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**EVALUATION OF A DIALECTICAL BEHAVIOR THERAPY SKILLS GROUP FOR
FEMALE INMATES WHO VOLUNTARILY SEEK TREATMENT:
A PILOT STUDY**

By

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B. A., Bellarmine University, 1999
M. A., Spalding University, 2003**

**A Dissertation Submitted to the Faculty of the School of Interdisciplinary and Graduate
Studies of the University of Louisville
in Partial Fulfillment of the Requirements for the Degree of**

Doctor of Philosophy

**Department of Educational and Counseling Psychology
College of Education and Human Development
University of Louisville**

May 2011

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A Dissertation Approved on

March 29, 2011

by the following Dissertation Committee

Co-Dissertation Director (Sam Stringfield)

Co-Dissertation Director

DEDICATION

This dissertation is dedicated to my family who supported me through the long process. This is for you Chuck, Mom, Dad, Elisa and Erika.

ACKNOWLEDGEMENTS

I would like to thank my committee for the time and effort each put into the completion of this project. I would especially like to thank my chair, Dr. Sam Stringfield whose perpetual support and feedback made this dissertation possible. I would also like to thank Dr. Lynn Rosenzweig who offered never-ending time and support to help me through this project.

ABSTRACT

EVALUATION OF A DIALECTICAL BEHAVIOR THERAPY SKILLS GROUP FOR FEMALE INMATES WHO VOLUNTARILY SEEK TREATMENT:

A PILOT STUDY

by

Clare Thompson Wahl

March 29, 2011

This dissertation examines the effectiveness of a partial skills group component of Dialectical Behavior Therapy (DBT) in female prison inmates. DBT is an evidence-based comprehensive treatment which addresses emotional reactivity, impulsivity and distress tolerance.

The psychology staff at the Kentucky Correctional Institution for Women (KCIW) had noted that many of the behaviors leading to disruptive and dangerous situations within their female inmate population are related to inmates reacting to extreme emotionality. In response KCIW staff had implemented DBT on a limited basis. Although the treatment was in place, its effectiveness in promoting safety and security at KCIW had yet to be evaluated. This study used a non-randomized pre-test, post-test control group design to evaluate the effectiveness of this psychoeducational group therapy treatment as offered to volunteering female inmates at KCIW. The evaluation was implemented in order to determine whether the participants developed the adaptive coping skills purported to be taught by the treatment, evidenced a decrease in

pathological symptomology, and a decrease in problematic behavior. Data were gathered through inmate self reports and record reviews of disciplinary infractions.

A MANCOVA showed a significant overall effect for the treatment. Post hoc analysis showed a significant increase in the level of mindfulness and decrease in anger expression, a measure of distress tolerance, for the treatment participants but not the controls. Analysis of clinically significant change showed that 42% of participants showed significant improvement on the measure of mindfulness, 26% showed significant improvement on the measure of anger expression, and 17% showed significant improvement on the measure of borderline symptomology. There was also a significant increase in the frequency of reported adaptive skills usage between weeks one and two of the treatment. Lastly, there was a decrease in institutional infractions from the month prior to treatment to the month following treatment for the treatment participants, but not the controls. This study shows that delivery of a partial component of DBT may be a useful alternative for correctional institutions for females when the resource-intensive comprehensive DBT program is not feasible.

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CHAPTER 1

INTRODUCTION

In correctional institutions, maintaining the security and safety of inmates and the safety of staff is a prime mission. At the Kentucky Correctional Institution for Women (KCIW) the mental health staff members work within this mission to provide mental health services to inmates. The mental health services are meant to increase safe, adaptive behaviors and to decrease disruptive and dangerous behaviors. The goal of mental health treatment at KCIW is to help inmates develop adaptive skills and behavior patterns within the institution that will also be adaptive upon release into the community.

The psychology staff members at KCIW had observed that many of the behaviors leading to disruptive and dangerous situations within their female inmate population were related to inmates reacting from extreme emotionality. When reacting out of intense emotion, a person may act impulsively before understanding the facts of a situation, before considering alternative options to handle the situation, and before recognizing the consequences of their behavior in a situation (Linehan, 1999). At KCIW, staff members observed that these emotional reactions lead to behaviors such as verbal and physical assaults among inmates and toward staff, as well as costly property destruction. One episode with one inmate displaying impulsive, emotionally driven behavior can have a domino effect resulting in an array of physical, logistical, and financial problems. During a disturbance, correctional officers may be called away from their assigned

security posts to provide assistance in another area of the facility. This leaves the original post with fewer staff members to divert potentially dangerous situations in that area.

Inmates may be injured during a disturbance and require costly medical attention.

Additional staffing would be required to safely monitor and transport inmates for medical care. Correctional officers may be injured resulting in medical expenses, time off work, and additional staff to fill the hours missed by the injured officer.

Inmates who have acted with extreme emotion may be moved to administrative segregation. This requires more intense security and additional staffing. During a disturbance, daily routines, which promote inmate stability and security, are disrupted when staff members are called to other areas. Other inmates may become upset by the disturbance and react out of emotionality too, thus creating further disturbances. Daily routines are disrupted when new staff members “fill in” to cover the shift assignments of injured colleagues. These are just a few examples of how one inmate’s emotionally reactive behavior can directly affect the safety, security, and financial interests of the entire institution.

The emotional reactivity, impulsivity, and poor decision making observed by the KCIW mental health staff is similar to some of the behaviors shown by people diagnosed with a variety of mental illnesses, especially Borderline Personality Disorder (BPD). BPD is the second most widespread mental health condition among incarcerated females (BPD; Jordan, Schlenger, Fairbank, & Caddell, 1996). At KCIW a substantial number of inmates have been diagnosed with BPD and the psychology staff have observed that a much larger proportion display at least some symptoms of emotional reactivity.

To address this issue, KCIW's psychology department sought to offer a treatment that would effectively help inmates increase emotion regulation and decrease behaviors which disrupt the security, safety, and financial interests of the institution. After a review of treatment methods, psychologists chose to develop services based on a component of a treatment called Dialectical Behavior Therapy (DBT).

DBT is an empirically supported comprehensive treatment which addresses symptoms of BPD including emotional reactivity, impulsivity and distress tolerance. Nee & Farman (2005) note that "evidence for DBT's effectiveness is beginning to accumulate, though this is also largely with regard to non-forensic populations and its worth in correctional settings has yet to be established" (p. 11). DBT has been adapted and implemented in several correctional settings based on clinical need, however, the few publications on the topic are primarily descriptive and do not involve controlled trials (Berzins & Trestman, 2004; Cahill-Masching & Ray, 2003; McCann, Ball, & Ivanoff, 2000; McDonagh, Taylor, & Blanchette, 2002).

Dialectical Behavior Therapy (DBT)

Dialectical Behavior Therapy is a comprehensive, manualized guide to all phases of psychotherapy (Lester, 2005). It blends Beck's cognitive therapy (Beck et al., 1979 cited in Lester, 2005), Ellis' (1973) rational emotive therapy, Rogerian unconditional acceptance and validation and Zen Buddhism's meditative mindfulness to create a standardized approach to treatment (Linehan, 1993a). DBT treatment was originally developed to address the needs of suicidal/parasuicidal females diagnosed with Borderline Personality Disorder (BPD; Linehan, 1993a). Individuals diagnosed with

BPD often behave impulsively, reacting to intense emotions. This reactivity may lead to unstable, even chaotic interactions with others, as well as dangerous behaviors.

The Comprehensive DBT program consists of four components: individual therapy, phone coaching, team consultation, and skills training. Much of the research on DBT efficacy has included the comprehensive model (Linehan, Armstrong, Suarez, Almon, & Heard, 1991; Linehan, Heard, & Armstrong, 1993; Linehan, Tutek, Heard, & Armstrong, 1994). However, the comprehensive program is costly to implement; therefore, an evaluation of the effectiveness of less-costly portions of the program is called for.

