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Factors Influencing Success in Day Treatment Programs for Children Ages 5 to 10

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This is to certify that the doctoral dissertation by

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Abstract

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MS, Walden University, 2013

BS, Viterbo University 2001

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Improving the success rates of children in mental health treatment is an important step to bettering lives. Day treatment programs are intermediate level treatment modalities that help children who are struggling with their mental health. Success rates differ for children in day treatment programs and several studies have been done evaluating various factors. This research addressed whether a child who had been exposed to trauma showed as much success in a program as a child that had not been exposed to trauma. Other variables were to determine if children have different levels of success based on their diagnosis. The study was quasi-experimental and used clinical documentation to assess the different factors and level of success. A Kruskal-Wallis rank sum test and the Pearson chi-squared test were run to determine if there was a difference in success rates for 85 children with different diagnoses. This study determined no significant difference between the success rate for children based on either the diagnosis of depression or oppositional defiant disorder. A one-way ANOVA was run to determine if there was a difference in success rates for children who had experienced trauma and those who had not. This study determined no significant difference between success rates for children who had experienced trauma and those who had not. This study offers day treatment programs additional information to ensure programming offered to children is equally successful for all children.

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Chapter 1: Introduction to the Study

Addressing the mental health needs of children is a difficult yet important endeavor. In a 2011-2012 survey, the Centers for Disease Control and Prevention (CDC) found that one in seven children ages 2-8 were suffering from a mental, behavioral, or developmental disorder (CDC, 2017). One way that mental and behavioral disorders are treated is through day treatment programs. Day treatment programs are intermediate level programs for children and adolescents who have serious emotional or behavioral disorders (Vanderploeg, Franks, Plant, Cloud, & Tebes, 2009). If the mental and behavioral disorders are adequately addressed for children, the long- and short-term implications are profound. The short-term implications include greater success within a family system and school because children who receive day treatment services show less aggression and fewer externalizing behaviors (Jerrott, Clark, & Fearon, 2010). Those short-term implications can lead to more long-term benefits, including attending higher education, avoidance of the criminal justice system, and overall more individualized success as the child grows. The greater societal implication would be a reduction of the stigma that surrounds mental health for the children entering day treatment as they become more successful in school and community settings.

Day treatment for children with emotional and behavioral disorders is a treatment modality that helps a child stabilize their mental health symptoms and teaches social and independent living skills. The level of intensity of a day treatment program is higher than that of an outpatient setting but is less intense than that of a residential setting. It consists of two components: psychotherapy and skills work. Day treatment programs have

proven successful for some children, but some children are less successful with their outcomes (Bennett, Macri, Creed, & Isom, 2001; Pazaratz, 2001). In this study I examined the factor of trauma and determined if there is a difference in success rates between children who have experienced trauma and those who have not. I also compared the success rates for children with two different diagnoses. The comparison of diagnoses was between children who had been diagnosed with oppositional defiant disorder and children who had been diagnosed with depression. The success rates were measured and compared using the change scores of several questionnaires. These questionnaires measure different areas of behavior change including the strengths and difficulties a child has and the recommended level of service intensity. Although success can be defined in a variety of ways, the change scores of these questionnaires was how success was defined in this study. With this knowledge, day treatment programs may be able to improve their interventions and help stabilize the mental health of more children by knowing which areas of the program are working and which areas need improvement. In turn, these children will receive the highest level of client-centered treatment, changing not only their lives but also the stigma that surrounds mental health and treatment in rural communities.

This chapter introduces this study with the background information that led to the hypotheses of the study. The listed hypotheses and research questions were intended to facilitate a review of a program to find if the success rates for children are different based on the independent variables. I will also review the reason why this study is important

and the impact it can have for this program. Greater societal impact is also possible, and that is discussed in this chapter.

Background Information

Day treatment programs are for children with mental health needs who have limited success in school and at home but do not qualify for a more restrictive setting, such as a residential facility. Day treatment programs are less costly than more restrictive programs but offer a higher level of intervention than outpatient psychotherapy. The goal of day treatment programs is to support the needs of children and families struggling with a child's emotional and behavioral difficulties. Day treatment programs that use best practice treatment techniques are successful at treating children with disruptive behavior disorders (DBD) evidenced by better behaviors at home (Clark & Jerrot, 2012). Best practice treatment techniques include cognitive behavioral strategies, parent management training, psychopharmacological treatment and behavioral techniques (Clark & Jerrot, 2012). Children are referred to a day treatment program because their behaviors are not allowing them to remain in a classroom or to be successful in their homes or communities (Pazaratz, 2001).

Day treatment programs work with schools to provide therapy and skills for children with emotional and behavioral disorders. Although this setting is not appropriate for every child with emotional or behavioral disorders, it often provides the least restrictive environment for children who fit this category. An example of the most restrictive environment for these children would be a residential setting where children are monitored by mental health professionals 24 hours per day and 7 days per week. An

example of the least restrictive environment would be outpatient individual or family therapy. Day treatment is a unique program that allows for intensive treatment in a neutral setting (Vanderploeg et al., 2009). Day treatment provides an environment where a child can stay in the school for part of a day and receive needed mental health services for a part of the day (Vanerploeg et al, 2009).

Although day treatment is a successful intervention for many children, not all clients have the same amount of success by the time of discharge from the program. In order to increase success in a day treatment setting, it is important to identify preexisting factors such as mental health diagnosis, demographics, and trauma exposure (Crofford, Rittner, & Nochajski, 2013). There are myriad factors that could be explored and compared to the level of success in day treatment. Several factors have already been considered including age, type of aggression, IQ, demographics, and parental involvement (Bennett et al., 2001; Rittner, Nochajaki, Crofford, & Chen, 2015). In this study I looked at trauma exposure and compared oppositional defiant disorder and depression, which have not been compared with success in day treatment.

Factors of trauma and diagnosis and their possible relationship with the overall success of a child while in a day treatment setting have yet to be studied. Determining what factors are being adequately addressed in day treatment and whether additional supports need to be developed will effectively help more children with mental health needs (Crofford et al., 2013). This study helped determine whether the factor of trauma and a comparison of common diagnoses affects success in day treatment and allowed for potential considerations of changes to the program to better address the clients' needs.

Problem Statement

Day treatment programs are a successful treatment modality for many children, but some clients do not have the same level of success as others (Bennett et al, 2001; Rittner et al., 2015). The problem is that there many factors that may help or hinder the success of clients in a day treatment program, but current research has only considered a few (Bennett et al., 2001; Crofford, et al., 2013; Rittner et al., 2015). Several factors have been included in research to determine levels of success for children in day treatment, but many remain unexplored. This study considered several factors that have not been studied but that may significantly impact the success for children in day treatment. Research shows several factors that help and hinder success in day treatment (Bennett, et al., 2001; Crofford, et al., 2013; Rittner et al, 2015), but there is a gap in the literature with factors that have not yet been studied.

Several factors have been shown to decrease the success of children in day treatment. Children who have externalizing behaviors, a history of truancy, interactions with the juvenile justice system, and five or more placements are less likely to be successful in day treatment programs (Rittner et al, 2015). Another variable that has been considered for children in day treatment is aggression and how that affects success. Aggression is often divided into two subtypes: reactive and proactive. Reactive aggression is a reaction to a perceived threat or provocation (Merk, Orobio de Castro, Koops, & Matthys, 2005). Proactive aggression is a way that children behave to achieve a goal (Merk et al., 2005). Children who present with the symptom of proactive

aggression are less successful than children that present with reactive aggression (Bennett et al., 2001).

One factor that has been shown to have a positive influence on success is for children to have two parents in the home versus a single parent household (Rittner et al., 2015). The higher number of days that children spend in the program was also shown to lead to more success in the day treatment program (Rittner et al., 2015). Researchers have also considered the factor of parental involvement and compared it to level of success in day treatment. Children whose parents are more involved in treatment have higher success rates (Bennett et al, 2001).

Research on childhood trauma has shown that traumatic events can lead to future complications in adolescence and adults. For example, childhood trauma exposure has been positively correlated with perceived likelihood of arrest and incarceration (Jamie, Kelly, & Camille, 2017). Adults who were exposed to childhood trauma are at a greater risk for victimization later in life and adverse effects on their mental and physical health (Maschi, Baer, Morrissey, & Moreno, 2013). Childhood trauma exposure also significantly predicts risk of violence and psychological distress (Macinnes, Macpherson, Austin, & Schwannauer, 2016). The reason I considered the success rates of children based on trauma exposure in this study is that addressing trauma exposure could lead to greater success for more children in treatment which, consequently, could decrease significant risks in their future.

To enter a day treatment program, a child must have a mental health diagnosis. A survey of diagnoses for children entering day treatment found that diagnoses ranged from

oppositional defiant disorder, conduct disorder, posttraumatic stress disorder, depression, anxiety, and others, listed from most common to least (Srebnik, 1999). Oppositional defiant disorder and conduct disorder are both externalizing disorders, meaning that symptoms are manifested in outward behaviors and children act on their external environment (Liu, 2004). Depression and anxiety are internalizing disorders, where symptoms are turned inward and affect a child's internal psychological well-being (Liu, 2004). It would be useful to know if clients with a certain diagnosis are more successful than clients with a different diagnosis. Therefore, this study compared the success rates of groups of clients based on their diagnosis. The two diagnoses that were considered were oppositional defiant disorder and depression because the symptoms of these two diagnoses vary greatly and present an interesting dyad to compare. This information would help the day treatment staff determine if there needs to be additional curricula or a change in their approach with clients.

This study fills a gap in the literature and may help increase the success of children in treatment. Day treatment programs are consistently gathering data about the population that they serve and analyzing that data can reveal gaps in treatment that may exist. The gaps in treatment that are revealed may have to do with the curricula that are offered or with the approach that professionals take with clients, although there are many other reasons these gaps may exist. Specifically, in the day treatment program considered for this study, children ages 5-10 have more behavioral incidents, seclusions, and physical interventions than the other age groups in day treatment programs. The

hypothesis of this study is that the factors of mental health diagnosis and trauma exposure affect the amount of success that a child reaches in a day treatment program.

Purpose of this Study

The goals of day treatment programs are to decrease the behavioral and psychological symptoms for a child with a mental health diagnosis, enhance the strengths of the child, promote better family functioning, and prevent more restrictive placements (Vanderploeg et al., 2008). Day treatment programs accept any child with a mental health diagnosis regardless of preexisting factors that exist in the child's life. One independent variable in this study was trauma exposure for a child. The other independent variable that was considered was diagnosis. Specifically, two diagnoses were compared, oppositional defiant disorder and depression, and different groups of clients were compared to see if there were different rates of success. For this study, success was measured by change scores on the Strengths and Difficulties Questionnaire (SDQ) and the Child and Adolescent Service Intensity Instrument (CASII) or the Early Childhood Service Intensity Instrument (ECSII). The study was quasi-experimental, and the success rates of different groups of clients were explored based on the independent variables of trauma exposure and diagnosis of oppositional defiant disorder and depression for children ages 5-10 receiving mental health services in day treatment.

The independent variable of trauma exposure may include physical, mental, or sexual abuse, witness to domestic violence, witness to physical, mental, or sexual abuse, neglect, lack of adequate resources within the home, or homelessness. The variable of diagnosis involves a range of diagnoses for children entering day treatment and are

predominantly DBDs (Clark & Jerrott, 2012). DBDs include attention deficit hyperactivity disorder, oppositional defiant disorder, and conduct disorder, which are all externalizing disorders. Internalizing disorders include anxiety and depression. The diagnoses of the children entering the day treatment program considered here range from attention deficit hyperactivity disorder, mood dysregulation disorder, oppositional defiant disorder, posttraumatic stress disorder, depression, and anxiety as found in diagnostic assessments. For this study, the two diagnoses that were compared were depression and oppositional defiant disorder because they are common diagnoses. These two diagnoses also present with very different symptoms, which classify oppositional defiant disorder as an externalizing disorder and depression as an internalizing disorder.

By exploring the links between these independent variables and success in day treatment, it would allow professionals working with the clients to better address the child's needs on an individualized basis. Students entering a day treatment program have very complex lives at home, at school, and in the community. The next step in helping more students be successful in day treatment is to determine the differences between those who were successfully discharged from the program and those who were not successfully discharged (Crofford et al, 2013).

Research Question and Hypothesis

This study identified if the day treatment setting has the proper programs in place to most effectively help the children it is serving ages 5-10. It determined if the factor of trauma exposure is being adequately addressed in the day treatment setting based on the success of clients in that program. It also compared the success rate of children with an

oppositional defiant disorder diagnosis with children with a diagnosis of depression to see if there is a difference in success rates with an externalizing disorder or an internalizing disorder. A thoughtful consideration of these objectives and a thorough review of the existing literature led to the development of two research questions. The research questions that guided this study were as follows:

RQ1: Does the day treatment setting provide services that lead to more success for children with depression or with oppositional defiant disorder?

$H_0$1: The success rates for children in day treatment will be the same for children with depression and children with oppositional defiant disorder. The success in day treatment is measured by the change scores on the SDQ, which measures a child's strengths and difficulties, and the CASII or ECSII, which measure recommended service level.

$H_1$1: Children with depression will be more successful in day treatment than children with oppositional defiant disorder. The success in day treatment is measured by the change scores on the SDQ, which measures a child's strengths and difficulties, and the CASII or ECSII, which measure recommended service level.

RQ2: Does the day treatment setting provide services that lead to as much success for children who have experienced trauma as those who have not experienced trauma?

$H_0$2: Trauma exposure does not significantly affect the amount of success in day treatment as measured by the change scores of the SDQ, which measures

a child's strengths and difficulties, and the CASII or ECSII, which measure recommended service level.

$H_1$2: Trauma exposure does significantly affect the amount of success in day treatment as measured by the change scores of the SDQ, which measures a child's strengths and difficulties, and the CASII or ECSII, which measure recommended service level.

Theoretical Framework

This study was based on the behavioral theory of change. According to the behavior change theory, a change in behavior occurs by addressing motivation and the ability to control behavior (Mayne, 2015). These two components of change are affected by needs, opportunities, and abilities (Mayne, 2015). Motivation results from needs and opportunities and behavioral control results from opportunities and abilities (Mayne, 2015). Further detail on the behavior change theory and why it was chosen for this study can be found in Chapter 2.

Day treatment looks at changing the behaviors of children in two different ways. The first is to teach new skills that the child could use in everyday situations. The other is to address their thoughts and how those influence their behaviors, and by changing how they think about a situation, their behaviors would change also. One important aspect of addressing these two kinds of change is to realize that external factors also affect their ability to use the new skills they learn and their ability to change their thinking. This study showed how external influences may affect the impact pathway throughout the behavior change and ultimately change the level of success of the

intervention. By using the behavioral theory of change, it can be determined if the intervention of day treatment is an effective way to change behavior and if the desired outcomes are impacted by the external influences of diagnoses and trauma exposure.

Nature of the Study

The research design of this study was a quasi-experimental design because the variables could not be randomly assigned. There were two independent variables in this study. The first variable was trauma exposure and the types of traumas that a child can be exposed to include the variables listed on the Adverse Childhood Experiences (ACE) Questionnaire. The ACE studies were a series of retrospective studies that showed associations between traumatic events in childhood and poor health outcomes (Greeson et al., 2014). The traumatic experiences include abuse (physical, emotional, or psychological), sexual abuse, inadequate resources, parental drug abuse, divorce, domestic abuse, parental mental illness, and parental imprisonment (Greeson et al., 2014). In this study, trauma exposure or no trauma exposure were compared to success in day treatment. This comparison determined if trauma is being adequately addressed in treatment or if children with childhood traumas have differing levels of success from children who have not had experiences of trauma.

The final independent variable was the diagnosis of the child. Diagnosis can include adjustment disorder, conduct disorder, oppositional defiant disorder, depression, anxiety, mood dysregulation disorder and posttraumatic stress disorder (Srebnik, 1999). For this study, the two diagnoses that were compared were oppositional defiant disorder and depression because they are an externalizing disorder and internalizing disorder,

respectively. The reason that these two diagnoses were chosen was that, according to literature, they are two common diagnoses of children in day treatment (Srebnik, 1999). To gauge whether the day treatment program is better able to adapt programming for different diagnoses, two different presentations of symptoms were chosen. Those two diagnoses were compared to the change scores of the SDQ, CASII, or ECSII to see if there are any differences in the amount of success at discharge. This result determined if different curricula are needed to address the needs of the various clients.

