

Running head: PILOT STUDY OF A RELAXATION MOVEMENT GROUP

A PILOT STUDY OF THE EFFECTS OF A RELAXATION MOVEMENT GROUP ON  
STUDENTS ATTENDING A PARTIAL HOSPITALIZATION PROGRAM

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# PILOT STUDY OF A RELAXATION MOVEMENT GROUP

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## Abstract

More recently, research into Mindfulness-Based Interventions (MBIs) have touted promising positive outcomes for youth, which include, but are not limited to, alleviating internalizing and externalizing disorders, and enhancing self-regulation, and frustration tolerance (Long et al., 2015; Zack et al., 2014). The current pilot study examined the effects of an eight-week Relaxation Movement Group (RMG) on a clinical population of students (N = 9) attending a partial hospitalization program. Specific aims of the study included addressing the following: 1) What were participants' beliefs regarding the acceptability of the RMG program? 2) Was the RMG program implemented as initially designed? 3) Were there clinically meaningful changes in participants' behavior and functioning from pre to post in externalizing behaviors, adaptive behaviors, points earned in the Partial Program, or number of restraints?

The current study used measures such as acceptability and fidelity rating scales, the Behavior Assessment System for Children, Third Edition, Teacher Rating Scale (BASC-3 TRS), and records of participants' daily points and frequency of restraints. Results of the pilot study indicated that, overall, participants' acceptability of the RMG program was high. Regarding fidelity, the majority of participants received high quantity and quality RMG programming, as initially intended although fidelity was variable across participants. Finally, results suggested clinically meaningful changes in some of the participants' RCI scores on the Externalizing and Adaptive Skills Composites of the BASC-3 TRS from pre to post, positive trends (i.e., increases) in the mean number of points some participants earned before and after RMG implementation.

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## **Introduction**

### **Mindfulness-Based Interventions**

Presently, associated with positive effects on children's behavioral and emotional difficulties, Mindfulness Based Interventions (MBIs), have gained increasing popularity among researchers and practitioners. According to the literature, mindfulness is defined a "state of consciousness" during which an individual places purposeful cognitive attention or focus on one's current, internal and external experiences; ultimately attempting to avoid judgment and negative automatic responses, while practicing acceptance (Renshaw et al. 2015, p. 4; Zenner et al., 2014). Simply stated, "[...] it [mindfulness] is about taking moments to detach from the cacophony of the world, and about learning tools to cope with what can be externally overwhelming and stressful" (Brownbridge, 2014, p. 22). As such, mindfulness is achieved through continuous application of meditative techniques such as deep breathing, mindful movement, and body awareness exercises (Baer, 2003; Bluth & Blanton, 2014). Most noteworthy, in comparison to other therapeutic approaches, MBIs are intended to gain self-awareness regarding one's thoughts or experiences (i.e., physiological sensations), rather than altering one's natural cognitions and emotions (Bostic et al., 2015).

Initially emerging in the 1970's as an approach to help alleviate adult clients' psychological and physical symptoms (Montgomery et al., 2013), MBIs have since increased in popularity. In fact, viewed as one of the most promising treatment approaches within psychiatric and educational entities, MBIs appear to offer a broad range of benefits to youth, including improvements in: internalizing and externalizing disorders, academic performance, social skills application, emotional functioning, behavioral presentation, self-regulation, attention, and frustration tolerance (Long et al., 2015; Zack et al., 2014). With regard to externalizing

difficulties, Bögels et al. (2008), reported that significant improvements in externalizing problems (i.e., impulsivity and attentional focus) of adolescents diagnosed with Attention Deficit Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (ODD), and Autism Spectrum Disorders (ASD) have been documented when MBIs are utilized (Bögels et al., 2008; van de Weijer-Bergsma et al., 2012). Specifically, MBIs are associated with enhancements in executive functioning (EF), which include complex cognitive processes such as attentional control and shifting, planning, inhibition and self-regulation, and working memory (Tang et al., 2012). According to researchers, there is a correlation between EF and the behavioral presentation of individuals, including youth (Flook et al., 2010; Tang et al., 2012). As such, the research study conducted by Bögels et al. (2008), indicated youth and parents who participated in an 8-week mindfulness training program, endorsed advancements in the adolescent participants' attention, impulsivity, and awareness, along with improvements in their personal goals, happiness levels, and reductions in the youth's externalizing symptoms (i.e., delinquency and aggression). Moreover, within the school environment, mindfulness training of elementary school-aged children was linked to significant, positive advancements in students' classroom behaviors. According to teachers' ratings, students displayed improved scores related to paying attention, maintaining self-control, participating in academic activities, and demonstrating appropriate social skills toward staff and peers (Black & Fernando, 2013).

There are certain behavioral commonalities demonstrated among children with externalizing disorders such as, "impulsivity, hyperactivity or restlessness, problems with motivation and insensitivity to response consequences [...]" (Bögels et al., 2008, p. 195). Therefore, regarding the fundamental mechanisms underlying the reported positive effects of mindfulness on youth's externalizing behaviors, various explanations have been hypothesized.

For instance, when children experience distress such as anxiety, they may automatically react negatively, attempting to avoid such discomfort. Additionally, habitual cognitive processes can also be activated and thus, induce fear responses (Bögels et al., 2008). As such, Bögels et al. (2008) subsequently argues that during such overwhelming situations, mindfulness interventions allow youth to acknowledge and process their internal and external experiences from a less guarded and anxious perspective, applying curiosity and openness, rather than judgment and labeling. As a result, through constant practice of mindfulness exercises, youth are repeatedly exposed, and gradually desensitized to such instinctual negative response styles. They learn that such experiences are not necessarily threatening to their existence, and in fact, are tolerable, minimizing their automatic, typically impulsive reactions, and potential misconduct, toward unfavorable stimuli. Felver et al. (2013) described the cognitive shift in awareness, known as "reperception," prompted by mindfulness, which ultimately provides clients with a more objective viewpoint of adverse occurrences. Through "reperception," youth can gain clarity of their experiences, influencing their use of more appropriate cognitive coping skills such as, "self-regulation, values clarification, [and] cognitive-behavioral flexibility [...]" (Felver et al., 2013, p. 533), affecting children's behavioral responses to problematic situations. Therefore, although further research is needed, mindfulness interventions are viewed as a promising and efficacious approach to mediating youth's externalizing behaviors, particularly when their presentation predominantly consists of inattention and impulsivity (Bögels et al., 2008). However, there is still limited research regarding MBIs and the treatment of youth, particularly within specific clinical settings such as partial hospitalization programs. In addition, the specific components underlying the effectiveness of mindfulness are still unknown, as the topic of MBI is broad, consisting of various intervention activities and limited information regarding implementation

fidelity (Chiesa et al, 2014; Hölzel et al., 2011). Currently, researchers continue to advocate for more rigorous and extensive studies in order to strengthen the empirical evidence base of MBIs among children and adolescents.

### **Seclusion and Restraints**

Historically, both schools and psychiatric facilities including inpatient institutions and partial hospitalization programs have faced numerous challenges when caring for children whose behaviors pose a danger to themselves or others. Among the interventions sometimes utilized to maintain the safety of youth are seclusion and physical restraint, also known as seclusion and restraint use (SRU) (De Hert et al., 2011), which has been viewed as contentious. Seclusion is defined as the "involuntary confinement of a child alone in a room or isolated area from which the child is prevented from leaving," while physical restraint refers to "a personal restriction that immobilizes or reduces the ability of the child to freely move his or her torso, arms, legs, and head" (Dunlap et al., 2011, pgs. 1-2).

Given the existing controversy, attempts have been made for identifying alternatives to SRU with demonstrated empirical effectiveness. The application of mindfulness techniques to reduce reliance on SRUs represents one potential intervention. However, further empirical support of this intervention is needed at this time.

### **Potential Positive Effects of Seclusion and Restraints**

The topic of SRU remains controversial, with some researchers acknowledging the possible positive effects of the intervention, and others questioning its efficacy. Throughout the 1990's, the therapeutic value of SRU was reported to strengthen youth's coping skills and allow them to experience an internal locus of control; as adolescents were able to outwardly communicate and physically demonstrate their intense emotions while undergoing restraints

(Millstein & Cotton, 1990; Nunno et al., 2006; Sourander et al., 1996). Proponents of SRU techniques have described the positive feedback of clients who have previously experienced seclusion and restraint. A research study surveying staff and adult patients' perceptions of seclusion found that individuals from both groups generally viewed seclusion as beneficial some of the time (Prinsen & van Delden, 2009). Furthermore, regarding the issue of ethical standards, proponents of seclusion and restraint have urged awareness of the negative ramifications of refusing SRU during extremely dangerous, life-threatening situations, believing that the denial of such services could potentially constitute neglect or deprivation of necessary assistance (De Hert et al., 2011).

### **Potential Negative Effects of Seclusion and Restraints**

Despite the aforementioned potentially positive effects of SRU, many researchers and practitioners in the fields of psychiatry, school psychology, and education, continue to note the hazards of SRUs (De Hert et al., 2011; Dean et al., 2007; Dunlap et al., 2011; Muir-Cochrane et al., 2014; Nunno et al., 2006; Prinsen & van Delden, 2009; Valenkamp et al., 2014). Seclusion and restraint are often associated with significant negative consequences to all clients, especially children and adolescents. In general, SRU has raised legal, ethical, and safety concerns. Various research articles consistently emphasize and repeat the belief "that seclusion and restraints can lead to severe psychological and physical consequences" (De Hert et al., 2011, p. 221). Dunlap et al. (2011) thoroughly summarized the following points as the most troublesome issues typically related to SRU within the school setting. Of immediate concern, restraint procedures place restricted children at risk of sustaining injuries, even death. In a study examining 45 youth fatalities due to physical restraints, 25 of the cases were attributed to asphyxia (Nunno et al.,

2006). Other life-threatening side effects include aspiration, blunt trauma to the chest area, and thrombosis (De Hert et al., 2011).

Second, implementation of restraint increases the probability of staff becoming injured, possibly leading to higher rates of staff absences from work, workman's compensation by institutions, professional burnout, and high turnover rates among organization employees (Valenkamp et al., 2011). Thus, staff are negatively impacted.

Third, the potential emergence of psychological distress among restrained youth is considered another serious ramification. Due to the forced limitation and control of children during SRUs, such individuals may learn to become fearful or anxious of the procedures, school matriculation, and staff members' utilization of such strategies (Dunlap et al., 2011). As a result, students may negatively question or mistrust their relationships with caregivers, which is counterproductive to the therapeutic alliance, and conceivably become traumatized by the occurrence. Indeed, researchers have stated SRUs can be particularly dysregulating and disadvantageous for youth who have previously endured trauma or abuse, as their negative experiences are reactivated, and thus potentially relived (De Hert et al., 2011; Valenkamp et al., 2014).

Fourth, Dunlap et al. (2011) also emphasize the notion that, as a result of the low therapeutic value of SRUs, youth do not learn alternative, more positive coping skills, which further perpetuates and maintains their inappropriate behaviors. Accordingly, school staff may then augment their disciplinary methods to become more forceful and restrictive in order to regulate students' unruly conduct. Moreover, there is concern regarding the normalization and acceptance of seclusion and restraint when commonly used to manage youth's behaviors. In particular, school personnel, such as teachers, may become overly reliant on such interventions,



as they create short-term solutions to students' disruptive behaviors. Researchers suggest continuous and regular SRU purportedly increases the likelihood of client abuse during such procedures (Dunlap et al., 2011).

### **Alternatives to SRUs**

Due to increased awareness of the potentially dangerous consequences of SRU strategies, efforts have been undertaken to provide alternatives to using SRUs with children with severe emotional and behavioral difficulties. For example, behavioral difficulties of clients may be susceptible to various preventative interventions, such as behavioral management programs, therefore influencing the actual rates of SRU in certain settings (Dean et al., 2007). Valenkamp and colleagues (2014) discussed studies which identified associations between the implementation of collaborative problem solving (CPS) and decreases in the frequency of SRUs. The primary focus and purpose of the CPS intervention is to minimize youth's acting-out behaviors by strengthening their self-regulation, and improving their problem-solving skills (Valenkamp et al., 2014). An experiment conducted by Greene et al. (2006) in a Massachusetts psychiatric facility, revealed a 99% decrease in restraint use among youth clients subsequent to staff training in CPS approach (Valenkamp et al., 2014). Similarly, the application of CPS techniques within another psychiatric setting also yielded significant declines in the frequency of SRUs among children between the ages of four to twelve years old, along with decreases in the mean duration of such restrictive measures (Martin et al., 2008 as cited in Valenkamp et al., 2014). Such studies suggest continued research to establish empirically supported prevention interventions is warranted.

## **Purpose of the Current Pilot Study**

Due to the numerous positive effects of MBIs, along with the purported detrimental consequences of SRUs, the current study endeavored to review the effects of a mindfulness-based group within a partial hospitalization program located in an urban district of New Jersey. Specifically, the setting offers clinical and educational services to youth between the ages of five and seventeen years old. Overall, students attending the program present with severe psychiatric and behavioral difficulties, having previous hospital admissions and residential placements. The Partial Program implements physical restraints as a last and final option when other, less-intrusive interventions have been attempted, and met with unsuccessful results. Research targeted toward such a population seems crucial given prevalence studies indicate that 11% to 21% of youth experience behavioral-emotional difficulties and meet clinical diagnostic criteria according to the Diagnostic and Statistical Manual of Mental Disorders -DSM (Long et al., 2015, p. 15).

In the summer of 2016, executive staff of the partial hospitalization program approved the implementation of the Relaxation Movement Group (RMG) to educate students on the use of mindfulness techniques; as a preventative and alternative approach to implementing SRUs. Specifically, rather than depend on SRUs to mediate students' unsafe behaviors, the RMG program was designed to teach students more appropriate and acceptable coping skills in order to reduce their aggressive acts, and therefore decrease the implementation of SRUs within the setting. Based on the students' accumulated records, directors of the setting have historically witnessed students in the age-range of preadolescence as exhibiting high levels of behavioral difficulties and displaying less impulse control; therefore requiring more frequent restraints compared to the adolescent population of the program. The aims of this exploratory study was to

first examine participants' beliefs regarding the acceptability of a mindfulness-based intervention [i.e., Relaxation Movement Group (RMG)]. The second aim was to assess whether the RMG program was implemented as initially designed. The third aim was to evaluate any changes in participants' behavior and functioning from pre to post; specifically the adaptive and externalizing behaviors of participants, along with their daily functioning as indicated by rating scales, behavioral points earned daily, and number of restraints. Participants were between the ages of seven and eleven years old who were attending the Partial Program and consented to participate in the RMG program. The group was devised to be implemented over a period of eight weeks, with students attending sessions three times a week.

### **Program Description**

The Relaxation Movement Group (RMG) heavily relied upon on the application of a commercial mindfulness DVD program. Specifically, the Principle Investigator (PI) of the current study compiled separate segments of the DVD to develop a mindfulness curriculum (see Appendix A). As such, the RMG included participants watching the DVD within a group format, during which they viewed demonstrations of mindfulness techniques such as deep breathing, meditation, and yoga. Subsequently, participants were instructed to replicate such exercises in real time, by physically enacting the activities (i.e., yoga poses and breathing exercises), which were visually displayed, in order to strengthen their attentional skills and practice meditative techniques. Positive reinforcement and prompting of such strategies were then provided to the participants throughout the school day by teachers, clinicians, and mental health specialists. Overall, the RMG was intended to educate participants on alternative methods for dealing with stress and frustration; instead of resorting to aggressive and unsafe behaviors when experiencing negative emotions.

As part of the research, clinicians of the partial hospitalization program evaluated the emotional and behavioral difficulties of students before and after implementation of the RMG. In particular, clinicians completed one scale during each time point, at the beginning and end of RMG implementation, in order to assess any changes in participants' levels of adaptive and problematic behaviors. As such, clinicians rated their perceptions of participants' externalizing problems, internalizing problems, school problems, adaptive skills, and behavioral features. Additionally, in an effort to measure participants' classroom-compliance and safety, Mental Health Specialists (MHS) recorded the number of points the participants accumulated throughout each school-day, and the frequency of restraint use for each participant. Following the eight-week RMG implementation period, participants were asked to rate the acceptability of the RMG, and discuss their experiences during and after program implementation. Furthermore, MHS staff completed rating scales post each mindfulness session to ensure fidelity of program administration. There were a total of 24 sessions included within the RMG program.

Through the integration of a MBI such as the Relaxation Movement Group within the setting's behavioral management approach, the aim of the intervention was to decrease participants' negative, externalizing behaviors, maintain students' safety, and enhance youth's coping skills during stressful situations. Negative behaviors included being verbally threatening to others (i.e., peers and staff) and engaging in unsafe, dangerous conduct (e.g., spitting, kicking, hitting, or throwing objects) intended to harm another individual(s). Therefore, the ultimate goal of the RMG was to have participants apply learned strategies, such as mindful breathing and relaxation exercises, during emotionally charged moments they encounter while attending the Partial Program. The utilization of such techniques was speculated to allow for self-monitoring

and self-control, decreasing participants' physically aggressive behaviors, and thus the need to intervene with SRU.

The following study was intended to contribute to the limited research regarding MBIs and their effects on youth's clinical symptoms, especially those related to externalizing behaviors within a partial hospitalization program. Research targeted toward the clinical population of children and adolescents is needed to establish whether MBIs may reduce the risk of externalizing behaviors, which increase risk for SRU's.

## **Literature Review**

### **Introduction to Mindfulness**

Research on mindfulness continues to grow in popularity and interest among researchers, practitioners, and educators. Viewed as a traditional meditative practice, deriving from various Eastern religions such as Buddhism, principles of mindfulness began filtering into the domain of Western psychology during the 1970's (Renshaw et al., 2015).

Mindfulness involves a "state of consciousness," a form of purposeful and intentional attending to, or focusing on, one's current internal and external experiences with a complete sense of objectivity, curiosity, and acceptance (Baer, 2003; Felver et al., 2013; Renshaw et al., 2015, p. 4). In comparison to other therapeutic approaches, such as psychotherapy and cognitive behavioral therapy (CBT), which emphasize the modification of one's cognitions and experiences, mindfulness encourages individuals to become fully aware of their surrounding stimuli, (i.e. one's cognitive thoughts and perceptions, emotions, and physical sensory sensations), without judgment, automatic reactivity, and the intent to alter such experiences (Bostic et al., 2015; Montgomery et al., 2013).