DBT skills training addresses four areas of coping skills that many individuals with BPD never learned. The four areas are called Core Mindfulness, Interpersonal Effectiveness, Emotion Regulation, and Distress Tolerance. Core Mindfulness teaches one to observe and describe what is occurring without judgment and to enter into the moment. Interpersonal Effectiveness skills teach one to maintain relationships while maintaining self-respect. Emotional Regulation teaches one to identify emotions and reduce vulnerability to overwhelming emotions. Distress tolerance skills extend from the Core Mindfulness skills and teach one to cope with unchangeable situations adaptively. More recent research has begun to look at the effectiveness of the skills component of the treatment, but more is needed (Harley, Sprich, Safren, Jacobo, & Fava, 2008; Kirby & Baucom, 2007; Nelson-Gray et al., 2006; Rajalin, Wickholm-Pethrus, Hursti, & Jokinen, 2009; Soler et al., 2009).

Based on clinical need and budget constraints, the KCIW adapted the DBT skills training component as one form of treatment for inmates seeking psychological services.

Based on available resources and inmate interest, three groups have been established following Linehan's curricula. *Mood Management* covers the Emotion Regulation module, *Relationship Skills* teaches the Interpersonal Effectiveness module, and *Stress Management* offers training in the Distress Tolerance skills. All of these groups begin with the Core Mindfulness skills module as Core Mindfulness skills provide the foundation for rest of the training. Groups at KCIW run twice per week for 4 weeks and serve about 15 women per month. One module is offered per month, depending on inmate interest. This group treatment at KCIW is voluntary. Distress Tolerance is frequently the skills component with the highest rate of interest and participation and thus is delivered most often. Anecdotally, KCIW staff psychologists have noted improvements in targeted behavior and believe that groups are helping inmates develop adaptive coping skills. However, thus far, no empirical data on treatment effectiveness have been collected.

Purpose of the Study

The purpose of this study was to evaluate the effectiveness of partial DBT skills groups as delivered in a naturalistic setting to female inmates who volunteer for treatment. The DBT component delivered was the skills training, and the portions of this component delivered were Core Mindfulness and Distress Tolerance. This adaptation was called *Stress Management*.

Hypotheses

I hypothesized that exposure to this adapted DBT skills group—Stress Management— would be associated with decreased disruptive behavior and symptoms of Borderline Personality Disorder as well as improved mindfulness and distress tolerance.

This was tested through mean adjusted post-test comparison of treatment and wait-list control groups. I hypothesized that following treatment, inmates would show:

- An increase in mindfulness,
- An increase in distress tolerance as shown by a decrease in anger expression,
- A decrease in borderline symptomology, and
- A decrease in environmentally disruptive and rule-breaking behaviors.

Significance

At a theoretical level, it has been established that the comprehensive DBT program is effective treatment for individuals displaying the most severe symptoms of Borderline Personality Disorder. However, outcome data on clearly defined DBT-based treatment programs within correctional settings are lacking (Nee & Farman, 2005). This study will contribute to knowledge in this area. It will help determine if implementing a less resource-intensive segment of the DBT program is useful for individuals who display Borderline Personality Disorder-related symptomology in the specific environment of women's prisons.

Less globally, resources for mental health treatment at KCIW and other prisons are limited. Data showing the effects of this treatment on inmate mental health will help inform future resource allocation and program development in this area. Similarly, safety and security are primary goals within the institution. This study can assist psychologists in determining whether this treatment can impact inmate behavior in a way that significantly contributes to this goal. Results may inform future decisions related to cost-effective strategies to promote the overall safety and security of the facility.

Limitations

As with all research, this study had several limitations. A first limitation was that only one prison was considered for inclusion in the study. Second, the sample only included female inmates. These factors reduce the generalizability of the findings. Third, due to unexpected levels of attrition, this is a study with a small number of participants completing the study. This reduced the strength of statistical inferences that can be drawn. Fourth, the program was delivered over a shorter time frame than recommended by the comprehensive program and by only one group leader rather than the recommended two. Thus, the intervention was less intensive than would be desirable. Fifth was the absence of psychometric tests normed on female inmates. This could affect the reliability and validity of the measures. These concerns were addressed by inclusion of pretests and control group comparisons. Sixth, the participants were not randomly assigned to treatment conditions which limits the ability to draw causal inferences based on the study's results.

Summary

This study evaluated the effectiveness of a partial-DBT skills group delivered in a naturalistic setting, to female inmates who volunteer for treatment. Chapter Two presents relevant research findings in this area. Chapter Three details methodology and procedures used to implement and evaluate the treatment. Chapter Four presents the data analyses results. Chapter Five contains the summary, implications of this study for practice, and recommendations for future research.

CHAPTER 2

LITERATURE REVIEW

Chapter two provides a background for the problem of study and presents relevant literature pertaining to the study. First, growing number of inmates in America is examined. Second, the prevalence of mental illness among inmates and typical rates of treatment are explored. Third, one of the most prevalent mental illnesses in female inmate, Borderline Personality Disorder is defined. Next is a review of Dialectical Behavior Therapy, an empirically supported treatment for Borderline Personality Disorder, is presented. This is followed by a review of efficacy of the comprehensive treatment and of the skills component. No literature was found to evaluate the treatment delivered exactly as it was in this study which lends to the value of this study.

The Growth of the Incarcerated Population in the United States

Between 1980 and 2004, the number of persons imprisoned in the US ballooned from 315, 000 to 1,434,000. During this same time period, the rate of incarcerated females leapt from 4% of the total inmate population to over 7%, which translates to an increase from 12,600 to 104,000 women behind bars ("Sourcebook of Criminal Justice Statistics", 2003, p. 63). Kentucky's female offender population has more than tripled in the past 15 years from 480 to 1,560 (Harrison & Beck, 2005; "Sourcebook of Criminal Statistics", 2003).

The reason for the growth of the overall inmate population may be related in part to the deinstitutionalization of our nation's mentally ill. Penrose (1939) was the first to notice an inverse correlation between prisoners and psychiatric inpatients (Brink, 2005). He studied several European countries and observed that typically if the prison services are extensive, the asylum population is relatively small and the reverse also tends to be true (Penrose, 1939). In the United States, the number of mental institutions (then frequently called insane asylums) increased dramatically throughout the 19th and first half of the 20th centuries. This increase was partly in response to the prevalence of mental illness among incarcerated populations and the lack of care given to these people (Torrey, 1997). During this time, asylums were constructed in pastoral settings across the nation, caring for more than 558,000 mentally ill inpatients by 1955 (Torrey, 1997).

However, the practice of deinstitutionalization gained popularity in the 1960's (Stubbs, 1998). Deinstitutionalization refers to the movement of returning long-term patients from mental health facilities back into society. Community mental health support programs meant to help patients transition successfully were inadequate (Stubbs, 1998). Additionally, the facilities that once housed persons with impulsive, erratic, sometimes dangerous behavior began to disappear and many former inpatients were left without care (Stubbs, 1998). Without adequate care, these individuals who had difficulty modulating their own behavior often ended up homeless or filling correctional facilities (Lamb & Weinberger, 1998). The Bureau of Justice Statistics reported that mentally ill inmates were more likely than other inmates to be under the influence of alcohol or drugs at the time of the offense, were more than twice as likely to have been homeless in the

year prior to the current arrest, and more than three-quarters of mentally ill inmates had served at least one sentence prior to the current incarceration (Ditton, 1999).

The United States population almost doubled between the years of 1955 to 1994 from 165 million to 250 million (Lamb & Weinberger, 1998). During that same time period, the nation-wide mental hospital census dropped from 558,000 to 71,000 (Torrey, 1997) and the number of incarcerated persons rose from 186,000 to over 1 million ("Sourcebook of Criminal Justice Statistics", 2003). In the United States between 1955 and 1994 the percentage of the population in prison changed from 1.1% to 4% and in mental institutions changed from 3.4% to .03%. Though many factors contribute to the rise of the inmate census, a portion of the increase is related to an influx of mentally ill people with insufficient care options (Lamb & Weinberger, 1998; Manderscheid, Gravesande, & Goldstrom, 2004).

