

2016

The Effect of CIBS Participation and Gender on Adolescent Residential Treatment Duration

Tyler Maxwell Dority
Walden University

Follow this and additional works at: <https://scholarworks.waldenu.edu/dissertations>

 Part of the [Psychology Commons](#)

This Dissertation is brought to you for free and open access by the Walden Dissertations and Doctoral Studies Collection at ScholarWorks. It has been accepted for inclusion in Walden Dissertations and Doctoral Studies by an authorized administrator of ScholarWorks. For more information, please contact ScholarWorks@waldenu.edu.

Walden University

College of Social and Behavioral Sciences

This is to certify that the doctoral dissertation by

Tyler Dority

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee

Dr. Alethea Baker, Committee Chairperson, Psychology Faculty

Dr. Neal McBride, Committee Member, Psychology Faculty

Dr. Stephen Rice, University Reviewer, Psychology Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
2016

Abstract

The Effect of CIBS Participation and Gender on Adolescent Residential Treatment

Duration

by

Tyler M. Dority

M.A., Argosy University, 2010

B.A., Bethel University, 2007

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Clinical Psychology

Walden University

August 2016

Abstract

Additional out-of-home placement rates for adolescents in long-term regional treatment center (LTRT) programs in the United States are between 50% and 75%. There appears to be a failure to generalize treatment to home and community in programs that do not fully integrate family involvement. The collaborative intensive bridging services (CIBS) treatment model uses intensive family therapy and brief residential treatment center (RTC) placement to reduce or eliminate use of LTRT. Using family systems theory, the purpose of this study was to determine whether participation in CIBS provided better outcomes than LTRT programs. The study used archival data collected by Family Adolescents and Children's Family Services, Inc. and children's mental health providers in a certain Minnesota county over approximately 5 years. There were 33 adolescents in the CIBS group and 33 in the LTRT group. The 3 research questions were (1) did the CIBS group have significantly fewer total out-of-home placements than the LTRT group, (2) did gender have any effect on this, and (3) were there any interaction effects on total out-of-home placement days from the combination of gender and program participation. Results of two-way ANOVA analyses showed a significant main effect for the first research question ($p = .00$, partial $\eta^2 = .40$), no significant main effect for the second ($p = .46$, partial $\eta^2 = .01$), and no significant main effect for the third ($p = .15$, partial $\eta^2 = .03$). These findings supported the position that participation in CIBS treatment resulted in statistically fewer total out-of-home placement days (TPD) than participation in LTRT. Social change implications include improved individual and family functioning for families in need as well as reduced financial expenditure for treatment.

The Effect of CIBS Participation and Gender on Adolescent Residential Treatment

Duration

by

Tyler M. Dority

M.A., Argosy University, 2010

B.A., Bethel University, 2007

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Clinical Psychology

Walden University

August 2016

Dedication

This dissertation is dedicated to my loving, supportive, and incredibly patient wife, Abby. It is also dedicated to my mother, Betsy Dority, who would have been so proud of this accomplishment and to my father, Tom Dority, who taught me the art of pursuit.

Acknowledgments

I wish to acknowledge my committee chair, Dr. Alethea Baker; my methods committee member, Dr. Neal McBride; and my University Research Reviewer, Dr. Stephen Rice, for their invaluable support and expert advice on this project.

Table of Contents

List of Tables	v
Chapter 1: Introduction to the Study.....	1
Background.....	2
Problem Statement.....	3
Purpose of the Study.....	6
Research Questions and Hypotheses	7
Research Question 1	7
Research Question 2	7
Research Question 3	8
Theoretical Framework.....	9
Nature of the Study.....	10
Definitions.....	11
Assumptions.....	11
Scope and Delimitations	13
Limitations	14
Significance.....	16
Summary.....	17
Chapter 2: Literature Review.....	18
Description of the Literature Search.....	19
Theoretical Framework.....	20
Systems Theory.....	20

Family Systems Theory	21
Complex Adaptive Systems Theory	24
Traditional Residential Treatment Model	25
Family Integrated Residential Treatment.....	31
Brief, Family Integrated Residential Treatment	38
Qualitative Study Contributions	44
The Literature Gap	46
Summary	47
Chapter 3: Research Method.....	49
Research Design and Rationale	50
Methodology	51
Population	51
Population Setting and Procedures	52
Procedures for Data Collection.....	53
Instrumentation	53
Operationalization of Constructs	54
Two-Way ANOVA (Univariate) Analysis Plan	54
Research Question 1	55
Research Question 2	55
Research Question 3	55
Threats to Validity	57
Threats to External Validity.....	57

Threats to Internal Validity	58
Ethical Procedures	61
Summary	61
Chapter 4: Results	63
Data Collection	65
Results	66
Descriptive Statistics.....	66
Statistical Assumptions.....	67
Two-Way ANOVA Findings.....	68
Research Question 1	69
Research Question 2	69
Research Question 3	69
Summary	70
Chapter 5: Interpretation, Recommendations, Implications, and Conclusions.....	72
Interpretation of the Findings.....	72
Adding to the Literature.....	72
Theoretical Framework Implications.....	74
Limitations of the Study.....	75
Recommendations.....	76
Implications.....	77
Conclusion	78
References.....	79

Appendix A: Data Use Agreement84

List of Tables

Table 1. Participation (CIBS or LTRT) descriptives67

Table 2. 2 X 2 Factorial ANOVA (Univariate) summary table.....70

Chapter 1: Introduction to the Study

The purpose of this study was to analyze the effectiveness of a novel, intensive family therapy model called collaborative intensive bridging services (CIBS). This model is a unique blend of intensive, home-based family therapy and brief residential treatment center (RTC) placement intended to reduce or eliminate the need for traditional long-term residential treatment (LTRT). Participants in CIBS spend a maximum of 30-45 days in RTC placement, while LTRT participants typically spend from 90 days to a full year in placement (County Data, 2014). Additionally, CIBS includes a high level of family integration (family members participating in family therapy sessions) in treatment while LTRT has historically used minimal, if any, family integration (Brown et al., 2010). The CIBS model has been used since late 2009 with families with adolescents identified as at risk for out-of-home placement by children's mental health providers in a certain Minnesota county. This county tracked a variety of descriptive statistics from 2009 through 2014. These statistics appear to show outcomes success with the CIBS model including reduction of re-admission and reduction in funding expenditure. When CIBS descriptive statistics are compared with those from LTRT use in the same county, CIBS appears more effective both from a treatment perspective and a financial one. The county found CIBS to be so much more effective that they began using it almost exclusively in 2015. This study marks the first use of inferential statistics to evaluate the effectiveness of CIBS.

Foltz (2004) outlined the limitations in current residential treatment approaches to working with adolescents with increasingly challenging problems. Foltz advocated for

further research on effective RTC treatment. This study helps fill a gap in the research on short-term, family-integrated treatment models. The literature review in Chapter 2 shows minimal research regarding this type of program (Holstead, Dalton, Horne, & Lamond, 2010; Lakin, Brambila, & Sigda, 2004; Waugh & Kjos, 1992). CIBS was designed to answer a need for reducing costs while increasing the effectiveness of adolescent treatment in the modern environment.

Social change implications include improved individual and family functioning for families in need as well as reduced financial expenditure for treatment. Descriptive statistics indicated overall costs of implementing CIBS may be less than LTRT in the same county (County Data, 2014). Reduced costs may mean more services available to more people over time.

The remaining sections of this chapter include the background of the study, the research problem, the purpose of the study, and the research questions and hypotheses. The theoretical and conceptual frameworks of the study are presented followed by a description of the design of the study. Next, definitions, assumptions, and limitations are presented as well as the significance of the study.

Background

The traditional, long-term residential treatment (LTRT) model for the treatment of adolescents with significant behavioral and emotional problems has been the norm in the United States since the 1950s or earlier (Lourie & Shulman, 1952). This model prevailed until recently when a shift toward short-term residential programs began out of a need to reduce costs, but also due to recognition of more effective treatment models that embody

greater family integration and shorter placements (Chance, Dickson, Bennett, & Stone, 2010). Family integration in treatment has been shown to increase the long-term success of RTC treatment in several studies (Brown et al., 2010; Lakin et al., 2004; Leichtman, 2008; Robst et al., 2013). Additionally, Leichtman Leichtman, Barber, & Neese (2001) showed that shorter stays coupled with intensive, family-integrated treatment result in statistically significant improvement in symptoms, functioning, and successful maintenance of these improvements over time. My study was conducted to add information to the research literature in this area.

Several researchers indicated a shift to short-term, family-integrated treatment appeared to be on the horizon for RTC treatment (Holstead et al., 2010; Leichtman, 2008; Leichtman et al. 2001; Nijhof et al., 2012). My study was conducted to add to the body of literature regarding specific programs available to accomplish this. Additionally, no research was found in the current literature regarding the CIBS model specifically. The model appears to be unique in the field. I aimed to address the lack of research on the effectiveness of these types of programs as well as the CIBS model specifically.

My study was designed to provide needed research comparing short-term, family-integrated treatment with traditional, long-term residential programs.

Problem Statement

Re-admission rates for adolescents in traditional, long-term regional treatment center (LTRT) programs in the United States are between 50% and 75% (Holstead et al., 2010). For the purposes of my study, *re-admission* was defined as additional out-of-home placements beyond initial regional treatment center (RTC) placement. There appeared to

be a high rate of failure to generalize treatment to community and family life in programs that did not integrate significant family involvement in treatment (Lakin et al., 2004; Landsman, Groza, Tyler, & Malone, 2001). A literature review showed scholars and practitioners are thinking about a shift from LTRT programs to shorter term, family-integrated programs (Foltz, 2004; Lakin et al., 2004; Landsman et al., 2001; Waugh & Kjos, 1992). Collaborative intensive bridging services (CIBS) is a novel, intensive family therapy model. This model is a blend of intensive, home-based family therapy and brief RTC placement. There appeared to be a gap in the literature regarding how this shift will be accomplished. Further, there appeared to be a lack of research to evaluate the effectiveness of this type of program (Holstead et al., 2010).

Almost all researchers addressed in my study recognized the high costs of LTRT (Bettmann & Jaspersen, 2009). Another problem in the LTRT industry is re-admission as evidence of failure to generalize treatment successes to the family or community environments (Asarnow, Aoki & Elson, 1996; Hair, 2005; Thomson, Hirshberg, & Qiao, 2011). The American Association of Children's Residential Centers (AACRC; 2009) published papers addressing "the redefinition of residential treatment" (P. 237). These papers highlight the conflict between using RTCs merely as a placement resource (holding tank) for troubled adolescents and their actual treatment benefit.

Regarding family integration, Brown et al. (2010) reviewed 293 RTCs in the United States and found 88% reported staff had not heard of family-driven treatment principles of RTC treatment. Leichtman (2008) cited numerous studies that support the effectiveness of a family-integrated treatment model in highly successful RTC programs.

Robst et al. (2013) analyzed results of a family-integrated RTC program in Florida and found improvements in functioning were directly correlated with family involvement even when the interaction was by phone only. Additionally, Leichtman, Leichtman, Barber and Neese (2001) showed shorter stays of three to four months (shortest: 35 days) coupled with intensive treatment with highly integrated family involvement yielded statistically significant improvements in symptoms and functioning during treatment and over a year post discharge. Leichtman again suggested short-term RTC placements with family integrated treatment as the best alternative for a modern system of care in his 2008 study.

My study built upon previous research in each of these areas to advance the research base in the area of family integrated, short-term residential treatment programs. Most recently, Robst et al. (2013) and Brown et al. (2010) highlighted the importance of family-integrated treatment models. My study added to the literature in this area of adolescent treatment. Further, my study added findings regarding re-admission by including re-admission rates as a measurement factor. This approach expands on recent studies such as those by Thomson et al. (2011) who highlighted the problem with re-admission in residential treatment, as well as Holstead et al. (2010) who highlighted an overall lack of research regarding the effectiveness of the CIBS program.

The identified gap in the current literature is threefold. First, researchers identified a gap in research regarding family-integrated, brief RTC placement models like CIBS (Holstead et al., 2010; Leichtman, 2008; Leichtman et al., 2001; Nijhof et al., 2012). Second, there is a gap in the research comparing the effectiveness of these types of

programs with traditional long-term residential treatment (Holstead et al., 2010). Third, there is a gap in the research addressing re-admission as both a problem and a measurement factor for treatment effectiveness (Holstead et al., 2010).

Purpose of the Study

I used a causal-comparative, nonexperimental quantitative research design with statistically measurable variables. The purpose of this study was to determine whether CIBS provides better outcomes for families than traditional long-term residential (LTRT) programs. I accessed archival data collected by Family Adolescents and Children's Family Services, Inc. and children's mental health providers in a certain Minnesota county where the model had been implemented. This data included pre- and postfunctioning information from parents and adolescents, rates of adolescent re-admission (into out-of-home placement following initial LTRT or CIBS participation), and financial data. The data were never before used in published research. Several methods for comparing treatment model outcomes were explored including measuring parental reports of increased adolescent behavioral functioning, measuring family behavioral functioning after participating in either CIBS or long-term residential treatment programming, comparing re-admission rates, and correlating families' strength of participation with outcomes of the CIBS model.

Focusing on re-admission rates as a valid measurement to compare the effectiveness of CIBS with that of LTRT was determined to be an appropriate use of the available data. It was my intent with this study to compare the re-admission rates of CIBS participants with those of LTRT participants over an approximately five-year period. The

first independent variable was participation on two levels, participation (CIBS) or nonparticipation (LTRT). The second independent variable was gender on two levels, male or female. The dependent variable was total initial RTC plus additional out-of-home placement days over 5 years.

Research Questions and Hypotheses

Each participant in the population participated in an initial placement period at a local residential treatment center and may have also participated in additional days of out-of-home placement post discharge. I used a two-way ANOVA to compare out-of-home placement readmission rates between CIBS and LTRT. Specifically, I analyzed out-of-home placement rates from the two programs as measured by total number of days of out-of-home placement over time for each participant.