Along with the cognitive processes of mindfulness (i.e., attention and focus) are the meditative techniques embedded within the approach. Specifically, calming exercises such as body scan, meditation (e.g., sitting and/or walking meditation), yoga, and Tai-Chi are practiced by individuals, as they are thought to facilitate non-judgmental and controlled awareness (Burke, 2009; Flook et al., 2010; Hölzel et al., 2011). During the completion of such exercises, participants learn to observe and acknowledge their naturally emerging thoughts, emotions, and bodily sensations, refocusing their attention toward their present experiences rather than on intrusive, irrelevant input (Baer 2003; Flook et al., 2010). Proponents of Integrative Body-Mind Training (IBMT), which is a mindfulness approach that emphasizes the "body-mind" connection, believe that self-awareness of one's internal and external experiences leads to a mindful state of objective, non-judgmental acceptance. As such, IBMT advocates stress the importance of "body and mind training," as they note that physical bodily changes impacts one's emotions (Tang et al., 2012, p. 3). Therefore, as part of the mindfulness curricula, individuals are encouraged to repeatedly practice meditative techniques to enhance their self-awareness and skills related to the maintenance of attention and focus.

Advocates of mindfulness have identified the complexities underlying the concept, viewing it as both a practice and a process, as well as an outcome and cognitive mindset centered on awareness (Shapiro & Carlson, 2009). Renshaw and colleagues (2015) posit that there are three critical sub-skills embedded within mindfulness: mindful awareness, mindful responsiveness, and mindful effort. In order to fully engage in the practice of mindfulness, which they affirm helps to facilitate emotional and behavioral regulation, stress reduction, and positive social relations, all three skills must be utilized in conjunction with one another (Renshaw et al., 2015). According to the authors, individuals must initially partake in mindful awareness, which refers to

deliberately observing one's inner and outer experiences. Subsequently, mindful responsiveness reminds subjects to react thoughtfully and positively to currently distressing or negatively perceived stimuli. This skill promotes the use of appropriate behavioral responses. Finally, through mindful effort, individuals are urged to continue their use of purposeful, constructive behavioral responses during future dilemmas and difficulties. Although some practitioners continue to elaborate on the components of mindfulness, overall, it is commonly considered to encompass a specific type of awareness that includes purposeful orientation to the occurrences of the present moment, without bias, fostering clarity and acceptance of reality (Kabat-Zinn, 1994 as cited in Bögels, 2008).

Since its introduction into psychological research, writings on mindfulness persistently indicate that there are numerous advantages to the implementation of such an approach. Originally incorporated into interventions in order to provide assistance to adults, mindfulness has been shown to ameliorate both the psychological symptoms and physiological ailments of individuals within the targeted adult population (Montgomery et al., 2013). Among the countless benefits discussed in the literature, mindfulness has proven to successfully reduce individuals' anxiety, depression, distress related to posttraumatic stress disorder (PTSD), chronic pain, stress, and substance abuse (Bostic et al., 2015; Hölzel et al., 2011). In addition, mindfulness strategies have also been known to fortify and increase one's self-compassion, self-regulation, perspective taking, interpersonal skills, attention, and concentration (Bostic et al., 2015; Zenner et al., 2014). In fact, there appears to be evidence demonstrating the positive effects associated with mindfulness on one's brain structure and functioning. According to a controlled longitudinal research study conducted by Hölzel et al. (2011), individuals in the experimental group, who received training on mindfulness meditation for eight weeks, exhibited changes in gray matter

concentration within certain areas of the brain. Specifically, participants in the treatment group displayed an increase in the amount of gray matter in regions such as the hippocampus, posterior cingulate cortex (PCC), temporoparietal junction (TPJ), and two clusters embedded within the cerebellum. Such areas of the brain are speculated to influence memory processes and emotion regulation, integration of stimuli pertaining to self- perception, level of social consciousness, along with motor coordination and control, and emotional and cognitive modulation, respectively (Hözel et al., 2011). While other research regarding mindfulness and neurophysiology has yielded mixed results, Hözel et al. (2011) continue to theorize that implementation of mindfulness interventions allow for modifications in participants' anatomical neural structures, which can positively affect brain functioning, and as a result, effectively impact the psychological well-being and mental health of individuals.

### **Hypothesized Mechanisms of Mindfulness**

Currently, there are numerous hypotheses regarding the fundamental mechanisms responsible for the positive effects of MBIs. According to Felver et al. (2013), *reperception* includes a cognitive shift in one's awareness as a result of mindfulness. Similarly, Shapiro et al. (2006), attributed the slightly differing concept of *reperceiving* as a possible basis underlying the workings of mindfulness (p. 377). According to Shapiro et al. (2006), mindfulness can guide an individual to experience a critical change or "shift" in one's mental viewpoint or perspective (p. 377). As such, the authors proposed the reciprocal process of intention, attention, and attitude (IAA) as the core foundation of mindfulness. Specifically, as per Shapiro et al. (2006), a participant's intended purpose for engaging in mindfulness (i.e., intentions) initially assists in formulating his/her conceptualization of the practice. In particular, Albrecht et al. (2012) explain that one's individual goals (i.e., intentions) for engaging in mindfulness exercises dictate the



outcomes they obtain, in which practitioners ultimately receive the specific benefits they originally sought, rather than other, unrelated gains. For example, researchers speculate an individual seeking self-regulation through mindfulness will likely enhance those targeted skills as opposed to abilities related to irrelevant topics such as time-management or medical improvements, which were not the individual's initial intentions (Albrecht et al., 2012; Shapiro et al., 2006). Another element of mindfulness is the individual's deliberate attending to present-moment stimuli (attention). Finally, one's ensuing thoughts and attitudes regarding their internal states and external surroundings should include a compassionate acceptance and an objective outlook. Taken together, IAA impacts the participant's progression and attainment of mindfulness. Overall, it is this notion of re-perceiving, which occurs by achieving mindfulness, that fosters positive outcomes.

Through re-perceiving, Shapiro et al. (2006) hypothesize that a necessary conversion in one's negative cognitive experience occurs. Rather than developing a permanent, pessimistic self-concept and defining one's self as having unfavorable characteristics, re-perceiving allows the individual to mentally separate him/herself from such adverse thoughts and emotions, and instead, recognize that they are simply momentary occurrences they are undergoing. This shift in perception assists individuals in non-judgmentally observing their troubling experiences as opposed to viewing themselves as definitely exemplifying and possessing those negative self-attributes. It is believed that practitioners' inner self-judgment can lessen as they begin to acknowledge their unpleasant emotions and thoughts as fleeting instances that are a natural part of human existence (Bluth & Blanton, 2014). As a result, re-perceiving can induce a sense of psychological calmness, clarity and understanding (Shapiro et al., 2006).

Furthermore, mindfulness is also believed to influence self-regulation (Shapiro et al., 2006). Reperceiving appears to provide a necessary pause between the experience of overwhelming emotions and an ensuing instinctual, maladaptive behavioral reaction. In fact, reperceiving may allow for the weakening of one's automatically negative, and previously conditioned, response style to distress. Shapiro and colleagues (2006) suggest that reperceiving provides an individual with the opportunity to openly, impartially, and unemotionally encounter an intrusive feeling or thought. In addition, the cognitive respite also allows one to more carefully and fully process his/her existing situation, and thus, gain more insight into the overwhelming aspects of one's present predicament. As a result, the experience is perceived as less threatening, possibly decreasing the likelihood that the individual will automatically react impulsively, inappropriately, or inflexibly to the current event (Shapiro et al., 2006).

Mindfulness practices serve as a regulatory barrier, interrupting one's automatic progression toward an overly aroused emotional response-style (Zelazo & Lyons, 2012). As such, an individual becomes calmer, exhibiting emotional stability and cognitive clarity. He/she is then able to objectively view his/her current situation, identify and consider his/her available choices, and enact the most acceptable response to his/her given circumstances (Zelazo & Lyons, 2012). Such findings are indicative of the effectiveness of mindfulness programs in decreasing children's externalizing difficulties through self-regulation. One such program, known as Soles of the Feet (Felver et al., 2013), instructs participants to focus on a specific body feature (i.e., their feet) in order to gradually diffuse their heightened emotional state. Subsequently, the children then present as physiologically calmer, allowing them to consciously decide and enact the most appropriate and socially acceptable response to their initially distressing situation (Felver et al., 2013). Participants learn to independently reassess their automatic negative

emotions and control their behaviors through meditation techniques, diminishing the need for intrusive interventions such as SRU's.

Moreover, re-perceiving is also speculated to help a person clearly identify the important beliefs, morals, and values in one's life, which ultimately impacts his/her decisions and behaviors (Shapiro et al., 2006). As a product of re-perceiving, mindfulness participants are better able to determine their own personal beliefs and ideals, as opposed to simply complying with social standards. Therefore, through the clarification and discovery of their own values, they can choose to act accordingly, perhaps implementing self-regulation, rather than reflexively reacting to fulfill the expectations placed upon them by others (Shapiro et al., 2006).

The literature also describes the mechanisms of mindfulness in terms of its overlap with other therapeutic techniques. Shapiro and Carlson (2009), explain the indirect process in which the concept of re-perceiving, motivated by mindfulness, guides the use of exposure treatment in reducing anxiety. Known as an anxiety treatment within the field of behavior therapy, exposure procedures, such as systematic desensitization, teaches individuals relaxation, and then methodically presents them with varying levels of anxiety-inducing stimuli in order to eventually lower their anxiety and physical arousal to the feared catalyst (Maxmen, Ward, & Kilgus, 2009; & Wilmschurt, 2011). Similarly, in terms of mindfulness practices, re-perceiving strengthens a subject's capacity to tolerate negatively debilitating feelings, and refrain from attempting to escape their presence; since the individual is not only encouraged to persistently attend to, and experience his/her potent emotions in the moment, but to do so in an accepting and non-judgmental manner (Shapiro & Carlson, 2009). According to Shapiro et al. (2006) such an approach is intended to demonstrate the impermanence of the subject's discomfort, eventually decreasing his/her automatic emotional reactivity during future occurrences. In addition, through

reperceiving, an individual learns to internalize negative experiences in a more calm and rational mental state, which proves that they can experience these emotions without excessive worry (Bostic et al., 2014).

In a pilot study conducted by Lenze et al. (2014), the anxiety levels and cognitive functioning of adults, 65 years old and older, who received a specific form of mindfulness treatment, mindfulness-based stress reduction (MBSR), were evaluated. The target population was identified as having clinically significant symptoms, or a current diagnosis of anxiety, and experienced difficulties with memory and concentration. The findings concluded that the participants obtained higher scores on the Cognitive Affective Mindfulness Scale-Revised (CAMS-R), which was used to measure individuals' changes in mindfulness within the study. In addition, the subjects also indicated a reduction in their degree of worrying, as well as improvements in cognitive functioning, namely recall ability (Lenze et al., 2014).

Correspondingly, within the youth population, the teachers of five children, between the ages of seven and eight year old, who were experiencing anxiety symptoms, rated the students as demonstrating decreases in their internalizing symptoms, as well as reductions in their behavioral problems, and improvements in academic functioning after completing a six-week mindfulness intervention program (Felder et al., 2013). Overall, reperceiving or the "de-centered perspective," as labeled by Burke (2009, Introduction section, para. 10), which assists in "self-regulation, values clarification, cognitive-behavioral flexibility, and experiential exposure" (Felder et al., 2013, p. 533), is thus considered one of the major underlying components likely responsible for the positive effects of mindfulness, encouraging subjects to respond more objectively and reflectively to stressful situations, and less reactively (Felder et al., 2013).

## **Popular Mindfulness-Based Interventions (MBI's)**

Review of the literature indicates that different variations of mindfulness-based interventions (MBIs) have been implemented within diverse settings, including prison systems, graduate training programs, and business institutions (Kabat-Zinn, 2003). Among the many mindfulness training methods exists the most popular, and widely researched approach, known as Mindfulness-Based Stress Reduction (MBSR). Introduced as a psychological intervention approximately three decades ago by Jon Kabat-Zinn, MBSR was formulated to assist adult medical patients, who received the most advanced Western medical care, but did not demonstrate the expected improvements associated with such treatments (Rechtschaffen, 2014). Specifically, the subjects disclosed experiencing unremitting levels of pain, as well as stress-induced disorders (Baer, 2003).

More specifically, the MBSR curriculum is designed to promote attitudes of self-compassion, flexible, careful awareness, and the understanding that one's internal and external experiences are temporary, not necessarily meriting change, but rather, nonjudgmental acceptance (Baer, 2003; Shapiro & Carlson, 2009). In 2004, Grossman, Niemann, Schmidt, and Walach conducted a meta-analytic review of 20 reports in order to evaluate the possible effects that mindfulness poses on both the physical and mental well-being of individuals within clinical and nonclinical populations. According to the authors, MBSR was shown to be an effective mindfulness intervention, continuing to demonstrate improvements in participants' psychological and physical health. Grossman et al. (2004, p. 35) reported an effect size of "approximately 0.5 ( $P < .0001$ )," which is considered to be a medium effect size (Cohen, 1998, pp. 24-27). Typically, larger effect sizes are correlated with increased levels of statistical power, which is used to detect the presentation of true effects within studied populations (Meyers, Gamst, &

Guarino, 2013). Despite certain limitations of their analysis, the authors concluded that MBSR displayed positive effects on subjects' coping with medical ailments and psychological symptoms (Grossman et al., 2004). As per Felver et al. (2013), MBSR has been associated with alleviations of chronic pain and fibromyalgia, along with reductions in stress, anxiety, and depression, respectively.

### **Additional MBI Approaches**

Subsequent to the utilization of MBRS, the creation and implementation of other MBIs was initiated. During the late 1990s came the development of Mindfulness Based Cognitive Therapy (MBCT), which as part of its composition, combined renovated aspects of MBSR with CBT concepts and techniques. In particular, the MBCT approach, developed by Teasdale, Segal, and Williams, intended to prevent the relapse of major depressive episodes among adult clients previously diagnosed with depression (Baer, 2003). As a result, MBCT assisted individuals in recognizing their initial negative response-styles to dysphoric states, allowing them to identify their unhealthy cognitive patterns, and thus, utilize cognitive-behavioral strategies accordingly (Baer, 2003; Felver et al., 2013). Ultimately, MBCT emphasized a "detached or decentered" thought process, during which participants learned to accept the presence of strong emotions and physical sensations as temporary experiences, rather than permanent features used to conceptualize one's self or actual reality (Baer, 2003, p. 127; Teasdale et al., 2000). In a randomized clinical trial of 145 adult patients, all previously diagnosed with Recurrent Major Depressive Disorder, there were significant decreases in the frequency of relapses among individuals who formerly experienced three or more depressive episodes (Teasdale et al., 2000). Specifically, such individuals who received treatment as usual (TAU) in conjunction with the

MBCT program, demonstrated an estimated 50% reduction rate in depressive recurrences when compared to patients with only two or less depressive relapses, and who solely received TAU.

In addition to both MBSR and MBCT, other MBIs such as Dialectical Behavior Therapy (DBT) and Acceptance and Commitment Therapy (ACT), have also shown equally promising results in adult participants. Initially developed by psychologist, Dr. Linehan, DBT was intended to target the symptoms of individuals diagnosed with borderline personality disorder (BPD) (Baer, 2003). Similar to MBSR, DBT incorporates mindfulness skills with CBT, striving for both acceptance and change, while ACT teaches cognitive flexibility, ultimately leading to positive behavior modification (Montgomery et al., 2013). Various studies of DBT have shown significant improvements among adults having substance dependency comorbid with BPD, those with eating disorders, and older individuals experiencing depression along with some form personality disorder (Baer, 2003; Montgomery et al., 2013). Correspondingly, ACT has demonstrated favorable outcomes among adult clients with both psychological and medical ailments such as anxiety, depression, grief related to psychosis, persistent pain, epilepsy, and diabetes (Montgomery et al., 2013).

### **MBI Transition from Adults to Youth**

Due to the numerous positive effects of MBI's within the adult population, researchers speculated mindfulness programming among children and adolescents to yield similar results (Black et al., 2009; Britton et al., 2014; Zenner et al., 2014). Advocates of early implementation of MBI practices identify childhood as the most critical and effective developmental stages to introduce such techniques; as various psychopathologies and disorders (i.e., anxiety, depression, and suicidal ideation) begin to surface during childhood and adolescence, and potentially dictate the severity of one's clinical symptoms in adulthood (Britton et al., 2014). "Accordingly, pre-

adolescence represents a significant window of opportunity during which an intervention can help prevent the development of later life challenges, including a major psychiatric disorder (Britton et al., 2014, p. 264)." In addition, Zack et al. (2014) hypothesize youth possess qualities more aligned with the principles of mindfulness compared to adults, maintaining a unique openness to new experiences, learning, and creativity. According to Zack et al. (2014), children are less concrete and more abstract in their thinking, which allows them to more successfully engage in mindfulness exercises, as they are less likely to enact maladaptive habitual behaviors often seen in individuals presenting with clinical psychological distress. Moreover, when paired with the practice of mindfulness, researchers discuss the malleability of youth's neural pathways within the brain region as a potential protective factor against negative adult outcomes. Children and adolescents are cognitively impressionable, making their current developmental stage the most opportune timeframe to mold their neural systems and strengthen their mindfulness skills; in which mindfulness is associated with various benefits such as emotional regulation (Roeser & Peck, 2009; Zelazo & Lyons, 2012). "Consequently, we predict that adults having a history of contemplative practice during childhood and adolescence will be at a lower risk for curtailed educational attainments, chronic stress, depressed mood, substance use, ill health, and family difficulties" (Roeser & Peck, 2009, p. 13). As such, researchers and practitioners continue to advocate for the implementation of MBI's within the child and adolescent population.

### **MBI's Pertaining Only to Youth**

Although MBI studies involving youth have increased over the years, compared to research focused on the impact of mindfulness on adults, there is still a shortage of information regarding the effects of MBI's and meditation interventions on children and adolescents (Black et al., 2009; Kuyken et al., 2013; Zack et al., 2014). Among the limited mindfulness studies



regarding youth, DBT has been the most widely investigated MBI within the adolescent population (Montgomery et al., 2013). As such, more recently, there have been adaptations to such MBIs in order to better accommodate younger individuals, providing introductory data about the influence of mindfulness on children and adolescents' functioning (Greco et al., 2011). For instance, a randomized control trial (RTC) of mindfulness based cognitive behavioral therapy for children (MBCT-C), including 25 children between the ages of nine and thirteen years old, resulted in decreases in participants' anxiety and attention difficulties, while those who were not exposed to MBCT-C did not display such progress (Zack et al., 2014). Likewise, in another randomized trial of MBCT-C, students, also between the ages of nine and thirteen years old, who initially endorsed high levels of anxiety and behavioral problems at pre-test, reported lower levels of symptoms after participating in the mindfulness program, with decreases in attention difficulties compared to wait-listed controls (Semple et al., 2010). In general, results from such studies, although exploratory in nature, offer promising outcomes regarding the implementation of mindfulness among children and adolescents.

