practice, as it involves stereotypically female characteristics such

as being quiet or introspective. Gender stereotypes tend to become more internalized with age, which could explain why older males are less likely to be represented in the research. Future research should encourage males to participate in mindfulness interventions, so that the impact of mindfulness can be examined across genders.

**Scarcity of rigorous research methods.** A detriment to advancing evidence-based practice is the apparent lack of studies employing rigorous research methods. Only six studies out of the 19 reviewed utilized a control group consisting of either no intervention or a non-mindfulness intervention (Biegel et al., 2009; Ferraioli & Harris, 2013; Jastrowski Mano et al., 2013; Jing Hou et al., 2014; Liehr & Diaz, 2010; Moody et al., 2013.) Three studies employed wait-list control groups instead (Benn et al., 2012; Haydicky et al., 2012; van der Oord et al., 2012), which are less rigorous as participants are not blind to their condition, and also because participants receiving treatment may meet with wait-list participants and discuss the intervention with them (Benn et al., 2012.)

**Ethical considerations.** The omission of a control group is sometimes posited as an ethical decision by researchers (Beauchemin et al., 2008; Haydicky et al., 2012; Lagor et al., 2013.) Ten studies out of the 19 reviewed did not include a control group of any kind. Some studies were qualitative in nature, and thus did not necessitate a control group. Others did not justify their lack of a control group. However, three groups of researchers explicitly opted to forego a control group in their studies, in order to avoid depriving certain participants of the potential benefits of mindfulness (Beauchemin et al., 2008; Haydicky et al., 2012; Lagor et al., 2013.) This ethical consideration, while valid, may be shortsighted in terms of the quality of the research available. It can be argued that a rigorous body of research is a more urgent priority than ensuring that all study participants receive mindfulness interventions. It is important for future

research to employ control groups so that effects of mindfulness may be demonstrated scientifically, which could then lead to more widespread applications of mindfulness for children with health-related challenges.

### **Conclusion**

This systematic literature review examined the current and best evidence on the topic of mindfulness for the well being of children and adolescents with health-related challenges. The purpose of this paper was to begin to identify best practices for application in a variety of health-related settings. Only 19 studies out of 38 were rated as sufficiently rigorous in their methods for inclusion in the review. These studies included research on children with chronic medical conditions, pain, depression and anxiety, ADHD and learning disabilities, and psychiatric disorders. Methods used in this review included an examination of the effects of caregiver mindfulness on children's well being, and research on caregivers of children with ASD, and of children with chronic conditions. Finally, research on the impact of health professionals' mindfulness on children's well being was also considered.

### **Research Needs**

Several recurring issues in the body of research were identified. The first issue pertained to the scarcity of research with children, especially those below 8 years of age. A second issue was the discrepancy between mindfulness being operationalized as a process and scales measuring it as a stable trait. A third problem in the research was the overrepresentation of female participants in studies. The last main issue was the tendency for researchers to eschew rigorous research designs when studying mindfulness. These issues inform future directions in the research: rigorous research is required with young children of both genders, and scales need to be developed to measure mindfulness as a process in child participants.

**Incorporating qualitative data.** Qualitative research should not be neglected in favour of quantitative studies. Certain studies in this review failed to demonstrate significant changes quantitatively, but yielded promising qualitative results (Lee et al., 2008; Moody et al., 2013.) It was argued that this discrepancy between quantitative and qualitative findings might have been due to invalid measurement instruments. However, another explanation could be that some effects of mindfulness escape quantitative measurement and are better suited to qualitative reports. Efforts must be made to develop valid empirical measures of mindfulness, and qualitative research can provide a wealth of information as to the effects of mindfulness.

Evidence-based practice can benefit from qualitative data as, unlike standardized methods, qualitative research tools are flexible and can be adapted to better capture children's voices as autonomous participants. Indeed, qualitative research can portray children's intimate experiences with mindfulness practice, and provide valuable suggestions for the development of future interventions (Rycroft- Malone et al., 2003.) Reporting children's opinions and experiences with mindfulness is not only an ethically sound decision, but also one that can indicate best practices for the future. Future research should therefore strive to obtain qualitative data from children regarding their experience with mindfulness and its effects.

**A comprehensive approach to research and practice.** Future research and practice must also adopt a comprehensive approach, including both children and their caregivers in interventions. Bidirectional theory highlights the transactional nature of the parent-child relationship (Pardini, 2008; Stafford & Bayer, 1993), and this review revealed that mindfulness interventions are particularly effective when both parents and children are included (Beer et al, 2013; Harnett & Dawe, 2012; van de Weijer-Bergsma et al., 2011.) Further, including caregivers in interventions makes it easier for children to develop a mindfulness practice, as they are able to

model mindful behaviours (van de Weijer-Bergsma et al., 2011.) For these reasons, future studies need to address the aforementioned issues in the body of research, while adopting a comprehensive approach and including caregivers in research and mindfulness interventions.

### **Child Participation and Ongoing Support**

Despite the importance of the bidirectional model and the importance of caregivers to children's well being, there exists a need for children to co-create their mindfulness experience. This is best accomplished by involving children in the creation and design of mindfulness interventions (Liehr & Diaz, 2010.) Child participation is crucial to conducting ethical research and to developing interventions that are relevant and enjoyable for children.

However, viewing children as autonomous agents in the co-creation of mindfulness intervention does not eliminate the need to provide them with ongoing support in the process of developing a mindfulness practice (Ames et al., 2014; Biegel et al., 2009.) Therefore, it is important that future endeavours incorporate a system for ongoing support post-intervention. Children must be included in determining what form such support should take, and conscious efforts should be made to ensure that they are able to sustain their mindfulness skills upon completing an intervention.

In summary, identifying best practices in the application of mindfulness for children and adolescents with health-related challenges is rendered difficult due to the scarcity of research available. Studies on mindfulness for adults have not been adequately replicated with children, and future research needs to ensure that the benefits of mindfulness observed in adults can be experienced in pediatric populations. Moreover, research findings will be influenced by the children's ages, medical conditions, developmental considerations, and level of experience with



mindfulness. Therefore, a considerable range of variables needs to be tested in order to adequately address levels of effectiveness.

The lack of rigorous research methods in existing research, coupled with the trend of eschewing the study of children below 8 years of age, also hinder evidence-based practice. Conducting sound quantitative research in the future is only part of the solution for identifying best practices. Indeed, incorporating a qualitative component to research can provide a more accurate depiction of children's experiences with mindfulness, a valuable contribution to evidence-based practice.