The research questions with their respective hypotheses are listed below.

Research Question 1

Did participation (CIBS) result in a statistically different total number of out-of-home placement days over 5 years compared with nonparticipation (LTRT)?

H_0 : There is no statistically significant mean difference in the total number of days spent in out-of-home placement between participation and nonparticipation.

H_1 : There is a statistically significant mean difference in the total number of days spent in out-of-home placement between participation and nonparticipation.

Research Question 2

Was there a statistically significant difference in the total number of out-of-home placement days over 5 years between genders?

H_0 : There is no statistically significant mean difference between the total number of out-of-home placement days for each gender.

H_1 : There is a statistically significant mean difference between the total number of out-of-home placement days for each gender.

Research Question 3

What interaction effects emerged from the combination of the independent variables (participation or nonparticipation and gender)?

H_0 : There is no interaction between participation or nonparticipation and gender with respect to total number of days spent in out-of-home placement. All mean differences between the independent variables are explained by the main effects.

H_1 : There is an interaction between participation or nonparticipation and gender with respect to total number of days spent in out-of-home placement. The mean differences between the independent variables are not what would be predicted from the overall main effects of participation and gender.

A two-way ANOVA was used to test the null hypotheses. The two-way ANOVA analyzed the main effects and the associated interaction effect. I analyzed the effect of participation in either CIBS or LTRT on the total number of days each comparison group spent in out-of-home placement as well as the effect of gender on the same variable.

Additionally, I assessed the interaction between the two factors, participation and gender. That is, I determined whether there was a statistically significant compound or interaction effect of participation and gender on the total number of days spent in out-of-home placement.

Theoretical Framework

The root theoretical framework for my study was family systems theory. Family systems or systemic theory holds that individuals in families are emotionally and behaviorally interdependent on one another (Bowen, 1966). Changes in one member's behaviors or actions necessarily affect all others. My study was grounded in family systems theory as it directly involved the theory that individual problems are intertwined with the larger family system and cannot be treated separately or in a vacuum from the family system.

Additionally, complex adaptive systems theory lent relevant framework to the theoretical construct of my study. Complexity science extends systems theory by offering a description of the unpredictable interactions and results of those in family systems (Graham, 2009). Complex adaptive systems theory can describe a family system in which there is no centralized control mechanism and that operates based on the simultaneous combination of minute-to-minute interactions between all members along with family members' interactions with their environment (Graham, 2009).

Family-integrated treatment is directly derived from these theories of family functioning. As such, comparing the CIBS model (high family integration) with traditional, long-term residential treatment (low family integration) is tantamount to comparing family system theories with individual psychology. These theories are explored in greater detail in Chapter 2.

These theories were directly related to my study approach and research questions. The CIBS model is based heavily in family systems theory, and to measure its

effectiveness is one way to measure the validity of family systems theory. Because the CIBS model was shown to result in less re-admission than the traditional long-term residential model, it is a testament to the effectiveness in treating adolescents as members of a family system rather than as individuals.

Nature of the Study

The rationale for the selection of the design of this study was the need for a concisely measureable way to compare CIBS outcomes with those of traditional long-term residential treatment (LTRT) while advancing the research literature in the area of adolescent treatment as well.

The independent variable participation was based on each participant's participation or nonparticipation in the CIBS model. Each adolescent in the population participated in either the CIBS model (participation) or LTRT (nonparticipation). The independent variable gender is self-explanatory and was included for the purpose of determining whether there were any outcome differences between males and females. The dependent variable of total initial RTC and additional out-of-home placement days over 5 years was the measurement variable. The total number of days spent in initial RTC and additional out-of-home placements for each independent variable was statistically analyzed using a two-way ANOVA. I also used the two-way ANOVA to analyze the interaction effect of combining the independent variables with respect to total number of days spent in out-of-home placement.

The target population for this study was the total population of adolescents who received RTC services in a certain Minnesota county during the years of 2009 to 2014.

Each adolescent in the population was treated by one of two RTC providers in the state of Minnesota. The setting in either RTC was virtually identical. There were a total of 66 adolescents in the population. There were 14 males and 19 females in the participation (CIBS) group, and 15 males and 18 females in the nonparticipation (LTRT) group. The existing archival data were previously collected by the county children's mental health department and were shared with me for purposes of completing my study. The data were provided in the form of a spreadsheet and were entered into IBM SPSS Statistics 21 software for statistical analysis.

Definitions

CIBS: Collaborative intensive bridging services, an adolescent treatment model that incorporates intensive home-based family therapy with brief (30-45 days), family-integrated residential treatment over a total period of approximately nine months.

Family systems therapy: Family systems therapy or systemic therapy refers to family therapy modeled on family systems theory (Bowen, 1966).

Family integrated treatment: Family integrated treatment refers to treatment that incorporates a high degree of family therapy work.

LTRT: Traditional long-term residential treatment or simply long-term residential treatment.

RTC: Residential treatment center.

Assumptions

I made several assumptions for the purpose of this study. One was that re-admission rates could be used as a valid measure of treatment effectiveness. Although

this is corroborated in other studies (Asarnow et al., 1996; Hair, 2005; Thomson et al., 2011) it could not be demonstrated to be true beyond the shadow of a doubt. I assumed that less re-admission to out-of-home placement was a sign of successful treatment. However, lack of re-admission could indicate other factors for certain adolescents such as lack of funding for further placement or family reluctance to participate. Another assumption was that fewer total out-of-home placement days could also be interpreted as a measure of the effectiveness of a treatment model.

Re-admission was defined as additional days of out-of-home placement. For the purposes of this study, re-admission was observed as days spent in out-of-home placement beyond 45 days. This number of days (45) is equivalent to the maximum number of days any CIBS participant spent in initial RTC placement. Participants in LTRT typically spent more than 45 days in initial placement. Any additional out-of-home placement days beyond 45 were assumed to be an indicator of re-admission for either program.

Another assumption was that the data provided to me regarding this population was 100% accurate. This could not be demonstrated to be completely true, but I assumed that few to no errors occurred in the collection of the data as they are easily tracked information. Again, this assumption was necessary to ensure the validity of the findings.

Finally, the two-way ANOVA had three inherent assumptions including the assumption of independence, assumption of normality, and assumption of homogeneity of variance (Hinkle, Wiersma, & Jurs, 2003). Assumption of independence refers to the assumption that the samples are random, independent, and from a defined population.

Because the sample was actually the total population of participants, this assumption was held valid. Assumption of normality refers to the assumption that the dependent variable scores were normally distributed within the population. This assumption was tested using the IBM SPSS Statistics 21 Software Tests of Normality function, and results were reported in Chapter 4. Lastly, the assumption of homogeneity of variance assumes that the population variances in all cells of the factorial design are equal (Hinkle et al., 2003). This was tested using Levene's Test of Equality of Error Variances with IBM SPSS Statistics 21 software, and results were reported in Chapter 4.

Scope and Delimitations

I made certain choices in developing the boundaries of this study. Several possibilities for studying the CIBS program were identified and considered. The general exclusion criteria used in developing the scope of my study were availability of resources and efficiency of use of the archival data. Several of the options for studying the effectiveness of CIBS were eliminated due to lack of archival data or potential difficulty in obtaining the data that would have been required. These included options such as measuring parental reports of increased adolescent behavioral functioning or measuring family behavioral functioning after participating in either treatment model. Financial data had been collected on this population comparing the financial effectiveness of the two models. However, I did not wish to focus on financial outcomes over treatment outcomes. Another eliminated idea was to test the correlation between families' strength of participation and outcomes of the CIBS model. This option was eliminated due to

perceived difficulties with measuring the quality of family participation or buy in during the treatment process.

Another boundary of my study was the data population. The only population included in this study was the population of adolescents who received RTC services in a certain Minnesota county during the years of 2009 to 2014. All other adolescent populations, however similar, were excluded from the scope of this study. However, I hoped the results of this study would be generalizable to similar populations in similar circumstances. Other researchers are encouraged to test my study's findings in similar populations to expand the research base.

Lastly, the design of this study was nonexperimental, or quasi-experimental, and therefore had limitations. These included my lack of ability to control or manipulate the participants, data collection methods, or provider environments. Additionally, any conclusions drawn from results must be done carefully because all possible variables could not be known or addressed.

Limitations

One main limitation of my study was its elimination of the several other potential areas of research design applicable to this area of research. As discussed in the previous section, I chose to eliminate several ways to study the effectiveness of the CIBS model. Each of these represented a limitation in the scope of my study and evidence of the necessity for ongoing research in this area. I analyzed a relatively narrow aspect of the topic in question. Another design limitation was the fact that I compared LTRT treatment with the CIBS model only. Other studies could be required to compare similar data with

other types of family-integrated, short-term RTC treatment models. A meta-analysis could be appropriate as well.

Some methodological limitations of this study involved not controlling for variables in the analysis. These included the level and quality of family participation during treatment within the population studied, adolescent maturation over time, subtle differences between the two RTCs used with the model, and differing human judgment in the selection process for participation in either model.

Limitations with the population were also present. The data population were all minors and were therefore a protected population. As such, demographic information that may have aided in generalizing results was not made available in my study. Similarly, the setting in which the population was studied was unique, and I could not make any claims of generalizability outside of this specific setting.

The issue of biases that could affect study outcomes was presumed to be minimal. The data were simple and factual, as was the analysis plan. The statistical results were reported empirically without additional interpretation. I simply stated, “Here are the numbers from this population from these years, and here are the results of the statistical analysis.” Interpretations as to the generalizability and meaningfulness of the results are left to the reader.

Limitations were primarily addressed by the statistical power and significance values chosen. These were chosen so as to decrease the potential for type I or type II errors through increasing the statistical power of the analysis. Other limitations were

addressed through the simplicity of the analyses or by making clear what the study measured and what it did not.

Significance

This study was unique as family integrated, short-term RTC treatment is an underresearched subject within the area of residential treatment for adolescents. A literature review showed minimal research regarding this type of program (Holstead et al., 2010; Lakin et al., 2004; Waugh & Kjos, 1992). My study was designed to provide needed research comparing the CIBS program with traditional long-term residential programs including the possibility of short-term RTC placement for the adolescent with long-term efficacy.

Results from my study could potentially affect county or state decision-making regarding funding or treatment model policy for the treatment of adolescents with significant behavioral or emotional problems and their families. Similarly, results could potentially affect various providers' approaches to treating these families.

Positive social change implications include potentially improved individual and family functioning for families in need as well as reduced financial expenditure for treatment. As studies like this one show improved generalization of treatment outcomes with adolescents participating in CIBS, the number of adolescents and their families who experience significant change across the country could be increased through the use of similar treatment models. This increase may result in increased functioning across the spectrum of families in the United States as success often breeds success (Iso-Ahola & Dotson, 2014).

Additionally, in today's environment of managed care and limited resources (Tang et al., 2008), CIBS may also have the potential to provide a more cost-effective treatment model for the future. Preliminary descriptive statistics indicate that overall costs of implementing CIBS may be up to five times less than traditional, long-term residential programs (County Data, 2014; Landsman et al., 2001). Reduced overall costs could mean more services available to more people over time.

Summary

This chapter provided a brief overview of the scope of my study, its purpose and significance to the field, and some details as to the technical nature of the research. I intended to familiarize the reader with the main points of this study and capture interest in reading further. This chapter outlined my intention to design a study that filled a gap in the research base regarding adolescent treatment.

Specifically, I focused on the treatment of adolescents with significant behavioral and emotional problems. I researched the effectiveness of a novel treatment model (CIBS) that conceptualizes adolescents' problems as systemic in nature and suggests the need for a family-integrated treatment approach. I hoped this study would add meaningful information to the research literature in this area, would increase awareness of the CIBS model, and would facilitate positive social change.

Chapter 2 addresses the literature review that was undertaken as part of this study. I cited research supporting the theoretical framework of this study as well as exploring the history of, and current research in, the area of adolescent inpatient treatment.

Chapter 2: Literature Review

In this literature review, I explore the theoretical framework that informed the research. In particular, I describe the specific constructs being measured within that framework. The literature review starts with a description of the literature search strategy, includes an overview of the theoretical perspectives, and presents specific details of the literature reviewed and relevant findings.

The theoretical perspective of my study was family systems theory (Bowen, 1966). The problem addressed in the research was to learn whether CIBS provided better outcomes for families than traditional long-term residential programs. The individual constructs of this study from broadest to most specific were the use of residential treatment centers (RTC) for adolescent mental health treatment, family-integrated RTC adolescent mental health treatment, and a combination of brief family-integrated RTC (home-based family-therapy adolescent mental health treatment). The term *adolescent* was defined as a male or female between the ages of 13 and 18.

The theoretical perspective was applied within the context of each of these constructs. The perspective had differing relevance for each and became increasingly relevant as the constructs narrowed in scope. The constructs provided the independent variables of CIBS treatment and traditional residential treatment as well as the dependent variable of additional placements after initial treatment. The current literature suggests significant differences in effectiveness between brief family-integrated and traditional long-term residential treatment models, and researchers argue that family integration is important for long-term effectiveness in the treatment of severe adolescent emotional and

behavioral disorders.

This chapter includes a discussion of the three theoretical frameworks that compose the theoretical basis for my study. Additionally, the literature outlining perspectives and methods of delivering this type of service is discussed bringing the reader from the origins of adolescent residential treatment to the present. The chapter concludes with a summary of the gaps in the literature related to the choice of research questions and methods. The literature review demonstrates a need for additional research addressing whether brief, family-integrated residential mental health treatment for adolescents can be more effective than is currently the case.