Moreover, mindfulness pertaining to youth has also become of popular interest among practitioners and researchers within various settings, including pediatric medical facilities and schools (Britton et al., 2014; Greco et al., 2011; Lynch, 2014; Zenner et al., 2014). Schonert-Reichl and Lawlor (2010) studied 246 4<sup>th</sup> through 7<sup>th</sup> graders and found that students who participated in a Mindfulness Education (ME) program exhibited increased amounts of optimism compared to their peers who did not receive the intervention. Additionally, based on pre and post-test data, teachers rated students of the ME program as demonstrating enhancements in their social and emotional competencies in contrast to controls. Furthermore, with regards to the specific ages encompassed within adolescence, ME preadolescent participants showed increases

in their self-concept (Schonert-Reichl & Lawlor, 2010), evidencing the breadth of positive outcomes mindfulness offers to youth.

Overall, preliminary findings of mindfulness exposure among youth depict a variety of benefits, including decreases in internalizing and externalizing symptoms, and improvements in attention, social and academic performance, coping skills, frustration tolerance, resilience, and overall well-being (Liehr & Diaz, 2010; Reichl & Lawlor, 2010; Renshaw et al., 2015; Zack et al., 2014; Zenner et al., 2014). In conjunction, proponents of mindfulness within school settings emphasize similar positive outcomes in students: adaptive "coping skills with stress and anxiety, encouragement of empathy, compassion, and a sense of community, clarity of thought and concentration, and better interpersonal relationships..." (Brownbridge, 2014, p. 19-20). Such findings provide further evidence for the effectiveness of mindfulness in positively impacting youth's emotional and behavioral regulation. This may decrease the likelihood of children engaging in unsafe, maladaptive behaviors, and ultimately reduce the need for extreme interventions such as SRU's.

### **MBI's Impact on Youth's Executive Functioning**

Among the many advances, which MBI's purportedly offer youth, some researchers have emphasized the benefits of mindfulness on the executive functioning (EF) of children and adolescents. EF, although complex, is defined as the cognitive processes necessary to exercise control over one's thoughts and behaviors (Riggs et al., 2003). As such, EF is involved in planning, and enacting purposeful and regulated actions. Specifically, EF encompasses working memory, mental shifting, attention, and inhibition, and thus, includes one's ability to self-regulate behaviors, thoughts, and emotions (Flook et al., 2010; Tang et al., 2012). Researchers have discussed the correlations and predictive value of poor EF to negative outcomes such as

insufficient academic performance (i.e., school failure), internalizing problems (e.g., symptoms of depression and anxiety) and characteristics of externalizing difficulties (e.g., aggression, antisocial behavior, problems with peers, and substance abuse), commonly observed in behavioral disorders such as Attention Deficit Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder (ODD), Conduct Disorder (CD), Autism Spectrum Disorders (ASD), bullying, and childhood delinquency (Bögels et al., 2008; Britton et al., 2014; Flook et al., 2010; Tang et al., 2012).

Bögels et al. (2008) speculate that youth with externalizing difficulties often display deficiencies in their processing of information, which heavily relies on EF features such as attention and working memory. In conjunction, researchers hypothesize that children with high levels of anxiety also experience disruptions in their ability to attend to, and process incoming stimuli, as their worry is associated with "attention biases, cognitive distortions, emotional lability, and physiological hyperarousal" (Semple et al., 2010, p. 218.). In addition, although a diagnosis of ADHD has a genetic component, authors associate ADHD with poor inhibition, attention, and working memory, along with hyperactivity and impulsivity (van de Weijer-Bergsma et al., 2012). As such, there is a strong association between EF and the behavioral presentation of youth (Flook et al., 2010; Tang et al., 2012). According to a concurrent and two-year longitudinal study conducted by Riggs et al. (2003), which included a non-clinical sample of 60 students between the ages of six and nine years old, children who demonstrated higher levels of executive functioning while attending the first and second grade, showed positive predicted changes in the children's behaviors two years later. Researchers have begun to study the effects of mindfulness on EF, hypothesizing that MBI's help enhance aspects of EF, while impacting the presence of externalizing behaviors among children and adolescents (Black &

Fernando, 2013). In particular, mindfulness interventions are positively correlated with an increase in attention and self-regulation, which is associated with academic performance and prosocial behaviors, and negatively correlated with behavioral difficulties and misconduct (Black & Fernando, 2013). Studies also that suggest mindfulness approaches minimize impulsivity and decreases the automatic use of maladaptive instinctual responses to stimuli (Edwards et al., 2014). A study of the effectiveness of mindfulness training on ten adolescents diagnosed with ADHD, between the ages of 11 and 15 years old, and their parents, resulted in reductions of the youth's attention and behavioral problems, with improvements in their EF after exposure to the intervention (van de Weijer-Bergsma et al., 2012). Moreover, an eight-week follow up of the participants displayed continued and strengthened decreases in adolescents' externalizing behaviors and persistent improvements in their EF. Additionally, a randomized control trial consisting of 64 2<sup>nd</sup> and 3<sup>rd</sup> graders yielded significant improvements in the EF of children who initially demonstrated lower levels of EF and participated in a MBI treatment program compared to their peers in the control group (Felver et al., 2013). Students' improvements in EF were reflected in teachers' and parents' reports, endorsing the children exhibited progress in their behavioral self-regulation. Felver et al. (2013) also discussed the positive outcomes of MBCT-C on 25 ethnically diverse youth between the ages of nine and twelve years old. Specifically, children who participated in MBCT-C programming showed reductions in externalizing behaviors according to parent reports. Such studies highlight the promising effects of mindfulness on children and adolescents' functioning; particularly pertaining to their behavioral presentation and EF.

## **Study Aims and Design**

Preliminary research surrounding MBI's and meditative approaches suggest promising psychological and physiological benefits of mindfulness on children and adolescents' ability to self regulate. Despite the growing number of studies, the topic is a broad one, and existing research is considered very preliminary in nature, as this is a relatively new field in which data summarizing the efficacy of meditative approaches is still limited (Burke, 2009). Moreover, research on feasibility and fidelity of mindfulness-based programs for children and youth is also underdeveloped. More information is needed to understand the degree to which these programs can be delivered with fidelity and are acceptable to end users. Therefore, the following pilot study aimed to assess the feasibility of implementing a mindfulness program within a small clinical sample of youth. The first goal of the study was to examine the acceptability of the Relaxation Movement Group among students attending a partial hospitalization program. The second aim of the study was to assess implementation fidelity of the model. The third aim was to evaluate the impact of the intervention on students' adaptive and problem (i.e., externalizing) behaviors over time and the extent to which there was a decrease in the need for SRUs within the setting. The following three research questions are proposed:

- 1) What were participants' beliefs regarding the acceptability of the RMG program?
- 2) Was the RMG program implemented as initially designed?
- (3) Were there clinically meaningful changes in participants' behavior and functioning from pre to post in externalizing behaviors, adaptive behaviors, points earned in the partial hospital program, or number of restraints?

## Methods

### Participants

Participants were recruited from a partial hospitalization program located in an urban school district of New Jersey. The setting predominantly served students from low-income families. Participants of the study included nine students, between the ages of 7 and 11 years old, who were attending the designated Partial Program. Participants presented with severe psychiatric and behavioral difficulties, having previous hospital admissions and residential placements. Records documented students having a combination of clinical diagnoses such as Attention-Deficit/Hyperactivity Disorder (ADHD), Major Depressive Disorder (MDD), Oppositional Defiant Disorder (ODD), Autism Spectrum Disorder (ASD), and Intermittent Explosive Disorder. Based on observations and behavioral records, pre adolescents attending the Partial Program exhibited higher levels of behavioral difficulties, requiring more frequent restraints compared to the adolescent population of the program. Therefore, students attending the Partial Program, who were between the ages of 7 and 11 years old, were invited to participate in the study. Participants were separated into two groups based on age, with younger students (i.e., ages 7 to 9) placed in one classroom, and older students (i.e., ages 10 to 11) assigned to the other.

Table 1 (see Appendix B) illustrates that the sample was predominantly male (89%), who identified as either African American (89%) or Hispanic (11%). Participants were comprised of the following: one 2<sup>nd</sup> grade student (11%); one 3<sup>rd</sup> grade student (11%); two 4<sup>th</sup> graders (22%); three 5<sup>th</sup> graders (33%), and two 6<sup>th</sup> graders (22%).

## **Procedures**

**Recruitment of partial hospitalization staff.** As part of the recruitment process, the Principal Investigator (PI) attended a morning weekly staff meeting, prior to the beginning of a regular school-day. All interested staff members were invited to attend by Executive Staff members, who briefly explained the topic of the meeting (i.e., a study regarding mindfulness) approximately one week before the presentation. During the meeting, in which mental health specialists (MHS), one teacher, and clinicians were in attendance, the PI informed staff about the purpose of the current study. Personnel were subsequently provided with an overview of their respective roles and responsibilities, and shown assessment measures, which would require their completion throughout the duration of the research project. After consents were distributed and questions answered, interested staff members were invited to consent. Personnel were informed by the PI that participation in the study was voluntary, resulting in no form of penalty should they decide not to participate in the research. Consenting staff members were then provided with training by the PI regarding proper methods for completing measures.

**Role of mental health specialists.** Mental health specialists were informed about confidentiality. Specifically, it was explained by the PI that information provided by staff through rating scales would remain anonymous. They were also instructed on how to properly implement the program: gathering the student participants for group times, playing the Relaxation Movement DVD; and methods for assessing participants' active participation versus inattention. Moreover, they were provided with instructions on how and when to complete the Relaxation Movement Group Fidelity Rating Scale. Mental health specialists were also reminded to provide student participants with encouragement to use their learned mindfulness techniques throughout the school day, particularly during stressful times when the participant felt

frustrated or angry. As such, MHS's were supplied with verbal prompts to provide to participants during such instances, including, "*Remember to use the strategies you learned in group,*" "*Remember your deep breathing,*" and "*Let's practice our mindfulness exercises.*"

**Role of clinicians.** As part of the therapeutic milieu offered by the partial hospitalization program, clinicians are scheduled to meet with parents once a week in order to discuss their child's progress and difficulties. As such, clinicians' roles included informing the parents of the RMG study. Based on confidentiality and the organization's preference to allow minimal direct contact between the PI, student participants, and their respective parents, Executive Staff of the setting decided Clinical Staff would be most appropriate to manage and lead the recruitment process of participants and their parents. Therefore, during the formal presentation conducted by the PI, clinicians were informed of all the relevant and crucial information they needed to reiterate and review with parents. Specifically, clinicians were asked to discuss with parents their child's roles and responsibilities as participants in the RMG program and the confidentiality of all participants' personal information. Executive Staff of the setting were given parental consent and student assent forms to distribute to clinicians accordingly, so that they could then provide interested parents and students with the necessary paperwork during their individual sessions. Executive staff also directed clinicians to inform their interested families to sign and date all consent and assent forms, emphasizing that participation was voluntary rather than mandatory.

The PI reviewed with clinicians the purpose of the Behavior Assessment System for Children, Third Edition, Teacher Rating Scale (BASC-3 TRS), and how to properly complete the assessment measure. In addition, clinicians were also introduced and trained on the proper techniques of assisting the children in completing the Relaxation Movement Group Acceptability



Rating Scale, which was scheduled to be completed by the students during the final week of the study, post program implementation. The PI also requested that clinicians encourage their students to intermittently practice their learned mindfulness strategies during difficult moments they may encounter throughout the school-day. Clinicians were provided with examples of appropriate verbal prompts they may say to the participants such as, "*Remember to use the strategies you learned in group,*" and "*Let's practice our mindfulness exercises.*"

**Role of teacher.** Similar to the other staff members, the one teacher participant was asked to encourage her students to intermittently practice their learned mindfulness techniques during emotionally difficult times throughout the school-day. The PI offered the teacher examples of verbal prompts she may state; comparable to the statements provided to the MHS's and Clinicians (i.e., "*Remember to use the strategies you learned in group,*" "Remember your deep breathing," and "*Let's practice our mindfulness exercises*").

### **Mindfulness Intervention: Relaxation Movement Group (RMG)**

Assenting participants were scheduled to attend the RMG Group three times per week, with each session lasting approximately 30 minutes; spanning a total of eight weeks. During each session, which was implemented and observed by MHS staff, the participants viewed a DVD demonstrating mindfulness techniques such as deep breathing, meditation, and yoga poses, while simultaneously replicating the exercises. Throughout the activity, support staff remained standing, assisting participants with practicing the techniques and/or offering redirection as necessary. Subsequently, throughout the school-day, staff (e.g., Mental Health Specialists, Teachers, and Clinicians) provided reminders to participants, prompting them to implement such mindfulness strategies during stressful moments.

Based on other programs, which demonstrated the positive effects that mindfulness can have on children's behaviors and social and emotional competence, the mindfulness DVD, *Shanti Generation: Yoga Skills for Youth Peacemakers* (Schonert-Reichl & Lawlor, 2010; Davis & Hayes, 2011), was used for the current study. It was developed for children and teens between the ages of 7 and 16 years old. The *Shanti Generation* program provides an introductory portion, during which the adolescent models introduce themselves to the audience and explain their reasoning for practicing mindfulness. Moreover, the DVD program includes five practice sessions, lasting 30 minutes each, which review topics such as Creating Happiness, Energy Amplified, and Voice Choice Possibility. Such sessions first introduced adolescent models demonstrating yoga poses in tandem with a voice-over instructing proper technique. Subsequently, practitioners were then transitioned to the breathing exercises portion of the DVD, which first briefly explained the purpose and benefits of deep breathing, and then exposed viewers to the adolescent models exhibiting proper breathing form and practice. Finally, as part of the mindfulness awareness exercises, participants were then shown a blank screen, during which verbal directions were provided to assist in facilitating in-the-moment mindful awareness. During these segments, participants were also encouraged to focus on their present internal and external experiences rather than irrelevant stimuli. In order to facilitate practice, RMG sessions were repetitive in nature. As such, sessions followed a typical pattern, during which participants continuously practiced varying combinations of the same yoga poses, breathing exercises, and mindful awareness activities. Specifically, RMG sessions either included one 30-minute session already provided by the DVD, or a 30-minute lesson that was created by the PI by joining individualized segments of the DVD (i.e., yoga poses, breathing exercises, and mindful awareness exercises) to produce one complete session encompassing all elements.

Segments from the 30-minute practice sessions were extracted to provide 18 individualized short sequences, demonstrating the various yoga poses that could be used for independent practice; five breathing exercises, facilitating stress and anxiety reduction; and two mindfulness awareness practice sessions.

### **Mindfulness Components**

The *Shanti Generation* program incorporates several of the key components of mindfulness-based interventions, including meditative yoga and deep breathing strategies, in order to facilitate outcomes such as awareness and self-regulation. As such, for purposes of the current pilot study, it was chosen as the intervention. Specifically, the *Shanti Generation* program encompassed elements typically included within other MBIs, which has been featured in previous research. For example, Re et al. (2014) used a descriptive, correlational pre and post intervention research design to study the effects of yoga on a clinical population of adolescents attending a mental health hospital. Findings of the study indicated that adolescent patients who attended the yoga classes demonstrated significant declines in their levels of distress and anxiety, as evidenced by their lowered pulse and scores on the Subjective Units of Disturbance Scale (SUDS) (Re et al., 2014). As such, the researchers concluded that the practice of yoga was associated with positive therapeutic effects regarding the sensory regulation among a clinical population of youth. Moreover, additional studies also highlighted the possible benefits of the fundamental practices incorporated within mindfulness approaches. In particular, with regards to the importance of incorporating breathing exercises, a pre-test, post-test control research group design conducted by Sellakumar (2015) examined the effects of a slow-deep breathing program among 100 adolescents, between the ages of 11 and 17 years old, living in India. In particular, Sellakumar (2015) found that participants in the experimental group reported lower levels of

anxiety after attending 30-minute sessions consisting of slow-deep breathing exercises for 45 days. Furthermore, a preliminary randomized controlled study conducted by Noggle et al. (2012), assigned fifty-one eleventh and twelfth grade high school students to either a Kripalu-based yoga program or Physical Education (PE) control group. Similar to the current study, students who received the yoga intervention practiced three popular elements often seen in MBI interventions: physical postures, breathing exercises, and relaxation and meditation strategies, which they practiced approximately three times per week, for a duration of 10 weeks; while PE students were provided with education and engaged in competitions and games during that time period. Results indicated students in the yoga group demonstrated initial improvements, and overall maintenance of reduced negative affect, total mood disturbance, and anxiety compared to the PE control group.

Overall, three mindfulness key elements included in the *Shanti Generation* program, such as yoga poses, deep breathing, and meditative techniques have been associated with improvements in overall well-being, including behavioral control, decreases in psychological symptoms related to depression, anxiety, and stress, and enhancements in cognitive functioning and formed the basis for selecting this program (Vickery & Dorjee, 2016). Vickery and Dorjee (2016) conducted a controlled feasibility pilot study assessing the acceptability and emotional well-being of 71 children between the ages of seven and nine years old, which indicated that at follow-up, students in the training group who received 8-weeks of mindfulness programming endorsed decreases in negative affect according to self and teacher reports compared to students in the control group.

In addition to the three empirically supported elements of the *Shanti Generation Program* (i.e., yoga poses, deep breathing exercises, and meditative techniques), there were three

additional reasons for selecting this program. First, the use of technological support (i.e., a DVD) was expected to enhance implementation with regards to staff's efforts and duties during programming. Additionally, the models featured in the *Shanti Generation* program were youth. As such, it was speculated that the participants of the current study would align more easily with the instructors, as they themselves were adolescents. Third, the DVD delivery was expected to enhance fidelity to the key components of the program.

### **Intervention Format**

During the five 30-minute practice sessions, teen models demonstrated mindfulness practices (e.g., self-regulation) by displaying various yoga poses, which participants were encouraged to replicate. Similarly, as part of the other sequences contained in the DVD, the models again illustrated mindfulness strategies, such as deep breathing techniques and meditation exercises, to teach viewers such skills and promote practice. The Shanti DVD was intended to facilitate mindfulness among its participants, regardless of their level of proficiency.