The dependent variables in this study were the change scores of the SDQ, CASII, or ECSII. Upon admission, an SDQ and the CASII or ECSII are completed to assess the strengths and difficulties that a child may have and the level of needed care, respectively. An additional SDQ and CASII or ECSII are required every 6 months after that and at discharge. The change from baseline to discharge of these tools was used to determine if the child reaches a level of success before discharging from the program. If the child scores lower on the SDQ at discharge than they do at admission, that indicates improvements were seen in behavior. If the child scores lower on the CASII or ECSII at discharge compared to admission, it means that the child needs a lower level of care. The two covariates that were considered in the study were age and prior treatment because these variables can affect the success rates of children in treatment.

The data was collected from the records of discharged clients ages 5-10 of children in a day treatment setting. The data was deidentified and was found on diagnostic assessments, test results, and discharge summaries. These documents are included in all client documentation. The data was analyzed using a one-way analysis of

variance (ANOVA), and a Kruskal-Wallis rank sum test and the Pearson Chi-squared test on R program for statistical computing.

Definitions

The major constructs of this study consisted of the definition of day treatment and the independent variables. Key variables in this study included the SDQ, the CASII, and the ECSII.

Child and Adolescent Service Intensity Instrument (CASII): An instrument created by the American Academy of Child and Adolescent Psychiatry (2005) that is designed to determine the level of service that a child or adolescent may need. It includes eight sections that a mental health professional rates on a scale of 1-5 to determine the level of care for the child. The eight sections are the risk of harm, functional status, co-occurrence, environmental stress, environmental support, resiliency, child's involvement in services, and parent's involvement in services (Minnesota Department of Human Services, 2017).

Day treatment program: A treatment modality that is more intensive than an outpatient setting and less intensive than a residential setting (Clark & Jerrot, 2012). It provides treatment for children that incorporates families through psychotherapy to address thinking, emotional, and intellectual deficits and skills work to restore personal and social functioning to an appropriate developmental level (Minnesota Health Care Provider Manual, 2018). The Minnesota Health Care Provider Manual (2018) sets up the expectation that day treatment is a service that is offered year-round that runs for a minimum of 2 hours per day 1 day per week to a maximum of 3 hours per day 5 days per

week (2018). Psychotherapy must be offered at least 1 hour per day with a maximum of 2 hours per day with skills work being done the remaining hour/s (Minnesota Health Care Provider Manual, 2018).

Depression: A pattern of depressed mood most of the day almost every day (American Psychiatric Association, 2013). There is also a lack of interest or pleasure in activities that were once pleasurable, a disturbance in sleep patterns, and fatigue or lack of energy (American Psychiatric Association, 2013). There may also be feelings of worthlessness, inability to concentrate, recurrent thoughts of death or suicidal ideation (American Psychiatric Association, 2013).

Early Childhood Service Intensity Instrument (ECSII): An instrument that is similar to the CASII in that it measures the level of service that a child may need but is meant for children five and younger that was developed by the American Academy of Child and Adolescent Psychiatry (2005). Mental health professionals rate the five domains on the instrument on a scale of 1-5, which are the degree of safety, child-caregiver relationship, caregiving environment, functional/developmental status, and the impact of medical, developmental, or emotional/behavioral problems (Minnesota Department of Human Services, 2017). An additional domain exists on this instrument as a gauge of whether the services that a child is currently receiving match the child's needs, which are called the services profile domain (Minnesota Department of Human Services, 2017).

Mental health diagnosis: A classification of mental health disorder according to presenting symptoms according to the *Diagnostic and Statistical Manual of Mental*

Health Disorder. This is obtained by a mental health professional through the writing of a diagnostic assessment.

Oppositional defiant disorder: A pattern of angry or irritable mood that has presenting symptoms of easily losing temper or appearing angry. Symptoms also include being argumentative, defying authority figures and rules, and blaming others for mistakes (American Psychiatric Association, 2013).

Strength and Difficulties Questionnaire (SDQ): A behavioral screening tool that has sections listing attributes of the child and a section that measures the impact that the symptoms have on the child (Minnesota Department of Human Services, 2017). The attributes can be divided into both positive and negative categories and include questions in the domains of emotional symptoms, conduct problems, inattention/hyperactivity, peer problems, and prosocial behavior (Minnesota Department of Human Services, 2017).

Trauma exposure: An experience that threatens injury, death, or the physical integrity of self or others and also creates horror, terror, or a sense of helplessness at the time of occurrence (American Psychological Association, 2008). Trauma exposure continues to be a factor that is considered when working with children in any mental health setting. It is defined as the experience of a person who has witnessed an event that has harmed or threatened to harm them or others (McLaughlin & Lambert, 2017).

Assumptions

An assumption was that by looking at this data, I was able to determine results between the independent variables where there is overlap between both groups. For example, a diagnosis of depression may exist in part due to the child being exposed to

trauma. Exposure to trauma in childhood is a risk factor that can lead to various forms of psychopathology (McLaughlin & Lambert, 2017), so there was overlap between diagnosis and trauma. Another assumption was that trauma exposure is truthfully reported to the professional writing the diagnostic assessment. It is possible that the parent or reporting caregiver does not indicate the trauma that the child has or is currently experiencing. Therefore, it is not reportable. The research was based on what was reported by the caregiver under the assumption that is was truthfully given.

Scope and Delimitations

Children entering a day treatment program have both unique and similar factors. The two factors that were chosen for this study affect many children entering a day treatment program and each child fit within at least one of the parameters of the study and perhaps both. Each of the children requires a mental health diagnosis before entering the program, so diagnosis is a common factor, but diagnoses differ from child to child. Therefore, it would aid the day treatment program knowing which children have more success and if there is any difference based on the factor of diagnosis. Every child fell into a category for the trauma exposure factor.

This study compared two diagnoses. Only children who have the diagnosis of oppositional defiant disorder or depression were considered for this part of the study. Children with a different diagnosis were not considered in this study. Another factor for many children in day treatment is the exposure to trauma. Trauma exposure is associated with an increased risk of psychopathology (McLaughlin & Lambert, 2017), so many of the children entering day treatment have been exposed to trauma. The ability to

determine if trauma is being adequately addressed through day treatment could lead to improvement in programming and help more children. The different assessment tools of the SDQ, the CASII, and the ECSII are measures of success in day treatment as they provide a change score from baseline to discharge that can measure improvement. If the child's score goes down on any of these measures over the course of treatment it objectively shows an increase in strengths and the need for less intensive services.

There are several boundaries to this study including that it was only designed for consideration of the factors and success rates at one location in, examining one age group of children ages 5 through 10. This study was done in a very rural community that may not be generalizable to more populated areas. The general population of the city where this study was done is also not diverse in that it is 93.8% white according to the United States Census Bureau (2016). The lack of diversity in both the population served and the professionals in the program may make this study less generalizable to more diverse populations.

Limitations

A limitation to this study was that it used a relatively small sample of clients within a unique setting. The location of the study was in a rural area that may not be transferable to more densely populated areas. Another limitation was that the data that was collected was based on the direct information that the caregiver of the clients gave to the professional. The collected information was based on the bias of the reporting caregiver. This bias was addressed by using the stated information as objectively as possible although bias cannot be entirely avoided. A final limitation of this study was

that only two diagnoses were considered. Because this permutation of the study allowed for a significantly smaller sample, the results are not scientifically bound.

Significance

My hope for this study was ultimately to lead to the success of more children by making improvements in day treatment programs for children ages 5-10 by looking at specific factors. The study provided insight into which factors are being addressed adequately and determined if the preexisting factor of trauma exposure and a comparison of diagnoses affects greater or lesser success in day treatment. Once it is known whether there is a difference in success rates between the independent variables, the program can determine if there are any needed improvements that will lead to success for more children.

The first level of significance for this study is that it will help more children receive treatment that will most effectively help them address their mental health needs. If mental health needs are addressed, it may lead to greater future success. Children continue to show improvement of symptoms 2.5 to 4 years following discharge from a day treatment program (Clark & Jerrott 2012). Parental stress, attachment relationship, and mood difficulties also are significantly improved post discharge for the families of many clients (Clark & Jerrot, 2012). These improvements have significance both in the life of the child and their families.

The greater societal implication for success in day treatment or any mental health setting is about reducing the stigma that exists around mental illness. By creating programs that lead to greater success in school, the community, and at home, mental

health programs provide the best possible service to the clients and families but also change how others view mental health services. This stigma is especially present in more rural areas where this study took place. It was found that the stigma surrounding mental health, and specifically around children with emotional and behavioral disorders, may be even larger in rural communities (Heflinger et al, 2015).

In fact, the stigma surrounding children with mental health needs not only affects the child but the whole family and network of individuals surrounding the child (Heflinger et al., 2015). It was found that, especially in the school setting, there becomes a "stigma by association" for families of the children as well as affecting the children throughout their school-age years (Heflinger et al., 2015). This stigma causes families to question seeking help for children with emotional behavioral disorders. If programs such as a day treatment can more successfully help children with emotional and behavioral disorders and integrate these children back into school, the stigma that surrounds mental health would decrease.

Summary

Day treatment is one mode of intervention that is being used to address childhood mental health, and it is important to improve the service as the population changes. By considering the factors of trauma exposure and a comparison of diagnoses, improvements to treatment can be individualized for each child, therefore improving the success rates. In Chapter 2, I closely examine existing literature that defines day treatment and the variables that have been studied that are compared to success. I then present an investigation of the independent variables of trauma exposure and diagnosis. Finally, I

review the chosen measurement tools, the SDQ, CASII, and ECSII. In Chapter 3 I detail the methodology for the study. In Chapter 4 I review the results of the study with a discussion and a conclusion of the analysis.

Chapter 2: Literature Review

Introduction

This literature review is focused on the effectiveness of day treatment programs for children ages 5 to 10 based on several factors including demographics, preexisting factors, and presenting symptoms. Day treatment is a successful setting for many, but not all, children with a mental health diagnosis. Factors outside of treatment affect the amount of success that a child will have in treatment. It is important to determine different factors that may help or hinder a child's success so professionals within the program can guide treatment.

Children who have a mental health diagnosis may not have reached all their developmental or emotional milestones, may lack in social development, and may not have healthy coping skills, which affects their quality of life and ability to interact with others at home, in school, and in the community (CDC, 2013). Day treatments are mental health treatments that are center based, have various components, and are considered an intermediate level intervention (Vanderploeg et al., 2009). Children can struggle in this setting, and little is known about how different factors can indicate lesser or greater success in day treatment programs. In this literature review, I examine the factors that may aid or hinder the success of the child in a day treatment setting.

Research on the success rates for children in day treatment is limited. In the existing literature, researchers discuss the effectiveness of such programs, the long-term effects of day treatment, and factors associated with admission to day treatment programs. In this review, the current research study intends to examine the day treatment

setting and identify several factors that may predispose a child to success in day treatment. Researchers have studied several constructs as predictors of success. For example, the more the parent or caregiver is involved in therapy, the more success the child has (Bennett et al., 2001). Other factors that were considered were that the younger the child is, the more success a child may have, and if the child has a higher IQ, they may be more successful (Bennett et al., 2001). Some other important factors in a child's success in a day treatment program have not been considered by previous researchers. This study explores two of those factors, specifically, trauma exposure and a comparison of oppositional defiant disorder and depression.

This chapter is intended to provide an extensive review of the literature starting with several treatments that have been found to be effective in treating depression and oppositional defiant disorder for people of all ages. Following this information, I present the definition and background information of day treatment to define the treatment modality studied in this research. I also review the theoretical foundation of the study to provide information for the development of the hypotheses and research questions. The review of the literature includes other independent variables that have been considered in similar studies. This reveals a gap in the literature for the independent variables of this study, and the current literature is included for these variables. I also provide specific information for day treatment in Minnesota and the measures of success.

Literature Search Strategy

The search for the literature was done using several internet databases including PsycINFO, PsychArticles, and various online journals. Search terms included *day*

treatment, children's mental health, trauma, adverse childhood experiences (ACES), and *diagnosis*. The articles I chose were related specifically to day treatment with most of the articles being peer reviewed and written within the past 10 years. I also reviewed many approved dissertations for form and layout with specificity to the day treatment setting. I also referenced several current State of Minnesota Statutes and data from the CDC and the National Child Traumatic Stress Network websites.

Theoretical Foundation: Behavioral Theory of Change

Day treatment focuses on behavioral change, which is important because a common factor for admission into day treatment is often symptomatic behaviors. The behavioral theory of change states that a change of behavior occurs by addressing motivation and the ability to control behavior, which is affected by needs, opportunities, and abilities (Gatersleben & Vlek, 1998; Mayne, 2015). Needs, opportunities, and abilities can closely relate to several preexisting factors that children in day treatment may have including diagnosis and trauma exposure. According to Mayne (2015), motivation results from needs and opportunities, and behavioral control results from opportunities and abilities. If trauma exposure or diagnosis affects the child's opportunities, abilities, or needs, the pathway towards change will also be affected, which may hinder the child's ability to change their behavior unless adequately addressed.

The behavioral theory of change has been commonly deployed in the areas of physical health and marketing (Lee, 2018). It has also been used in education and critical thinking (Lee, 2018). In this study, I used the behavioral theory of change in a psychological treatment setting. The reasons for using this theory were threefold: (a)

actions are not only a person's innate sense and abilities but also about the consequences behind behavior; (b) the client has the ultimate choice of whether they will carry out a behavior or not; and (c) clients make decisions based on the wholistic person, emotional, intellectual, knowledge, and skills (Lee, 2018).

Day treatment addresses changing behavior in two different ways. The first way to provide motivation and increase a child's ability to control behavior is to teach skills that the child can use in everyday situations including social skills, coping skills, and communication skills. The other way is to address how thoughts influence behavior and how by changing thoughts about situations a child can change their behavior through psychotherapy. External influences also affect a child's ability to use the skills they have been taught and their ability to change their thinking. External influences are events and conditions outside of the intervention that may affect the intended result (Mayne, 2015). For children in day treatment, it is important to understand the external influences and how they may impact the behavior change and ultimately the level of success for the behavioral change. The external influences that I addressed in this study were trauma exposure and diagnosis.

Comparison of Inpatient, Day Treatment, and Outpatient for the Treatment of Depression and Oppositional Defiant Disorder

It is important to consider different treatment modalities and intensity of needed services for each client. All the options that exist have shown to provide improvements in functioning for adults, adolescents, and children. For depression, inpatient treatment and day treatment are comparably effective (Zeeck et al., 2016). Clients who have been

diagnosed with oppositional defiant disorder can be either admitted to an inpatient, day treatment, or outpatient setting, and several therapeutic interventions are effective for treatment that can be used in any setting. Considering the effectiveness of different therapeutic interventions within different levels of care can guide the treatment for individuals with either a depression or an oppositional defiant disorder diagnosis.

Treatment of Depression in Children, Adolescents, and Adults

Outpatient Treatments

Various successful outpatient treatment options are available for children, adolescents, and adults who suffer from depression. The seven major areas of intervention for depression include, but are not limited to, interpersonal therapy, social skills training, supportive therapy, dynamic therapy, cognitive behavioral therapy, behavioral activation, and problem-solving therapy (Cuijpers, van Straten, Warmerdam, & Andersson, 2008). Within these broad categories the effectiveness of several specific therapies has been examined including: (a) awareness-based cognitive therapy, (b) acceptance and commitment therapy, (c) emotion-focused therapy, (d) psychodynamic therapy, (e) systemic therapy, (f) cognitive therapy, (g) solution-focused therapy, and (h)schema therapy (Koruk, & Ozabacin, 2018). All types of psychotherapy were found to be effective, and there was little difference in effect size between the different types of psychotherapies (Barth et al., 2013). Further consideration of the therapies will enable an understanding of the wide range of services that are effective and offered through an outpatient setting.

Schema therapy is based on the concept that maladaptive schemas that were established when a person was young are the sources of psychopathology (Koruk & Ozabacin, 2018). This therapy, when conducted in an outpatient setting, has been proven effective for the treatment of depression (Bakos, Gallo, & Wainer 2015; Koruk & Ozabacin, 2018). One study found that clients who were treated with schema therapy saw a decrease in their depressive symptoms (Koruk & Ozabacin, 2018). For individuals who had dysthymia there was a 0.68 point ($p < .01$) decrease, for those with major depressive disorder a 0.62 ($p < .01$) decrease, and for individuals with major and minor depressive disorder a 1.91 point ($p < .01$) decrease (Koruk & Ozabacin, 2018).

Another therapy that is used to help treat depression in an outpatient setting includes awareness-based cognitive therapy. According to Hofmann, Sawyer, Witt, & Oh (2010), mindfulness-based treatment has been effective for the treatment of depression in an outpatient setting. Mindfulness-based therapies have improved depression a moderate amount (Hedges $g = 0.59$) for individuals being treated (Hofmann, et al., 2010). Another meta-analytic review found that mindfulness-based cognitive therapy provided a moderate improvement (Hedges $g = 0.59$) in depression (Hofmann et al., 2010).