Description of the Literature Search

Articles and books relevant to this research were obtained through Walden University's research databases. Peer-reviewed journals were searched using electronic databases such as PsycARTICLES, PsyINFO, and Thoreau. Key search terms included *family systems, adolescent residential treatment, family integrated treatment, brief residential treatment, short term residential treatment, family adolescent treatment, adolescent treatment effectiveness, treatment resiliency factors adolescent, long term residential treatment adolescent, residential treatment adolescent discharge transition,* and combinations thereof. Most of the studies reviewed were published in the last 5 to 7 years, although some seminal works were published more than 10 years ago. There is some material from textbooks that provides an excellent overview of systems theory and family systems theory and therapies. Articles and book chapters were included if they

met search criteria, appeared to provide recent and relevant information, addressed the topic, and correlated with key concepts of the theoretical framework.

Theoretical Framework

The theoretical framework for my study was based on family systems theory. Family systems or systemic theory holds that individuals in families are emotionally and behaviorally interdependent on one another (Bowen, 1966). Changes in one member's behaviors or actions necessarily affect all others. This study was grounded in family systems theory as it directly involves the notion that individual problems are intertwined with the larger family system and cannot be treated separately from the family system. Systems theory and family systems theory are described separately in this chapter. A review of complex adaptive systems theory is presented as a supplementary but relevant expansion on systems theory.

Systems Theory

The idea of looking at human families as systems similar to mechanical systems can be traced back to *cybernetics*, a term coined by Norbert Wiener at MIT (Broadhurst & Darnell, 1965). The term cybernetics was a way of describing the similarity between humans and machines at a communication level. Humans and machines operate very similarly in terms of input and output. If a communication is given to a machine or a human, the observable input and output response scenario is quite similar in a rudimentary way (Broadhurst & Darnell, 1965).

Systems theory was derived from control systems from World War II era research concerning rocket guidance systems (White & Klein, 2002). These systems were

mechanical, self-correcting systems that were designed to make adjustments to the trajectory of a rocket based on reactions to changes between parts of the system (White & Klein, 2002). A simple way to understand control systems is to consider the thermostat system in a home. The thermostat is designed to react to changes in the atmospheric system within the home. If the temperature in winter reaches below a certain level, the thermostat tells the furnace to kick on until the temperature within the home reaches the set temperature as measured by the thermostat's thermometer. The same system applies in reverse during summer months using the air conditioning unit.

This type of system uses only circular communications feedback loops. The mechanisms of the thermostat do not recognize each other's emotional or mood states. The system functions on pure communication feedback analysis that is relatively predictable. The circular feedback is based entirely in circular causality with no regard for motives or underlying causality (Nichols, 2008). This type of system interaction is purely behavioral and takes nothing but what is objectively observable into account.

These mechanical systems were used to form the basis for understanding families and individuals as parts of a system. However, additional understandings of the complexities of family systems were needed to incorporate the additional factors in family interactions not accounted for by general systems theories.

Family Systems Theory

As these types of real world mechanisms were beginning to spark thinking about systems and systems research, Bateson and Jackson began applying the theory to human families in Berkeley, California (White & Klein, 2002). Bateson, Jackson, and their

colleagues published *Toward a Theory of Schizophrenia* (Bateson, Jackson, Haley, & Weakland, 1956) in which they outlined a theory that human families are like a communications system in which each member affects the other (White & Klein, 2002). This theory was aimed at explaining schizophrenia and a communications phenomenon called a double-bind, but was expanded into an understanding of all families and the way their interactions affect each other (White & Klein, 2002). That is, any behavior or change in behavior in one member affects all other members, like a mechanical system designed to react to any change in a single part of that system.

Since the 1960s, the idea of double-bind communication within a family causing schizophrenia has been overruled by better understandings of the disorder. However, this began the widely recognized theory of family systems and its effect on theories of family and individual psychotherapy still unfolding today.

Bowen is perhaps the best recognized developer of the family systems theory and therapy. The Bowen Center continues to provide services and education in family systems theory and therapy. According to the website, the definition of Bowen family systems theory is as follows:

a theory of human behavior that views the family as an emotional unit and uses systems thinking to describe the complex interactions in the unit. It is the nature of a family that its members are intensely connected emotionally. Often people feel distant or disconnected from their families, but this is more feeling than fact. Family members so profoundly affect each other's thoughts, feelings, and actions that it often seems as if people are living under the same 'emotional skin.' People

solicit each other's attention, approval, and support and react to each other's needs, expectations, and distress. The connectedness and reactivity make the functioning of family members interdependent. A change in one person's functioning is predictably followed by reciprocal changes in the functioning of others. Families differ somewhat in the degree of interdependence, but it is always present to some degree. (Kerr, 2000; p. 1)

I found value in quoting this entire passage from the website as it gives perhaps the most succinct definition of family systems theory I have found. An understanding of this definition of family systems is essential to understanding the nature, relevance, and theoretical background of my study. The most basic and essential element of this study is the understanding of family systems theory and its importance in treating adolescent disorders.

Lakin et al. (2004) applied family systems theory in an analysis of readmission rates to RTCs similar to my study. Lakin et al. found higher levels of parental involvement correlated with lower rates of readmission post discharge. Lakin et al. found parental involvement resulted in lower rates of readmission for a variety of diagnoses including conduct, mood, anxiety, and psychotic disorders. However, Lakin et al. cautioned that the level of family functioning at discharge was a significant factor in addition to overall involvement. This suggests concurrent family functioning treatment based in family systems theory may be paramount in reducing RTC readmissions.

Complex Adaptive Systems Theory

In a recent expansion of systems theory, complex adaptive systems theory (CAS) has been presented in the literature (Graham, 2009). Although it has not been applied in studies similar to my study, it was included because it lent an additional relevant framework to the theoretical construct of this study. Complexity science extends systems theory by offering a description of the unpredictable interactions and results of interactions in family systems (Graham, 2009). Complexity science is derived from chaos theory. However, where chaos theory described how small influences affect broad effects such as weather or avalanche patterns, complexity science describes more organized levels of living systems' behaviors. Complex adaptive systems theory describes systems in which multiple independent entities interact with each other at micro and macro levels while simultaneously interacting with the shared environment (Graham, 2009). CAS can be used to describe a family system in which there is no centralized control mechanism and that operates based on the simultaneous combination of minute-to-minute interactions between all members along with family members' interactions with their environment.

One of the important aspects of CAS is the concept of *emergence*. Emergence is the idea that the whole is more than the sum of the parts. That is, studying the individual parts of a family is not enough to understand the entire functioning family system (Graham, 2009). Emergence has also been described as the process of creating a new entity with unique features from a set of individual entities that are necessary to create the new entity, but do not individually embody the features of the new entity (Welsh &

Martin, 2013). Emergence is a way of explaining the development and nature of families and the individuals who make them up.

Each of these theories is an important foundation for my study as they provide the framework for understanding the impetus behind the evolution of residential treatment models and theories. Generally speaking, the lesson learned from these system theories is that all individuals are integral members of a family (especially adolescents still living at home), and their behaviors, emotional states, and growth experiences cannot be separated from this system theoretically or actually.

Traditional Residential Treatment Model

An exhaustive study of the history of residential treatment centers (RTC) for children and adolescents was beyond the scope of this study. However, I can trace its origins back to the medieval era when orphaned or abandoned children were housed in church-directed programs. Housing these children in poorhouses, along with mentally ill or sick adults, became the norm during the industrial revolution (Lourie & Shulman, 1952). Over the last century and a half, recognition of the need for specific care for children separate from adults led to the development of various types of modern RTC. The institutional theoretical framework and specific training for RTC staff has evolved considerably as well (Lourie & Shulman, 1952). However, the root of the practice still exists. American zeitgeist still appears to lean largely toward separating behaviorally challenging children from the mainstream environment for treatment, as is done with seriously mentally ill adults.

The precedent from centuries past seems to have guided public perception. A child nobody knows what to do with is taken somewhere to be cared for by professionals and sent home if and when the problems are assuaged or behavior normalized. This practice is indicative of the individual focus of the psychological community for hundreds of years. Problems were perceived to be unique to the individual, and if the individual could be treated he or she would be able to rejoin society in his or her home environment. The point is the original and long-standing theoretical foundation for the modern RTC seems to be as follows: Isolate the child from his or her family (and community) until behaviors and problems are sufficiently managed, and then send him or her back home to fit back into the family like a repaired cog in a machine.

Modern long-term RTCs (LTRTC) are described by Bettmann and Jaspersen (2009) as similar to inpatient psychiatric units, but have longer stays and are less restrictive. Similar to inpatient psychiatric units, most adolescents in LTRTC experience severe behavioral or psychological dysfunction and have not responded well to outpatient therapy or skills training (Bettmann & Jaspersen, 2009). Simply put, adolescents recommended for LTRTC are those who have failed to respond (for various reasons) to outpatient or home based individual or family therapy. It is often the choice of treatment prior to considering inpatient psychiatric treatment at a hospital, although this order is sometimes reversed. Parents often regard LTRTC as the last and final option for help with adolescents they are unable to manage (statewide Social Services Information System and county IFAS financial data, 2013). Indeed, lack of resources for outpatient treatment due to decreasing insurance coverage has led many parents to utilize county or

state funded RTC treatment (Pavkov, Negash, Lourie & Hug, 2010). Even if families were able to shift their access to treatment to outpatient providers during earlier decades of the 20th century, modern financial constraints have kept RTC treatment relevant in the modern era.

A multitude of studies have addressed the areas of length of stay, costs and varying effects on the adolescent and potentially abusive situations (Bettmann & Jaspersen, 2009). Many critics have questioned the utility of potentially increasing anxiety by removing an adolescent from the family environment and imposing unfamiliar structure or exposure to other behaviorally unstable children. Conversely, others have highlighted the importance of utilizing LTRTC to remove adolescents from potentially harmful home environment situations. Almost all critics and studies recognized the high costs of LTRTC (Bettmann & Jaspersen, 2009). Similar to hospital stays, LTRTC treatment was one of the most expensive forms of treatment and managed care can significantly impact the length of stay approved for LTRTC (Bettmann & Jaspersen, 2009).

Over the past decade or two, the average length of stay in LTRTC has ranged from 6 or 12 months or more, but currently averages closer to three months or less in the managed care environment (Leichtman, Leichtman, Barber & Neese, 2001). In my study county the average stay in LTRTC over the past three years was over four months (statewide Social Services Information System and county IFAS financial data, 2013).

One of the problems that have plagued the LTRTC industry is re-placement post discharge to family or community as a function of failure to generalize treatment progress

to family and community environment (Asarnow et al., 1996; Hair, 2005; Thompson et al., 2011). These studies directly or indirectly discussed re-placement as a measure of RTC treatment outcomes, or effectiveness. Asarnow et al. found risk levels of re-placement as high as 59% over a three year post discharge study.

Hair (2005) highlighted the prevalence of declining treatment effectiveness as time post discharge increased in a meta-analysis of the research literature on adolescent residential treatment from 1993 to 2003. This decline in generalization longevity of treatment progress would likely result in re-placement for a certain percentage of those adolescents over time. Similarly, Thompson et al. (2011) cited the frequency of re-placement into “more restrictive level of care placements” (P. 260) within the first year post discharge as a common measure of treatment effectiveness.

There were relatively few studies attempting to capture RTC treatment outcomes due to the complicated and widely variable nature of treatment, individual characteristics and environment (Brown, Barrett, Ireys, Allen & Blau, 2011). Brown et al. (2011) found through meta-analysis of RTC outcome tracking data from 2008 and 2009 most RTCs only measured outcome data for six months post discharge. This type of research highlighted the lack of studies encompassing longer periods post discharge.

Another method comparing pretreatment factors with treatment outcome effectiveness as a measure of predictability has been used to measure RTC treatment effectiveness (Dunnen et al., 2012). Dunnen et al. conducted one of few studies that measured outcomes at a two year post discharge period (longer than six months). Dunnen et al. found that youths in the study population with higher ability to successfully manage

externalized behaviors and internalized emotions prior to admission had more intact outcome measures at the two year post discharge time as well. In other words, the youths who already had some ability to regulate their behaviors and emotions demonstrated the greatest success rates post discharge. This seems like a statistic that could apply to any treatment model and does not necessarily espouse the effectiveness of RTCs. Each of these studies attempted to address the myriad variables involved in studying RTC outcomes and highlight the need for more comprehensive, consistent and standardized outcomes measurements across all RTCs.

Other problems are often cited within RTC treatment facilities. Certain studies discussed or measured questionable levels of staff training, safety protocols, and evidenced based treatment model fidelity and planning. Butler, Little and Grimand (2009) highlighted the necessity of cooperation from all levels of RTC staff and even the potential for cultural shift in the organization to effectively capture outcomes data. Butler et al. pointed out the instance of RTC staff viewing research efforts as intrusive on their time or simply “pointless” (P. 76). Similarly, lack of agreement of most effective treatments for adolescents in RTCs perpetuated inconsistent outcomes measurements and invited critics to pick apart effectiveness (Foltz, 2004). These studies highlighted the unfortunate, but very real truth that various RTCs do not align with any standardized model of treatment or even well regulated levels of staff training or safety protocols.

Pavkov et al. (2010) found even accreditation and licensing did not ensure consistently high levels of care and effective treatment. In other words, the current RTC environment contains a wide variety of treatment modalities serving a wide variety of

adolescent psychological and behavioral conditions in a minimally studied variety of environments and communities. Foltz (2004) shed light on the alarming lack of evidence based treatments for seriously disturbed adolescents. Many RTC treatments appear to merely be re-engineered adult normed treatments without sufficient evidence base for use with developing adolescents (Foltz, 2004).

The AACRC (2009) has published a series of papers addressing what they call “the redefinition of residential treatment” (P. 237). The AACRC called attention to the conflict between using RTCs merely as a placement resource for troubled adolescents and their actual treatment benefit. The AACRC contended RTCs can have significant treatment value and positive outcomes when used properly, but redefinition is needed in the modern environment. The AACRC cited the importance of improvements in areas including regulation and licensure, accreditation, and quality standards in addition to family involvement and decision making in treating the child as integral to the redefinition of RTCs (2009).