### **Measures**

#### **RMG Acceptability**

Participants completed *The Acceptability Questionnaire* (see Appendix C) to assess their level of acceptability, satisfaction, preferences and perceived outcomes after having participated in the RMG intervention (Turco & Elliot, 1990). Specifically, clinicians were present during participants' completion of the *Acceptability Questionnaire*, answering participants' questions regarding the prompts, and reading and explaining the items accordingly. The constructs examined included participants' preferences toward the program; emotional and physical effects of the intervention; and application of newly-learned skills. This questionnaire was developed by the PI to assess participants' beliefs about the effectiveness and helpfulness of the Relaxation

Movement Group in supporting emotions, thoughts, and behaviors. This information can inform future mindfulness programs, including enhancing intervention effectiveness, relevance, and usability. *The Acceptability Questionnaire* consisted of ten closed-ended items, with response options including: *Never, Sometimes, or Always*. In addition, this measure also contained three open-ended questions, allowing the participants to further elaborate on their responses. Closed-Item questions included prompts such as "*I felt more relaxed after participating in group*" and, "*I thought the breathing exercises were difficult,*" while open-ended inquiries encompassed prompts such as, "*My favorite part of the Relaxation Movement Group was...*" Questions concerning the feasibility of the study allow insight into the point of view of participants with regards to their beliefs about the program (i.e., were they fond of the group, did they believe the group activities were difficult, and what barriers did they encounter?); along with the Relaxation Movement Group's congruence and fit within the specific setting of the partial hospitalization program. Specifically, participants' responses were intended to provide information regarding their individualized use of mindfulness techniques, and their perceptions of the usefulness of the approach.

### **RMG Implementation Fidelity**

Mental health specialists completed the *Relaxation Movement Group Fidelity Rating Scale* (see Appendix D) at the conclusion of each session to assess whether the program was implemented and received as originally designed. Specifically, the constructs assessed included participant attendance, duration in minutes of each group, and engagement and participation throughout groups. This scale was developed by the PI for the current study, as there were no existing measures relevant to the current mindfulness intervention. Items were guided by literature on survey development and mindfulness interventions (Mertens, 2010; Rossi et al.,

2004; & Felver et al., 2013). This measure included four items with a closed ended response format (i.e., *Yes* or *No*). There was also a section for personnel to record the total time in minutes for which each participant was exposed to the intervention per session. Prompts such as, "*Student attended group*" and "*Student remained in group for the entire session,*" were incorporated.

### **Participant Behavior and Functioning**

**Externalizing behaviors.** Clinicians rated participants' problem behaviors at pre and post using the Behavior Assessment System, Third Edition, Teacher Rating Scales (BASC-3 TRS; Reynolds & Kamphaus, 2015). These data were used to compare the frequency and severity of participants' externalizing behaviors before and after the introduction of the eight-week mindfulness intervention. The BASC-3 TRS contains 156 items and measures the adaptive and problem behaviors of students within an academic setting. Rating options were comprised of *Never, Sometimes, Often, or Almost Always*. Elevated scores on the Externalizing Problems Composite suggest possible disruptions and problems in functioning, evidenced by negative, adverse, or undesirable characteristics and qualities one is perceived to demonstrate (e.g., being disruptive to others' activities, unresponsiveness to redirection, and problematic social relationships with peers; Reynolds & Kamphaus, 2015). Specifically, T-scores between 70 and above, are classified as Clinically Significant, indicating high levels of maladaptive behaviors, while T-scores of 60 to 69 are considered At-Risk; 41 to 59 are categorized as Average; 31 to 40 are labeled as Low; and 30 and below are classified as Very Low. The following constructs comprise the Externalizing Problems Composite of the BASC-3 TRS: Hyperactivity, Aggression, and Conduct Problems. Clinician completion of the BASC-3 TRS pre and post

intervention provided insight into any changes in students' problem behaviors throughout the duration of the study.

Both the composite and scale scores of the BASC-3 TRS were high and overall consistent across genders, clinical and nonclinical populations, and individuals of differing ages (Reynolds & Kamphaus, 2015). The composite scale of the rating scale within the clinical norming samples was comparable to the reliability coefficients from the general norm sample, which was in the excellent range, with scores spanning the .90s. Moreover, the clinical and adaptive scales of the BASC-3 TRS are in the good to excellent range with scores above .80, while content scale scores and clinical index scores are in the adequate to excellent, and good to excellent ranges, respectively. Such scores suggest high internal consistency reliability among assessment items, indicating that various questions and items included within the BASC-3 TRS acceptably measure the adaptive and problem behaviors within youth. Furthermore, when assessing test-retest reliability, which is the repeatability of one's scores (Litwin, 1995), the BASC-3 TRS for all three forms (i.e., preschool, child, and adolescent versions) displayed adequate test-retest reliability, with scores in the middle to high .80s. Regarding validity, the BASC-3 scales yield satisfactory content, construct, and criterion validities, suggesting that the assessment measure possesses appropriate items, contains meaningful scales, and is comparable to similar rating scales assessing the same construct of participants' behaviors (Litwin, 1995; Reynolds & Kamphaus, 2015; Sattler & Hoge, 2006).

**Adaptive behavior.** The Adaptive Scales of the BASC-3 (Reynolds & Kamphaus, 2015) were completed at pre and post to measure participants' level of behavioral strengths. High scores suggest desirable characteristics and positive functioning among participants, while low scores indicate potential problems or deficits in such areas (Reynolds & Kamphaus, 2015). T-



scores between 70 and above are classified as Very High, indicating high levels of appropriate and positive behaviors, while T-scores of 60 to 69 are categorized as High; 41 to 49 are considered Average; 31 to 40 known as At-Risk; and T-scores of 30 and below classified as Clinically Significant. The Adaptive Scales of the BASC-3 measures Activities of Daily Living, Adaptability, Functional Communication, Leadership, Social Skills, and Study Skills.

**Daily functioning.** Participants' daily point charts and documented frequency of restraints were recorded by MHS staff, teachers, and clinicians (see Appendix E). Daily point charts and recorded frequency of restraints have been created and utilized by the setting as part of their behavioral management program. Participants between the ages of 7 and 9 years old could earn up to 65 points per day, while participants between 10 and 11 years of age could earn up to 80 points per day, depending on their demonstration of appropriate behavior (e.g., following classroom directions, interacting respectfully with staff and peers, completing assignments and remaining on task, and utilizing coping skills during stressful situations). In terms of restraint use, based on hospital policy, staff members were mandated to implement restraints as a last resort, when all other interventions were attempted without de-escalation. When students engaged in unsafe behaviors that could cause a physical danger to themselves or others, such as, kicking, hitting, and throwing objects, hospital personnel were instructed to use brief restraints (i.e., manual holds) to help ensure the safety of all individuals. The review of participants' points and documented frequency of restraints allowed for the examination of participants' common behavioral patterns and level of functioning within the clinical setting on a daily basis.

## Data Analysis

### RMG Acceptability

**Mean acceptability of RMG components.** Three participants were unable to complete the Student Acceptability Rating Scale prior to discharge. Their data was treated as missing. For each component of the RMG intervention (e.g., *yoga poses were fun* and *breathing exercises made me calm*), means, standard deviations, and ranges were calculated to depict mean acceptability, perceptions, and satisfaction with the individual RMG program components. Means percentages of participants who replied *Never*, *Sometimes*, or *Always* to a particular component were also computed.

**Overall acceptability.** Descriptive statistics, (i.e., means, standard deviations, and ranges) were computed to summarize overall acceptability of RMG. These analyses indicated the typical response style of participants on all RMG components. Open-ended responses to acceptability also provided additional insights into elements of the program that participants liked and disliked.

### RMG Implementation Fidelity

**RMG delivery as designed (quantity).** The number of minutes during which the participants were exposed (i.e., viewed, heard, or participated in the RMG activities) to the RMG intervention were summed. Proportions were then computed using the total intervention minutes offered, and the total intervention minutes actually received by the participants. Participants' overall amount of exposure to RMG components were computed including whether participants obtained the optimum amount of programming initially intended throughout the eight-week RMG intervention. Percentages between 0% and 25% were classified as low dosage, 26% - 50%

were classified as minimal dosage, 51% - 75% were classified as moderate dosage, and 76% - 100% were classified as high dosage.

**Mean percent elements received (quality).** Means, standard deviation, and ranges were calculated for the mean number of program elements each participant received weekly. Regarding missing data, due to varying amounts of participants' absences, along with differing starting and ending points as a result of new admissions and discharges from the partial hospitalization program, participants were offered variable total sessions.

Specifically, means were calculated for the number of elements each participant received during each of the three sessions offered weekly. Mean percent number of elements each participant received during each week of RMG implementation was also calculated. These analyses illustrated the total percentage of elements participants received throughout the eight-week RMG program.

### **Participant Behavior and Functioning**

Means, standard deviations, and ranges for pre and post BASC-3 T-scores on the clinical, adaptive, and composite scales were calculated.

Reliable change index (RCI) scores assessed whether there was a clinically meaningful change between participants' pre and posttest scores (Jacobson & Traux, 1991). RCI is the difference between an individual's scores divided by the standard error of the difference of the measurements completed by participants. The formula includes:

$RCI = (X_1 - X_2) / s_{diff}$ , where  $X_1$  represents the student's pretest score,  $X_2$  represents the student's posttest score, and  $s_{diff}$  represents the standard error of difference between the two scores of the participant (Jacobson & Traux, 1991). An RCI score that was greater than 1.96 indicated a statistically significant improvement between the participant's scores, while a RCI score less than -1.96 suggests there was a statistically significant negative decline (i.e., worsening or regression) between the pre and post. RCI scores

which fall between -1.96 and 1.96 indicated no clinically meaningful changes between pre and post test scores. Specifically, individual RCI scores were calculated for each participant's BASC-3 scores.

Cohen's *d* estimated the magnitude of change for the participants' adaptive and problem behaviors (as indicated by the BASC-3). The formula for Cohen's *d* includes:

$$[(X_1 - X_2)/\text{pooled standard deviation (SD)}] \text{ (Cohen, 1988).}$$

The mean number of daily points that each participant earned per week, over the course of the eight-week intervention, was calculated and used to assess changes in participants' behavioral functioning before and during RMG implementation. The mean weekly points of each participant were then graphed to demonstrate the changes in the average number of points that each participant earned on a weekly basis.

The total number of all participants' daily restraints was summed per week, throughout the duration of the eight-week RMG program. Such analyses evaluated whether there were changes in the total number of participant restraints during program implementation.

## **Results**

### **Research Question 1: Acceptability of the RMG Program**

**Mean acceptability of RMG components.** Figure 1 (see Appendix F) illustrates that 17% of the sample believed the yoga poses were either *always* or *never* fun, leaving 67% of the sample to rate the yoga poses as *sometimes* fun. In addition, 33% noted that the breathing exercises were *sometimes* fun, while 33% indicated they were *never* fun, and 50% agreed the breathing exercises were *always* fun. Regarding participants' willingness to participate in the RMG program again, 17% indicated *sometimes*, 33% endorsed *never*, and 50% noted *always*. When asked whether the yoga poses made the participants calm, 33% of the sample endorsed *never*, 33% reported *sometimes*, and the remaining 33% indicated *always*. When asked whether

the breathing exercises made them calm, 17% indicated *sometimes*, 33% noted *never*, and 50% stated *always*.

Figure 1 (see Appendix F) illustrates that 17% of participants rated *sometimes* feeling relaxed after participating in the RMG program, while 33% endorsed *never* feeling relaxed after participating in the RMG program, and 50% indicated *always* feeling relaxed subsequent to group participation. In terms of the difficulty of yoga poses, 17% of participants reportedly *always* believed the activity was difficult, while 83% noted they *sometimes* considered the poses difficult. Fifty percent of participants *never* thought the breathing exercises were difficult, while 33% noted the breathing activities were *always* difficult, and 17% agreed they were *sometimes* difficult. When asked whether they understood all of the provided directions during RMG sessions, 67% of the sample stated they *sometimes* understood the directions, while 33% noted they *always* understood the instructions. Finally, 67% of the sample believed that other students of the Partial Hospitalization Program would *sometimes* enjoy the RMG, should they choose to participate, while 33% agreed other students would *always* enjoy participation in the RMG program.

**Overall acceptability.** Acceptability was rated on a three-point scale (1 = *Never*, 2 = *Sometimes*, and 3 = *Always*). Figure 2 (Appendix G) shows that on average, participants rated both the yoga poses ( $M = 2.00$ ) and breathing exercises ( $M = 2.17$ ) as *sometimes* fun. In addition, they generally endorsed that they would *likely* ( $M = 1.83$ ) participate in the RMG program again. Participants indicated that both the yoga poses ( $M = 2.00$ ) and the breathing exercises ( $M = 2.17$ ) *sometimes* made them calm. Overall, they agreed that *sometimes*, almost *always* ( $M = 2.50$ ), they felt more relaxed after participating in the RMG. Participants reported they *sometimes* believed the yoga poses ( $M = 2.17$ ) and breathing exercises ( $M = 1.83$ ) were

difficult. Participants generally agreed that they *typically* understood all of the directions given to them during the RMG sessions ( $M = 2.33$ ). Lastly, they *fairly* agreed ( $M = 2.33$ ) that other students of the partial hospitalization program would enjoy attending the RMG.

Participant responses to two open-ended questions (i.e., *My favorite part of the RMG was*, and *My least favorite part of the RMG was*) highlighted that 50% of the sample identified the yoga poses, particularly the "warrior pose," as their most favorite part of the RMG. Thirty-three percent of participants described the breathing exercises as their most preferred activity, and 17% indicated that sleeping was their most favorite element of the RMG. Sixty-seven percent of the sample noted "hard poses," such as the "frog," "turtle," and even the "warrior" poses, as their least favorite part of the program. A small percentage of participants (17%) identified the "breathing" exercises as their least favorite activity, while the remaining 17% indicated that "laying down" was their least favorite. Finally, when asked whether they used the skills they learned from the RMG group outside of intervention sessions, most of the participants (67%) endorsed that they practiced the skills, with the majority identifying "home" as the practice setting. The remaining 33% of participants denied ever using any RMG skills outside of program implementation.

### **Research Question 2: RMG Implementation Fidelity**

**RMG delivery as designed (quantity).** The RMG program was designed to be delivered for a total of eight weeks, with three 30-minute sessions provided to participants each week. Table 2 (see Appendix H) illustrates that 44% of participants received either *Moderate* or *High Dosage* of the RMG intervention. One participant (11%) received a *Minimal Dosage* of the program. Figure 3 (see Appendix I) illustrates that P<sub>A</sub>, P<sub>F</sub>, P<sub>G</sub>, and P<sub>I</sub> received 92%, 87%, 81%, and 87%, of the total minutes of programming offered to them while P<sub>B</sub>, P<sub>C</sub>, P<sub>E</sub>, and P<sub>H</sub> were

exposed to a lower dose, 56%, 63%, 62%, and 69% of the total minutes of programming offered to them. Overall, participants varied in the total percentage of minutes they received as illustrated by Figure 3 (see Appendix I).

**Mean percent elements received (quality).** Fidelity was also measured based on participants' completion of four items (e.g. practice of yoga poses and enactment of breathing exercises). Individual ratings of participants, which were indicated by mental health specialist staff, were summed per day and subsequently averaged per week in order to reflect the percentage of elements each participant received weekly, as illustrated by Table 3 (see Appendix J). The total mean percent number of elements received by each participant reflected the overall percentage of elements participants received throughout the entire eight-week RMG program.

Table 4 (see Appendix K) illustrates that throughout the eight weeks of RMG implementation, five of the nine total participants (56%), on average, received between 76% to 100% of the overall RMG elements provided ( $P_A$ ,  $P_C$ ,  $P_F$ ,  $P_G$ , and  $P_I$ ). Of the remaining participants, two of the nine participants (22%) received between 51% to 75% of the RMG elements offered ( $P_E$  and  $P_H$ ). The other two of the nine participants (22%) received 26% to 50% of the overall RMG elements ( $P_B$  and  $P_D$ ). In general, program implementation appeared adequate with the RMG intervention typically implemented as intended. This evidenced that 56% of the sample typically received the majority of the intended and provided RMG elements.

Figure 4 (see Appendix L) illustrates that when examining mean percent number of RMG elements received weekly by each participant, five of the nine total participants (56%) completed the total eight-week RMG program. One of the participants (11%) completed six weeks of the RMG program, while another participant (11%), completed five weeks, and another participant

(11%) completed four weeks. The remaining participant (11%) completed three weeks of programming.

Of the four participants (44%) who completed less than eight weeks of RMG programming, three of the participants obtained more than one half of the total mean percent number of elements provided. Specifically, as indicated by Table 4 (see Appendix K), in general,  $P_H$  obtained 65% (SD = 0.30; Range = 17 to 100) of RMG elements provided, while  $P_C$  received 79% (SD = 0.32; Range = 0 to 100), and  $P_I$  received 88% (SD = 0.16; Range = 67 to 100). Of the four participants, the remaining one participant ( $P_D$ ), on average, received 44% (SD = 0.35; Range = 33 to 50) of RMG elements provided. Despite completing less than the intended eight-weeks of programming, overall, most of the participants (i.e., three of the four participants) still received a high percentage of RMG elements provided.

### **Research Question 3: Participant Behavior and Functioning**

**Changes in externalizing behaviors.** Mean T-scores from the BASC-3 Teacher Rating Scales (TRS) assessed changes in externalizing behaviors before and after RMG implementation. BASC-3 mean T-scores on the Clinical Scales and Externalizing Problems Composite were reversed scored. Higher mean T-scores indicated a higher severity of negative functioning and maladaptive behavior, while lower mean scores represented an absence of problematic behavior. Table 5 (see Appendix M) illustrates that overall, in the sample, the Externalizing Problems Composite mean T-score was 65 (SD = 6.25) at pre, while the Externalizing Problems Composite mean T-score was 62 (SD = 9.81) at post. The Hyperactivity Clinical Scale pre mean T-score was 58 (SD = 5.69), while the Hyperactivity Clinical Scale post mean T-score was 55 (SD = 6.86). The Aggression Clinical Scale pre mean T-score was 67 (SD = 7.18), while the Aggression Clinical Scale post mean T-score was 63 (SD = 11.46). The Conduct Problems



Clinical Scale pre mean T-score was 68 (SD = 7.83), while the Conduct Problems Clinical Scale post mean T-score was 65 (SD = 11.62).

