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Effectiveness of MBSR and MBCT in Reducing Clinical Symptoms
in Adolescents

by

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MSW Clinical Research Paper

Presented to the Faculty of the
School of Social Work
St. Catherine University and the University of St. Thomas
St. Paul, Minnesota

Master of Social Work

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The Clinical Research Project is a graduation requirement for MSW students at St. Catherine University/University of St. Thomas School of Social Work in St. Paul, Minnesota and is conducted within a nine-month time frame to demonstrate facility with basic social research methods. Students must independently conceptualize a research problem, formulate a research design that is approved by a research committee and the university Institutional Review Board, implement the project, and publicly present the findings of the study. This project is neither a Master's thesis nor a dissertation.

Abstract

Like adults, many adolescents live with mental health diagnoses and struggle to manage their symptoms. If adolescents do not find effective strategies to manage their symptoms, they may have a profound effect on their quality of life. While mindfulness has been practiced around the globe for thousands of years, it is an emerging method of practice in the mental health field. Mindfulness-based stress reduction (MBSR) was developed as a treatment for adults. Mindfulness base cogitative therapy (MBCT) is an intervention adapted from MBSR. The purpose of this systemic review is to explore the effectiveness of MBSR and MBCT in reducing clinical symptoms in adolescents. The results of this review suggest that MBSR and MBCT may be effective in reducing some clinical symptoms in adolescents. MBSR and MBCT are skill-based interventions, that if effective, teach participants skills to manage their symptoms. This is imperative for work with adolescents as it empowers their independence; compared to medication-based treatments that may lead adolescents to believe they require medication to successfully manage their symptoms. This review found that MBSR and MBCT might also be effective when paired with treatment as usual (TAU). Further research that includes both a control and a treatment groups is recommended.

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“We are all mindful to one degree or another, moment by moment.

It is an inherent human capacity”

-Jon Kabat-Zinn

According to the 1999 study of Mental Health authored by the Department of Health and Human Services Surgeon General, 21% of adolescents and children from the ages of 9 to 17 have a diagnosable mental or addictive disorder (The National Alliance on Mental Illness, 2010). Those diagnoses, and the related symptoms, can cause substantial deficits in an individual’s life. Deficits may be in areas such as school, social relationships, and their life at home (The National Alliance on Mental Illness, 2010). The related symptoms of many mental health diagnoses are connected to an array of maladaptive behaviors that can cause problems in various settings. Adolescents with a mental health diagnosis may present with a vast array of different clinical symptoms. Some of those clinical symptoms and maladaptive behaviors may be, verbal and physical aggression, inattention or hyperactivity, defiance, depression, mania, poor self-image, anxiety, inability to regulate themselves, poor impulsive control, and fatigue. Due to the connection of clinical symptoms and maladaptive behaviors these terms may be used interchangeably throughout this paper.

According to Barker’s Social Work Dictionary “maladaptive” is defined as, “pertaining to behaviors or characteristics that prevent people from meeting the demands of the environment or achieving personal goals (p.137, 1991). “Maladaptive behavior is an inappropriate behavior response to a certain stimuli or situation. Behaviors and coping skills developed in adolescence, rather maladaptive or appropriate, can be carried with a young person into, and through, their adult life. These maladaptive strategies can have a

drastic effect on a young person's life. Maladaptive strategies may affect their ability to perform well in school and form socially and developmentally appropriate relationships.

Clinicians, parents, doctors, psychiatrist, educators, and etc. have developed and implemented a number of different interventions to combat these maladaptive behaviors in adolescents. Some of these interventions are medical or pharmacological; others involve behavior modification or therapy. In many cases it is a combination of multiple interventions. Ineffective interventions may leave an adolescent struggling to find ways to manage the maladaptive behavior and clinical symptoms brought on by their mental health diagnosis.

Mindfulness practice may provide a solution for adolescents dealing with these maladaptive behaviors. Mindfulness practices have grown in popularity in recent years, but these practices are by no means new. The concept of mindfulness has been practiced across the globe for centuries. Many people associate mindfulness with the teaching of Buddha. While Buddha himself practiced varying methods of mindfulness, these practices were developed and used by others thousands of years before Buddha (Brown, Marquis & Guiffrida, 2013).

Mindfulness can be practiced in a number of ways. It is often associated with meditation, though meditation is not the only form of mindfulness practice. Some many combine different forms of mindfulness methods into their personal practices. Other examples of mindfulness practice are breathing exercises, body scanning, gratitude journaling, mindful eating, yoga, tai chi, walking meditation, dance and movement, and etc. These practices may have the potential to impact maladaptive behaviors in adolescents.

“Human beings have been imparting and practicing mindfulness skills as a means of easing psychological suffering for at least 2,500 years” (Teasdale, 1999; as cited in Brown, Marquis & Guiffida, 2013; p. 96). This ancient practice has been brought into the clinical setting in recent years. Many believe that mindfulness practices can have a profound effect on an individual’s well being and general satisfaction in life. One of the first formal mindfulness-based interventions created was mindfulness-based stress reduction (MBSR). Mindfulness-based cognitive therapy (MBCT), an adaption of MBSR, is an effective treatment for reducing depressive relapses for individuals diagnosed with major depression (Eisendrath et al., 2014, Sibinga et al., 2011 & Sipe & Eisendrath, 2012). MBSR was created to assist people living with chronic pain and other medical problems. MBSR was intended to complement a person’s medical treatment (Burke, 2010; Kabat-Zinn, 1993). While there are many similarities between MBSR and MBCT, a specific difference amongst the two interventions is MBCT incorporation particular techniques that are rooted in Cognitive Behavior Therapy (CBT) (Chiesa & Malinowski, 2011).

According to research conducted by Broderick & Jennings (2012), there is data to support the benefits and effectiveness of MBCT and MBSR in work with adults. Research conducted by Burke (2010), found that existing empirical research regarding mindful-based interventions with adolescents is somewhat limited. While Burke’s research found limited research on mindfulness based interventions, Burke reports there is “a reasonable base of support for the feasibility and acceptability of mindfulness-based interventions with children and adolescents, it is time that the field embark upon a more rigorous course of gathering empirically sound evidence of the efficacy of these

interventions” (Burke, 2010, p. 143). Furthermore, research conducted by Broderick & Jennings (2012) found benefits that resulted in improvements in attention and social skills for children with learning disabilities as well a “reduction in anxiety, depression, somatic and externalizing symptoms in clinic referred adolescents” (Broderick & Jennings, 2012, p. 116).

Despite the documented benefits to mindful-based interventions with youth, further exploration of the specific clinical benefits of both MBCT and MBSR with adolescents is necessary to assist social workers in their clinical practice. Both MBCT and MBSR have the potential to teach people life long skills that can be used to manage their clinical symptoms more effectively (Kabat-Zinn, 1993; Bishop et al., 2004). That potential must be explored further in clinical applications with adolescents. A thorough review of the literature, through a systematic review, is proposed to assess the effectiveness of MBCT and MBSR interventions in reducing clinical symptoms in adolescents.

Literature Review

The following is a review of the literature on mental health and clinical symptoms of adolescents, current interventions, mindfulness and how mindfulness and mindfulness-based interventions have been applied to mental health concerns. This review is intended to provide a foundation of understanding for the following concepts and topics. This foundation is provided to ensure understanding of the more in-depth systematic review of the literature on effectiveness of MBCT and MBSR interventions in reducing clinical symptoms in adolescents.

Clinical Symptoms

Clinical symptoms and maladaptive behaviors refer to any clinical symptom or maladaptive behavior that is associated with a mental health diagnosis. For the purpose of this paper, the clinical symptoms and maladaptive behaviors often associated with diagnoses commonly found in adolescence will be discussed and considered. Some of the clinical symptoms that will be considered and reviewed are depression, impulsivity, mania, anxiety, aggression, inattention, defiance, and inability to self-regulate. Such clinical symptoms are commonly found in adolescents with a mental health diagnosis.

The Diagnostic and Statistical Manual of Mental Disorders (5th ed.; *DSM-5*) is a tool used by clinicians in the United States to diagnosis individuals, adolescents included, with mental health disorders. The DSM-5 includes disorders like major depressive disorder, oppositional defiant disorder, generalized anxiety disorder, and attention-deficit/hyperactivity disorder, these disorders along with others, are commonly found in adolescents.

Disruptive, impulse-control, and conduct disorders is a category of diagnoses in the DSM-5 that affect an individual's ability to manage their emotions and behaviors. Self-control is difficult for individuals with a mental health diagnosis from this category. Unique to disruptive, impulse-control, and conduct disorders are how an individual's symptoms "violate the rights of others" (American Psychiatric Association, 2012, p. 461). For example, these are behaviors like physical and verbal aggression, property destruction, and stealing. In addition to the previously stated behaviors, anxiety and depressive symptoms can also be present, along with emotional outbursts, defiance, impulsivity, and non-compliance (American Psychiatric Association, 2013). Bipolar and

depressive disorders are also common amongst adolescents. Common clinical symptoms are periods of hypomania and episodes of depression (American Psychiatric Association, 2013).

Mindfulness

Mindfulness has grown in popularity in the last 30 years, and it has begun to be applied to clinical practice and clinical interventions (Brown, Marquis & Guiffrida, 2013). The following is an overview of mindfulness and how its principles have been incorporated into MBSR and MCBT.