Prevalence of Mental Illness Among the Incarcerated

Mental illness is considerably more prevalent within the United States prison population than within the larger society. A survey by the Bureau of Justice Statistics (BJS) showed that 56% of inmates in state prisons reported current or recent mental health problems. Thirty-four percent reported receiving some type of mental health services. Higher rates have been reported for females (73%) than males (55%) in state prisons (James & Glaze, 2006). Brink (2005) reviewed studies which included self-report data, structured diagnostic instruments, and/or professional evaluations of mental illness among the imprisoned. His analysis revealed that 55% to 80% of inmates suffer from some type of mental disorder including personality disorders and substance abuse problems (Brink, 2005). These rates are considerably higher than in community samples.

For example, a study conducted by the World Health Organization World Mental Health Survey Consortium (2004) showed that only 8% of US citizens had suffered from serious mental illness. In a review of the growth and availability of mental health services in state correctional facilities, Manderscheid, Gravesande, and Goldstrom (2004) stated that “a disproportionate number of inmates are likely to be mentally ill compared with the general population” (p. 870). Furthermore, within the prison population, female inmates are more than twice as likely to suffer from a severe mental disorder as their male counterparts (Brinks, 2005).

Mental Health Treatment for the Incarcerated

Symptoms of mental illness often lead to disruptive or dangerous interactions within this prison environment as well as re-offending (Trestman, 2002 as cited in Berzins & Trestman, 2004; Jordan, Schlenger, Fairbank, & Caddell, 1996; Nee & Farman, 2005). These issues cause personal turmoil (Linehan, 1993a) and increased costs to prisons and the community (i.e. Cahill-Masching & Ray, 2003). Inmates with mental health problems incur disciplinary infractions at higher rates than other inmates (Ditton, 1999; James & Glaze, 2006). One survey showed that mentally ill inmates most often received disciplinary infractions for self-mutilation, threatening behavior, refusing orders, insolence and vulgarity, throwing urine or feces, assault, battery, disorderly conduct, destruction of state property and physically assaulting a staff member (Human Rights Watch, 1997, as cited in Berzins & Trestman, 2004).

Traditional correctional institutions attempt to meet the mental health needs of inmates. Though mental health treatment is subordinate to the main priority of security (Manderscheid, Gravesande, & Goldstrom, 2004), the vast majority of institutions report

offering some type of mental health services to inmates. In a Bureau of Justice Statistics survey, 1400 state correctional institutions reported on their provision of mental health services. Of those reporting, 70% screen inmates for mental health problems at intake, 71% provide therapy or counseling by trained mental health professionals, and 73% distribute psychotropic medications. Of all inmates, 13% receive some type of mental health therapy or counseling and 10% receive psychotropic medications. Facilities reported significantly higher rates of treatment utilization among female inmates, with 27% reportedly receiving therapy and 22% receiving psychotropic medications. Mental health treatment is more commonly provided in higher security than in the lower security settings (Beck & Maruschak, 2001).

However, prison mental health services are not keeping pace with the prison population growth explosion (Manderscheid, Gravesande, & Goldstrom, 2004). Some studies indicate that only a fraction of incarcerated women who need mental health services actually receive them (Teplin, Abram, & McClelland, 1997). Even though corrections administrators have acknowledged that mental health programming is a significant need among incarcerated women, few have focused on those needs (Morash, Bynum, & Koons, 1998). With the rapid rise in numbers of female inmates and the prevalence of psychological problems among them, the need for effective mental health treatment within the structure of correctional settings is clear.

In the next two sections I will focus this review on a particular group of mental illness symptoms faced by many female prison inmates, and on one research-proven intervention that has been shown to be effective in treating that problem.

Borderline Personality Disorder (BPD)

The most widespread mental health condition among incarcerated females is substance abuse and dependence. Borderline Personality Disorder (BPD) is a close second (Jordan, Schlenger, Fairbank, & Caddell, 1996). Whereas the prevalence of BPD among the general population is about 2% (*Diagnostic and Statistical Manual of Mental Disorders Fourth Edition Text Revision* 2000), the rate among incarcerated female populations has been estimated to be 20% (Nee & Farman, 2005) to 28% (Jordan, Schlenger, Fairbank, & Caddell, 1996) with other estimates ranging to more than 90% (Brink, 2005).

A personality disorder, in general, is defined as pervasive way of thinking, feeling, or interacting with the environment, or of controlling impulses that deviates significantly from cultural expectations and leads to substantial distress or impairment. Personality disorders are long-lasting and must present by early adulthood. The *Diagnostic and Statistical Manual of Mental Disorders Fourth Edition Text Revision* (DSM-IV-TR, 2000) categorizes personality disorders into three clusters. Cluster A consists of personality disorders that are often described by odd or eccentric characteristics. Cluster B is comprised of personality disorders whose features describe behaviors that often appear dramatic, emotional and erratic. Cluster C contains personality disorders that depict individuals who are overly anxious or fearful. BPD falls into Cluster B. (*Diagnostic and Statistical Manual of Mental Disorders Fourth Edition Text Revision* 2000)

A person with Borderline Personality Disorder experiences dysregulation cognitively, emotionally and behaviorally (Linehan, 1993a). Tumultuous interpersonal

relationships are typical due to changing perceptions. Alternation between idolizing and devaluing an individual is common. Someone with BPD may also fear being abandoned by others and perceive unrelated behaviors as signs of impending abandonment.

Another common trait seen in individuals diagnosed with BPD is intense emotional instability. They may have difficulty controlling anger and experience fluctuations in mood and chronic feelings of emptiness. An additional feature of BPD is variable and impulsive behavior. This may manifest in the forms of excessive spending, reckless driving, promiscuous sex, or substance abuse. It may also occur as self-mutilating behavior or suicidal threats or behaviors. Given the above features, it is not surprising that individuals diagnosed with BPD often experience an unstable sense of self

(Diagnostic and Statistical Manual of Mental Disorders Fourth Edition Text Revision 2000).

A commonly accepted etiological theory of BPD is Linehan's (1993a) biosocial theory. Linehan suggests that Borderline symptomology forms when a child who is biologically predisposed to poor affect regulation develops within a pervasively invalidating environment (Linehan, 1993a). The theory states that there is a reciprocal influence between biological disposition to regulate emotions and the level of validation the environment provides. If a child is biologically predisposed to mood dysregulation she may be hypersensitive to stimuli, experience emotions more intensely than the average person, and take much longer to return her emotions to a baseline level. Though this type of child may be a challenge for the caregiver, with a highly supportive environment she may learn the skills needed to successfully respond to and display

emotions. However, if a child with this disposition is brought up in an environment of invalidation, BPD symptomology may develop.

An invalidating environment is one that is poorly equipped to meet the needs of the individual. In such an environment, an individual's expressions of thoughts and feelings are often criticized or dismissed and this creates a sense of powerlessness (Linehan, 1993a). For example, a child says, "Mommy, I'm hungry." The parent replies, "No you're not, we just ate." This is a simplistic example of dismissing a child's expression of a physical feeling. After repeated exposure to this type of response a child may learn to disregard her own feeling or express it in a more demanding way to get her needs met.

In a validating environment a parent might ask the child to analyze her situation, "Are you really hungry or do you want to stay up a little later with Mommy?" This type of synchronicity between the child and parent helps the child learn how to label and express her emotions and needs appropriately. In a validating environment a parent may teach distress tolerance skills, for example, "I can't make you a snack this minute, but I will as soon as I finish giving your brother a bath. You can help me or go play until I finish and then we'll get a snack." These reasonable options help a child think through the situation and regain a sense of control.

In an invalidating environment, expressive displays are not tolerated and a calm, competent facade is valued. For example a parent who responds to the child with "Stop whining or I'll give you something to whine about!" In this environment, the child is not given the opportunity to learn to trust her own internal experience and to develop the

skills needed to regulate her own emotions thus giving her little power in the situation (Linehan, 1993a).