Regarding individual changes in participants' behaviors and functioning before and after RMG implementation, RCI scores that were greater than 1.96 indicated a statistically significant increase in participants' clinical scale scores, suggesting an increase in a participant's negative behavior and maladaptive functioning. RCI scores less than -1.96 suggested there were statistically significant decreases in a participant's negative behavior and maladaptive functioning. RCI scores which fell between -1.96 and 1.96 indicated no clinically meaningful changes between pre and post test scores.

Table 7 illustrates (see Appendix O) that on the Hyperactivity Clinical Scale of the Externalizing Problems Composite, two of the nine participants (22%) obtained RCI scores that were less than -1.96 ( $P_E$  and  $P_H$ ), suggesting a clinically meaningful decrease in participants' hyperactivity from pre to post. The remaining seven participants (78%) had RCI scores between -1.96 and 1.96 ( $P_A$ ,  $P_B$ ,  $P_C$ ,  $P_D$ ,  $P_F$ ,  $P_G$ , and  $P_I$ ), signifying no significant changes in their level of hyperactivity from pre to post. On the Aggression Clinical Scale, two of the nine participants (22%) obtained RCI scores that were less than -1.96 ( $P_A$  and  $P_E$ ), suggesting a clinically meaningful decrease in participants' individual verbal and physical hostility toward others. The remaining seven participants (78%) earned RCI scores between -1.96 and 1.96 ( $P_B$ ,  $P_C$ ,  $P_D$ ,  $P_F$ ,  $P_G$ ,  $P_H$ , and  $P_I$ ), demonstrating no significant changes in their level of aggression from pre to post. On the Conduct Problems Clinical Scale, three of the nine participants (33%) obtained RCI scores that were less than -1.96 ( $P_A$ ,  $P_E$ , and  $P_H$ ), suggesting a clinically meaningful decrease each participants' tendency to engage in rule-breaking behaviors. The remaining six participants (67%) obtained RCI scores between -1.96 and

1.96 ( $P_B$ ,  $P_C$ ,  $P_D$ ,  $P_F$ ,  $P_G$ , and  $P_I$ ), suggesting no significant changes in their level of conduct problems from pre to post.

**Changes in adaptive behaviors.** Higher BASC-3 mean T-scores on the Adaptive Scales and Adaptive Skills Composite indicated positive functioning and desirable characteristics, while lower mean T-scores represented deficits in adaptive behavior. Table 9 (see Appendix Q) illustrates that, overall, in the sample, the Adaptive Skills Composite mean T-score was 43 (SD = 3.81) at pre, while the Adaptive Skills Composite mean T-score was 46 (SD = 4.97) at post. The Adaptability Adaptive Scale pre mean T-score was 39 (4.78), while the Adaptability Adaptive Scale post mean T-score was 41 (SD = 3.63). Specifically, the mean T-score was classified in the At-Risk range at pre and was then classified in the Average range at post. The Social Skills Adaptive Scale pre mean T-score was 44 (SD = 6.27), while the Social Skills Adaptive Scale post mean T-score was 47 (SD = 6.40). The Leadership Adaptive Scale pre mean T-score was 49 (SD = 5.33), while the Leadership Adaptive Scale post mean T-score was 51 (4.74). The Study Skills Adaptive Scale pre mean T-score was 43 (SD = 4.38), while the Study Skills Adaptive Scale post mean T-score was again 43 (SD = 6.6.2). The Functional Communication Adaptive Scale pre mean T-score was 43 (SD = 3.75), while the Functional Communication Adaptive Scale post mean T-score was 50 (SD = 3.99).

Table 11 (see Appendix S) illustrates that on the Adaptability Adaptive Scale of the Adaptive Skills Composite, one of the nine participants (11%) obtained RCI a score that was greater than 1.96 ( $P_D$ ), indicating a clinically meaningful increase in the participant's ability to adapt readily to environmental changes. The remaining eight participants (89%) earned RCI scores between -1.96 and 1.96 ( $P_A$ ,  $P_B$ ,  $P_C$ ,  $P_E$ ,  $P_F$ ,  $P_G$ ,  $P_H$ , and  $P_I$ ), demonstrating no significant changes between their level of adaptability before and after RMG implementation. On the Social

Skills Adaptive Scale, three of the nine participants (33%) obtained RCI scores greater than 1.96 (P<sub>A</sub>, P<sub>E</sub>, and P<sub>H</sub>) suggesting a clinically meaningful increase in each participant's individual ability to interact appropriately with others. One participant (11%) earned a RCI score less than -1.96 (P<sub>D</sub>), indicating a clinically meaningful decrease in the participant's level of social skills before and after RMG implementation. The remaining five participants (56%) obtained RCI scores between -1.96 and 1.96, evidencing no significant changes between their positive social skills functioning from pre to post. On the Leadership Adaptive Scale, two of the nine participants (22%) earned RCI scores greater than 1.96 (P<sub>F</sub> and P<sub>H</sub>), suggesting a clinically meaningful increase in each participants' decision making skills, level of advocacy for teamwork and collaboration, and ability to work well under pressure. The remaining seven participants (78%) obtained RCI scores between -1.96 and 1.96, suggesting no significant changes between their levels of leadership. On the Study Skills Adaptive Scale, two of the nine participants (22%) obtained RCI scores less than -1.96 (P<sub>F</sub> and P<sub>G</sub>), evidencing a clinically meaningful decrease in their individual skills related to the achievement of academic success. The remaining seven participants (78%) earned RCI scores between -1.96 and 1.96 (P<sub>A</sub>, P<sub>B</sub>, P<sub>C</sub>, P<sub>D</sub>, P<sub>E</sub>, P<sub>H</sub>, and P<sub>I</sub>), indicating no significant changes between their level of study skills before and after RMG implementation. On the Functional Communication Adaptive Scale, four of the nine participants (44%) obtained RCI scores greater than 1.96 (P<sub>C</sub>, P<sub>E</sub>, P<sub>G</sub>, and P<sub>H</sub>), suggesting a clinically meaningful increase in participants' individual ability to clearly express and verbalize their ideas to others. The remaining five participants (56%) earned RCI scores between -1.96 and 1.96 (P<sub>A</sub>, P<sub>B</sub>, P<sub>D</sub>, P<sub>F</sub>, and P<sub>I</sub>), evidencing no significant changes between their level of functional communication before and after RMG implementation.

**Trends in restraints and behavior points.** Over the duration of the study, restraint use was a minimal occurrence. Therefore, no further analysis was completed, as no changes in restraint frequency could be reported.

Participants earned daily points based on their demonstration of positive, appropriate behavior (e.g., following classroom directions, interacting respectfully with staff and peers, completing assignments and remaining on task, and utilizing coping skills during stressful situations). Higher points earned indicated more frequent displays of desirable behaviors, while lower points earned represented participants' difficulties maintaining a proper level of expected behavioral functioning during their daily attendance at the partial program.

Table 13 (see Appendix U) illustrates that, of the seven participants who earned behavioral points during baseline and intervention, three participants (43%) had a higher mean number of points earned during the intervention phase when compared to their mean number of points earned during the baseline phase. This suggests that such participants ( $P_B$ ,  $P_E$ , and  $P_H$ ) demonstrated an increase in the number of points they earned between baseline and intervention. The remaining four participants (57%) earned a lower mean number of points during the intervention phase when compared to their mean number of points earned during the baseline phase. This indicated that such participants ( $P_A$ ,  $P_D$ ,  $P_F$ , and  $P_G$ ) displayed a decrease in the number of points they earned between baseline and intervention.

Figures 5 through 13 (see Appendix V) illustrate points earned at baseline and weekly mean points earned during intervention (no baseline data were available for  $P_C$  and  $P_I$ ). During baseline (see Figure 6),  $P_B$  mean total points was 40 ( $SD = 10.39$ ) while during intervention, mean total points for  $P_B$  was 52 ( $SD = 6.17$ ). During baseline (see Figure 9), mean total points for  $P_E$  was 45 ( $SD = 21.83$ ), while during intervention, the mean total points for  $P_E$  was 67 ( $SD =$

16.88). During baseline (see Figure 12), mean total points for P<sub>H</sub> was 54 (SD = 4.04), while during intervention, mean total points for P<sub>H</sub> was 62 (SD = 11.76). Such increases in mean points earned during intervention suggest a positive trend for these participants. This suggested that P<sub>B</sub>, P<sub>E</sub>, and P<sub>H</sub> demonstrated increases in their displays of appropriate and desirable behaviors (e.g., following classroom directions, interacting respectfully with staff and peers, completing assignments and remaining on task, and utilizing coping skills during stressful situations) from baseline to intervention.

During baseline (see Figure 5), mean total points for P<sub>A</sub> was 59 (SD = 10.39), while during intervention, mean total points for P<sub>A</sub> was 54 (SD = 4.83). During baseline (see Figure 8), mean total points for P<sub>D</sub> was 58 (SD = 21.07), while during intervention, mean total points for P<sub>D</sub> was 48 (SD = 1.23). During baseline (see Figure 10), mean total points for P<sub>F</sub> was 77 (SD = 2.08), while during intervention, mean total points for P<sub>F</sub> was 75 (SD = 7.39). During baseline (see Figure 11), mean total points for P<sub>G</sub> was 72 (SD = 8.19), while during intervention, mean total points for P<sub>G</sub> was 60 (SD = 6.50). Such decreases in mean points earned during intervention suggest a downward trend for these participants. This indicated that P<sub>A</sub>, P<sub>D</sub>, P<sub>F</sub>, and P<sub>G</sub> demonstrated decreases in their displays of appropriate and desirable behaviors from baseline to intervention.

### **Discussion**

Mindfulness-based interventions have touted promising psychological benefits to children and adolescents. As such, the current research was developed as a pilot study to examine the preliminary effects of a Relaxation Movement Group (RMG) on a clinical population of students. The first aim of the study was to examine participants' beliefs regarding the acceptability of the RMG program. The second aim was to assess whether the RMG

program was implemented as initially designed. The third aim of the study was to evaluate any changes in participants' behavior and functioning from pre to post; specifically the adaptive and externalizing behaviors of participants, along with their daily functioning, as indicated by rating scales, behavioral points earned daily, and number of restraints.

### **RMG Acceptability**

Overall, participants indicated that they were receptive to the Relaxation Movement Group. Of the six participants who completed the RMG Acceptability Rating Scale, 50% indicated they would likely participate in the RMG program again, while 33% endorsed possibly considering re-participation, and 17% reported he/she would never again participate in RMG programming. Sixty five percent believed other students of the Partial Program would likely enjoy the RMG, with the remaining 33% noting they believed their peers would definitely enjoy the program. No participants positively believed that others would not enjoy the RMG group.

Despite most participants believing that the yoga poses were sometimes difficult, the majority also agreed that they considered aspects of the intervention (i.e., yoga poses and breathing exercises) as either sometimes or always fun, calming, and easy to follow along. Such endorsements indicated favorable and positive perceptions and satisfaction of participants toward a mindfulness-based intervention such as the RMG program.

Positive results regarding acceptability appear consistent with previous mindfulness studies, indicating high acceptability toward the intervention. For example, in an effort to assess acceptability, Kuyken et al. (2013) asked participants to complete a feedback evaluation questionnaire subsequent to their participation in the Mindfulness in Schools Programme (MiSP). Based on number of attended sessions, continued use of mindfulness strategies post programming, and reported preference for the intervention, high rates of acceptability were

found, providing encouraging evidence that children positively regard mindfulness within their settings. In addition, Mendelson et al. (2010) conducted a randomized controlled study examining the preliminary outcomes of a 12-week MBI on youth from urban communities. Their findings suggested that across all participant roles (i.e., students, teachers, and school administrators), the school-based mindfulness and yoga intervention obtained strong favorability and acceptability. Specifically, students endorsed having positive experiences during programming and believed they learned skills which allowed them to better cope with daily stressors (Mendelson et al., 2010). Teachers were consistently supportive of providing mindfulness training to youth and believed that such training could lead to reductions in hyperactivity, behavioral, and attention difficulties (Mendelson et al., 2010). Such findings contributed further evidence that mindfulness interventions can be acceptable among various populations who believe that the approach offers numerous benefits to youth. It is important to note that current participants received varying weeks of RMG programming due to differing admission and discharge dates. Additionally, three participants were unable to report their ratings of acceptability. Such factors may have influenced or altered acceptability ratings within the current study.

Additionally, although most participants reported using their learned mindfulness skills outside of programming, others endorsed never using such strategies in other settings. The incorporation of parent involvement in the RMG program may be valuable in the transfer of mindfulness skills throughout settings and fortify youth's usage. A randomized pilot intervention trial study conducted by Coatsworth et al. (2010) indicated that parents who received an amended parenting intervention including mindfulness elements yielded the following outcomes: there was a reported increase in mothers' use of mindfulness strategies, which affected their

parenting style; there was an increase mothers' use of certain critical child management practices; and there were enhancements in parent-adolescent relationships. Participants who reported using RMG skills outside of sessions typically noted using such mindfulness techniques at home. As such, it is possible that the parents of such participants received mindfulness training themselves and were encouraging of the coping skills within the home environment.

### **RMG Implementation Fidelity**

RMG was intended to be delivered a total of eight weeks, with three 30-minute sessions provided to participants on a weekly basis. Results indicated that 44% of participants received either a moderate or high dose of the RMG (i.e., received most of the intervention minutes provided) while only 11% received a minimal dose (i.e., received a fair amount of the intervention minutes). Fifty six percent of participants, on average, received between 76% to 100% of RMG elements, indicating high quality programming (i.e., was exposed to most of the intervention's critical elements), while 22% received between 51% to 75% of RMG elements, suggesting good quality programming (i.e., was exposed to a satisfactory amount of the intervention's critical elements). The remaining 22% received 26% to 50% of RMG elements, indicating fair quality programming (i.e., was exposed to a more limited amount of the intervention's critical elements).

Additional analyses demonstrated that 56% of participants completed the total eight-week RMG program. Eleven percent completed six weeks of programming, while the other 11% completed five weeks, and another 11% completed four weeks. The remaining 11% completed three weeks of programming. Of the total 44% who completed less than eight weeks of RMG programming, three of the participants (75%) individually obtained more than one half of the total mean percent number of elements provided. This suggested that, despite completing less



than the intended eight-weeks of programming, overall, most of the participants still received a high percentage of RMG elements provided. Such results indicated that regardless of the duration of programming, participants could still receive an ample amount of the critical mindfulness components initially intended.

In general, although participants varied in the quantity and quality of RMG programming they received, overall, program implementation appeared feasible and congruent with the study's initial design. This was particularly evident in that most participants typically received at least one-half of the total intervention minutes provided to them and on average, obtained high amounts of critical RMG elements.

These findings appeared similar to prior studies, including one randomized controlled trial incorporating mindfulness meditation within the curriculum of sixth-grade students, with teachers stating, "it was easy" to integrate the intervention into the classroom curriculum and ultimately recommended its permanent integration into the academic schedule (Britton et al., 2014). The current study used a DVD to deliver the program, while Peck et al. (2005) similarly used the aid of a yoga videotape to implement mindfulness practices with elementary school children. Results highlighted effortless implementation of the program due to the efficiency of technology, and indicated that such a medium was quite beneficial and valuable because it could be delivered to students regardless of the size of the group (Peck et al., 2005).

### **Participant Behavior and Functioning**

**Changes in externalizing behaviors.** Twenty two of participants displayed significant changes in their level of hyperactivity from pre to post. Similar to this finding, the research of van der Oord et al. (2012) suggested that children between the ages of eight and twelve years old, who were diagnosed with Attention-deficit/hyperactivity disorder (ADHD), demonstrated

significantly reduced ADHD symptoms, among them hyperactivity, after completion of an eight-week mindfulness training program. In addition, 22% of participants had significant decreases in their level of verbal and physical hostility toward others, while 33% demonstrated clinically meaningful decreases in their tendency to engage in rule-breaking behaviors.

Findings related to decreases in externalizing behaviors appear consistent with other studies discussing the possible effects of mindfulness-based interventions on youth's problematic behaviors. Bögels et al. (2008), indicated that youth of a clinical population and their parents who participated in an eight-week mindfulness program in tandem, displayed, among other outcomes, reductions in their externalizing symptoms (i.e., delinquency and aggression). A recent meta-analytic review of 10 studies examining the effects of MBI's on the disruptive behavior of youth, including those in a clinical population, noted a medium effect size ( $g = 1.04$ ) in reducing youth's disruptive behaviors during mindfulness programming (Klingbeil et al., 2017).

**Changes in adaptive behaviors.** The majority of participants demonstrated either no changes or clinically meaningful increases in adaptive functioning and desirable characteristics from pre to post. This was evidenced by significant RCI scores on the Adaptive Scales of the Adaptive Skills Composite of the BASC-3 (TRS). Eleven percent of the sample displayed clinically meaningful increases in adapting to environmental changes. However, there was variability in participants' ability to interact appropriately with others. Specifically, 33% displayed significant increases in this area, while 11% demonstrated clinically meaningful decreases in social skills from pre to post. Twenty two percent had significant increases in their decision making skills, level of advocacy for teamwork and collaboration, and ability to work

well under pressure. Forty four percent showed clinically meaningful increases in their ability to clearly express and verbalize their ideas to others.

Regarding skills related to academic success, 22% evidenced clinically meaningful decreases in this area, while 0% displayed clinically meaningful increases.

These findings appear inconsistent with the current literature regarding academic improvements and MBI's. Various studies have noted the positive effects of mindfulness on students' learning (Felver et al., 2013; Zelazo & Lyons, 2012; Remple, 2012). For instance, a pre-post pilot study of 34 adolescents classified with Learning Disabilities found that youth who completed a five-week mindfulness meditation and relaxation program displayed improved social skills and enhanced academic performance (Beauchemin et al., 2008). A major limitation to mindfulness research is that the unique components underlying the effectiveness of MBI's are still unknown. This indicates that mindfulness interventions are still considered broad in nature, with various, complex components working together to increase the possibility of positive effects (Chiesa et al, 2014; Hölzel et al., 2011). The lack of convergence may be explained by the unique combination of RMG components in the current study that were not relevant or sufficient enough to have positive effects among participants. Researchers continue to advocate for more rigorous and extensive studies to clearly identify the critical components of mindfulness, and strengthen the empirical evidence base of MBIs among youth (Chiesa et al, 2014; Hölzel et al., 2011).