Other theories have also been studied and the effectiveness of these treatments of depression were measured. When individuals were treated with acceptance and commitment therapy it was found their depressive symptoms decreased by 61.2% (Forman, Herbert, Moitra, Yeomans, & Geller, 2007). Emotion-focused therapy has also been shown to have positive effects on the treatment of depression. Short term emotion-

focused therapy was found to have a more positive effect in both the short term and the long term when compared to client-centered short-term therapy for reducing depression (Ellison, Greenberg, Goldman, & Angus, 2009).

These therapies, when used in an outpatient setting, have been shown to decrease depression for clients. In fact, for mild to moderate depression in adults, there is not a large difference in the efficacy of any of the therapeutic interventions (Cuijpers, van Straten, Andersson, & van Oppen, 2008). Interpersonal psychotherapy was found to be the most effective ($d = 0.20$) and nondirective support the least effective ($d = -0.13$) (Cuijpers, van Straten, Andersson, & van Oppen, 2008). The dropout rate for cognitive behavioral therapy was higher than the other interventions and the lowest dropout rate was with solution-focused therapy (Cuijpers, van Straten, Andersson, & van Oppen, 2008).

The treatment of depression for children and adolescents in an outpatient setting can include the above-mentioned therapies. Cognitive behavioral therapy with adolescents has been proven effective in reducing depression, as shown by a decrease in pre- and postscores on the Children's Depression Rating Scale-Revised (Lewis et al., 2009). Parent-child interaction therapy is an effective therapy for the treatment of depression in younger children due to the support it gives both the caregiver and the child (Silverman & Pettit, 2018). Although outpatient treatment is a level of treatment that offers much success for many individuals with depression, a higher level of care, inpatient treatment or day treatment, is sometimes needed to best support the client.

Inpatient Treatments

For individuals who have a high level of severity, chronicity, comorbidity, and treatment resistance to depression, inpatient treatment may be recommended (de Roten, Ambresin, Herrera, Fassassi, Fournier, Preisig, & Despland, 2017). A combined treatment of pharmacological and psychotherapy is currently recommended for people in inpatient treatment (de Roten, et al, 2017). Although a combined treatment is recommended it is not always successful for people with severe depression. Other therapies, such as brief psychodynamic psychotherapy, in addition to the combined treatment, improve the results of treatment for individuals in inpatient treatment (de Roten, et al, 2017).

Brief psychodynamic psychotherapy is sometimes used in conjunction with combined treatment, psychotherapy and pharmacological, for inpatient clients. Brief psychodynamic psychotherapy, for clients in an inpatient setting, enhances treatment and improves both long term and short-term results (de Roten, et al, 2017). Initially individuals treated with brief psychodynamic therapy had a reduction of depressive symptoms and a decrease in depression up to 12 months after treatment (de Roten, et al., 2017).

Although many treatments have been found to be successful for the treatment of depression in many individuals, factors such as co-morbidity, motivation, and social support are also important to consider. Inpatient clients who had comorbid conditions had less success in an inpatient setting (Zeeck et al., 2016). Patients who were rated to have lower motivation did not have as much success in an inpatient setting (Zeeck at al, 2016).

After discharge, individuals who had a better support network had fewer symptoms of depression at a 3-month follow up (Zeeck et al, 2016). Different variables within the life of the individuals are important to consider, no matter the modality or intensity of the treatment.

Treatment of Oppositional Defiant Disorder in Children, Adolescents, and Adults

Outpatient Treatments

Several treatments have been found effective for children and adolescents who were diagnosed with oppositional defiant disorder. These treatments can be offered in an inpatient, day treatment, and outpatient setting depending on the needs of the client. Different treatment programs include psychoanalytic psychotherapy, behavior therapy, and family training programs. Several of the family programs that are successful in treating the symptoms of oppositional defiant disorder include, Parent Management Training, Collaborative and Proactive Solutions, and the Incredible Years Curriculum. Each of these have shown to decrease oppositional defiant symptoms.

Psychoanalytic psychotherapy and behavioral therapy are effective for treating children with oppositional defiant disorder (Laezer, 2015). After receiving therapy without medication, children, ages 6 to 11, who were treated with psychoanalytic psychotherapy and behavioral therapy had a reduction in symptoms at 3 years post treatment (Laezer, 2015). Although these individual therapies have been shown to be effective, including families in the treatment for children offers additional support and extended success.

Maternal coaching for children who are entering treatment is a modality that includes a child's caregiver in the treatment of oppositional defiant disorder. For this treatment mothers and children participate in an emotion talk task pretreatment that also encompassed the mother's thoughts about emotions and their child's symptoms (Dunsmore, Booker, Ollendick, & Greene, 2016). It was found that, for children who were high in emotional negativity, there was a moderating effect on oppositional defiant symptoms posttreatment (Dunsmore, et al., 2016). This shows that involving caregivers in the treatment of oppositional defiant disorder may lead to better results.

Several structured curriculums and treatments were found to be effective for treating children with oppositional defiant disorder. One program for the treatment of oppositional defiant disorder that involves families and is effective in the treatment of symptoms is Parent Management Training (Booker, Ollendick, Dunsmore, & Greene, 2016). Parent Management Training focuses on improved child compliance by coaching the parents on consistent responses with their parenting (Booker, et al., 2016). Parent management treatment has been shown to be both clinically significant and statistically significant for reducing behavioral symptoms in children with oppositional defiant disorder (Costin & Chambers, 2007).

One theory on the treatment of oppositional defiant disorder is that cognitive skills are lacking for many of the children who are diagnosed with oppositional defiant disorder (Booker, et al, 2016). One treatment that focuses on parents and children learning problem solving skills is Collaborative and Proactive Solutions (Booker, et al, 2016). Collaborative and Proactive Solutions is a method that focuses on skills that may

be behind for the child including adaptability, flexibility, and problem solving (Ollendick, Greene, Austin, Fraire, Halldorsdottir, Allen, Jarret, Lewis Smith, Cunningham, Noguchi, Canavera, & Wolff, 2016) This intervention focuses on helping the child and parent work together to solve problems and learn skills that may be creating the oppositional behaviors (Ollendick, et al, 2016). When comparing Parent Management Training and Collaborative and Proactive Solutions, both treatments showed equal effectiveness in reducing oppositional defiant symptoms (Ollendick, et al, 2016). In fact, both treatments showed 50% of the clients who participated in either of the modalities were diagnosis free or considered much improved or very much improved at the end of treatment (Ollendick, et al 2016).

The levels of care will differ depending on the needs of the client. The least intensive program that can offer various therapeutic interventions is outpatient therapy. The most intensive program is an inpatient setting, for clients whose symptoms are so elevated that they are unable to function within their communities. Day treatment is an option that is more intensive that outpatient treatment but allows the client to stay within their community. This can be especially effective for children who can stay with their families and in their school while getting additional support to meet their mental health needs. The various therapeutic interventions that were mentioned above can be offered in day treatment but on a more consistent and intensive basis than outpatient.

Background of Day Treatment

Mental illness among children is a common occurrence in the United States. In fact, 1 out of 7 children in the United States ages 2 to 8 has a diagnosed mental,

behavioral, or developmental health disorder (CDC, 2017). Often mental health needs in children are expressed by the child as deviations from behavioral norms. These deviations in a child's behavior may include aggression, flight, inability to appropriately interact socially with both peers and adults, and the inability to regulate emotions. There are various programs in place that aim to help children with their mental health needs. One of the most intense levels of mental health care that a child can receive is residential treatment where the child lives within a mental health facility for an extended period. One of the least intense levels of mental health care that a child can receive is outpatient therapy where the child sees a therapist for a designated amount of appointments. Day treatment is a program that offers more intensity than outpatient therapy but is less restrictive than a residential placement (Vanderploeg, et al., 2009).

Day treatment is a partial day option where the child attends an academic portion of the day and focuses on mental health for a part of the day by working with a practitioner for skills work and a psychotherapist for therapy. Day treatment, as part of the partial hospitalization continuum, became a treatment modality in the late 1950s to the early 1960s (Neffinger, 1981). This treatment modality started during that time frame as an option for a transitional program between inpatient hospitalization and outpatient treatment (Neffinger, 1981). Partial hospitalization, including day treatment, has continued to grow throughout the years because of the growth of community mental health, the theory that treatment within the community in which someone lives leads to better results for that individual, and the ability to provide care at a lower cost than inpatient treatment centers (Neffinger, 1981).

Day treatment has been shown to reduce problem behaviors as effectively as a residential setting (van Bokhoven, Matthys, van Goozen, & van Engeland, 2005). It is also more cost-effective, less restrictive, gives the child a range of services, and allows the child to continue to live in their home and function in their community (Vanderploeg, et al., 2009). Day treatment programs can lead to children gaining the skills and supports that they need to become successful while working with the resources of their communities (Vanderploeg et al., 2009). Day treatment was found to be more successful at improving behavior, social skills, and family functioning than outpatient treatment for children at comparable levels of behavioral and emotional needs (Jerrott et al., 2010). The program offers an intermediate level of support for children and families that helps many children.

Successful reintegration into school and community settings for children who have attended day treatment varies. Yet, compared to a waitlist control group of children with significant disruptive behavior disorder (DBD), children with DBD who attended day treatment showed significant improvement in their behavior (Jerrott et al., 2010). By the time those children were discharged, their scores on the measures of externalizing behaviors as measured by the Child Behavior Checklist had fallen in the nonclinical range and scores of parental stress as measured by the Parenting Stress Index had also decreased (Jerrott et al., 2010).

The Purpose of Day Treatment

Day treatment programs exist in many places because they offer an intense level of care while allowing children with a mental health diagnosis to remain in their

communities, with their families, and in their schools. Day treatment has provided a necessary level of intervention for children that have significant and persistent emotional and behavioral difficulties (Grizenko, Papineau, & Sayegh, 1993; Grizenko, Sayegh, & Papineau, 1994; Whitemore, Clark, & Jerrott, 2012). The structure of a day treatment program includes a mixture of psychotherapy and skills work led by mental health professionals and mental health practitioners.

Benefits of Day Treatment

There are many benefits to day treatment for children including providing services for both children and their families and creating less family disruption (Clark & Jerrott, 2012). When comparing 40 children that attended a short-term day treatment setting to those that were on a wait list, researchers found that the control group, the children that attended day treatment, showed improvement to their behaviors in their home and improved externalizing and social behaviors (Jerrott et al., 2010). Parental stress was lowered to a nonclinical level following 40 days of treatment in a day treatment setting (Jerrott et al., 2010). Day treatment can be an effective setting for many children to get the psychotherapy and skills they need to be more successful in their home, community, and school.

Along with day treatment being a successful treatment modality for reducing children's symptoms and parental stress, other benefits include cost and accessibility. Day treatment programs are an intermediate level program that are important to develop as residential treatment programs are becoming scarcer due to the limitations and scrutiny of managed care (Lyons, Libman-Mintzer, Kisiel, & Shallcross, 1998; Kwok, Yuan, &

Ougrin, 2016). Such programs offer a level of care that is less expensive than residential treatment and allows children to stay within their homes and communities (Jerrott et al., 2010). The children in the day treatment program may be known within the mental health community, but circumstances may have escalated to the point where an out-of-home placement may be required (Vanderploeg et al., 2009). This intermediate level of care is less restrictive than a residential placement and may prevent more restrictive treatment.

Another benefit of day treatment is that the treatment focuses on many different aspects of skills and therapies that apply to all children. Day treatment focuses on reducing mental health symptoms, enhancing strengths, and improving family functioning through family therapy and family skills (Vanderploeg et al., 2009). Day treatment offers social-emotional skills within a safe environment with the intention of returning a student as soon as possible to their regular classroom or school (Crofford et al., 2013). Day treatment programs also cause less family disruption than does a residential setting (Clark & Jerrott, 2011). Although there are many benefits to day treatment, there are also several weaknesses.

Weaknesses of Day Treatment

There are several weaknesses to day treatment programming. There is a need to have continuing mental health care in order to have continued improvement of symptoms. Also, not all the challenges in a child's life can be addressed within the day treatment setting. Another weakness of day treatment is the extent to which day treatment has long-term positive effects for children. Children directly after discharge

showed a vast improvement, but at 2.5 to 4 years post discharge, gains were of lesser magnitude and at least one symptom in many of the children reappeared (Clark & Jerrot, 2012). This trend shows the need for ongoing support for the child and their family after day treatment.

Another weakness of day treatment is that it works well with the child and the family while in treatment, but there are a host of other challenges in the child's life that are not being addressed. These challenges include poverty, abuse and neglect histories, gang exposure, unsafe neighborhoods, and inconsistent schooling and mental health services (Crofford et al., 2013). Although these weaknesses for day treatment do exist, it still provides an environment that is beneficial to many children and is less restrictive than an in-patient residential placement.

Least Restrictive Treatment

Day treatment allows an intermediate placement option for families and schools allowing for a less restrictive environment than in-patient residential treatment (Vanderploeg et al, 2009). According to the Education for all Handicapped Children Act (EHA, 1975, P.L.94-142), school districts are required to educate children with nondiscriminatory evaluation, due process, an individualized education plan (IEP), the least restrictive environment, and parent participation (EHA, 1975). Day treatment for children allows a child to receive academics for a portion of the day within the school district and mental health support through the day treatment program. The day treatment staff work closely with the school staff to ensure that the child is receiving the mental health supports they need to better performance in school. The option of day treatment is

much more cost effective than in-patient residential treatment but offers more support for sustained changes than outpatient treatment (Clark & Jerrott, 2012). Offering a less restrictive environment for children is an important part of maintaining the rights of the child and the family.

Day Treatment in Minnesota

Day treatment centers exist across the United States and the world. They vary from state to state and country to country with the amount of time that a day treatment program can run to different curriculums and treatment strategies. Although these programs differ in the delivery of services the goal remains to provide children with a level of mental health care that will return the child to a level of functioning that will allow them to be successful at school, at home, and in the community. Another commonality with all day treatment settings is that they provide mental health support and skills in a setting that is less restrictive and less expensive than an inpatient residential setting (Vanderploeg et al., 2009). Specifically, in the United States in the state of Minnesota, the day treatment modality of treatment has been expanded upon in the hopes to lessen the need for more residential placements. It has been expanded to increase the time spent within the day treatment facility, but also to include family skills and therapy to make a more sustainable change in the child and the family's future.

The state of Minnesota differs from other states because it has a special qualification for certified day treatment programs called Children's Therapeutic Support Services (CTSS). The idea behind this modality is to provide flexibility with each child, so they get the services that will be most beneficial for them. This program allows

various therapeutic and skills work interventions that rehabilitates children with emotional disturbances to restore the child to a level of functioning that they would have had or consistent with other children if the mental health disorder had not occurred. This intervention is time-limited and rehabilitates the child to be able to function independently. According to Minnesota statutes, to be certified as a CTSS Day Treatment, the facility needs to offer psychotherapy, skills training and crisis assistance (Minnesota statute MS256B.0943, 2016). With the various expectations of day treatment programs in Minnesota, there is an extensive certification process.

To obtain the certification of CTSS Day Treatment certain structures need to be in place. The first is that each child needs to have an individualized treatment plan that has measurable treatment outcomes (Minnesota statute MS256B.0943, 2016). The treatment outcomes need to be determined by the child's diagnostic assessment which is written by a mental health professional and based on the child, their parents, and caregivers reports (Minnesota statute MS256B.0943, 2016). The individualized treatment plan needs to be updated at least every 90 days and is designed to fit the unique needs of each child and child's family (Minnesota statute MS256B.0943, 2016). There are several different professional requirements of the staff in day treatment to meet the unique needs of each child.

Within the CTSS day treatment setting, there are several qualifications for the individuals providing the service which include both mental health professionals and mental health practitioners. To be considered a mental health professional an individual must be a licensed psychologist, a licensed professional clinical counselor, a licensed

social worker, a licensed marriage and family therapist, a psychiatrist, a clinical nurse specialist, or a psychiatric nurse practitioner (Minnesota statute MS256B.0943, 2016). To be considered a mental health practitioner an individual must have a bachelor's degree and 2000 direct service hours to children with mental health needs (Minnesota statute MS256B.0943, 2016). With both professionals and practitioners working with the children with various skills and therapy, there is the ability to make the program unique to each child. One way to aid in serving each child most effectively is to break the day treatment programs into age-specific categories.

For the day treatment program considered in this study there are five separate programs, based on age, that follow the CTSS model. One program has children that are three years old through 6 years old. The Elementary program has children that are in the Kindergarten through the 4th grade. The Middle School program has children that are in 5th through 8th grade. The Adolescent program has children ages 12 to 18. An evening program has children ages 13 to 18 which differs from the adolescent program as this program focuses on criminal thinking and how that dictates a client's interaction in the community including with their peers, parents, teachers, and law enforcement. Of all the programs, the Elementary Day Treatment program utilizes the most restrictive procedures, and the children display more aggression than the other programs within this setting. This program uses seclusion and restrictive holds as a form of diversion ranging up to eight times per month.