It is notable that even in an average family, the needs of an extremely biologically vulnerable person may not be met. The more emotionally dysregulated a person, the more they look to the environment for cues on how to feel and behave. When the environment provides inconsistent cues or cues that don't help her learn to tolerate and regulate her emotion, the more emotionally dysregulated she becomes. Likewise, the more emotionally regulated a person is, the higher her potential tolerance for living successfully within an invalidating environment. This success is because of the greater internal control, the need to seek cues from the environment is less crucial for an emotionally regulated individual (Linehan, 1993a). The biological disposition and the environment work in tandem to shape a person's life coping skills.

A person with poor affect regulation who grows up in an invalidating environment carries these coping strategies with her into adulthood. In adult relationships this may be seen as high emotional reactivity to perceived slights. For example, a friend sends out party invitations. The individual with BPD has not received one, but knows that other friends have. The individual with BPD may immediately feel unfairly rejected and search to regain control by thinking, saying, or doing inappropriate things to the party-giver. Someone with more skills to regulate her emotion may instead realize that the invite could have been lost in the mail or perhaps she wasn't invited and that is acceptable.

In a prison setting, an adult with extreme emotional dysregulation or BPD may react with extreme behaviors. Due to security and safety constraints, a correctional

environment may punish behavior that is considered prosocial in general society (McCann, Ivanoff, Schmidt, & Beach, 2007). For example it is against the rules to share food or personal items with other inmates. In the free world, sharing is generally seen as a prosocial behavior. However, in a correctional setting any item may be used for bartering and exchanging goods and services. This practice can easily lead to inmates being manipulated or taken advantage of; therefore, sharing is not permitted. An inmate who engages in this behavior and is caught would be punished. The punishment may be seen as unfair. For an inmate with high emotional dysregulation and few adaptive coping skills, this sense of injustice, or invalidation, may make her feel that she is spiraling out of control. This spiral of emotions may lead to behaviors such as arguing, fighting, property damage, or self harm. Linehan (1993a) has found that by teaching skills and providing validation, individuals can overcome the long-term effects of an inadequate growth environment.

Dialectical Behavior Therapy (DBT): Treatment for BPD

Comprehensive DBT

Dialectical Behavior Therapy is a comprehensive, manualized guide to all phases of psychotherapy (Lester, 2005) that addresses the symptoms of Borderline Personality Disorder (BPD). It is based cognitive behavioral, and learning theory, with tools taken from Ellis' (1973) rational emotive therapy and Beck's cognitive therapy (Beck et al., 1979 cited in Lester, 2005). DBT blends this with Rogerian unconditional acceptance and validation and with Zen Buddhism's meditative mindfulness to create an eclectic and standardized approach to treatment (Linehan, 1993a). The DBT treatment approach grew out of Marsha Linehan's experience and observations treating chronically

suicidal/parasuicidal females diagnosed with BPD (Linehan, 1993a). The theory and techniques focus on appreciating the dialectics, or polarities, of any situation and striving to find a synthesis, or middle path. DBT employs a “both, and” philosophy rather than an “either, or” view.

Comprehensive DBT consists of four components: individual therapy, phone coaching, skills training, and team consultation. The first component is individual therapy which, itself, has four stages plus a pretreatment stage. Prior to actually beginning therapy, a potential DBT client goes through an orientation and commitment pretreatment stage. During these sessions with an individual therapist, the client is educated on Borderline Personality Disorder and the Dialectical Behavior Therapy treatment model. This includes the model’s expectations for commitment to and participation in treatment. Once a client with BPD makes a formal commitment, treatment continues to stage one. Stage one treatment is intended for individuals who are demonstrating severe behavioral dyscontrol, such as self-injury, a severe eating disorder, substance abuse, or repeated hospitalizations. The overall goal of stage one treatment is for the individual to develop greater behavioral control and to stop these destructive behaviors. The course of individual therapy follows a hierarchy of target behaviors. The first goal is the reduction of suicidal or self-harming behaviors, second is the reduction of therapy interfering behaviors, third is the reduction of quality of life interfering behaviors, and fourth is increasing specific coping skills. Stage one usually lasts about one year. Most of the research focuses on stage one treatment. Stage two of individual therapy focuses on decreasing posttraumatic stress. The goals within this stage include accepting the facts of the trauma, reducing feelings of self-invalidation, stigmatization,

and self-blame, reducing black and white thinking about the trauma, and decreasing stress responses related to the trauma. Stage three treatment goals are developing ordinary happiness, improved relationships and self-esteem. Stage three DBT therapy identifies goals much like any other type of therapy. Stage four treatment focuses on development of an increased sense of connectedness, joy, or freedom (Linehan, 1993a).

Between individual therapy sessions, a client documents her behaviors (including skills usage), thoughts, and moods on a *diary card*. At the beginning of each individual session, the diary card is reviewed and the agenda for the session is established with higher targets being addressed first. Cognitive behavioral techniques such as behavior chain analyses and cognitive restructuring are used to examine target behaviors and to identify alternative coping strategies for the future. Beyond individual therapy sessions, a client may call her therapist for brief coaching when she finds herself having difficulty applying skills during the week or when she finds herself in crisis. The purpose of this second component—phone coaching between sessions—is to help clients develop and practice effective skills use in vivo (Linehan, 1993a).

The third component of a comprehensive Dialectical Behavior Therapy treatment program is the consultation team. This team consists of the DBT individual and group therapists and meets weekly to talk about clients' treatment issues and to help the therapists adhere to the DBT framework. It is recognized that working with a population that is repeatedly in crises, extremely reactive, and often suicidal is challenging for therapists. The consultation group environment is intended to serve multiple purposes as it provides peer support, supervision/consultation, teaching, and the opportunity to practice DBT principles (Linehan, 1993a).

The fourth component of DBT is didactic skills training groups. All individual clients also participate in these didactic groups during the first year of stage one treatment. The structured session-by-session curricula is delineated in the “Skills Training Manual for Treating Borderline Personality Disorder” (Linehan, 1993b). It targets a set of skills that persons with BPD typically need to develop. These skills include of Core Mindfulness, Interpersonal Effectiveness, Emotion Regulation, and Distress Tolerance. The format of each group session remains the same. The session begins with a brief mindfulness exercise, review of homework of skills use, and teaching and discussion of new material. The skills component will be reviewed in depth in the next section.

DBT Skills Training

Skills training targets four areas of coping. These are skills most individuals with BPD have never effectively learned. The areas are identified as Core Mindfulness, Interpersonal Effectiveness, Emotion Regulation, and Distress Tolerance. Linehan described *Core Mindfulness* skills as “psychological and behavioral versions of meditation practices from Eastern spiritual training” (Linehan, 1993b, p. 63). These skills serve to balance what Linehan refers to as the *emotional mind* and the *reasonable mind* in a synthesis of the *wise-mind*. Wise-mind is a state in which emotion and logic are integrated with intuitive knowing. Some of the practical skills associated with reaching this state include being able to simply observe and describe what is occurring without judgment. This involves attending to and entering into one experience at a time, and doing what works for that situation. Core Mindfulness skills help develop the ability

to introspect, observe, and accept and specifically address the BPD symptoms of feelings of emptiness and identity confusion.

Interpersonal Effectiveness skills are similar to those taught in many assertiveness and interpersonal problem-solving classes. These skills focus on asking for what one needs, saying no, and coping with interpersonal conflict. These skills help an individual achieve the changes she wants while maintaining a relationship, and maintaining her self-respect. This module targets the intense, chaotic relationships that are often symptomatic of BPD (Linehan, 1993b).

Emotion Regulation addresses the labile affect and moods that are typical of individuals with Borderline Personality Disorder. It focuses on helping the individual understand her emotions and to modulate them more effectively. This skills module focuses on identifying, labeling, and becoming more mindful of emotions, recognizing obstacles to changing emotions, reducing vulnerability to overwhelming emotions, increasing positive experiences, and working through distressing emotions (Linehan 1993b).

