An evaluation of demographic and clinical characteristics of youths enrolled in two residential treatment programs

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An Evaluation of Demographic and Clinical Characteristics of Youths Enrolled in Two Residential Treatment Programs

by

Monelle S. Thomas

A Dissertation
Submitted to the University at Albany, State University of New York in Partial Fulfillment of the Requirements for the Degree of Doctor of Psychology

School of Education
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An Evaluation of Demographic and Clinical Characteristics of Youths Enrolled in Two Residential Treatment Programs

Monelle S. Thomas

University at Albany, State University of New York, 2022

Dissertation Chairperson: Deborah K. Kundert

Abstract

Modern-day residential treatment programs (RTPs) for children and adolescents have been present for over 70 years. These 24-hour treatment programs serve as a more restrictive placement for youths with severe social-emotional and behavioral difficulties that have exhausted the supports provided in the home, school, and community settings. In New York State, there exist two different types of RTPs for children and adolescents, residential treatment facilities (RTFs) and residential treatment centers (RTCs). There is limited research comparing these residential programs and the impact of differential funding on residents’ treatment program entry and outcomes. The current evaluation attempted to explore the similarities and differences of these programs across one agency. The evaluation examined 32 children’s and adolescents’ characteristics and treatment dosage at an RTF and an RTC. Residents’ demographic, cognitive, social-emotional, trauma exposure, and family functioning were obtained and analyzed. The results conveyed that those residents at the RTF received more treatment time despite similarities in youth demographic and clinical characteristics across both programs. More specifically, residents at the RTF exhibited no significant differences in characteristics than at the RTC, yet they received more supports. These findings have implications for issues related to access to equitable resources, transition to the school, home, and community setting for promoting
successful discharge. Moreover, recommendations were discussed utilizing the plan-do-study-act (PDSA) method to determine next steps for the agency.
Acknowledgements

As I reflect on this colossal and extraordinary journey, I am reminded of a personal motto, ‘things may be difficult but certainly not impossible’. During the course of this project, the world experienced a pandemic that deemed us to limited social interactions. Despite this, I had the opportunity to have people in my life who encouraged and supported me. Without them, the journey would be almost impossible to achieve.

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# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>TITLE PAGE</td>
<td>i</td>
</tr>
<tr>
<td>ABSTRACT</td>
<td>ii</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>iv</td>
</tr>
<tr>
<td>TABLE OF CONTENTS</td>
<td>vi</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>xi</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>xii</td>
</tr>
<tr>
<td>LIST OF APPENDEXES</td>
<td>xiii</td>
</tr>
<tr>
<td>CHAPTER ONE – INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>Overview</td>
<td>1</td>
</tr>
<tr>
<td>Purpose Statement</td>
<td>3</td>
</tr>
<tr>
<td>Significance of Study</td>
<td>4</td>
</tr>
<tr>
<td>CHAPTER TWO-RELEVANT LITERATURE REVIEW</td>
<td>6</td>
</tr>
<tr>
<td>Overview</td>
<td>6</td>
</tr>
<tr>
<td>Residential Treatment</td>
<td>7</td>
</tr>
<tr>
<td>Historical background of residential treatment</td>
<td>7</td>
</tr>
<tr>
<td>Definition of residential treatment</td>
<td>11</td>
</tr>
<tr>
<td>Current context</td>
<td>12</td>
</tr>
<tr>
<td>Types of residential treatment</td>
<td>14</td>
</tr>
<tr>
<td>Characteristics</td>
<td>15</td>
</tr>
<tr>
<td>Socio-demographic characteristics</td>
<td>17</td>
</tr>
<tr>
<td>Social-emotional and behavioral characteristics</td>
<td>19</td>
</tr>
</tbody>
</table>
Externalizing behaviors ................................................................. 20
Internalizing Behaviors ................................................................. 22
Trauma Experience ........................................................................ 24
Family factors .................................................................................. 25
Cognitive functioning ...................................................................... 27
Academic functioning ...................................................................... 27
Section summary ............................................................................ 29
Treatment offered at residential treatment programs .................... 29
Evidence-based treatments .............................................................. 29
Treatment intensity ......................................................................... 31
Section summary ............................................................................ 32
Program Evaluation ........................................................................ 32
Standards for evaluating programs .................................................. 33
Distinguishing between research and evaluation .............................. 33
Roles of evaluators .......................................................................... 34
Types of data collected .................................................................. 36
Evaluation approaches and models .................................................. 36
CIPP model ...................................................................................... 37
Improvement science ...................................................................... 38
Section Summary ............................................................................ 40
Chapter summary .......................................................................... 42
Program Evaluation Questions ....................................................... 43
CHAPTER THREE - METHODOLOGY ............................................. 44
Overview ................................................................. 44
Orientation to the programs ........................................ 44
  Residential treatment facility ..................................... 44
  Residential treatment center ..................................... 46
Participants .................................................................... 46
Data collection procedure ............................................ 46
Measures ........................................................................ 46
  Social-emotional functioning ..................................... 49
  Trauma experience .................................................. 49
  Cognitive skills ....................................................... 50
  Family functioning ................................................... 50

CHAPTER FOUR – RESULTS ............................................. 52
Overview ........................................................................ 52
Data: Analysis plan, screening, and initial review ............ 52
  Data screening ......................................................... 52
  Data analysis plan .................................................. 52
  Initial data review .................................................... 53
Analyses of demographic characteristics between groups .... 56

Program Evaluation Question 1: Are there differences in adolescents’ trauma experiences, and social-emotional, cognitive, and family functioning:
  A) between groups (Facility versus Center); and B) within group based on within group homogeneity variance (within Facility, within Center) ......................................................... 56
Program Evaluation Question 2: Are there differences in treatment dosage between the groups (Facility versus Center) ............................................ 63

CHAPTER FIVE – DISCUSSION ......................................................... 65

Overview ................................................................................. 65

Evaluation results ................................................................. 65

Socio-demographic characteristics ........................................ 65

Discharge status .................................................................. 66

Visual trends ......................................................................... 66

Cognitive functioning .......................................................... 67

Social-emotional and behavioral functioning ...................... 67

Visual trends ......................................................................... 68

Trauma functioning ............................................................. 68

Visual trends ......................................................................... 69

Family functioning .............................................................. 69

Dosage .................................................................................... 70

Limitations ............................................................................. 71

Implications ........................................................................... 74

Areas of Strengths ............................................................... 75

Recommendations to the agency ........................................... 77

Explore the need for two separate programs ....................... 79

Wraparound services .......................................................... 80
LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Distinction between Research and Program Evaluation</td>
<td>35</td>
</tr>
<tr>
<td>2</td>
<td>Types of CIPP Evaluations and their Goals, Approaches, and Application</td>
<td>39</td>
</tr>
<tr>
<td>3</td>
<td>Treatment and Services Offered at the Agency</td>
<td>45</td>
</tr>
<tr>
<td>4</td>
<td>Demographic Characteristics of Youth Participants</td>
<td>47</td>
</tr>
<tr>
<td>5</td>
<td>Assessment Schedule</td>
<td>48</td>
</tr>
<tr>
<td>6</td>
<td>Descriptive Demographic Characteristics by Participants and Group</td>
<td>54</td>
</tr>
<tr>
<td>7</td>
<td>Descriptive Statistics Clinical Variables by All Participants and Group</td>
<td>55</td>
</tr>
<tr>
<td>8</td>
<td>Significant Chi Square Analysis of Discharge to Home by Group</td>
<td>57</td>
</tr>
<tr>
<td>9</td>
<td>Analysis of Treatment Dosage by Group</td>
<td>64</td>
</tr>
<tr>
<td>10</td>
<td>Plan Stage and Action Steps For Explore The Need For Two Separate Programs</td>
<td>79</td>
</tr>
<tr>
<td>11</td>
<td>Plan Stage and Action Steps For Wraparound Services</td>
<td>82</td>
</tr>
<tr>
<td>12</td>
<td>Do Stage and Actions Steps For Assessment Of Resident Progress</td>
<td>83</td>
</tr>
<tr>
<td>13</td>
<td>Plan Stage and Action Steps For Bases For Program Placement</td>
<td>85</td>
</tr>
<tr>
<td>14</td>
<td>Plan Stage and Action Steps For Youth Characteristics</td>
<td>88</td>
</tr>
</tbody>
</table>
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Figure Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Residential Treatment Map</td>
<td>16</td>
</tr>
<tr>
<td>2</td>
<td>Plan-Do-Study-Act Framework</td>
<td>41</td>
</tr>
<tr>
<td>3</td>
<td>Bar Chart of Discharge Home by Group</td>
<td>58</td>
</tr>
<tr>
<td>4</td>
<td>Bar Chart of Gender by Group</td>
<td>59</td>
</tr>
<tr>
<td>5</td>
<td>Bar Chart of Age by Group</td>
<td>60</td>
</tr>
<tr>
<td>6</td>
<td>Bar Chart of Intrusive Thoughts, Number of Trauma Incidents, and Total Problem Scores</td>
<td>62</td>
</tr>
</tbody>
</table>
# LIST OF APPENDICES

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Cutoff Scores for Scoring the APQ.</td>
<td>109</td>
</tr>
<tr>
<td>B</td>
<td>Evaluation Questions and Proposed Data Analyses</td>
<td>110</td>
</tr>
<tr>
<td>C</td>
<td>Nonsignificant Results</td>
<td>111</td>
</tr>
<tr>
<td>D</td>
<td>Demographic Variables by Group</td>
<td>115</td>
</tr>
<tr>
<td>E</td>
<td>Cognitive Assessment Scores by Group</td>
<td>121</td>
</tr>
<tr>
<td>F</td>
<td>Social-Emotional-Behavioral Assessment Scores by Group</td>
<td>127</td>
</tr>
<tr>
<td>G</td>
<td>Trauma Scores by Group</td>
<td>168</td>
</tr>
<tr>
<td>H</td>
<td>Parenting Scores by Group</td>
<td>180</td>
</tr>
<tr>
<td>I</td>
<td>Dosage Figures</td>
<td>190</td>
</tr>
</tbody>
</table>
Chapter 1: Introduction

The Center for Disease Control and Prevention (CDC; 2021) reported that about seven to nine percent of youth experience social-emotional and behavioral issues. Youth with these issues experience negative outcomes that influence their beliefs about themselves and others, interactions with others, education, and the community (De Swart et al., 2012). Historically, youth were placed in institutions when schools and other community settings did not quite know how to adequately support them. Yet, the institutionalization of youth was highly controversial, especially due to reports of abuse, mistreatment, low accountability, segregation, unequal access to education, and low parental involvement (Leichtman, 2006). Coupled with that, treatment did not appear to focus on reintegration into society, thus increasing recidivism and symptom prevalence (Leichtman, 2006). Particularly, in the United States, laws were passed to encourage more equitable access to education and community resources for these youth. These laws promoted the idea that youth must have access to the least restrictive environments so they can integrate with the general population to learn socially acceptable behaviors, have equal access to education, and exhibit independent skills (Hair, 2005). Currently, most youth experiencing social-emotional and behavioral issues benefit from services provided in schools and the community that also allows them to be at home with their families (De Swart et al., 2012). Nevertheless, more intensive support is required for youth who cannot be adequately supported in the community as they may present harm to themselves and others.

Residential treatment programs provide youth with individualized and intensive supports on a 24-hour basis. Similar to other institutions, their inception was based on an attempt to displace youth who were poor, needy, and abandoned. As years went by, residential treatment began to adopt specific supports for improving youth outcomes, which created a distinction
between treatment programs and other out-of-home programs. While there still remains some disagreement regarding the definition, core principles involving 24-hour treatment and the use of psychological principles more specifically remain the major aspects of residential treatment for youth (Leichtman, 2007). Residential treatment may vary across programs, yet not many studies focus on differences among these programs. In New York State, there are two different types of programs: residential treatment facilities (RTF) that aim to serve youths who have a history of mental health difficulties, and residential treatment centers (RTC) which serve youths who have a history of behavioral concerns (Baker & Dale, 2002; Billack & Mack, 2004).

Youth who are enrolled in residential treatment present with a variety of symptoms, experiences, and backgrounds that can influence their treatment. Research suggests that treatment works best when supports target cross-context behaviors and experiences (James, 2013). Youth placed in residential treatment may exhibit difficulties with social-emotional issues, family, cognitive and academic functioning, and incidents of trauma. Moreover, youth in residential treatment present with specific demographic characteristics that increase their risks in certain areas. For many youths, symptomatology is typically comorbid such that it further complicates treatment and return to the home and community. Especially as the goal is to return to the home and community setting, much focus in residential treatment is for the youth to develop skills that they can utilize and generalize across settings. As such, a combination of evidence-based treatments is implemented to assist in achieving that purpose. Moreover, alternatives to residential treatment programs are used to aid in transitioning youth back to the home setting.

As these programs require more individualized data-driven exploration, program evaluations are the most appropriate source of methodical investigation. A program evaluation is
a more systematic approach for addressing a program’s worth and merit while monitoring success and issues to make adjustments accordingly (Spaulding, 2013). There are several models of program evaluation from which to select to adequately match the specific program study and questions. One model, the context, input, process, and product (CIPP) evaluation provides information regarding the situation in which the program takes place, assessment of the program’s strategies, identifying issues in the program strategies, and linking them to the goals and assessed needs (Stufflebeam & Coryn, 2014). More specifically, a CIPP evaluation aims to carry out and refine the program as well as promote decision-making to modify and refocus the program with any assessed requirements or targeted goals (Stufflebeam & Coryn, 2014). As the model promotes identifying needs and making changes based on these needs, the use of improvement science becomes more pertinent for utilizing systematic ways to identify these needs, the action steps, and specific changes to be made. Utilizing this model and framework contextualizes needs identified through a program evaluation and targets logical next steps and adequate supports based on these needs. One model of improvement science that has historically been incorporated into the education setting is the plan-do-study-act (PDSA) framework. The PDSA cycle establishes a way to learn how changes work on a smaller scale that can be applied on a larger scale (Langley et al., 2009; Lewis, 2015).

**Purpose**

Using archival data, the purpose of this investigation was to evaluate the characteristics of and treatment provided to youth enrolled in two examples of different types of residential treatment programs at an agency. More specifically, the study used pre-existing data to examine each youth’s social-emotional functioning, cognitive functioning, parenting, strategies, and trauma background from each program to answer program evaluation questions: (a) are there
differences in youths’ characteristics between and within each program, and (b) does the
treatment dosage provided to youth vary across the two programs.

**Significance of the study**

This evaluation contributes to existing research on characteristics of youth in residential
treatment. As residential treatment programs typically accept youth with social-emotional and
behavioral problems, it is imperative to have data on youth who present with externalizing and
internalizing behaviors to inform admissions, treatment, and discharge decisions. Given the
knowledge of characteristics, more individualized and program-wide treatment can be
implemented at these programs. As decision-making regarding treatment planning relies heavily
on data collected on the youth, it is necessary to understand the extent to which each
characteristic may contribute to the progress or possible resistance to treatment.

Despite the presence of different residential treatment programs for youth, to date, there
is no documented research comparing youth characteristics across and within different types of
residential treatment programs. Particularly in New York State, youth entry into a program
depends on the funding source and the extent of the youth’s functioning. As such, acceptance
into programs with higher levels of care assumes that the youth also presents with characteristics
that also require a higher level of care. Yet, no studies at this time focus on comparing the
characteristics across programs for a local residential treatment agency using program evaluation
and improvement science strategies. This study aimed to contribute to the limited research in this
area.

Finally, the study aimed to incorporate improvement science methods (Crow et al., 2019;
Langley et al., 2009) for recommendations for improvement of the program. Improvement
science is a relatively nuanced area that has been growing, yet there is limited research of its use
in residential treatment. As such, this study further contributes to this growing literature and the importance of using systematic methods for identifying needs, changes, and action steps.
Chapter 2: Relevant Literature Review

Overview

Providing appropriate services to support children and youth with social-emotional and behavioral disorders has been a long-term debate in the literature. Most researchers, laws, and educators endorse the idea that youth with these disorders should first be treated in the least restrictive environments (MHA, 2020; Underwood, 2018). Yet, out-of-home placements have become necessary to accommodate youth when they are unable to sustain safety to themselves and/or others in the community. While residential care was first incepted to provide shelter, care, and in some cases for children and adolescents who were needy, abandoned, and dependent, with the introduction of psychiatric treatments, differences in funding, and change in purpose this care has seen a major transition from its inception to its current relevance.

To further explore this topic, this chapter presents a history of residential treatment programs, specifically focusing on the development of residential treatment, its relevance to current treatment for youth, and challenges in defining residential treatment. This chapter also discusses the various types of residential treatment, residential treatment facilities (RTFs), and residential treatment centers (RTC) that contribute to differences in supports provided to youth. The chapter explores the specific youth and typical characteristics currently existing at residential treatment. Coupled with this, the goal is to specifically investigate characteristics related to cognitive and academic functioning, social-emotional and behavioral functioning, trauma experience, and family functioning as well as residential treatment outcomes. Finally, in this chapter, discussion regarding evidence-based practices in residential treatment is presented.

In addition, this chapter explores program evaluation and its contribution to providing data for changes to residential treatment programs. Particularly, discussions regarding the
differences between program evaluations and research, approaches, steps, and processes involved in conducting program evaluation are addressed. As there are multiple types of program evaluation, the chapter surveys the intricacies of using the Context Input Process Product (CIPP) evaluation as well as improvement science. Improvement science is a methodological framework aimed to identify and define problems, carry out changes and examine those changes (Crow et al., 2019; Langley et al., 2009). The improvement science content provided in this chapter focuses on the processes, steps, and application to the providing and implementing recommendations for facilitating changes to programs.