What is mindfulness.

“Humans are ordinarily largely unaware of their moment-to-moment experience often operating in an ‘automatic pilot’ mode” (Grossman, Niemann, Schmidt & Walach, 2004, p. 36). As mindfulness continues to grow in popularity, there have been attempts to develop an operational definition by experts on the subject. While the operational definition may not yet be finalized, Kabat-Zinn describes mindfulness as, “the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment” (p. 145, 2003).

Digging beneath the surface Bishop et al. (2004), proposes a two-component model when defining mindfulness. The first component is self-regulated attention. The second is accepting one’s present experiences without judgment. Brown, Marquis, and Guiffrida (2013), also discuss the two-component model when defining mindfulness, in fact they reference Bishop et al. (2004), in their work. Furthermore, both pieces of work speak to the definition provided by Kabat-Zinn (2003).

Self-regulation of attention is the practice of paying attention to the present moment. It is noticing thoughts, physical sensations, and emotions, without judgment, as they are experienced (Bishop et al., 2004). This component suggests that one lives in, and appreciates, the present moment, not in the past or the future. Experiencing the present moment without judgment suggests that when a thought occurs one does not ruminate or elaborate on that thought. Instead one should take the thought for what it is in that moment (Bishop et al., 2004; Germer, 2004 & Brown et al. 2013).

The second component of mindfulness, orientation of experience, considers the purpose and mindset of mindfulness practice. Bishop et al. (2004), discusses a commitment to curiosity. The idea that each experience noticed during one's mindfulness practice is significant and should be observed and accepted. Bishop et al., states, "It is an active process in that the client chooses to take what is offered with an attitude of openness and receptivity to whatever happens to occur in the field of awareness. Thus mindfulness can be conceptualized as a process of relating openly with experience" (p. 233). Mindfulness practice is rooted in curiosity and acceptance. Some believe that mindfulness practice results in relaxation. While relaxation may be experienced, it is not the goal. True mindfulness is practiced without expectation, and without an agenda. Mindfulness is about letting go of those expectations and experiencing what the current moment has to offer (Kabat-Zinn, 1993; Bishop et al., 2004).

Mindfulness-based interventions in practice.

To many individuals the concept mindfulness, in the context of mental health treatment, is a new or foreign topic. Thankfully mindfulness-based interventions often start with education. Teaching clients the core principles of mindfulness and how it will

be incorporated into their treatment. Clinicians should educate clients about what they can expect as they begin their mindfulness practice, sharing common challenges and tips for learning mindfulness techniques (Brown, Marquis & Guiffrida, 2013). It is highly recommended that clinicians who use mindfulness-based interventions have a regular and personal mindfulness practice themselves. A personal practice will allow the instruction to be genuine; it will also allow the clinician to be a resource for those they work with (Kabat-Zinn, 2003; Sipe & Eisendrath, 2012). A therapist's personal mindfulness practice can have a positive impact on clients, even if the clients are not practicing mindfulness themselves (Grepmaier et al., 2007; Brown, Marquis & Guiffrida, 2013).

According to Burke (2009), the most commonly used mindfulness-based interventions in clinical practice are MBRS, MBCT, dialectical behavior therapy (DBT), and acceptance and commitment therapy (ACT). Burke goes on to explain that MBSR and MBCT incorporate meditation practice into the intervention while DBT and ACT teach non-meditation based mindfulness skills (2009).

Treatment Interventions and Their Effectiveness

Four million children and adolescents are diagnosed with a serious mental health disorder in American (The National Alliance on Mental Illness, 2010). When researching the effectiveness of MBRS and MBCT it is important to understand the effectiveness of other interventions in treating similar clinical symptoms. Having an understanding of the effectiveness of other treatment interventions will allow for a more thorough evaluation when comparing other interventions to MBST and MBCT. This information will aid families and individuals in choosing the most appropriate intervention for their situation. Below will be a brief description of different treatment interventions, as well as

information related to the population the intervention is designed serve, and it effectiveness.

In an effort to serve and treat those children and adolescents there are many interventions or treatment options available. CBT, family focused therapy, interpersonal therapy, DBT, and psychodynamic therapy are common treatment modalities for individuals with a mental health diagnosis. Some of these treatment options are used in combination with medication. While the treatments above treat adults, they can be modified for the use with children and adolescents (National Institute of Mental Health, n.d.). Of the above-mentioned interventions, DBT is the method that incorporates some form of mindfulness.

CBT is a combination of cognitive therapy and behavior therapy. The focus of CBT is to help the client identify unhealthy or undesirable thoughts and adapt the way the client feels, or what they believe about those thoughts. The desired effect is that changing how the client feels about their thoughts will impact their behavior in a positive manner. This intervention requires active involvement from both the client and the therapist. CBT has been found effective in the treatment of depression and anxiety. It has also been found effective in treating children and adolescents with traumatic histories. With a combination of a mood stabilizer, CBT has been found effective in treating bipolar (National Institute of Mental Health, n.d.).

A popular and effective treatment for Borderline Personality Disorder (BPD) is DBT, a form of CBT. DBT was created by Marsha Linehan, PH.D in the early 1990's and has been found effective in treating individuals with BPD. DBT involves the validation of a client's feelings and behaviors. In DBT the therapeutic relationship is

especially important. In combination with validation the therapist will help teach clients alternatives to unhealthy or maladaptive behaviors. DBT uses four different modules, mindfulness, distress tolerance, emotional regulation, and interpersonal effectiveness to teach core skills. Within each module there are subcategories used to provide a foundation for the overall module (Read, 2013).

Interpersonal therapy (IPT) is often used for individuals with depression, Gerald Klerman and Myrna Weissman developed it in the 1980's. IPT attempts to improve communication and the individual's ability to relate with those around them. IPT treatment helps individuals identify not only undesired emotions, but triggers as well. It also helps teach the individual to identify maladaptive interactions. The role of the therapist is to help teach the individual how they can act out their feeling or emotion in a productive manner. When combined with medication, IPT has been found effective for the treatment of both bipolar disorder and depression (National Institute of Mental Health, n.d.).

Family-focused therapy was developed to treat individuals with bipolar disorder. As the name suggests, there is heavy involvement by the individual's family. Family is often a part of sessions with the individual. Family focused therapy operates with the belief that a person's success is greatly influenced by their relationship with their family. The therapist will likely educate the family about the individual's diagnosis and help the family to see how they can respond to the individual in a helpful and effective manner. The therapist also pays special attention to the family members and their feelings in an effort to help prevent burnout of family members. Family focused therapy has been found

effective in preventing relapses and maintaining stabilization (National Institute of Mental Health, n.d.).

Psychodynamic is a treatment with a rich history. The National Alliance on Mental Illness (NAMI) explains that its methods have changed since its development. Traditional psychodynamic interventions were connected to the psychoanalytic belief that a person's behavior is impacted by their unconscious self and their personal history. NAMI states that more current psychodynamic interventions focus on assisting individuals in improving their self-awareness and understanding the motivations behind their behavior (n.d.). Often when psychodynamic is used today it is used without the principles of psychoanalytic theory. A goal of psychodynamic therapy is to help the individual consider their unconscious feeling and motivations. When those feelings and motivations are identified, the individual can begin to reflect on how said feelings and motivations affect their behavior. The goal is to help the client develop a greater self-awareness. While there is some mixed research, general psychodynamic therapy is believed to be as effective as other psychotherapies (National Institute of Mental Health, n.d.).

The interventions above have shown success in treating certain individuals or certain diagnoses or symptoms. While this is true there are different benefits and strengths of MBSR and MBCT the other interventions lack. The goal of CBT is to change an individual's belief about their thoughts and feelings (Beck, 2011). MBSR and MBCT instead encourage a non-judgment approach to an individual's feeling, what they are feeling or thinking is not wrong or bad, it just is. The focus of MBCT is to change the relationship between an individual's thoughts and their reactions to said thoughts (Kuyken et al., 2010).

DBT does incorporate mindfulness practice, but early on there is a high level of involvement from the therapist to support the individual and to provide encouragement (National Institute of Mental Health, n.d.). In contrast, MBSR and MBCT encourage an individual's independent practice; the therapist provides guidance in an effort to help the individual learn the skills needed to be independent in their personal practice (Kabat-Zinn, 2003; Sipe & Eisendrath, 2012). IPT aims to improve communication and how an individual acts out their thoughts and feelings; MBCT and MBSR focus on helping an individual approach those feelings without judgment and reduce their reactivity to their feelings and emotions (Kuyken et al., 2010; National Institute of Mental Health, n.d.).

MBCT helps individuals learn that physical feelings, emotions, and thoughts are fleeting. Individuals learn that a certain thought or feeling is not reflective of them as a person, but instead just a thought or feeling in that moment. MBCT teaches individuals the skills to sit with, accept, and let go of uncomfortable experiences, instead of repressing or hiding from them. Individuals learn not to engage or ruminate on feelings, thoughts, or experiences. Individuals are taught to approach their experiences with curiosity and acceptance (Kuyken et al., 2010; Sipe, Eisendrath, William & Kuyken, 2012).