It is important to take a closer look at this program to ensure that the needs of all the clients are adequately addressed and that the programming is appropriate for the

clientele. It is important to look at different factors for the clients to determine the needs of the clients and the level of necessary programming. To determine the needs of the clients based on factors this study determined if there are variances in the level of success between the different independent variables.

For some children, day treatment programs provide enough support and skills work that they can successfully move back into the mainstream classroom. For other children, a higher level of care is needed, or they may leave the day treatment program without reaching their individualized goals. Examining factors that may lead to success in a day treatment program would allow program staff to know the factors that they are unsuccessful at addressing and identify possible gaps in the care they are providing.

Factors for Children in a Day Treatment Program

Determining which preexisting factors may hinder success in day treatment for children before intake is an important next step in the process of making day treatment more effective (Crofford et al, 2013). The demographics of the children entering the day treatment program involve several factors which have yet to be compared to success. A surveillance of the demographics of day treatment found that clients were more likely to be male, low socioeconomic status, and almost half of the students were involved with some community-based service including case management services, child welfare, and financial assistance (Crofford et al., 2013). These demographics are important to consider but they do not show us which groups of clients that are referred to a day treatment program are more successful; therefore, the programs do not know the areas that need improvement. Demographics give us an idea of who is admitted to a day treatment

program, but one factor that is common to many children within the program is their externalizing behaviors.

Externalizing behaviors including truancy, running away, drug use, curfew violations, and misdemeanors are common factors for children that are admitted to day treatment (Crofford et al., 2013). Another common factor of children in day treatment is high aggression levels (Bennett et al., 2001). Aggression is a common factor for many children entering a day treatment program and clients with different types of aggression have varying levels of success in day treatment (Bennet et al, 2001). By focusing on other key preexisting factors that have not been considered, day treatment programs can become more suited to serve all clients by knowing what their curriculums are addressing adequately and what areas need further development.

Even though we know the demographic factors and the common behavioral factors among children that are admitted to day treatment, there are other factors, including trauma exposure that have not been considered. It is important to look at trauma exposure and compare client groups that have been exposed to trauma and clients who have not been exposed to trauma and compare success rates. It is also important to compare the variable of diagnoses and determine if children with different diagnoses have varying levels of success. This will help ensure that the factors that are not being adequately addressed are known, and changes can be made to make treatment as effective as possible.

Factors That Have Been Considered

Several factors have already been considered in relation to success in day treatment. Aggression is one factor that has been considered and compared with the amount of success within a day treatment program. Aggression is often seen in the children that are admitted to day treatment. There are two different types of aggression that are noted in children, proactive and reactive aggression. Proactive aggression is an unprovoked violent response that someone would use to coerce or influence another person (Bennett et al., 2001). Proactive aggression is often correlated with individuals and substance abuse or parents that have a history of substance abuse (Connor, Steingard, Cunningham, Anderson, & Melloni, 2004). Reactive aggression is a violent response when a person perceives a threat or frustration (Bennett et al., 2001). Reactive aggression is often seen in children who have been subjected to maladaptive parenting or early childhood traumas (Connor et al., 2004). Based on substance use and trauma a child's background is a determinant of the type of aggression that they may display.

The two types of aggression originate from various parts of a child's background. Proactive aggression is a means to obtain a goal that is controlled by external factors, it is a learned way for a person to achieve a positive end (Bennett et al., 2001). Reactive aggression is often found in individuals that were physically abused, have high impulsivity, poor social problem-solving skills, and experiences of peer rejection (Bennett et al., 2001). Day treatment has been found to be less effective for children that display proactive aggression versus reactive aggression, so children with anti-social behaviors may need additional skills and support (Bennett et al., 2001). Along with

aggression, several other preexisting factors have been considered with the level of success in day treatment including IQ, age, parental involvement, poverty level, prior placements, truancy, and interactions with the juvenile justice system.

Children in day treatment come from a variety of settings and the preexisting factors for each child is a unique complex structure. Studies have found several preexisting factors of individuals who were admitted to day treatment, aggression, IQ, age, and parental involvement have been studied as predictors of success (Bennet et al., 2001). Parental involvement is one predictor of success, the more involved in therapy a parent is the more success the child will have in treatment (Bennett et al., 2001). They also found that the younger the child is, the more success a child may have, and if the child has a higher IQ they may be more successful (Bennett et al., 2001). Children in grades Kindergarten through 6th grade or 10th through 12th grade were over 3 times more likely to be successful than children in 7th through 9th grade (Rittner et al., 2015).

Several factors have been associated with less success in a day treatment setting. African American children have been found to be 73% less likely to succeed in day and were more likely to meet federal poverty guidelines and live in single family households (Rittner et al., 2015). This is important to consider because it is not race of the child that is important in this scenario but the poverty level and number of parents in the household that may be the bigger factors (Rittner et al., 2015). The preexisting factor of 5 or more prior placements, a history of truancy, symptomology of externalizing behaviors, and contact with the juvenile justice system were all associated with less success in a day treatment setting (Rittner et al., 2015).

The continual identification of factors of children who would benefit the most from day treatment is important because it can lead to better placement decisions or further develop and innovate current treatments that are available (Bennett et al., 2001). This list of considered factors has been a good start to helping more children in day treatment, however there are factors left to be considered. By adding the factors of trauma exposure and diagnosis to the list of factors that are considered and compared with success, day treatment programs can become more effective for children with varying backgrounds.

Trauma Exposure

Trauma exposure has gained significance through various modalities including ACEs, information in Diagnostic Assessments for children with emotional or behavioral disturbances, or assessments such as the Child and Adolescent Needs and Strengths Trauma Comprehensive (CANS). The CDC states that a high ACE score can lead to risky behaviors, chronic health conditions, low life potential, and early death (CDC, 2017). Research has indicated that more than 50% of men and women will have experienced trauma at least once in their life (Lucio & Nelson, 2016). Any individual, regardless of age may have a need for intervention at some level of intensity. Adults who have experienced trauma may have a difficult time building interpersonal relationships, including a therapeutic relationship with a mental health professional (Ellis, Simiola, Brown, Courtois, & Cook, 2018). Although trauma exposure may add an additional level of care for individuals, very few studies exist comparing the success rates of different therapeutic approaches (Ellis et al., 2018). Most of the studies that exist focus on the

therapeutic alliance in treatment, for adults, because of the hypothesis that when a person experiences trauma it is more difficult for a therapeutic alliance to form (Ellis et al., 2018).

Children that were exposed to abuse or neglect also have a difficult time building attachments which lead the child to have a difficult time determining whether the world is safe or unsafe, regulating their emotions, and determining their self-worth (National Child Traumatic Stress Network (NCTSN), 2017). Children that have experienced trauma have various behavioral problems and have negative psychosocial outcomes throughout childhood and adolescence (Greeson et al., 2014). Children who have been exposed to trauma may have a difficult time expressing their emotions, may react violently and inappropriately to stress, and may also have constant triggers within their environments because the trauma has made them hypervigilant. (NCTSN, 2017). These are often the behaviors that children present in day treatment, so determining if trauma exposure is a factor to success in day treatment is important. Once it is known whether there are varying levels of success based on trauma exposure, it could be better addressed through the course of the program.

The prevalence of traumatic experiences for children that are seeking mental health services has led the American Academy of Child and Adolescent Psychiatry (AACAP) to list standards for treating children who have been exposed to trauma. The first standard is that each child is asked questions about traumatic experiences at intake, and if those questions lead to an indication of trauma further testing should be done to determine the level of symptoms caused by the trauma (AACAP, 2010). Treatment

planning should also consider a comprehensive treatment approach that includes the possibility of comorbid disorder (AACAP, 2010). The first treatment consideration for children who have experienced trauma should be trauma focused psychotherapies (AACAP, 2010). Treatment planning may also include medication interventions and school-based accommodations. Any therapy that requires restriction of basic needs to the child or adolescent is prohibited (AACAP, 2010).

Therapies that focus on trauma are often effective for treating children and adolescents who have experienced trauma. Specific trauma focused therapies include Trauma Focused Cognitive Behavioral Therapy and Child Parent Psychotherapy (Lucio & Nelson, 2016). Another aspect of treating children with trauma is to provide trauma informed care, which is defined as an overall approach to enhancing a supportive environment in the delivery of mental health services to those affected by trauma. Although it is an advancement for therapists to be able to offer strategies, including trauma focused therapies and trauma informed care, these options may not be offered to every child in a program. This study could help the program determine if the amount of focus currently on trauma is adequate for treating both children who have been victims of trauma and those who have not.

Diagnosis

Children that are admitted to day treatment have a variety of diagnoses. Every child that is admitted to day treatment has severe emotional or behavioral problems and are classified as seriously emotionally disturbed (Crofford et al., 2013). However, specific diagnoses for the children can vary from posttraumatic stress disorder,

oppositional defiant disorder, adjustment disorders, mood dysregulation, anxiety, and depression. One study found that the composition of diagnoses of children admitted to day treatment ranged from oppositional defiant disorder (36%), conduct disorder (14%) Posttraumatic stress disorder (13%), depression (10%), anxiety (7%), and other (7%; Srebnik, 1999). This statistic was taken into consideration for this study. In order to have participants to compare, the higher percentage diagnoses were the first to be considered. Oppositional defiant disorder and conduct disorder overlap in many ways and the symptoms of oppositional defiant disorder may develop into the symptoms of conduct disorder over time (Kolko & Pardini, 2010). These two were not chosen for comparison due to the similarities. Posttraumatic Stress Disorder was not chosen due to its link to trauma. The next highest percentage is the diagnosis of depression which has very different symptoms for oppositional defiant disorder and allows the study to compare groups of children with very different symptoms and presenting concerns.

Another study that compared individual-based programming versus community-based programming found that 43.5% of the children in services had conduct/disruptive behavior and 28.3% were struggling with depressive symptoms (Chorpita et al, 2017). This difference provides an interesting comparison as the children with conduct/disruptive behavior have externalizing symptoms while the children struggling with depressive symptoms have more internalizing behaviors. Day treatment settings may be using curriculums or therapies that address the needs of one group of children but may not be addressing the needs of all the children. To better understand this dichotomy,

a comparison of an externalizing disorder, oppositional defiant disorder, and an internalizing disorder, depression, should be considered.

Several studies have considered success in day treatment and categories of diagnoses, but none have considered and compared oppositional defiant disorder and depression. The study by Jerrott et al. (2009) only considered children with DBD because other diagnoses may respond better to treatment. Another study on the long-term effectiveness of day treatment for children only considered children with DBD (Clark & Jerrott, 2012). One study looked at several factors that are associated with admission to a day treatment program, but they used the broad category of Seriously Emotionally Disturbed (SED) to encompass all diagnoses and did not to compare success rates (Crofford et al., 2013).

Success rates of treatment vary greatly for oppositional defiant disorder, an externalizing disorder, and depression, an internalizing disorder, depending on the mode of treatment. Behavioral therapy with children ages 3 to 10 showed a decrease of symptoms of disruptive or aggressive behaviors of 20% to 30% (Kelsberg & St. Anna, 2006). Parents play a key role in treatment of both internalizing and externalizing disorders. A parenting skills program found the change in behavior for both internalizing and externalizing symptoms to be equally effective (Cartwright-Hatton, McNally, White, & Verduyn, 2005). Trauma Focused Cognitive Behavior Therapy (TF-CBT) is another mode of treatment that is used to treat externalizing and internalizing behaviors. Both internalizing problems and externalizing problems decreased after TF-CBT, however, at a one year follow up there was a resurgence of reported externalizing symptoms (Webb,

Hayes, Grasso, Laurenceau, & Deblinger, 2015). Cognitive Behavioral therapy, parenting interactions, and skills work are all components of a day treatment program. According to this research, there is a positive effect on both externalizing disorders, such as oppositional defiant disorder, and internalizing disorders, such as depression.

Important information would be gained by comparing oppositional defiant disorder and depression. Oppositional defiant disorder is a diagnosis that is repeatedly seen in the day treatment setting because of the externalizing behaviors that the child displays. Depression often tends to have behaviors that are more internalized and may be harder to identify. According to the Diagnostic and Statistical Manual of Mental Disorders Fifth Edition (American Psychiatric Association, 2013) an individual who is diagnosed with oppositional defiant disorder has symptoms of an angry or irritable mood, argumentative or defiant behavior, and vindictiveness. Symptoms in an individual who may be diagnosed with depression include a depressed mood most of the day and nearly every day, diminished interest or pleasure in activities, weight loss or weight gain, insomnia or hypersomnia, psychomotor agitation, fatigue, feelings of worthlessness, diminished ability to think or concentrate, and recurrent thoughts of death (American Psychiatric Association, 2013). This study compared these two diagnoses because of the marked difference in symptoms and presenting behaviors because one is an internalizing disorder and one is an externalizing disorder.

Children are often admitted to day treatment because of their externalizing behaviors and as more children with internalizing behaviors are admitted to day treatment it is important to consider the type of and effectiveness of the program (Rittner et al.,

2015). In many of the studies children with severe emotional and behavioral disturbances are studied because those children have a more difficult time in programming than children with other diagnoses (Jerrot et al., 2009). Therefore, the hypothesis of this study is that children that have been diagnosed with depression will have a higher success rate than children who have been diagnosed with oppositional defiant disorder.

It is important to continue to grow the list of factors that are considered and compared with success in day treatment to continue to improve the program. The more factors that can be addressed and resolved will lead to greater success for more children. Factors that have been researched include types of aggression, IQ, age, parental involvement, poverty level, prior placements, truancy, and interactions with the juvenile justice system (Connor et al., 2004; Bennett et al., 2001; Rittner et al., 2015). The factors of trauma exposure and comparing certain diagnoses have not been considered with success in a day treatment program and would add to the list of factors that could be improved upon for treatment of children.

Summary and Conclusion

Many treatment modalities have been studied, both for inpatient and outpatient settings, which have been successful for treating trauma, depression, and oppositional defiant disorder. Trauma Focused Cognitive Behavioral Therapy has been shown to be one of the most empirically supported treatments for children who have experienced trauma (Lucio & Nelson, 2016). Child and Parent Psychotherapy has shown strong effectiveness for the treatment of trauma for children under seven (Lucio & Nelson). The results for these specific therapies have proven effective but there is a gap in the literature

when considering if day treatment programs are effective at addressing trauma for children.

Several therapies have been proven effective for helping children with both depression and oppositional defiant disorder. Several therapies that can be offered in an outpatient setting, which have been proven effective for treating depression include these seven major areas; interpersonal therapy, social skills training, supportive therapy, dynamic therapy, cognitive behavioral therapy, behavioral activation, and problem-solving therapy (Cuijpers, van Straten, Warmerdam, & Andersson, 2008). For people in an inpatient setting it is most effective for individuals to have a combined treatment of pharmacological and psychotherapy (de Roten et al., 2017). Other therapies, such as brief psychodynamic psychotherapy, in addition to the combined treatment, improve the results of treatment for individuals in inpatient treatment (de Roten et al., 2017). For the treatment of oppositional defiant disorder, Psychoanalytic psychotherapy and behavioral therapy are effective for treating children with oppositional defiant disorder (Laezer, 2015). This therapy can be offered in an outpatient, day treatment, or inpatient setting. Specific therapies that have been proven to be effective for treating oppositional defiant disorder for children include Parent Management Training and Collaborative and Proactive Solutions (Booker et al, 2016).

Although there is substantial research for the treatment of trauma, depression, and oppositional defiant disorder, there is a gap in the research specific to differentiating symptom reduction. The first gap in the literature is research pertaining to the difference in success rates for children who have experienced trauma and those who have not,

specifically for children ages 5 to 10, who attend day treatment. Although there is considerable research that shows varied treatment modalities for successfully treating both oppositional defiant disorder and depression, there is a lack of research comparing success rates for children, ages 5-10 in day treatment programming, comparing success rates for children who have been diagnosed with depression versus children diagnosed with oppositional defiant disorder. This study addresses those gaps within the literature.

Although many different factors have been compared to success rates in day treatment including aggression, IQ, parent involvement, and age this study added the variables of trauma exposure and comparisons of diagnoses to that list. The literature presented here defined what day treatment is and the results of the above-mentioned variables. The variable of aggression was put into two categories proactive and reactive. It was found that kids that displayed proactive aggression tended to do more poorly in day treatment than those with reactive aggression (Bennett et al., 2001). It was also found that younger kids, with a higher IQ, and more parental involvement also tended to do better in a day treatment setting (Bennett et al., 2001). The more factors that are studied the more effective day treatment will be, so this study considered trauma exposure and compared success rates of children with the diagnosis of oppositional defiant disorder and depression.