Going forward, mindfulness for children and adolescents must be approached in a comprehensive manner, including children as well as caregivers in interventions. Although including caregivers in interventions emerged as a best practice in this review, child participation is another crucial element in both research and practice, and children must be able to influence the design and delivery of mindfulness interventions. Striking a balance between including caregivers and encouraging child participation may prove to be a considerable challenge in future research. Another challenge ahead will be determining how to best provide ongoing support to children so that they may sustain their mindfulness practice upon completion of the intervention. These challenges will be overcome by methodologically sound research that does not neglect obtaining qualitative data from children receiving mindfulness interventions.

Table 1

*Studies Included in this Review*

Study no.	Reference	Study focus	Sample	Method	Findings	Implications for Practice and Research
1	Ames et al. (2014)	Effects of <u>MBCT</u> for depression in adolescents.	-7 adolescents (age range = 12-18 years old) with depression.  -All female participants.	-Mixed methods study.  -Acceptability of treatment determined using semi-structured interviews post-intervention.  - Empirical measures taken pre and post an 8-week MBCT program.  -Measures included the Moods and Feelings Questionnaire, the Pediatric Quality of Life Enjoyment and Satisfaction Questionnaire, and the Penn State Worry Questionnaire.	-Modest decreases in worry and rumination, and increase in quality of life.  -Positive feedback suggested treatment acceptability.	-Qualitative feedback useful in determining treatment acceptability.
2	Beauchemin et al. (2008)	Effects of a <u>5-week mindfulness intervention</u> in adolescents with LD.	-34 adolescents (age range= 13-18 years old) with LD diagnosis.  -71% of sample male, 29% female.	-Pre- and post- no control design.  -Measures included the Social Skills Rating System (self-rating and teacher-rating), and the State-Trait Anxiety Inventory.  -Feedback forms.	-Significant decreases in anxiety ( $p<.05$ ).  -Significant improvements in self-rated and teacher-rated social skills ( $p<.05$ ).  -100% participants gave positive feedback, 0% attrition rate.	-Incorporating teachers' ratings can strengthen evidence.

Study no.	Reference	Study focus	Sample	Method	Findings	Implications for Practice and Research
3	Beer et al. (2013)	Effects of <u>parental mindfulness</u> on children's ASD behaviours.	-28 parents (age range= 32-76 years old) of children with ASD.  -4 males and 24 females.	-Parents self-rated their level of mindful parenting, self-compassion, and parenting stress.  -Parents rated own anxiety and depression using the Hospital Anxiety and Depression Scale.  -Parents also rated their child's behavioural problems using the Nisonger Child Behavior Rating Form.  -Open-ended questions about parental use of various mindful parenting techniques.  -Relationships between these variables established using Pearson's correlations.	-Higher mindful parenting correlated with lower parental stress ( $p<.05$ ), but not with lower anxiety.  -Higher mindful parenting correlated with fewer child behavioural problems ( $p<.05$ ).  -Higher parental self-compassion, lower levels of parental distress ( $p<.05$ ).	-Lowered parental stress is beneficial to children's well being.  -Future interventions should not neglect the effects of parental mindfulness on children's well being.
4	Benn et al. (2012)	Effects of a 5-week <u>mindfulness training</u> program for parents and educators of children with chronic conditions.	-60 parents and educators (25 parents, 35 educators) (age range= not specified) of children with special needs (children's age range= 5-23 years old.)  -55 females, 5 males.	-Randomized controlled design.  -Wait list control group.  -Measures taken at baseline, 1-week post-intervention, and at 2 months follow-up.  -Assessed perceived stress, caregiving competence, anxiety, depression, self-compassion.  -Five Facets Mindfulness Questionnaire used to measure mindfulness.	-Significant decrease in stress and anxiety ( $p<.05$ ).  -Significant increase in mindfulness, self-compassion, and personal growth at program completion and at follow-up ( $p<.05$ ).  -Mindfulness outcomes at completion mediated outcomes at follow-up.	-Mindfulness can be applied to aid parents of sick children cope with stress and anxiety.  -Self-compassion may be increased by mindfulness, and should be explored further in future research.

Study no.	Reference	Study focus	Sample	Method	Findings	Implications for Practice and Research
5	Biegel et al. (2009)	Effect of <u>MBSR</u> for adolescent psychiatric outpatients.	-102 adolescent psychiatric outpatients (age range= 14-18 years old.)  - 75 females, 27 males.	-Randomized controlled design.  -Waitlist control group.  -Measures obtained at baseline, immediately post-intervention, and at 3-months follow-up.  -Measures included the Perceived Stress Scale, the Rosenberg Self-Esteem Scale, and the Hopkins Symptoms Checklist for psychiatric symptoms.  -Open ended questions for program evaluation.  -Diary of home practice.	-Significant improvements in anxiety, perceived stress, self-esteem, and certain psychiatric symptoms ( $p<.05$ ).  -MBSR participants to show diagnostic improvement than control participants ( $p<.05$ ).  -Length of home practice correlated to treatment efficacy.	-The authors adapted the MBSR program so that its content would be relevant to adolescent psychiatric outpatients, incorporating themes such as self-image, self-harm, and social difficulties. Such adaptations can facilitate treatment acceptability in future interventions.  -Future interventions should focus on encouraging home practice.
6	Cohen-Katz et al. (2005)	Effect of <u>MBSR</u> on hospital staff stress and burnout.	-25 hospital staff (age range= 30-64 years old.)  - 100% female.	-Qualitative section of three-part study.  -Participants randomly assigned to MBSR or wait-list.  -Qualitative data obtained from all participants upon completion of MBSR program.  -Data sources included a focus group, evaluation forms, interviews, and unsolicited feedback.	-Positive feedback from MBSR participants.  -Participants initially reported restlessness, which faded over time.  -Participants reported feeling relaxed, peaceful, and more patient.  -Participants reported higher levels of self-care; being better able to care for others both at work and at home.  -Participants reported being more attentive towards their children at home.	- Future research should further explore the links between mindfulness, self-care, and the quality of caregiving dispensed by caregivers.  -Future interventions should develop ways to aid participants continue with mindfulness post-intervention.