MBSR and MBCT are time-limited interventions, commonly eight weeks. In that time the interventions strives to teach individuals the importance of developing and continuing a personal mindfulness practice that can be continued throughout their life. A personal mindfulness practice can change a person's relationship with their thoughts and experiences. It helps individuals develop the skills to choose how they respond to the world around them compared to just reacting. Furthermore, it may be possible to pair

MBSR or MBCT with other treatments or interventions (Kabat-Zinn, 2003; Sipe & Eisendrath, 2012; Williams & Kuyken, 2012).

Mindfulness-Based Stress Reduction

Jon Kabat-Zinn at the University of Massachusetts developed MBSR in 1979. MBSR was developed with a dual purpose to be “a training vehicle for the relief of suffering” and to become a model of practice that could be used in other settings and facilities (Kabat-Zinn, 2003 p. 148). MBSR educates people about how they can take responsibility for their wellness, and how they can live their lives more fully (Kabat-Zinn, 2003, Dobkin, 2007). Many programs have based their model of practice after MBSR and have applied said models to work with a number of different populations in a number of different settings (Wiess & Hickman, n.d.).

MBSR is an 8-week group program. When it was first created it was meant to be paired with an individual’s medical treatment (Sipe & Eisendrath, 2012, Williams & Kuyken, 2012). Each session is typically two and half hours in length, with group sizes varying from ten to forty participants. Many MBSR programs encourage roughly forty-five minutes of daily practice outside of the program. The daily homework allows participants an opportunity to apply the different techniques to their everyday life. It also provides participants a chance to explore and tailor their individual practice based on their individual preferences and needs (Grossmann et al., 2004).

Sibinga et al. (2011), discusses the structure of the MBSR program. Each MBSR program should include three different aspects. The first is education about a variety of different mindfulness practices. The second is the instruction and practice of the different methods. Lastly, MBSR should offer time for group members to share about their

experience practicing and applying the techniques in their daily life. The group sharing time is also an opportunity for the group to share and discuss barriers to practice and to help one another find solutions.

Mindfulness-Based Cognitive Therapy

Developed by Zindel Segal, Mark Williams, and John Teasdale in the 1990's, MBCT was created to prevent depressive relapses in individuals who had recovered from a depressive episode (Kayken, Watkins, Holden, White, Taylor, Byford, Evans, Radford, Teasdale & Daleish, 2010; Williams & Kuyken, 2012). MBCT was adapted from MBSR, and the original MBCT manual was published in 2002 (Sipe & Eisendrath, 2012; Williams & Kuyken, 2012). MBCT creators believe that individuals who have suffered from a depressive episode are at high risk for a depressive relapse. The belief is related to a common thinking pattern among individuals with a history of depressive episodes. According to Williams and Kuyken, "there is evidence that even after recovery from an episode of depression, people remain vulnerable in that a relatively small change in mood can result in a large escalation of negative thoughts" (2012, p. 489).

As discussed above, the concept of mindfulness is related to non-judgment and experiencing the present moment. MBCT helps individuals learn that physical feelings, emotions, and thoughts are fleeting. Individuals learn that a certain thought or feeling is not reflective of them as a person, but instead just a thought or feeling in that moment. MBCT teaches individuals the skills to sit with, accept, and let go of uncomfortable experiences, instead of repressing or hiding from them. Individuals learn not to engage or ruminate on feelings, thoughts, or experiences. Individuals are taught to approach their experiences with curiosity and acceptance (Kuyken et al., 2010; Sipe, Eisendrath,

William & Kuyken, 2012). This intervention is effective as it teaches individuals to retrain their reactions to their experiences. The skills learned in MBCT allow individuals to “more consciously choose those thoughts, emotions, and sensations they will identify with, rather than habitually reacting to them” (Chambers, Gullone, & Allen, 2009; p. 569). MBCT incorporates some of the teachings of cognitive behavior therapy (CBT). Like CBT, MBCT identifies the connection between thoughts and the individual’s beliefs about themselves. As stated above, MBCT does not encourage an individual to change their thoughts, like CBT. Instead MBCT works to change the relationship between an individual’s thoughts, emotions, and physical feelings (Williams & Kuyken, 2012).

MBCT is structured as an 8-week group program, roughly two hours each week. Along with a group program, individuals are encouraged to practice mindful-based activities each day. This homework is vital to MBCT (Sipe & Eisendrath, 2012; Williams & Kuyken, 2012). Initial sessions involve psychoeducation surrounding mental health concerns experienced by the individual participants and guided mindfulness-based practices (Williams & Kuyken, 2012). “Instruction consists of various formal and informal meditation practices, including guided body scans sitting and walking meditation, mindful movement, 3-minute breathing spaces, and focused awareness on routine daily activities” (Sipe & Eisendrath, 2012; p. 64). As the program progresses participants are encouraged to create a personal and independent practice that they can maintain once the program is complete (Sipe & Eisendrath, 2012).

Effectiveness With Other Populations

Both MBCT and MBSR have been studied in an effort to determine the effectiveness in treating clinical symptoms and improving one’s well being. MBCT was

developed to reduce the relapse of depressive episodes in individuals with a history of depressive episodes. MBCT has been found effective in reducing the relapse of depressive episodes (Williams & Kuyken, 2012). Williams and Kuyken (2012), found a 44% reduction in depressive relapses for individuals with three or more previous episodes when compared to the treatment as usual. MBCT effects were found to be similar to that of a low dose antidepressant. In a review of six randomized controlled studies individuals who received MBCT were 38% less likely to have a depressive relapse when compared to the control group (Piet & Hoougaard, 2011 as cited in Brown, Marquis, & Guiffrida, 2013). Kuyken et al., found that MBCT was linked to increases in individuals' feelings of self-compassion (2010).

According to findings from Grossman, Niemann, Schmidt, & Walach (2004), MBSR can be a valuable intervention for a number of chronic disorders as it may improve an individuals' ability to cope with general stress, and the stress of more serious conditions. "Improvements were consistently seen across a spectrum of standardized mental health measures including, psychological dimensions of quality of life scales, depression, anxiety, coping style and other affective dimension of disability (Grossman et al., 2004; p. 40). In addition to psychological and mental improvements, MBSR has been found effective in addressing physical concerns. Both Grossman et al., and Nyklicek, Mommersteeg, Beugen (2013), found that MBSR could be effective in addressing and individual's physical well being. Nyklicek et al. (2013), found that the treatment group of individuals who received MBSR intervention had a greater decrease in blood pressure levels from pre- to post-intervention. Furthermore, the treatment group reflected a slightly decreased response to stress compared to the control group post-intervention. The

results of both studies compared to Carmody and Baer's (2008) results, finding MBSR and formal meditation practice reduced feelings of stress and anxiety. Results also found an increase in feelings of well-being.

Conceptual Framework and Considerations for Application with Adolescents

According to Broderick and Jennings (2012), adolescence is a time when the brain undergoes significant changes, in both structure and function. During this time adolescents have been found to be more reactive to their emotional experiences. In adolescents a portion of the above mentioned reactivity occurs in the limbic region of the brain. The limbic region of the brain is activated when a person feels threatened and is attempting to manage fear. The frontal and parietal cortices are not fully developed and are undergoing changes during adolescence; this area of the brain is where executive functions are processed. Broderick and Jennings state, "A peak in gray matter volume at puberty is followed by a gradual decline as the cortex is fine tuned through synaptic pruning in areas that play a role in judgment, impulse control, planning, and emotional regulation" (2012, p.113). As discussed above, a regular mindfulness practice, taught by both MBSR and MBCT, aims to reduce an individual's reactivity. Regular mindfulness practice helps to increase individuals' self-acceptance and ability to thoughtfully choose their reaction to any given emotion or experience (Chambers, Gullone, & Allen, 2009).

The goals of MBCT and MBSR make both interventions ideal for work with adolescents. It is especially true for adolescents with a mental health diagnosis who struggle to regulate their emotional and behavioral responses. MBSR and MBCT can teach skills to accept and regulate emotions and thoughts, without judgment (Kabat-Zinn, 1993; Bishop et al., 2004). Those skill may allow one to feel more in control of

themselves when they are choosing how to respond and behave to a certain experience (Chambers, Gullone, & Allen, 2009). This will help adolescents become more successful in their environment by teaching skills that can be used in adolescents through adulthood.

As outlined above, there are a number of potential benefits to MBSR and MBCT and its application to work with adolescents. MBSR and MBCT skills do not only apply to specific behaviors and symptoms. Instead, they also offer an individual the chance to change their relationship with their thoughts, as well their responses to the world around them (Williams & Kuyken, 2012). Once the skills and techniques have been taught the skills can and should be practiced on a regular basis. The skills and methods can be practiced without the assistance of a therapist (Sipe & Eisdendrath, 2012). This is ideal as a practice can be utilized at any desired time. An individual does not have to wait for an appointment with their therapist; they can simply utilize a skill or technique at the moment when they need it. As MBSR and MBCT hold the possibility of serving a number of different populations, it is ideal to review the current research on its effectiveness in work with adolescents who present with clinical symptoms and maladaptive behaviors.

Method

The following methods section will detail the strategies and methods in which data will be collected, recorded, abstracted, and analyzed for this systemic review. The data collected will be analyzed in order to make an educated determination regarding the research question being studied, the effectiveness of MBCT and MBSR interventions in reducing clinician symptoms in adolescents.