**Residential Treatment**

Residential treatment of youth has been historically used to maintain the safety of the community and provide social services to youth. As time progressed, the inclusion of psychological services and features youth presented clarified the definition of residential treatment. Residential treatment programs can differ in type by intensity and funding. In addition, youth residing at these treatment programs can present with characteristics such as their cognitive and academic functioning, social-emotional and behavioral functioning, trauma experience, a family background that may impact treatment unlike the other typically developing youth. Moreover, evidence-based services they receive may impact their overall transition back to their homes and communities. Residential treatment programs may differ across states. As research on types of residential treatment is limited, rather than a focus on each residential treatment type, discussion of historical background, definitions, and characteristics were based on the overarching residential treatment topic.

**Historical background of residential treatment**
The historical roots of residential treatment typically begin with (a) the establishment of orphanages, hostels, and asylums for the poor, sick, and mentally ill based on the medieval church reform movements during the 18th and 19th century, and (b) the development of modern psychiatric facilities for children in the first half of the 20th century (Leichtman, 2006, 2007; Szanjnberg, 1992). During the 1600s, the English Poor Law of 1601 mandated parishes (i.e., basic units of local government) and churches to provide basic sustenance and relief to the lame, incompetent, blind, poor, and persons who were not able to work (Boyer, 2002; Dahlberg, 2012; Leichtman, 2007). The law also authorized able-bodied women and men to receive parish assistance, if they put their children out to be apprentices (Boyer, 2002; Dahlberg, 2012). Many children were sent to facilities in which they received a liberal education and trades training (Dahlberg, 2012). In the United States, there were only six institutions that catered to children and adolescents before the 1800s (Stein, 1995). At that time, in response to poverty and misfortune, corporal punishment was typically used to appease beliefs of deviance and Christianity. As such, orphaned children were bonded to tradesmen as apprentices to work in exchange for room, board, and training. Similarly, children who were physically disabled or intellectually disordered were boarded out of the communities (Stein, 1995). Youths who were troubled were far less likely to be heard by their society than those who made trouble as society tended to protect itself first from its children (Szanjnberg, 1992). The first children’s institution recorded was in the French province of New Orleans in 1727 in response to a smallpox epidemic that left many youths orphaned. After which, the first public orphanage was established in 1790 in Charleston, South Carolina as the notion that the state should assume responsibility for the welfare and care of its children became more popularized (Stein, 1995; Szanjnberg, 1992).
During the first 30 years of the 19th century, 23 institutions were established. Due to industrialization and immigration, wars, and epidemics, there was an increase in larger communities and poverty. In response, institutions became the solution for the poor, dependent, and the deviant (Stein, 1995). Youths were still treated as adults, however, and were placed with other adults (Stein, 1995). By the end of that century, institutions for children had increased tenfold. Institutions such as foster care, more orphanages, and juvenile court systems were established. These institutions were based on the principles of isolation, regimentation, hard work, and harsh discipline.

By the 1900s, the number of children in institutions, foster care, and correctional facilities increased significantly from the 1800s. Although the institutionalization of children continued, it was during this period that, gradually, there began a shift from rehabilitation to psychotherapeutic treatment that more resembled current residential treatment (Stein, 1995). More states were insisting that these facilities were licensed and inspected despite resistance from public, private, and religious agencies. In addition, there were more attempts to keep children at home rather than in institutions. Subsequently, in 1935, a new form of group care gained prestige among professionals due to its psychoanalytic theories and concept of the therapeutic milieu. The term residential treatment started to gain currency, as well as the first reported residential treatment programs for children and adolescents, which appeared in the 1940s, as the New Deal reforms such as Social Security and Aid to Dependent Children took effect (Leichtman, 2006, 2007; Magellan Health Services, 2008). In addition, as psychiatry and social work became more influential disciplines, ‘homes for dependent children’, ‘facilities for delinquents’, and ‘schools for limited children’ were converted to mental health facilities (Leichman, 2006, 2007; Szanjnberg, 1992). Even still, many custodial programs became
residential treatment centers and claimed that title even without a specific criteria for youth intake. In 1954, the American Association of Children’s Residential Centers (AACRC) was founded. The mission of the organization was to bring together individuals and residential centers who actively treated children identified as emotionally disturbed with accepted forms of treatment that included: (a) use of marginal interviewing, (b) the use of life experience in a therapeutic fashion, and (c) the use of formal psychotherapeutic interviews (Leichtman, 2006, 2007). Many treatment centers adapted work from August Aichhorn and others whose progressions in psychiatry influenced a shift from residential care to residential treatment (Szanhnberg, 1992. In addition, treatment programs adapted the concept of therapeutic milieu based on Fritz Redl and Bruno Bettelheim who emphasized the need for designed controls as pertinent in containing acting out behaviors and affectionate care with specific responses to the meaning of the child’s behavior (Stein; 1995 Szanhnberg, 1992).

As changes in treatments, professional organizations, and standards transpired as well as increased criticisms, there were drastic changes made to the definitions of treatment programs. The 1960s brought the introduction of behavior modification techniques based on the works of Ivan Pavlov and Burhuss Frederick Skinner who emphasized the principles of learning in the treatment of behavior (Stein, 1995). Later on, programs began incorporating other perspectives such as group process, psychoeducational, and strength-based techniques (Leichtman, 2007; Stein, 1995). Currently, no single theory dominates the field of residential treatment. Meanwhile, professional organizations, accrediting bodies, and insurance companies coded standards of treatment made distinctions between hospitals and residential treatment centers. Hospitals worked with more disturbed patients, who were treated by nurses and psychiatrists, and received higher levels of reimbursement, while residential treatment centers provided institutional care for
youths who exhibited less intense pathology, were in the hands of psychologists and social workers, and were at 24-hour facilities. On the other hand, residential treatment was beginning to receive more criticisms about their levels of family involvement, treatment maintenance or gain after discharge, the violation of children’s civil rights, and referrals based on sexism, classism, and racism (Leichtman, 2006, 2007; Stein, 1995).

Within the 21st century, major changes to the economics of mental health care and models of delivery of services redefined the concept of residential treatment. First, greater emphasis has been placed on working with families, teaching adaptive skills to promote reintegration into the community, and implementing comprehensive aftercare plans. Second, residential treatment has become more short-term as the continuum of care shifted from hospital care to residential treatment to outpatient programs (Leichtman, 2006, 2007; Stein, 1995). Consequently, what was previously understood as residential care serving children who were displaced from their homes or disabled, now incorporated psychoanalytic and therapeutic milieu to provide care to children and adolescents intended to rejoin the community for independent living.

**Definition of residential treatment**

Many researchers indicate that there are difficulties in defining residential treatment programs as it depends on what treatments the program is providing (Leichtman, 2006, 2007; Stein, 1995). As such, problems in defining residential treatment 50 years ago are present today and the concept remains complicated. In the past, residential treatment was understood to involve orienting the daily life of children in institutions around psychodynamic and other therapeutic principles. Currently, these programs are more defined as delivering long-term care for children and adolescents with serious emotional disorders and behavioral problems (Bettmann et al.,
2015). It is typically a provision of service often reserved as an intervention of last resort for youth who have been unsuccessfully treated with other modalities of care (Butler et al., 2009).

**Current context**

Residential treatment programs supply the most intensified support for children and adolescents with serious emotional and behavioral problems (American Academy of Child and Adolescent Psychiatry, 2016; Lynch et al., 2017). Compared to inpatient treatment, they are the second most restrictive and costly treatment for the youth (Magellan Health Services, 2008). A child or adolescent may need residential treatment when: (a) alternatives in the community have been explored yet have not adequately addressed the youth’s needs, (b) when the complexity of the youth’s needs require a 24-hour environment to facilitate a more accurate understanding of those needs and respond sufficiently, and/or (c) when the youth’s behavior is so severe that it requires a 24-hour treatment environment to keep the person safe and prepare the individual to transition to community-based care (Hair, 2005; Mental Health America, 2020). Mental health services for children guidelines indicate that service should be offered within the least restrictive, most normative environment that is clinically appropriate (Hair, 2005). In accordance with the Olmstead principles and the Americans with Disability Act (ADA), child welfare and juvenile justice placements must consider the option of residential treatment because they qualify as the least restrictive placement. As such, these facilities can serve as satisfactory alternatives to jail or locked mental health treatment facilities (Mental Health America, 2020).

While some residential treatment programs for children are not licensed like psychiatric hospitals which provide individually planned programs of mental health treatment for children up to 18 years old, they must have a clinical program directed by a psychiatrist, psychologist, social worker, or psychiatric nurse who has a master’s or doctoral degree (SAMHSA, 2019).
Primary components of residential treatment typically include the care provision duration (e.g. most are in a 24-hour setting) and the types of service such as individualized mental health assessment, treatment, and aftercare (Lynch et al., 2017). Researchers proposed that residential treatment requires features such as a therapeutic milieu, multidisciplinary care team, client supervision, staff supervision, clinical and administrative management, and training (Lynch et al. 2017). In fact, an effective residential treatment program may provide: (a) a comprehensive evaluation assessing behavioral, medical, educational, and social supports, (b) individualized treatment plans with interventions to assist the youth in achieving goals, (c) individual and group therapy, (d) psychiatric care and medication management, (e) family or support system involvement, and (f) non-violent and predictable strategies to handle the youth with emotional and behavioral issues (American Academy of Child and Adolescent Psychiatry, 2016).

Although the aim is to maintain the least restrictive environments for youths with severe emotional and behavioral issues, these treatments remain a needed service as community-based settings fail to meet the therapeutic needs (Hair, 2005). Yet, there are challenges that youth face with accessing care. First, there is typically a waitlist for entrance to these facilities. The National Mental Health Services Survey (2019) reported offering a national total ($n=592$) 24-hour residential settings to children and adolescents up to 17 years old. Of that number, there were 28 residential treatment programs in New York State (National Mental Health Services Survey, 2019). In 2018, 48% of residential treatment offered services to fewer than 15 clients; only 12 residential programs throughout the United States offer services to 120 clients and more (National Mental Health Services Survey, 2018). Second, residential treatment programs often require a significant financial contribution from the patient to facilitate comprehensive
therapeutic resources (Frisch et al., 2006). While most facilities accept Medicaid, still 73% of patients self-pay for treatment (SAMSA, 2018).

*Types of residential treatment*

Research has been mixed regarding types of residential treatment due to accurately understanding definitions (Lee, 2008). The research described substance abuse treatment, locked offender unit, family-style group care, and residential schools (Lee, 2008). While they all provide treatment for youth, they differ by the type of support given and by whom. For instance, substance abuse programs consist of psychiatrists, medical staff, and addiction counselors while the locked offender units may consist of correctional officers, psychiatrists, and clinicians. As such, the level of treatment adequately matches the staff support given (Lee, 2008).

Particularly in New York State, residential treatment facilities (RTFs) and residential treatment centers (RTCs) are two types of residential treatment programs offering services to children and adolescents (Baker & Dale, 2002; Billack & Mack, 2004; Dale et al., 2007). Agencies often placed children in RTCs when they were deemed too emotionally or behaviorally impaired to be served in lower levels of care such as foster homes or group homes (Dale et al., 2007). Furthermore, youth in RTCs have mental health problems severe enough to qualify for programs funded by the Office of Children and Family Services (OCFS) but necessarily hospitalized due to limited child psychiatric hospital beds. On the other hand, residential treatment facilities (RTFs) are specialized types of inpatient treatment programs for children and adolescents (Dale et al., 2007). The RTF is also a physician-led therapeutic setting in which psychiatric disorders are treated (Billack & Mack, 2004). RTFs were created in response to the need for a higher level of care at RTCs (Dale et al., 2007). As such, they tend to have lower staff-to-youth ratios, more intense clinical services, better funding, and more probably more viable
options for highly problematic youth (Dale et al., 2007). Still, there have been long waiting lists for admission to an RTF, and many children who are certified for RTF placement are served for years in RTCs while awaiting RTF placement (Baker & Dale, 2002; Dale et al., 2007). Hence, data indicate that limiting services in one sector (i.e., insufficient RTF beds and other mental health programs) may result in increased utilization of services in another sector (use of child welfare residential treatment for youth with severe and chronic mental health problems).

There are some differences that exist between the RTF and the RTC (Baker & Dale, 2002; Dale et al., 2007). In some RTFs, the admissions criteria explicitly exclude children who are likely to harm themselves or others, while the Office of Children and Family Services (OCFS) mandates RTCs to treat these youth (Dale et al., 2007). Moreover, RTFs are better funded and typically have different referral sources. For example, youth at RTFs are referred by OMH while RTC by OCFS (Baker & Dale, 2002; Billack & Mack, 2004). With the RTF being better funded, it allows for greater supervision and more intense clinical services (Baker & Dale, 2002). Still, despite the vast development since residential treatment’s inception, difficulties with defining residential treatment still remains. As such, clear definitions among residential treatment programs may also be impacted. See Figure 1 for classification of residential treatment program and its differences.

**Characteristics**

Continuing discussions regarding appropriate individualized treatment for children and adolescents at residential treatment address the importance of being aware of the characteristics and needs each youth possesses which may impact the course of treatment. These characteristics may include the youth’s background, cognitive functioning, and experience with trauma, social-emotional and behavioral functioning, and perception of parenting.
Figure 1.

*Residential treatment map*

Note. This figure was adapted from Baker & Dale (2003) and Dale and colleagues (2007).
**Socio-demographic characteristics.** Residential treatment programs tend to serve youth from different age groups. In one large-scale national study, about 75% of youth in residential treatment were between the ages of 13 and 17 (Warner & Pottick, 2003; Zelechoski, 2013). Other researchers, comparing residential youth to foster care and family-style group care, determined that residentially placed youth tended to be significantly older, ranging from ages 10 to 14 years (Zelechoski et al., 2013). Huefher and Vollmer (2014) compared preadolescents (12 years and younger) to adolescents (13 years and older) from a sample of 693 youth admitted to a psychiatric residential treatment facility between January 2005 and December 2010. Of the sample, preadolescents made up about 30%, indicating that adolescents tend to be more represented in residential treatment.

Similarly, based on the type of treatment offered to residents, the vast majority of children and adolescents in residential treatment programs were boys ranging from 59 to 72% (Leloux-Opmeer et al., 2016; Lyons & Schaefer, 2000; Hurley & Sisson, 2007; Zelechoski et al., 2013). Still, there are researchers who proposed that were no significant differences between males and females in the residential setting (James et al., 2012). Huefher and Vollmer (2014) indicated that males tend to be preadolescents, have legal problems, have significantly fewer internalizing problems, and have suicidal behaviors. Moreover, female adolescents in residential treatment were more likely to self-harm, experience maltreatment, have sexual problems, and had more psychiatric services. It must be noted that there are very limited studies that focus on transgender youth in the resident treatment perhaps due to clear documentation of youth’s status. In one study, transgendered youth were combined within the foster care, group home, residential treatment, and other out-of-home treatment facilities; they defined this as unstable living conditions (Baams, Wilson, & Russell, 2019). The researchers determined that of a sample (n =
895,218) of students who completed the California Healthy Kids Survey from 2015 to 2018, about five percent of them identified as transgender in the residential treatment, group homes, and temporary out-of-home facilities.

The ethnic backgrounds of youth in residential treatment vary. Although not many studies specifically focus on the prevalence of persons belonging to diverse ethnic or racial backgrounds, the percentages of persons from diverse backgrounds are mentioned. Data from the National Mental Health Services Survey in 2018 revealed that 41% of children and adolescents identified as Caucasian or White, 19% as African American or Black, five percent as two or more races, and two percent as Native American or Alaska Native, and one percent as Asian (SAMSHA, 2018). One study examining the characteristics of children and adolescents from a residential mental health treatment facility in Florida from 2005 through 2011 consisted of 57.3% of youth from European ancestry, 28.7% were from African ancestry, 8.7% identified as Hispanic, and 5.3% identified as other ethnic or racial groups (Morea & Robst, 2013). Other studies support the presence of higher numbers of youth who identified as Caucasian in comparison to other ethnic groups in residential treatment (Connor et al., 2004; Sunseri, 2001). Moreover, depending on the type of residential treatment program, there appear to be some differences. For instance, residential programs that primarily billed Medicaid consisted of a similar sample number of youths of African descent and of Caucasian descent (Lyons & Schaefer, 2000).

The number of placements youths experience prior to intake at residential treatments is an important characteristic for understanding the extent of the youths’ behavior (Leloux-Opmeer et al., 2016). Youth in residential treatment were found to have a mean of about 4.3 to 6.6 prior placements. This mean was significantly higher when these youth are compared to youth in
foster care and in family-style group care (Lelous-Opmeer et al., 2016). Another study mentioned a lower mean number of 3.9 prior placements (Hooper et al., 2000). Similarly, Huefher and Vollmer (2014) found that preadolescents were more likely to be a mental health referral, younger at the time of first out-of-home placement, and have an average of 3.3 prior placements. On the other hand, adolescents were more likely to be a juvenile justice referral and have a higher average of prior placements by 4.7.

Similar to the number of prior placements, previous hospitalizations offer insights into youths’ intensity of behavior (Dale et al., 2007). In 2000, 39% of children and adolescents ($n = 236$) across 16 RTCs in New York State presented with a history of psychiatric hospitalization. In addition, more than half of the population used psychotropic medication (Dale et al., 2000).