Distress Tolerance skills are a natural progression from Mindfulness skills and thus strengthen the foundation for all skills development. Distress tolerance is being able “to perceive one’s environment without putting demands on it to be different, to experience your current emotional state without attempting to change it and to observe your own thoughts and action patterns without attempting to stop or control them” (Linehan, 1993b, p. 96). Linehan notes that learning to accept pain is essential because distress is a part of life and change. This module offers specific methods of distracting oneself with other activities or thoughts, self-soothing through the five senses, improving

the moment through relaxation or meditation, and identifying pros and cons of tolerating distressing situations. The training teaches techniques to focus on breathing to quiet the mind, to accept reality through awareness of the moment, and to develop willingness to do what is needed through conscious choice, thus setting the stage to implement Emotion Regulation and Interpersonal Effectiveness skills (Linehan, 1993b).

The structure of group is detailed in the “Skills Training Manual for Treating Borderline Personality Disorder” (Linehan, 1993b). Typically the group is held weekly and attendance in both group and individual therapy is a requirement for those who agree to participate in DBT. Each skills module takes about eight weeks and is repeated twice over the course of a year, except for Mindfulness which takes about three weeks and is repeated in between each of the other modules. This way, clients have multiple exposures to skills training in the group setting. Skills use is then strengthened by discussion in individual sessions and practice coaching calls. Each two-hour-long group session begins with a mindfulness experiential exercise and then the group members process their experiences. Next, group members report on the previous week’s skills use, as documented on their diary cards, and discuss any homework assignments. This may be followed by a short break. When group resumes, the new skills lesson is presented, skills are practiced and discussed, and homework is assigned. The Skills Training Manual offers lecture points, discussion points, and examples along with the specific skills to be covered for each meeting. If the manual is followed, DBT clients receive a consistent presentation of DBT as intended by its creator (Linehan, 1993b).. Skills training is an important component of comprehensive DBT that provides the client with tools to begin coping effectively.

Comprehensive DBT Treatment Efficacy

Next, I will review research pointing to the effectiveness of DBT. Poor prognoses have long been associated with patients diagnosed with Borderline Personality Disorder and many therapists even refuse to treat these individuals (Gorsuch, 1998). This has largely been due to the high prevalence of the disorder in treatment settings, inadequate treatment techniques, and high therapist burnout (Linehan, 1993a). Dialectical Behavior Therapy originally targeted difficult-to-treat patients with self-harming behaviors such as cutting or burning the skin, as self-harm is a common symptom of BPD. DBT grew to encompass other aspects of the disorder as well, including suicidality, lack of interpersonal skills, labile emotions, impulsivity, and confused sense of self (Linehan, 1993b). Dialectical Behavior Therapy, a comprehensive treatment for individuals with BPD symptomology (Linehan, 1993a, 1993b) has generated optimism for mental health professionals and consumers. Empirical research has shown significant treatment efficacy with individuals who self-harm and/or are diagnosed with BPD (i.e. Evans et al., 1999; Koons et al., 2001; Linehan, 1993a, 1993b; Linehan, Armstrong, Suarez, Almon, & Heard, 1991; Linehan, Heard, & Armstrong, 1993; Linehan, Tutek, Heard, & Armstrong, 1994).

Research has shown significant success of the comprehensive treatment with individuals who self-harm and/or are diagnosed with BPD. Randomized controlled studies of comprehensive DBT are summarized as follows. The hallmark study of comprehensive DBT (Linehan, Armstrong, Suarez, Almon, & Heard, 1991; Linehan, Heard, & Armstrong, 1993; Linehan, Tutek, Heard, & Armstrong, 1994) included 63 women who were diagnosed with BPD and had recently self harmed. Forty-four women

completed the study who were randomly assigned to one year of DBT or treatment as usual (TAU). Subjects randomly assigned to the TAU condition were given referrals for a variety of existing therapy options in their community. The researchers found that women in both conditions improved on measures of depression, hopelessness, suicidal ideation and reasons for living. Linehan and colleagues also found DBT subjects to show significantly greater improvements when compared to TAU subjects. These included greater reductions in the frequency and severity of self-harm; greater reductions in the frequency and length of inpatient hospitalization; a higher rate of treatment retention; greater reductions in trait anger; and greater improvements in global and social functioning. Effect sizes for the latter three were reported. The effect size for change in trait anger was large ($d = .81$). For global and social functioning the effect sizes were medium ($d = .79$ and $.57$, respectively). The authors found that DBT subjects maintained treatment gains at six and 12 month follow ups.

Another randomized controlled study (Koons et al., 2001) evaluated 28 female veterans who were diagnosed with BPD. Twenty women completed the treatment and measures. Eight of these women had recent instances of self-harm. The subjects were randomly assigned to six months of DBT or TAU. In this study, TAU consisted of weekly, 60-minute sessions with therapists from a veterans hospital as well as access to additional support groups, as desired. The researchers found that neither group showed a significant reduction of anxiety. However, the DBT subjects did show significant improvements over the TAU subjects in suicidal ideation, self-harm hopelessness, depression, and anger expressed. The effect sizes were small for self harm ($d = .35$) and large for suicidal ideation ($d = .98$), hopelessness ($d = 1.31$), depression ($d = .96$), and

anger expressed ($d = 1.16$). Clinically significant change was also analyzed by Jacobson & Traux's (1991) method. They found that 60% to 80% of the DBT subjects showed clinically significant improvement in these areas whereas 20% to 60% of the TAU subjects showed clinically significant improvement. These authors found greater improvements by the DBT subjects than did Linehan's initial studies. This was most likely due to the treatment hierarchy which dictated that suicidal and other self-harm behaviors must be addressed before the appropriate experiencing of emotion. In the Linehan studies summarized above, all subjects had self-harm issues to be addressed.

In the next study, 64 women who were diagnosed with BPD were randomly assigned to one year of DBT or TAU. Fifty-eight completed the study. Half of these women also met criteria for a substance use disorder. TAU subjects continued existing treatment from their referral source. This study showed neither group made significant changes in substance use. The DBT subjects showed a significantly greater decrease in the number of self-harming and other impulsive behaviors than the TAU subjects. This included subjects with higher levels of these behaviors. Though not a statistically significant difference, during the study 26% of TAU subjects made suicide attempts as compared to only 7% of the DBT. A significantly higher percentage of the DBT patients continued with the same therapists for the year than did the TAU patients (Verheul et al., 2003). Effect sizes were not reported in this study.

Linehan et al (2006) compared one year of DBT to one year of Treatment by Experts (TBE). The TBE therapists were not behavioral in orientation and they were considered expert in the treatment of BPD and suicidal behaviors. The TBE therapists had the opportunity for regular supervision and participated in a consultation team,

similar to that of DBT therapists. Participants included 111 women diagnosed with BPD who had recent suicidal and self-harming behaviors. Of these, 101 completed treatment and outcome measures. Patients in both conditions improved significantly. There were no significant differences between the groups on rates of self-harm, but DBT patients showed a significantly lower frequency of suicide attempts, specifically serious suicide attempts. The DBT patients had lower rates of emergency room and inpatient services as well as lower drop-out rates. The DBT condition showed less than half the rate of treatment drop-outs from the initially assigned therapist than the TBE condition. Effect sizes were not reported for this study.

Since publication of the theory and techniques (Linehan, 1993a, 1993b) studies have supported its efficacy within a variety of populations and settings as well as symptomology beyond the original target (for a review, see Robins & Chapman, 2004). The intervention has been applied with outpatients diagnosed with BPD and comorbid substance dependence (i.e. Linehan et al., 2002; Linehan et al., 1999), with bulimia (Telch, Agras, & Linehan, 2001), and with depressed older adults (Lynch, Morse, Mendelson, & Robins, 2003). Studies have also positively evaluated adapted forms of DBT utilized with inpatients with BPD and/or self-harming behavior (i.e. Bohus et al., 2000; Springer, Lohr, Buchtel, & Silk, 1996), with teens at residential treatment facilities (Sunseri, 2004; Trupin, Stewart, Beach, & Boesky, 2002), with men in a forensic psychiatric facility (including those scoring high on a measure of psychopathy; McCann, Ball, & Ivanoff, 2000) and incarcerated women (Nee & Farman, 2005).