Data Collection and Inclusion Criteria

This study is a systematic review of relevant literature and data. In an effort to gather relevant studies to include in the data set, certain inclusion criteria were established. Each study to be considered will be subject to the inclusion criteria. The criterion includes using only peer reviewed and published studies in the data set. Only studies using a quantitative design will be included.

Only studies that address the effectiveness of either or both MBCT and MBSR will be included. The purpose of this study is to examine the effectiveness of MBCT and MBSR as viable treatment method for adolescents. As a result only studies with data specific to individuals aged 13-21 years old will be included. Only studies that address the results of MBSR and MBCT at impacting maladaptive behaviors and clinical symptoms will be included. In an effort to include current and relevant data in the data set studies completed before 2000 will not be included. Furthermore, only studies published in English in the United States will be included. If a study did not meet the inclusion criteria, it will not be included in the data.

Data Collection Strategy

A number of web-based databases will be used to search for studies that are applicable to the study. Databases that are available via Saint Thomas and Saint Catherine library will be utilized. Google scholar will also be used to locate relevant studies to include in the data set. If an article is located using Google scholar, and not available without a fee, the article would be searched for in the Saint Thomas and Saint Catherine's library databases. The following is a list of the databases that will be searched.

- Family Studies
- Social Work Abstracts
- Brian and Human Behavior
- Psychartyonline
- SocINDEX
- PubMed
- Research Gate
- Child Development and Adolescent Studies
- PsycNET

A number of search words and word combinations will be used in an effort to find studies that will meet the inclusion criteria. The list below includes the search words and combinations that will be used for the search.

- Children, mindful based intervention, mental health, mindfulness
- Youth, mindful based intervention, mental health, mindfulness
- Adolescents, mindful based intervention, mental health, mindfulness
- Teen, mindful based intervention, clinical, mindfulness
- Children, mindful based intervention, clinical, mindfulness
- Youth, mindful based intervention, clinical, mindfulness
- Adolescents, mindful based intervention, clinical, mindfulness
- Teen, mindful based intervention, clinical, mindfulness
- Youth, mindful, mental health
- Children, mindful, mental health
- Adolescents, mindful, mental health
- Teen, mindful, clinical
- Youth, mindful, clinical
- Children, mindful, clinical
- Adolescents, mindful, clinical
- Teen, mindful, clinical
- Youth, behaviors, mindfulness interventions
- Children, behaviors, mindfulness interventions
- Adolescents, behaviors, mindfulness interventions
- Teen, behaviors, mindfulness interventions
- Youth, maladaptive behaviors, mindfulness interventions
- Children, maladaptive behaviors, mindfulness interventions
- Adolescents, maladaptive behaviors, mindfulness interventions
- Teen, maladaptive behaviors, mindfulness interventions
- Children, mental health, MBCT, MBSR
- Adolescents, mental health, MBCT, MBSR
- Youth, mental health, MBCT, MBSR
- Teen, mental health, MBCT, MBSR
- Children, clinical, MBCT, MBSR

- Adolescents, clinical, MBCT, MBSR
- Youth, clinical, MBCT, MBSR
- Teen, clinical, MBCT, MBSR
- Children, maladaptive behaviors, MBCT, MBSR
- Adolescents, maladaptive behaviors, MBCT, MBSR
- Youth, maladaptive behaviors, MBCT, MBSR
- Teen, maladaptive behaviors, MBCT, MBSR
- Children, target behaviors, MBCT, MBSR
- Adolescents, target behaviors, MBCT, MBSR
- Youth, target behaviors, MBCT, MBSR
- Teen, target behaviors, MBCT, MBSR
- Youth, MBCT, MBSR
- Children, MBCT, MBSR
- Adolescents, MBCT, MBSR
- Youth, MBCT, MBSR
- Teen, MBCT, MBSR

Studies will be evaluated to determine if the study will be included. The first evaluation will occur by reviewing the study's abstract. If the abstract indicates the study will not meet inclusion criteria it will not be reviewed any further; the rejected study will be recorded as well as the reasoning for its rejection. Each study evaluated for inclusion in the data set will be recorded. If a study is rejected the rejection and the reason for rejection would be recorded.

Furthermore, a formalized system for gathering data will be necessary to ensure consistency. The Mindful Based Intervention Data Abstraction form (appendix A) was adapted from the SFBT data abstraction.doc found in the Social Work Research section of the Saint Thomas blackboard site. Each study that will be considered for the data set will be compared to the abstraction form and its many items. The abstraction form includes the inclusion criteria and other related items in an effort to organize and evaluate the information and data.

Data Abstraction and Data Analysis

It must be decided what information will be taken from each study and used in the data set in order to determine the effectiveness of MBCT and MBSR interventions in reducing clinical symptoms in adolescents. Items on the abstraction form were made up of areas of information and data that will be included in each study. Information about each study's intervention will be gathered. Only quantitative studies that include data on the effectiveness of MBSR and or MBCT intervention will be included in the data. Beyond the intervention type, particular information will be gathered regarding the specific mindful based techniques used in the intervention when possible, for example, meditation, deep breathing, body scanning, and etc. Furthermore, information regarding other interventions used, not MBI, like medication or treatment as usual will be documented.

The data abstraction form will note if a study cited mindfulness based literature and the level of intervention. The form will document if a study includes a control group. Information about the sample will be gathered, for example, sample recruitment, sample size, demographic information, and selection criteria. If there is a control group, information about the intervention or treatment received by the control group will be documented on the data abstraction form. The study's hypothesis or desired outcome will be noted and compared to the actual results. How the information and data is collected, and the time period of data collection, will be noted. Finally, the results for each study will be documented.

The data analysis form will be completed for each study included. The form will record the data that will be included in the data set. The form will be used to analyze

each study. Some of the information included on the data analysis form is intentionally repetitive when compared to the data abstraction form. The abstraction form will serve as a quick reference used to help organize the findings and discussion section of this paper.

The information that will be collected from each study and recorded on the form will include what intervention was applied in that specific study, MBSR, MBCT, or both. The analysis form will document the characteristics of the sample population and the specific mindfulness methods included in the intervention. If a control group was used in a study, characteristics of the control will be recorded as well as the treatment received by the control group. The method in which the data was collected, along with when the data was collected, will be documented on the analysis form. Finally, the findings, and the limitations, of a study will be documented. Once the findings of the data set are documented, a thorough evaluation of the data will be completed. The results of the evaluation will be compiled in a summary. The summary will detail the findings of this research and if, based on the data collected, MBSR and MBCT is or is not effective in reducing clinical symptoms in adolescents.

Strengths and Limitations

Each study design has strengths and limitations. Using the appropriate study design is a critical aspect of formulating a research plan. Some designs are better suited to address specific types of research questions. After thorough consideration, a systemic review appeared to be the most appropriate study design to address the research question being asked in this study, the effectiveness of MBCT and MBSR interventions in reducing clinical symptoms in adolescents.

While a systematic review appeared to be best suited for this question, some limitations to the study design as well as limitations specific to this particular study remain. For example, limitations of this particular study are publication bias, summary data instead of raw data, only quantitative research, limitations related to time frame, English only studies, and only studies conducted in United States. Many of the limitations listed above are due to inclusion criteria specific to this study. The limitations related to inclusion criteria are, only studies conducted in English and in the United States, only published studies from 2000 and after, summary data, and only research that has been peer reviewed, and is of quantitative study design. The only limitation that is specific to this study, and not related to inclusion criteria, is the time frame limitation. The time available to formulate and begin this study was limited to roughly nine months. Due to the time limitation just ten to fifteen studies will be included in the data set. Due to the number of studies included it is unlikely that all available data that addresses the research question will be included and reflected in this study.

As stated above a systematic review has been determined to be the most appropriate study design. There are a number of strengths to this study design. Historically systematic reviews are cost effective, time friendly, and limit bias due to the inclusion criteria. Strengths specific to this study are plans to search databases from a number of different disciplines, outside of social work (i.e. PsychNET and PubMed). Another strength is including studies that report data on MBSR and MBCT specifically, and not including data that reports on just similar interventions or mindfulness-based interventions. The inclusion criteria does not dictate the sample size data, and as a result, varying sample sizes will be included in the data set. Finally, a systematic review is an

ideal study design when an intervention's effectiveness is being questioned. A systematic review allows one to review and compare a number of different studies and uses the data from those multiple studies to conclude on an intervention's effectiveness.

Findings

The purpose of this systematic review is to evaluate available studies regarding the use MBCT and MBSR as an intervention for adolescents with clinical symptoms. The data set includes studies collected from December 2014 to March of 2015. As planned the search for these studies was completed using online databases and the google scholar search engine. The following databases were utilized in the search: Social Work Abstracts, SOCindex, Child Development and Adolescent Studies, Family Studies Abstracts, PsycINFO, PubMed, and Academic Search Premier. The following search words were used, in a number of combinations, in each data based explored: youth, adolescent, child (children), young adults, MBCT, MBSR, mindfulness-based interventions, mindfulness, behaviors, symptoms, clinical symptoms, and maladaptive behaviors.