Similarly, Chance et al. (2010) cited the importance of a change in the traditional RTC environment toward shorter term, family-integrated RTC treatment. Chance et al. further indicated the importance of aftercare services to support continued success of the adolescent after discharging to family and community. Additionally, this study highlighted the importance of a well trained staff with shared goals and treatment beliefs led by an administration committed to dynamic shifts in treatment culture in order to avoid complacency and stagnancy in treatment outcomes (Chance et al., 2010).

Family Integrated Residential Treatment

The preceding review of literature consistently revealed a need for change in the traditional LTRTC model at the staff training, treatment modality or post discharge outcome tracking levels. One of the most talked about factors in predicting positive outcomes from RTC placement in the literature is increased family involvement in one or more areas of the treatment process (AACRC, 2009; Bettmann & Jaspersen, 2009; Chance et al., 2010; Foltz, 2004; Hair, 2005; Thompson et al., 2011). It is generally agreed family involvement either during treatment or in transition planning for discharge increased long term success of RTC treatment (Brown et al., 2010; Lakin et al., 2004; Leichtman, 2008; Robst et al., 2013). The need for the inclusion of family involvement in RTC treatment models seemed clear in the research. The Adoption Assistance and Child Welfare Act in 1980 appeared to have been one major factor in spurring RTCs into considering family integrated treatment modalities (Lakin et al., 2004). These shifts were also significantly influenced by the emergence of family systems theories discussed earlier in this chapter. This section will address some of the evidence base for advocacy of this treatment factor.

For beginnings, Brown et al. (2010) analyzed information from 293 RTCs across the country regarding the inclusion of family integrated treatment. Brown et al. found only between 20% and 30% of RTCs included family members in treatment planning and oversight while 88% of the RTCs reviewed reported staff had not heard of family driven treatment principles of RTC treatment. This study appeared to support the notion that while many agree family integrated treatment works best, few RTCs actually implement

this practice successfully. Whether this is due to lack of resources and staff training or a tendency to adhere to traditional models or both was not entirely clear.

Leichtman (2008) cited several possible factors including beliefs childhood psychopathology was rooted in parents, beliefs difficulties in children must be addressed in isolation from family before reunification, the very real fact some children were placed in RTC in part to escape some form of abuse or neglect at home, and even staff predilection to side with children in judging parents' shortcomings. Each of these and more factors appeared to have gotten in the way of a timelier acceptance of and transition toward family integrated treatment in spite of evidence of its effectiveness.

The process of family integration into RTC treatment began as part of transition planning toward discharge. Transitional planning in general could include identifying needed resources, training in successful parenting skills, assistance with finding outpatient providers, or mobilizing support systems (Nickerson, Colby, Brooks, Rickert & Salamone, 2007). Eventually, RTCs began to realize the particular importance of working together with adolescents' families in discharge planning on a number of different levels (Nickerson et al., 2007). Nickerson et al. highlighted "consistent evidence" (P. 81) that involving families was a critical factor in treatment outcomes, especially in the area of transition planning. The majority of respondents to this study expressed concern about adolescents' ability to integrate into family post discharge. Nickerson et al. recognized the importance of including families in the skills youth are learning in treatment so parents can continue the roles of mentorship and support provided by staff during RTC placement.

From these beginnings the concept of family integration became broadened to include family participation in the entire RTC treatment process. Leichtman (2008) cited numerous studies supporting the increased effectiveness of adopting a family integrated, or family therapy oriented, treatment model in highly successful RTC programs. This was part of a theoretical shift from treating children in isolation from their family to RTCs acting as a “family support system” (P. 194). This began an overall shift from individual oriented treatment to family oriented treatment within RTCs. One way this has been described is that the RTC should function as a microcosm of home or “living laboratory” (P. 194) for families during treatment in which skills can be practiced before being put into use in the real home environment (Leichtman, 2008).

Robst et al. (2013) analyzed results of a family integrated RTC program in Florida. The study found greater improvements in the adolescents’ functioning directly correlated with family involvement even when the interaction was by phone only. This improvement was found to exist even when the family involvement was by phone in the case of participants whose families lived farther away from the RTC. The study additionally correlated improved functioning directly with “home passes” (P. 234). These were brief periods of time spent at home before returning to the RTC again. This result could indicate the importance of practicing skills learned in treatment within the home environment prior to discharge. This study also appeared to shed light on the importance of therapeutic contact with parents and family versus non-therapeutic (recreational) visits (Robst et al., 2013).

Landsman et al. (2001) performed a quasi-experimental study of their reasonable efforts to permanency through adoption and reunification efforts (REPARE) treatment model compared with a more traditional RTC model. The model attempted to integrate the principles of family preservation with the traditional RTC model. REPARE attempted to reduce externalized and internalized problems in adolescents while decreasing length of admission and increasing more permanently successful family functioning. One of the most significant findings was that participants who experienced increased family contact and treatment participation (a staple of the REPARE model) had more stable outcomes post discharge. The results of the study also indicated the REPARE model was more successful than the same agency's traditional RTC model (Landsman et al., 2001). In this way, this was a seemingly rare example of a study of adolescent residential treatment that included a comparison group.

Similarly, Preyde, Cameron, Frensch and Adams (2011) studied outcome differences between youths treated in home based programs and those treated in RTC environments. The findings concluded the home based (family integrated) programs yielded higher levels of improvement in personal and family functioning than the RTC control group. As part of this study qualitative interviews were conducted with the youths involved. Many of the families and youths reported improvements in overall family functioning post discharge in these interviews. This appeared to include youths who were reunited with biological parents post discharge after having been in foster care (or similar) prior to admission. One of the family integrative factors highlighted was the importance of involving family members in determining the manner of treatment

delivery. That is, parents can be integral in helping providers understand how to reduce trust and engagement barriers in developing a therapeutic alliance with youths. The study also indicated the ability of this model to involve family members in parenting education. (Preyde et al., 2011). These results further highlighted the importance of striving for the highest level of family participation possible within the RTC environment.

Indeed, the acceptance of the need for fully integrated family participation in the RTC treatment process has come far enough that some have insisted families *must* start to assume responsibility for complete participation in their children's treatment and support in maintenance of successes. Pumariega (2007) highlighted some of the psychological dangers of treating children in isolation from their home environments. Pumariega indicated the very real possibility of family reorganization in the child's absence to the affect that the child has no role or place in the family system upon return. Pumariega reported this isolation treatment model can also send the false message to families that they have no responsibility for the problems that led to seeking treatment for the youth, nor any reason to engage in change. Pumariega called for a major shift in which families and communities assume full responsibility for youths' mental illness treatment and management and not simply send them away for "behavioral containment" (P. 344). Here was an example of a relatively extreme (but quite logical) departure from the usefulness of almost *any* type of residential treatment and a call to get back to the responsibility of a village to raise its youth in sickness or in health.

In a related but different angle, Lipschitz-Elhawi, Itzhaky and Michal (2008) measured adolescents' perception of life satisfaction while in RTC placement in Israel.

Among other factors contributing to greater RTC life satisfaction (such as gender and length in RTC) were level of family support and sense of belonging to community.

Overall the influence of these *external* factors was rated as greater than *internal* factors such as self-esteem (Lipschitz-Elhawi et al., 2008). In a previous study Lipschitz-Elhawi and Itzhaky (2005) found even adolescents who had experienced abuse or neglect by parents at home evidenced greater personal and academic adjustment in RTC with family involvement than those whose families did not participate.

Enter multisystemic therapy (MST) and similar evidence based treatment approaches that address incorporating family involvement in adolescent treatment. There is a plethora of research backing up evidence based treatments such as MST and functional family therapy (FFT). Each of these treatment models relies heavily on family systems theory and the concept of ecological treatment which holds that children are best treated within, and including, all areas of their home ecology (family, peers, school, and community). Perhaps the best known of these treatment models is MST. According to the MST website, “[MST] is an intensive family and community based treatment program that focuses on addressing all environmental systems that impact chronic and violent juvenile offenders -- their homes and families, schools and teachers, neighborhoods and friends” (Retrieved November 12, 2015, from <http://mstservices.com/what-is-mst/what-is-mst>). Similarly, the FFT website describes this treatment model as:

a short-term, high quality intervention program with an average of 12 to 14 sessions over three to five months. FFT works primarily with 11- to 18-year-old youth who have been referred for behavioral or emotional problems by the

juvenile justice, mental health, school or child welfare systems. Services are conducted in both clinic and home settings, and can also be provided schools, child welfare facilities, probation and parole offices/aftercare systems and mental health facilities. (Retrieved June 1, 2016, from <http://www.fftllc.com/about-fft-training/clinical-model.html>)

With the development of these types of ecological treatment models for children and family therapy, RTCs have begun to attempt their incorporation into the transformation process of the traditional modality.

For example, the previously mentioned REPARE RTC treatment model pilot (Landsman et al., 2001) was based largely on the MST model's understanding that long term success is inextricably linked to the adolescent's family and social environment. The REPARE model was designed specifically to address RTC placement barriers to this type of ecologically based treatment and create a model that embraced this philosophy as much as possible within the confines of the RTC model (Landsman et al., 2001).

Similarly, the family integrated transitions (FIT; Trupin et al., 2011) model followed the tenets of MST with some dialectical behavioral therapy (DBT) and motivational interviewing sprinkled in. The point is, in their attempts to integrate family participation into the traditional RTC model, providers and researchers have looked toward the prevailing evidenced based treatments. They have studied them and created ways to integrate them into the RTC model to ensure its continued place in the system of care as well as improve its effectiveness and the research base supporting successful outcomes (Kott, 2010). In addition to these integrations, researchers have focused their

attention on reducing costs as the RTC model is increasingly affected by the managed care environment and diminishing financial resources.

Brief, Family Integrated Residential Treatment

As RTC researchers continued to aim toward greater family integration, so they looked for ways to control or cut costs. One of the prevailing answers to this challenge (at least from insurance companies) was reducing the length of stay in RTC. The days of traditional LTRT are dwindling it seems. As stated previously in this chapter, RTC stays have reduced from a year or more down to just a few months on average (Leichtman et al., 2001). Within this financially based environment other researchers have found evidence of greater effectiveness in shorter term placements regardless (Holstead et al., 2010; Leichtman, 2008; Leichtman et al., 2001; Nijhof et al., 2012).

According to Holstead et al. (2010) we have spent an inordinate percentage of the national budget for children's mental health on a very small percentage of children in RTC treatment. This arouses much concern as to whether RTC effectiveness rates justify the expenditure. Rates of additional placement after initial RTC admission have also been quoted as high as 50% to 75% nationally (Holstead et al., 2010). Certainly, in our financial viability driven society, these are large concerns in the healthcare industry.

In a 2001 study Leichtman et al. collected symptomology and functioning data during treatment, at discharge, at three months post and 12 months post discharge for a group of 123 adolescents over a four year period. These were adolescents who had not responded well to a variety of previous inpatient and outpatient treatments. Results of the longitudinal study provided evidence of the effectiveness of both shorter term placement

and use of a family integrated treatment model. The results showed shorter stays of three to four months (shortest was 35 days) coupled with intensive treatment with highly integrated family involvement yielded statistically significant improvements in symptoms and functioning during treatment and over a year post discharge period (Leichtman et al., 2001). There were some inherent strengths and weaknesses in this study relevant to the current one. A major strength was the fact the study tracked data over varying periods of time (i.e. at admission, three months post discharge, and one year post discharge). I attempted to analyze varying time periods with respect to outcomes in my study as well. A weakness of the Leichtman et al. study was a lack of a formal control group. My study had an advantage in having available formal control group data to include in the analysis.

In a 2008 paper Leichtman further highlighted the necessity of assimilating short-term therapy models into the RTC venue as a function of rising costs and scarce coverage resources as well as a relative increase in available community based supports for families in crisis. Leichtman advocated for short-term RTC placements with family integrated treatment as the best alternative for a modern system of care.

Preyde et al. (2011) suggested a significant factor in maintaining outcomes after discharge is the level of after care available. This may suggest length of placement is not as important as the level of support available to the child post discharge. This study had a unique strength in having studied outcomes of both residential treatment and in home therapy treatment in parallel. I did not incorporate this ability in my study. An inherent weakness of the Preyde et al. study was the fact the two test groups may or may not have had comparable pretreatment environment factors. This was an inherent weakness in my

study as well. The home environments, socioeconomic status, and other variables may not have been able to be reconciled between the test group and control group (Preyde et al., 2011).

In support of this concept, Stout and Holleran (2012) have shown how the use of evidence based treatments such as MST has significantly reduced the use of RTC placement in the state of New Jersey and reduced overall costs. It can be argued the use of evidence based treatments coupled with brief RTC placement could be equally as effective in reducing overall lengths of stay and costs even when RTC placement is deemed necessary. However, the Stout and Holleran study specifically stated the limitation that the study did not determine whether the use of evidence based treatments resulted in lowering costs (compared to LTRTC) or any particularly increased individual treatment outcomes. I did analyze the comparison between youths treated with an evidence based model coupled with RTC placement and youths treated in LTRTC with evidence based models in my study.

Another example is the Damar Pilot (as described in Holstead et al., 2010). This study collected data on 56 adolescents in a community based RTC setting between 2003 and 2006. Twenty eight received the novel treatment and 28 received treatment as usual (TAU) at Damar Services RTC campus. Family involvement in all aspects of treatment was intense including concurrent, ongoing discharge planning as an integral part of treatment to reduce lengths of stay (Holstead et al., 2010). Results showed the average length of stay compared to TAU was over 4.5 months less. Further results showed aggressive and other maladaptive behaviors reduced 73% and an increase in family

involvement of 88%. Holstead reported a re-placement rate of only 10% as of 2008 for the original 28 participants. This program is still serving the community in Indianapolis, Indiana with continuing positive results in reducing lengths of stay, costs and increasing participants' success.