**Social-emotional and behavioral characteristics.** Nationally, the prevalence of children and adolescents identified with serious emotional disturbance ranges from 4-17% (Williams et al., 2018). Entry into residential treatment programs is based on the presence of severe behavioral and/or emotional problems (Gutterwijk et al., 2020). According to the National Mental Health Survey (2018), about 81% of residential treatment programs provide services for children with serious emotional disturbance. Serious emotional disturbance is defined by the presence of a mental, behavioral, or emotional disorder during the past year that meets the diagnostic criteria found within the Diagnostic and Statistical Manual of Mental Disorders that results in functional impairment in the family, school, or community (SAMSHA, 2014). These disorders may include externalizing behaviors such as disruptive, impulse-control, and conduct disorders and attention-deficit-hyperactivity-disorder, and internalizing behaviors including trauma and stressor-related disorders, anxiety disorders, depressive disorders, and other psychotic disorders (SAMSHA, 2014).
**Externalizing behaviors.** The presence of various externalizing problems among youth in residential treatment is high. In a large national study \( n = 9,924 \), Briggs and colleagues (2012) found that youth in residential treatment were more likely to have behavioral problems, attachment problems, runaway behaviors, substance-use problems, suicidal ideation, self-injurious behavior, and involvement in criminal activity than youth who were placed in other treatment programs. Likewise, children and adolescents with emotional and behavioral problems are more likely to experience placement instability (Aarons et al., 2010). Based on attachment theories, this, in turn, leads to even more behavior problems especially as they require stability to develop meaningful relationships (Aarons et al., 2010; Gauthier, et al., 2004). Disruptive behavior problems may reflect difficulties with behavioral and emotional self-regulation (Weis et al., 2005). For instance, a study compared the clinical characteristics of youth classified as violent or non-violent across 15 residential treatment programs. Youth with violent traits received the highest scores on the Childhood Severity of Psychiatric Illness (CSPI) and the lowest scores on the Child and Adolescents Strengths Assessment (CASA), indicating that youth identified as violent demonstrated more mental health issues and fewer strengths than youth identified as non-violent.

Another common behavior in the residential treatment of children and adolescents is running away, absent without official leave (AWOL), or elopement (Biehal & Wade, 2000; Eisengart et al., 2007). Running away from care is a significant problem and maybe a learned style of coping with difficult or distressing circumstances (Kashubeck et al., 1994). Specifically, about 33% of youth ages 12 and older run away and are terminated from residential care due to this (Sunseri, 2003). One study of 2,114 treatment episodes for children and adolescents \( n = 1,927 \) who were discharged from residential treatment in the state of Illinois revealed that older
youth and girls were more likely to run away from residential programs than younger youth and boys (Eisengart et al., 2007: Ellis, 1997). Additionally, running away was strongly related to youth with a history of trauma and substance-related problems, often due to motivations to gain access to the substance of choice (Eisengart et al., 2007). Youth who elope from residential treatment also tend to have more socio-legal problems, security or management needs, are more dangerous to themselves and others as well as have greater problems with functioning in the home and school setting (Eisengart et al., 2007). In another study, researchers compared individuals \( n=101 \) who run (runners) and individuals \( n=83 \) who did not run (non-runners). The findings revealed that runners compared to non-runners were more likely to be victims of sexual abuse, have been in an inpatient program prior to admission, diagnosed with a mood or personality disorder, and have prior elopements as well as they were less likely to have lived in a two-parent household prior to admission, to have their father’s rights relinquished, to have a home in a rural area, and have confirmed history of legal offenses (Kashubeck et al., 1994).

Likewise, the staff is also likely to encounter residents with poor impulse control, inappropriate sexual behavior, and persistent and continual offending (Frensch & Cameron, 2002). In many research studies, the rates of disruptive behavior disorders such as Attention-Deficit-Hyperactivity-Disorder (ADHD) far exceed the population prevalence rates in the community (Casey et al., 2008; Connor et al., 2004). For instance, while the population prevalence rates for ADHD are 3-12%, research samples disclosed rates of 25-49% for ADHD in residential treatment (Casey et al., 2008; Connor et al., 2004). In 2008, a study compared children \( n = 125 \) with ADHD and children \( n = 413 \) without an ADHD diagnosis in residential treatment. The researchers found that children with ADHD presented with significantly more risks in the areas of social problems, thought problems, attention problems, rule-breaking,
aggressive behaviors, externalizing behaviors, and total problems based on social-emotional scales. Children with ADHD were also less likely to remain in long-term residential treatment and were more likely to be reunited with their families (Casey et al., 2008).

Self-harm behaviors are also observed in the residential setting by youth (Charles & Matheson, 2007; Stewart et al., 2014). Most studies focus on deliberate self-harm which refers to self-harm behaviors with and without suicidal intent that have non-fatal outcomes (Muehlenkamp et al., 2012; Stewart et al., 2014). The prevalence of deliberate self-harm behaviors varies across studies. While some studies found prevalence rates of 36% (den Dunnen et al., 2013; Preyde et al., 2012), other studies found lower prevalence rates of approximately 12% that is lower than the 15% prevalence rate in the population (Handwerk et al., 2006). In the province of Ontario, Canada, children \( n = 759 \) who participated in intensive residential treatment programs for mental health and behavioral needs engaged in structured interviews. In the sample, about 35.3% of children engaged in deliberate self-harm (Stewart et al., 2013). In another study, Gallant and colleagues (2014) found that about 12% in a sample of youth \( n = 753 \) admitted in a residential treatment facility between 2005 and 2010 engaged in nonsuicidal self-injury. Boys and girls with elevated levels of aggression and a history of self-harm were more at risk of engaging in nonsuicidal self-injurious behaviors (Gallant et al., 2014).

**Internalizing Behaviors.** Similar to externalizing, there is a high prevalence of internalizing behaviors in youth in residential treatment. The prevalence rate for anxiety and depressive disorders in children and adolescents is higher in residential treatment than the rates nationally. Nationally, 2017 statistics revealed that about 7.1% of children aged 3 to 17 years have a diagnosis of anxiety while about 3.2% of children have been diagnosed with depression (Center for Disease Control and Prevention, 2020). Nevertheless, one study conducted in
Norway with adolescents (n = 400) ages 12 to 20 in residential youth care revealed a prevalence rate of 37% of residents suffering from depression and 34% from anxiety (Jozefiak et al., 2015). This is indicative of higher rates of anxiety and depression in residential treatment compared to the national population. Researchers from various studies noticed that anxiety and depression typically showed substantial comorbidity (Jozefiak et al., 2016; Molinari et al., 2019; Stewart & Hirdes, 2015). One study noted that females exhibited more depressive symptoms than males suggesting that depression in females may be more severe than in males in residential treatment (Brown et al., 2011). In residential treatment, youth with anxiety and depression also exhibit comorbidity with substance use (Gil-Rivas et al., 2009). Youth in residential care diagnosed with anxiety and depression were more likely to be female and between the ages of 13 to 16 years old.

Youth in residential treatment are more likely to exhibit suicidal ideation and intentional self-injury (Stewart & Hirdes, 2015). Evans and colleagues (2017) conducted a review study in which they examined data from five articles comparing suicide completion, suicidal attempts, and suicidal ideations of youth in residential care (n=9,321) and youth who were not in residential care (n = 373,674). The researchers discovered that incidents of suicidal attempts were greater in the residential treatment population than in non-treatment populations. Likewise, the prevalence rates for suicidal ideation were 24.7% in residential treatment as compared to non-residential care populations. On the other hand, there were mixed suicidal completion rates across various studies. In some settings, suicide completion rates were lower in residential care than in-home settings. Yet, another study highlighted the high comorbidity of suicide and other internalizing disorders in residential care (Brown et al., 2011). Similarly, a sample of children and adolescents (n = 1,804) admitted to a large family-style residential care facility in the Midwest completed interviews, rating scales, and other clinical evaluations at intake. It was
noted that females diagnosed and not diagnosed with depressive disorder were more likely to score higher on suicide measures than males with and without depressive disorders.

**Trauma Experience.** Studies suggest that the rates of trauma exposure among youth in residential treatment programs can range from 50% to higher than 70% (Harr et al., 2013; Jaycox et al., 2004; Zelechoski et al., 2013). One prior study reported that youths presented with lower percentage rates of trauma but higher rates of impactful events such as rape and death of a parent or caregiver (Bettman et al, 2011). In 2012, when Briggs and colleagues examined trauma exposure of youth in residential care as compared to nonresidential youth, they found that 92% of youth (n = 525) in residential programs experienced multiple trauma events compared to 77% of youth (n =9,942) in non-residential settings. Moreover, the youth who experienced these events tended to present with more behavior problems, academic issues, and attachment problems, running away, substance use problems, self-injury, suicidality, and criminal activity. Hence, youth who reported five or more trauma experiences tended to be more functionally impaired.

The specific types of trauma exposure are noted in the research as well (Zelechoski et al., 2013). Specifically, researchers determined that forms of neglect appeared to carry high prevalence rates ranging from 26 to 69% in youth in residential treatment programs (Hussey & Guo, 2002; Leloux-Opmeer et al., 2016; Zelechoski et al., 2013). Connor and colleagues (2002) discovered that most children in residential treatment either experienced domestic violence, sexual abuse, or physical abuse (Connor et al., 2002). In 2016, Leloux-Opmeer and colleagues revealed that about 15 to 63% of youth in the residential treatment had experienced physical or emotional abuse. Another study showed that almost half of youth in a residential treatment facility reported physical abuse (Connor et al., 2004). Moreover, physical abuse was perpetrated
by a parent or a caregiver. These findings are consistent with reports of sexual abuse as well; almost half of the residents in the treatment program had reported being sexually abused (Leloux-Opmeer et al., 2016). These studies also revealed much about reports of abuse and gender. In one study, girls were almost one and a half times more at risk of being sexually abused than boys (Connor et al., 2002; Connor et al., 2004; Leloux-Opmeer et al., 2016). Moreover, girls also reported more experiences of physical or domestic abuse (Connor et al., 2004).

Regarding trauma symptoms and Post-Traumatic Stress Disorder (PTSD), adolescents \( (n = 212) \) in a substance abuse residential treatment program were examined for PTSD and traumatic stress (Jaycox et al., 2004). Using checklists and rating scales, the researchers determined that, on average, residents reported more than seven stressful life events that occurred in the prior year. Among these stressors included reports of being suspended or expelled, being arrested by the police, experiencing parental separation or divorce, fighting among family members, death of a person close to them, and experiencing violence. Moreover, about 70% of youth reported that they experienced at least one traumatic event that they either directly experienced, witnessed, or occurred to someone close to them. Furthermore, about 30% of residents met the criteria for PTSD. As it related to gender, boys were more likely to report events related to accidents, being stabbed or shot at, whereas girls were more likely to report being in a natural disaster, being touched sexually without consent, or being sexually attacked. As such, girls were more likely to report having been exposed to trauma and as well as diagnosed with PTSD.

**Family factors.** Specific family factors can play a significant role in residential treatment. Griffith and colleagues (2009) examined the characteristics of families at in-take of
youth \((n=566)\) who entered the Boys Town Home Campus during 2004 and 2005. Although the data on families were collected via unstandardized methods, the researchers examined youth variables related to family, family risk, and parenting. They found that over half of youth had their parents or family member as a guardian while about 35\% were wards of the state. Moreover, more than half of families had substance use issues. Other significant family risks included the use of inappropriate discipline (either too lenient or too harsh), parental abandonment, and parental neglect (Griffith et al., 2009). Still, parents in the sample recognized they needed to change their knowledge about discipline, their consistent use of discipline, and control their emotions during parenting (Griffith et al., 2009). Meanwhile, in 2012, Robst and colleagues found that there was a higher frequency of maternal family contact with youth in residential treatment in comparison with paternal contact. Moreover, younger male youths who were in treatment for longer periods seemed more likely to have more contact with their families than other youths (Robst et al., 2012). Research also indicates that most youth who enter residential treatment programs resided in a single-parent home (Frensch et al., 2002; Lewis, 1986), and a quarter lived with their biological parents and step-parents (Frensch et al., 2002; Lewis, 1986). In addition, the number of children and adolescents in residential treatment came from families who were divorced that ranged from 32\% to 75\% (Frensch et al., 2002; Quinn & Epstein, 1998; Wells et al., 1991; Whittaker et al., 1993). The findings of one qualitative study on families of children with serious emotional disorders in residential treatment revealed that most youths exhibit gains during and after treatment, stronger relationships with staff improved these outcomes, and overall the treatment was valuable even for youth whose behaviors remained similar prior to entrance (Tahhan et al., 2010). Another study, quantitative, showed that greater contact with paternal and maternal close relatives were associated with greater progress.
in behaviors (Robst et al., 2013). In addition, these improvements did not matter whether the contact was in-person or via phone call. As such, these research studies pinpoint the influence of family on youth progress during residential treatment.

**Cognitive functioning.** Generally, intelligence quotient (IQ) scores, used by researchers to represent the participants’ cognitive functioning, tend to range from low average to average in youth in residential treatment programs (Bettman et al., 2011; Connor et al., 2004; Hussey & Guo, 2002). More recently, at one residential treatment program, a sample of children and adolescents (n = 142) presented with a mean overall score of 82.5 indicating that the youth presented with a mean that was low average as compared to typically developing aged-peers. Likewise, Connor and colleagues (2004) also found that the general IQ scores for children and adolescents (n = 397) in residential treatment were also within the low average range. On the other hand, researchers in another study examined the psychological evaluations of a total of children and adolescents (n = 433) at a wilderness residential treatment program (Bettmann et al., 2011). Their study revealed that the residents generally presented with slightly higher than average IQ scores (M=90), which were higher than expected (Bettmann et al., 2011). Studies also show that cognitive functioning is related to differences in other areas of functioning (Hooper et al., 2000; Hussey & Guo, 2002). For instance, Hussey and Guo (2002) determined that children with higher IQ scores exhibited fewer disturbing behaviors in the residential setting. In fact, just a unit increase in IQ score decreased behavior rating scale scores by 0.14. Another study also showed that youth with higher IQ scores, especially verbal IQ exhibited fewer high-risk behaviors (Hooper et al., 2000).

**Academic functioning.** Similar to cognitive functioning, understanding the academic presentation of youth in residential treatment is necessary. Trout and colleagues (2008)
conducted a review of studies regarding academic functioning in youth in residential treatment. Of the sample \((n=13,401)\) who were studied, those in the residential treatment had elevated levels of involvement in special education at a rate that was nearly three times as high as the general school population. In addition, the findings overall suggested that youth in residential treatment performed in the low-to-low average ranges on academic achievement measures.

Youth in residential treatment also exhibited higher school functioning risks than the population including reporting up to 10 placements in elementary school alone, grade retention rates of 35 to 57\%, suspension rates of up to 65\%, dropout rates of up to 40\% (Trout et al., 2008). As it pertains to youth in residential treatment compared to youth receiving in-home family services, there were some vast differences in academic functioning (Frensch et al., 2009). For instance, researchers found that although more youth in residential treatment went to school full-time, they had more impairment in school roles and problems with attendance, grades, and relationships with teachers (Frensch et al., 2009). Moreover, youth in residential treatment also present with differences in performance in specific academic areas. For instance, Hooper and colleagues (2000) discovered that not only did these youths exhibit mean normative scores that were in the below average range, but 27\% of the sample \((n=364)\) had a learning disability.

Regarding reading, children overall showed normative scores \((M=80.75)\) that were below average as compared to other peers their age (Hooper et al., 2000). At a wilderness residential treatment program of the youth \((n=364)\) in residential, 27\% had a learning disability. Another study showed that youth in residential treatment presented with low basic skills such as math calculation, reading fluency, and comprehension such that their effect scores were more than two-thirds of a standard deviation below the mean (Trout et al., 2008). In 2011, Trout and colleagues also assessed the language functioning of youth in residential treatment. In this
sample \((n=70)\), the mean core language score ranged from mild to borderline impairments while the greatest area of concern was with receptive language. Up to 45% demonstrated scores in the severe range indicating that, while youth may have been able to successfully articulate their needs or thoughts, their poor receptive skills may limit their ability to carry out basic instructions, make them prone to become overwhelmed or confused, struggle with figurative language, and require clearer explanations or repetitions (Trout et al., 2011).

**Section summary**

Residential treatment has a vast history extending from providing social services to youth to adding psychiatric and psychological services to target youths’ concerns. Each type of program aims to provide specific services that are appropriate for the presenting characteristics of the youths. Studies show that youths in residential treatment present with socio-demographic, social-emotional and behavioral, trauma experience, family, and cognitive functioning characteristics that differ from the general population. Overall, as the residential treatment programs continue to develop, data regarding characteristics continue to impact outcomes and relevance of these programs.

**Treatment offered at residential treatment programs**

There are a variety of treatments offered across different residential treatment programs. As residential treatment programs serve youth with more severe concerns, the treatment they receive must target those areas of concern (James et al., 2015). The use of evidence-based treatment and providing the appropriate level of service delivery is necessary to increase treatment outcomes.

**Evidence-based treatments.** There has been some increased focus on integrating evidence-based practices into residential treatment programs. In fact, James and colleagues
(2015) found that over 88% of programs they surveyed exhibited positive attitudes towards using evidence-based practices and using at least one practice that they considered evidence-based. Furthermore, clinical decision-making relies on evidence obtained from research. Across various residential treatment programs, there are primarily two identified types of interventions used. The first intervention is evidence-based client- or diagnostic-specific interventions. These interventions focus on specific diagnoses or presenting problems such as anxiety or depression. Popularly used client interventions used in residential treatment are Cognitive Behavioral Therapy (CBT) and Dialectical Behavioral Therapy (DBT). Although these interventions have not been developed for residential treatment programs, they integrate well into those settings especially as they require limited organizational restructuring and effect on treatment orientation. As such they are frequently used in residential treatment programs (James et al., 2019). James and colleagues (2019) determined that programs implemented the evidence-based practices in residential care agencies \( n=66 \) that targeted specific client populations such as problems with trauma and emotional disorders.