The data abstraction form discussed in the methods section was determined ineffective for organizing the relevant data from each study for the purpose of this review. The primary issue with the form was that it did not allow sufficient space for the results and discussion findings to be documented. Furthermore, as the review of the data began, information that was pertinent to the review was not included on the form. For example, the symptoms or behaviors that were being evaluated were critical for this review, and there was not an organized or practical way to document that data on the abstraction form.

For data abstraction, an Excel book was created. Each numbered row represented a study included in the data set. There were six tabs included in the book. The tabs included were the article key, sample, intervention/data collection, results, discussion, and symptoms. The article key tab listed what number corresponded to what study. The sample tab included information about the target symptoms noted by the study, the sample demographics, and miscellaneous information about the sample. The next tab was the intervention/data collection tab. This tab included information about the studied intervention and the method used for data collection. The results tab included neutral, positive (findings in support of the effectiveness of MBI), and negative (findings not in support of the effectiveness of MBI). The discussion tab was designed that same way as the results tab. The symptom tab included the evaluated symptoms and what results were found and from what study. This tab was necessary for the evaluation portion of this review.

Overview of Research Literature

Expanding the inclusion criteria was a vital aspect of data collection for this systematic review. A sufficient number of articles to include in the dataset were not found with the planned inclusion criteria, even so with the expanded criteria. The inclusion criteria were expanded to include studies from outside of the United States as well as studies that were qualitative, quantitative, or mixed methodology. Once the criteria were expanded, the dataset included 12 studies. While the dataset contains 12 studies, just 8 studies met the inclusion criteria. The other four studies were included as they were still relevant to the effectiveness of mindfulness-based interventions.

Despite the expanded inclusion criteria still a small number of articles were located for the dataset. A number of studies were located that did not meet the inclusion criteria, but included information that appeared valuable. It was decided to include the results of those studies in this review. The information was valuable as the findings of the study spoke of the subject matter being evaluated. If the age of the sample was outside the inclusion criteria, it spoke to a sample of children or young adults. The results of those studies should be included due to the limited amount of data is available for 13-21-year-olds. The other studies that were included that did not meet the inclusion criteria were studies that did not have an MBSR or MBCT based intervention. Instead, the intervention was identified as mindfulness-based. While the intervention was not either MBSR or MBCT, the study spoke to how a sample responded to mindfulness-based interventions which are certainly applicable to this review. Some studies included in the data set may not include a sample presenting with clinical symptoms or behaviors. It was determined that the information presented in those studies should be considered when determining the effectiveness of MBCT and MBSR interventions in reducing clinical symptoms in adolescents. This should be noted, as further research regarding MBSR and MBCT must be for use with adolescents.

Clinical Symptoms

A sample that included adolescents with clinical symptoms was one of the inclusion criteria for this review. This is also a vital aspect of this review as the purpose of the current review is to evaluate the effectiveness of MBSR and MBCT in reducing clinical symptoms in adolescents. Of the studies in the data set 11 included a sample that presented with clinical symptoms and or maladaptive behaviors. For the study to be in

this theme, the population in the studied samples had to have difficulties managing their emotions, disability, mental health diagnosis, or behaviors. The studies represented here meet those criteria. The sections below will report the findings of the review of the 11 articles according to the intervention applied, MBSR, MBCT, and other mindfulness-based interventions.

Mindfulness Based Stress Reduction

Of the dataset for this review four studies used either an MBSR intervention or an intervention adapted from or based on, MBSR techniques and principles. Of those four studies, two did not include a sample of identified clinical symptoms or maladaptive behaviors (Edwards, Adams, Waldo, Hadfield, & Biegel, 2014, Sibinga, Kerrigan, Stewart, Johnson, Magyari, & Ellen, 2011). As those studies did not include a sample of identified clinical symptoms or maladaptive behaviors, the findings from those studies will not be reported here. The two studies remaining (Biegel, Brown, Shapiro & Schubert, 2009, Tan & Martin, 2012) included both MBSR interventions and a sample population with maladaptive behaviors. While both studies included a sample population with targeted symptoms or behaviors, and both used MBSR, the data gathered by the two studies is somewhat different.

The Tan & Martin (2012) sample included adolescents 13-17 years old with moderate to severe clinical symptoms. The study was conducted in Australia and was a single group study. Biegel et al., (2009) included a sample 14 -18 years old adolescents that were, or were previously, under psychiatric care. Biegel et al., (2009) used a randomized study that included a wait list, treatment as usual (TAU), group. Both studies collected data at pretest, posttest, and follow up. Both studies used assessment surveys to

collect data though the surveys used were different in each study. Furthermore, Tan & Martin (2012) included parental input by requesting that parents complete assessments surveys regarding their perceptions of their child's symptoms. The two studies explained above make up the MBSR section of this review.

Tan & Martin (2012), reported more specific results compared to Biegel et al., (2009). Tan & Martin (2012) found significant improvements in psychological distress from pretest to follow up, and from posttest to follow up. Participants' level of mindfulness was assessed; significant increases in mindfulness from pretest to posttest, and from pretest to follow up was found. Psychological inflexibility reduced significantly from pre test to follow up, and from posttest to follow up. Results of the Tan & Martin (2012) study found parental reports of significant improvement from pretest to follow up, and from posttest to follow up on the Child Behavior Checklist (CBCL). From posttest to follow up significant improvements were not found for participants' self-esteem, mindfulness, and psychological inflexibility.

Biegel et al., (2009) reported more general results compared to Tan & Martin (2012). Biegel et al., (2009) reported on participants' global assessment of functioning (GAF) scores and clinically significant improvements. However, more specifically participants reported strong significant improvement over time in regards to perceived stress and anxiety. Biegel et al., (2009) reported significant improvements over time for the treatment group, when compared to the wait list TAU group, regarding the participants' GAF score. This strong significant improvement was between pretest and posttest and pretest and follow up. Regarding diagnostic improvement, 54% of the treatment group experienced improvement, compared to the TAU group, which

experienced 2.2% improvement. Biegel et al., (2009) reported a relationship between one's sitting practice and improvements; "more days of sitting practice predicted an increase in GAF score and declines in SCL-90 depressive symptoms (and anxiety) from baseline to follow up" (2009 p. 863). It is believed that Biegel et al., is referring to formal sitting meditation when stating "sitting practice".

While the Tan & Martin (2012) and Biegel et al., (2009) gathered different data, both considered self-esteem and found significant improvements in the participants' self-esteem. Both reported that the studied intervention appeared to be promising and reliable for treatment with adolescents (Biegel et al., 2009 & Tan & Martin, 2012). Tan & Martin (2012) reported the results of their study suggested that adolescents can decrease their psychological distress by using mindfulness practices and methods of treatment. Biegel et al., (2009) reported uncertainty regarding the reliability of the results from the treatment group when compared the TAU group.

Mindfulness Based Cogitative Therapy

Of the dataset for this review six studies used either an MBCT intervention or an intervention adapted from or based on, MBCT techniques and principles. Of those six studies, all included a sample that presented with clinical symptoms or maladaptive behaviors. Much like the findings using MBSR as the identified intervention, studies using MBCT also gathered overlapping, but different, data.

A brief summary of the studies included in this section is needed. The study conducted by Haydicky, Shecter, Wiener & Ducharme (2015) included a sample of 18 adolescents, 13 – 18 years old, with a diagnosis of ADHD. The data collected in this review was gathered from the adolescents and their parents. Data was collected at

baseline, pretest, posttest, and follow up (Haydicky et al., 2015). The Ames, Richardson, Payne, Smith & Leigh (2014) study represented a small sample of seven, intent to treat (ITT), female participants aged 12 – 18 years old. All the participants had previously received treatment for either low mood or mood disorder and continued to experience symptoms. Data was collected at pretest, posttest, and follow up (Ames et al., 2014).

The sample included in Sinha & Kumar (2010) study included participants that presented with emotional problems, such as depression, anxiety, internalizing problems, hopelessness and perceived stress. Participants were 13 -15 years old, and all had a parent diagnosed with HIV/AIDS, all participants were HIV-negative. Data was collected at pretest and posttest. (Sinha & Kumar, 2010). The study completed by Bogels, Hoogstad, Van Dun, Schutter, & Restifo (2008) represented participants, aged 11 -18, with diagnosis of ADHD, Oppositional Defiant Disorder (ODD), Conduct Disorder (CD), or Autism Spectrum Disorder (ASD) with externalizing symptoms. The study was conducted in the Netherlands. Parents of the adolescents were also offered treatment, and two parents elected not to receive treatment. Data was collected at waitlist, pretest, posttest, and follow up (Bogels et al., 2008).

The study completed by Milani, Nikmanesh, & Farnam (2013) included a sample from a juvenile correction facility in Zahedan, Iran. The study's purpose was to determine the effectiveness of MBCT in reducing aggression amongst the sample of adolescents. Milani et al., (2013), utilized a wait list group for comparison; the wait list group received treatment once the study was completed. Data was collected at pretest, posttest, and follow up. Finally, the study completed by Semple, Lee, Rosa & Miller (2010) included a sample of 9-13-year-olds. This sample was somewhat unique as its

primary focus was on reading difficulties. This review was included as “most [the sample] displayed some indicators of associated stress or anxiety” (Semple et al., 2010 p. 220). The study used a wait list group for comparison. Parents completed the (CBCL), and data was collected at pretest, posttest, and follow up. The studies explained above make up the MBCT section of this review.