Other examples of programs similar to the Damar Pilot (as described in Holstead et al., 2010) and fairly similar to the CIBS program were the REPARE model (Landsman et al., 2001), FIT program (Trupin et al., 2011), and the integrative family and systems treatment (I-FAST) model (Fraser et al., 2012). These models all attempted to provide more effective, shorter term and less costly treatment for adolescents and their families.

Landsman et al. (2001) studied treatment outcomes of adolescents enrolled in the REPARE model as compared with traditional RTC treatment at Four Oaks RTC in Cedar Rapids, IA. The program was designed to reduce lengths of stay, decrease emotional and behavioral problems, increase family and interpersonal functioning and avoid further placements outside the home. A combination of family integrative treatment while at RTC as well as in home and community based services post discharge was used. The family integrative approach was based on the MST model (Landsman et al., 2001). Results of the study showed the model did reduce lengths of stay and increase family contact. Shorter lengths of stay were shown to correlate with successful outcomes as well. However, shorter lengths of stay were an average of 242 days versus 444 for the control group, still lengthy by CIBS standards. Nearly 60% of the REPARE model children were considered to be 'stable' at 6 months post discharge compared with approximately 38% of the control group. Of the REPARE children, 75% were stable at

18 months post admission compared with exactly the same percentage of the control group (Landsman et al., 2001). The most relevant findings to my study were the data showing shorter lengths of stay coupled with concerted family integration and after care efforts in the community result in increased or at least equivalent longevity of stabilization.

The FIT program had similar endeavors to the REPARE program although was used with juvenile offenders with comorbid substance abuse and mental health diagnoses (Trupin et al., 2011). The FIT program was primarily designed to reduce repeat incarceration (criminal recidivism) among juvenile offenders. However, the program recognized the connection between mental health and community behaviors that land these youth in the hands of the juvenile correctional system. It utilized MST treatment coupled with DBT, motivational enhancement, and parenting skills training in a family integrated model (Trupin et al., 2011). The research was designed to study felony crime recidivism rates post incarceration between the FIT group and a TAU group at the same facility. Results showed the risk of crime recidivism for the FIT group was 30% less than the control group three years post incarceration (Trupin et al., 2011). Although this study was primarily concerned with crime recidivism, it was another good example of the effectiveness of briefer residential treatment. The FIT program utilized a 2 to 3 month treatment program while the youths were incarcerated and an additional 4 to 6 month aftercare program after release. The significantly lower rates of criminal recidivism in the FIT treatment group as compared with the TAU group not only evidenced the program's effectiveness, but showed that longer term treatment may be unnecessary.

Lastly, Fraser et al. (2012) have created a model of home based treatment called I-FAST that does not incorporate RTC placement, but is worth mentioning as it is a good example of the underlying principles of brief, family integrated treatment. It was family systems based, approached treatment from an ecological lens incorporating concerted collaborative efforts within the community, and utilized the philosophy that intervention can be brief and intense to create fundamental second-order change in the family and ecological system (Fraser et al., 2012). This last point was one of the most relevant contributions to my study. Second-order change can be defined as change at the process level of family problems that can have effect on the greatest variety of sub-problems in the system. This type of treatment is significantly preferable to a band aid treatment style in which a provider attempts to “fix” a never ending series of cascading problems one by one. The I-FAST model sought to create fundamental change in family interactional patterns driven by the parents and supported by collaborative entities in the community (Fraser et al., 2012). Thus, the model sought to utilize interventions that quickly and effectively created major process level change in the family’s functioning. An important aspect of this model was consistent collaboration with community systems outside the family. In this way, the second-order changes were upheld in most or all of the youth’s natural environments (i.e. school, church). This is an excellent parallel to the CIBS model and outcomes. In a 2009 pilot trial the I-FAST program showed positive outcomes including increased family and individual functioning, avoidance of out-of-home placements, reduced problematic behaviors, improved parenting skill, and increased family cohesion (Fraser et al., 2012). A final important aspect of the I-FAST model was

an awareness of the inherent problems with implementing a new treatment model with a very new treatment philosophy within existing treatment organizations and staff.

Problems such as difficulty understanding the model, staff or administrative resistance to change, or inadequate training ability were given as examples. The I-FAST model addressed these primarily by initiating integration at the administration level in order to take advantage of a trickledown effect within an agency's provider culture.

Administration staff were called upon to disseminate the I-FAST model in such a way as to mesh with the unique culture rather than butt against it. This is an important aspect when implementing any new system and certainly applies to the potential effectiveness of the CIBS model.

Qualitative Study Contributions

Qualitative studies lent a different perspective to the literature review relevant to my study. Qualitative studies that attempt to capture the lived experience of youths while in residential treatment as well as after discharge can provide an important dimension to this research that the above mentioned studies cannot. That is the perspective of the recipient of treatment. A qualitative study by Bluthenthal, Riehman, Jaycox, and Morral (2006) helped capture some of this perspective.

Bluthenthal et al. (2006) interviewed seven male and three female youth participants in a Los Angeles, CA long-term, unlocked, substance abuse treatment program. This type of program can be said to have several similarities to many of the mental health RTCs addressed in this literature review. They, too, were characterized by long term placement and unlocked facilities. The youths were all interviewed regarding

their experience with ten different aspects of the treatment program during their placement as well as some general follow up questions about their after treatment thoughts and feelings (Bluthenthal et al., 2006).

Some aspects of the program discussed in the interviews were not particularly relevant to my study. However, the youth's reactions to questions about their participation in the family counseling aspect as well as the issue of running from the program were of particular interest. One of the youths expressed recognition and positive reaction to the family therapist's ability to bring "connection back to me and my family" (P. 467). Another admitted that family therapy "helped a lot because before I never used to...open up to my mom. [It was] the first time I ever actually spoke to my mom" (P. 467) (Bluthenthal et al., 2006).

The study went on to report that the family therapy aspect was one of the three most reported points of program effectiveness through the eyes of the participants. The study found that many of the participants felt positive about being able to express and address feelings of guilt about their historical behaviors toward parents, being provided a "rare" (P. 470) opportunity to communicate successfully with their parents, improving the closeness of their relationship with their parents, and improving their understanding of that relationship. Interviews after discharge showed that many youths felt they were able to continue their success with improved communication in their families (Bluthenthal et al., 2006).

The issue of participants running from RTCs was not addressed previously in the literature review, but is relevant as a very real aspect of residential treatment. In fact,

many of the participants in the Bluthenthal et al. (2006) study ran from that treatment facility. Several came back while others did not. The researchers were able to interview even some who never returned. The study found that many of these regretted running as they recognized the missed opportunity for improvement in their lives. Of particular note was the report that some participants ran because they missed their families to an overwhelming degree (Bluthenthal et al., 2006). This could be an excellent proof of the importance of consistent, frequent family integration from the start during RTC placement in any program.

Unfortunately, qualitative research on adolescent perspectives in residential treatment was scarce in the literature search. The Bluthenthal et al. (2006) study was the only one found with enough relevance to report.

The Literature Gap

Several of the studies incorporated in the previous text included evidence of the gaps in the literature and I helped fill those gaps with my study. The main gap lay in the fact there were no other programs or studies identical to the CIBS program found through the literature review. Further, models such as REPARE or I-FAST (and their research) were similar to, but distinct from the CIBS model. Holstead et al. (2010) cited a relative lack of data and research to evaluate the effectiveness of these types of programs.

More specifically, Preyde et al. (2011) pointed out the necessity for randomized clinical trials of these novel types of RTC treatment while Brown et al. (2010) stated that further research is needed to further determine the value of family integrated RTC treatment models. Further, Bettman and Jaspersen (2009) asserted the need for across

program and between treatment statistics to study effectiveness of various RTC programs. Brown et al. (2011), Chance et al. (2010) and Thompson et al. (2011) all identified the importance of future studies to monitor and collect longer term outcome data on clients post discharge. Kott (2010) identified the need for studies “at the facility level” (P. 21) (as opposed to meta-analysis) and suggested using previously gathered data as a good start.

Finally, Lakin et al. (2007) referenced the value of future studies that may help determine the financial benefit of shorter term RTC treatment models. One of the aspirations of the CIBS program is to manage overall county costs for RTC placements over time. Short term placement only works financially if it is effective over the long run and does not result in multiple, subsequent short term placements over time. Similarly, Stout et al. (2013) called for research that studies how the addition of evidence based treatment models such as MST to a system of care may improve outcomes *and* reduce overall service usage.

Summary

There are literally decades of research in the literature regarding many different aspects of modern RTCs and their various treatment models and theoretical bases. This literature review was intended to capture the research and information that was most relevant to my study or provided the most relevant background information on the RTC system in general.

The evolution of the purpose for the modern RTC has grown significantly over the past many decades. The earlier RTCs appear to have been very expensive and

professionally staffed boarding homes for children to be “fixed” over long periods of time (sometimes years) and sent home when and if their psychological disturbances or maladaptive behaviors were corrected. As the field became more and more aware of and accepting of the systemic theories and models, RTCs slowly began to consider the child’s ecology and attempted to include parents and families in the process. The beginning of this shift started with greater family involvement close to discharge in preparation for transitioning home.

Currently in the field, many RTCs and the entities that collaborate with them have recognized the need for fully integrated family involvement throughout the treatment process. One sign of this shift was the increase in home based treatment models that can successfully reduce the use of RTCs. What was missing is substantial evidence of the efficacy of this approach. My study provided one piece of evidence of how the brief usage of the RTC coupled with intensive home based, family integrated treatment can have lasting positive outcomes over time for children who exhibit severely disruptive behaviors. By analyzing re-admission rates of two different groups (LTRTC and CIBS) my study defined one measure of the success level of CIBS treatment.

Chapter 3 describes the research methodology I used to compare treatment model outcomes using re-admission rates as the measurement factor. The research design, methodology, hypotheses, and threats to validity are also presented.

Chapter 3: Research Method

The purpose of this causal-comparative, nonexperimental quantitative study was to compare outcomes of adolescent males and females who previously participated in one of two treatment programs. Specifically, I compared the total number of days participants spent in a residential treatment center (RTC) or other additional out-of-home placements over an approximately four-year period. Other out-of-home placements included additional RTC placement or foster care, group home, crisis shelter, or hospital placements. The existing data that were compared were from two treatment programs, collaborative intensive bridging services (CIBS) and traditional long-term residential treatment (LTRT) as described in Chapters 1 and 2. I compared two independent variables, program participation (factor A) and gender (factor B). Total number of days in out-of-home placement was the dependent variable for this study. Participation was defined as either participation (CIBS) or nonparticipation (LTRT), and gender was male or female. This study included three separate research questions. Question 1 asked did participation result in a statistically different total number of out-of-home placement days over 5 years compared with nonparticipation? The main effect for participation was the mean difference among participants in the two different programs regarding total number of out-of-home placement days over 5 years. Question 2 asked was there a statistically significant difference in the total number of out-of-home placement days over 5 years between genders? The main effect for gender was the mean difference among males and females regarding total number of placement days over 5 years. Lastly, the third research

question asked what interaction effects, if any, will emerge from the combination of the independent variables participation and gender?

In this chapter I present the specific research methods for this study. The population selection and settings in which the archival data collection occurred is described. Next, the specific statistical procedures are presented. Finally, issues related to research design, validity, and participants' rights are discussed followed by a general summary of the chapter.

Research Design and Rationale

The research design for this study was structured around an analysis strategy utilizing a two-way analysis of variance (ANOVA) with two independent variables (IV) and one dependent variable (DV). The independent variables were participation and gender.

Factor A: Participation on two levels, participation (CIBS) or nonparticipation (LTRT)

Factor B: Gender on two levels, male or female

The dependent variable was total number of days, rounded to the nearest whole day, of residential treatment center (RTC) and other additional out-of-home placements over a 3-year period.

DV: Total RTC and additional out-of-home placement days over 5 years

The rationale for this design lay in the interest of determining ways to compare the effectiveness of CIBS treatment with that of traditional long-term RTC treatment. The challenge was to determine ways to measure the outcomes resulting from either treatment

program. There were many possible ways to measure treatment outcomes. Options included meta-analysis of longitudinal outcomes of a range of RTC programs (Hair, 2005) or comparing pretreatment factors with treatment outcome effectiveness as a measure of predictability (Dunnen et al., 2012). Several researchers identified additional placements post initial RTC discharge as a function of failure to generalize treatment progress to family and community environment (Asarnow et al., 1996; Hair, 2005; Thomson et al., 2011). Additional placements, or greater total placement days, can reasonably be used as one method to measure the effectiveness of the two treatment programs included in this study.

The research design for this study included the total number of days in placement as the measure to compare and potentially determine the effectiveness of either treatment-delivery program. To determine whether there was a statistically significant gender difference between participants' and nonparticipants' total placement days, comparisons were made between male and female participants. Additionally, the interaction between these two main effects was analyzed.

Methodology

Population

The target population for this study was the total population of adolescents who received residential treatment center (RTC) services in a certain Minnesota county during the years of 2009 to 2014. The population contained 66 adolescents, 29 male and 37 female, as reported by the county's children's mental health services records. This population represented the population of adolescents in the county who were identified as

at risk for significant externalizing behaviors including substance abuse, legal charges or involvement, parental neglect, permanent out-of-home placement, or similar significant risks by county social services professionals. Many of the adolescents who participated in CIBS during 2009 to 2014 had already participated in RTC placements prior to their participation in CIBS. They were referred to the CIBS program due to ongoing behavioral or emotional problems and poor treatment outcomes from previous RTC placement.

Population Setting and Procedures

Each adolescent in the population was treated by one of two RTC providers in the state of Minnesota. The setting in either RTC was virtually identical. This contributed to the validity of this study because it added to the homogeneity of the population's experience in RTC.

The two comparison groups that were used in this study were male and female adolescent participants in RTC placements between the years of 2009 and 2014 in a certain county in Minnesota. There were 66 adolescents in the population. There were 14 males and 19 females in the participation (CIBS) group, and 15 males and 18 females in the nonparticipation (LTRT) group. Data were previously collected by the county children's mental health department and shared with me for purposes of completing this study. No cleaning or exclusion criteria were necessary given the population and the archival nature of the data.