Only one study was located which evaluated a comprehensive DBT program in correctional facility. Nee & Farman (2005) reported on a pilot program that implemented

comprehensive DBT in three women's prisons in the United Kingdom. Two facilities hosted the standard year-long program while the third facility repeated a shortened format of 12 to 16 weeks during the 20-month pilot. The authors looked at the program's effect on BPD symptomology, self-harming behavior, and criminal behavior related risk factors.

In the year-long program 30 women began and 14 completed the program and all of the assessment measures. A wait-list control group had five women who completed all of the measures. Ten measures were taken at the beginning, middle, end, and six months post. Within-subjects analyses showed significant improvement for the treatment group on four measures and some improvement on three additional measures. Significant improvement was shown for borderline symptomology, emotional control, impulsivity, and locus of control. The effect sizes reported were medium for borderline symptomology (.61) and small for emotional control (.40), impulsivity (.41), and locus of control (.43). Statistically non-significant improvements were noted on measures of self esteem, anger expression, and state anger. Within-subjects analyses with the control subjects showed no significant improvement, though trended in the positive direction. It is noted that between groups analyses yielded no significant differences between the treatment and control groups. Overall incidents of self-harm were minimal, but decreased from beginning to post treatment. *Adjudications*, a measure of dealing with interpersonal conflict, were recorded, but these occurred so infrequently that no pattern could be discerned (Nee & Farman, 2005).

In the briefer programs of 12 – 16 weeks, data were collected at the beginning, end, and six months post treatment. Of the 17 who began the programs only seven

completed the treatment and evaluation measures. This evaluation had no control group. Analyses of beginning and end scores showed significant improvements in self esteem, impulsivity, and dissociation. A decrease in self harm was also noted (Nee & Farman, 2005). No effect sizes were noted for the briefer programs' results.

The authors note that these results are promising, but noted many challenges in the delivery of such a resource-intensive program within a correctional facility. Challenges included staff turnover, inmate transfers to other facilities, a brief participant orientation time which may be related to increased attrition, and the unlikelihood of providing a 24-hour phone coaching back up. They noted that the pilot was implemented quickly in order to capture the funding needed for such an undertaking. They also recognized the importance of adequate training for the officers who acted as primary skills coaches and a positive alliance between prison management and psychology staff with a focus on inmate care (Nee & Farman, 2005). The considerable resources needed to implement a comprehensive DBT program prohibit many facilities from pursuing this empirically supported treatment. Due to this limitation, research is beginning to accumulate on the effectiveness of less resource-intensive components of the program.

DBT Skills Component Treatment Efficacy.

In reference to an unpublished study, Linehan (1993a) questioned if skills training would be effective if offered alone to individuals with BPD. However, recently, more research has been published on the efficacy of the DBT skills component with diverse populations. These populations included teens with Oppositional Defiant Disorder, couples with at least one partner who experiences emotional dysregulation, family

members of individuals who have attempted suicide, individuals with treatment resistant depression, and individuals with BPD. Findings are summarized as follows.

Preliminary findings suggest that the skills group component, alone, may be useful with adolescents with oppositional defiant disorder (ODD). Nelson-Gray and colleagues (2006) evaluated pretest to posttest change with 54 outpatient male and female adolescents in a 16-week skills group. Thirty-two participants and their caregivers completed the program and 11 outcome measures. The course consisted of all four skills components (core mindfulness, interpersonal effectiveness, emotion regulation, and distress tolerance) with some modifications to make the material more age-appropriate. Additionally the group offered four in vivo sessions in the community (for example at a bowling alley) for chances to practice newly learned skills. Five of the 11 measures showed significant change in the desired directions. Caregivers reported reduced ODD symptomology and externalizing behaviors as well as increased interpersonal strength. Participants reported reduced depressive symptoms and internalizing behaviors (Nelson-Gray et al., 2006). Though no effect sizes were reported, Jacobson & Traux's (1991) analysis of clinically significant change for each individual was reported in this study. Less than 10% of participants showed clinically significant improvement self reports of aggression and internalizing and externalizing dysfunctional behaviors. Thirty percent of participants self reported a clinically significant decrease in depression. Thirty-two to 48% of caregivers reported clinically significant improvement on each of the six of the parent report scales. It is noted that no wait-list control or treatment comparison group was included in this study (Nelson-Gray et al., 2006).

A nonrandomized, no control group, naturalistic study evaluated 49 adult outpatients with BPD who participated in a 7-month DBT skills group with individual therapy. Ten of the participants attended individual DBT therapy and 39 attended individual therapy with providers of psychodynamic, cognitive behavioral or unknown orientation. The skills group in this study was modified to last 1 hr and 45min per session and a complete skills cycle lasted 7 months instead of 6 months. Participants in this study completed one skills cycle. Twenty-five of the participants dropped out of the group before completing, including 4 of those in DBT individual therapy. Pre to posttest analysis showed significant decreases on measures of Borderline symptomology, depression, suicidal ideation, and an increase in perceived mental health well-being. Effect sizes were large and ranged from $\eta^2 = .29$ to $\eta^2 = .61$ (Harley, Baity, Blais, & Jacobo, 2007).

A DBT skills-based group was used with couples where at least one partner had emotion dysregulation problems and had completed one year of formal DBT skills training. Ten DBT graduates and their partners who were married or cohabitating for at least one year participated. The couples met for 16, two-hour sessions, each following the format of the DBT skills group. Results showed reduced depression for DBT graduates and partners. DBT graduates reported decreases in positive affect ($d = .75$) and negative affect ($d = .98$) and increases in emotion regulation ($d = .89$). Partners reported an increase in their own confidence in dealing with emotions ($d = .47$) and also their perceived ability of their DBT graduate partners to deal with emotion ($d = .40$; Kirby & Baucom, 2007).

Researchers evaluated a DBT-based skills group for the family members of individuals who had attempted suicide. Eighteen adult family members participated in a nine week group with weekly sessions and 13 completed pre- and post-tests. The initial session lasted four hours and remaining sessions lasted two hours. The sessions consisted of the following topics: introduction and psycho education; mindfulness and validation; modern theories of emotion; coping with difficult situations related to suicide attempts; acceptance; validation for three sessions; problem management; and a review.

Rosenthal's r effect sizes are reported following each of the measures. Participants showed an increase in overall psychiatric health ($r = .52$). Reductions were seen in anxiety ($r = .40$), perceived burden ($r = .48$), perceived criticism by the family member from the individual who had attempted suicide ($r = .65$), and criticism expressed toward the individual who had attempted suicide ($r = .71$; Rajalin, Wickholm-Pethrus, Hursti, & Jokinen, 2009).

A randomized waitlist-control study showed that DBT skills were useful with patients suffering from treatment-resistant depression (Harley, Sprich, Safren, Jacobo, & Fava, 2008). Twenty four adults enrolled in the study. The treatment consisted of 16 weekly, 90-minute sessions. Ten treatment group members and nine wait-list control completed the treatment and self-report measures pretreatment and post-treatment. These sessions differed from the standardized format in that the teaching of new material took place before the review of the previous week's homework. The content included concepts from the manualized treatment that were deemed most related to major depressive disorder. The group sessions covered the following information: two mindfulness sessions; four each of interpersonal effectiveness, emotion regulation, and

distress tolerance. There were also two reorientation sessions dispersed between the other modules that served to refresh group members on mindfulness and dialectics. All participants continued their own treatment as usual outside of the group with individual therapy and medication. Analysis showed that skills group participants showed significantly greater improvements in depression from pre-test to post-test than wait-list control subjects. Effect sizes were large for both the Hamilton rating for depression ($d = 1.45$) and the Beck depression scale ($d = 1.31$).