As there are six studies being reviewed for the effectiveness of MBCT in reducing clinical symptoms, there are a number of symptoms and behaviors evaluated in this section. For instance some of the symptoms and behaviors that were evaluated were, attention and ADHD, awareness and level of mindfulness, relationship skills, ODD and CD behaviors, self-regulation, mood, and self-esteem were evaluated, to name a few. Data was measured differently across the six studies. Some studies reported data as significant or nearly significant, and others simply reported improvement or no improvement. If both adolescents and parents were evaluated studies specified who reported the improvement. This review will differentiate between the different levels of measurements when possible.

In regards to attention, impulsivity, and ADHD, Bogels et al.,(2008), Semple et al., (2010), and Sinha & Kumar, and Haydicky et al., (2015) all collected data related to these symptoms. Bogels et al., (2008), Semple et al., (2010), and Sinha & Kumar (2010) reported findings that suggested significant improvement in attention or ADHD symptoms as reported by the adolescents. Haydicky et al., (2015) reported significant improvement in attention as reported by parents; however, no improvement was found in relation to impulsivity. Sinha & Kumar (2010) reported somewhat conflicting data. The Youth Self Report (YSR) Syndrome Scale did not find significant improvement on

attention scale; however, the YSR DSM-Oriented Scale found significant improvement on Attention Deficit Hyperactivity scale (Sinha & Kumar, 2010).

In regards to depression and depressive symptoms, Haydicky et al., (2015), Ames et al., (2014), and Sinha & Kumar (2010) reported findings. All three studies reported significant improvement of depression and depressive symptoms as reported by the adolescent. Sinha & Kumar (2010) reported significant improvement regarding withdrawn/depressed and anxious/depressed findings on YSR Syndrome Scale. In addition, Sinha & Kumar (2010) reported significant improvement on the Children's Depression Inventory (CDI) in regards to self-esteem, interpersonal problems, negative self-talk, and somatic complaints scale scores, as reported by the adolescents.

These six studies, three studies reported to MBCT effect on anxiety. Haydicky et al., (2015), Sinha & Kumar (2010), Semple et al., (2010) reported findings for anxiety symptoms. Semple et al., (2010) found reduction in anxiety across both the experiential group and the wait list group, as a result, it cannot be that the reduction is related to the MBCT intervention. Studies done by Haydicky et al., (2015), and Sinha & Kumar (2010) both reported significant improvements as reported by the adolescents.

As more general or overall evaluation, externalizing and internalizing problems were considered in four studies. Both Haydicky et al., (2015) and Bogels et al., (2008) found that adolescents reported significant improvement in internalizing problems, results that contrasted with parental reports that found no improvement in adolescent internalizing problems. Studies from Sinha & Kumar (2010) and Semple et al., (2010) both found adolescents reported significant results in internalizing problems. Sinha &

Kumar (2010) and Haydicky et al., (2015) found no improvement in externalizing problems while Bogels et al., (2008) found significant improvement.

Aggression, hostility, behavioral problems, ODD, CD, and general rule breaking were all evaluated by studies completed by Sinha & Kumar (2010), Semple et al., (2010), Milani, Nikmanesh, & Farnam (2013), and Haydicky et al., (2015). No significant improvements were found in relation to ODD; however, Haydicky et al., (2015) found nearly significant improvements as reported by the adolescent. While significant findings were not reported, roughly “24% of adolescents moved from the clinical to the subclinical range in terms of ODD symptoms during the intervention period” (Haydicky et al., 2015, p. 88). In contrast, Sinha & Kumar (2010) reported no significant improvement in ODD and CD symptoms on the YSR DSM-Oriented Scales. Significant improvements were found related to aggression and rule breaking as reported on the YSR Syndrome Scale results. From parent reports Haydicky et al., (2015) found significant improvements in conduct problems. Aggression and hostility were reportedly improved according to Milani et al., (2013), and behavior problems were significantly improved according to Semple et al., (2010) and Haydicky et al., (2015).

Executive functioning, academic achievement, and learning problems were evaluated to determine the effects of MBCT on all areas. Haydicky et al., (2015) and Sibinga et al., (2011) reported findings related to reductions in learning problems and Haydicky et al., (2015) reported on executive functioning. According to parental reports, there were significant improvements in executive functioning and learning problems. According to Sinha & Kumar (2010), adolescents reported significant improvements in

relation to academic achievement, Semple et al., (2010) also noted improvement in relation to learning problems.

In regards to awareness, and peer and familial relationship, Haydicky et al., (2015), Bogels et al.,(2008), Ames et al., (2014) and Sinha & Kumar (2010) reported findings. Bogels et al., (2008) reported a significant improvement as reported by adolescents in awareness. Ames et al., (2014), reported comparable findings and noted improvement in awareness. Peer relationships were improved as reported by both parents and adolescents by Haydicky et al., (2015) and Sinha & Kumar (2010); findings compared, noting significant improvement. In contrast, parental reports from Bogels et al., (2008) found no improvement in peer relationships. Lastly, Haydicky et al., (2015) found that adolescents reported significant improvement in their family relationships.

There are several miscellaneous findings to report that were evaluated by just one study. The Bogels et al., (2008) study found parents reported significant improvement in adolescent self-control, and Milani et al., (2013) found improvement in participants' self-regulation. Finally, Ames et al., (2014) found improvements in adolescents' ability to relate their thoughts to their feelings, improvements in positive thinking were also reported. Ames et al., (2014) also found that after the study was completed adolescents viewed mindfulness as a tool or skill.

The clinical symptoms with the most evidence of improvement were inattention or attention, depression, anxiety, peer relationships or social skills, and internalizing problems. Clinical symptoms that reported no significant improvement were impulsivity and rule breaking. Symptoms that had just one study report improvements were hostility, aggression, hyperactivity, somatic complaints, affect problems, low mood, and negative

self-talk. Of those, aggression and hyperactivity also had one report each of no significant improvements.

Outside the Inclusion Criteria

Four studies that did not meet all the inclusion criteria have been included in this systematic review. This is due to the small sample of studies that did meet the inclusion criteria. These studies included information that was valuable to this review as the findings of the study spoke to the subject matter being studied and the research question at hand: the effectiveness of MBCT and MBSR interventions in reducing clinical symptoms in adolescents. There are three inclusion criteria that were not met by the four studies included in the dataset. To clarify, the four studies typically did not meet one inclusion criteria, not all three. First, the study may have used a mindfulness-based intervention, but it was not MBSR or MBCT. Second, the studies may have researched a sample outside the 13-21 year old criteria. Lastly, the sample studied may not have demonstrated clinical symptoms or maladaptive behaviors.

MBSR without clinical symptoms.

The studies discussed in this section are studies that evaluated MBSR as an intervention for work with adolescents. While the samples included in these two studies do not explicitly include individuals with clinical symptoms or maladaptive behaviors the results of these studies are related to more appropriate behaviors and should be considered when evaluating the effectiveness of MBSR overall in work with adolescents. The Edwards et al., (2014) study included a sample of adolescents 12 -17 years old. While the study was not developed with the intention to focus on Latino adolescents, 20 of the 24 adolescents who completed the study were Latino. The authors acknowledged a

lack of research on the effectiveness of MBSR with Latino populations. As a result, only the data gathered from Latino students was analyzed. The researchers collected data at pretest, posttest, and follow up (Edwards et al., 2014). Sibinga et al., (2011) recruited the sample from a pediatric primary care clinic. The sample was made of adolescents 13-21 years old. Four MBSR groups were formed, and two of the four groups were comprised of participants that were HIV positive. Quantitative data was gathered at pretest and posttest. A convenience sample of ten participants was created for further data collection in the form of semi-structured interviews (Sibinga et al., 2011). The two studies explained above make up the non-clinical sample section of this review.

Once again, the data gathered in this section varied a great deal between the two studies. Sibinga et al., (2011) included qualitative data and standardized assessments while Edwards et al., (2014) used only standardized assessments. Neither study found significant improvements in quality of life or anxiety. The results of the two studies contrast in regards to hostility; Sibinga et al., (2011) found significant improvement, while Edwards et al., (2014) did not. In regards to stress and perceived stress; Edwards et al., (2014) found significant improvement, while Sibinga et al., (2011) stated that participants reported improvements in physical health due to a reduction in their level of stress. Sibinga et al., (2011) also found significant improvement in general discomfort and emotional discomfort; and near significant improvements in somatization and paranoid ideation. No improvement in depressive symptoms was reported in (Sibinga et al., 2011), but significant improvement was found in Edwards et al., (2014). The findings for the semi-structured interviews in Sibinga et al., (2011) study show participants' reports of improvement in mindfulness coping skills, managing anger and conflict,

interpersonal relationships, and energy level. Furthermore, participants reported that they felt more present in the moment and were able to use mindfulness skills before beginning academic work. Participants reported better sleep hygiene and feeling more refreshed (Sibinga et al., 2011).

Mindfulness-based interventions.