Another moderately homogeneous aspect of the population was the *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition, Text Revision (DSM-IV-

TR) diagnoses of each adolescent. There were 25 different diagnostic categories documented in the population. The frequency of diagnosis in each category was nearly equal between the two comparison groups (County Data, 2014).

Procedures for Data Collection

The data were existing archival data previously collected by the specific Minnesota county's financial data system in 2013 and 2014, and were given to me in the form of a spreadsheet containing the necessary data for each person included in this study. To protect participants' anonymity, the data spreadsheet identified the participants by number rather than name. The data were made available to me based in part on a professional relationship between me and the county personnel who originally collected and archived the data. Formal permission was provided by the county in the form of a letter of permission (Appendix A) for me to gain access to the data and use it for the purposes of this study.

Participants were not compensated when the data was originally collected nor at any other time. Archival data were used because they were appropriate for this study, they were convenient for collection, and they met the original collectors' desire to use the data in a study to explore the effectiveness of CIBS program outcomes.

Instrumentation

No psychometric instruments were used in the collection, measurement, or analysis of the data. The specific Minnesota county collected and tracked the data in 2013 and 2014 using the State of Minnesota *Social Services Information System* and *IFAS*, the county's enterprise resource planning system.

Operationalization of Constructs

Each of the study variables had a specific operational definition. The first independent variable, participation, involved two levels of operation, participation (CIBS) and nonparticipation (LTRT). The second independent variable, gender, also involved two levels of operation, male and female. The dependent variable in this study was days. This dependent variable encompassed the operational construct of total number of days the participant spent in out-of-home placements over 5 years in the two-way ANOVA analysis.

Two-Way ANOVA (Univariate) Analysis Plan

The analysis was run using IBM SPSS Statistics 21 software with a student licensure authorization as provided by Walden University. All participants from the population included in the existing archival data were used in this study.

Descriptive statistics for the population were limited in demographic detail due to the protected nature of the population. Because the data already existed, Table 1 in Chapter 4 presents descriptive information about the population organized by participation (CIBS treatment), nonparticipation (LTRT treatment), and gender respectively.

The descriptives in Table 1 show that the mean number of total days spent in out-of-home placement for the participation (CIBS) group was less than the nonparticipation (LTRT) group regardless of gender. Similarly, the mean total number of days males spent in placement was less than females for either group.

Research Question 1

Did participation (CIBS) result in a statistically different total number of out-of-home placement days over 5 years compared with nonparticipation (LTRT)?

H_0 : There is no statistically significant mean difference in the total number of days spent in out-of-home placement between participation and nonparticipation.

H_1 : There is a statistically significant mean difference in the total number of days spent in out-of-home placement between participation and nonparticipation.

Research Question 2

Was there a statistically significant difference in the total number of out-of-home placement days over 5 years between genders?

H_0 : There is no statistically significant mean difference between the total number of out-of-home placement days for each gender.

H_1 : There is a statistically significant mean difference between the total number of out-of-home placement days for each gender.

Research Question 3

What interaction effects emerged from the combination of the independent variables (participation or nonparticipation and gender)?

H_0 : There is no interaction between participation or nonparticipation and gender with respect to total number of days spent in out-of-home placement. All mean differences between the independent variables are explained by the main effects.

H_1 : There is an interaction between participation or nonparticipation and gender with respect to total number of days spent in out-of-home placement. The mean

differences between the independent variables are not what would be predicted from the overall main effects of participation and gender.

I conducted a two-way ANOVA to analyze the main effects and the associated interaction effect. I analyzed the effect of participation on the total number of days each comparison group spent in out-of-home placement as well as the effect of gender on the same variable. Additionally, I assessed the interaction between the two factors, participation and gender. That is, I determined whether there was a statistically significant compound or interaction effect of participation and gender on the total number of days spent in out-of-home placement.

Results for each main effect were interpreted based on the statistical significance of the outcomes for the two-way ANOVA. The F -test for each null hypothesis included the F -ratio of the two-way ANOVA. A statistical significance of $\alpha \leq 0.5$ was used to analyze the F -ratio. If it was found to be statistically significant, the null hypothesis would be rejected and the research hypothesis would be retained. I computed effect size using partial eta (η^2). Effect size measured the extent to which differences between the comparison groups were accounted for by the differences between the independent variables of participation and gender.

The two-way ANOVA involved inherent assumptions including the assumption of independence, assumption of normality, and assumption of homogeneity of variance (Hinkle et al., 2003). Assumption of independence refers to the assumption that the samples are random, independent, and from a defined population. Because the sample was the total population of participants, this assumption could be held valid. Assumption

of normality refers to the assumption that the dependent variable scores were normally distributed within the population. This assumption was tested using the IBM SPSS Statistics 21 Software Tests of Normality function, and results are reported in Chapter 4. Lastly, the assumption of homogeneity of variance assumes that the population variances in all cells of the factorial design are equal (Hinkle et al., 2003). This was tested using Levene's Test of Equality of Error Variances with IBM SPSS Statistics 21 software, and results are reported in Chapter 4.

Threats to Validity

Steps were taken to minimize potential risks with the validity of generalizing results of this study to populations similar to this study population, similar settings, or similar treatment or measurement variables (external validity). Such similar applications could include any other adolescent participants in inpatient or outpatient treatment programs in the United States of America. Steps were also taken to minimize risks with the validity of conclusions drawn about this study population (internal validity). Main steps that were taken to avoid specific threats to external and internal validity included the following.

Threats to External Validity

The first and foremost step that was taken to avoid threats to external validity was to describe this study population as specifically as possible to avoid inappropriate generalizations to similar, but not identical populations. There was some challenge inherent here as much of the demographic information about this study population was unknown due to the population being a protected one (i.e. children). However, I

attempted to describe a clinically specific population in a clinically specific treatment setting. It must also be made clear that my study results are statistically applicable only to this particular population in the particular Minnesota county where the population resides.

Second, the data were collected from a specific setting in which the population was studied. As such, results may only be applicable to populations in identical settings.

Third, I described specific treatment and measurement variables. The treatment was based on family systems theory and includes specific family integration features. Without the presence of similar family integration, any alternative treatment programs would be invalid in attempting to apply this study's results. Similarly, and more directly, I analyzed only one simple outcome of the treatment programs. I analyzed the rates of re-admission – nothing more, nothing less. In this way, I did not analyze any specific adjustment, behavioral or other results of the treatment process other than differences in re-admission rates between the two approaches.

Threats to Internal Validity

An internal validity issue in my study was whether or not changes in the independent variables are actually responsible for observed variations in the dependent variables. Another internal validity issue was whether the observed variations in the dependent variables could be attributable to other causes. Because this study was a quasi-experimental design, there were many extraneous and confounding variables that could have affected the results. Some of the many extraneous variables that may be inherent in a study of a family systems based treatment model include level and sincerity of family

member involvement in treatment, therapist experience and training background variability, RTC staff experience and training background variability, varying RTC adolescent peer group influence, differing selection criteria for participation in either of the treatment models as determined by human judgment and/or bias, or age of participating adolescent.

The main confounding variable that would be inherent in any study of a human treatment model is *maturation*. It could be assumed in a two group design, such as this study, that both groups will change (mature) at the same rate. However, it is more accurate to recognize that the individual adolescents included in each group of my study likely did not mature at the same rate over a finite period of time. Therefore, maturation was considered a major confounding variable affecting the internal validity of this study.

To address the internal validity issue of causality, I clarified that I was interested in measuring improvement in one treatment model over another, not in showing causality of methods or environments in one or the other. That is, my intention was merely to show statistical evidence that CIBS treatment provides improved outcomes over LTRT as measured by number of additional out-of-home placements. Further, I considered many of the potential extraneous variables identified to be inherent to either group and therefore unavoidable. Similarly, I was unable to minimize the confounding variable of maturation as this is a factor inherent in any study attempting to measure changes in human behavior. I treated these variables as *constant* or unavoidable variables that likely would be inherent in all such studies.

Additionally, I recognized the extraneous variable ‘level of family involvement’ as possibly the most differing factor between the two treatment models. This is technically an internal validity problem with a differing extraneous variable that competes with the independent variables in explaining outcomes. However, I viewed this not as an internal validity issue to be minimized, but as evidence of one of the variables that could be highlighted in future research explaining CIBS’ improved outcomes over LTRT as measured by fewer additional out-of-home placements.

The quality of the archival data used in this study is also an internal validity factor. The data used for this study were gathered by the children’s mental health professionals who work directly with this study population. The data were compiled by county professionals using the computer based Minnesota statewide Social Services Information System and the county’s IFAS financial data tracking system. The accuracy of this data was considered to be reasonably high quality based on the generally accurate human entry of intake and discharge date data into the abovementioned systems. The completeness of this data was considered to be high quality due to the reasonable assumption the professionals involved did not fail to report on any participants during the data collection time period. The timeliness of the data was relatively high quality as well as it was gathered within five years prior to the start of this study.

Lastly, the quasi-experimental design of this study negatively affected its internal validity in and of itself. Simply put, this research design denied me any control over the conditions or parameters, nor any opportunity to manipulate the variables directly. This

study design was only able to measure outcomes that have previously occurred from one angle or another.

Ethical Procedures

The data this study used were archival and, in this case, anonymous to me. It was provided by the Minnesota county that collected it for purposes of tracking financial expenditures and other statistics for the county's children's mental health programs. No names or other demographic data were included in the data set with the exception of gender. No persons other than I had access to the data. The data were stored on an encrypted flash drive and locked within my home office. I was given exclusive access to the data by county personnel.

Summary

I designed this study to test hypotheses using established statistical analysis methods. The hypotheses were designed to test the theory that participation in CIBS treatment results in fewer total number of days spent in out-of-home placement. An assumption I made in this study was that fewer out-of-home placement days can be interpreted as one measure of the effectiveness of the treatment model.

I used IBM SPSS Statistics 21 software to perform a factorial ANOVA (univariate) analysis. The results of this analysis helped determine whether there is a statistically significant difference in treatment outcomes between participation in CIBS and LTRT as measured specifically by number of out-of-home placement days.

Specific results of the factorial ANOVA analysis are included in the next chapter. Chapter 4 presents all relevant output from the analysis and provides a discussion of

those findings. Additionally, effect size and observed statistical power attached to the results are discussed.

Chapter 4: Results

The purpose of my study was to determine whether the collaborative intensive bridging services (CIBS) treatment model provided better outcomes for families than a traditional long-term residential (LTRT) treatment model. I accessed archival data collected by Family Adolescents and Children's Family Services, Inc. and children's mental health providers in a certain Minnesota county where these models have been implemented. The data included pre- and post-functioning information from parents and adolescents, rates of adolescent re-admission (into additional out-of-home placement following initial LTRT or CIBS participation), and financial data. The data had never before been used in published research. Focusing on re-admission rates as a valid measurement to compare the effectiveness of CIBS with that of LTRT was determined to be an appropriate use of the available data and was the focus of the statistical analysis of this study. My intention was to compare the re-admission rates of CIBS participants with those of LTRT participants over an approximately five-year period. The first independent variable was participation on two levels, participation (CIBS) or nonparticipation (LTRT). The second independent variable was gender on two levels, male or female. The dependent variable was total initial RTC and additional out-of-home placement days over 5 years.

The three research questions with their respective hypotheses are listed below:

1. Did participation (CIBS) result in a statistically different total number of out-of-home placement days over 5 years compared with nonparticipation (LTRT)?

Participation Hypothesis

H_0 : There is no statistically significant mean difference in the total number of days spent in out-of-home placement between participation and nonparticipation.

H_1 : There is a statistically significant mean difference in the total number of days spent in out-of-home placement between participation and nonparticipation.

2. Was there a statistically significant difference in the total number of out-of-home placement days over 5 years between genders?

Gender Hypothesis

H_0 : There is no statistically significant mean difference between the total number of out-of-home placement days for each gender.

H_1 : There is a statistically significant mean difference between the total number of out-of-home placement days for each gender.

3. What interaction effects will emerge from the combination of the independent variables participation or nonparticipation and gender?

Interaction Hypothesis

H_0 : There is no interaction between participation or nonparticipation and gender with respect to total number of days spent in out-of-home

placement. All the mean differences between the independent variables are explained by the main effects.

H_I: There is an interaction between participation or nonparticipation and gender with respect to total number of days spent in out-of-home placement. The mean differences between the independent variables are not what would be predicted from the overall main effects of participation and gender.

This chapter presents the data collection process and descriptive statistics for the data. The results of the two-way ANOVA statistical analysis are organized by the corresponding research questions and hypotheses. Tables are used to illustrate the findings of the analysis in addition to written descriptions.

Data Collection

The data used in this study were archival data collected by children's mental health providers in a certain Minnesota county where these models had been implemented. This data was collected over an approximately five-year period between 2009 and 2014. The existing data were compiled by the specific Minnesota county's financial data system during 2013 and 2014, and were provided to me in the form of a spreadsheet containing only the necessary data for each person included in this study.

The data population contained 66 adolescents, 29 male and 37 female, as reported by the county's children's mental health services records. This population represented the total population of adolescents in this county who were identified as at risk for significant

externalizing behaviors including substance abuse, legal charges or involvement, parental neglect, permanent out-of-home placement, or similar significant risk by county social services professionals. As such, the data were entirely representative of this population. These adolescents had been referred to one of the two treatment programs due to ongoing behavioral or emotional problems, or due to poor treatment outcomes from previous placements.

Results

Descriptive Statistics

Descriptive statistics for the population were limited in demographic detail due to the protected nature of the population. The mean total out-of-home placement days (TPD) for males in the participation (CIBS) group ($n = 14$) was 64 days, while the mean total TPD for females in the participation (CIBS) group ($n = 19$) was 98 days. The standard deviation from the mean for these males was 68, and for these females was 114. The mean total TPD for males in the nonparticipation (LTRT) group ($n = 15$) was 431 days, while the mean total TPD for females in the nonparticipation (LTRT) group ($n = 18$) was 327 days. The standard deviation from the mean for these males was 336, and for females was 147. These descriptive statistics are presented in Table 1.