Study no.	Reference	Study focus	Sample	Method	Findings	Implications for Practice and Research
7	Cohen-Katz et al. (2005)	Effect of <u>MBSR</u> on hospital staff stress and burnout.	-27 hospital staff (age range= 32-64 years old.)  - 100% female.	-Quantitative section of three-part study.  -Participants randomly assigned to MBSR or wait-list.  -Measures taken at baseline, post-intervention, and 3-months follow up.  -Measures included the Brief Symptom Inventory, the Malasch Burnout Inventory, and the Mindful Attention Awareness Scale.	-Significant reductions in emotional exhaustion for MBSR participants ( $p=.05$ ).  -Increased feelings of personal accomplishment for MBSR participants ( $p=.01$ ).  -Trend towards lower depersonalization for MBSR group compared to control.  -No significant differences between groups on BSI.	-Future research should further study the link between mindfulness and quality of care provided by hospital staff.  -One future area of research could be to obtain patients' feedback on quality of the care they received from hospital staff before and after the staff receiving a mindfulness intervention.
8	Coholic (2011)	Effects of a <u>12-week arts-based mindfulness program</u> for children with various behavioural concerns.	-50 children (age range= 8- 12 years old) with behavioural concerns such as ADHD, aggression, anxiety, substance abuse etc.  -8 girls and 4 boys.	-Qualitative study.  -Post-intervention interviews with 31 children and 18 of their parents.  -Grounded theory approach to identify themes.	-Main theme was that the intervention was "fun" and enjoyable.  -Creative aspect of the program was enjoyed by participants.  -Some children experienced difficulties with quiet meditation in early stages of the program.  -Only 4 of 50 children dropped out of program (low attrition rate.)  -4 parents reported easier communication and interactions with their children.	-Play and games should not be neglected as important elements to creating enjoyable mindfulness programs for children.

Study no.	Reference	Study focus	Sample	Method	Findings	Implications for Practice and Research
9	Ferraioli and Harris (2013)	The effects of an <u>8-week mindfulness-based training course</u> versus a skills-based training course on parents of children with ASD.	-15 parents of children under 18 with ASD.  -10 mothers and 5 fathers.	-Randomized controlled study,  -Parents randomly assigned to mindfulness training or skills-based training.  -Measures taken at pre-intervention, post-intervention, and at 3 months follow-up.  -Measures included the Parenting Stress Index, the General Health Questionnaire, and the Mindful Attention Awareness Scale.  -Program feedback was obtained via a Likert-type questionnaire.	-Parents in the mindfulness group exhibited greater reductions in stress than parents in the skills-based group ( $p=.011$ ).  -Parents in the mindfulness group has greater improvements in general health than parents in the skills-based group ( $p=.008$ ).  -Only parents in the mindfulness group scored higher on the MAAS at post-intervention than at pre-intervention, confirming that the intervention increased parental mindfulness levels.	-An important element of successful mindfulness interventions is providing suggestions for incorporating mindfulness into daily life.

Study no.	Reference	Study focus	Sample	Method	Findings	Implications for Practice and Research
10	Haydicky et al. (2012)	Effects of a 20 week <u>mindfulness-based martial arts intervention</u> (MMA) for adolescents with LD and co-occurring anxiety or ADHD.	-60 boys (age range= 12-18 years old.)	<ul style="list-style-type: none"> <li>-Wait list control design.</li> <li>-Measures taken at pre-intervention, post-intervention, and cognitive and academic assessments at any time between weeks 1 and 20.</li> <li>-Measures included the Behavior Rating Inventory of Executive Function completed by parents, and the Child Behavior Checklist and Youth Self Report for the adolescents.</li> <li>-Subgroup analyses conducted to determine potential differences between youth with LD and anxiety and with LD and ADHD.</li> </ul>	<ul style="list-style-type: none"> <li>-Results indicated significant time effects for all measures, but no effects attributable to the MMA program alone.</li> <li>-Youth with LD and ADHD improved on parent-rated oppositional defiant problems and conduct disorders (<math>p &lt; .05</math>) compared to wait list.</li> <li>-Youth with LD and anxiety reported decreased anxiety post-intervention (<math>p &lt; .01</math>).</li> </ul>	-Movement-based exercises can render mindfulness interventions more enjoyable for certain populations.

Study no.	Reference	Study focus	Sample	Method	Findings	Implications for Practice and Research
11	Jastrowski Mano et al. (2013)	Effects of a 6-week <u>MBSR</u> versus psychoeducation for adolescents with chronic pain conditions.	-6 adolescents (age range= 12-18 years old.)  - 5 females, 1 male.	-Randomized controlled design.  -Participants randomly assigned to MBSR or psychoeducation group.  -Measures taken at pre-treatment, post-treatment, and at 12-weeks follow-up.  -Measures included the Pain Frequency-Severity-Duration Scale and the State-Trait Anxiety Inventory for Children.  -Feedback about treatment expectations and satisfaction was obtained using a self-report questionnaire.	-Results inconclusive, each participant exhibited individual results.  -MBSR participants attended 4 out of 6 sessions, psychoeducation attended 3 out of 6 on average.  -Recruitment difficulties and high attrition rate.	-Failing to adapt intervention to target audience can result in recruitment difficulties and high attrition rates.  -More research required on mindfulness for pain in pediatric contexts.



Study no.	Reference	Study focus	Sample	Method	Findings	Implications for Practice and Research
12	Jing Hou et al. (2010)	Effects of MBSR on the mental health of family caregivers.	<p>-141 adult caregivers (parents=17) of persons with chronic conditions (age range not specified.)</p> <p>-24 males, 117 females.</p>	<p>-Randomized experimental design.</p> <p>-Random assignment to MBSR or self-help control group.</p> <p>-Measures taken pre- and post-intervention, and at 3-months follow-up.</p> <p>-Measures assessed depression, caregiver self-efficacy, perceived stress, self-compassion, and anxiety using the Chinese version of the State-Trait Anxiety Inventory.</p>	<p>-Relative to control group, MBSR participants showed significantly greater decreases in depressive symptoms at post-intervention and follow-up (<math>p &lt; .01</math>).</p> <p>-MBSR participants also showed greater improvements than self-help group in anxiety post-intervention, but not at follow-up (<math>p = 0.007</math>).</p> <p>-Larger increases in self-efficacy for MBSR group than self-help group (<math>p = 0.084</math>).</p> <p>-No significant effects found for self-compassion or perceived stress.</p>	<p>-Further research needed on mindfulness for caregivers of individuals with chronic conditions.</p> <p>-Qualitative data may provide insight in applying mindfulness with caregivers of individuals with chronic conditions.</p>

Study no.	Reference	Study focus	Sample	Method	Findings	Implications for Practice and Research
13	Lagor et al. (2013)	Effects of a <u>6-week mindfulness intervention</u> for children with chronic medical conditions.	<p>-15 children (age range=8-18 years old) with chronic medical conditions such as diabetes, asthma, hemophilia etc.</p> <p>-9 females, 6 males.</p>	<p>-Mixed methods.</p> <p>-Authors used semi-structured interviews with participants upon program completion to obtain feedback.</p> <p>- Assessed anxiety and depression pre- and post-intervention using the Beck Youth Inventories.</p>	<p>-50% of participants found mindfulness to be a useful tool for their own behavioural control.</p> <p>-21% reported increased awareness, 14% found mindfulness useful for stress reduction.</p> <p>-43% of participants preferred interactive to individual exercises.</p> <p>-1 female participant was disappointed that mindfulness did not diminish the intensity of her emotions.</p> <p>-13 out of 15 participants completed the program.</p> <p>-Statistically significant decrease in anxiety alone (<math>p=.028</math>).</p>	-Interactive exercises should be included in future mindfulness interventions with children.