The studies discussed in this section are studies that evaluated an intervention that was not MBSR or MBCT, but utilized a mindfulness-based intervention. The study completed by Coholic (2011) reported findings from a mindfulness-based art intervention that incorporated CBT. The sample was comprised of children ranging in age from eight to 12. In addition to the children, when possible the parents or foster parents participated in interviews. The interviews were held approximately two weeks after the completion of the program, and completed by 31 children and 18 parents or foster parents (Coholic, 2011).

The study by Haydicky, Wiener, Badali, Milligan, Ducharme (2012) included a sample of boys who were diagnosed with a learning disability. Some of the sample had a co-morbid diagnosis of ADHD, anxiety, or mood disorder. The sample ranged in age from 12 to 18. The intervention studied was a referred to as mindfulness martial arts. The program was 20 weeks and aimed to increase executive functioning and decrease internalizing and externalizing problem behavior in the sample (Haydicky et al., 2012).

Coholic (2011) reported, “the feedback reported above supports the group programs’ acceptability, feasibility and suitability for working with young people in need” (p. 313). However, authors also explained that the sample was easily frustrated, distracted and displayed short attention spans. Considering both comments the data

collected was generally positive. 23 children reported that they enjoyed attending the program, and 15 parents reported they observed improvement in their children's self-esteem, self-awareness, confidence, and being more comfortable with themselves (Coholic, 2011). Other themes found by authors were reports that the sample had fun, reported being more relaxed and mindful, and finally that the groups made the children feel happier. Furthermore, reports indicated an increase in the samples' self-compassion and compassion for others (Coholic, 2011). A common theme found from the children was that formal meditation practice was difficult. One child reported that he formal practice was her favorite activity; according to the author, that child was the only child who closed her eyes and followed directions during the practice (Coholic, 2011).

Haydicky et al., (2012) gathered data from both parents and adolescents. It should be noted that while the whole sample presented with a learning disability, subgroups were created according to a co-morbid diagnosis. The co-morbid subgroups were learning disability with ADHD, learning disability with inattention, learning disability with hyperactivity and impulsivity, and finally learning disability with anxiety. Parents reported significant improvements for adolescents in the ADHD subgroup in areas of conduct problems, oppositional problems. Nearly significant improvement in externalizing problems and rule breaking were reported via adolescent self-report. No significant improvements were reported in areas of executive functioning and social skills for the ADHD subgroup (Haydicky et al., 2012).

For the hyperactivity and impulsivity subgroup parents reported significant improvements in social problems and interpersonal monitoring. The authors suggested that the improvements in social skills might be related to the improvement in

interpersonal self-monitoring (Haydicky et al., 2012). Parents reported significant improvements in the area of social problems for the inattention subgroup. No significant improvements were reported for executive functioning or behavior problems. Improvement was reported for externalizing behavior (Haydicky et al., 2012). Lastly, the anxiety subgroup reported significant improvement, via adolescent report, in anxiety. No significant improvements as reported by parents for internalizing problems (Haydicky et al., 2012).

Coholic (2011) discussed the feasibility of the arts based mindfulness intervention for work with children. Generally positive responses were collected from both parents and children. Comparable to Ames et al., (2014) and Sibinga et al., (2011), Coholic (2011) found that the children struggled with the more formal mindfulness practices and recommend mindfulness activities that were interactive and engaging for the children. Haydicky et al., (2012) found significant or nearly significant improvements in many items evaluated. They did not report significant improvements in the items of executive functioning, social skills, and behavior problems.

Discussion

The findings of this review suggest that MBCT and MBRS may be effective in reducing clinical symptoms in adolescents, especially when MBSR or MBCT is paired with medication or TAU. The wide range of symptoms and behaviors that were included in the dataset were beyond what was expected. This review found that generally MBCT, MBRS, and mindfulness-based interventions were well received and well tolerated by the adolescents. No adverse findings were discovered as a result of the reviewed interventions.

Adapted or Modified Interventions

Several studies used an adaptive version of MBSR or MBCT. The adaptations were primarily to accommodate the adolescent population. A common adaptation was adapting either the length of the meetings or changing the number of meetings. For example, Edwards et al., (2014) reduced the length of each meeting from 90 minutes (standard time for MBSR and MBCT) to 50 minutes. While the length of the meetings was reduced, they continued the standard 8-week meeting schedule (2014). Semple et al., (2010) used 90 minutes meetings, but increased the number to 12 each week. Other adaptations were more related to the content of the intervention. Multiple studies reported success with brief, but more frequent, mindfulness activities to accommodate adolescents' shorter attention span. Furthermore, various studies reported adapting the mindfulness activities to be more active and engaging.

While no adverse effects were reported as a result of the interventions, a common challenge was adolescents' reports of finding it difficult to practice formal meditation. In addition to struggling with the formal sitting meditation, it was not uncommon for adolescents to report that maintaining a daily home practice was difficult. Well-received mindfulness activities were the 3-minute breaking space and everyday activities with mindfulness incorporated into the activity. Every day activities like mindful eating or walking. Coholic (2011) stated "the delivery of mindfulness via arts-based methods appears to make sense for young people in need as these children and youth may not have the abilities or skills to learn a traditional mindfulness practice based on meditation, and through no fault of their own, they also lack skills for usual talk therapies such as CBT-based methods" (p. 314). Furthermore, Coholic (2011) suggested that teaching

mindfulness methods in an engaging and non-threatening manner leads to success with mindfulness practices. Coholic's (2011) statement is certainly logical and applicable for all methods of interventions, not just mindfulness-based interventions, and logical in work with all populations, not adolescents. The findings of this review suggest that adaptations should be considered when developing an MBSR or MBCT program for use with adolescents.

Making appropriate adaptations for use with adolescents is highly suggested by this researcher. It is not uncommon for interventions that have been developed for work with adults to be adapted for work with adolescents and children; this applies to mindfulness-based interventions as well. This may be especially true when working with adolescents who have been diagnosed with ADHD or who struggle to remain on task. An adolescent with problems maintaining their attention should not be expected to practice a formal sitting meditation. This may highly influence an adolescent's thoughts and feelings regarding mindfulness practice. Adolescents may be unwilling to try more interactive or more engaging mindfulness activities because they believe other activities will be boring like the sitting meditation.

Intervention Facilitators

Practitioners are more effective facilitators in mindfulness-based interventions if they have a regular home mindfulness practice (Kabat-Zinn, 2003; Sipe & Eisendrath, 2012). Most of the studies in the data set reported that the facilitators or the leaders of the mindfulness intervention received training in mindfulness practice. Some studies had group leaders that were experienced mental health professionals, in addition to having a regular and personal mindfulness practice. Other studies spoke to a mindfulness course

that trained leaders how to incorporate mindfulness into work with adolescents and teens. Even still, some programs utilized both mental health professionals and leaders with mindfulness experience, working together to provide the intervention. Some articles did not include information regarding the background of the group leaders, and one can only speculate if they had experience with mindfulness. The inclusion of mindfulness training for the facilitators was not found to produce significantly different results across the review of the data set.

A facilitator with their own mindfulness practice will likely convey their passion for mindfulness into their work with adolescents. How is buy in influenced if adolescents can sense and see the facilitator's excitement and passion for mindfulness? It is logical to speculate that adolescents may be more likely to buy into the intervention if they can see the facilitator is experienced, knowledgeable, and believes in what they are teaching.

Significant Effects

The current review noted over 35 documented behaviors, symptoms, coping skills, and items that were included in this review. The items ranged from inattention, negative self-talk, depression, psychological inflexibility, self-regulation, self-compassion, and executive functioning to name only a few. This was not initially expected.

The purpose of this review was to determine the effectiveness of MBSR and MBCT in reducing maladaptive behaviors and clinical symptoms such as depression, anxiety, and impulsivity. A review of the literature found four studies that reported improvement in attention or inattention, and two studies reported no significant improvement. Primarily adolescent reported these improvements via self-report. One

study found parent reported improvement related to attention and one study found adolescent reported improvement in ADHD symptoms. Related to attention and ADHD are hyperactivity and impulsivity. Two studies reported on these two items. Adolescent reports found significant improvement in hyperactivity, and no significant improvement was found via parent reports. One study reported no significant improvement for impulsivity, and one found significant adolescent reported improvement. This review suggests the studied interventions may improve an adolescent's attention. More data supporting the effectiveness of mindfulness-based interventions in improving inattention and hyperactivity was expected. This is an area of study that warrants further research.

The findings of this review suggest the studied intervention is effective in reducing symptoms of anxiety and depression. Four studies found significant adolescent reported improvements in feelings or symptoms of depression. In regards to anxiety, four studies reported significant adolescent reported improvements in feelings or symptoms of anxiety and one study reported improvement. One study reported no significant improvement in anxiety symptoms in adolescents. This review suggests that the evaluated intervention may improve an adolescent's depression and anxiety symptoms.

Seven studies included in the data set reported findings in regards to behavior problems, oppositional behavior, aggression, and hostility. Three studies reported the interventions effect on oppositional behaviors. One review found significant improvements as reported by the adolescent, another found significant improvements as reported by parents, and one reported no significant improvement. Two studies found improvement regarding behavior problems; one was reported significant improvement via adolescent, and the other was reported as improvement. Two studies found parent

reported significant improvement regarding conduct problems. One study reported general improvement in aggressive behaviors. Lastly, two studies reported improvement; one significant adolescent reported general improvement, in regards to hostility. One study reported no significant improvement in regards to hostility. This review suggests that the evaluated intervention may improve adolescent conduct and behavior problems. Results of the interventions effect in reducing opposition behavior are inconclusive.