Table 1

Participation (CIBS or LTRT) descriptives

	Mean	Std. Deviation	N
<i>Participation</i>			
Male	64	68	14
Female	98	114	19
Total	84	98	33
<i>Nonparticipation</i>			
Male	431	336	15
Female	327	147	18
Total	374	253	33
<i>Totals</i>			
Male	254	306	29
Female	210	174	37
Total	229	240	66

Statistical Assumptions

Two-way factorial ANOVA has three inherent assumptions including independence, normality, and homogeneity of variance (Hinkle et al., 2003). Independence refers to the assumption that the samples are random, independent, and from a defined population. Because the sample was the total population of participants, this assumption could be held. Normality refers to the assumption that the dependent variable scores are normally distributed within the population. This assumption was tested using the IBM SPSS Statistics 21 Software Tests of Normality function. Results of this test were mixed. For males who participated in the CIBS treatment model, the test of normality was significant, $p = .00$. Therefore, this participant group could not be said to have a normal distribution. This lack of normal distribution could be attributed to the

existence of two identified outlier participants. These two participants had a significantly greater number of TPD compared with this group. Similarly, for females who participated in the CIBS treatment model, the test of normality was significant, $p = .00$. This participant group also could not be said to have a normal distribution. This lack of normal distribution was attributed to three outlier participants. These three participants had a significantly greater number of TPD compared with this group, but were not removed from the sample prior to ANOVA testing. For males who participated in the LTRT treatment model, the test of normality was not significant, $p = .07$. Therefore, this participant group could be said to have a normal distribution. Similarly, for females who participated in the LTRT treatment model, the test of normality was not significant, $p = .47$ and this participant group could also be said to have a normal distribution. Lastly, the homogeneity of variance assumes that the population variances in all cells in the factorial design are equal (Hinkle et al., 2003). This was tested using Levene's Test of Equality of Error Variances with IBM SPSS Statistics 21 software. The results of Levene's Test of Equality of Error Variances confirmed that the error variance of the dependent variable was statistically equal across the groups, $F(3, 62) = 21.76, p = .00$.

Two-Way ANOVA Findings

To test the null hypotheses, I conducted single univariate, 2 X 2 factorial ANOVA analyses using a .05 alpha level. Data were analyzed using IBM SPSS Statistics 21 software.

Research Question 1

A two-way ANOVA was used to determine whether participation (CIBS) resulted in a statistically different total number of out-of-home placement days over 5 years compared with nonparticipation (LTRT). The analysis indicated there was a significant main effect for participation, $F(1, 62) = 40, p = .00$, partial $\eta^2 = .40$. The participation (CIBS) group had a statistically lower number of TPD than did the nonparticipation (LTRT) group.

Research Question 2

A two-way ANOVA was used to determine whether there was a statistically significant difference in the total number of out-of-home placement days over 5 years between genders. The analysis indicated there was no significant main effect for gender, $F(1, 62) = 0.55, p = .46$, partial $\eta^2 = .01$.

Research Question 3

A two-way ANOVA was used to determine whether any interaction effects emerged from the combination of the independent variables (participation or nonparticipation and gender). The analysis indicated there was no significant interaction effect between gender and participation, $F(1, 62) = 2.14, p = .15$, partial $\eta^2 = .03$.

Table 2 presents the 2 X 2 Factorial ANOVA results.

Table 2
2 X 2 Factorial ANOVA (Univariate) summary table

	F	Sig. (<i>p</i>)	Partial η^2
Participation	40	.00	.40
Gender	.55	.46	.01
Participation/Gender	2.14	.15	.03

Summary

Based on the 2 X 2 Factorial ANOVA results, the null hypothesis was rejected and the alternative hypothesis was retained for Research Question 1 because results indicated there was a statistically significant mean difference in the total number of days spent in out-of-home placement between participation (CIBS) and nonparticipation (LTRT). I did not reject the null hypothesis for Research Question 2 because results indicated there was no statistically significant mean difference in the total number of days spent in out-of-home placement between genders. Lastly, I did not reject the null hypothesis for Research Question 3 because results indicated there was no statistically significant interaction between the two main factors, participation and gender, with respect to total number of days spent in out-of-home placement.

The findings supported the position that participation in CIBS treatment resulted in significantly fewer total out-of-home placement days (TPD) than participation in LTRT. However, there did not appear to be any support that gender had a significance effect on TPD. Also, there did not appear to be any support that the interaction between gender and participation had a significant effect on TPD.

In Chapter 5, I interpret these findings and their limitations. I also provide recommendations for future research, describe social change implications of this study, and present the conclusion.

Chapter 5: Interpretation, Recommendations, Implications, and Conclusions

The purpose of my study was to determine whether the collaborative intensive bridging services (CIBS) treatment model provided better outcomes for families than a traditional long-term residential (LTRT) treatment model. Focusing on re-admission rates as a valid measurement to compare the effectiveness of CIBS with that of LTRT was determined to be an appropriate use of the available data and was the focus of the statistical analysis of this study. My intention was to compare the re-admission rates of CIBS participants with those of LTRT participants over an approximately five-year period. Findings supported the position that participation in CIBS treatment resulted in statistically fewer total out-of-home placement days (TPD) than participation in LTRT. However, there was no statistical support that gender had a significant effect on TPD. Also, there was no statistical support that the interaction between gender and participation had a significant effect on TPD.

Interpretation of the Findings

Adding to the Literature

This study added to the literature with regard to the effectiveness of brief, family-integrated RTC treatment models. Specifically, this study added statistical evidence that this type of treatment model (CIBS) can significantly reduce the TPDs necessary to achieve positive, generalizable treatment outcomes. I assumed that fewer TPDs demonstrated positive treatment outcomes. Based on the literature reviewed in Chapter 2, this information adds a unique set of statistics to the literature. Several studies incorporated brief, family-integrated models. One of these was a study conducted by

Leichtman et al. in 2001. The results showed that shorter stays of three to four months (shortest was 35 days) coupled with intensive treatment with highly integrated family involvement yielded statistically significant improvements in symptoms and functioning during treatment and over a year post discharge period (Leichtman et al., 2001). My study showed similar outcomes (as measured by TPD) with fewer average stays in RTC. Like Leichtman et al., my data were tracked longitudinally over varying periods of time adding to the credibility of the findings. However, unlike Leichtman et al., I had the advantage of having formal control group data (nonparticipation group) to include in the analysis.

Another comparable study was one done by Preyde et al. in 2011. This study indicated that the length of placement was not as important as the level of support available to the child post discharge. This study had a unique strength in addressing outcomes of both residential treatment and in-home therapy treatment in parallel. My study did not have this ability. However, a feature of the CIBS treatment model is to incorporate intensive in-home family therapy both before and after the brief RTC placement. My study's outcomes added evidence to the argument that post-discharge intensive family therapy is integral to the effectiveness of brief RTC placement models as measured by fewer TPDs. These parallels were tempered by the fact that neither my study nor the Preyde et al. (2011) study was able to control for varying pretreatment environmental (home) factors.

My study has significant similarities to the Damar pilot study (as described in Holstead et al., 2010). Holstead et al. (2010) collected data from two different treatment

models delivered in the same RTC setting over an approximately three-year period. The novel treatment (the Damar Pilot) included intense family involvement including concurrent, ongoing discharge planning as an integral part of treatment to reduce lengths of stay (Holstead et al., 2010). The Damar Pilot study (as described in Holstead et al., 2010) showed significantly reduced average lengths of stay just as my study does and these parallels add to the literature meaningfully. Further results of the Damar Pilot (as described in Holstead et al., 2010) showed aggressive and other maladaptive behaviors reduced 73% and an increase in family involvement of 88%. Although I did not analyze change in behavior or level of family involvement, it can again be inferred that statistically fewer TPDs are the result of reduced behavioral difficulties at home coupled with increased family involvement.

Theoretical Framework Implications

My study adds to the literature supporting the effectiveness of family systems theory in the treatment of adolescents exhibiting behavioral problems within their home family systems. The CIBS treatment model incorporates a systemic treatment framework that is rooted in family systems theory and treatment principles. Because the CIBS model is based heavily in family systems theory, to measure its effectiveness is one way to measure the validity of family systems theory and treatment. Because the CIBS model was shown to result in less re-admission than the traditional long-term residential model, it is a testament to the effectiveness of treating adolescents as members of a family system rather than as individuals.

I hope that the practical utility of systemically driven models in treatment will be further validated by my study. This study was not only intended to measure the effectiveness of the CIBS model, but to expand the research evidence supporting systemic treatment of children and families.

Limitations of the Study

I analyzed a relatively narrow population of the topic in question, which limited generalizability of findings. I compared LTRT treatment with the CIBS model only, and therefore the results may be applicable only to the population used in this study. This study could be said to have validity with regard to the studied population, but limited reliability if applied to similar but different populations in similar but different treatment settings.

There were some methodological limitations of this study as well. I was not able to control for certain variables in the analysis. Some of these variables included the level and quality of family participation during treatment within the population studied, adolescent maturation over time, subtle differences between the two RTCs used with the model, and differing human judgment in the selection process for participation in either model. Other researchers would likely be unable to control for many of these variables, particularly the qualitative ones. These methodological limitations may be inherent to similar studies.

Limitations with the population were also found to be present during the analysis. The independent variable gender proved to have no statistically significant effect on the outcome of the dependent variable total initial RTC and additional out-of-home

placement days over 5 years. Moreover, the interaction between gender and participation did not produce any statistically significant effect on the dependent variable. One limitation may have been the population size. A larger population (or sample size) may have yielded different results about the effect gender had on treatment outcomes.

Recommendations

There are many implications for future research in my study. To expand the evidence base of the effectiveness of systemic treatment models similar to CIBS, researchers will need to find ways to control for variables. This presents a challenge to researchers to increase environmental control while retaining the field utility of the research. Increasing research control may result in increased efficacy but decreased effectiveness. Examples of increased control could include reducing human bias in selection of participants through the use of standardized methodology or using standardized measurement tools to measure the degree and quality of family participation in the treatment.

One way to correct limitations of this study is to use a larger population or sample size. This could increase the likelihood of statistical outcomes that provide significant information regarding the differences between genders in this type of treatment. Another possibility is to use a meta-analysis to examine a wider sample of the existing research (and thereby the sample size). Researchers could also compare similar data with other types of family-integrated, short-term RTC treatment models to expand the generalizability of findings.

In general, the recommendations of my study are for future research to focus on expanding the research base in this area in as many directions as possible while simultaneously decreasing the number of variables not controlled for in this study. In this way, my study and future research can increase the likelihood of treatment models such as CIBS being viewed as truly evidence based.

Implications

This study was designed to provide needed research comparing the CIBS program with traditional long-term residential programs including the possibility of short-term RTC placement for the adolescent with long-term efficacy.

Results from this study could potentially affect local county or state decision-making regarding funding or treatment model policy for the treatment of adolescents with significant behavioral or emotional problems and their families. Similarly, results could potentially affect various providers' approaches to treating families like these across the United States.

Positive social change implications include potentially improved individual and family functioning for families in need as well as reduced financial expenditure for treatment. As studies like this one show improved generalization of treatment outcomes with adolescents participating in CIBS, the number of adolescents and their families who may experience significant change across the country could be increased through the use of similar treatment models. This increase may result in increased functioning across the spectrum of families in the United States as success often breeds success (Iso-Ahola & Dotson, 2014).

Additionally, in today's environment of managed care and limited resources (Tang et al., 2008), CIBS may also have the potential to provide a more cost-effective treatment model for the future. Preliminary descriptive statistics indicated overall costs of implementing short-term, family integrated models such as CIBS may be up to five times less than traditional, long-term residential programs (County Data, 2014; Landsman et al., 2001). Reduced overall costs could mean more services available to more people over time.

Additionally, there may be positive theoretical implications of my study. Because the CIBS treatment model is intrinsically connected to family systems theory, this study may provide additional support for the effectiveness of this theory in a real-life treatment situation. Similarly, there are implications for others in current practice treating adolescents and their families. My study may provide additional evidence of the effectiveness of short-term, family-integrated treatment to these providers.

Conclusion

The purpose of this study was to provide the first research-based evidence of the effectiveness of the collaborative intensive bridging services (CIBS) treatment model currently in use in several Minnesota counties. I am very pleased to have designed a study that has fulfilled this purpose with statistically significant outcomes.

The CIBS program has been shown to have a lasting impact on many of the families who have participated to date. This research may increase the opportunity for many more people to experience the positive change this program can bring to families.