Despite some inconsistent findings between the current study and those highlighted in the literature, in general, the current findings are mostly consistent with the findings of MBI effects on youth's levels of positive and socially acceptable behaviors. Similar to the current study, a randomized pilot study conducted by Fischebein et al. (2016), assessed the effects of mindfulness

on the social skills (e.g., interpersonal skills and classroom behavior) of 85 adolescents; specifically those considered at risk for school dropout. The findings of the study indicated that, compared to students in the control group, adolescents who participated in the 7-week yoga intervention reported decreases in their alcohol-use, and increases in their prosocial behaviors, as endorsed by teacher ratings (Fishbein et al., 2016). Prosocial behaviors included being supportive to others and assisting peers; characteristics similar to the adaptive scales in the current study.

**Trends in restraints and behavior points.** Restraint use was a minimal occurrence. Therefore, no further analysis was completed, as no changes in restraint frequency could be reported.

Overall, participants varied in the mean number of points they earned from pre to post. Of the seven participants who earned behavioral points during baseline and intervention, three participants (43%) showed an increase in the mean number of points they earned over time. This suggested that they predominantly exhibited appropriate behaviors (e.g., followed classroom directives, interacted respectfully with staff and peers, completed assignments and remained on task, and utilized proper coping skills during stressful situations) from baseline to intervention. The remaining four participants (57%) evidenced a decrease in the mean number of points they earned over time, suggesting a decrease in appropriate and desirable behaviors displayed from baseline to intervention.

The findings of the current study appear inconsistent with the findings of other mindfulness studies including youth. For example, a meta-analytic review of mindfulness interventions with youth highlighted various positive effects of the intervention, including increases in coping skills and decreases in externalizing behaviors (Zoogman et al., 2015). This

meta analysis further indicated that successful outcomes have been primarily targeted toward youth outside of clinical populations and called for further mindfulness training with clinical populations (Zoogman et al., 2015).

### **Limitations and Future Directions**

While the current exploratory study contributed valuable results to the field of mindfulness, there were limitations. First, the study included a small sample size which limits the generalizability of the current findings (van de Weijer-Bergsma et al., 2012). Of significance, all participants were considered to be within the clinical population, as they were diagnosed with psychiatric disorders and attended the partial hospitalization program. As a result, such participants have been maintained within a highly structured setting and received various forms of therapeutic services. However, the receipt of such extensive treatment may not be indicative of the typical development of other children also experiencing similar emotional and behavioral difficulties. Moreover, in conjunction with the therapeutic regimen provided by the Partial Program, the participants may have been receiving supplemental interventions through other community facilities. Therefore, the heterogeneity of participants' treatment history may have been a confounding variable, which potentially could have influenced aspects of the positive outcomes of the current study.

In addition, the use of participants' self-reports and non-blind clinician ratings at pre and post, limited the reliability of the results, increasing the probability of reporting bias. Arbitrary cut-off scores were used for the classification of fidelity implementation (i.e., quantity and quality), and participants' behavior and functioning. Ideally, cut-off scores should be determined by evidenced-based, empirically supported, methods. Moreover, the current study lacked a control group which helps to rule-out the possibility of other variables (i.e., confounding

variables) being associated with the current outcomes (Lee et al., 2008). Thus, findings from the current study cannot be attributed to RMG programming.

Future research would benefit from utilizing a more rigorous research design, including a between group randomized design, in order to more thoroughly examine the effectiveness of mindfulness in children. Optimally, the use of RTC's with larger sample sizes would be most advantageous, as this would increase statistical power to detect true treatment effects, and decrease threats to internal validity. A more rigorous design would also limit the possibility that alternative factors, such as, maturation, history, and repeated testing, could be responsible for the observed intervention effects. Moreover, the inclusion of follow-up measures is necessary to assess the maintenance and longevity of intervention effects post program implementation.

Fidelity and acceptability were assessed with measures created by the PI to examine the unique elements of the RMG. Future evaluations of mindfulness-based programs should be conducted with established measures (e.g., Intervention Rating Profile [Shernoff & Kratochwill, 2007] and the Child and Adolescent Mindfulness Measure, [Greco et al., 2011]). This would help identify which underlying mechanisms contribute to the success of MBI's. Such data would also help ensure that critical components of the intervention are those which are implemented as intended by the researcher.

In general, although the current findings indicted high levels of acceptability and fidelity, along with certain participants demonstrating positive decreases in their externalizing behaviors, and increases in their adaptive functioning, individual analyses of participants' ratings, scores, behaviors, and functioning, indicated possible patterns. For example, for three of the four participants who displayed a downward trend in their mean points earned from pre to post ( $P_D$ ,  $P_F$ , and  $P_G$ ) such individuals were those who also showed clinically meaningful decreases in

social skills (P<sub>D</sub>), and skills related to the achievement of academic success (P<sub>F</sub> and P<sub>G</sub>), as indicated by their BASC-3 TRS RCI scores. Moreover, it is important to note that these participants were either unable to complete the *Relaxation Movement Group Acceptability Rating Scale* or indicated less favorable endorsements on the scale. Specifically, one participant (P<sub>F</sub>) noted he/she never thought the yoga poses and breathing exercises were fun, never felt calm after engaging in the yoga poses and breathing exercises, indicated he/she would never participate in the RMG program again, and stated he/she never used skills of the RMG program outside of sessions. Moreover, one participant (P<sub>D</sub>) did not complete the acceptability rating scale, while the other participant (P<sub>G</sub>) primarily endorsed *sometimes* to most of the items on the scale (e.g., understanding the directions and finding the yoga poses and breathing exercises difficult).

It is hypothesized that such negative responses regarding acceptability could have impacted the outcomes of such participants within the RMG program. As such, perhaps certain alterations in programming could be made to ensure higher individual acceptability ratings. For example, the use of a certified yoga instructor on site may help ameliorate the difficulties participants encountered, which in turn, could potentially influence their practice of mindfulness activities, and subsequently their behavioral functioning.

Moreover, it is possible that the inclusion of staff training could enhance the experience of adolescent participants. For example, not only will they be able to model proper mindfulness techniques more regularly within the partial setting, but staff practice of mindfulness activities may also lead to positive outcomes among the care providers, which in turn shapes their interactions with participants. For example, Felver et al. (2013) cited researchers who discussed

the possibility of mindfulness interventions decreasing stress, and therefore, burnout among professional staff (e.g., school psychologists and teachers).

While mindfulness research has repeatedly demonstrated high acceptability and fidelity ratings, along with positive outcomes regarding youth's behavior and functioning, the field is still considered to be in its infancy and thus, requires further study. In particular, both researchers and practitioners remain uncertain about the specific underlying components which contribute to the success of mindfulness, emphasizing the broadness of the approach.

### **Conclusions**

Although introductory in nature, the current pilot study was designed to examine issues of acceptability, feasibility, fidelity, and promise in a small clinical sample of children referred for significant behavioral difficulties. Findings from the current study may offer assistance to future researchers seeking to expand their knowledge concerning the various aspects of mindfulness; in order enhance the field of psychology and positively contribute to the development of all children, including and especially, those within clinical settings.



## Appendix A

## Relaxation Movement Group Curriculum

Week 1: Completion of Pre-test Measures  
BASC-3 completed by Clinicians

## Week 2

Session #1  
Special Features: Meet the Peacemakers  
Breathing Room: Sound of Universal Peace Breath & Breathing Intentions  
Library of Poses (Calm): PLAY ALL  
Breathing Room: Sound of Universal Peace Breath and Breathing Intentions (A)

Session #2  
Choose Your Path: Creating Happiness (1)

Session #3  
Choose Your Path: Energy Amplified (2)

## Week 3

Session #1  
Choose Your Path: Choosing Peace (3)

Session #2  
Choose Your Path: Being Sound (4)

Session #3  
Self-Connection Room: Being Power  
Library of Poses (Focus): PLAY ALL  
Breathing Room: Breath Moves Energy (B)

## Week 4

Session #1  
Choose Your Path: Voice Choice Possibility (5)

Session #2  
Library of Poses (Energy): PLAY ALL  
Breathing Room: Fire Belly & Peace in, Peace Out Breath  
Self-Connection Room: Sounds, Sensations, and Breaths (C)

Session #3  
Self-Connection Room: Being Power  
Breathing Room: PLAY ALL (individually play; any order)  
Library of Poses (Calm): Choose Love over Fear  
Library of Poses (Focus): Waking Up Your Body and Mind  
Self-Connection Room: Sounds, Sensations, and Breaths (D)

## Week 5

Session #1  
Choose Your Path: Creating Happiness (1)

Session #2  
Choose Your Path: Energy Amplified (2)

Session #3  
Breathing Room: PLAY ALL (individually play; any order)  
Library of Poses (Calm): PLAY ALL  
Breathing Room: Breath Moves Energy (E)

Week 6		
Session #1 Choose Your Path: Choosing Peace (3)	Session #2 Choose Your Path: Being Sound (4)	Session #3 Choose Your Path: Voice Choice Possibility (5)
Week 7		
Session #1 Self-Connection Room: Being Power Library of Poses (Focus): PLAY ALL Breathing Room: Breath Moves Energy (B)	Session #2 Library of Poses (Energy): PLAY ALL Breathing Room: Fire Belly & Peace in, Peace Out Breath Self-Connection Room: Sounds, Sensations, and Breaths (C)	Session #3 Choose Your Path: Creating Happiness (1)
Week 8		
Session #1 Self-Connection Room: Being Power Breathing Room: PLAY ALL (individually play; any order) Library of Poses (Calm): Choose Love over Fear Library of Poses (Focus): Waking Up Your Body and Mind Self-Connection Room: Sounds, Sensations, and Breaths (D)	Session #2 Choose Your Path: Energy Amplified (2)	Session #3 Choose Your Path: Choosing Peace (3)
Week #9		
Session #1 Choose Your Path: Being Sound (4)	Session #2 Choose Your Path: Voice Choice Possibility (5)	Session #3 Special Features: Meet the Peacemakers Breathing Room: Sound of Universal Peace Breath & Breathing Intentions Library of Poses (Calm): PLAY ALL Breathing Room: Sound of Universal Peace Breath and Breathing Intentions (A)
Week 10: Completion of Post-Test Measures BASC-3 completed by Clinicians Acceptability Questionnaire completed by students with assistance of Clinicians (as needed)		

## Appendix B

Table 1

*Participant Demographics*

Variable	N	Percentage
<b>Gender</b>		
Male	8	89
Female	1	11
<b>Race</b>		
African American	8	89
Hispanic	1	11
<b>Age</b>		
7-9	3	33
10-11	6	67
<b>Grade</b>		
Second	1	11
Third	1	11
Fourth	2	22
Fifth	3	33
Sixth	2	22

*Note.*  $N = 9$ .

## Appendix C

## Relaxation Movement Group Acceptability Rating Scale

Please circle:

1 = Never

2 = Sometimes

3 = Always

1) I thought the yoga poses were fun.

1      2      3

2) I thought the breathing exercises were fun.

1      2      3

3) I would participate in the Relaxation Movement Group again.

1      2      3

4) I thought the yoga poses made me calm.

1      2      3

5) I thought the breathing exercises made me calm.

1      2      3

6) I felt more relaxed after participating in group.

1      2      3

7) I thought the yoga poses were difficult.

1      2      3

8) I thought the breathing exercises were difficult.

1      2      3

9) I understood all of the directions.

1      2      3

10) I think all students in the Program will enjoy the group.

1      2      3

My favorite part of the Relaxation Movement Group was:

My least favorite part of the Relaxation Movement Group was:

Did you use the skills you learned in Group? If so, please describe a time you used the skills you learned from Group during your day:

## Appendix D

## Relaxation Movement Group Fidelity Rating Scale

Student's Name: \_\_\_\_\_

Group # \_\_\_\_\_

Date: \_\_\_\_\_

Please circle one response for items numbered 1 through 4, and provide a written response for item number 5.

11) The student attended group today.

YES

NO

12) The student remained in group for the entire session.

YES

NO

13) The student participated in the yoga poses.

YES

NO

14) The student participated in the breathing exercises.

YES

NO

15) Approximate minutes of programming provided: (i.e., total number of minutes the DVD was shown to student).

\_\_\_\_\_ Minutes

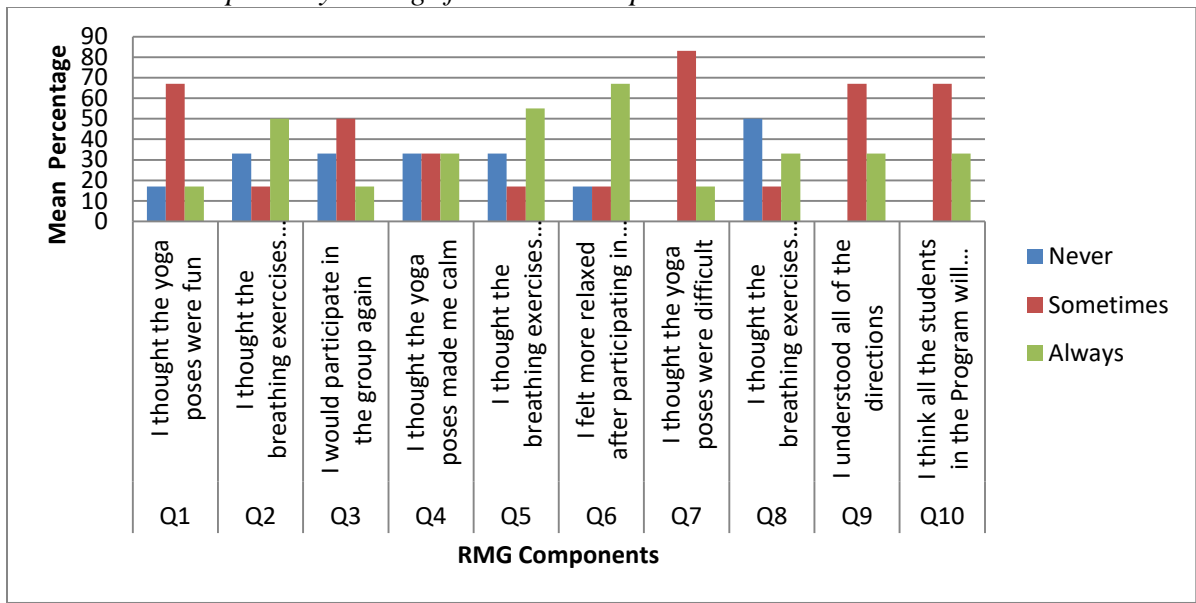
Additional Comments:



Appendix F

Figure 1

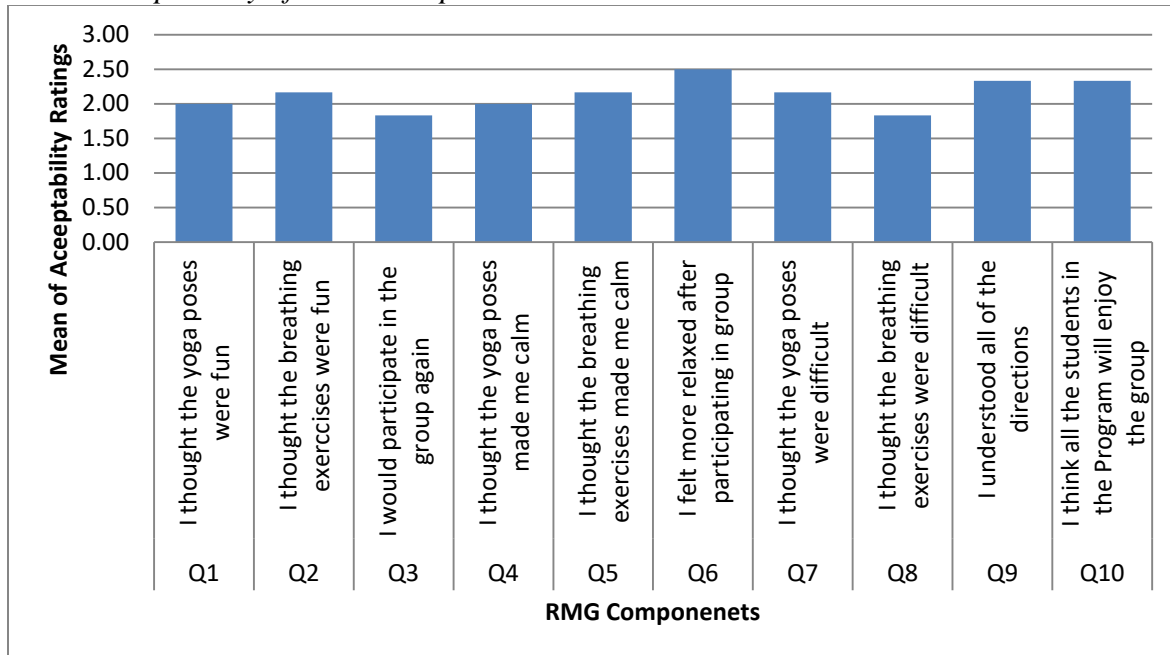
Mean Percent Acceptability Ratings for RMG Components



Note. N = 6.

## Appendix G

Figure 2

*Overall Acceptability of RMG Components*

Note:  $N = 6$ .



## Appendix H

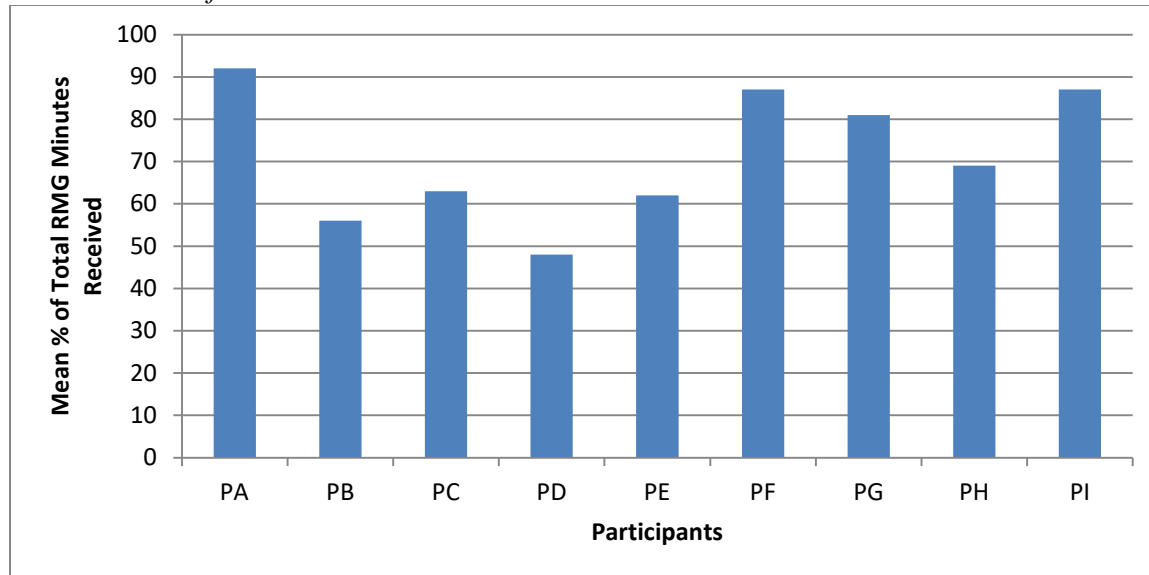
Table 2

<i>RMG Dosage</i>	Low Dosage	Minimal Dosage	Moderate Dosage	High Dosage
Percentage of Exposure Time	0% - 25%	26% - 50%	51% - 75%	76% - 100%
N	0	1	4	4
Percentage of Participants	0%	11%	44%	44%

*Note.* Classification of Time Dosages: *Low Dose* (0% - 25 % of minutes received); *Minimal Dosage* (26% - 50% of minutes received); *Moderate Dosage* (51% - 75% of minutes received); and *High Dosage* (76% - 100% of minutes received); *N* = number of participants; *Percentage* = percentage of participants in the sample.