The second intervention practice, milieu-based, has been used more frequently in residential treatment programs (James et al., 2015; James et al, 2019). These are typically agency-wide interventions that were developed specifically for or in residential care and are comprehensive in nature, impacting most aspects of the program. As such, any introduction of a new program model would require marked systemic and organizational change. Although many of these interventions are mentioned in the literature, Positive Peer Culture (Vorrath & Brendtro, 1985), CARE model (Holden et al., 2010), the Sanctuary model (Esaki et al., 2013), and Boys Town Family Home Program (Thompson & Daly, 2015), sufficient evidence has not been provided to indicate the effectiveness of these programs.
Along with these intervention practices, other supports are offered to youth to aid in transition to the home and community setting. Historically, residential treatment programs have been critiqued due to their distance from the youths’ families and their natural communities (James, 2019). As such, programs that link children and families with individualized services and supports are ideal (Brown et al., 2016). The wraparound service, for instance, is a framework that aims to improve family and child functioning by identifying individual strengths, then encouraging educational and life goals (Brown et al., 2016; Fries et al., 2012; Sutter & Brown, 2009). Within the framework, the team consisting of the wraparound facilitator, family, and agency support (e.g. caseworkers, teachers, peer advocates, family peer advocates) assists in developing and supporting short-and long-term goals that persist after discharge from the program (Fries et al., 2012).

**Treatment intensity.** There are limited studies that focus on treatment intensity within the residential setting. Yet, it is known that youths’ entry into programs is based on the level of care that the program can offer to appropriately target the youths’ concerns and promote positive outcomes (Ringle et al., 2013). Determining treatment intensity is particularly important as inappropriately weak treatment may result in youth behavior that is more resistant to change and a reduction in youth motivation to participate in the change process (Barnett et al., 2004). On the other hand, overly strong treatment can incur necessary costs to the program and lower youth acceptability of the treatment. (Barnett et al., 2004; Codding & Lane, 2014). Hence, appropriate treatment intensity reflects the quality and quantity of the intervention service delivered (Gresham, 1991). While there are several ways to determine intensity, the dosage of the treatment is commonly used and expressed as the length (i.e., total duration of treatment in weeks) and frequency (i.e., number of sessions delivered per day/week/month) of treatment.
delivered (Warren et al., 2007). More specific to residential treatment where youth require the most intensive service delivery, using treatment complexity (i.e., number and types of treatment components) may be appropriate for determining treatment intensity (Vaugh et al., 2010).

**Section summary**

Evidence-based client-or diagnostic-specific interventions and milieu-based interventions are the primary types of evidence-based practices used in residential treatment programs. Examination of these typical approaches has yielded small to moderate effects on youth outcomes. As residential treatment programs typically serve youth on a temporary basis, community-based alternatives have become popularized in the literature as ideal standards of support. Moreover, identifying the intensity of treatment is imperative to ensure that appropriate treatment is targeting youth-specific characteristics at residential treatment programs.

**Program evaluation**

Program evaluation may be defined as a set of resources and activities targeted towards addressing one or more common goals (Newcomer et al., 2015). As such, it aims to address questions about program operations and outcomes (Newcomer et al., 2015). Evaluators may utilize formal methodologies to provide useful empirical evidence about public entities and involve multiple stakeholders (Mertens & Wilson, 2019). Moreover, evaluators engage in inquiry processes for collecting and synthesizing data regarding the value, merit, worth, significance, or quality of a program (Fournier, 2005). The Joint Committee (2010) defined evaluation as a ‘systematic assessment of worth or merit of an object’ (Yarbrough, 2010). The merit of a program is a measure of the quality and intrinsic value of that program. On the other hand, the worth of a program combines excellence and service within a given context and has an extrinsic value (Stufflebeam & Coryn, 2014). To determine the value of a program, evaluators may focus
on the effectiveness, efficiency, usability, cost, safety, and legality of a program (Stufflebeam & Coryn, 2014).

**Standards for evaluating programs**

The Joint Committee on *Standards* consisting of the American Educational Research Association (AERA), the American Psychological Association (APA), and National Council on Measurement in Education (NCME) provided a comprehensive framework for examining the quality of an evaluation (Mertens & Wilson, 2018; Newcomer et al., 2015). The framework highlights five main attributes of an evaluation including (a) Utility standards determine the extent to which the evaluation is useful and valuable, (b) Feasibility standards ensure that project management techniques are conducted appropriately and resources are used properly, (c) Accuracy standards provides information pertaining to an evaluation’s dependability, preciseness, truthfulness, and trustworthiness, (d) Propriety standards determine the extent which the evaluation is humane, ethical, moral, proper, legal, and professional, and (e) Evaluation accountability or meta-evaluation examines the degree to which the quality and the controlled assurance (Mertens & Wilson, 2018; Spaulding, 2013).

**Distinguishing between research and evaluation**

Research and program evaluation are interconnected and they both are types of inquiry processes. As evaluation also requires investigation of what is, research is also necessary for doing an evaluation (Mathison, 2008). Nevertheless, to properly understand program evaluation, there must be an understanding of the differences between the two inquiry processes (Mathison 2008).

Most often, the specific purposes of evaluation and research distinguish them (Mathison, 2008). While research attempts to generalize data collected to other settings and populations,
evaluation is individualized to the program for which data are collected which may also be able to be generalized (Mathison, 2008). Moreover, research typically attempts to prove a theory and provide the foundation for drawing conclusions, while the goal of an evaluation is to improve something and contribute to the basis for decision-making. Moreover, the purpose of program evaluation differs from that of research such that program evaluation intends to yield useful information such as quality, value, or worth of a program, while research seeks to develop an understanding of a phenomenon or add new information available on the topic (Mathison, 2008; Mertens & Wilson, 2018). Program evaluation is also unique such that it involves organizational and potentially political structures. Finally, a program evaluation uses utility, feasibility, propriety, and accuracy to determine adequacy or effectiveness. Research, on the other hand, uses internal validity and external validity to determine adequacy standards (Mertens & Wilson, 2018). See table 1 for distinction between research and program evaluation.

**Roles of evaluators**

Evaluators may have multiple roles depending on the stage of the evaluation and the demands of the situation (Martens & Wilson, 2019; Skolits et al., 2009). The primary goals of the evaluators are to manage the complex process of planning an evaluation, conducting it, and bringing it to a conclusion. During the planning phase, evaluators may act as detectives (e.g., investigate the context and need assessments), designers (i.e., plan feasible design), and negotiators (i.e., agree on a contract related to time, money, and other relevant factors). During the implementation phase, evaluators may be a diplomat (i.e., build trust and rapport with stakeholders), researcher (i.e., use valid and reliable measures to collect and analyze data), judge (i.e., make data-driven decisions for program improvement), and reporter (i.e., report finding to stakeholders). Finally, during the post-evaluation phase, evaluators may present as advocates and
**Table 1.**

*A table showing the distinction between research and program evaluation*

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Program Evaluation</th>
<th>Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose</td>
<td>To yield useful information such as the quality, value, or worth of a program</td>
<td>To develop an understanding of a phenomenon or add new information to available knowledge on the topic</td>
</tr>
<tr>
<td>Generalizability</td>
<td>Initiated to make a decision for a specific purpose; limited generalizability</td>
<td>Generalize findings of relationships among variables to different settings</td>
</tr>
<tr>
<td>Goal</td>
<td>To use the information to modify the program being studied</td>
<td>To establish causality or answer experimental or quasi-experimental questions</td>
</tr>
<tr>
<td>Adequacy Standards</td>
<td>▪ Utility (informative, timely, useful) ▪ Feasibility (realistic, cost-effective, conducted diplomatically) ▪ Propriety (legal, ethical) ▪ Accuracy (production of valid, relevant, and comprehensive info)</td>
<td>▪ Internal validity (to establish causality) ▪ External validity (Generalizability)</td>
</tr>
</tbody>
</table>

*Note: This table was adapted from Mertens & Wilson (2018) and Matheson (2008)*
learners for the use of evaluation results for identifying areas for improvement in the evaluation (Martens & Wilson, 2019). In that case, evaluators are able to utilize the language and tools of a research scientist while being sensitive to the service delivery staff’s needs (Linfield & Posovas, 2018). This presents both pros and cons. On one side, evaluators have the opportunity to help select and observe research methods used in ways that can benefit people, however, it may be difficult to ask challenging questions if direct staff views the process as intrusive and unnecessary (Linfield & Posavac, 2018).

**Types of data collected**

Program evaluators typically collect two primary types of data, formative and summative (Spaulding, 2013). A summative evaluation is done at the conclusion or completion of a program (Mertens & Wilson, 2018). Evaluators collect summative data to obtain a measure of outcomes and relate those outcomes to the judgment of the program and the program’s achievement (Newcomer et al., 2015; Spaulding, 2013). Summative data can be quantitative in nature such as tests, surveys, goal attainment scaling, and analysis of secondary data sources, and qualitative such as interviews, observations, and focus groups (Mertens & Wilson, 2018). On the other hand, a formative evaluation is conducted during the development or implementation of the program (Mertens & Wilson, 2013). As such, evaluators collect formative data to report back to the staff as the program takes place. The primary purpose of formative feedback is to provide data regarding issues related to the program (Newcomer et al., 2015; Spaulding, 2013). Like research, evaluators also collect quantitative and qualitative data for decision-making (Spaulding, 2013).

**Evaluation approaches and models**
Stufflebeam (2004) mentioned four categories of program evaluations which were classified as pseudo-evaluations, social agenda/advocacy, quasi-evaluations or questions and/or methods-oriented, and improvement/accountability (Stufflebeam, 2002). In 2014, Stufflebeam and Coryn added a fifth category of approaches called eclectic approaches. Meanwhile, Martens and Wilson (2019) conceptualized these approaches as branches consisting of (a) Methods which mainly use quantitative designs and data, (b) Focus on data useful for stakeholders, (c) Values primarily focus on identifying different values and positions, and (d) Social Justice typically focus on perspectives of underrepresented groups and systemic power structures. Nonetheless, researchers agree that besides pseudo-evaluations, all of the approaches may provide valid and thorough results.

Particularly, Quasi-evaluations or Questions-and Methods-Oriented evaluations focus on specific questions and often employ a wide range of methods. Quasi-evaluation studies provide evidence that fully assesses a program’s merit and worth, while investigating important and narrow questions (Stufflebeam, 2002; Stufflebeam & Coryn, 2014). They tend to begin with a set of narrowly defined questions typically derived from a program’s behavioral or operational objectives. Approaches such as decision-based evaluations are guided by questions that are typically asked of the program developers and directors (Spaulding, 2014). They may include evaluations that focus on questions regarding the context, input, process, and product.

**CIPP model.** For the purpose of this study, the CIPP evaluation model aligned well with the purpose of this evaluation. This approach supplies program coordinators with information regarding the program context, input, processes, and products (Stufflebeam & Coryn, 2014; Spaulding, 2014). The model particularly becomes helpful in identifying ways in which decision-makers may define goals and ensure that the goals are targeted to address needs and problems.
(Stufflebeam & Coryn, 2014). The acronym CIPP represents four steps or phases, context, input, process, product, that guide the evaluation. The first step is the Context that focuses on examining the context or situation in which the program takes place. The second step is the Input step that focuses on identifying and assessing the program’s abilities and any alternative program strategies and assesses the strategy’s design, resources, and plans. Process evaluation is the third step that involves identifying issues related to the procedural design or its implementation. Finally, the Product evaluation aims to identify any planned and unplanned outcomes and link them to goals and assessed needs. See Table 2 for description of CIPP and the types.

**Improvement science.** Similar to program evaluation, improvement science focuses on steps an organization might take to make changes. Yet, a theory of improvement recognizes that all change may not necessarily lead to improvement, but identifies the most suitable changes and actions that should be taken to go along with these changes (Crow et al., 2019). Improvement science emerged from the business and healthcare fields where needs were related to organizational improvement (Crow et al., 2019). Recently, there has been more focus on it in the area of education. Improvement science may be defined as a methodological framework that aims to identify and define problems, carry out changes, and examine the outcomes of these changes (Crow et al., 2019; Langley et al., 2009). Langley and colleagues (2009) described a model for improvement, which follows five fundamental principles. These principles suggest that programs (a) need to know why improvement is required, (b) should have a feedback mechanism indicating that improvement is occurring, (c) develop an effective change resulting in improvement, (d) test a change before trying to implement, and (e) understand when and how to make the change more long-lasting (Langley et al., 2009; Lewis, 2015).
### Table 2.

**Types of CIPP evaluations and their goals, approaches, and application**

<table>
<thead>
<tr>
<th>Context</th>
<th>Input</th>
<th>Process</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Goals</strong></td>
<td>Identify the target population and assess needs, opportunities to address needs, detect underlying issues, and determine whether goals match appropriately to assessed needs.</td>
<td>Identify program capabilities and alternative strategies and assess strategy’s methods, budget, staffing, and stakeholder involvement plans</td>
<td>Predict defects in the method or its implementation, provide information for pre-implementation decisions, validate activities that are working well and look at procedural events and activities</td>
</tr>
<tr>
<td><strong>Approaches</strong></td>
<td>System analysis, surveys, document review, secondary analysis, hearing, interviews, focus groups, diagnostic tests, case studies, site visits, epidemiological studies, and the Delphi technique</td>
<td>Document analysis, interviews, literature review, model program visits, advocate team studies, checklists, pilot tests, and content analysis</td>
<td>Data on program procedural barriers, data to make implementation decisions, actual processes and costs, and staff and stakeholder reports</td>
</tr>
<tr>
<td><strong>Application</strong></td>
<td>To decide the goals targeting the needs, the priorities for budgeting time and resources, and goals for decision-making and outcomes judgments.</td>
<td>To select sources of support, design methods, solution strategies, and decide on criteria for deciding on implementing</td>
<td>To implement and refine program design and procedure, and supply a log of costs and process.</td>
</tr>
<tr>
<td><strong>Possible Questions</strong></td>
<td>What are the needs of the program? What are the underlying elements of the program? What is not working for the program</td>
<td>Does the amount of resources sufficiently match the program’s proposed activities? Will resources logically address the problems? Are staff members adequately trained?</td>
<td>Is the program implemented as planned?</td>
</tr>
</tbody>
</table>

*Note: Table adapted from Stufflebeam & Corryn (2014) and Spaulding (2014)*
A popular improvement science framework used in the education setting is the plan-do-study-act (PDSA) cycle that is a process for rapid cycles of learning from practice. It establishes a way to learn how changes work on a smaller scale that can then be applied on a larger scale (Langley et al., 2009; Lewis, 2015). The process specifically involves identification of causes and possible identification during the Plan stage, the organization implements the intervention during the Do stage, the organization studies both the quantitative and qualitative data collected during the Study stage, and the organization implements or makes changes during the Act stage (Crow et al., 2019). See Figure 2 for an outline of the Plan-Do-Study-Act method.

This framework was utilized to take a systematic approach to making recommendations for improving this study.

**Chapter summary**

Residential treatment programs provide 24-hour out-of-home supports for children and adolescents who typically exhibit unsafe behaviors either to themselves or others even after undergoing the least restrictive services. While residential treatment has a role to play in promoting positive outcomes, youth who enter these programs may present with characteristics affecting their socialization, adaptability, behaviors, and education outcomes that further complicate the integrity of services in place. Youths in residential treatment may present with socio-demographic, social-emotional and behavioral, trauma experience, family, and cognitive functioning characteristics that differ from the general population. As such, evidence-based practices that emphasize appropriate service delivery, individualized strategies, and community-based treatment may contribute to smoother transitions to the home and community settings after discharge. To further investigate this, program evaluation becomes necessary for collecting data.
Figure 2.

Plan-Do-Study-Act Framework

**Plan**
- Questions and predictions
- Plan to carry out the cycle (who, what, where, when)
- Plan for data collection

**Do**
- Carry out the plan
- Document problems and unanticipated observations
- Begin to analyse data

**Act**
- What changes or improvements are to be made?
- Should the evaluator proceed to the next cycle?

**Study**
- Complete the analysis of the data
- Compare data to predictions
- Summarize what was learned

*Note: Figure 3 is based on a compilation of information from Langley et al., 2009, Crow et al., 2014, and National Implementation Research Network (2022)*
Chapter summary

Residential treatment programs provide 24-hour out-of-home supports for children and adolescents who typically exhibit unsafe behaviors either to themselves or others even after undergoing the least restrictive services. While residential treatment has a role to play in promoting positive outcomes, youth who enter these programs may present with characteristics affecting their socialization, adaptability, behaviors, and education outcomes that further complicate the integrity of services in place. Youths in residential treatment may present with socio-demographic, social-emotional and behavioral, trauma experience, family, and cognitive functioning characteristics that differ from the general population. As such, evidence-based practices that emphasize appropriate service delivery, individualized strategies, and community-based treatment may contribute to smoother transitions to the home and community settings after discharge. To further investigate this, program evaluation becomes necessary for collecting data specific to that program, identifying strengths and areas of need, and implementing appropriate ways to address the issue. Using the context, input, processes, product (CIPP) evaluation supplies specific information to the program coordinators regarding the needs and modifications to be made to the program (Stufflebeam & Coryn, 2014). Some of these decisions are based on identifying changes, highlighting the action steps, and implementing these changes in a more systematic way. Therefore, improvement science may play an integral role in contributing to data-driven recommendations to implement changes specific to the program.

Program evaluation questions

This evaluation examined the characteristics of youth in two residential treatment programs to identify similarities and differences among programs to facilitate program-wide decision making. The questions that guided this evaluation included:
• Are there differences in adolescents’ demographic characteristics, trauma experiences, social-emotional, cognitive, and family functioning: (a) between groups (facility versus center), and (b) within group (based on homogeneity of variance; within facility; within center)?
• Are there differences in treatment dosage between the groups (facility versus center)?
Chapter 3: Methodology

Overview

This chapter presents the methods and procedures that may address the program evaluation questions. Moreover, the instruments used to collect the data are described and explained in detail.

Orientation to the programs

The focus of this section is to provide a general understanding of the residential treatment programs for the organization. Discussing the differences between the residential treatment facility and residential treatment center is pertinent for the program evaluation that was conducted. Described in Table 3 are the treatment services provided to youth enrolled both residential programs.