References

- American Association of Children's Residential Centers (2009). Redefining residential: Ensuring the pre-conditions for transformation through licensing, regulation, accreditation, and standards. (2009). *Residential Treatment for Children & Youth*, 26(4), 237-240. doi:10.1080/08865710903256247
- Asarnow, J. R., Aoki, W., & Elson, S. (1996). Children in residential treatment: A follow-up study. *Journal of Clinical Child Psychology*, 25(2), 209-214. doi:10.1207/s15374424jccp2502_10
- Bateson, G., Jackson, D. D., Haley, J., & Weakland, J. (1956). Toward a theory of schizophrenia. *Klassiekers van de Kinder-en Jeugdpsychiatrie II*, 300.
- Bettmann, J. E., & Jaspersen, R. A. (2009). Adolescents in residential and inpatient treatment: A review of the outcome literature. *Child & Youth Care Forum*, 38(4), 161-183. doi:10.1007/s10566-009-9073-y
- Bluthenthal, R. N., Riehman, K., Jaycox, L. H., & Morral, A. (2006). Perspectives on therapeutic treatment from adolescent probationers. *Journal of Psychoactive Drugs*, 38(4), 461-471. doi:10.1080/02791072.2006.10400585
- Bowen, M. (1966). The use of family theory in clinical practice. *Comprehensive Psychiatry*, 7(5), 345-374. doi:10.1016/S0010-440X(66)80065-2
- Broadhurst, A. R., & Darnell, D. K. (1965). An introduction to cybernetics and information theory. *Quarterly Journal of Speech*, 51(4), 442-453. doi:10.1080/00335636509382744

- Brown, J. D., Barrett, K., Ireys, H. T., Allen, K., Pires, S. A., & Blau, G. (2010). Family-driven youth-guided practices in residential treatment: Findings from a national survey of residential treatment facilities. *Residential Treatment for Children & Youth, 27*(3), 149-159. doi:10.1080/0886571X.2010.500137
- Butler, L. S., Little, L., & Grimard, A.R. (2009). Research challenges: Implementing standardized outcome measures in a decentralized, community-based residential treatment program. *Child Youth Care Forum, 38*, 75-90. doi:10.1007/s10566-009-9065-y
- Chance, S., Dickson, D., Bennett, P. M., & Stone, S. (2010). Unlocking the doors: How fundamental changes in residential care can improve the ways we help children and families. *Residential Treatment for Children & Youth, 27*(2), 127-148. doi:10.1080/08865711003738522
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Dunnen, W. D., St. Pierre, J., Stewart, S. L., Johnson, A., Cook, S., & Leschied, A. W. (2012). Predicting residential treatment outcomes for emotionally and behaviorally disordered youth: The role of pretreatment factors. *Residential Treatment for Children & Youth, 29*, 13-31. doi:10.1080/0886571X.2012.642268
- Foltz, R. (2004). The efficacy of residential treatment: An overview of the evidence. *Residential Treatment for Children & Youth, 22*(2), 1-19. doi:10.1300/J007v22n02_01

- Fraser, J. S., Solovey, A. D., Grove, D., Lee, M. Y., & Greene, G. J. (2012). Integrative families and systems treatment: A middle path toward integrating common and specific factors in evidence based family therapy. *Journal of Marital and Family Therapy*, 38(3), 515-528. doi:10.1111/j.1752-0606.2011.00228.x
- Graham, K. (2009). A child and adolescent mental health day program working at the edge of chaos: What complexity science may tell us about team, family and group systems. *ANZJFT Australian and New Zealand Journal of Family Therapy*, 30(3), 184-195. doi:10.1375/anft.30.3.184
- Gravetter, F. J., & Wallnau, L. B. (2007). *Statistics for behavioral sciences* (8th ed.) Belmont, CA: Wadsworth.
- Hair, H. J. (2005). Outcomes for children and adolescents after residential treatment: A review of research from 1993 to 2003. *Journal of Child and Family Studies*, 14(4), 551-575. doi:10.1007/s10826-005-7188-9
- Hinkle, D. E., Wiersma, W., & Jurs. S. G. (2003). *Applied statistics for the behavioral sciences* (5th ed.). Boston, MA: Houghton Mifflin.
- Hoagwood, K., & Cunningham, M. (1992). Outcomes of children with emotional disturbance in residential treatment for educational purposes. *Journal of Child and Family Studies*, 1,129-140. doi:10.1007/BF01321281
- Holstead, J., Dalton, J., Horne, A., & Lamond, D. (2010). Modernizing residential treatment centers for children and youth—An informed approach to improve long-term outcomes: The Damar Pilot. *Child Welfare*, 89(2), 115-130.

- Iso-Ahola, S. E., & Dotson, C. O. (2014). Psychological momentum: Why success breeds success. *Review of General Psychology, 18*(1), 19-33. doi:10.1037/a0036406
- Kott, K. (2010). Considering residential treatment for youth in the continuum of care: A systems perspective. *Residential Treatment for Children & Youth, 27*, 14-22. doi:10.1080/08865710903507987
- Kerr, M. E. (2000). One family's story: A primer on Bowen theory. *The Bowen Center for the Study of the Family*. <http://www.thebowncenter.org>
- Lakin, B. L., Brambila, A. D., & Sigda, K. B. (2004). Parental involvement as a factor in the readmission to a residential treatment center. *Residential Treatment for Children & Youth, 22*(2), 37-52. doi:10.1300/J007v22n02_03
- Lakin, B. L., Brambila, A. D., & Sigda, K. B. (2007). Behavioral managed care and its effects in the readmission to a children's residential treatment center. *Residential Treatment for Children & Youth, 24* (4), 315-326. doi:10.1080/08865710802174400
- Landsman, M., Groza, V., Tyler, M., & Malone, K. (2001). Outcomes of family-centered residential treatment. *Child Welfare, 80*(3), 351-379.
- Leichtman, M. (2008). The essence of residential treatment: III. Change and adaptation. *Residential Treatment for Children & Youth, 25*(3), 189-207. doi:10.1080/08865710802429663
- Leichtman, M., Leichtman, M. L., Barber, C. C., & Neese, D. T. (2001). Effectiveness of intensive short-term residential treatment with severely disturbed

adolescents. *American Journal of Orthopsychiatry*, 71(2), 227-235.

doi:10.1037/0002-9432.71.2.227

Lipschitz-Elhawi, R., & Itzhaky, H. (2005). Social support, mastery, self-esteem and individual adjustment among at-risk youth. *Child & Youth Care Forum*, 34(5), 329-346. doi:10.1007/s10566-005-5906-5

Lipschitz-Elhawi, R., Itzhaky, H., & Michal, H. (2008). The contribution of background variables, internal and external resources to life satisfaction among adolescents in residential treatment centers. *Residential Treatment for Children & Youth*, 25(3), 271-288. doi:10.1080/08865710802429713

Lourie, N. V., & Schulman, R. (1952). The role of the residential staff in residential treatment. *American Journal of Orthopsychiatry*, 22(4), 798-808.
doi:10.1111/j.1939-0025.1952.tb01983.x

Nichols, M. P. (2008). *Family therapy concepts and methods*. Boston, MA: Pearson Education, Inc.

Nickerson, A. B., Colby, S. A., Brooks, J. L., Rickert, J. M., & Salamone, F. J. (2007). Transitioning youth from residential treatment to the community: A preliminary investigation. *Child & Youth Care Forum*, 36(2-3), 73-86. doi:10.1007/s10566-007-9032-4

Nijhof, K. S., Vermulst, A. A., Veerman, J. W., van Dam, C., Engels, R. E., & Scholte, R. J. (2012). The associations between structural treatment characteristics and post-treatment functioning in compulsory residential youth care. *Child & Youth Care Forum*, 41(4), 387-406. doi:10.1007/s10566-011-9152-8

- Pavkov, T. W., Negash, S., Lourie, I. S., & Hug, R. W. (2010). Critical failures in a regional network of residential treatment facilities. *American Journal of Orthopsychiatry*, *80* (2), 151-159. doi:10.1111/j.1939-0025.2010.01018.x
- Pfeiffer, S. I., & Strzelecki, S. (1990). Inpatient psychiatric treatment of children and adolescents: A review of outcome studies. *Journal of the American Academy of Child and Adolescent Psychiatry*, *29*, 847-853.
- Preyde, M., Cameron, G., Frensch, K., & Adams, G. (2011). Parent-child relationships and family functioning of children and youth discharged from residential mental health treatment or a home-based alternative. *Residential Treatment for Children & Youth*, *28* (1), 55-74. doi:10.1080/0886571X.2011.550171
- Pumariega, A. J. (2007). Residential treatment for children and youth: Time for reconsideration and reform. *American Journal of Orthopsychiatry*, *77* (3), 343-345. doi:10.1037/0002-9432.77.3.343
- Robst, J., Rohrer, L., Armstrong, M., Dollard, N., Sharrock, P., Batsche, C., & Reader, S. (2013). Family involvement and changes in child behavior during residential mental health treatment. *Child & Youth Care Forum*, *42*(3), 225-238. doi:10.1007/s10566-013-9201-6
- Stout, B. D., & Holleran, D. (2013). The impact of evidence based practices on requests for out-of-home placements in the context of system reform. *Journal of Child & Family Studies*, *22*, 311-321. doi:10.1007/s10826-012-9580-6
- Tang, M. H., Hill, K. S., Boudreau, A. A., Yucel, R. M., Perrin, J. M., & Kuhlthau, K. A. (2008). Medicaid managed care and the unmet need for mental health care among

children with special health care needs. *Health Services Research*, 43(3), 882-900.
doi:10.1111/j.1475-6773.2007.00811.x

Thomson, S., Hirshberg, D., & Qiao, J. (2011). Outcomes for adolescent girls after long-term residential treatment. *Residential Treatment for Children & Youth*, 28(3), 251-267. doi:10.1080/0886571X.2011.605051

Trupin, E. J., Kerns, S. E. U., Walker, S. C., DeRobertis, M. T., & Stewart, D. G. (2011). Family integrated transitions: A promising program for juvenile offenders with co-occurring disorders. *Journal of Child & Adolescent Substance Abuse*, 20, 421-436. doi:10.1080/1067828X.2011.614889

Waugh, T. A., & Kjos, D. L. (1992). Parental involvement and the effectiveness of an adolescent day treatment program. *Journal of Youth and Adolescence*, 21 (4), 487-497. doi:10.1007/BF01537899

Welsch, R., & Martin, L. (2013). Revisioning a systemic approach to neuroscience and psychotherapy. *Couple and Family Psychology: Research and Practice*, 2 (2), 116-123. doi:10.1037/cfp0000004

White, J. M., & Klein, D. M. (2002). *Family theories*. Thousand Oaks, CA: Sage Publications, Inc.

Appendix A: Data Use Agreement

DATA USE AGREEMENT

This Data Use Agreement (“Agreement”), effective as of 1/25/2016 (“Effective Date”), is entered into by and between Tyler Dority (“Data Recipient”) and Dakota County, MN Children’s Mental Health (“Data Provider”). The purpose of this Agreement is to provide Data Recipient with access to a Limited Data Set (“LDS”) for use in research **in accord with laws and regulations of the governing bodies associated with the Data Provider, Data Recipient, and Data Recipient’s educational program.** In the case of a discrepancy among laws, the agreement shall follow whichever law is more strict.

Definitions. Due to the study’s affiliation with Laureate, a USA-based company, unless otherwise specified in this Agreement, all capitalized terms used in this Agreement not otherwise defined have the meaning established for purposes of the USA “HIPAA Regulations” and/or “FERPA Regulations” codified in the United States Code of Federal Regulations, as amended from time to time.

Preparation of the LDS. Data Provider shall prepare and furnish to Data Recipient a LDS in accord with any applicable laws and regulations of the governing bodies associated with the Data Provider, Data Recipient, and Data Recipient’s educational program.

Data Fields in the LDS. **No direct identifiers such as names may be included in the Limited Data Set (LDS).** In preparing the LDS, Data Provider shall include the **data fields specified as follows**, which are the minimum necessary to accomplish the research: gender, age, specification of which program each participant was placed in, and the number of days each participant was placed out of home in treatment.

Responsibilities of Data Recipient. Data Recipient agrees to:

Use or disclose the LDS only as permitted by this Agreement or as required by law;

Use appropriate safeguards to prevent use or disclosure of the LDS other than as permitted by this Agreement or required by law;

Report to Data Provider any use or disclosure of the LDS of which it becomes aware that is not permitted by this Agreement or required by law;

Require any of its subcontractors or agents that receive or have access to the LDS to agree to the same restrictions and conditions on the use and/or

disclosure of the LDS that apply to Data Recipient under this Agreement;
and

Not use the information in the LDS to identify or contact the individuals who are data subjects.

Permitted Uses and Disclosures of the LDS. Data Recipient may use and/or disclose the LDS **for its Research activities only.**

Term and Termination.

Term. The term of this Agreement shall commence as of the Effective Date and shall continue for so long as Data Recipient retains the LDS, unless sooner terminated as set forth in this Agreement.

Termination by Data Recipient. Data Recipient may terminate this agreement at any time by notifying the Data Provider and returning or destroying the LDS.

Termination by Data Provider. Data Provider may terminate this agreement at any time by providing thirty (30) days prior written notice to Data Recipient.

For Breach. Data Provider shall provide written notice to Data Recipient within ten (10) days of any determination that Data Recipient has breached a material term of this Agreement. Data Provider shall afford Data Recipient an opportunity to cure said alleged material breach upon mutually agreeable terms. Failure to agree on mutually agreeable terms for cure within thirty (30) days shall be grounds for the immediate termination of this Agreement by Data Provider.

Effect of Termination. Sections 1, 4, 5, 6(e) and 7 of this Agreement shall survive any termination of this Agreement under subsections c or d.

Miscellaneous.

Change in Law. The parties agree to negotiate in good faith to amend this Agreement to comport with changes in federal law that materially alter either or both parties' obligations under this Agreement. Provided however, that if the parties are unable to agree to mutually acceptable amendment(s) by the compliance date of the change in applicable law or regulations, either Party may terminate this Agreement as provided in section 6.

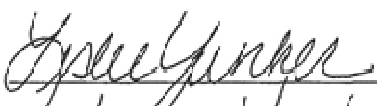

Construction of Terms. The terms of this Agreement shall be construed to give effect to applicable federal interpretative guidance regarding the HIPAA Regulations.

No Third Party Beneficiaries. Nothing in this Agreement shall confer upon any person other than the parties and their respective successors or assigns, any rights, remedies, obligations, or liabilities whatsoever.

Counterparts. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

Headings. The headings and other captions in this Agreement are for convenience and reference only and shall not be used in interpreting, construing or enforcing any of the provisions of this Agreement.

IN WITNESS WHEREOF, each of the undersigned has caused this Agreement to be duly executed in its name and on its behalf.

DATA PROVIDER	DATA RECIPIENT
Signed: <u></u>	Signed: <u></u>
Print Name: <u>Leslie Junker</u>	Print Name: Tyler Dority
Print Title: <u>Supervisor</u>	