Chapter three presents the method of how success rates in day treatment for children with trauma exposure and differing diagnoses were compared. One variable of this study is trauma exposure, which would determine if there is a difference in the rates of success between those children that had experienced trauma or those that have not.

This study also looked at the diagnosis of the child to determine if children with certain diagnoses are reaching a higher level of success in programming. This study of variances was accomplished by using the change scores, a comparison of the baseline and discharge scores, of the SDQ, CASII, and ECSII.

Chapter 3: Research Method

Introduction

The focus of this study involved determining if there are certain factors for children entering day treatment that affect the level of success they have while in the program. The independent variables that were considered in this study were trauma exposure and a comparison of two diagnoses, oppositional defiant disorder and depression. The goal of the study was to determine whether the factor of trauma exposure affects the amount of success a child has in day treatment. In this study I sought to compare two diagnoses with different presenting symptoms in terms of the level of success that a child may have in day treatment. The two diagnoses chosen for this comparison were oppositional defiant disorder, an externalizing disorder, and depression, an internalizing disorder.

The sections of this chapter include the research design and rationale with the variables of the study and the design. The following section includes the methodology referring to the population and sampling techniques. The instrumentation and the operationalization constructs section lists the various instruments that were used throughout the study. I list the analytic strategy in three parts, preliminary analysis, primary analysis, and post-hoc analysis. Also listed are the types of data and how permission was obtained for using the data. I also consider the internal, external, and construct validity of the study. I list ethical considerations and explain how those were handled. Lastly, a summary of the chapter is included.

The research questions and hypotheses of the study were as follows:

RQ1: Does the day treatment setting provide services that lead to more success for children with depression or with oppositional defiant disorder?

$H_0$1: The success rates for children in day treatment will be the same for children with depression and children with oppositional defiant disorder. The success in day treatment is measured by the change scores on the SDQ, which measures a child's strengths and difficulties, and the CASII or ECSII, which measure recommended service level.

$H_1$1: Children with depression will be more successful in day treatment than children with oppositional defiant disorder. The success in day treatment is measured by the change scores on the SDQ, which measures a child's strengths and difficulties, and the CASII or ECSII, which measure recommended service level.

RQ2: Does the day treatment setting provide services that lead to as much success for children who have experienced trauma as those who have not experienced trauma?

$H_0$2: Trauma exposure does not significantly affect the amount of success in day treatment as measured by the change scores of the SDQ, which measures a child's strengths and difficulties, and the CASII or ECSII, which measure recommended service level.

$H_1$2: Trauma exposure does significantly affect the amount of success in day treatment as measured by the change scores of the SDQ, which measures a

child's strengths and difficulties, and the CASII or ECSII, which measure recommended service level.

Research Design and Rationale

Variables

There were two independent variable groups for this study: trauma exposure of clients and diagnosis of clients in a day treatment program. The two diagnoses that were considered for this study were oppositional defiant disorder and depression. The dependent variables were pretreatment test scores versus posttreatment test scores (i.e., change scores) on the SDQ, the CASII or ECSII, and discharge status. I obtained this information from a day treatment program in Minnesota from deidentified clinical documentation of discharged clients between the ages of 5 and 10 years. The covariates that I considered in these analyses included age and prior treatment.

Research Design

The research design was a quasi-experimental. The dependent variables were change scores for the SDQ and CASII or ECSII. There were two independent variables in this study. The first, trauma exposure, had two levels corresponding to whether a child had trauma exposure or no trauma exposure. The other independent variable was the mental health diagnosis of the child. The diagnosis variable included oppositional defiant disorder and depression. These two diagnoses were chosen due to differences in their symptomology and nature as externalizing and internalizing disorders, respectively.

Success is a difficult concept to define, and for this study, the definition needed to be consistent with how the program measures success. In this program, success is

measured through the various assessments that are required by the State of Minnesota, including the SDQ, CASII, and ECSII. This research was consistent with what the program already does and offered a comparison of the different groups of clients who are discharged from the program. This measure of success ties back to the research questions concerning whether stated factors play a role in the level of success for children in a day treatment setting by comparing change scores for the SDQ, CASII, and ECSII for the independent variables.

One of the resource constraints for this study was that it involved a small program that has a limited number of clients at any given time. For the sample size to be a significant measure for the trauma exposure variable, data was collected from many years of programming. The comparison of depression and conduct disorder was not scientifically bound because the sample size did not allow for significance. Another consideration is that because data from current clients in the program were needed for the sample size to be significant for trauma exposure, discharge data needed to be available before that information could be used. This research will help to advance knowledge within this area by providing feedback to day treatment programs about groups of clients that they may not be helping effectively. New curricula and staff training informed by the results of the study could help programs be more successful.

Methodology

Population

The population chosen for this study consisted of former clients of a day treatment program in Minnesota. The clinical documentation of clients between the ages

of 5 and 10 years was used to determine the variables. The sample consisted of both male and female clients in the elementary age group. The reason that children in this age group were chosen for this study is that they represent the most reactive and aggressive of the various age groups in day treatment. More holds and seclusions are necessary for this group of children than for the other age groups, showing that their responses to stress are more often elevated to levels that are not safe for themselves or others. The target population size for this group was at least 88 participants.

Sampling and Sampling Procedures

Data was collected on all clients who had been discharged and who were within the age range of 5 to 10 years upon admission. The sample consisted of deidentified mental health documentation, including diagnostic assessment and questionnaire results, for clients ($N > 88$) who had been discharged from the day treatment program. To determine the sample size for this study, I conducted a power analysis. According to Lipsey and Wilson (1993), an effect size for behavioral self-management, social skills training, cognitive behavioral therapy, and biofeedback, including relaxation techniques, is 0.61. Day treatment is a combination of all of those strategies; 0.61 is the effect size for this study. With power at .80, alpha at .05, and an effect size at .61, 88 participants were needed for this study. For the variable of diagnosis, given that only children diagnosed with oppositional defiant disorder and depression were considered, the sample size of 88 participants was not obtained. Therefore, that permutation is not scientifically bound.

The agency in which this day treatment program is located has a variety of programs and services that are intended to help children, adults, and families struggling with mental health in the community. The sample consisted of clients who were admitted to the day treatment program between the ages of 5 and 10 years. This sampling strategy was chosen so that results included all children in that age group regardless of other demographic differences. The data were extracted and deidentified from the clinical charting of each of the clients. The independent variables of trauma exposure and diagnosis and the covariates of age and prior treatment were found within each client's diagnostic assessment. The SDQ and the CASII or ECSII scores for the clients were used for an analysis of the change in scores from admission to discharge.

Referrals to the day treatment program come from a variety of sources, including the school district, parents, and other mental health workers in the community. Children entering the day treatment program require a mental health diagnosis that is determined by the writing of a diagnostic assessment. Upon admission, an SDQ and the CASII or ECSII are also used to assess the level of care needed. Additional administrations of the SDQ and CASII or ECSII are required every 6 months after that, as well as at discharge. At discharge from the day treatment program, a description of the child's performance and improvement is written in a discharge summary that indicates the level of success at that time.

This day treatment setting has the capacity for 40 clients, who are split by grade level regardless of academic performance. Each classroom has an 8:1:2 ratio (8 children, one practitioner, and two direct care staff). For this study, the client files of the children

who have been discharged from the Elementary Day Treatment Program, ages 5 to 10, were the source of information. Data was collected from the diagnostic assessment, the scores of the SDQ and CASII or ECSII at intake and discharge, and the discharge summary.

A written agreement was obtained from the president/CEO of the agency to use these data. After the results are obtained, the information will be shared with the agency and the president/CEO of the agency. Debriefing concerning the findings with the president/CEO and program staff will be offered to review the results and to offer possible options for program improvements.

Instrumentation and Operationalization of Constructs

Child and Adolescent Service Intensity Instrument

The CASII is an assessment of the level of care needed for children ages 6 and older. It assesses eight items: the level of risk for the child, functional status, co-occurrence, environmental stress, environmental support, resilience, child's involvement in services, and parent's involvement in services. Each item is rated on a scale from 1 (*low or minimum*) to 5 (*extreme problem area*) by the mental health professional who is working with the child. This assessment provides a composite score and a level of service intensity recommendation that ranges from 0 (*services for prevention or maintenance*) to 6 (*24-hour secure psychiatric management*). The American Academy of Child and Adolescent Psychiatry (AACAP, 2001) found the CASII to be a reliable measure of the level of service required for children with mental health care needs. AACAP tested the validity of the CASII by comparing outcomes with two highly used

instruments, the Child Global Assessment Scale (CGAS) and the Child and Adolescent Functional Assessment Scale (CAFAS). Researchers found a moderate correlation between the CASII and those two widely used scales, with a stronger correlation (0.62 composite score correlation) to the CAFAS versus the CGAS (-0.33 composite score correlation; AACAP, 2001). The CASII has excellent interrater reliability, with correlation coefficient ranging from 0.73-0.93 for psychiatrists and 0.57-0.95 for non-psychiatrist professionals (AACAP, 2001).

Early Childhood Service Intensity Instrument

The ECSII is like the CASII, but it provides information for children from 0 through 5 years old. This assessment has five domains: degree of safety, child-caregiver relationship, caregiving environment, functional/developmental status, and impact of medical, developmental, or emotional/behavioral problems. Each of the five domains is rated by a mental health professional on a scale from 1 to 5, with 1 indicating a low problem area and 5 indicating an extreme problem area. There is a sixth domain that is intended to measure whether the current services that a child is receiving match the needs of the family and the child, which is called the *services profile domain*. This domain has three subscales: involvement in services for both the caregiver and the child, service fit, and service effectiveness. The ECSII gives one level of service intensity score, which is between 0 (*basic health services*) and 5 (*maximum service intensity*). The ECSII was created to measure the mental health service intensity level for children ages 0-5. The ECSII has excellent interrater reliability, with correlation coefficient ranging from 0.676-

0.829, and excellent criterion validity, with a correlation coefficient of 0.93 (AACAP, 2009).

Strengths and Difficulties Questionnaire

The final assessment that was considered is SDQ, a behavioral screening questionnaire that has two sections. The first section contains a list of 25 attributes, which are divided into five scales of five items each. The five scales address emotional symptoms, conduct problems, inattention-hyperactivity, peer problems, and prosocial behavior. The total score is comprised of the first four categories. The second section of the SDQ consists of questions that determine the impact score, which assesses the impact of the symptoms for the child and the child's family. The SDQ for this age group is completed by parents or caregivers and school personnel. The SDQ standardization process yielded a categorization of scores according to the probability that a problem exists. The three levels of probability of the SDQ are normal (0-79th percentile), borderline (80th to 89th percentile), and abnormal (90th to 100 percentile).

A change in scores on the SDQ is a good indicator of treatment success, in that the SDQ is sensitive to treatment effects and each 1-point increase on the SDQ corresponds to an increased rate of psychiatric disorder (Goodman & Goodman, 2009). Overall, this test can identify individuals with a psychiatric disorder with a specificity of 94.6%, a sensitivity of 63.3%, and a 70% sensitivity for children with conduct, hyperactivity, depressive, and some anxiety disorders (Goodman, Ford, Simmons, Gatward, & Meltzer, 2000). Because the SDQ is a good measure for a wide variety of diagnoses and a 1-point decrease indicates an improvement in a psychiatric condition in

children, it is a valid test to measure treatment success for this study. To measure reliability, Cronbach's alpha was found to range from 0.53-0.88 for the teacher version and 0.46-0.82 for the parent version (Stone et al., 2015). It was also found that construct validity did not differ based on age, gender, or ethnicity (Stone et al., 2015). The measure of predictive validity showed that higher scores on the SDQ predicted higher maladaptive parenting, parental stress, and children who were less liked by their peers, which is important because it indicates that the SDQ can show maladjustment over time, proving the robustness of the SDQ (Stone et al., 2015).

Analytic Strategy

Preliminary Analyses

Descriptive statistics were used to determine the mean and standard deviations of baseline scores and discharge scores of the SDQ, CASII and ECSII. The preliminary analysis included determining any missing data. When a child enters the day treatment program, an SDQ is completed by the parents as part of the intake assessment. The SDQ is not required from a teacher so the agency may or may not receive an SDQ from the teacher at that time. Another piece of data that may be missing is the discharge SDQ data for some children. When a child is discharged from the program both the teacher and parent are given an SDQ to complete. The parent and teacher may or may not give the questionnaire back to the day treatment program staff. It was important to determine that there is at least one initial and one discharge SDQ for each child as a part of the preliminary analysis. Whenever possible, the data from each respective party was compared. In the event that one score was missing from either the teacher or parent, the

analyses was run with the existing data. If the child does not have either one of the initial or discharge SDQ's the closest 6-month score was substituted for the missing score.

Primary Analyses

The proposed primary analysis consisted of two separate factorial Multivariate Analysis of Covariance (MANCOVA) tests using R software. These were proposed to determine if there were differences in the independent variable groups that affected the dependent variables of the change scores that measure success in day treatment. This study proposed to run a one-way MANCOVA for the independent variable trauma exposure. However, not all of the statistical assumptions were met. Therefore, a statistical analysis of the data was run that met all assumptions, a one-way ANOVA.

The other MANCOVA that was proposed, was a two-way MANCOVA for diagnosis of the child. The two diagnoses that were considered are oppositional defiant disorder and depression. The assumptions to run a two-way MANCOVA were also not met. In fact, there was such a small comparison group that a correlation was done to determine if a relationship existed. Further information can be found about the process of determining assumptions in Chapter 4.

The covariates that were considered in these analyses include age and prior treatment. Brain development is an important factor for how a child will respond to treatment and this changes as a child grows. The study consisted of clients between the ages of 10 and 5. Ages of the children needed to be considered as a covariate because the response of treatment based on age needed to be controlled for. The other covariate in these analyses was prior mental health treatment of the child. If the child has received

prior treatment, there is a chance that the child may be more successful than a child that has not received any mental health treatment. This was a covariate of this study to control for the effects of prior treatment.

This test assumes that the samples were independent and that the distribution is normal. The groups for these analyses are considered similar because all the children are a part of the elementary age group program at the agency. All the children were a part of the same program and they received the same mental health treatment from the same staff. Diagnosis is included in Research Question 1 as a factor that was considered to determine if there is a higher level of success for children with oppositional defiant disorder or depression. Each child in the program had a mental health diagnosis but not necessarily either of these. Therefore, only children with the diagnosis of oppositional defiant disorder or depression were considered for this study. Trauma exposure is the factor included in Research Question 2. Each child fell into one of the two groups for this factor. It was initially proposed to run two separate MANCOVAs, however assumptions to run MANCOVAs were not met. Instead an ANOVA and a Kruskal - Wallis correlation were done to determine the interaction of trauma exposure and diagnosis separately on the two success markers of the CASII or ECSII, and the SDQ. The success of the program was determined in this study by comparing the change scores of the different independent variable groups.

Post Hoc Analyses

If the null hypothesis was rejected for either research question, then the post hoc analysis would have been the Scheffe's method to determine which pairs of means were

significant. Although the Tukey HSD method has a better confidence interval then the Scheffe method, the Scheffe method was chosen because the variables are not always independent of each other. Specific information about which pairs of variables are significant will be important to know for additional treatment purposes, if the null hypothesis is rejected.

Archival Data

The data was obtained from a day treatment setting in Southeast Minnesota from the deidentified clinical documentation. Permission to use this data was obtained from the Chief Executive Officer of the company in a contract detailing the extent to which the data was used and how it was be deidentified to maintain the confidentiality of the clients. Permission to use the data was also be obtained from the clinical supervisor of the program who had access to the research and the information as it is gathered.

Threats to Validity

According to Slack and Draugalis (2001) there are eight possible threats to internal validity for any study: history, maturation, testing, experimental mortality, instrumentation, selection, regression, and the interaction of the threats. For this study, the internal threat of history included outside factors that may be happening in a child's life concurrently with the day treatment program. Examples may include that the child sees a psychiatrist and gets medication or the child's home life stabilizes. These were factors that change success rates of children while in treatment. Although these may be a threat to the internal validity, they are positive factors that the program encourages with the clients, so this threat was not be addressed in this study. The next threat is maturation

which can also be a limitation to this study as the children in the program mature as time advances. They may be gaining the skills and benefits of therapy because they grow into an appropriate developmental level for the program. Generally, both history and maturation are larger concerns for longitudinal studies (Slack & Draugalis, 2001).