Residential treatment facility

Archival data were gathered from a residential treatment facility (Facility) licensed by the Office of Mental Health (OMH), a state-run department responsible for providing behavioral health services to individuals and families (Office of Mental Health, 2022). The Facility is an intensive residential treatment program serving youth ages 12-18 who have exhibited mental health symptoms with a history of psychiatric interventions and hospitalizations. The Facility has 14 beds and is typically full to capacity. The team is run by a clinical director, psychiatrist, psychologist, residential counselors, recreational counselors, clinicians, peer, and family advocates. Youth are not separated by gender, and they all attend school provided by the organization. Youth can spend up to a maximum in residence of a year in accordance with family or team decisions.
Table 3.

Table showing the treatment and services offered at residential treatment facility and residential treatment center

<table>
<thead>
<tr>
<th>Variable</th>
<th>Residential Treatment Facility (Facility)</th>
<th>Residential Treatment Center (Center)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Youth Characteristics</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Model</td>
<td>No model noted</td>
<td>Attachment Regulation Competency</td>
</tr>
<tr>
<td>Counseling</td>
<td>Individual</td>
<td>Individual counseling services including:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Cognitive Behavioral Therapy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Dialectical Behavioral Therapy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Trauma therapy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• EBT therapy</td>
</tr>
<tr>
<td>Group</td>
<td>Dialectical Behavioral Therapy</td>
<td>Dialectical Behavioral Therapy</td>
</tr>
<tr>
<td>Family</td>
<td>Family therapy including:</td>
<td>• Family visits</td>
</tr>
<tr>
<td></td>
<td>• Attachment Regulation Therapy</td>
<td>• Family therapy</td>
</tr>
<tr>
<td></td>
<td>• Attachment-focused Family</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Dialectical Behavioral Therapy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Family visits and home visits</td>
<td></td>
</tr>
<tr>
<td>Recreation</td>
<td>Recreational therapy</td>
<td>Recreational services</td>
</tr>
<tr>
<td>Post-Discharge</td>
<td>• Wraparound services</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>• Independent job preparation skills</td>
<td></td>
</tr>
<tr>
<td>Psychiatric</td>
<td>Monthly consult with child psychiatrist</td>
<td>Monthly consult with child psychiatrist</td>
</tr>
<tr>
<td>Education*</td>
<td>Special education services</td>
<td>Special education services</td>
</tr>
</tbody>
</table>

Note: *The residential program offers a school housed on the premises to provide individualized educational services.
Residential treatment center

Data were also gathered from records for youth residing at the residential treatment center (Center) primarily licensed by the county’s Office of Child and Family Services (OCFS) which serves children and families with a wide range of services including cash assistance, community-based mental health services, and other services for displaced youth, to name a few. The Center can serve 24 at-risk youth, ages 8 to 21, and provides clinical, milieu, and educational services. Youth are typically referred through the county’s DSS, department of probation, family court, and the school district’s committee on special education (CSE).

Participants

Data were collected from two groups of participants as part of the evaluation: youth from the Center and from the Facility. General demographic information including age, gender, ethnicity, permanency status, etc. was gathered and examined. Exhibited in Table 4 are the demographic characteristics of residents at the agency.

Data collection procedure

On entry to each residential treatment program, all the data were obtained as part of the standard clinical assessment. Data were collected such that the youths’ confidentiality was protected and the procedure was reviewed and approved by the University at Albany Institutional Review Board. Shown in Table 5 is the assessment schedule for each measure.

Measures

The measures that used consisted of standardized tests, rating scales, and surveys to obtain scores for the youths’ cognitive functioning, social-emotional functioning, trauma experience, and family functioning.
### Table 4

**Demographic Characteristics of Youth Participants**

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>FACILITY</th>
<th></th>
<th>CENTER</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10-11</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>20.0</td>
</tr>
<tr>
<td>12-13</td>
<td>4</td>
<td>20.0</td>
<td>5</td>
<td>25.0</td>
</tr>
<tr>
<td>14-15</td>
<td>2</td>
<td>10.0</td>
<td>7</td>
<td>35.0</td>
</tr>
<tr>
<td>16-17</td>
<td>6</td>
<td>50.0</td>
<td>4</td>
<td>20.0</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>2</td>
<td>16.7</td>
<td>6</td>
<td>30.0</td>
</tr>
<tr>
<td>Female</td>
<td>10</td>
<td>83.3</td>
<td>11</td>
<td>55.0</td>
</tr>
<tr>
<td>Transgender</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>15.0</td>
</tr>
<tr>
<td><strong>Race/ ethnic origin</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black or African American</td>
<td>3</td>
<td>12.0</td>
<td>4</td>
<td>20.0</td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>7</td>
<td>58.3</td>
<td>12</td>
<td>60.0</td>
</tr>
<tr>
<td>Caucasian or White</td>
<td>1</td>
<td>8.3</td>
<td>2</td>
<td>10.0</td>
</tr>
<tr>
<td>Multiracial</td>
<td>1</td>
<td>8.3</td>
<td>2</td>
<td>10.0</td>
</tr>
<tr>
<td><strong>Previous out-of-home-placement</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>25.0</td>
</tr>
<tr>
<td>1 – 2</td>
<td>9</td>
<td>75.0</td>
<td>15</td>
<td>60.7</td>
</tr>
<tr>
<td>3 – 4</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>15.0</td>
</tr>
<tr>
<td><strong>Number of diagnoses</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>25.0</td>
</tr>
<tr>
<td>1 - 2</td>
<td>8</td>
<td>88.7</td>
<td>7</td>
<td>35.0</td>
</tr>
<tr>
<td>3 - 4</td>
<td>4</td>
<td>33.3</td>
<td>8</td>
<td>40.0</td>
</tr>
<tr>
<td>Assessment Tools</td>
<td>Upon Intake</td>
<td>Upon Discharge</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------</td>
<td>-------------</td>
<td>----------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WISC-V</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WASI-II</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UCLA Trauma Scale</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alabama Parenting</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Questionnaire (APQ)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASEBA YSR</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Social-emotional functioning

Data on youth’s social-emotional functioning were collected using the Achenbach System of Empirically-Based Assessment (ASEBA; Achenbach, 1966). Specifically, the youth completed the Youth Self Report (YSR) rating scale for ages 11 to 18 to identify competencies and problems they observed or experienced within the last 6 months. The YSR consists of 112 items with 3-choice response pattern (0 –not true, 1-somewhat or sometimes true, 2-very true or often true). Generally, the scale’s internal consistency for total problems ranges (α = .80 - .88) has been identified as acceptable for a screening measure (Achenbach & Rescorla, 2001). The score classifications include: (a) average: less than 65, (b) borderline: 65-69, and (c) clinically significant: 70 and more.

Trauma Experience

During the course of treatment, the youth’s history was recorded and they completed the University of California, Los Angeles Child/Adolescent Post-Traumatic Stress Disorder Reaction Index, Fifth Edition (PTSD-RI-5). The instrument is used to identify symptoms associated with post-traumatic stress disorder (PTSD) in accordance with the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) guidelines for children and adolescents ages 7 to 17 years. The instrument is two-fold, the first part is an interview, and the second, a rating scale. During the interview portion, participants respond to 23 interview questions, each related to traumatic incidents that the participant has encountered, such as experiencing any serious injuries, assault, bereavement, or witnessed any suicides. The participant then completes a rating scale of 31 items, which determines the presence and non-presence and absence of PTSD and/or dissociative symptoms. Moreover, the instrument offers
data regarding intrusive thoughts, avoidance behaviors, negative cognitions or mood, and arousal or reactivity to the experiences. The alpha for the full scale is .79 (Wherry & Herrington, 2018).

**Cognitive skills**

Estimates of the youths’ cognitive skills were obtained mostly at intake and also when upon request by parent or other agencies. Scores were obtained from the Wechsler Intelligence Scale for Children, Fifth Edition (Wechsler, 2014). This comprehensive instrument measures verbal comprehension, visual-spatial, perceptual reasoning, working memory, and processing speed. The composite scores from these domains provide a representation of youths’ different cognitive skills. In the standardized normative sample, the full-scale IQ had reliability ($r = .97$).

Scores from the Wechsler Abbreviated Scale of Intelligence, Second Edition (Wechsler, 2011) were also gathered for youth who did not complete the WISC-V. The instrument is a brief version of the WISC-V and provides an overall intelligence score based on verbal comprehension and perceptual reasoning. In the normative sample, an average reliability coefficient of ($r = .96$) was exhibited in child samples for the full scale (Wechsler, 2011; Irby & Floyd, 2013).

On both scales, individuals completed multiple tasks including tests of word knowledge and using blocks to rebuild a pattern. The scores from each subtest were totaled and scaled based on age norms from normative data.

**Family functioning**

To obtain a better understanding of the function of the family and family factors that influence the youth, data were collected using records and the Alabama Parenting Scale. Using records, data regarding parent presence (e.g., discharge to parent versus discharge to state or county) and family type (e.g. foster parent, biological parent, and single parent, multi-parent)
were obtained. Moreover, youth perceptions of parenting styles were also recorded using the Alabama Parenting Scale (APQ). The APQ measures five dimensions of parenting required for the etiology and treatment of externalizing behaviors (Essau, Sasagawa, & Frick, 2006; Frick, 1991). The five dimensions include positive parenting, involvement, inconsistent discipline, poor monitoring and supervision, and corporal punishment in which youth respond on a 5-item Likert scale. A total score for each dimension is calculated and higher scores represent higher parenting skills or deficits in that dimension. For instance, a higher score in positive parenting represents more positive parenting strategy use. In accordance with other studies (Dadds et al., 2003; Elgar et al., 2007; Hawes & Dadds, 2006), there are cutoff scores to determine the average and below-average scores (See Appendix A). Across the five scales, the APQ has demonstrated a Cronbach’s alpha that ranged from .63 -.80 (Shelton et al., 1996).
Chapter 4: Results

Overview

The purpose of this investigation was to determine if there were any differences, between groups (Facility versus Center) and within group (Facility, Center), across characteristics of youth receiving services at a residential treatment organization. Moreover, the study aimed to investigate if both programs (Center versus Facility) provide similar treatment service minutes per month. In an attempt to address each program evaluation question, data were reviewed for trends and any areas of improvement.

Data: Analysis Plan, Screening and Initial Review

Initial review of the data revealed sufficient data available for analysis. In depth discussion of the screening, analysis plan, and initial review are presented in the sections below.

Data screening

Screening of the data prior to conducting data analyses involved examination for violations of model assumptions (normality, homogeneity of variance), and missing values for each variable. No values were missing for the demographic variables; clinical variable data were not available in the records for one participant from the Center group. There were data missing for 30% of the youth (6 out of 20) at the Center for the family measure. Data analyses were completed with all available data for each variable. The assumption of homoscedasticity, or homogeneity of variance, was met based upon Levene’s tests and examination of q-q graphs; the variables were normally distributed within reason.

Data analysis plan.

To address the program evaluation questions, multiple statistical methods were employed (see Appendix B). To examine between group differences (Facility versus Center) on continuous
data points, a series of independent samples $t$-tests were computed across demographic characteristics and clinical characteristics. Due to the increased risk of a type I error when making multiple statistical comparisons, the Bonferroni correction was used (39 $t$-tests, so corrected $p=0.0013$ for significance). For demographic categorical characteristics and follow-up analyses, chi-square tests with Bonferroni correction were calculated (7 Chi-square analyses, so corrected $p=0.007$). In addition, follow-up investigations also employed inspection of q-q plots and bar graphs.

Examination of within group variance (Facility; Center; homogeneous versus disparate/nonequivalent) involved the use of Levene’s Test for Equality of Variance and visual inspection using box plots and Quantile-Quantile (q-q) plots. Levene’s test is typically computed to check the assumption of equal variances before running tests like $t$-tests or One-Way ANOVA. In this program evaluation, Levene’s was employed as a test for answering a stand-alone question of whether two sub-samples in a given population have equal or different variances (Derrick, Ruck, Toher, & White, 2018). In addition, review of the box and q-q plots for each variable by group was conducted.

To determine the degree of treatment services youth received at each program, the number of minutes per month was analyzed using independent $t$-tests. Treatment session minutes were obtained from the total of individual therapy, family therapy, and psychiatric consult (Center v. Facility).

Initial data review

In preparation for data analyses, frequency counts were tallied for categorical variables for all participants and by group (Facility, Center; see Table 6). Likewise, descriptive statistics were computed across all continuous variables for all and by group (Table 6 and 7).
Table 6

**Descriptive Demographic Characteristics by All Participants and Group**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>All Participants</th>
<th>Facility</th>
<th>Center</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
<tr>
<td>Age</td>
<td>14.09 (1.94)</td>
<td>15.00 (1.60)</td>
<td>13.55 (2.00)</td>
</tr>
<tr>
<td>Number of Previous Placements</td>
<td>1.44 (.95)</td>
<td>1.00 (.74)</td>
<td>1.70 (.98)</td>
</tr>
<tr>
<td>Number of Diagnoses</td>
<td>2.47 (1.44)</td>
<td>3.33 (.49)</td>
<td>1.95 (1.57)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th>All Participants</th>
<th>Facility</th>
<th>Center</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>32</td>
<td>12</td>
<td>20</td>
</tr>
<tr>
<td>Female</td>
<td>8</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Transgender</td>
<td>21</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Transgender</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>32</td>
<td>12</td>
<td>20</td>
</tr>
<tr>
<td>Black</td>
<td>7</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>White</td>
<td>19</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>Latino</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Other/Mixed</td>
<td>3</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
Table 7

Descriptive Statistics Clinical Variables by All Participants and Group

<table>
<thead>
<tr>
<th>Clinical Variable</th>
<th>All Participants</th>
<th>Facility</th>
<th>Center</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
<tr>
<td>Cognitive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full-Scale IQ</td>
<td>87.84 (14.49)</td>
<td>84.50 (13.58)</td>
<td>89.85 (14.99)</td>
</tr>
<tr>
<td>Verbal Comprehension Index</td>
<td>87.47 (14.77)</td>
<td>83.33 (11.09)</td>
<td>83.83 (16.47)</td>
</tr>
<tr>
<td>Visual-Spatial Index</td>
<td>90.41 (15.36)</td>
<td>87.75 (15.33)</td>
<td>92.00 (15.55)</td>
</tr>
<tr>
<td>ASEBA Youth Self Report</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Problems</td>
<td>67.48 (12.26)</td>
<td>69.33 (11.29)</td>
<td>66.32 (12.99)</td>
</tr>
<tr>
<td>Internalizing Problems</td>
<td>64.68 (13.35)</td>
<td>66.00 (12.95)</td>
<td>63.84 (13.88)</td>
</tr>
<tr>
<td>Externalizing Problems</td>
<td>65.48 (10.72)</td>
<td>67.17 (9.36)</td>
<td>64.42 (11.62)</td>
</tr>
<tr>
<td>Anxious/Depressed</td>
<td>65.58 (17.21)</td>
<td>68.50 (14.10)</td>
<td>62.65 (20.31)</td>
</tr>
<tr>
<td>Withdrawn/Depressed</td>
<td>65.36 (12.78)</td>
<td>65.17 (13.50)</td>
<td>65.58 (12.06)</td>
</tr>
<tr>
<td>Somatic Complaints</td>
<td>60.65 (11.16)</td>
<td>57.92 (10.99)</td>
<td>63.37 (11.32)</td>
</tr>
<tr>
<td>Social Problems</td>
<td>68.16 (13.12)</td>
<td>66.95 (13.89)</td>
<td>66.75 (13.89)</td>
</tr>
<tr>
<td>Thought Problems</td>
<td>65.51 (12.26)</td>
<td>63.17 (12.03)</td>
<td>69.33 (13.81)</td>
</tr>
<tr>
<td>Attention Problems</td>
<td>68.29 (14.48)</td>
<td>69.42 (16.00)</td>
<td>67.16 (12.95)</td>
</tr>
<tr>
<td>Rule Breaking Behavior</td>
<td>63.52 (8.23)</td>
<td>65.08 (7.66)</td>
<td>61.95 (8.80)</td>
</tr>
<tr>
<td>Aggressive Behavior</td>
<td>66.29 (12.04)</td>
<td>67.67 (11.97)</td>
<td>64.90 (12.10)</td>
</tr>
<tr>
<td>Depression Problems</td>
<td>67.19 (11.08)</td>
<td>67.00 (10.37)</td>
<td>67.32 (11.78)</td>
</tr>
<tr>
<td>Anxiety Problems</td>
<td>62.61 (10.83)</td>
<td>63.75 (11.19)</td>
<td>61.90 (10.84)</td>
</tr>
<tr>
<td>Somatic Problems</td>
<td>60.45 (11.72)</td>
<td>55.91 (7.75)</td>
<td>63.32 (8.77)</td>
</tr>
<tr>
<td>Attention Deficit/Hyperactivity Problems</td>
<td>63.90 (8.88)</td>
<td>63.42 (9.14)</td>
<td>63.42 (9.14)</td>
</tr>
<tr>
<td>Oppositional Defiant Problems</td>
<td>61.32 (8.99)</td>
<td>64.58 (8.41)</td>
<td>59.26 (8.94)</td>
</tr>
<tr>
<td>Conduct Problems</td>
<td>67.94 (10.88)</td>
<td>69.50 (10.15)</td>
<td>66.95 (11.48)</td>
</tr>
<tr>
<td>Obsessive Compulsive Problems</td>
<td>64.03 (10.29)</td>
<td>63.58 (9.93)</td>
<td>64.58 (9.93)</td>
</tr>
<tr>
<td>Stress Problems</td>
<td>68.90 (13.91)</td>
<td>69.33 (13.80)</td>
<td>68.63 (14.35)</td>
</tr>
<tr>
<td>Positive Qualities</td>
<td>51.46 (8.20)</td>
<td>49.33 (8.73)</td>
<td>53.58 (7.66)</td>
</tr>
</tbody>
</table>

Child/ Adolescent Post-Traumatic Stress Disorder Reaction Index, Fifth Edition

| Number of incidents | 4.19 (3.20) | 2.83 (1.85) | 5.05 (1.85) |
| Intrusive thoughts   | 9.55 (5.99) | 8.08 (5.33) | 10.47 (6.33) |
| Avoidance behaviors  | 3.07 (2.76) | 3.50 (2.39) | 2.79 (2.99) |
| Negative cognition/ mood | 14.74 (7.74) | 15.67 (5.01) | 14.16 (9.14) |
| Arousal/Reaction     | 12.29 (6.19) | 12.00 (6.05) | 12.47 (6.44) |
| Trauma Index Total   | 39.65 (20.71) | 39.50 (16.99) | 39.89 (23.20) |

Alabama Parenting Scale

| Involvement | 29.77 (13.29) | 32.64 (15.49) | 26.42 (2.82) |
| Corporal punishment | 7.11 (3.86) | 6.71 (4.32) | 7.58 (9.8) |
| Inconsistent discipline | 16.35 (5.75) | 14.14 (6.13) | 16.58 (1.60) |
| Poor monitoring      | 23.96 (9.99) | 23.28 (12.34) | 24.75 (1.95) |
| Positive parenting   | 19.69 (8.52) | 19.29 (9.41) | 20.17 (2.24) |

Treatment Dosage | 505.00 (85.00) | 590.00 (93.42) | 420.00 (53.31) |
Analyses of demographic characteristics between groups

Prior to examining the program evaluation questions, it was appropriate to determine whether there were differences by group, Facility and Center, on the various demographic characteristics to determine if the two groups were comparable. Two types of data were available: continuous (age, number of previous placements, number of diagnoses) and categorical (gender, ethnicity, discharge planned to home). Group differences were noted for the discharge planned to home data, $\chi^2(1, 32)=10.248, p=0.003$; more Center residents discharged to other settings than Facility residents (see Table 8, Figure 3). No other significant between group differences were noted across the demographic variables.