## Appendix I

Figure 3

*Mean Percent of RMG Minutes Received*

*Note.* % = Percentage.

## Appendix J

Table 3

*Mean Percent of Elements Participants Received Each Week*

	Mean Percent	SD	Min.	Max.
P <sub>A</sub>	94	0.06	83	100
P <sub>B</sub>	44	0.35	17	100
P <sub>C</sub>	79	0.32	33	100
P <sub>D</sub>	44	0.10	33	50
P <sub>E</sub>	56	0.28	33	100
P <sub>F</sub>	83	0.26	33	100
P <sub>G</sub>	84	0.16	67	100
P <sub>H</sub>	65	0.30	17	100
P <sub>I</sub>	88	0.16	67	100

*Note.* P<sub>A</sub> - P<sub>I</sub> = participants; *M* = mean percent of number of elements received; *SD* = standard deviation; *Min.* = lowest mean percentage received by participant; *Max* = highest mean percentage received by participant.

## Appendix K

Table 4

*Mean Percent of Elements Received*

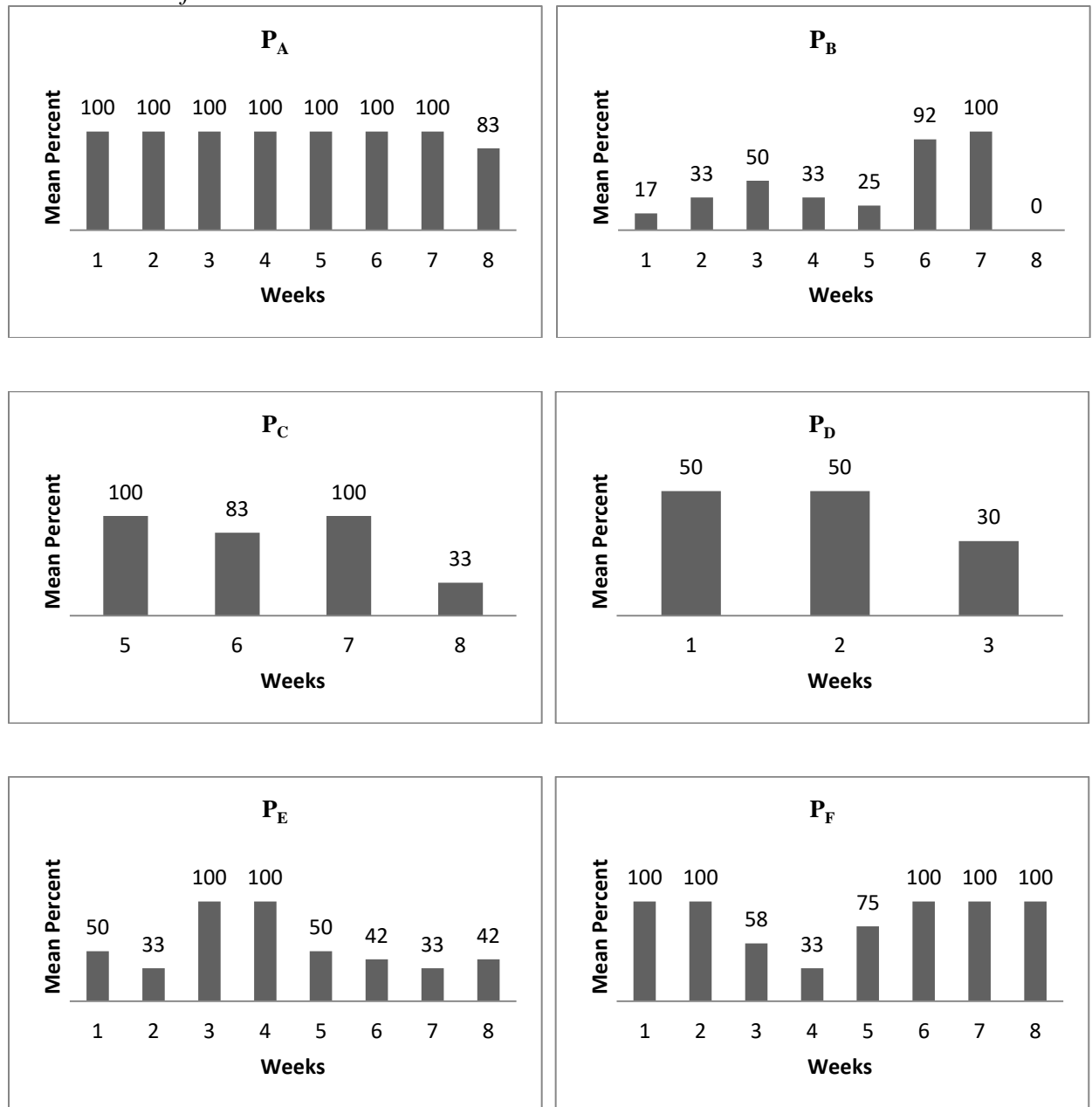
	M	SD	Min.	Max.
P <sub>A</sub>	98	0.6	100	100
P <sub>B</sub>	44	0.35	0	100
P <sub>C</sub>	79	0.32	33	100
P <sub>D</sub>	44	0.10	33	50
P <sub>E</sub>	56	0.28	33	100
P <sub>F</sub>	83	0.26	33	100
P <sub>G</sub>	84	0.16	67	100
P <sub>H</sub>	65	0.30	17	100
P <sub>I</sub>	88	0.16	67	100

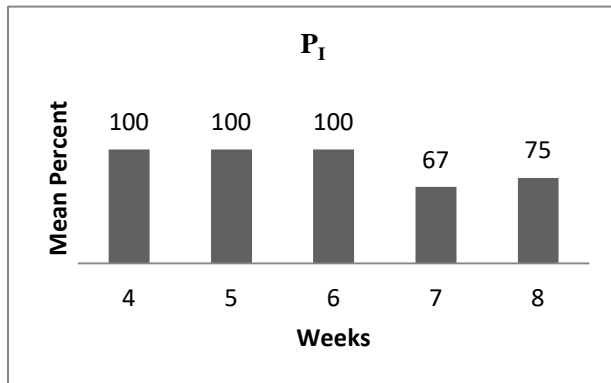
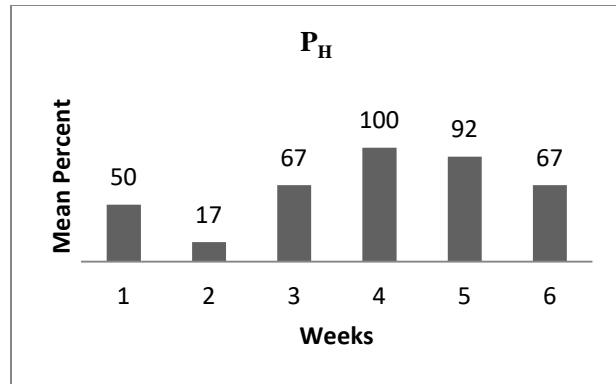
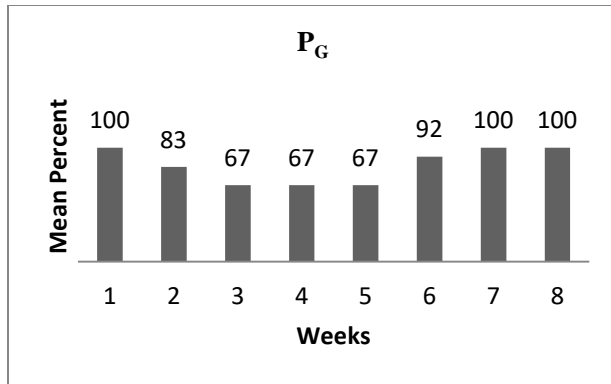
*Note.* *M* = Total Mean; *SD* = Standard Deviation; *Min.* = Minimum mean percent of elements received by participant weekly; *Max.* = Maximum mean percent of elements received by participant weekly.

Appendix L

Figure 4

Mean Percent of RMG Elements Received Per Week





## Appendix M

Table 5

*Pre and Post BASC-3 T-Scores on Clinical Scales*

Scales	Pre				Post			
	M	SD	Min.	Max.	M	SD	Min.	Max.
Externalizing Problems	65	6.25	57	76	62	9.81	48	78
Hyperactivity	58	5.69	50	65	55	6.86	48	68
Aggression	67	7.18	61	79	63	11.46	47	79
Conduct Probs.	68	7.83	58	78	65	11.62	47	82

*Note.* *M* = Mean T Score; *SD* = Standard Deviation; *Min.* = lowest T-score earned by participant; *Max* = highest T-score earned by participant; *Conduct Probs.* = Conduct Problems.

## Appendix N

Table 6

*Participants' Pre and Post BASC-3 T-scores: Clinical and Composite Scales*

	Hyperactivity		Aggression		Conduct Problems		Externalizing Problems	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
P <sub>A</sub>	53	50	64	47	67	56	62	51
P <sub>B</sub>	63	58	68	74	73	73	70	70
P <sub>C</sub>	62	63	64	59	62	58	64	61
P <sub>D</sub>	58	55	61	62	60	60	60	60
P <sub>E</sub>	62	48	62	49	62	47	63	48
P <sub>F</sub>	50	55	64	68	76	82	64	70
P <sub>G</sub>	65	68	79	79	78	80	76	78
P <sub>H</sub>	58	50	79	72	76	65	73	63
P <sub>I</sub>	50	49	61	53	58	60	57	54
M	58	55	67	63	68	65	65	62
SD	5.69	6.86	7.18	11.46	7.83	11.62	6.25	9.81

*Note.* P<sub>A</sub>-P<sub>I</sub> = participants; M = mean; SD = standard deviation; Hyperactivity = Hyperactivity Clinical Scale; Aggression = Aggression Clinical Scale; Conduct Problems = Conduct Problems Clinical Scale; Externalizing Problems = Externalizing Problems Composite Scale; BASC-3 T-scores have a M = 50 and SD = 10.



## Appendix O

Table 7

*BASC-3 Clinical RCI Scores*

	BASC-3 TRS Clinical and Composite Scales			
	Hyperactivity	Aggression	Conduct Problems	Externalizing Problems
P <sub>A</sub>	-0.98	-4.01**	-2.77**	-2.93**
P <sub>B</sub>	-1.63	1.42	0.00	0.00
P <sub>C</sub>	0.33	-1.18	-1.01	-0.80
P <sub>D</sub>	-0.98	0.24	0.00	0.00
P <sub>E</sub>	-4.56**	-3.07**	-3.78**	-4.00**
P <sub>F</sub>	1.63	0.94	1.51	1.60
P <sub>G</sub>	0.98	0.00	0.50	0.53
P <sub>H</sub>	-2.61**	-1.65	-2.77**	-2.67**
P <sub>I</sub>	-0.33	-1.89	0.50	-0.80

*Note.* P<sub>A</sub>-P<sub>I</sub> = participants;  $p < -1.96^{**}$ ;  $p > 1.96^{*}$ ; P<sub>A</sub> - P<sub>I</sub> = participants; Hyperactivity = Hyperactivity Clinical Scale; Aggression = Aggression Clinical Scale; Conduct Problems = Conduct Problems Clinical Scale; Externalizing Problems = Externalizing Problems Composite Scale; BASC-3 T-scores have a M = 50 and SD = 10.

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 Appendix P
 

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Table 8

*Cohen's d Scores for Significant BASC-3 Clinical T-scores*


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	Hyper.	Agg.	Cond. Prob.	Ext. Probs.
P <sub>A</sub>	-	-2.19	-1.57	-1.61
P <sub>B</sub>	-	-	-	-
P <sub>C</sub>	-	-	-	-
P <sub>D</sub>	-	-	-	-
P <sub>E</sub>	-2.41	-1.68	-2.14	-2.19
P <sub>F</sub>	-	-	-	-
P <sub>G</sub>	-	-	-	-
P <sub>H</sub>	-1.38	-	-1.28	-1.46
P <sub>I</sub>	-	-	-	-

---

*Note.* P<sub>A</sub>-P<sub>I</sub> = participants; Hyper. = Hyperactivity Content Scale; Agg. = Aggression Content Scale; Cond. Prob. = Conduct Problems; Ext. Probs. = Externalizing Problems.

## Appendix Q

Table 9

*Descriptive Analysis of Participants Pre and Post BASC-3 T-scores*

Scales	Pre BASC-3 T-scores				Post BASC-3 T-scores			
	M	SD	Min.	Max.	M	SD	Min.	Max.
Adaptive Skills	43	3.81	37	50	46	4.97	37	53
Adaptability	39	4.78	30	49	41	3.63	33	45
Social Skills	44	6.27	35	53	47	6.40	39	57
Leadership	49	5.33	38	57	51	4.74	45	59
Study Skills	43	4.38	35	50	43	6.62	30	54
Functional Comm.	47	3.75	42	53	50	3.99	45	55

*Note.* *M* = Mean; *SD* = Standard Deviation; *Min.* = lowest T-score earned by participant; *Max* = highest T-score earned by participant.

## Appendix R

Table 10

*Pre and Post BASC-3 T-scores: Adaptive Content Scales and Composite Scales*

	Adaptability		Social Skills		Leadership		Study Skills		Funct. Com.		Adaptive Skill	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
P <sub>A</sub>	40	45	47	54	50	55	50	54	51	53	47	53
P <sub>B</sub>	40	40	43	43	50	50	39	41	45	47	42	43
P <sub>C</sub>	41	41	45	51	48	48	41	41	43	47	43	45
P <sub>D</sub>	33	40	53	46	55	50	41	43	47	45	45	44
P <sub>E</sub>	41	43	46	57	48	52	45	46	48	55	45	51
P <sub>F</sub>	43	43	35	38	38	45	46	39	51	50	41	42
P <sub>G</sub>	30	33	39	39	48	45	35	30	42	45	37	37
P <sub>H</sub>	37	41	36	46	48	59	45	48	47	51	41	49
P <sub>I</sub>	45	45	51	46	57	55	43	41	53	55	50	48
M	39	41	44	47	49	51	43	43	47	50	43	46
SD	4.78	3.63	6.27	6.40	5.33	4.74	4.38	6.62	3.75	3.99	3.81	4.97

*Note.* P<sub>A</sub>-P<sub>I</sub> = participants; Func. Com. = Functional Communication; P<sub>a</sub>-P<sub>i</sub> = participants; M = mean; SD = standard deviation; BASC-3 T-scores have a M = 50 and SD = 10.

## Appendix S

Table 11

*BASC-3 Adaptive RCI Scores*

BASC-3 Adaptive and Composite Scales						
	Adapt.	Social Skills	Leadership	Study Skills	Functional Comm.	Adaptive Skills
P <sub>A</sub>	1.89	2.02*	1.56	1.90	1.46	2.83*
P <sub>B</sub>	0.00	0.00	0.00	0.95	1.46	0.47
P <sub>C</sub>	0.00	1.73	0.00	0.00	2.29*	0.94
P <sub>D</sub>	2.64*	-2.02**	-1.56	0.95	-1.46	-0.47
P <sub>E</sub>	0.74	3.18*	1.25	0.47	5.11*	2.83*
P <sub>F</sub>	0.00	0.87	2.18*	-3.32**	-0.73	0.47
P <sub>G</sub>	1.13	0.00	-0.93	-2.37**	2.19*	0.00
P <sub>H</sub>	1.51	2.89*	3.43*	1.42	2.92*	3.77*
P <sub>I</sub>	0.00	-1.45	-0.62	-0.95	1.46	-0.94

*Note.*  $p < -1.96^{**}$ ;  $p > 1.96^*$ ; P<sub>A</sub> - P<sub>I</sub> = participants; Adapt. = Adaptability Adaptive Scale; Social Skills = Social Skills Adaptive Scale; Leadership = Leadership Adaptive Scale; Study Skills = Study Skills Adaptive Scale; Functional Comm. = Functional Communication Adaptive Scale; Adaptive Skills = Adaptive Skills Composite; Content Scale; Adapt. S. = Adaptive Skills Composite Scale; BASC-3 T-scores have a M = 50 and SD = 10.

## Appendix T

Table 12

*Cohen's d Scores for Significant BASC-3 Adaptive T-Scores*

BASC-3 Adaptive Content and Composite Scales						
	Adapt	Soc. Skills	Lead.	St. Skills	Func. Comm.	Adapt. S.
P <sub>A</sub>	-	1.11	-	-	-	1.71
P <sub>B</sub>	-	-	-	-	-	-
P <sub>C</sub>	-	-	-	-	1.49	-
P <sub>D</sub>	2.69	-1.11	-	-	-	-
P <sub>E</sub>	-	1.74	-	-	2.60	1.71
P <sub>F</sub>	-	-	1.34	-1.87	-	-
P <sub>G</sub>	-	-	-	-1.34	1.11	-
P <sub>H</sub>	-	1.58	2.11	-	1.49	2.29
P <sub>I</sub>	-	-	-	-	-	-

*Note.* P<sub>A</sub>-P<sub>I</sub> = participants; Adapt. = Adaptability Content Scale; Soc. Skills = Social Skills Content Scale; Lead. = Leadership Content Scale; St. Skills = Study Skills Content Scale; Func. Comm. = Functional Communication Content Scale; Adapt. S. = Adaptive Skills Composite Scale; Hyper. = Hyperactivity Content Scale; Agg. = Aggression Content Scale; Cond. Prob. = Conduct Problems; Ext. Probs. = Externalizing Problems.