Another threat to internal validity was testing which may pose a limitation to this study. The parent and teacher received the same pre and post questionnaire for the SDQ to assess for changes in the strengths and difficulties the child may have. If they answered truthfully based on the current level of the child's functioning, then the testing did not affect the internal validity. However, biases and habits existed with parents and teachers which may be present when they filled out the questionnaire, therefore, affecting the internal validity of the test. Another possible limitation is the threat of instrumentation. Lack of parental involvement and instability in the home may not have allowed the same individual to fill out the pre and post questionnaires which will affect the internal validity of instrumentation. A similar set of circumstances exists for the CASII and ESCII scores that the mental health professional determines. The instrumentation threat was a threat to the validity of the study if the pre and post questionnaires were not completed by the same person. Changes in staffing can alter the person who filled out the pre and post questionnaires, therefore changing the consistency of the rater.

An additional threat to validity can be regression, which is when an improvement is seen because extreme scores and behaviors tend to move towards the mean (Slack & Draugalis, 2001). This was not an internal threat to validity in this study because all

clients were considered, and selection is not based on test scores. Differential selection is the next possible threat to validity which was not a threat in this study as every client is being considered for this study and all the children are receiving the same group treatment.

Experimental mortality is the threat that is concerned with the loss of subjects during an experiment that results in unequal groups by the end of the study (Clark & Draugalis, 2001). There were children that needed to move out of the day treatment program due to needing a higher level of care, yet, experimental mortality was not an issue as their pre and post questionnaire scores were also considered in the final results of this study. The children were placed into groups based on factors so the groups for this study were pre-determined and most likely were unequal at the start. Lastly, selection interaction was not an issue in this study because all children were considered and the selection into groups was based on things that already exist and did not change throughout the study.

A construct threat to validity was that this study was under the assumption that the SDQ, CASII, and ECSII are good measures of success in day treatment. If these assessments were not measuring what they intend to measure, it would lead to inaccuracies in the results. An external threat to this study may be that the population at the day treatment program in is not a very diverse group of children as far as socioeconomic level, race, or religious affiliation so it may not be transferable to more diverse populations. This study only considered children ages 5-10 and may not be transferable to other age ranges. Finally, parents may have answered the questions

according to what they perceived as socially acceptable behaviors for their children introducing a social acceptability bias into the study which would threaten the external validity.

The threats to statistical conclusion validity were addressed in several ways in this study. One common statistical threat according to Garcia-Perez (2012), is that data collection is stopped before control of type I error rates. This threat was not a concern in this study because there was a fixed sample that was found by doing a power analysis. Another threat to statistical conclusion validity is preliminary tests of assumptions that lead to an increase in Type I error. This error is not a concern in this study as the ANOVA was only run during the primary analysis of data.

Ethical Procedures

I used archival data from a day treatment center in Minnesota for this study. There was a written agreement between the agency and the researcher which allowed the researcher to use that data. The data was given to the researcher from a source at the agency and was confidential. The agency owned the data and received parental consent from the participants. Each client was a number and no identifying information for the client was used by the researcher. The data will be stored on a private external storage device and will be destroyed along with any of the study's documentation 5 years after the research is completed. Approval from the Internal Review Board was also obtained prior to the study. The IRB approval number was 01-07-19-0234169. I determined if different groups of clients have more success in day treatment through this study. With this knowledge, the agency and program staff will be able to improve programming to

help more children. The findings will be disseminated to the agency and the program specific to this study by a debriefing of the findings.

Summary

The goal of this study was to determine if the factors of trauma exposure and a comparison of two diagnoses affected the success of clients in a day treatment program. The results of this study will be presented to program staff to improve the effectiveness of day treatment for more children. The way that this was measured was to use deidentified clinical documentation for clients ages 5 to 10 to determine the factors of trauma exposure and diagnosis. The level of success in the day treatment program was determined by assessing the change scores of the SDQ, the CASII or the ECSII. The next step was to see if there is a relationship between any of the factors and the level of success in the program. By finding out this information, it was determined if more trauma training or new curricula should be offered to ensure that each client is reaching the highest level of individual success, therefore, improving the effectiveness of day treatment for more children.

Chapter 4: Results

Introduction

The purpose of this study was to determine if children in a day treatment program who had experienced trauma were as successful as children who have not experienced trauma. This study also compared success rates for children who had been diagnosed with depression with children who had been diagnosed with oppositional defiant disorder. This chapter lists how the data was collected, the timeframe for data collection, and the population of the sample collected. Basic demographic information and descriptive statistics were also listed. The results of the study and the statistical analyses that were completed are included at the end of this chapter along with a summary.

The research questions are listed below.

RQ1: Does the day treatment setting provide services that lead to more success for children with depression or with oppositional defiant disorder?

RQ2: Does the day treatment setting provide services that lead to as much success for children who have experienced trauma as those who have not experienced trauma?

Data Collection

The time frame for data collection was 2 months. Data collection consisted of review of electronic health records and paper copies of health records. Specifically, in the record I used the diagnostic assessment and the results of the CASII and SDQ to collect the diagnosis, trauma exposure, change scores for the CASII or ECSII and the

SDQ. I also ascertained data for the covariates of age and prior treatment through review of the diagnostic assessment.

Descriptive and Demographic Characteristics

Over a 2-month period, I collected data from electronic and paper files of a day treatment program for children ages 5 to 10. I collected the data for every child who was in that age range from existing records starting in the year 2008 to 2019. The clients included all children who were elementary school age, 5 to 10 years old, who had been admitted and discharged from the day treatment program. The evaluations that were included were the SDQ, which was completed by a parent or teacher at the beginning of treatment and then again at the time of discharge, and the CASII or ECSII assessments, which were completed by a mental health professional, also completed at the beginning of treatment and then again at the time of discharge. Table 1 shows the demographic characteristics for the clients in this archival data set.

Table 1

Demographic Characteristics of Study Sample

	Characteristic	N	Percent
Age			
	Mean (SD)	7.3 (1.6)	
	Range	5.0-10.0	
Primary diagnosis	Posttraumatic dtress disorder	19	22.4
	Oppositional defiant disorder	14	16.5
	Attention deficit hyperactivity disorder	13	15.3
	Disruptive behavior disorder	11	12.9
	Adjustment disorder with mixed disturbance of Emotions and conduct	9	10.6
	Generalized anxiety disorder	5	5.9
	Depression	3	3.5
	Reactive attachment disorder	3	3.5
	Anxiety disorder NOS	2	2.4
	Mood disorder NOS	2	2.4
	Autism spectrum disorder	1	1.2
	Conduct disorder	1	1.2
	Pervasive developmental disorder	1	1.2
	Schizophrenia, early onset	1	1.2
Presence of trauma	Trauma	59	69.4
	No trauma	26	30.6
Prior treatment	N-miss	1	
	Prior treatment	55	65.5
	No prior treatment	29	34.5

Note. (n = 85)

Each of the 85 participants listed in the table were unique clients as the primary diagnosis for each child was the diagnosis used in the data set. Of the 85 participants the mean age was 7.3 and all fell within the range of 5.0- 10.0. For the children in day treatment there were various mental health diagnoses including; posttraumatic stress disorder (22.4%), oppositional defiant disorder (16.5%), attention deficit hyperactivity disorder (15.3%), DBD (12.9%), adjustment disorder with mixed disturbance of emotions and conduct (10.6%), generalized anxiety disorder (5.9%), depression (3.5%), reactive attachment disorder (3.5%), anxiety disorder NOS (2.4%), mood disorder NOS (2.4%), autism spectrum disorder (1.2%), conduct disorder (1.2%), pervasive developmental disorder (1.2%), and schizophrenia, early onset (1.2%). For the clients in this sample, 69.4% had experienced trauma and 65.5% had prior treatment.

Assumptions of a One-Way MANCOVA and Two-Way MANCOVA

Assumptions underlying parametric tests must be met for the results to be accurate (Erceg-Hurn, & Mirosevich, 2008). The assumptions of normality, linearity, and homoscedasticity need to be met to run a parametric statistical analysis (Tavakol, & Wilcox). If the assumptions are not met, there may be errors in the interpretation of the data, and it may lead to inaccurate *p* values, confidence intervals, and effect sizes (Erceg-Hurn, & Mirosevich, 2008). In order to determine if the assumptions were met to run the two-way and one-way MANCOVA, I obtained the following preliminary statistics. I created a scatterplot matrix by prior treatment/trauma exposure to determine if several of the assumptions were met prior to running the MANCOVA. Several assumptions were met including that the scatterplot matrix showed that both Delta SDQ and Delta

CASII/ECSII were mostly normally distributed. The Delta SDQ and the Delta CASII/ECSII were similar in both trauma groups. There was not a relationship between age and either of the outcome variables, which led to the conclusion that a MANOVA could be run instead of an MANCOVA.

Another assumption of the MANCOVA is that there are no significant univariate outliers and no significant multivariate outliers (Laerd Statistics, 2019a). This assumption was not met because there are outlier values in both the trauma and no trauma groups for the Delta CASII/ECSII. The scatterplot matrix for the combined trauma exposure and prior treatment showed distributions that were fairly normal, and there was little correlation between the outcomes. There were several outliers in some of the groups for the delta CASII/ECSII, and there was no age impact.

I also ran a scatterplot for delta SDQ and delta CASII/ECSII to help determine if assumptions were met and which statistical analysis would be best suited for the data. I found a nonlinear relationship in several of the prior treatment/trauma pairs. The direction of the relationship differed by the treatment/trauma pairs. I ran both a Pearson and Spearman correlation, and both were small at the 95% confidence interval, they contained 0, leading to p-values > 0.05, meaning I cannot conclude the correlation between delta SDQ and delta CASII/ECSII is different from zero.

Assumptions of a Two-Way Repeated Measures ANOVA

After running all the preliminary statistics, I found that the most appropriate statistical analysis for this data was either the two-way ANCOVA or ANOVA instead of a MANCOVA with the given data. The reason for this is that, when preliminary statistics

were run to determine if assumptions were met, they yielded no statistically relevant signals between the covariates and the differences in SDQ and CASII/ECSII scores. This lack of signal led to the idea that a MANOVA may be a better test to run; however, there was not a linear relationship between difference in SDQ and difference CASII/ECSII scores, which means that running a one-way ANCOVA may be a better approach. An assumption for an ANCOVA is that there needs to be a linear relationship between dependent and independent variables. When preliminary statistics were run, the dependent variable for each trauma and prior treatment combination failed. So, running either a two-way or one-way ANOVA would be the most appropriate statistical analysis. To determine if a two-way ANOVA is the best test to run with the data, preliminary statistics were done to determine if the covariate of prior treatment had any relationship to the data.

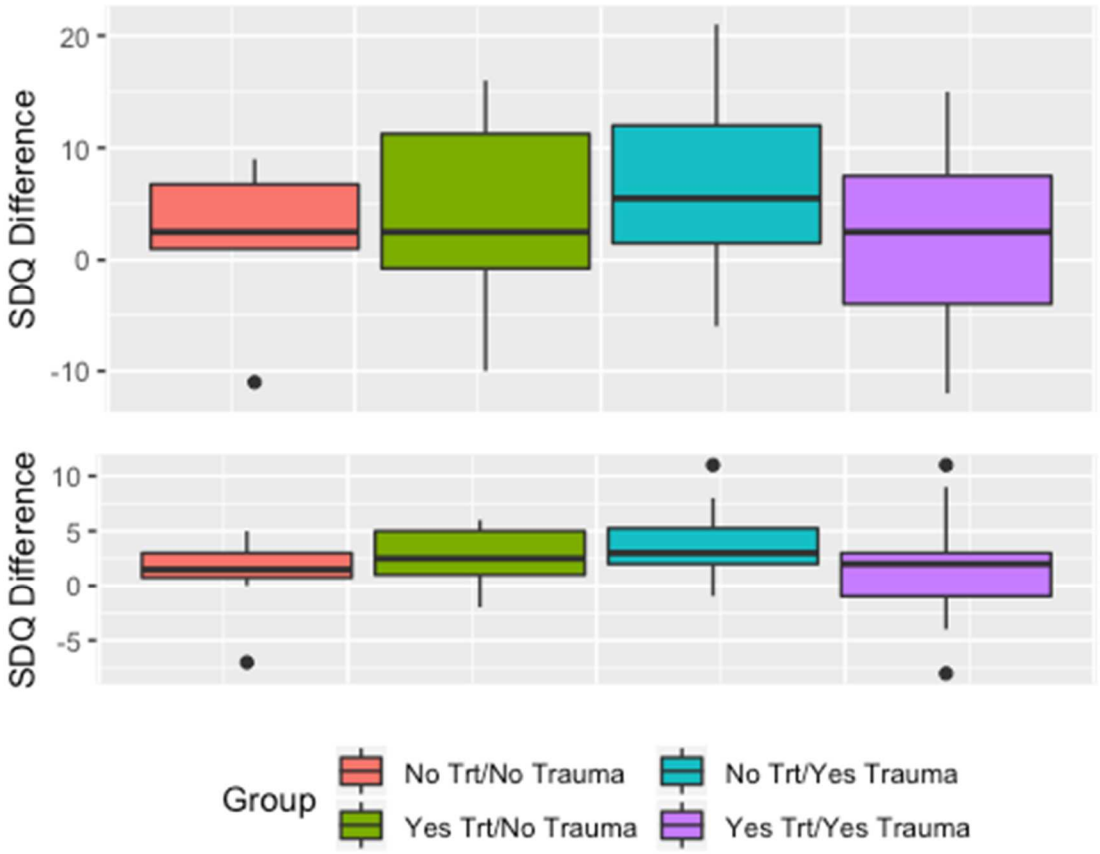

Figure 1. Spread of outcomes by treatment/trauma groups.

Results from Figure 1 show that there is not a difference when the data is split out by prior treatment. Therefore, prior treatment is a covariate that does not affect that data, and the results of the analysis technique will be more reliable when only necessary data is included. So, the one-way ANOVA was run to keep the results of the analysis as robust as possible. Running a one-way ANOVA reduces the chance of a Type 1 error, rejecting a null hypothesis that is actually true because only one test will be run.

Assumptions that are met for a multivariate one-way ANOVA included a continuous dependent variable (Laerd Statistics, 2019b). The independent variables were categorical with 2 levels, including both trauma and prior treatment (Laerd Statistics,

2019b). The next assumption is was that the covariate needed to be continuous and the covariate age was continuous. There also needed to be independence of observations (Laered Statistics, 2019b). This was true for this study although some of the clients in this study may have been siblings, which would indicate similar data points. Further assumptions for the ANOVA included the slope of the covariate was the same for each trauma and prior treatment combination and there was common variance (Laerd Statistics, 2019b).

The next assumption is that there are no significant outliers. Figure 3 and 4 show a plot of fitted values versus residuals for both the SDQ and the CASII/ECSII. As seen in Figure 2 and Figure 3, no outliers were found using a residual versus fitted graph for with the SDQ or the CASII/ECSII.

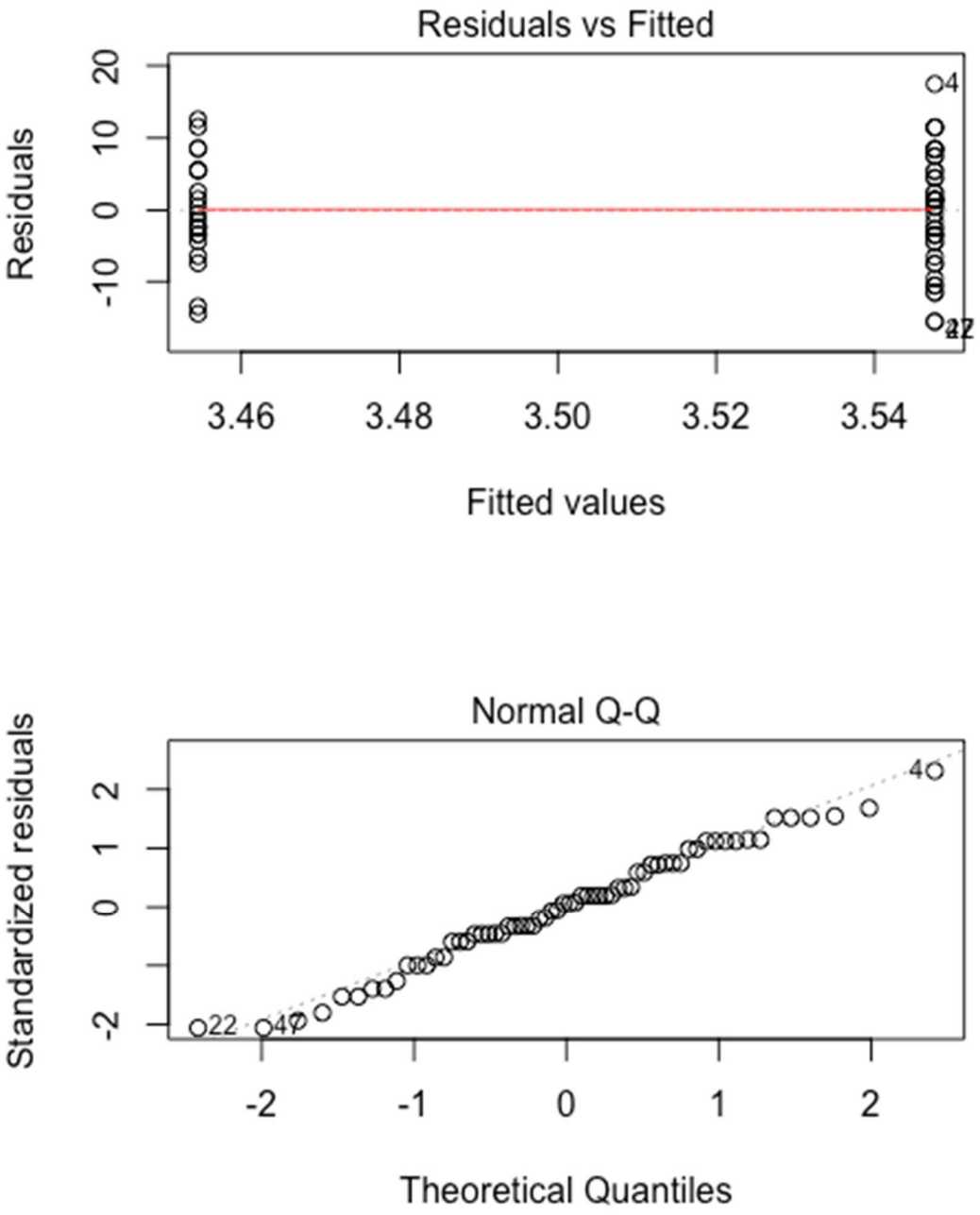

Figure 2. Assessment of ANOVA assumptions for SDQ trauma model.