Although the statistical results were largely not significant, additional, follow-up analyses, based on visual inspection of graphical results, noted some trends to monitor (see Figures 4 and 5; Appendixes C1-C3). It was observed that 15% ($n=3$) of the Center residents identified as transgender and all Facility residents identified as either male or female. Similarly, while age was not identified as statistically different by group, visual inspection of the bar chart indicated that, on average, youth in the Facility group were 1.5 years older than youth in the Center group. In addition, 66% of youth in the Facility group were identified as older (ages 15-17), and 75% of youth in the Center group were identified as younger (ages 11-14).

Program Evaluation Question 1: Are there differences in adolescents’ trauma experiences, and social-emotional, cognitive, and family functioning: A) between groups (Facility versus Center); and B) within group based on within group homogeneity variance (within Facility, within Center).

Between group differences. To investigate whether there were between group differences, Facility versus Center, on measures of clinical status (trauma experiences, social-
Table 8

*Significant Chi Square Analysis of Discharge to Home by Group*

<table>
<thead>
<tr>
<th>Demographic Variable</th>
<th>Group</th>
<th>$\chi^2$</th>
<th>df</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discharge home</td>
<td>Center</td>
<td>10.248</td>
<td>1</td>
<td>.003**</td>
</tr>
<tr>
<td>Discharge home</td>
<td>Facility</td>
<td>10</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Discharge to other settings</td>
<td>Facility</td>
<td>2</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

**statistically significant at $p < .007$
Figure 3.

*Bar chart of Discharge Home by Group*
Figure 4

*Bar chart of gender by Group*
Figure 5.

*Bar chart of age by Group*
emotional, cognitive, and family functioning) independent sample $t$-tests were calculated. Across all of these measures, no significant group differences were noted (all $p$ values $> .0013$; see Appendixes C, D, E, F, G, and H).

Three trends were noted on clinical variables (see Figure 6). Although not significant, it was observed that all Facility residents reported a lower number of trauma incidents ($\leq 6$; 100%), and 37% (7/19) of Center residents reported a higher number of trauma incidents ($\geq 7$). Similarly, visually the means by group and chi square analysis for intrusive thoughts on the trauma scale suggested that the Facility youth reported fewer thoughts ($M=8.08$) compared to the Center youth report of more thoughts ($M=10.47$). In addition, review of the total problems by group (T=69.33 Facility, 66.32 Center) from the ASEBA-YSR suggested a trend to follow. Moreover, 50% of scores for the Facility group were in the average range, whereas 79% of the scores for the Center group were in the borderline/clinical range.

**Within group variance.** Divergent results by analysis procedure were identified when examining within group differences. Initially, Levene’s Test for Equality of Variance was employed to establish whether the two groups, Facility and Center, had equal or different variances (Derrick, Ruck, Toher, & White, 2018). No significant differences were noted across the clinical scores/ratings (all $p$ values $> .0014$); the variance across the two groups was homogeneous.

In contrast to the results of the Levene’s tests, additional analysis of within group variance was completed by visual inspection of the results of the box and q-q plots (see Appendixes D, E, F, G, and H). Across all variables, wider variability (from lowest to highest scores) was observed for the Center youth compared to the Facility youth. This wider range represents more variability in the Center group.
Figure 6

*Bar Charts of Intrusive Thoughts, Number of Trauma Incidents, Age, and Total Problem Scores by Group*
Program Evaluation Question #2: Are there differences in treatment dosage between the groups (Facility versus Center)?

As previously noted, treatment session minutes were obtained from records for each youth, and dosage was based on the total number of minutes of individual therapy, family therapy, and psychiatric consult. To determine whether treatment dosage differed by group, an independent sample $t$-test was employed. Based on the results presented in Table 9 and Appendix I, treatment dosage varied by group. Specifically, the youth in the Facility group received, on average, 170 more minutes of treatment per month compared to youth in the Center group.
### Table 9

**Analysis of Treatment Dosage by Group**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Facility M</th>
<th>Facility SD</th>
<th>Center M</th>
<th>Center SD</th>
<th>df</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment Dosage</td>
<td>590.00</td>
<td>93.42</td>
<td>420.00</td>
<td>53.31</td>
<td>30</td>
<td>6.584</td>
<td>.000</td>
</tr>
</tbody>
</table>
Chapter 5: Discussion

Overview

Residential treatment placements are among the available options for children and youth with mental health and behavioral issues (Stewart et al, 2020). In New York State, children and adolescents may be admitted to one of two types of residential treatment placement, residential treatment centers and residential treatment facilities (Baker & Dale, 2002; Dale et al., 2007; Office of Children and Family Services, 2022; Office of Mental Health, 2022). Limited information is available in the literature that details the differences between the two placement types. Differences that have been identified include: funding source (i.e., Office of Mental Health compared to Office of Children and Family Services), intensity of treatment provided, and youth behavioral and social-emotional functioning (Dale et al., 2007). No study, however, has evaluated whether there are differences in the characteristics of the youth served in these programs, and the potential impact of any differences. This chapter examined the findings and addressed the strengths, areas of need, implications, and recommendations for the agency.

Evaluation results

The purpose of the study was to examine whether there were similarities and/or differences between youth at a residential treatment facility (Facility) and residential treatment center (Center). A general review of the findings revealed minimal significant differences across demographic and clinical variables between the two groups, indicating that the two groups were largely equivalent. Only two variables revealed significant differences between the two groups (Facility v. Center). Moreover, further investigation of within group differences identified discrepant results.

Socio-demographic characteristics
The socio-demographic characteristics were examined to determine the level of variation within and between the groups. More specifically, the residents’ age, gender, ethnicity, number of previous placements, discharge status, and number of diagnoses were analyzed. With the exception of one variable, using chi-square analyses and independent t-tests, there were no significant differences between the groups (Facility vs. Center). No statistical significance suggested general similarities across both groups.

**Discharge status.** Analysis of discharge status revealed a significant difference (Center v. Facility) such that greater number of residents at the Facility expected to be discharged to their care givers (i.e., parents, family members) as opposed to other settings. Likewise, more than half of the youth at the Center were expected to be discharged to other settings as opposed to in-home settings. These other settings may include foster care, group homes, and other residential programs. Despite the difficulty with transition to the home setting, it may become complicated when moving from a more restrictive setting a less restrictive setting for youths discharged to out-of-home settings (Narendorf et al., 2012). As most of the youth at the center may be discharged to other non-therapeutic settings such as foster care and group homes, complications with transitioning to these settings may be expected.

**Visual trends.** The visual inspections noted patterns, though not significant, of the Center having younger children and more placement changes. Studies indicate that adolescents in residential placement tend to be older (Huefer & Vollmer, 2014; Zelecholoski et al., 2013), but younger children in residential treatment present with more severe behavioral and social-emotional difficulties (Huefer & Vollmer, 2014). In addition to age, patterns were noted for discrepancies in gender identity. Particularly at the Center, residents identified as ‘other’ gender identity (i.e., transgender), but no reports of this nature were mentioned by youth at the Facility.
In contrast, within group results varied (significant versus not significant) depending on the analysis procedure employed. Results of statistical analysis indicated that the variance across the groups was equal (i.e., homogeneous); however, it is likely to find slightly different variances in samples from these populations. Visual inspection identified consistent, wider variability for the Center group compared to the Facility group across the demographic and clinical variables.

**Cognitive functioning**

The evaluation also aimed to examine the differences and similarities of cognitive functioning across both groups. Similar to other studies, the children and adolescents within the current programs demonstrated low average cognitive abilities in comparison to peers their age. Studies examining cognitive functioning in residential treatment also corroborate this finding as IQ scores tend to range from low average to average in those samples (Bettman et al., 2011; Conner et al., 2004; Hussey & Guo, 2002). Similarities in IQ scores were also revealed between these groups as there were no statistical significant differences between the scores of residents at the Facility and the Center. Nevertheless, trends were identified with visual inspection using box plots. These trends alluded to variability in FSIQ scores and visual-spatial scores particularly for youth at the Center. Upon further examination, patterns may have suggested some variability particularly at the residential treatment center in which there seemed to be wider ranges of scores, including one outlier on the Verbal Comprehension Index.

**Social-emotional and behavioral functioning**

Similar to cognitive functioning, the findings revealed that, on average, children and adolescents across both programs presented with mild-to-moderate (borderline) maladaptive behaviors as assessed using the ASEBA Youth Self-Report, indicating a general social-emotional and behavioral functioning likely requiring intensive support. These findings are consistent with
those from other residential care studies (Martin et al., 2020) suggesting that youth in these programs did not appear to exhibit social-emotional and behavioral characteristics that were no different from other residential care samples. In addition, the findings disclosed no differences between the two programs (Facility v. Center). While there are no studies at this time comparing the characteristics of each of the programs, Dale and colleagues (2007) suggested that youth in the residential treatment programs may present with more chronic and severe mental health problems.

**Visual trends.** Though not statistically significant, further visual inspection of the data revealed patterns consistent with variability in the scores such that the score range was wider for the youth at the Facility than at the Center. The trends also revealed that despite higher mean scores at the facility, about 79% of the students at the center had scores in the borderline to clinical range whereas about 50% of youth at the facility had scores in the average range. Nonetheless, similarities across the groups are particularly meaningful given the nature of this evaluation. As residential treatment programs consider social-emotional and behavioral problems to determine in-take of residents, similarities may indicate similar response by each program to the needs of children and youths.

**Trauma functioning**

Analysis of the trauma functioning using the UCLA Trauma Scale instrument highlighted variation in results relative to other studies. Visual inspection of the data revealed a trend, though not significant, of higher total trauma scores at these programs ($M = 39.65$) relative to samples ($M = 26.6 – 26.9$) in the general setting (Kaplow et al., 2020; Steinburg et al., 2013). Yet, the total trauma scores in these samples were consistent with those youths at other residential settings. Studies investigating the level of self-reported trauma among youth in residential treatment note
average scores from 29.40 (Kagan et al., 2014) to 45.8-46.4 (Hodgson et al., 2018). Among the trauma variables, the number of trauma incidents each youth experienced within their lifetime was also analyzed. In this evaluation, youths experienced trauma incidents similar to those found in another residential sample (Hodgson et al., 2018). On average, residents reported experiencing at least four traumatic events in their lifetime; the Center for Disease Control and Prevention (2022) stated that only 17% of individuals report this number, and this increases the likelihood of problems related to health, well-being, and opportunities.

**Visual trends.** Although there was no statistically significant difference in the number of trauma incidents between the two groups, visual inspection of the data suggested a trend associated with a higher number of incidents for youth at the Center ($n=7$ versus Facility=0). The results also confirmed minimal PTSD and/or dissociative subtype diagnoses for most of the residents; no differences were found between the two groups. This further conveyed that although most residents experienced at least four incidents of trauma in their lifetime, they did not present with trauma symptoms that functionally affected their lives. In contrast, visual inspection implied greater number of residents at the Center experiencing intrusive thoughts related to trauma. Consequently, these trends highlighted residents at the Center presenting with slightly more trauma incidents and more intrusive thoughts related to these trauma experiences.

**Family functioning**

Further investigation of scores on the Alabama parenting scale highlighted some inconsistencies with the children and youth’s ratings of their parents compared to the general population (Essau et al., 1996). With the exception of parental involvement, rating scores of positive parenting, corporal punishment, inconsistent discipline, and monitoring were consistent with scores in the general population (Essau et al., 1996). This suggested that, generally,
residents at these programs reported lower levels of parental involvement, but appropriate levels of positive parenting, use of corporal punishment, use of inconsistent discipline, and supervision. In addition, as there are no studies at this time that have utilized this scale in the residential setting, scores from this evaluation were similar to children and youth in psychiatric outpatient settings (Frick et al., 2006). It was noted that about 30% of Center youth data was missing due to separation from caregivers. Results from the family functioning variable also revealed perceptions of parent’s functioning that were no different for youth at the Facility than at the Center. Given that most of the youth at the Center were displaced from their families and expected to be discharged to other settings (i.e., foster care, group homes, other residential treatment programs, etc.), these results were astonishing. High displacement from families at the Center did not impact the differences in perceptions. It is well known that family involvement and bonding aid in improving outcomes for youth during treatment and after discharge (Robst et al., 2013; Tahhan et al., 2010). Moreover, as youth at the Facility receive more family therapy services and greater family involvement, Facility youth’s perceptions of their caregiver’s parenting were expected to be more positive than those at the Center. One possible explanation for this may be due to the similarities in youth attitudes towards being placed in residential treatment. In light of the data presented, the impact of family on treatment should be highlighted.

**Dosage**

The second question aimed to address the differences in treatment dosage offered to children and adolescents between the Center and the Facility. The treatment dosage was determined by the number of service delivery minutes per month. More specifically, service delivery included individual, family counseling, and psychiatric consult. Other studies utilized
dosage as one way to measure treatment intensity (Vaugh et al., 2010; Warren et al., 2007). Based on the findings, children and adolescents at the Facility received significantly more, twice as much, treatment session minutes per month compared to Center youth. These vast differences were noticed particularly with the number of family therapy hours; children and youth at the Center participated in less family therapy sessions. At the Center, about 50% of the youth were displaced from their biological families and were expected to change placement, enter the foster care system, or become adopted at discharge. As such, consistency of dosage may be limited across the agency. In contrast, there were no significant differences in demographic and clinical variables across the group, indicating that residents with similar characteristics received fewer service minutes per month. More specifically, the residents at the facility generally received more family therapy per week. Coupled with treatment services, residents at the Facility received more interaction with family, be it through family therapy or family visits. Aside from the treatment minutes included, overall Facility residents receive services associated with discharge to their next setting including wraparound services, job skills, and other independent skills.

Limitations

While this evaluation was the first of its kind to examine the similarities and differences in youth characteristics between two types of residential treatment programs in New York State, there were several limitations. The first limitation was with the smaller sample size. While program evaluations are used to identify the values and merits of a program, they utilize research methods that expose them to the confines of research principles. In research, sample size should have adequate power and significance to ensure that investigators are confident that the findings cannot be related to random variables (Majid et al., 2018). In this evaluation, the total sample size was 32 participants, in which each group contained less than 30 participants. As such,
coupled with the limitations of conducting a program evaluation, further caution would be taken with generalizing the results to other studies.

As previously mentioned, there are many strengths to using a program evaluation including the individualization of the services and strategies to a specific program (Mertens & Wilson, 2018). This individualization, however, decreases the likelihood of generalization to other populations and other settings including other programs. Consequently, caution would be taken in replicating the methods and strategies in other studies and/or predicting or comparing the results to other studies.

The current evaluation presented with another constraint specific to the research available in previous studies related to entry into treatment programs. In accordance with most studies, the common practice for youth entry into a program is based on those with significant and complex emotional needs (Griffith et al., 2012). In fact, youths’ admission into residential placement was based on the number of previous hospitalizations, two or more psychiatric diagnoses, problems with substance abuse, academic difficulties, and histories of abuse, neglect, and suicidal behaviors (Griffith et al., 2012; Handwerk et al., 2006; Hurley et al., 2009; Pottick et al., 2005). In contrast, the youth in the current evaluation presented with more complex issues at admission. As each treatment program is funded differently, youth admission and services may be influenced by those funding sources. There are gaps in research regarding the impact of different funding sources on both youth admission into residential programs and services provided thereafter. One author mentioned that policies and state mandates may contribute to change in least restrictive to more restrictive placement (James et al., 2004), yet there is no mention about differences in state or county funding sources. This lack in the research poses with further difficulties when comparing the results to other samples.
Specific to evaluation methods, there revealed another limitation regarding the dosage data. In this study, the dosage of services was calculated for the average monthly services generally provided at both programs. The data obtained provided the number of minutes that each individual was scheduled to receive per program. However, there were no fidelity checks or monitoring of session minutes to determine true engagement during sessions. For example, youths may be absent from a session, or sessions may last shorter or longer than scheduled time. As such, this may have an impact on a precise representation of the dosage of services received by youth.