The results of this review indicate the potential for the interventions effectiveness for improving adolescents' feelings of self-esteem and self-compassion. Findings also show promise in regards to feelings of being relaxed and calm, as well as a decline in reports of stress. Three of four studies found adolescents reported significant improvement in self-esteem; the fourth study reported general improvement. Two studies reported improvement in self-compassion. Finally, five studies reported improvement related to stress and increases in feelings of being relaxed and calm. Two of those five were significant improvement as reported by adolescents.

The current review suggests that the mindfulness-based interventions may lead to increases in one's mindfulness, self-awareness, and one's ability to relate their thoughts to their emotions. Three studies reported improvements in mindfulness, of those three; one found significant adolescent reported improvement. Similar results were found in regards to self-awareness, three studies reported improvement, and one found significant adolescent reported improvement. Lastly, two studies reported improvements in the adolescents' ability to relate their thoughts to their feelings. This review found that the interventions might lead to increased mindfulness. One found mindfulness helpful and effective; however, the sample did not believe the mindfulness exercises would be

effective tools to combat their emotions when they were very upset (Ames et al., 2014). Another study found that adolescents considered mindfulness an effective tool or coping skill.

The current review found that according to adolescent reports, the interventions might have a positive impact on adolescent relationships, with both peers and their family. The current review also suggests the evaluated interventions may lead to improvements in adolescent interpersonal skills. Six studies in the data set reported improvements in adolescents' social skills and relationships with peers. Four of those six found significant improvements as reported by the adolescents. The other two reported general improvement. It should be noted that while one study found significant adolescent reported improvement, the same study found no significant improvement as reported by parents. This review found comparable results in regards to interpersonal skills. Four studies found significant improvement as reported by adolescents. Of those four studies, two of the same studies found no significant improvement as reported by parents. Finally, adolescents reported significant improvements in relationships with their families in one study, and another study found general improvements.

The review of the data set reveals inconclusive data regarding the interventions effectiveness for reducing externalizing and internalizing behaviors. In regards to externalizing behavior, two studies reported significant improvement, and one reports general improvement. Two studies reported no significant improvement. In regards to internalizing behavior, two studies found significant improvement and one reported no significant improvements. As a result, additional research is suggested in this area.

This review found potential promise in the areas of reducing learning problems. Three studies reported a reduction in adolescent learning problems. One study found significant results reported by both parents and adolescents, another found significant results reported by adolescents, one the last study reported general improvements.

Comparison to Control Groups

Four of the studies included in the data set included some form of a control group. Biegel et al., (2009) utilized a TAU treatment group compared to the TAU control group. Haydicky et al., (2012) used a treatment group and a wait list control group. Milani et al., (2013) used a treatment group compared to a control group and finally Semple et al., used a treatment group compared to a control group. Biegel et al., (2009) and Haydicky et al., (2012) findings suggest a fairly significant difference between the treatment group and the control group. Less drastic differences were reported by Milani et al., (2013) and Semplet et al., (2010).

Biegel et al., (2009) findings reported significant improvement compared to the control group in the following items: anxiety, perceived stress, self-esteem, somatic symptoms, obsessive compulsive symptoms, depressive symptoms, and interpersonal sensitivity. Significant improvement in GAF scores over time was found in the treatment group when compared to the control group (Biegel et al., 2009). Lastly, “MBSR participants were much more likely to show diagnostic improvements over the course of study” (Biegel et al., 2009, p. 862).

Haydicky et al., (2012) found significant improvements compared to the control group in a number of areas; furthermore, no significant difference was found between the two groups. For youth in the treatment ADHD sub-group, significant reductions were

found compared to the control group in oppositional problems and conduct problems. No significant difference was found between the two groups in relation to executive functioning, or social problems (Haydicky et al., 2012). Per parent reports the hyperactivity/impulsivity sub-group showed significant improvement in monitoring skills and social problems when compared to the control group, and no significant difference in executive functioning (Haydicky et al., 2012). The treatment anxiety sub-group reported significant improvement compared to the control group in areas of anxiety (Haydicky et al., 2012).

The last two studies that included a control group was Milani et al., (2013) and Semple et al., (2010). Milani et al., (2013) reported significant improvement in relation to aggression, anger, physical aggression and hostility when the treatment group was compared to the control group. No significant difference between the two groups was reported in regards to verbal aggression (Milani et al., 2013). Semple et al., (2010) found improvements in anxiety for both treatment and control group. No significant difference was found in regards to behavior problems when the two groups were compared (Semple et al., 2010).

Further research incorporating a control or waitlist group is needed to study how MBSR and MBCT compare to TAU in treating clinical symptoms in adolescents. This is especially important if practitioners wish to utilize MBCT and MBSR as a sole treatment model for addressing clinical symptoms. Without additional data to support the effectiveness of MBCT and MBSR as a single treatment model it may be wise to include TAU in tandem when developing an adolescent's treatment intervention.

Implications for Practitioners

A strong consideration for MBSR and MBCT interventions in reducing clinical symptoms in youth is that the intervention is skill based. The intervention is teaching adolescents skills to manage their behaviors or symptoms. This form of intervention differs from a medication-based intervention where adolescents are shown to depend on medication to manage their symptoms. When this thought is considered, MBCT and MBSR are opportunities to empower youth and to reiterate that they have control over how they respond to situations. MBSR and MBCT may also be a feasible intervention as this current review found that they could be effective when paired with TAU. Especially if TAU consist primarily of medication, utilizing MBCT and MBSR may be beneficial in treating clinical symptoms. Further research incorporating a control or waitlist group is needed to study how MBSR and MBCT compare to TAU in treating clinical symptoms in adolescents. This is especially important if practitioners wish to utilize MBCT and MBSR as a sole treatment model for addressing clinical symptoms.

As discussed above maintaining a home practice is an essential piece to MBSR and MBCT. Each program is traditionally eight-weeks. Without a maintained home practice, one can imagine that the potential positive effects of the intervention may start to decline. Long term follow up assessments were not completed in the studies included in this data set. Follow up was generally assessed around three months, if at all. This aspect must also be considered, as the intervention may not be ideal for an adolescent that is not interested in a continued mindfulness practice or practicing outside of therapy. This is an important factor to consider in regards to work with involuntary clients as buy in

and participation is vital to MBCT and MBSR. In those instances, MBCT and MBSR may not be ideal or effective intervention.

Conclusion

Other clinical symptoms or behaviors that could not be combined with symptoms or behaviors, and had data from just one or two studies were not reviewed above in the discussion section. It should be noted that symptoms and behaviors that could be grouped with similar symptoms and behaviors might have only one or two studies that reported data. For example, just two studies reported data on impulsivity, hyperactivity, behavior problems and relating thoughts to feelings.

While the results of this systemic review found that MBSR and MBCT can be effective in reducing clinical symptoms in adolescents further research is needed. The current review included a small sample, and further research should be pursued in regards to all discussed symptoms and behaviors. In addition, a number of the studies in the data set relied on adolescent self-assessment and how they perceive their actions and behaviors. Through data collection in future studies may include parents, caregivers, and or teachers to report their observations in regards to the effectiveness of the intervention. This would be an effort to address the adolescent perceived versus actual effects. No adverse effects were found in the current review and most studies in the data set reported the intervention was acceptable and feasible. Only four studies included a treatment group and a control group. Further research is advised in comparing the effectiveness of MBSR and MBCT to TAU for clinical samples of adolescents. This comparison may provide more substantial evidence and support for the effectiveness of MBSR and MBCT in reducing clinical symptoms in adolescents.

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Appendix A

Data Abstraction Form**Authors:****Title:****Date:**

Population:

Setting:

Modality:

Outcome:

Mindful-Based Intervention (MBI)

1. MBRS

Techniques specifically mentioned

Formal meditation

Homework

Group discussion

Body scanning

Loving kindness

Journal

Gratitude practice

Mindful daily activities

Deep breathing exercise

Other

2. MBCT

Techniques specifically mentioned

Formal meditation

Homework

Group discussion

Body scanning

Loving kindness

Journal

Gratitude practice

Mindful daily activities

Deep breathing exercise

Other

3. Treatment condition

MBI only

MBI plus usual tmt (e.g., instit.
services)

MBI a component of a package

MBI confounded with (or integrated
with) another treatment

4. MBI literature cited

Yes

No

5. Study quality:

Random assignment

Or Matching

Selection criteria (Ss)

Sample size 20+ per group

Assessed treatment fidelity

Or manualized

Comparison group used

alternative or stdized tmt

Experienced therapists

Objective measures

(standrized, beh, status)

Included follow-up

6. Mode or level of intervention

Individual

Couple or family

Small group

Organization

School

Other (specify)

7. Dosage

Length of sessions

Average number of sessions

Duration of treatment

8. Therapist qualifications

Profession

Years experience

Experience in SFBT

7. Setting

Clinic

Hospital

School

University

Home

Community

Other (specify)

Adapted from the SFBT data abstraction from
.doc 5/15/15