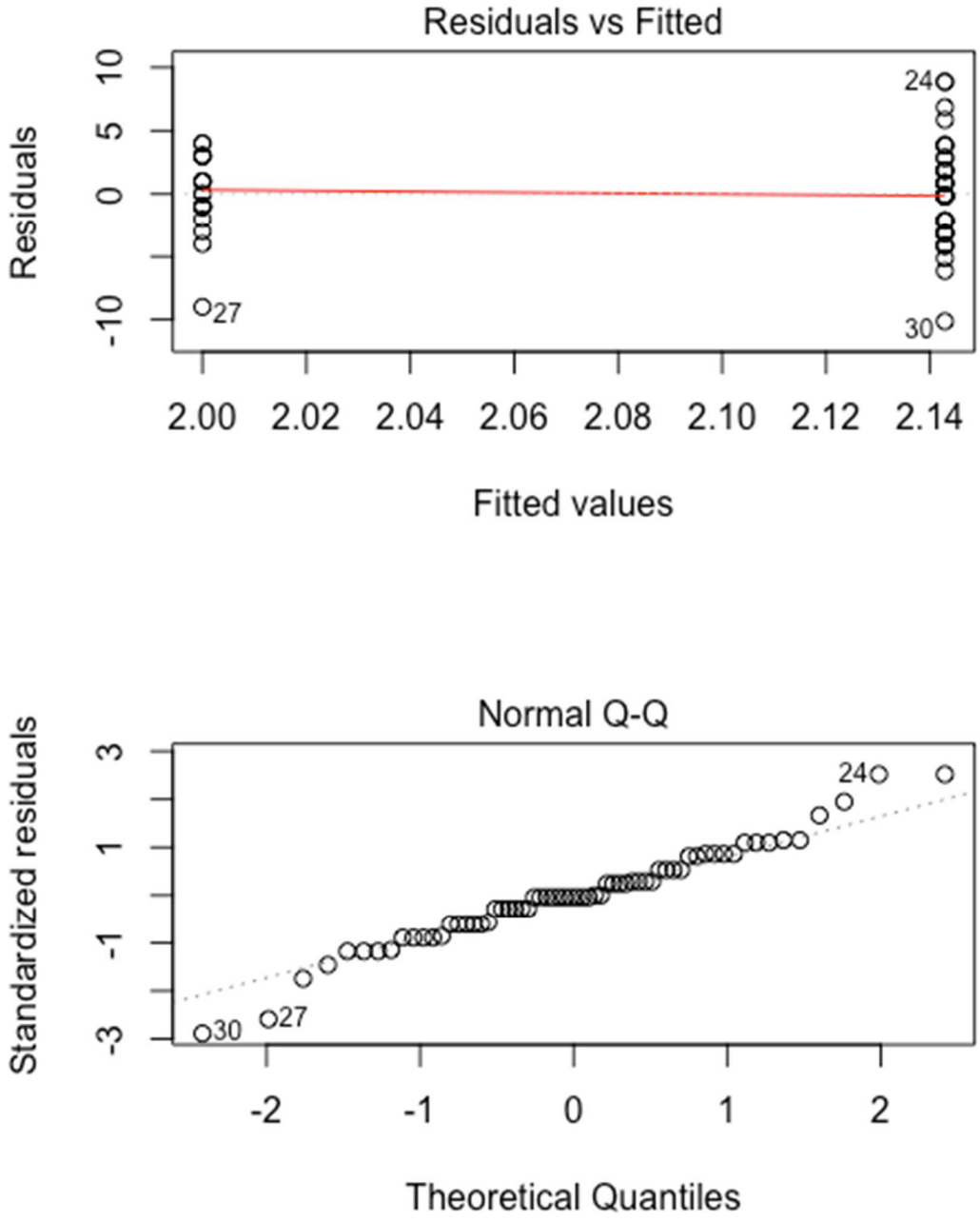

Figure 3. Assessment of ANOVA assumptions for CASII/ESCII trauma model.

Another assumption was the homogeneity of variance, which was found using Levene's Test. When Levene's test for homogeneity of variance was done for the SDQ, I found the assumption for homogeneity of variance was met (Levene's test $F_{1,62} = 0.310$, $p = 0.580$). When Levene's test for homogeneity was run for the CASII/ECSII, this assumption was also met (Levene's test $F_{1,62} = 0.835$, $p = 0.365$). The next assumption was normally distributed residuals, which was found using the Shapiro-Wilk test. The results for the SDQ ($W = 0.983$, $p = 0.552$) and the CASII/ECSII ($W = 0.972$, $p = 0.159$) met that assumption. Several of the observations were identified as potential outliers for both the SDQ and the CASII/ECSII. For the SDQ observations 4, 22, and 47 were identified as potential outliers. A sensitivity analysis removing these three data points showed similar conclusions. For the CASII/ECSII, observations, 24, 27, and 30 were identified as possible outliers and a sensitivity analysis removing these three data points showed similar results.

The other analysis that was done was the comparison of results for children who had been diagnosed with oppositional defiant disorder and depression. For the group, only 11 of the clients met all the criteria to be eligible for the analysis. Because the groups were so small it was not possible to meet all the assumptions for the MANCOVA, which was originally considered. The assumptions for an ANCOVA or an ANOVA could also not be met, so a Kruskal-Wallis rank sum test and the Pearson's Chi-squared test was done for the statistical analysis.

Results

The following research questions were tested.

Research Question 1 and Hypotheses

RQ1: Does the day treatment setting provide services that lead to more success for children with depression or with oppositional defiant disorder?

$H_0$1: The success rates for children in day treatment will be the same for children with depression and children with oppositional defiant disorder. The success in day treatment is measured by the change scores on the SDQ, which measures a child's strengths and difficulties, and the CASII or ECSII, which measure recommended service level.

$H_1$1: Children with depression will be more successful in day treatment than children with oppositional defiant disorder. The success in day treatment is measured by the change scores on the SDQ, which measures a child's strengths and difficulties, and the CASII or ECSII, which measure recommended service level.

For the analysis of the diagnosis there were only 17 clients with diagnoses that fit the requirement of either the oppositional defiant disorder or depression. Of these 17 clients only 11 of the clients were eligible for the analysis due to missing data points. Table 2 describes the data. The small sample size leads to a better chance of encountering a Type II error, failure to reject a null hypothesis that is actually false. If more data was available, the chance of a Type II error would decrease.

Table 2

Clients Included in Diagnosis Analysis

	ODD (*N* = 9)	Depression (*N* = 2)	Total (*N* = 11)	*p* value
Age (years)				0.398[1]
Median (Q1, Q3)	8.0 (7.0, 9.0)	9.0 (8.5, 9.5)	8.0 (7.5, 9.0)	
Presence of trauma				0.887[2]
No trauma	4 (44.4%)	1 (50.0%)	5 (45.5%)	
Trauma	5 (55.6%)	1 (50.0%)	6 (54.5%)	
Prior treatment				0.887[2]
No prior treatment	4 (44.4%)	1 (50.0%)	5 (45.5%)	
Prior treatment	5 (55.6%)	1 (50.0%)	6 (54.5%)	
Source of SDQ data				0.461[2]
Parent	2 (22.2%)	0 (0.0%)	2 (18.2%)	
Teacher	7 (77.8%)	2 (100.0%)	9 (81.8%)	
Combination	0 (0.0%)	0 (0.0%)	0 (0.0%)	
First SDQ				0.628[1]
Median (Q1, Q3)	26.0 (24.0, 28.0)	27.0 (26.5, 27.5)	26.0 (24.0, 28.0)	
Last SDQ				0.345[1]
Median (Q1, Q3)	21.0 (16.0, 25.0)	26.5 (22.8, 30.2)	21.0 (16.5, 25.5)	
Difference in SDQ				0.478[1]
Median (Q1, Q3)	4.0 (0.0, 11.0)	0.5 (-3.8, 4.8)	4.0 (0.0, 10.0)	
CASII or ESCII				0.461[2]
CASII	2 (22.2%)	0 (0.0%)	2 (18.2%)	
ESCII	7 (77.8%)	2 (100.0%)	9 (81.8%)	
First CASII/ESCII				0.630[1]
Median (Q1, Q3)	21.0 (20.0, 22.0)	20.5 (19.8, 21.2)	21.0 (19.5, 22.0)	
Last CASII/ESCII				0.635[1]
Median (Q1, Q3)	19.0 (17.0, 22.0)	18.0 (17.5, 18.5)	19.0 (17.0, 21.0)	
Difference in CASII/ESCII				0.905[1]
Median (Q1, Q3)	3.0 (0.0, 4.0)	2.5 (2.2, 2.8)	3.0 (0.5, 4.0)	

p-values 1:Kruskal-Wallis rank sum test
2: Pearson Chi-squared test

Results of the Kruskal-Wallis rank sum test and the Pearson Chi-squared test are shown in the table above. Because of the small group counts, the differences between the groups were assessed using the Kruskal Wallis test and Pearson's Chi-squared test. A confidence interval was not run due to the small number of eligible clients. The table above summarizes the data across diagnostic groups using median and quartiles and categorical measures were summarized using counts and percentages. For the difference in SDQ scores for children who have been diagnosed with oppositional defiant disorder and those who have been diagnosed with depression, it was found to be statistically insignificant (p= 0.478). For the difference in CASII/ECSII scores it was found to be statistically insignificant (p= 0.905). The null hypothesis was accepted.

Research Question 2 and Hypotheses

RQ2: Does the day treatment setting provide services that lead to as much success for children who have experienced trauma as those who have not experienced trauma?

$H_0$2: Trauma exposure does not significantly affect the amount of success in day treatment as measured by the change scores of the SDQ, which measures a child's strengths and difficulties, and the CASII or ECSII, which measure recommended service level.

$H_1$2: Trauma exposure does significantly affect the amount of success in day treatment as measured by the change scores of the SDQ, which measures a child's strengths and difficulties, and the CASII or ECSII, which measure recommended service level.

A one-way repeated measures ANOVA was conducted using the mean SDQ score difference between children who had experienced trauma and those who had not. The means and 95% confidence intervals are presented in Table 3.

Table 3

Trauma Group Means and Confidence Intervals for Strengths and Difficulties Questionnaire Difference

Groups	Mean	Lower confidence interval	Upper confidence interval
No trauma	3.5	0.3	6.6
Trauma	3.5	1.1	6.0
Overall	3.5	1.6	5.4

Results of repeated measures one-way ANOVA for the difference in SDQ scores for children who had not experienced trauma ($M = 3.5$) and those who had experienced trauma ($M = 3.5$), was not statistically significant ($F_{1,62} = 0.002, p = 0.963$). A one-way repeated measures ANOVA was conducted using the mean CASII/ECSII score difference between children who had experienced trauma and those who had not. The means and 95% confidence intervals are presented in Table 4.

Table 4

Trauma Group Means and Confidence Intervals for CASII/SDQ Difference

Groups	Mean	Lower confidence interval	Upper confidence interval
No trauma	2.0	0.7	3.3
Trauma	2.1	1.0	3.3
Overall	2.1	1.2	3.0

Results of repeated measures one-way ANOVA that compared the difference in CASII/ECSII scores for children who had not experienced trauma ($M = 2.0$) and those who had experienced trauma ($M = 2.1$), was not statistically significant ($F_{1,62} = 0.023, p = 0.879$). The null hypothesis was accepted.

Summary and Conclusion

The results indicated insignificant statistical differences in the success between clients who had experienced trauma and those that had not experienced trauma. Results also indicated insignificant statistical differences in the success between clients who had been diagnosed with oppositional defiant disorder and those who had been diagnosed with depression. There were several limitations to this study specifically with the comparison of clients within the diagnosis analysis. Chapter 5 will present an interpretation of the findings, discuss the limitations of this study, recommendations for future research, and implications for social change.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The intent of this study was twofold. With the first question I explored whether exposure to trauma affects the amount of success a child has in a day treatment setting. The second question determined if there were any differences between success rates for children who had been diagnosed with depression and those who had been diagnosed with oppositional defiant disorder. In this study I defined success rates as a comparison of change scores on two different measures including the SDQ and the CASII or the ECSII, which differed based on the age of the child. The CASII is an instrument used for children 6 and older and the ECSII is an instrument used for children 5 and under. For each of these measures, if a score decreases it indicates a higher level of success. A decrease in score for the SDQ reflects a decrease in difficulties and an increase in strengths. A decrease in the score of either the CASII or ECSII reflects a lower level of care is needed.

This study was completed using archival data from files of children who had completed the day treatment program. All children were included who fell within the age range of 5 to 10 years old and had completed the therapeutic day treatment program. Specific documentation used to obtain this was found in the client files and included the diagnostic assessment and the assessment forms. Each child in this study had a unique set of circumstances prior to entering the day treatment program. It was my intent for this study to explore several of these factors to determine if levels of success were affected, which could lead to improvements in the programming.

Summary of Findings

Comparison of Depression and Oppositional Defiant Disorder Success Rates

With the initial research question I investigated whether the day treatment setting provides services that lead to more success for children with depression or with oppositional defiant disorder. The hypothesis was that children who experience depression would have more success in a day treatment program because this is an internalizing disorder, versus oppositional defiant disorder, because it is an externalizing disorder. I used the Kruskal-Wallis rank sum test and Pearson's Chi-squared test to determine the differences of success rates for children who were diagnosed with depression and those diagnosed with oppositional defiant disorder. Because there was only a limited amount of data available for this analysis, continuous measures were used to summarize the differences.

Comparison of Trauma Exposure and Success Rates

With the second research question for this study I examined whether trauma exposure would affect the rates of success for children in a day treatment program. I completed a repeated measures analysis on data for 85 children whose diagnoses included posttraumatic stress disorder, oppositional defiant disorder, attention deficit hyperactivity disorder, DBD, adjustment disorder with mixed disturbance of emotions and conduct, generalized anxiety disorder, depression, reactive attachment disorder, anxiety disorder not otherwise specified, mood disorder not otherwise specified, autism spectrum disorder, conduct disorder, pervasive development disorder, and early onset schizophrenia. The

repeated measures ANOVA showed there was not a significant difference in success rates for children who were exposed to trauma and those who had no trauma exposure.

Interpretation of Findings

Although there is limited literature on the success rates of children in a day treatment setting based on programming and different preexisting factors, the factors of trauma and a comparison of depression and oppositional depressive disorder had not been considered. Continuing to determine different factors that exist prior to admission that may hinder success in the day treatment setting is an important step to making the program more effective (Crofford et al., 2013). Factors such as aggression, IQ, age, and parental involvement have been studied to determine if there is any relationship between success and differences in those factors (Bennett et al., 2001). Other factors that have been considered are race and socioeconomic standing (Rittner et al., 2015). Factors that were all associated with less success include five or more prior placements, a history of truancy, symptomology of externalizing behaviors, and contact with the juvenile detention system (Rittner et al., 2015). This study adds the factor of trauma exposure to the list of factors that have been considered and a limited comparison of the diagnoses of depression and oppositional defiant disorder.