Another limitation was that the evaluation was conducted during the COVID-19 pandemic that reflected inconsistencies compared to typical times. Among the services affected were the lack of group interventions and reduced family visits due to safety protocols including social distancing and quarantining when residents or staff were affected by the disease.

Consistent with the services provided, the data collection instruments used revealed some limitations. First, none of the rating scales measured interrater reliability. Interrater reliability is the extent to which two raters agree (Belur et al., 2021). For example, data obtained from the Alabama parenting scale revealed the youth’s perspective of their parent’s levels of involvement, supervision, use of consistent and punitive discipline as well as positive strategies. The reliability of the scale would be stronger if the parents completed the forms and their scores were compared to the youths’ scores. Score similarities and discrepancies may offer further information about parent and child experience and improve rating validity. In addition, the parenting scale did not have norming samples or criterion recommendation for levels of scores (i.e., high or low). This evaluation relied on the scores from various studies using the instrument to gain comparisons of what is considered ‘typical’ and ‘atypical’. This presents with further challenges as most of the
comparisons were not obtained from data sources that were from residential treatment programs, but from samples with ‘typical development’.

**Implications**

The results of the current study reveal several implications related to equity, continuum of services, and education. First, it is important to consider the impact of differential funding on children and adolescent treatment. Results from the current evaluation indicated that although residents shared similar characteristics, funding played a role in the variation of treatment services available and delivered. These discrepancies risk the facilitation of disproportionality among residents across the agency such that their access to and receipt of equitable services may be questioned. The discrepancies in funding may serve as a gatekeeper for access to specific services (e.g., family therapy, wrap-around services), impacting appropriate treatment required to support those residents. Likewise, equitable goals to promote individualized treatment and opportunities for residents to improve may further be reduced. In this case, while the agency served a diverse group of children and adolescents ranging from differences in gender, ethnicity, and age groups, differential funding can highlight the impact on these groups. If these services are limited due the amount of funding they receive, their overall mental health and well-being may be further impacted. As socio-economic factors can play a role in the prevention and treatment of social-emotional and behavioral difficulties (Bhugra et al., 2022), it is pertinent that these impacts be examined.

Another implication to consider is regarding the transition from residential treatment to the school system. After discharge, one of the main challenges that residents experience is difficulty with school (Preyde et al., 2020). At school they may experience academic concerns, school absence, and poor peer relationships (Preyde et al., 2020). As such, it is integral to
consider discharge interventions to promote a continuum of care in the school setting. McCurdy and McIntyre (2004) suggested that discharge planning interventions should be implemented from the time the student enters the residential setting. Professionals involved in discharge planning need to consider the resources required for school success and the roles of school personnel involved in transitioning these services within the school setting.

Similar to transition to the school setting, continuum of care should be considered in the home and community setting. Within the residential setting, a strong focus on the family and parent-adolescent relationship is crucial for success after discharge (Nickerson et al., 2007). The current agency recognized the need to maintain strong relationships with the residents’ home setting as evidenced by the inclusion of family therapies and visits. Nevertheless, many youths experience poor interpersonal relationships with their families and/or group home staff after discharge (Preyde et al., 2020). Therefore, this emphasizes the importance of continuum of services after discharge involving family supports and services. Likewise, this continuum of care is required for adaptability within the community. After discharge, the main challenge youth experience is related to managing their mental health symptoms within the community (Preyde et al., 2020). As such, to reduce the likelihood of regressed skills or recidivism, continuum of care may focus on out-patient supports and continuous skill building. It is important that there maintains a linkage with community resources and personnel to promote successful transition into the community setting.

Areas of strength

Generally, the agency offers a wide range of services, including evidenced-based treatments to all of its residents. Typically, withstanding the pandemic, residents are exposed to weekly individual and group therapies, recreational therapy, education provided by the agency,
and psychiatric consult. Many of these therapies, especially individual and group therapies are based on evidenced-based practices including the use of Dialectical Behavior Therapy and Attachment Regulation Competency models. As previously discussed, evidence-based specific interventions focus on more specific diagnoses or presenting problems (James et al., 2019).

Another strength identified was that the current sample of residents exhibited characteristics, which were consistent with other studies focusing on residential treatment. While the results of program evaluations typically pose limited generalization to other studies, consistency across samples is beneficial in making some comparisons. As there are limited studies that conduct research in the residential treatment settings, identifying consistency across samples can aid in determining what samples may be typical versus atypical. This consistency was also particularly helpful when using instruments with no prior norming samples or criteria for levels of severity. In that case, scores may be compared with other studies to possibly determine levels of severity and areas of concerns.

Another agency asset was their use of standardized instruments to assess for youths’ history of trauma and relationships with their parents. Previous studies indicated that high levels of victimization and traumatic experiences are underreported and may be underestimated (Singer, 2007; Zelechoski et al., 2013). Within the residential treatment setting, much discrepancy between the youths’ mental health needs and services provided may be based on the inadequacy of screening for trauma-related symptomology (Miele & O’Brien, 2010). Like trauma experiences, the assessment of family factors including parenting and family relationships are limited in the residential treatment setting. Those studies that, assess for this, use a non-standardized assessment to determine specific characteristics, but not necessarily examining the relationship (Griffith et al., 2009). The current agency’s use of a standardized
measure for examining parent-child relationships may pose information to use in treatment planning, especially as it relates to family counseling services provided at both treatment programs.

Finally, the agency showed willingness in participating in the program evaluation. By doing this, the agency stands to gain benefits that come with conducting a program evaluation. Among those benefits include utilizing a systemic inquiry of a program’s value, merit, worth, significance, or quality (Mertens & Wilson, 2019). In addition, evaluations are individualized to the program and may be important for identifying needs, potential areas of strengths, and recommendations for improvement.

**Recommendations to the agency**

This section focuses on the implications of the results of the program evaluation and offers next steps that the agency can take to assist them in meeting their goals. These next steps are drawn from improvement science methodology, particularly utilizing the plan-do study-act procedure discussed in Chapter 2.

A program evaluation aims to evaluate and address specific areas of need to further bring improvement to the program. In this case, the current agency would likely benefit from exposure to concepts derived from the improvement science framework, particularly using the plan-do-study-act method. As previously discussed, the plan-do-study-act cycle establishes a way to make changes on a smaller scale, to be applied on a larger scale. Each stage has a function which include (a) Plan: identification of causes and questions, (b) Do: implementation of program, (c) Study: collection and analysis of quantitative and qualitative data, and (d) Act: implements or make changes. During the PDSA process, the organization may be required to return to specific stages, so they adequately address the need of the program. In addition, this process provides a
more systematic approach to identifying needs and next steps so as to offer clarity and evidence-based approaches for improving the program further. In this section, the needs were identified, follow-up questions are posed, and next steps are recommended using the PDSA method.

*Explore the need for two separate programs*

The results of the evaluation endorsed general similarities among children and adolescents both at the residential Facility and Center. Moreover, more estimated treatment hours per month are offered at the Facility than at the Center. As there are no differences in characteristics, supports should adequately be offered in accordance with characteristics presented. This appears to be a systemic issue as youth from the various programs are represented by separate government entities; the facility by the state’s Office of Mental Health and the center by the county’s Office of Children and Family Services. Previous literature indicated that funding differs between both programs and may play a role in the delivery of services (Dale et al., 2007). Nevertheless, as residents at both programs exhibited similarities, perhaps additional questions regarding the need for differences in programs may be further examined. More specifically, the agency may want to examine the logic and feasibility of maintaining two separate programs despite similarities in residents’ characteristics. Therefore, the first recommendation is to further examine this step by re-visiting the Plan stage of the PDSA method (see Table 10). During this stage, the agency may identify questions such as (a) is it logical and/or feasible to maintain two programs when the residents from both program present with similar characteristics?, (b) what is the basis for treatments provided to residents in residential care: funding source or targeted needs to individual youth?, (c) what steps might be taken to further advocate or increase buy-in for funding program-wide services, and (d) what
Table 10

*Plan stage and action steps for explore the need for two separate programs*

<table>
<thead>
<tr>
<th>Stage: PLAN</th>
<th>Action Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who</td>
<td>• Establish a team who may: (a) identify the logic and feasibility of maintaining one v. two programs, (b) advocate to funding sources (state and/or county), and (c) conduct data collection</td>
</tr>
</tbody>
</table>
| What        | • Discuss and identify the assets and limitations of maintaining one program vs. differentiating the programs  
• Identify how much funding is required to maintain one program  
• Determine what interventions can be utilized across both programs. Recommendations may include wraparound program, anger-management and trauma-informed interventions. |
| When        | • Indicate when new interventions may be tested or implemented  
• Specify when advocacy may take place |
| Plan for data collection | • Obtain data regarding funding sources  
• Use results from this evaluation to make decisions regarding logic and feasibility  
• Conduct needs assessment to identify resources required to maintain one program vs. two programs  
• Administer survey or questionnaire to gain attitudes and perceptions from staff and other residential stakeholders |

Note: Table draft obtained from the National Implementation Research Network (2020)
current interventions utilized at each of the programs may be applied program-wide?

**Wraparound services**

The results also revealed services that differed across each program. Across the two programs, a wider continuum of services was highlighted only at the Facility. At this time, the Facility has implemented the wraparound services that aim to improve family and child functioning by identifying the individual strengths, then encourage educational and life goals (Brown et al., 2016; Fries et al., 2012; Sutter & Brown, 2009). Wraparound provides a continuum of care in which services are offered during residential treatment then followed up after the youth have left residential treatment. The process involves a wraparound facilitator (WF) whose role is to coach the youth to identify natural supports (e.g., friends, family, neighbors, and mentors) and agency support (e.g., caseworkers, probation officers, and teachers) to assist them in stabilizing their life for short- and long-term goals. These supports form a child and family team (CFT) and meet with the youth, family, and facilitator to support them in navigating the system and becoming independent (Fries et al., 2012). At the Facility, the team integrates the treatment services at the program throughout the youth’s life such that meetings focus on the progress and readiness for the youth to return with their families. Studies on wraparound services show positive outcomes including decreased levels of social-emotional impairment, criminal recidivism, living situations, hospitalizations, and clinical functioning (Aboutanous et al., 2011; Coldiron et al., 2017; Sutter & Bruns, 2009). With the appearance of positive outcomes in residential setting, youths at the Center would likely benefit from wraparound care, especially as they exhibit higher numbers of out-of-home placements. Wraparound may aid with continuum of services after residential treatment. Moreover, it may be particularly helpful for youth discharged to other settings, especially non-therapeutic.
implement this at the residential treatment center, the agency may need to revert to the plan stage of the PDSA cycle (see Table 11).

Assessment of resident progress

The results revealed vast differences in estimated treatment hours administered per month between programs despite widespread characteristics similarities. Moreover, the findings indicated that there were patterns of variation within the groups (i.e., wide minimum and maximum numbers/scores). This further becomes more complicated when considering intervention planning as individualized treatment becomes necessary for targeting specific needs. Currently, the agency utilizes the Child and Adolescent Needs and Strengths (CANS) assessment to identify needs and strengths of residents at different intervals of the residents’ life including at intake, six months, and discharge. Nevertheless, more standardized progress monitoring measures should be utilized to monitor goals and needs of each resident reflecting effectiveness of interventions implemented and changes in behaviors at the individual level. The agency would benefit from continuing the assessment of residents’ specific needs especially social-emotional needs (i.e., anger management, suicidal ideation, trauma-related behaviors, etc.) and family functioning (i.e., attachment, parenting type/stress). Progress monitoring tools such as Direct Behavior Rating (DBR) scales and brief rating scales such as Beck Anxiety Inventory, Beck Depression Inventory, etc. should be considered. In addition to in-treatment outcomes, the agency would benefit from monitoring the outcomes of treatment after discharge. These outcomes may include transition to school and community settings, any recidivism and family functioning.

To achieve this, it is recommended that the agency return to the Do stage of the PDSA method (see Table 12). During this stage, the interventions are implemented, data
Table 11

*Plan stage and action steps for wraparound services*

<table>
<thead>
<tr>
<th>Stage: PLAN</th>
<th>Action Steps</th>
</tr>
</thead>
</table>
| **Who**     | • Determine who is required in implementing the wraparound services at the Center  
              • Determine if all youths at the Center may benefit or a select few who has a permanent placement after residential treatment. Beginning with a sample of youths at the Center to start with may promote buy-in to the program. |
| **What**    | • Consider what wraparound services are being implemented  
              • Discuss what study methods would be utilized to assess effectiveness  
              • What resources or training are necessary for initiating the wraparound plan.  
              • Determine the amount of funding and how the program would be funded. |
| **When**    | • Indicate the best time that the wraparound services can be implemented |
| **Plan for data collection** | • Obtain data on the wraparound effectiveness or outcomes on residents at the Facility  
                  • Utilize a progress monitoring measure that assesses youth’s attitude, family perception, and staff perception of the wraparound. Monitor once per month.  
                  • Collect behavioral data including number of behavioral incidents, participation in the program, academic functioning, family relationship/ functioning etc. Monitor this data monthly. |

*Note: Table draft obtained from the National Implementation Research Network (2020)*
Table 12

DO stage and actions steps for assessment of resident progress

<table>
<thead>
<tr>
<th>Stage: DO</th>
<th>Action Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>• Determine the appropriate progress monitoring tool for assessing need. Specific progress monitoring tools may include brief rating scales or structured observational measures.</td>
<td></td>
</tr>
<tr>
<td>• Implement specific interventions targeting the needs for each of the youth</td>
<td></td>
</tr>
<tr>
<td>• Collect weekly/bi-weekly/monthly data on each need (e.g., number of behavioral incidents, frequency/severity of behavior change, family use of positive parenting strategies, youth reactions/attitudes towards family, family stress levels, etc.)</td>
<td></td>
</tr>
<tr>
<td>• Consider using a fidelity checklist for each intervention. This ensures that the interventions are implemented with fidelity.</td>
<td></td>
</tr>
<tr>
<td>• Determine a criteria for when the interventions should be implemented</td>
<td></td>
</tr>
<tr>
<td>• What was observed when individualizing interventions?</td>
<td></td>
</tr>
<tr>
<td>• Indicate if any problems or special circumstances were encountered</td>
<td></td>
</tr>
</tbody>
</table>
collected from implementation is initially analyzed, and any problems identified with implementation are documented.

**Bases for program placement**

One critique of the current agency is the intake criteria for accepting and rejecting residents to the individual programs. Intake of residents appears to be considered based on the funding source of the resident, clinical judgment, and bed overturns. As such, it would be an advantage to the agency to implement an assessment protocol which includes structured, identifiable intake and discharge criteria. If each program is to remain separate, in which one program provides more intensive services than the other, specific criteria should be utilized for accepting youths into each program. Otherwise, the agency may risk resource wastage, behavior change resistance, and interferences to individualized treatment planning. As previously mentioned, intervention implementation is dependent on the target of the goal. Higher intensity can lead to resource wastage and reduced buy-in to treatment, and lower intensity can influence increased resistance to change and reduction in youth motivation (Barnett et al., 2004; Codding & Lane, 2014). As funding sources may remain consistent based on the structures and policies already in place, it is imperative to rely on more structured assessments for accepting and rejecting residents into each program. At the Center, the youth present with more difficulties, though the youths can be accepted based on simply displacement from their families and little to do with behavioral and social-emotional difficulties. Again, youths may receive treatment that might be too intensive to adequately meet their needs.

To decide on such assessment, the agency may need to return to the plan stage of the PDSA cycle (see Table 13). During this stage, the agency might explore a specific intake
Table 13

*Plan stage and action steps for bases for program placement*

<table>
<thead>
<tr>
<th>Stage: PLAN</th>
<th>Action Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Determine the assessment for in-take criteria</td>
</tr>
<tr>
<td></td>
<td>Set criteria. For example: youth had more than four previous hospitalizations, more trauma related experiences, scores in the severe range on a brief social-emotional screener</td>
</tr>
<tr>
<td></td>
<td>Continuous screener for trauma related to in-treatment and any experienced during treatment.</td>
</tr>
<tr>
<td></td>
<td>Determine who is responsible for administering the assessment</td>
</tr>
<tr>
<td></td>
<td>Consider when and where the assessment would take place</td>
</tr>
</tbody>
</table>
criteria based on the youths’ histories and scores on screeners in conjunction with records, observations, and interview.

**Considerations for youth characteristics**

Based on the trends identified, variance in gender identity, number of trauma incidents, intrusive thoughts associated with those incidents, total problems, and age was suggested between the groups. Comparing the two residential programs (Center v. Facility), residents at the Center presented with more trauma incidents, higher scores related to intrusive thoughts, had a younger sample, youths who identified as transgender, and slightly lower total problems. Consequently, it may benefit the agency to continue follow-up regarding these areas. First, the agency may consider protocols and assessment measures for sensitivity and treatment of youths who identify as other gender (e.g., transgender or gender fluid). As treatment may be further complicated by staff and family perceptions, the agency may want to implement standards for creating a treatment-friendly environment for these youths. Second, it may imperative for the agency to focus on the assessment of trauma incidents and the symptoms associated with trauma. As previously mentioned, trauma may play a marked role in treatment planning and outcome. Likewise, youth’s mental health may be impacted by the number and intensity of trauma incidents. Moreover, as trauma experience is assessed during intake, it may be beneficial for the agency to conduct continuous assessment especially as youth can be re-traumatized or experience new traumatic events while at residential treatment. Thirdly, follow-up procedures should include any consideration of youth age and treatment planning. As previously mentioned, younger youths tend to present with greater mental health related issues. While not exhibited in this study, youth’s age may influence treatment planning and outcomes. As such, the agency may benefit from evidence-based treatments targeting specific age groups to aid in treatment
effectiveness. To further follow-up on these areas, the agency may utilize the do stage of the PDSA cycle (see Table 14). During this stage, the agency may explore assessment measures, data sources, and similar protocols or measures.