Study no.	Reference	Study focus	Sample	Method	Findings	Implications for Practice and Research
14	Lee et al. (2008)	Effect of <u>MBCT-C</u> for inner-city children exhibiting externalizing and internalizing symptoms.	-25 inner-city children (age range= 9 to 12 years old.)  - 15 females, 10 males.	-Wait list control design.  -Measures taken at pre- and post-intervention.  -Measures included the parent-rated Child Behavior Checklist, and self-report of depression and anxiety by the children using the State-Trait Anxiety Inventory for Children and the Reynolds Child Depression Scale.  -Feedback questionnaire for the children and their parents about the program.	-No significant decreases in anxiety or depression.  -Significant decrease in externalizing symptoms ( $p=.07$ ).  -94% of participants either “liked” or “loved” the program.  -88% of parents rated the program either as “high” or “very high”.  -Children reported using mindfulness techniques at school.	-Adaptations can include shorter sessions, more sensory-based activities, parental support at home, and rewards for homework completion.
15	Liehr & Diaz (2010)	Effects of a 2-week <u>mindfulness intervention</u> on depression and anxiety in minority children.	-17 minority children (average age= $9.5 \pm 1.6$ years).  -71% were boys.	-Randomized controlled design.  -Participants randomly assigned to mindfulness or health education intervention.  -Measures taken at pre- and post-intervention.  -Measures were self-report scales such as the Short Mood and Feelings Questionnaire and the State Anxiety Inventory for Children.	-Inconclusive empirical results for anxiety.  -Descriptive data indicated that children in mindfulness group may have experienced greater decreases in anxiety than control group.  -Children in the mindfulness group demonstrated more pronounced decreases in depressive symptoms than children in control group ( $p=.03$ ).	-Future research should encourage child participation and include children as co-creators of mindfulness interventions.  -Quantitative data may not fully capture the effects of mindfulness; qualitative data is a valuable complementary source of evidence.

Study no.	Reference	Study focus	Sample	Method	Findings	Implications for Practice and Research
16	Minor et al. (2006)	Effects of <u>MBSR</u> for caregivers of children with chronic conditions.	<p>-44 caregivers of children with chronic conditions (age range= 19- over 60 years old.)</p> <p>-38 females, 6 males.</p> <p>-97.7% of participants were parents, 1 person was a grandparent.</p>	<p>-Pre- and post-intervention measures taken.</p> <p>-No control group.</p> <p>-Measures included the Symptoms of Stress Inventory and the Profile of Mood States.</p>	<p>-Before intervention, participants demonstrated high levels of stress and mood disturbances.</p> <p>-Stress decreased by 32%, and mood disturbances decreased by 56% (<math>p&lt;.001</math>) post-intervention.</p>	<p>-Mothers often overrepresented in research on parental mindfulness, future research should strive to include fathers.</p> <p>-Extended family should be studied more in-depth in future research.</p>

Study no.	Reference	Study focus	Sample	Method	Findings	Implications for Practice and Research
17	Moody et al. (2013)	Effects of an <u>8-week mindfulness-based course</u> on burnout in pediatric oncology staff.	<p>-48 participants (age range not specified.)</p> <p>-91.7% female in control group, and 69.6% female in mindfulness group.</p> <p>-Pediatric oncology staff included nurses, social workers, child-life specialists, physicians, and psychologists.</p>	<p>-Randomized controlled design.</p> <p>-Participants randomly assigned to mindfulness intervention or to no intervention control group.</p> <p>-Primary outcome measure was the Malasch Burnout Inventory.</p> <p>-Other measures included Beck Depression Inventory and Perceived Stress Scale.</p> <p>-Participant diaries and logbooks of mindfulness practice coded for thematic analysis.</p> <p>-Measures obtained pre- and post- intervention.</p>	<p>-No differences in MBI, depression, or perceived stress.</p> <p>-Qualitative analysis of journals revealed 6 themes: increased inner peace and calm, experience of burnout, increased mindfulness and ability to focus, increased compassion, appreciation, and gratitude both at work and at home, benefits of support offered by colleagues, and added stress due to participation in the course at the beginning.</p> <p>-Participants reported becoming better able to connect with their patients.</p> <p>-Participants became more confident in their ability to provide meaningful care to their patients.</p>	-More research needed on mindfulness for burnout in pediatric staff.

Study no.	Reference	Study focus	Sample	Method	Findings	Implications for Practice and Research
18	van de Weijer-Bergsma et al. (2011)	Effects of an <u>8-week mindfulness training</u> for adolescents with ADHD, and parallel <u>mindful parenting training</u> for their parents.	<p>-10 adolescents (age range=11-15 years old) with DSM-IV classification of ADHD, and their biological parents (parents' ages not specified.)</p> <p>-Adolescents' teachers or academic tutors also asked to complete reports on adolescents' behaviours.</p> <p>-5 adolescent, 5 adolescent females.</p>	<p>-Non-experimental design.</p> <p>-Measures taken at pre- and post-intervention, at 8-weeks follow-up and at 16-week follow-up.</p> <p>-Scales used included Child Behavior Checklist (youth self-report and teacher report), the Behavior Rating Inventory Executive Function, the Mindful Attention Awareness Scale, and the Parenting Stress Index.</p>	<p>-Self, father, and tutor reports indicated a decrease in behavioural problems, and improvements in attention and executive functioning (<math>p &lt; .10</math>.)</p> <p>-Fathers reported lower levels of parenting stress post-intervention (<math>p &lt; .01</math>).</p> <p>-Effects of mindfulness training became stronger at 8-weeks follow-up, but decreased by 16-weeks follow-up.</p> <p>-No changes on MAAS for either parents or adolescents.</p>	<p>-Adaptations required when applying mindfulness with ADHD populations.</p> <p>-Future interventions should not employ the MAAS to measure state mindfulness, as it only captures trait mindfulness.</p>