## Appendix U

Table 13

*Mean Behavior Points Earned at Baseline and Intervention*

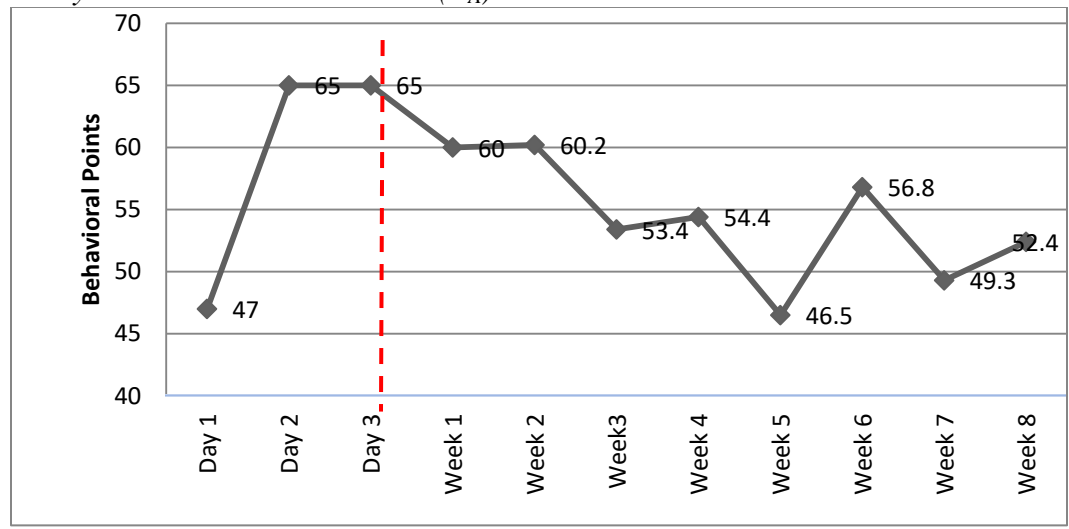
	Baseline		Intervention	
	M	SD	M	SD
P <sub>A</sub>	59	10.39	54.12	4.83
P <sub>B</sub>	40	-	52.16	6.17
P <sub>C</sub>	-	-	40.00	8.66
P <sub>D</sub>	58	21.07	48.06	1.23
P <sub>E</sub>	45	21.83	67.30	16.88
P <sub>F</sub>	77	2.08	75.63	7.39
P <sub>G</sub>	72	8.19	60.36	6.50
P <sub>H</sub>	54	4.04	62.70	11.76
P <sub>I</sub>	-	-	79.20	8.50

*Note.* *M* = mean; *SD* = standard deviation.

Appendix V

Figure 5

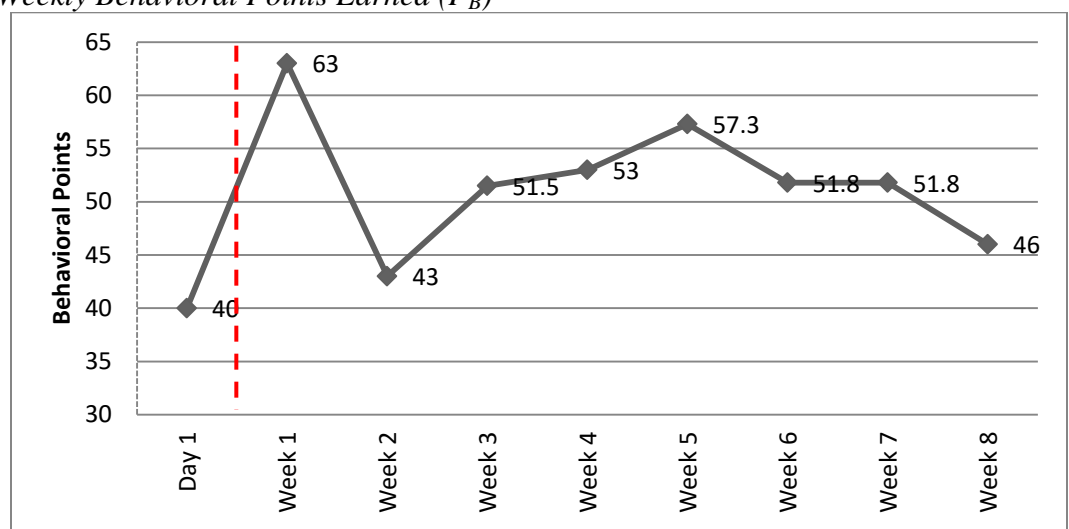
Mean Weekly Behavioral Points Earned ( $P_A$ )



Note. Total Mean during intervention phase = 54; Standard Deviation = 4.83; Days 1 to 3 = baseline data, prior to RMG implementation.

Figure 6

Mean Weekly Behavioral Points Earned ( $P_B$ )

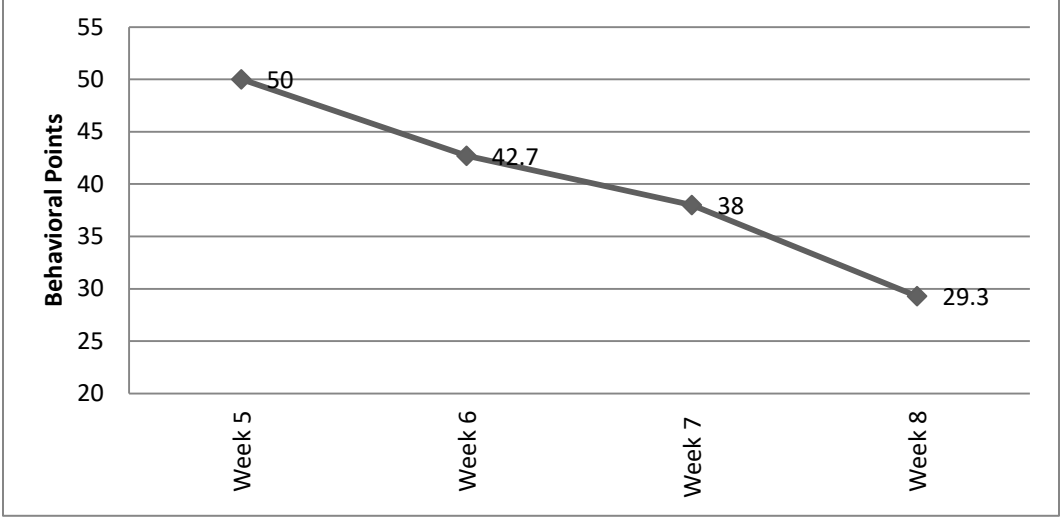


Note. Total Mean = 52; Standard Deviation = 6.17; Day 1 = baseline data, prior to RMG implementation.



Figure 7

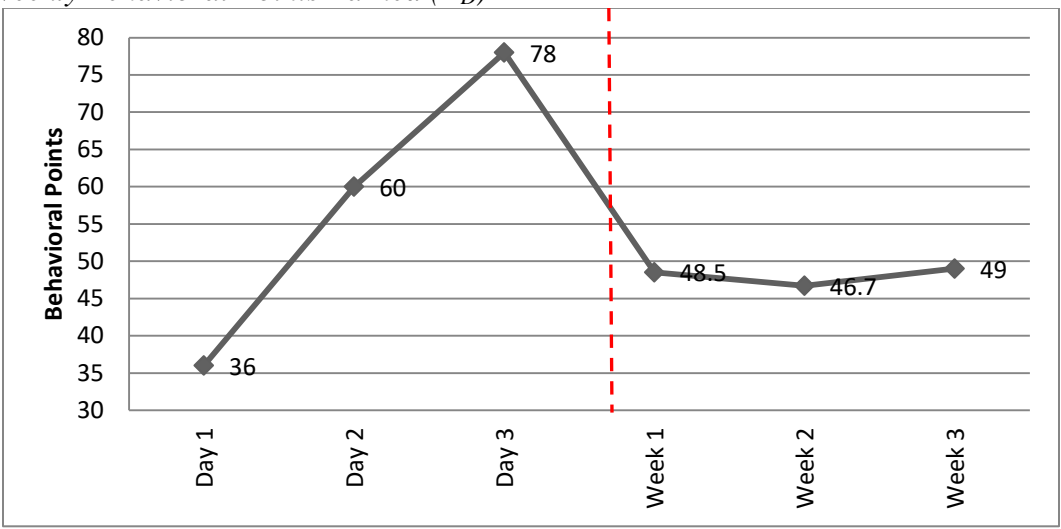
Mean Weekly Behavioral Points Earned ( $P_C$ )



Note. Total Mean = 40; Standard Deviation = 8.66; No baseline data available.

Figure 8

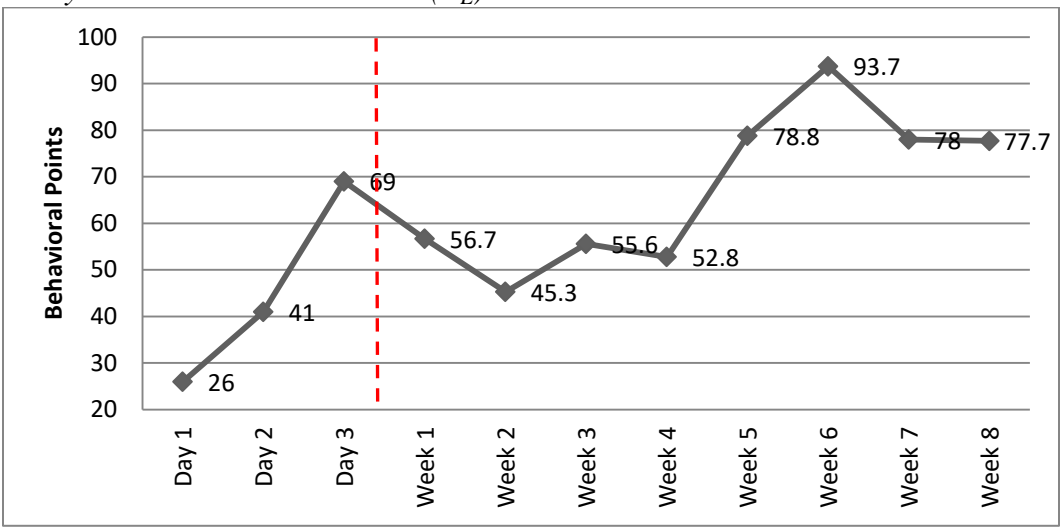
Mean Weekly Behavioral Points Earned ( $P_D$ )



Note. Total Mean = 48; Standard Deviation = 1.23; Days 1 to 3 = baseline data, prior to RMG implementation

Figure 9

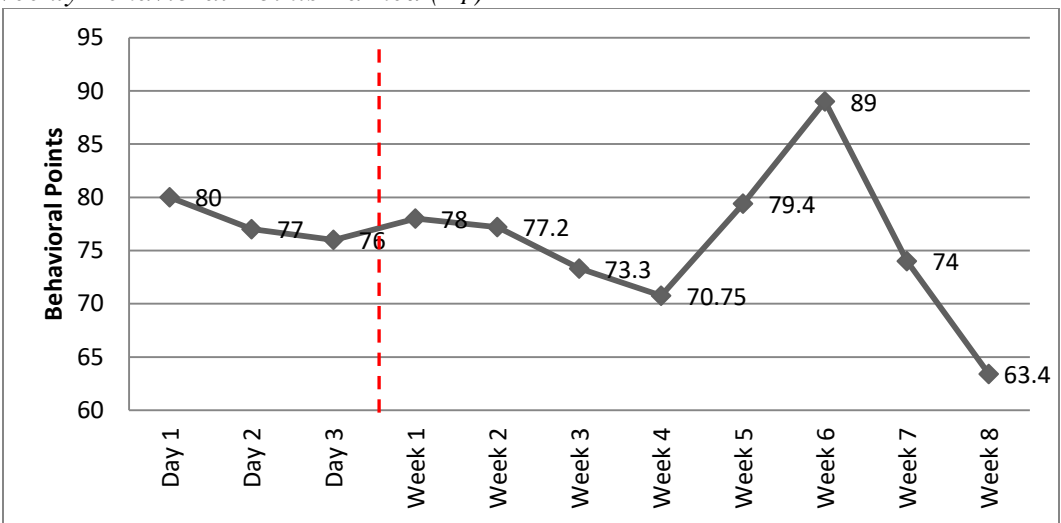
Mean Weekly Behavioral Points Earned ( $P_E$ )



Note. Total Mean = 67; Standard Deviation = 16.88; Days 1 to 3 = baseline data, prior to RMG implementation.

Figure 10

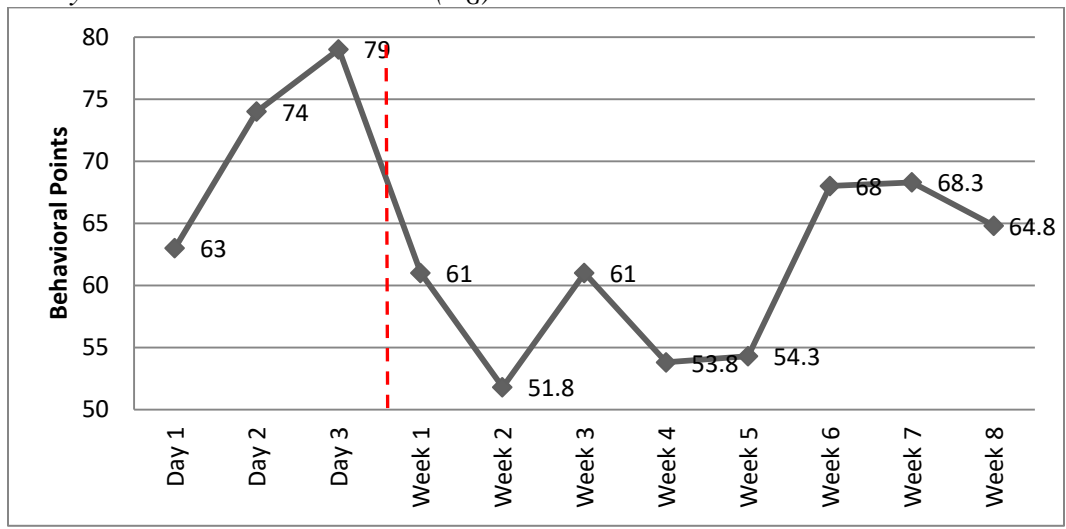
Mean Weekly Behavioral Points Earned ( $P_F$ )



Note. Total Mean = 75; Standard Deviation = 7.39; Days 1 to 3 = baseline data, prior to RMG implementation.

Figure 11

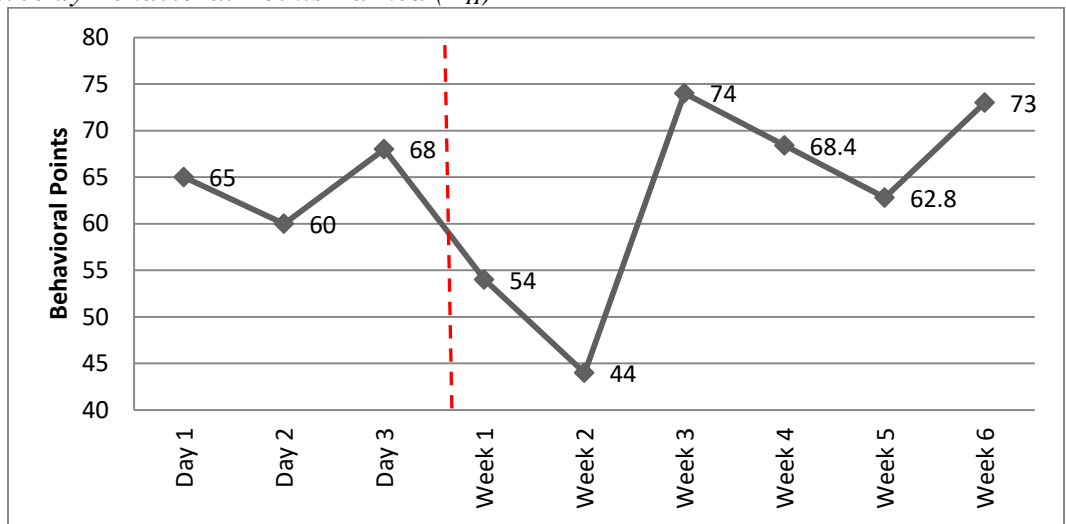
Mean Weekly Behavioral Points Earned ( $P_G$ )



Note. Total Mean = 60; Standard Deviation = 6.50; Days 1 to 3 = baseline data, prior to RMG implementation.

Figure 12

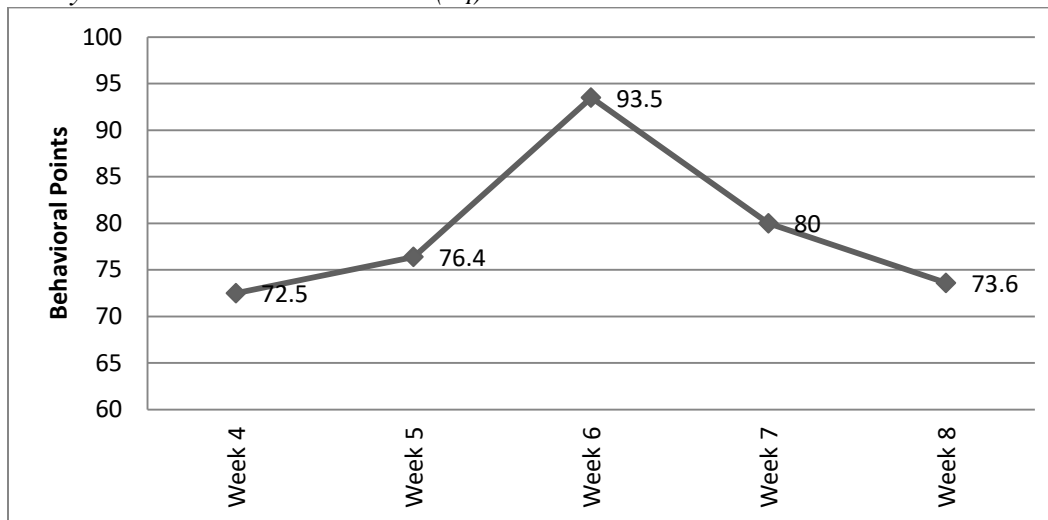
Mean Weekly Behavioral Points Earned ( $P_H$ )



Note. Total Mean = 62; Standard Deviation = 11.76; Days 1 to 3 indicate baseline data, prior to RMG implementation.

Figure 13

*Mean Weekly Behavioral Points Earned ( $P_1$ )*



*Note.* Total Mean = 79; Standard Deviation = 8.00; No baseline data available.

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