Aside from specific recommendations for program improvement, it is imperative that the agency considers the fidelity of strategies being implemented. As such the agency may benefit from identifying a key persons for observing and monitoring any data collected during implementation stage of each of the stages. In addition, it may be appropriate to develop a fidelity checklist for each strategy or interventions to be implemented so as to collect fidelity data more easily. This team member or evaluator may also monitor data especially related to outcomes of the program evaluation.

Chapter summary

The current evaluation aimed to identify the similarities and differences in socio-demographic, social-emotional, trauma-related, cognitive, and parenting characteristics between and within youth enrolled the residential treatment center and residential treatment facility at an agency. Results from the evaluation indicated similarities in characteristics of the residents across both programs further acknowledging no differences between the children and adolescents at each program. Nevertheless, there was a significant difference in the estimated number of treatment minutes delivered per month and discharge status such that residents at the Facility received more treatment minutes and were expected to be discharged to their caregivers after treatment. Furthermore, visual analysis revealed trends to monitor in total problems, number of treatment minutes delivered per month and discharge status such that residents at the Facility received more treatment minutes and were expected to be discharged to their caregivers after treatment. Furthermore, visual analysis revealed trends to monitor in total problems, number of
Table 14

Plan stage and action steps for youth characteristics

<table>
<thead>
<tr>
<th>Stage: DO</th>
<th>Action Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• Implement assessment and treatment measures and protocols for gender identity</td>
</tr>
<tr>
<td></td>
<td>• Follow-up on trauma incidents and progress monitor symptoms related to trauma</td>
</tr>
<tr>
<td></td>
<td>• Identify evidence-based treatment focused on specific age groups</td>
</tr>
<tr>
<td></td>
<td>• Collect data on what was observed during this stage</td>
</tr>
</tbody>
</table>
trauma incidents experienced, intrusive thoughts associated with trauma, age, and gender identity. These findings reflected implications related to social justice, education, and transition to the community. Moreover, the evaluation highlighted strengths within the agency including the dedication to participating in the evaluation, the use of measures to assess for trauma and family functioning, and the similarities of youth in relation to previous residential treatment research. Limitations identified in the evaluation, such as sample size, use of inter-rater reliability data, individualized treatment data, the impact of the pandemic on treatment, and research gaps on the impact of funding source were recognized. Likewise, using an improvement science method, specifically the PDSA model, recommendations for identified needs and possible next steps were offered to aid in improving the agency’s goals in providing individualized treatment for all residents at the agency.
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Appendix A. Cutoff scores for scoring the APQ

**Cutoff scores used for the APQ**

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive parenting techniques</td>
<td>More than 22</td>
<td>Average</td>
</tr>
<tr>
<td></td>
<td>Less than or equal to 22</td>
<td>Below average</td>
</tr>
<tr>
<td>Parental involvement</td>
<td>More than 34</td>
<td>Average</td>
</tr>
<tr>
<td></td>
<td>Less than or equal to 33</td>
<td>Below average</td>
</tr>
<tr>
<td>Inconsistency in discipline</td>
<td>Less than or equal to 17</td>
<td>Average</td>
</tr>
<tr>
<td></td>
<td>More than 18</td>
<td>Below average</td>
</tr>
<tr>
<td>Poor parental monitoring and supervision</td>
<td>Less than or equal to 14</td>
<td>Average</td>
</tr>
<tr>
<td></td>
<td>More than 15</td>
<td>Below average</td>
</tr>
<tr>
<td>Corporal punishment</td>
<td>Less than or equal to 6</td>
<td>Average</td>
</tr>
<tr>
<td></td>
<td>More than 7</td>
<td>Below Average</td>
</tr>
</tbody>
</table>
Appendix B. Evaluation questions and proposed data analyses

**Evaluation questions and proposed data analyses**

<table>
<thead>
<tr>
<th>Evaluation question</th>
<th>Data</th>
<th>Proposed analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Are there differences in adolescents’ trauma experiences, and social-emotional, cognitive, and family functioning:</td>
<td>Total, composite, and specific scores from ASEBA YSR WISC-V/WASI-II FSIQ, VCI, VSI Total scores from the UCLA-RI-5 Number of trauma incidents PTSD and/or dissociative or not Total scores from the APQ Parent presence and family type</td>
<td>Independent samples ( t )-tests Chi square tests</td>
</tr>
<tr>
<td><strong>A) between groups</strong> (Facility versus Center)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>B) within group based on within group homogeneity variance</strong> (within Facility, within Center)</td>
<td></td>
<td>Levene’s tests Box plots q-q plots</td>
</tr>
<tr>
<td>#2: Are there differences in treatment dosage between the groups (Facility versus Center)?</td>
<td>total number of minutes of individual therapy, family therapy, and psychiatric consult</td>
<td>Independent samples ( t )-tests</td>
</tr>
</tbody>
</table>
Appendix C: Nonsignificant Results

Appendix C1.

*Nonsignificant Chi Square Analyses of Demographic Variables by Group*

<table>
<thead>
<tr>
<th>Demographic Variable</th>
<th>Group</th>
<th>$\chi^2$</th>
<th>df</th>
<th>$p^{**}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td>2.728</td>
<td>2</td>
<td>.282</td>
</tr>
<tr>
<td>Male</td>
<td>Facility</td>
<td>2</td>
<td>Center</td>
<td>6</td>
</tr>
<tr>
<td>Female</td>
<td>Facility</td>
<td>10</td>
<td>Center</td>
<td>11</td>
</tr>
<tr>
<td>Transgender</td>
<td></td>
<td>0</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Trauma Diagnosis</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PTSD diagnosis (Yes)*</td>
<td></td>
<td>-0.048</td>
<td>1</td>
<td>.788</td>
</tr>
<tr>
<td>Dissociative subtype (Yes)*</td>
<td></td>
<td>-0.075</td>
<td>1</td>
<td>.675</td>
</tr>
<tr>
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<td>Low incidents (0-6)</td>
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<td>High incidents (7-14)</td>
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<td>White</td>
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<td>Diverse (African descent, Latino descent, other)</td>
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<tr>
<td>Age type</td>
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<td>Younger (11-14)</td>
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<td>Older (15-17)</td>
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<td>Total problems</td>
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<td>Average (&lt; 65)</td>
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<td></td>
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<tr>
<td>Borderline/clinical (&gt; 65)</td>
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Statistically significant at $p < .007$, *Yes represented a presence of diagnostic symptoms
Appendix C2.

Between and Within Group Analyses Nonsignificant Results for Demographic Variables

<table>
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<tr>
<th>Variable</th>
<th>Facility</th>
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<th>Center</th>
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<th>Levene’s Test</th>
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<td>SD</td>
<td>M</td>
<td>SD</td>
<td>df</td>
<td>t</td>
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<td>1.57</td>
<td>30</td>
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### Appendix C3.

**Between and Within Group Analyses Nonsignificant Results for Clinical Variables**

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<td>Total Problems</td>
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<td>66.32</td>
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<td>.089</td>
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<td>.761</td>
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<td>Anxious/Depressed</td>
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<td>64.58</td>
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<td>-1.424</td>
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<td>.632</td>
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</table>

**Child/Adolescent Post-Traumatic Stress Disorder Reaction Index, Fifth Edition**

<p>| Number of incidents | 2.83 | 5.05 | 1.85 | 29  | -1.97  | .06  | 5.75  | .02  |
| Intrusive thoughts  | 8.08 | 10.47 | 6.33 | 29  | -0.08  | .29  | .52   | .48  |</p>
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<td>SD</td>
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<td>12.34</td>
<td>24.75</td>
<td>1.95</td>
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Appendix D: Demographic Variables by Group

Appendix D1.

*QQ plot for Age*

Note. The x axis represent the RTC scores and the y-axis represents the RTF scores.
Appendix D2.

*Histogram for Age (Facility v. Center)*

![Histogram for Age (Facility v. Center)](image-url)
Appendix D3.

*QQ plot for Previous Placements*

Note. The x axis represent the RTC scores and the y-axis represents the RTF scores.
Appendix D4.

*Histogram for Previous Placements (Facility v. Center)*
Appendix D5.

*QQ plot for Number of Diagnoses*

Note. The x axis represent the RTC scores and the y-axis represents the RTF scores.
Appendix D6.

*Histogram for Number of Diagnoses (Facility v. Center)*
Figures for Appendix E: Cognitive Assessment Scores by Group

Appendix E1.

*QQ plot Representing Full-Scale IQ Scores (Center v. Facility)*

Note. The x axis represent the RTC scores and the y-axis represents the RTF scores.
Appendix E2.

Histogram Representing Full-Scale IQ Scores (Facility v. Center)
Appendix E3.

QQ plot Representing Verbal Comprehension Scores (Center v. Facility)

Note. The x axis represent the Center scores and the y-axis represents the Facility scores.
Appendix E4.

*Histogram Representing Verbal Comprehension Scores (Facility v. Center)*
Appendix E5.

*QQ plot Representing Visual-Spatial Scores (Center v. Facility)*

Note. The x axis represent the Center scores and the y-axis represents the Facility scores.
Appendix E6.

*Histogram Representing Visual-Spatial Scores (Facility v. Center)*

![Histogram showing visual-spatial scores comparison between Facility and Center]
Appendix F: Social-Emotional-Behavioral Assessment Scores by Group

Appendix F1.

*QQ plot for Total Problems*

Note. The x axis represent the Center scores and the y-axis represents the Facility scores.
Appendix F2.

Histogram Representing Total Problems Scores (Facility v. Center)
Appendix F3.

QQ plot Representing Internalizing Problems (Center v. Facility)

Note. The x axis represent the CENTER scores and the y-axis represents the FACILITY scores.
Appendix F4.

*Histogram Representing Internalizing Problems Scores (Facility v. Center)*
Appendix F5.

QQ plot Representing Externalizing Problems (Center v. Facility)

Note. The x axis represent the Center scores and the y-axis represents the Facility scores.
Appendix F6.

*Histogram Representing Externalizing Problems Scores (Facility v. Center)*
Appendix F7.

*QQ plot Representing Anxious/Depressed Scores (Center v. Facility)*

Note. The x axis represent the Center scores and the y-axis represents the Facility scores.
Appendix F8.

*Histogram Representing Anxious/Depressed Scores (Facility v. Center)*
Appendix F9.

**QQ plot Representing Depressed/Withdrawn Scores (Center v. Facility)**

Note. The x axis represent the Center scores and the y-axis represents the Facility scores.
Appendix F10.

*Histogram Representing Depressed/Withdrawn Scores (Facility v. Center)*

![Histogram showing frequency of scores within different groups for Facility and Center](image-url)
Appendix F11.

QQ plot Representing Somatic Complaints Scores (Center v. Facility)

Note. The x axis represent the Center scores and the y-axis represents the Facility scores.
Appendix F12.

*Histogram Representing Somatic Complaints Scores (Facility v. Center)*
Appendix F13

QQ plot Representing Social Problems Scores (Center v. Facility)

Q–Q Plot (series X vs Y)

Note. The x axis represent the Center scores and the y-axis represents the Facility scores
Appendix F14.

*Histogram Representing Social Problems Scores (Facility v. Center)*

![Histogram](image-url)
Appendix F15.

QQ plot Representing Thought Problems Scores (Center v. Facility)

Note. The x axis represent the Center scores and the y-axis represents the Facility scores.
Appendix F16.

*Histogram Representing Thought Problems Scores (Facility v. Center)*
Appendix F17.

QQ plot Representing Attention Problems Scores (Center v. Facility)

Note. The x axis represent the Center scores and the y-axis represents the Facility scores.
Appendix F18.

Histogram Representing Attention Problems Scores (Facility v. Center)
Appendix F19.

*QQ plot Representing Rule-Breaking Behavior Scores (Center v. Facility)*

Note. The x axis represent the Center scores and the y-axis represents the Facility scores
Appendix F20.

*Histogram Representing Rule-Breaking Behavior Scores (Facility v. Center)*
Appendix F21.

*QQ plot Representing Aggressive Behavior Scores (Center v. Facility)*

Note. The x axis represent the Center scores and the y-axis represents the Facility scores.
Appendix F22.

Histogram Representing Aggressive Behavior Scores (Facility vs. Center)
Appendix F23.

QQ plot Representing Depression Problems Scores (Center v. Facility)

Note. The x axis represent the Center scores and the y-axis represents the Facility scores.
Appendix F24.

Histogram Representing Depression Problems Scores (Facility v. Center)
Appendix F25.

QQ plot Representing Anxiety Problems Scores (Center v. Facility)

Note. The x axis represent the Center scores and the y-axis represents the Facility scores.
Appendix F26.

*Histogram Representing Anxiety Problems Scores (Facility v. Center)*

![Histogram showing anxiety problems scores](image)
Appendix F27.

QQ plot Representing Somatic Problems Scores (Center v. Facility)

Note. The x axis represent the Center scores and the y-axis represents the Facility scores.
Appendix F28.

*Histogram Representing Somatic Problems Scores (Facility v. Center)*
Appendix F29.

*QQ plot Representing Attention Deficit/Hyperactivity Problems Scores (Center v. Facility)*

Note. The x axis represent the Center scores and the y-axis represents the Facility scores.
Appendix F30.

*Histogram Representing Attention Deficit/Hyperactivity Problems Scores (Facility v. Center)*
Appendix F31.

*QQ plot Representing Oppositional Defiant Problems Scores (Center v. Facility)*

![Q-Q Plot (series X vs Y)](image)

Note. The x axis represent the Center scores and the y-axis represents the Facility scores.
Appendix F32.

Histogram Representing Oppositional Defiant Problems Scores (Facility v. Center)
Appendix F33.

QQ plot Representing Conduct Problems Scores (Center v. Facility)

Note. The x axis represent the Center scores and the y-axis represents the Facility scores.
Appendix F34.

*Histogram Representing Conduct Problems Scores (Facility v. Center)*
Appendix F35.

QQ plot Representing Obsessive Compulsive Problems Scores (Center v. Facility)

Note. The x axis represent the Center scores and the y-axis represents the Facility scores
Appendix F36.

*Histogram Representing Obsessive Compulsive Problems Scores (Facility v. Center)*
Appendix F37.

QQ plot Representing Stress Problems Scores (Center v. Facility)

Note. The x axis represent the Center scores and the y-axis represents the Facility scores
Appendix F38.

*Histogram Representing Stress Problems Scores (Facility v. Center)*
Appendix F39.

**QQ plot Representing Positive Qualities Scores (Center v. Facility)**

**Q–Q Plot (series X vs Y)**

Note. The x axis represent the Center scores and the y-axis represents the Facility scores
Appendix F40.

*Histogram Representing Positive Qualities Scores (Facility v. Center)*

![Histogram](image-url)
Appendix G: Trauma Scores by Group

Appendix G1.

QQ plot Representing Total Trauma Scores (Center v. Facility)

Q-Q Plot (series X vs Y)

Note. The x axis represent the Center scores and the y-axis represents the Facility scores.
Appendix G2.

*Histogram Representing Total Trauma Scores (Facility v. Center)*
Appendix G3.

*QQ plot Representing Intrusive Thought Scores (Center v. Facility)*

Note. The x axis represent the Center scores and the y-axis represents the Facility scores.
Appendix G4.

*Histogram Representing Intrusive Thoughts Scores (Facility v. Center)*
Appendix G5.

*QQ plot Representing Avoidance Behaviors Scores (Center v. Facility)*

Note. The x axis represent the Center scores and the y-axis represents the Facility scores.
Appendix G6.

Histogram Representing Avoidance Thoughts Scores (Facility v. Center)
Appendix G7.

QQ plot Representing Negative Cognition Scores (Center v. Facility)

Note. The x axis represent the Center scores and the y-axis represents the Facility scores
Appendix G8.

*Histogram Representing Negative Cognition Scores (Facility v. Center)*
Appendix G9.

QQ plots Representing Arousal Behavior Scores (Center v. Facility)

Note. The x axis represent the Center scores and the y-axis represents the Facility scores.
Appendix G10.

*Histogram Representing Arousal Behaviors Scores (Facility v. Center)*

![Histogram](image-url)
Appendix G11.

QQ plot Representing Trauma Incidents Scores (Center v. Facility)
Appendix G12.

*Histogram Representing Trauma Incidents Scores (Facility v. Center)*
Appendix H: Parenting Scores by Group

Appendix H1.

QQ Plot Representing Positive Parenting Scores (Center v. Facility)

Note. The x axis represent the Center scores and the y-axis represents the Facility scores.
Appendix H2.

Histogram representing positive parenting scores (Facility v. Center)
Appendix H3.

QQ plot Representing Supervision Scores (Center v. Facility)

Note. The x axis represent the Center scores and the y-axis represents the Facility scores.
Appendix H4.

*Histogram Representing Supervision Scores (Facility v. Center)*
Appendix H5.

QQ plot Representing Parental Involvement Scores (Center v. Facility)

Note. The x axis represent the Center scores and the y-axis represents the Facility scores.
Appendix H6.

*Histogram Representing Parental Involvement Scores (Facility v. Center)*
Appendix H7.

*QQ plot Representing Inconsistent Discipline Scores (Center v. Facility)*

Note. The x axis represent the Center scores and the y-axis represents the Facility scores.
Appendix H8.

*Histogram Representing Inconsistent Discipline Scores (Facility v. Center)*
Appendix H9.

QQ Plot Representing Corporal Punishment Scores (Center v. Facility)

Note. The x axis represent the Center scores and the y-axis represents the Facility scores.
Appendix H10.

*Histogram Representing Corporal Punishment Scores (Facility v. Center)*
Appendix I: Dosage Figures

Appendix II

QQ plots representing dosage minutes (Center v. Facility)

Note. The x axis represent the Center scores and the y-axis represents the Facility scores.
Appendix I2

*Histogram representing dosage minutes (Facility v. Center)*