Researchers implemented a single-blind, randomized control design to compare a DBT skills training (DBT-ST) to a standard group therapy (SGT). Sixty adults who met the DSM-IV criteria for BPD participated and 31 completed. Each group ran for 13 weekly, two-hour sessions. Participants were evaluated every two weeks by psychiatrists under blind conditions. The DBT-ST group was run by two cognitive behavioral therapists with DBT training. The DBT-ST differed from the manualized DBT skills group in that no modules were repeated. This was compensated for by giving handouts of exercises to reinforce previously learned skills. The SGT was led by two experienced psychodynamic-oriented therapists. The format of the SGT allowed for participants to share their personal difficulties with BPD while the leaders used interpretation, exploration, clarification and confrontation. The DBT-ST group was shown to be more effective for decreasing anxiety, depression, psychoticism, irritability, anger, and affective instability than the SGT group. The DBT-ST was also associated with lower drop-out rates than the SGT group (Soler et al., 2009). No effect sizes were reported for this study.

Evidence for the effectiveness of the DBT skills component as a stand alone treatment is beginning to mount. Various portions of the component have been used with different populations and have shown success. However, nothing exactly like the treatment program at KCIW has yet to be evaluated in the literature. Research on its effectiveness is needed.

Conclusion

The prison population has been on the rise in the United States ("Sourcebook of Criminal Justice Statistics", 2003). In addition to this rise, the number of inmates with mental illness has greatly increased (Lamb & Weinberger, 1998; Manderscheid, Gravesande, & Goldstrom, 2004) with 56% of state inmates reporting past or present mental health problems (James & Glaze, 2006). Female inmates are more than twice as likely as male inmates to have severe mental health problems (Brink, 2005). Corrections administrators have acknowledged the need for treatment, but overall, services are still lacking (Morash, Bynum, & Koons, 1998). The need for effective treatment inside correctional facilities remains.

The second most prevalent form of mental illness among female inmates is Borderline Personality Disorder. This disorder is characterized by emotional, cognitive, and behavioral dysregulation (Linehan, 1993a) which can lead to many problems especially within a correctional institution. Comprehensive Dialectical Behavior Therapy is an empirically supported treatment for BPD (Linehan, Armstrong, Suarez, Almon, & Heard, 1991; Linehan, Heard, & Armstrong, 1993; Linehan, Tutek, Heard, & Armstrong, 1994). With the often limited resources for mental health in correctional settings (Manderscheid, Gravesande, & Goldstrom, 2004), the feasibility of implementing such a

time and labor intensive treatment is unlikely for some facilities. Research on clearly defined correctional DBT-based treatment programs with empirical outcome data are needed. No literature exists on an adaptation of a DBT skills group within a correctional institution and this study aimed to fill that void.

The remainder of this dissertation is laid out in the following way. In Chapter Three, the methodology and procedures used to implement and evaluate the Stress Management DBT skills-based group will be delineated. Chapter Four reports the results of statistical analyses. Chapter Five includes the summary, implications of this study, and recommendations for further research.

CHAPTER 3

METHODOLOGY

This chapter describes the methodology and procedures used to implement and evaluate a stress management program for female inmate volunteers in a medium security prison. The purpose, research hypotheses, design, sample, selection procedure, instrumentation, treatment program, research methods, and data analyses are discussed in the following sections.

The purpose of this study was to evaluate the effectiveness of a partial DBT skills group as delivered in a naturalistic setting, to female inmates who volunteer for treatment. I hypothesized that following treatment, inmates would show:

- An increase in mindfulness,
- An increase in distress tolerance as shown by a decrease in anger expression,
- A decrease in borderline symptomology, and
- A decrease in environmentally disruptive and rule-breaking behaviors.

Design

The independent variable of study was the treatment condition, which had two levels: DBT and control. The study imposed a non-randomized, pre-test, post-test control group design upon an ongoing treatment program. The original goal was to have 100

subjects complete the treatment group and three data collection points. The study was to run for several months while a continual stream of inmates enrolled in the ongoing treatment group and study. However, due to changes within the institution, the psychologist originally running the groups was no longer able to perform this function. At that point it was agreed that the researcher would volunteer at the prison to run two groups per month for two months and offer the group to as many women as possible. During the second month of the project, the two groups were combined due to low attendance.

Data were originally to be collected at three or four points in time: one week prior to the beginning of the wave, the midpoint of each participation wave, the week following the wave and the month following the wave (see Table 1). However, due to the dropout rate after the second testing point, the analysis was modified to include only the pre- and post-tests.

Table 1.

Research Design

Treatment	O	X	O	O		
Control	O		O	X	O	O

Sample

All participants in this study were inmates at a medium security correctional facility. All volunteered for a stress management treatment group. Ninety inmates were

initially invited and 78 attended an informational session about the study. Sixty-seven women volunteered for the study and 34 (51%) completed the at least one pretest and one posttest. The remaining 33 dropped out of the study. A total of 13 participants completed the entire study with treatment and two post-tests. This is a longitudinal retention rate of 20%. Of the 67 study participants, 28 women completed the treatment group resulting in a treatment retention rate of 42%. Treatment completion was defined as attending at least six of the eight sessions with no unexcused absences and at least minimal daily participation as defined by this group leader.

A priori power analyses had been conducted to determine that a sample size of 50 subjects per condition would be needed to detect a medium effect size in pre-test and post-test comparison. However, due to situational factors at the facility that were beyond the control of the researcher and the psychology staff, the treatment only ran for a 2-month-long wave, thus limiting the number of subjects.

Random assignment is the preferred method of combating systematic error between groups with a large sample size (Shadish, Cook, & Campbell, 2002). This was attempted by randomly handing out group assignment appointment slips. However, as the first priority of the institution was treatment, women were allowed to request different assignments, therefore random assignment was not fully accomplished.

Of the 67 initial participants, 28 were randomly assigned to the first month of treatment and 39 to the second month. The uneven distribution was due to the anticipation of higher attrition in the second group due to frequent moves to other facilities. The anticipated attrition rate was 25% based on anecdotal information from the KCIW psychology staff. The actual attrition rate was 49% at the second data collection

point of the study. Of the 33 inmates who did not complete the second data collection point, 13 were documented as having left the institution, three from the treatment group and 10 from the control group. The researcher was unable to gather information as to why the remaining 20 inmates (8 treatment and 12 control) did not continue the study.

A description of the sample can be found in Table 2 and in the following text. Of the 67 participants, ages ranged from 24 – 61 years old, mean = 38.16 (SD = 8.88). Ten of the inmates were African American and the remaining 57 were Caucasian. Education levels ranged from less than eighth grade (n=7) to two or four-year college degrees (n=2). About half had a high school diploma or GED (n=39) and the remaining had some high school (n= 10) or some college or technical school (n= 9). Thirty seven of the inmates were serving time on multiple charges and 30 were serving for single charges. Charges included: theft, robbery, or stolen property (n=24), murder, manslaughter, or reckless homicide (n=12), assault (n=6), sex crimes (n=7), fraud or forgery (n=12), or other charges including drug related offenses (n=50). Thirty-four would be eligible for parole or reaching the end of their sentences within 12 months of the beginning of the therapy. Of the participants, 52 (78%) were not working during the year prior to incarceration. Fifteen women had participated in an intensive substance abuse treatment program while incarcerated. At pretest, 58 women (87%) scored in the above average range for borderline symptomology on the PAI-BOR, with 39 (58%) of them scoring in the clinically significant range.

Selection Procedures.