Study no.	Reference	Study focus	Sample	Method	Findings	Implications for Practice and Research
19	van der Oord et al. (2012)	Effects of an <u>8-week mindfulness training</u> for children with ADHD, and <u>8-week mindful parenting training</u> for their parents.	<p>-22 children (age range=8-12 years old.)</p> <p>-16 males and 6 females.</p> <p>-22 parents (age range not specified.) 21 mothers and 1 father.</p>	<p>-Quasi-experimental within-group waitlist control design.</p> <p>-Measures taken pre-, post- intervention and at 8-weeks follow-up.</p> <p>-Measures included parental and teacher ratings of children's ADHD symptoms, the Mindful Attention Awareness Scale, and parental reports of own ADHD symptoms.</p>	<p>-Children's ADHD symptoms, as rated by parents, significantly decreased post-intervention and maintained at follow-up (<math>p&lt;.05</math>).</p> <p>-Parents' own inattention and hyperactivity symptoms were decreased and maintained at follow-up (<math>p&lt;.05</math>).</p> <p>-Parental mindfulness increased on the MAAS (<math>p&lt;.05</math>).</p> <p>-Teacher ratings of child behaviours did not reflect changes in ADHD symptoms, but reported decreased inattention symptoms (<math>p=.10</math>).</p>	-Future research should study the impact of teachers' mindfulness on children with ADHD's well being.

## **Appendix A**

### **Glossary of Terms**

**ACT-** Acceptance and Commitment Therapy (Zettle & Rains, 1989.)

**ADHD-** Attention Deficit Hyperactivity Disorder.

**AIDS-** Acquired Immunodeficiency Syndrome.

**ASD-** Autism Spectrum Disorder.

**BSI-** Brief Symptom Inventory (Derogatis & Melisaratos, 1983.)

**CAMM-** Child and Adolescent Mindfulness Measure (Greco et al., 2011.)

**CAMS-R-** Revised Cognitive and Affective Mindfulness Scale (Feldman, Hayes, Kumar, Kamholz, Greeson, & Hebert, 2005.)

**CBT-** Cognitive Behavioural Therapy.

**CHIME-beta-** Comprehensive Inventory of Mindfulness Experiences beta (Bergomi, Tschacher, & Zupper, 2013.)

**DBT-** Dialectic Behaviour Therapy (Linehan, 1993.)

**EF-** Executive Functioning.

**FFMQ-** Five Facet Mindfulness Questionnaire (Baer et al., 2006.)

**FMI-** Freiburg Mindfulness Inventory (Buchheld, Grossman, & Walach, 2001.)

**HEI-** Health Education Intervention (Liehr and Diaz, 2010.)

**HIV-** Human Immunodeficiency Virus infection.

**KIMS-** Kentucky Inventory of Mindfulness Skills (Baer, Smith, & Allen, 2004.)

**LD-** Learning Disabilities.

**MAAS-** Mindful Attention Awareness Scale (Brown & Ryan, 2003.)

**MBI-** Maslach Burnout Inventory (Maslach, Jackson, & Leiter, 1996.)



**MBSR-** Mindfulness Based Stress Reduction Kabat-Zinn, 1982.)

**MBCT-** Mindfulness-Based Cognitive Therapy (Teasdale, Segal, & Williams, 1995.)

**MBCT-C-** Mindfulness-Based Cognitive Therapy for Children (Semple & Lee, 2008.)

**MDT-** Mode Deactivation Therapy Apsche, Evile, & Castonguay, 2002.)

**MI-** Mindfulness Intervention (Liehr and Diaz, 2010.)

**MMA-** Mindfulness-based Martial Arts intervention (Haydicky et al., 2012.)

**MT-** Mindfulness Training (Benn et al., 2012.)

**OCD-** Obsessive Compulsive Disorder.

**PHLMS-** Philadelphia Mindfulness Scale (Cardaciotto & Hebert, 2005.)

**SQM-** Southampton Mindfulness Questionnaire (Chadwick, Hember, Mead, Lilley, & Dagnan, 2008.)

**SSRS-** Social Skills Rating System (Gresham & Elliot, 1990.)

**TAU-**Treatment as Usual.

**TMS-**Toronto Mindfulness Scale (Lau et al., 2006.

## References

- Abadin, R. R. (1983). *Parenting stress index: Manual, administration booklet, and research update*. Charlottesville, VA: Pediatric Psychology Press.
- Achenbach, T. M. (2001). *The Child Behavior Checklist and Youth Self-Report form*. Burlington, VT: ASEBA, University of Vermont.
- Aman, M. G., Tassé, M. J., Rojahn, J., & Hammer, D. (1996). The Nisonger CBRF: A child behavior rating form for children with developmental disabilities. *Research in Developmental Disabilities*, 17, 41–57. doi:10.1016/0891-4222(95)00039-9.
- Amerijckx, G., & Humblet, P.C. (2013). Child Well-Being: What does it mean? *Children and Society*, 10, 1-12.
- Ames, C. S., Richardson, J., Payne, S., Smith, P., & Leigh, E. (2014). Innovations in Practice: Mindfulness-based cognitive therapy for depression in adolescents. *Child and Adolescent Mental Health*, 19(1), 74-78. doi: 10.1111/camh.12034
- Angold, A., Costello, E. J., Messer, S. C., Pickles, A., Winder, F., & Silver, D. (1995). Development of a short questionnaire for use in epidemiological studies of depression in children and adolescents. *International Journal of Methods in Psychiatric Research*, 5, 237–249.
- Apsche, J., Evile, M., & Castonguay, C. (2002). *Mode Deactivation Therapy*. Portsmouth, VA: Alternative Behavioral Services.
- Axford, N. (2009). Child well-being through different lenses: why concept matters. *Child and Family Social Work*, 14, 35-44.
- Baer, R. A., Smith, G. T., & Allen, K. B. (2004). Assessment of mindfulness by self-report: The Kentucky Inventory of Mindfulness Skills. *Assessment*, 11, 191-206.

- Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment*, 13, 27–45.
- Bazzano, A., Wolfe, C., Zylowska, L., Wang, S., Schuster, E., Barrett, C., & Lehrer, D. (2010). Stress reduction and improved well-being following a pilot community-based participatory Mindfulness-based Stress Reduction (MBSR) program for parents/caregivers of children with developmental disabilities. *Disability and Health Journal*, 3(2), e6–e7. doi:10.1016/j.dhjo.2009.08.088
- Beauchemin, J., Hutchins, T. L., & Patterson, F. (2008). Mindfulness meditation may lessen anxiety, promote social skills, and improve academic performance among adolescents with learning difficulties. *Complementary Health Practice Review*, 13, 34–45.
- Beck, J. S., Beck, A. T., & Jolly, J. (2005). *Manual for the Beck Youth Inventories of emotional and social adjustment* (2nd ed.). San Antonio, TX: The Psychological Corporation.
- Beck, A. T., Steer, R. A., & Brown, G. K. (2006). *Beck Depression Inventory* (2nd ed.). Los Angeles, CA: Resource Centers for Minority Aging Research.
- Beer, M., Ward, L., & Moar, K. (2013). The relationship between mindful parenting and distress in parents of children with an autism spectrum disorder. *Mindfulness*, 1, 1–11.
- Benn, R., Akiva, T., Arel, S., & Roeser, R. W. (2012). Mindfulness training effects for parents and educators of children with special needs. *Developmental Psychology*, 48(5), 1476–1487. doi: 10.1037/a0027537
- Bergomi, C., Tschacher, W., & Kupper, Z. (2013). Measuring mindfulness: first steps towards the development of a comprehensive mindfulness scale. *Mindfulness*, 4(1), 18–32. doi:10.1007/s12671-012-0102-9.

- Biegel, G. M., Brown, K. W., Shapiro, S. E., & Schubert, C. (2009). Mindfulness-based stress reduction for adolescent psychiatric outpatients: A randomized clinical trial. *Journal of Consulting and Clinical Psychology, 77*, 855–866. doi:10.1037/a0016241
- Birnie K, Garland, S. N, Carlson, L. E (2010). Psychological benefits for cancer patients and their partners participating in Mindfulness-Based Stress Reduction (MBSR). *Psychooncology* , 19(9),1004-1009.
- Bishop, S. R., Lau, M., Shapiro, S., Carlson, L., Anderson, N. D., Carmody, J., ... Devins, G. (2004). Mindfulness: A proposed operational definition. *Clinical Psychology: Science and Practice, 11*, 230-241. doi: 10.1093/clipsy/bph077
- Buchheld, N., Grossman, P., & Walach, H. (2001). Measuring mindfulness in insight meditation (Vipassana) and meditation- based psychotherapy: The development of the Freiburg mind- fulness inventory (FMI). *Journal for Meditation and Meditation Research, 1*, 11–34.
- Burke, C. A. (2010). Mindfulness-based approaches with children and adolescents: A preliminary review of current research in an emergent field. *Journal of Child and Family Studies, 19*(2), 133-144. Retrieved from: <http://link.springer.com.ezproxy.lib.ryerson.ca/article/10.1007%2Fs10826-009-9282-x>
- Brown, K., & Ryan, R. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology, 84*, 822–848.
- Cardaciotto, L., Herbert, J., Forman, E., Moitra, E., & Farrow, V. (2008). The assessment of present-moment awareness and acceptance: The Philadelphia Mindfulness Scale. *Assessment, 15*, 204 –223. doi:10.1177/ 1073191107311467
- Center for Mindfulness (2014). <http://www.umassmed.edu/cfm/Training/Principles--Standards/>

- Chadwick, P., Hember, M., Symes, J., Peters, E., Kuipers, E., & Dagnan, D. (2008). Responding mindfully to unpleasant thoughts and images: Reliability and validity of the Southampton Mindfulness Questionnaire. *British Journal of Clinical Psychology*, 47, 451–455.  
doi:10.1348/ 014466508X314891
- Cohen, S., & Williamson, C. (1988). Perceived stress in a probability sample of the United States. In S. Spacapan & S. Oskamp (Eds.), *The social psychology of health: Claremont Symposium on applied social psychology*. Newbury Park: Sage.
- Cohen-Katz, J., Wiley, S., Capuano, T., Baker, D. M., & Shapiro, S. (2005). The effects of Mindfulness-based Stress Reduction on nurse stress and burnout: A qualitative and quantitative study, part II. *Holistic Nursing Practice*, 19(2), 78-86. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/15871591>
- Cohen-Katz, J., Wiley, S., Capuano, T., Baker, D. M., Deitrick, L., & Shapiro, S. (2005). The effects of Mindfulness-based Stress Reduction on nurse stress and burnout: A qualitative and quantitative study, part III. *Holistic Nursing Practice*, 19(2), 78-86. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/15871591>
- Coholic, D. (2011). Exploring the feasibility and benefits of arts-based mindfulness- based practices with young people in need: Aiming to improve aspects of self-awareness and resilience. *Child and Youth Care Forum*, 40(4), 303–317. doi:10.1007/s10566-010-9139-x.
- Derogatis, L. (1977). *The SCL-90-R: Administration, scoring and procedures manual*, Baltimore: Clinical Psychometric Research.
- Derogatis, L., & Melisaratos, N. (1983). The Brief Symptom Inventory: An introductory report. *Psychol Med.*, 13, 595–605.

- Dobkin, I., Irving, J.A., & Amar, S. (2012). For whom may participation in a mindfulness-based stress reduction program be contraindicated? *Mindfulness*, 3(1), 44–50. Retrieved from: <http://link.springer.com/article/10.1007/s12671-011-0079-9>
- Dodge, R., Daly, A., Huyton, J., & Sanders, L. (2012). The challenge of defining wellbeing. *International Journal of Wellbeing*, 2(3), 222-235. doi:10.5502/ijw.v2i3.4
- Duncan, L. G., Coatsworth, J. D., & Greenberg, M. T. (2009). A model of mindful parenting: Implications for parent-child relationships and prevention research. *Clinical Child and Family Psychology Review*, 12(3), 255-270. doi: 10.1007/s10567-009-0046-3
- Endicott, J., Nee, J., Yang, R., & Wohlberg, C. (2006). Pediatric quality of life enjoyment and satisfaction questionnaire (PQ- LES-Q): Reliability and validity. *Journal of the American Academy of Child and Adolescent Psychiatry*, 45, 401–407.
- Feldman, G. C., Hayes, A. M., Kumar, S. M., Kamholz, B., Greeson, J. M., & Laurenceau, J. P. (2005, November). Assessing Mindfulness in the Context of Emotion Regulation: The Revised Cognitive and Affective Mindfulness Scale (CAMS-R). Paper presented at the annual convention of the Association for Behavioral and Cognitive Therapies, Washington, DC.
- Ferraioli, S. J., & Harris, S. L. (2013). Comparative effects of mindfulness and skills-based parent training programs for parents of children with autism: Feasibility and preliminary outcome data. *Mindfulness*, 4, 89-101. doi: 10.1007/s12671-012-0099-0
- Friedrich, W. N., Greenberg, M. T., & Crnic, K. (1983). A short-form of the questionnaire on resources and stress. *American Journal of Mental Deficiency*, 88, 41–48.
- Gibbs, L. E. (1989). Quality of Study Rating Form: An instrument for synthesizing evaluation studies. *Journal of Social Work Education*, 25, 55–67. Retrieved from:

- Gibbs, L. E. (2003). *Evidence-based practice for the helping professions: A practical guide with integrated media*. Pacific Grove, CA: Brooks/ Cole an Imprint of Wadsworth Publisher.
- Godsey, J. (2013). The role of mindfulness based interventions in the treatment of obesity and eating disorders: an integrative review. *Complement Ther Med*, 21, 430–439.
- Goia, G. A., Isquith, P. K., Guy, S. C., & Kenworthy, L. (2000). *Behavior rating inventory of executive function (BRIEF): Professional manual*. Lutz: Psychological Assessment Resources.
- Greenberg, M. T., & Harris, A. R. (2012). Nurturing mindfulness in children and youth: Current state of research. *Child Development Perspectives*, 6, 161–166.
- Goldberg, D. P. (1978). *Manual of the general health questionnaire*. Windsor: NFER Publishing.
- Greco, L. A., Baer, R. A., & Smith, G. T. (2011). Assessing mindfulness in children and adolescents: Development and validation of the Child and Adolescent Mindfulness Measure (CAMM). *Psychological Assessment*, 23, 606–614. doi: 10.1037/a0022819
- Gresham, F. M., & Elliott, S. N. (1987). Social skill deficits of learning-disabled students: Issues of definition, classification, and assessment. *Reading, Writing, and Learning Disabilities*, 3, 131-148.
- Hainsworth, K. R., Davies, W. H., Khan, K.A, Weisman, S.J. (2007). Development and preliminary validation of the child activity limitations questionnaire: Flexible and efficient assessment of pain-related functional disability. *J Pain*, 8(9), 746-752.
- Harnett, P. H., & Dawe, S. (2012). The contribution of mindfulness-based therapies for children and families and proposed conceptual integration. *Child and Adolescent Mental Health*, 17(4), 195-208. doi: 10.1111/j.1475-3588.2011.00643.x

- Haydicky J., Wiener J., Badali P., Milligan K., Ducharme J. M. (2012). Evaluation of a mindfulness-based intervention for adolescents with learning disabilities and co-occurring ADHD and anxiety. *Mindfulness*, 3, 1–14 10.1007/s12671-012-0089-2t
- Hertenstein, E., Rose, N., Voderholzer, U., Heidenreich, T., Nissen, C., Thiel, N., ... & Külz, A. K. (2012). Mindfulness-based cognitive therapy in obsessive-compulsive disorder—A qualitative study on patients' experiences. *BMC Psychiatry*, 12(1), 185.
- Jain, S, Shapiro, S. L., Swanick, S., Roesch, S. C., Mills, P. J., Bell, I., & Schwartz, G. E. R. (2007). A randomized controlled trial of mindfulness meditation versus relaxation training: Effects on distress, positive states of mind, rumination, and distraction. *Annals of Behavioural Medicine*, 33(1), 11-21. Retrieved from: <http://www.ncbi.nlm.nih.gov/pubmed/17291166>
- Jastrowski, M. K., Salamon, K. S., Hainsworth, K. R., Anderson, K. K., Ladwig, R. J., Davies, W. H., & Weisman, S. J. (2013). A randomized, controlled pilot study of Mindfulness-Based Stress Reduction for pediatric chronic pain. *Alternative Therapies in Health and Medicine*, 19(6), 8-14.
- Jing Hou, R., Wong, S. Y., Yip, B. H., Hung, A. T. F., Lo, H. H., Chan, P. H. S., ... Ma, S. H. (2014). The effects of Mindfulness-based Stress Reduction program on the mental health of family caregivers: A randomized controlled trial. *Psychotherapy and Psychosomatics*, 83, 45-53. doi: 10.1159/000353278
- Kabat-Zinn, J. (1982) An outpatient program in Behavioral Medicine for chronic pain patients based on the practice of mindfulness meditation: Theoretical considerations and preliminary results. *General Hospital Psychiatry*, 4, 33–47. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/7042457>



- Kabat-Zinn, J., Wheeler, E., Light, T., Skillings, Z., Scharf, M. J., Cropley, T. G., et al. (1998). Influence of a mindfulness meditation–based stress reduction intervention on rates of skin clearing in patients with moderate to severe psoriasis undergoing phototherapy (UVB) and photochemotherapy (PUVA). *Psychosomatic Medicine*, 50, 625–632.
- Kabat-Zinn, J. (1990). *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain and illness*. New York, NY: Delacorte.
- Kabat-Zinn, J., & Kabat-Zinn, M. (1997). *Everyday Blessings: The Inner Work of Mindful Parenting*. New York, NY: Hyperion.
- Kang, Y., Gruber, J., & Gray, J. R. (2013). Mindfulness and de-automatization. *Emotion Review*, 5(2), 192-201. doi: 10.1177/1754073912451629
- Kreitzer, M.J., Gross, C.R., Ye, X., Russas, V., & Treesak, C. (2005). Longitudinal impact of mindfulness meditation on illness burden in solid-organ transplant recipients. *Prog Transplant*, 15, 166–72.
- Lagor, A. F., Williams, D. J., Lerner, J. B., & McClure, K. S. (2013). Lessons learned from a mindfulness-based intervention with chronically ill youth. *Clinical Practice in Pediatric Psychology*, 1(2), 146.
- Langer, E. J. (1989). *Mindfulness*. Reading, MA: Addison Wesley.
- Lau, M. A., Bishop, S. R., Segal, Z. V., Buis, T., Anderson, N. D., Carlson, L.,...Devins, G. (2006). The Toronto mindfulness scale: Development and validation. *Journal of Clinical Psychology*, 62(12), 1445-1467. doi: 10.1002/jclp.20326
- Leckie, M. S. & Thompson, E. (1979). *Symptoms of Stress Inventory*. Seattle, WA: University of Washington.
- Lee, L., Semple, R. J., Rosa, D., & Miller, L. (2008). Mindfulness- based cognitive therapy for