Definition of Success

The success rates were measured and compared using the change scores of several questionnaires. These questionnaires measure different areas of behavior change including the strengths and difficulties a child has and the recommended level of service intensity. Although success can be defined in a variety of ways, the change scores of

these questionnaires was how I defined success in this study to show symptom improvement. The questionnaires that were used in this study were meant to measure the level of symptoms of the child prior to and following treatment. The SDQ was a measure that was completed by either the caregiver or a teacher who interacted with the child. The ESCII or CASII were measures completed by the mental health professional to ascertain the level of care for the child both prior to treatment and following treatment. I used these measures in the study to determine symptom change for the duration of the program including all skills, therapies, and levels of professionals. These measures were chosen as an overall measure of symptoms, which is not specific to the type of therapy used or level of training of the professional. The change score was used due to children entering the program at different levels and exiting at different levels. A decrease in the score on both the SDQ and the ECSII or CASII indicated a decrease in symptoms, which is how I defined success in this study for both research questions.

Research Question 1 Findings

When comparing depression and oppositional defiant disorder, I found the difference in success rates were statistically insignificant (SDQ $p = 0.478$, CASII/ECSII $p = 0.905$). The null hypothesis was accepted. However, the sample size for this study was extremely small, which decreased the statistical power. The sample size for this portion of the study consisted of nine children who had been diagnosed with oppositional defiant disorder and two children who had been diagnosed with depression. This small sample size increased the likelihood of a Type II error. The possibility of a Type II error is discussed more at length in the limitations of this study. There may be several reasons

why the difference between diagnoses and success rates was found to be statistically insignificant. In the following discussion, I consider possible variables including therapies used in day treatment programs, how the results relate to behavioral change theory, the symptom levels of the children prior to admission to day treatment, and the type and location of the program.

Research Question 1 Discussion

The type of therapy is an important factor to consider in the day treatment program. Some day treatment programs are eclectic in their approach to treatment; some use a cognitive behavioral approach and others a psychodynamic approach, or a combination of various approaches (Bennet et al., 2001; Kanine, Tunno, Jackson, & O'Connor, 2015). Programs that focus primarily on children with emotional behavioral disorders may employ a primarily cognitive behavioral approach (Jerrott et al., 2009). An eclectic approach to therapy is most acceptable in a day treatment program, especially when there are various diagnoses of the children in the program.

Several therapies have been shown to be successful in treating children with both depression and oppositional defiant disorder. Therapies that can be offered in day treatment that have been proven effective for treating depression include these seven major areas: (a) interpersonal therapy, (b) social skills training, (c) supportive therapy, (d) dynamic therapy, (e) cognitive behavioral therapy, (f) behavioral activation, and (g) problem-solving therapy (Cuijpers, van Straten, Warmerdam, & Andersson, 2008). One study found that child centered cognitive behavioral therapy was effective at reducing symptoms of depression and found a significantly large reduction in depression for

children pre- and posttreatment (Eckshtain, Kuppens, & Weisz, 2017). This study also found that behavioral parent training was equally as effective at treating depression in children (Eckshtain et al., 2017.) For the treatment of oppositional defiant disorder, psychoanalytic psychotherapy and behavioral therapy are effective for treating children with oppositional defiant disorder (Laezer, 2015). Specific therapies that have been proven to be effective for treating oppositional defiant disorder for children include parent management training and collaborative and proactive solutions (Booker et al, 2016). It is possible that the different types of therapies nondifferentially affected depression and oppositional disorders because they adequately addressed the symptoms of both disorders. Previous research does indicate that psychoanalytic therapy and behavioral therapy are effective in treating both depression and oppositional disorders and because this treatment may have been used in the day treatment program, it is effective in treating each disorder.

In this study I did not look at the effectiveness of specific therapies for treatment of depression or oppositional defiant disorder but chose to focus on symptom reduction enhanced by the combination of psychotherapy and skills work for the children with those two diagnoses. The findings of this study indicate that day treatment staff are doing an adequate job of choosing therapies that are consistent with diagnosis, leading to equal success rates for children regardless of whether the child was diagnosed with depression or oppositional defiant disorder. This study is a secondary analysis of data that was taken from files for children that had been discharged from the day treatment program. Due to

this being a secondary analysis, the therapies and staff differed by the year the data was collected, and the therapies and staff information were not accessible from the files.

The behavioral change theory indicates that a change in behavior can be addressed through treatment by increasing motivation and ability to control behavior, which is affected by needs, opportunities, and abilities (Gatersleben & Vlek, 1998; Mayne 2015). This study was a consideration of the varying needs of children entering a day treatment program based on their diagnosis. The diagnosis of a child may affect the child's opportunities and abilities due to the symptoms that are present. It was determined in this study that the factor of whether a child was diagnosed with depression or oppositional defiant disorder did not change their ability to increase their motivation or ability to control behavior, therefore not changing their success rates in treatment. Another important area to consider that may impact a child's ability to increase their motivation and ability to control their behavior is the level of symptoms the child has prior to entering the program.

Children are often admitted to day treatment due to externalizing behaviors because these behaviors and symptoms are more visible. However, because this is a high level of care, the level of the child's symptoms needs to match the intensity of the program, regardless of diagnosis. Whether a child has oppositional defiant disorder, an externalizing disorder, or depression, an internalizing disorder, the level of symptoms needs to match the level of the program; therefore, treatment for all diagnoses is intense enough to match the symptoms leading to equal success rates. Often, children with externalizing behaviors receive treatment at day treatment programs and children with

internalizing or self-injurious behaviors may be excluded (Rittner et al. 2015). This study indicated the staff at this program chose interventions that equally apply to all children and individualized treatment to the point of teaching coping skills that directly address the symptoms of each diagnosis.

Regardless of symptoms or diagnosis, the children in this day treatment program were not separated from each other according to diagnoses; therefore, children worked cooperatively together during group therapy and skills. This may lead to both positives and negatives for success rates for children with oppositional defiant disorder versus depression. Often, day treatment programs need to focus on limiting aggressive and hostile behaviors, and when children with more internalizing behaviors such as suicide attempts, eating disorders, and anxiety disorders are admitted, there needs to be a shift in programming (Rittner et al., 2015). The results of this study suggested that the day treatment program did well to shift their therapies and attention to encompass all children regardless of diagnosis.

Research Question Number 2 Findings

The findings from this study showed that there was not a statistically significant difference between success rates in day treatment for children who had been exposed to trauma and those who had not. The differences in success rates for children who had experienced trauma and those who had not was statistically insignificant ($F_{1,62} = 0.002, p = 0.963$), which led to the acceptance of the null hypothesis. This study found that success rates for children did not significantly change based on whether a child was exposed to trauma. Trauma was a preexisting factor that was chosen for this study

because it affects many children who are admitted to a day treatment program, which is evidenced in this study by the percentage of children who had been exposed to trauma (69.4%). Trauma, as measured by an ACE score, can lead to risky behaviors, chronic health conditions, low life potential, and even early death (CDC, 2017). With those significant consequences and the high percentage of children who have experienced trauma, effective treatment will help many individuals lead more successful lives. There are several reasons why the difference between exposure to trauma and success rates was found to be statistically insignificant. In the following discussion considerations of possible variables are listed and discussed including, therapies used in day treatment programs, how the results relate to change theory, and the symptom levels of the children prior to admission to day treatment.

Research Question Number 2 Discussion

It is important to consider different therapies that address trauma when working with a population of children with a high percentage of traumatic experiences. For the success rates to have been equally effective for children who have experienced trauma and those who had not, it may be that the day treatment program offered treatments that directly addressed the trauma. Treatments that may be offered in day treatment include, Trauma-Focused Cognitive Behavioral Therapy, Parent Child Interaction Therapy, and Child Parent Psychotherapy. One study found Trauma Focused Cognitive Behavioral Therapy (TF-CBT) significantly reduced symptoms of posttraumatic stress disorder (PTSD) and depression in children when compared to treatment as usual (Cohen, 2015). This study compared symptom reduction for children who were diagnosed with

posttraumatic stress disorder who received TF-CBT to Eye Movement Desensitization and Reprocessing (EMDR) and found both therapies to be effective (Cohen, 2015). The study noted, TF-CBT created a larger decrease in comorbid problems that are common with posttraumatic stress disorder including depressive symptoms and overactivity (Cohen, 2015). Therefore, the day treatment program may be offering different therapies to individual children that most effectively decreased symptoms associated with trauma and addressed comorbid conditions.

Another option for day treatment programs is to offer a family therapy component to address trauma by including therapies such as Parent Child Interaction Therapy (PCIT) or Child Parent Psychotherapy (CPP). CPP is an evidenced based therapy, which blends several therapeutic approaches including attachment, play, behavioral, and developmental, that promotes attachment and working with child and caregiver, together, to process traumatic events (Barnett, Jankowski, & Trepman, 2019). For clients who go through CPP treatment, there is a strong reduction in traumatic symptoms be the end of the therapeutic approach (Barnett, Jankowski, & Trepman, 2019). Another study found PCIT to also be an effective therapy for reducing traumatic symptoms for children, although it does not directly address the trauma. PCIT is an evidenced based therapy - training program, which focuses on parental responses to behaviors (Lieneman, Quetsch Theodorou Newton & McNeil, 2019). For treatment to be equally effective for children who had experienced trauma and those who had not, it may be that the day treatment program offers opportunities for both individual and family therapy that directly addresses the trauma.

Symptoms for children entering a day treatment program are consistent for each child, regardless if they have been exposed to trauma. Day treatment programs are considered intermediate levels of care, more restrictive than an outpatient program but less restrictive then an inpatient program. In order to be admitted to a day treatment program, the child's level of needed care had to meet levels consistent with an intermediate level program. Whether the child had been exposed to trauma or not is not a consideration for admission to the program. All the children in the program were displaying a level of symptoms consistent with the intensity of the program. This may be part of the reason why there was not a significant difference in success rates for children who had been exposed to trauma and those who had not. Success was measured by symptom reduction, and, because symptoms all started at a high level of need, reduction of symptoms was the same for both groups.

It was helpful to consider the results of this study using the theoretical foundation of the behavioral change theory to assess the success rates of the children in the program. The behavioral change theory indicated that a change in behavior can be addressed through treatment by increasing motivation and ability to control behavior, which is affected by needs, opportunities and abilities (Gatersleben & Vlek, 1998; Mayne 2015). This study considered the varying needs of children entering a day treatment program based on exposure to trauma. The factor of trauma may affect a child's opportunities and abilities. Trauma exposure can affect an individual's ability to build therapeutic relationships, which may affect a child's ability to increase motivation and ability to control behavior in day treatment. Trauma exposure may also affect the needs of a child

if their basic needs have not been met or if they view the world as an unsafe place. The ability, needs, and opportunities for each child can differ based on trauma exposure. However, this study found that there is not a statistically significant difference in success rates for children based on trauma exposure. This may be due to various factors including the, the approach of the staff, and the resiliency of the child.

Staff approach is an important consideration for professionals in programs who work with children who have experienced trauma. The reason behind why the program was equally successful for children, both who have experienced trauma and those who have not, may be due to the way the staff approach the clients. All children within the program receive services together, whether they have experienced trauma or not. For children who have experienced trauma, it is especially important for staff to foster a feeling of safety and employ several approaches where a child may be able to process the traumatic event. Because there was not a significant difference in the level of success between children who had experienced trauma and those who had not, it may indicate the day treatment staff are creating a safe place for children to express concern about their trauma without triggering other children within the setting.

Another reason that there was a non-significant difference in success rates for children who have experienced trauma and those who have not, is the resiliency of the child. Resiliency is the child's ability to cope with traumatic events that have happened in their lives (Tsai, Harpaz-Rotem, Pietrzak, & Southwick, 2017). Each child that enters the day treatment program may have a different level of resiliency and this is something the day treatment staff can foster for the children in the program. Resiliency is affected

by developmental factors, psychosocial risk, protective factors, neurobiological factors and health factors (Tsai, et al, 2017). Several concepts and treatment options focus on building the resiliency of people who experienced trauma including cognitive behavioral therapy, well-being therapy, and promoting physical health (Tsai, et al, 2017). This day treatment program was possibly enhancing the resiliency of all the children in the program by promoting well-being and physical health, along with providing trauma-informed therapy.

Limitations of the Study

The results of this study suggested there was not a relationship between success rates and the diagnosis of depression or oppositional defiant disorder or between trauma exposure and success rates. Several other factors also determined success rates for children in day treatment which may affect the validity and reliability of this study. External factors such as stabilization of the home environment, reduction of stressors, and improvement in the caregiver/child relationship would all indicate stabilization of symptoms for a child, which would lead to greater success rates. These external factors would also affect the ratings that a caregiver had on the questionnaire. If a caregiver rated a child when the home environment was not stable and there were significant stressors within the home, the score would be escalated. However, if these situations stabilized it may have caused a caregiver to rate the child's symptoms differently. With any rating, there may be bias present based on the experiences of the rater.

This study may also not be generalizable to a larger population due to the unique rural setting. The sample size for this study was also relatively small so the

reproducibility of the study may be affected. According to the United States Census Bureau, the population of the county that this day treatment program is located is 93.6% Caucasian, 2.9% Hispanic, 2.7% Asian, 1.9% African American, 1.3% two or more races, and 0.5% Native American (2018). The lack of diversity was also considered a limitation to the study due to the prevalence of a singular race. This limitation was especially noted since the race of the professionals working within the setting was predominantly Caucasian, yet, often the children within the program were of many different races and varied backgrounds.

Another limitation of this study was that only two diagnoses were considered. The sample size for this portion of the study was so small that the results were not scientifically bound. This portion of the study had very low statistical power, which reduced the ability of the study to show a true effect (Button, Ioannidis, Mokrysz, Nosek, Flint, Robinson, & Munafo, 2013). Having such a small sample size led to several issues including accepting a false premise as true, overestimating effect size, and difficult reproducing results (Faber & Fonseca, 2014; Button, et al., 2013). This small sample size significantly raised the chances of a Type II error. A Type II error can occur when the results accept a null hypothesis incorrectly (Jones, Carley, Harrison, 2003). The sample size for this portion, which leads to low statistical power, was significant so the chance of a Type II error was high.

Recommendations for Future Research

A recommendation for further research is to consider several different age groups when examining the effects of trauma on success in day treatment and comparing

diagnoses. Further research could also determine differences in success based on the type of trauma that a child has experienced. Varying levels of trauma and types of trauma may lead to varying success rates. Another idea for future research may be to use ACE scores and determine if higher scores equate for greater or less success within a day treatment program. The results of this study were for a timeframe that did not involve any further longitudinal information, which may be an interesting factor to consider. This study only considered one day treatment setting which may be unique in its ability to address trauma through trauma informed care practices. Examining other day treatment programs with those with trauma informed care practices may show varying results.

There are several areas of future research which could be considered based on type of day treatment program. The optimal number of hours and setting of the day treatment program could be studied to determine which program leads to the most success for children. The various therapies used within the programs could be considered and determine which therapy or combination of therapies could be used that lead to more success. Also, a consideration of the staff makeup could also be compared. Any or all of these may lead to a more uniform type of day treatment that would determine the optimal amount of intervention to provide to children.

Implications

This study shows that there are various factors to consider when treating children with mental health symptoms. Taking into consideration preexisting factors such as diagnosis and trauma exposure can lead to better treatment results for every child. With better treatment for children available, the possibility for positive social change exists

within the individual, families, communities, and society. For the individual, treatment of mental health in childhood may help enhance coping skills and the examination of thought processes, which could lead to lesser symptoms as the child matures. Lesser symptoms for the child can lead to greater success for the individual in their home, school, and community. Families learn about supports within the community and, if children are more successful in day treatment programs, there is a chance for greater connection within a family. Family therapy is often a component of treatment for young children which can help the family learn skills that can be generalized for the child in more than one setting. Improving day treatment success rates for children can help those children be more successful within a community and society. Improving success rates of mental health services may also help to reduce the stigma of treatment that exists in many communities within our society.

Conclusion

This study shows that day treatment success rates are comparable for many children regardless of the factors reviewed in this study. This research finds that there is not a significant difference in success rates for children who have experienced trauma and those who have not. Although not scientifically bound due to small sample size, this research shows that there is no difference in success rates for children who have been diagnosed with depression and those who have been diagnosed with oppositional defiant disorder. Maintaining and improving success rates for children in day treatment programs continues to be important because having treatment options that are effective and less restrictive for the child is an important option for many children and families. A

comparison of residential treatment and day treatment programs shows they are equally effective in helping to reduce behavioral symptoms (Jerrott et al., 2010). It is important to continually improve the success rate of day treatment programs because they are a positive alternative to more costly and restrictive residential settings (Jerrott et al, 2010). Studies that look at pre-existing factors within day treatment programs can ultimately help professionals create programs that are more successful for all children because it creates greater understanding of the needs and opportunities that exist.

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