- children: Results of a pilot study. *Journal of Cognitive Psychotherapy*, 22, 15–28.
- Liehr, P., & Diaz, N. (2010). A pilot study examining the effect of mindfulness on depression and anxiety for minority children. *Archives of Psychiatric Nursing*, 24(1), 69–71. doi:10.1016/j.apnu.2009.10.001.
- Linehan, M.M. (1993). *Cognitive-behavioral Treatment of Borderline Personality Disorder*. New York, NY: Guilford Press.
- Maslach, C., Jackson, S., & Leiter, M. (1996). *Maslach Burnout Inventory 3rd edition manual*. Menlo Park, CA: Mind Garden.
- McAuley, C., Morgan, R., & Rose, W. (2010). Children's Views on Child Well-Being. In *Child Well-Being: Understanding Children's Lives*, McAuley, C., & Rose, W. (Eds.), (pp. 39-66), London: Kingsley Publishers.
- McNair, D. M., Lorr, M., & Droppleman, L. F. (1992). *Profile of Mood States*. San Diego, CA: EdITS/Educational and Industrial Testing Service.
- Meyer, T.J., Miller, M.L., Metzger, R.L., & Borkovec, T.D. (1990). Development and validation of the Penn State Worry Questionnaire. *Behavioural Research and Therapy*, 28, 487–495.
- Mikulas, W. L. (2011). Mindfulness: Significant common confusions. *Mindfulness*, 2, 1-7. doi: 10.1007/s12671-010-0036-z
- Minor, H. G., Carlson, L. E., Mackenzie, M. J., Zernicke, K., & Jones, L. (2006). Evaluation of a Mindfulness-based Stress Reduction program for caregivers of children with chronic conditions. *Social Work in Health Care*, 43(1), 91-109. doi: 10.1300/J010v43n01\_06
- Miodrag, N., Lense, M.D., & Dykens, E.M. (2013). A pilot study of a mindfulness intervention for individuals with Williams Syndrome: Physiological outcomes. *Mindfulness*, 4(2),

- 137-147. doi:10.1007/ s12672-012-0178-2.
- Moody, K., Kramer, D., Santizo, R. O., Magro, L., Wyshogrod, D., Ambrosio, J., ... Stein, J. (2013). Helping the helpers: Mindfulness training for burnout in pediatric oncology- a pilot program. *Journal of Pediatric Oncology Nursing*, 30(5), 275-284. doi: 10.1177/1043454213504497
- Ott, M. J. (2002). Mindfulness meditation in pediatric clinical practice. *Pediatric Nursing*, 28(5), 487-490. Retrieved from <http://search.proquest.com.ezproxy.lib.ryerson.ca/docview/199421331>
- Pardini, D. A. (2008). Novel insights into longstanding theories of bidirectional parent–child influences: Introduction to the special section. *Journal of Abnormal Child Psychology*, 36(5), 627-631.
- Pelham, W. E., Gnagy, E. M., Greenslade, K. E., & Milich, R. (1992). Teacher ratings of DSM-III-R symptoms for the disruptive behavior disorders. *Journal of the American Academy of Child and Adolescent Psychiatry*, 31, 210–218.
- Pollard, E., & Lee, P. (2003). Child well-being: A systematic review of the literature. *Social Indicators Research*, 61(1), 9–78. <http://dx.doi.org/10.1023/A:1021284215801>
- Reynolds, W. M. (1989). *Reynolds Child Depression Scale: Professional manual*. Odessa, FL: Psychological Assessment Resources.
- Rosenberg, M. (1989). *Society and the adolescent self-image* (Rev. ed.). Middletown, CT: Wesleyan University Press.
- Rycroft-Malone, J., Seers, K., Titchen, A., Harvey, G., Kitson, A., & McCormack, B. (2004). What counts as evidence in evidence-based practice? *Journal of advanced nursing*, 47(1), 81-90.

- Segal, Z. V., Williams, J. M. G., & Teasdale, J. D. (2002). Mindfulness-based cognitive therapy for depression: A new approach to preventing relapse. New York: Guilford.
- Semple, R. J., & Lee, J. (2008). Treating anxiety with mindfulness: Mindfulness-based cognitive therapy for children. In L. A. Greco & S. C. Hayes (Eds.), *Acceptance and mindfulness interventions for children, adolescents, and families* (pp. 94–134). Oakland, CA: Context Press/New Harbinger Publications
- Semple, R. J., Reid, E. F. G., & Miller, L. (2005). Treating anxiety with mindfulness: An open trial of mindfulness training for anxious children. *Journal of Cognitive Psychotherapy*, 19, 379–392.
- Shek, D.T.L. (1988). Reliability and factorial structure of the Chinese version of the State-Trait Anxiety Inventory. *J Psychopathol Behav Assess*, 104, 303–317.
- Sinha, U. K., & Kumar, D. (2010). Mindfulness-Based Cognitive Behaviour Therapy with emotionally disturbed adolescents affected by HIV/AIDS. *Journal of Indian Association for Child and Adolescent Mental Health*, 6(1), 19-30.
- Speilberger, C.D., Edwards, C.D., Montuori, J., & Lushene, R. (1973). *State-Trait Anxiety Inventory for Children*. Menlo Park, CA: Mind Garden.
- Spielberger, C. D., Gorsuch, R. L., & Lushene, R. E. (1970). *Manual for the State-Trait Anxiety Inventory*. Palo Alto, CA: Consulting Psychologists Press.
- Stafford, L., & Bayer, C. L. (1993). *Interaction Between Parents and Children*. Michigan: Sage Publications

- Teasdale J. D., Segal Z., & Williams J. M. G. (1995). How does cognitive therapy prevent depressive relapse and why should attentional control (mindfulness) training help. *Behaviour Research and Therapy*, 33, 25–39. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/7872934>
- Thompson, M., & Gauntlett-Gilbert, J. (2008). Mindfulness with children and adolescents: Effective clinical application. *Clinical Child Psychology and Psychiatry*, 13(3), 395-407. doi: 10.1177/13591045080900603
- van de Weijer-Bergsma, E., Formsma, A. R., de Bruin, E. I., & Bögels, S. M. (2012). The effectiveness of mindfulness training on behavioral problems and attentional functioning in adolescents with ADHD. *Journal of child and family studies*, 21(5), 775-787.
- van der Oord, S., Bögels, S. M., & Peijnenburg, D. (2012). The effectiveness of mindfulness training for children with ADHD and mindful parenting for their parents. *Journal of Child and Family Studies*, 21, 139-147. doi: 10.1007/s10826-011-9457-0
- Zettle, R. D., & Rains, J. C. (1989). Group cognitive and contextual therapies in treatment of depression. *Journal of Clinical Psychology*, 45, 438-445.
- Zigmond, A. S., & Snaith, R. P. (1983). The Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scandinavica*, 67, 361–70. doi:10.1111/j.1600-0447.1983.tb09716.x.