At this facility, the standard procedure for non-acute mental health referrals consisted of either clinician recommendation with inmate consent upon admission to the

Table 2

Sample Characteristics

Group	Dropouts n=33	Treatment n=17	Control n=17	Total n=67
Characteristic				
Substance Abuse Program	8	6	1	15
Ethnic Background				
Caucasian	28	13	16	57
African American	5	4	1	10
Highest Level of Education				
8 th Grade or Less	3	2	2	7
GED	12	5	6	23
High School Graduate	8	6	2	16
Some College or Tech	5	2	2	9
2- or 4-year College Degree	0	0	2	2
Employment Prior to Prison				
Not Working Outside of Home	23	15	14	52
Working	10	2	3	15
Security Level				
Low	7	1	2	10
Minimum	10	4	2	16
Medium	13	10	8	31
High	3	2	5	10
Level of Borderline Symptomology*				
Normal	6	3	0	9
Elevated	6	6	7	19
Clinically Elevated	21	8	10	39
<i>Note.</i> *Level of Borderline Symptomology is based on PAI-BOR pretest scores.				

facility, or self-referral at any point during the inmate's stay. Upon admission, each inmate received a handbook that lists all therapeutic group offerings along with information on how to submit a written self-referral. Outpatient mental health treatment within this institution was voluntary; each inmate had the right to request or decline services at any time. Those referred were placed on a waiting list and offered services as availability arose. Due to limited resources, the wait for non-acute treatment could be as long as one year. Inmates whose primary issues were substance-abuse-related typically asked to participate in the prison's intensive chemical dependency program. However, inmates could also seek outpatient mental health services such as this psychoeducational group they may if they wished, and such women were included in the study. Inmates with extreme illnesses and symptomology were referred to a facility that offers more intensive mental health treatment services.

The DBT skills group had been ongoing at this facility since 2001, with a new group beginning approximately every four weeks. However, changes took place throughout the institution during the course of this study and at the time of this study this treatment option was no longer being offered on a regular basis.

Beginning in August 2009, inmates were invited to participate in the modified-DBT group in accordance with the prison's regular procedures. About one month prior to the start of the treatment groups, invitations were sent via institutional mail to the first 90 inmates identified on the waiting list. A response due date was included with the invitation. The invitations included information about voluntary participation in the study. The response options reflected interest in participating in the study and/or treatment and were listed as follows:

1) Yes, I want to attend the group and I want to hear more about being a part of the study; 2) Yes, I want to attend the group, but I do not want to be a part of the study; 3) No, I no longer want to attend the Stress Management Skills group and my name *will* be removed from the waiting list; and 4) No, I cannot attend the group right now, but I would like to in the future. I understand that my name will *not* be deleted from waiting list and I will be invited to a future group.

The invitation stated that if a response was not received by the due date, the inmate's name would be deleted from the waiting list. The inmate had the right to re-self-refer, but was then placed at the bottom of the wait list. For the purposes of this study, the invitation included the two possible start dates over the following two months.

During the inmates' informational session, the purpose of the study was explained and the methods of gathering information clarified. Each inmate was informed of her right to voluntarily participate in or decline the treatment and the study at any point. Her decision to participate did not affect her access to treatment. It was also explained that all of her information gathered during this study would be held confidential. Inmates who remained interested reviewed the appropriate Department of Corrections and university Internal Review Board approved consent forms.

Inclusion Criteria.

Unlike many prior studies that have excluded participants who do not meet the diagnostic criteria of BPD, have limited comprehension ability, or have chemical dependency issues, the present study was designed to evaluate the actual treatment provided to the full volunteer sample. Therefore, if the individuals might otherwise have been deemed not appropriate for this group, they were also included in this study.

Participants were not excluded from the study if they did not meet the criteria for diagnosis of Borderline Personality Disorder. Rather, in this study the level of borderline symptomology was used as an independent variable. Each inmate rated the intensity of borderline symptoms on the Personality Assessment Inventory Borderline (PAI – BOR; Morey, 1991) scale at each testing point so as to detect small changes.

Second, inmates with lower levels of intellectual functioning were included in the study as long as they had the ability to understand informed consent as determined by the institution's psychology staff. Given the complex nature of DBT treatment, individuals with lower cognitive abilities have traditionally been excluded from this type of treatment. Similarly, patients with comorbid chemical dependency issues often have not been included in DBT studies due to confounding related to amount and type of treatment received concurrently with DBT (i.e. Linehan, Armstrong, Suarez, Almon, & Heard, 1991; Linehan, Heard, & Armstrong, 1993; Linehan, Tutek, Heard, & Armstrong, 1994). As it was the typical practice of this institution to include these inmates in DBT treatment, they were included in the study as well.

Exceptions included inmates who were actively psychotic or in acute mental health crises. As active psychosis interferes with learning as well as ability to make informed consent, psychotic individuals could participate in treatment, as deemed appropriate by psychology staff, but were not asked to participate in the study.

Inmates in acute mental health crises were referred for more appropriate services and therefore were not included in the randomized study or analysis. Referrals for further evaluation or services were made in accordance with standard institutional procedure for

all inmates. No prospective participants presented these issues, and therefore no referrals were made.

Treatment Program

The Kentucky Correctional Institution for Women (KCIW) offered skills training groups to inmates as prescribed by Linehan (1993b) with some modifications which are described below. The original program as designed by Linehan (1993b) was described in the *DBT Skills Training* section of the Literature Review of this paper. The skills modules were renamed as follows in order to better relate to the clientele: Emotion Regulation was labeled *Mood Management*, Interpersonal Effectiveness was labeled *Relationship Skills*, and Distress Tolerance was re-named *Stress Management*. The name for Core Mindfulness was retained and these skills were taught during each of the skills modules.

Each skills group consisted of eight sessions as recommended by Linehan (1993b), however the two-hour groups occurred twice weekly for four weeks instead of once weekly for eight weeks. The skills modules were followed as delineated in Linehan's Skills Training Manual (1993b). All discussions, handouts, and homework assignments were covered, but some adjustments were made based on the inmates' comprehension ability as well as the applicability of the content to prison environment. There was an emphasis on the concepts of "validation" and "dialectics" (Linehan, 1993a) during these groups and these terms were included as skills on the diary card.

The DBT skills group therapist was trained and supervised for one year on an existing adherent DBT team. The team participation concluded prior to the beginning of the current skills group. This training included observing and then co-leading skills group.

The KCIW program involved significant modifications of the standard comprehensive Dialectical Behavior Therapy treatment. These changes were as follows. Due to limited resources, the KCIW program offered skills training only. Instead of the all skills modules being presented, only Core Mindfulness and Distress Tolerance were included. This was offered because *Stress Management* was often the group with the most interest from the inmates.

The sessions occurred twice weekly over the span of four weeks. By contrast, the empirically supported comprehensive treatment repeats all skills modules over the span of one year or more, and groups are generally held weekly. Also, the skills groups were conducted with only one leader instead of the recommended two co-leaders.

One of the four main components of comprehensive DBT is individual therapy. However, the KCIW program did not offer individual therapy. Another variance from the comprehensive model was that there was no DBT consultation team, nor were, coaching calls available during this study. Coaching calls allow for the practice of skills in vivo by a client phoning a therapist to coach them through the present situation.

Another, previously noted variance was that although comprehensive DBT is an empirically supported treatment for persons who meet full criteria for Borderline Personality Disorder, the participants in the KCIW treatment did not have to carry a diagnosis; rather they only needed to voluntarily request the treatment. Lastly, there was no orientation and commitment phased of treatment. All of these modifications were made by the KCIW psychology staff in an attempt to meet the treatment needs of the greatest number of inmates with the available resources.

Procedures

Data for this study were collected using the following procedures. Participants completed paper and pencil questionnaires three to four times over the course of six months with each session of questionnaire completion lasting about 30 minutes. The researcher gathered demographic and historical information from each participating inmate's institutional files including: age, length of sentence, type of crime, pre-incarceration employment status, current employment status, highest level of education, institutional classification level, current participation in other substance abuse, and frequency of institutional infractions during the month prior to, the month during, and the month following treatment. During treatment, inmates completed three weekly diary cards and a satisfaction survey at the end of treatment.

Instrumentation

The repeated dependent variables for this study were borderline symptomology, distress tolerance, mindfulness, and environmentally-disruptive and rule-breaking behavior. The variables were measured via three self report measures: the Borderline Features scale of the Personality Assessment Inventory (PAI – BOR; Morey, 1991); the State-Trait Anger Expression Inventory – 2, Anger Expression index (STAXI - 2; Spielberger, 1999); and the Five Facet Mindfulness Questionnaire (FFMQ; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006). Rule-breaking behavior was measured by the frequency of institutional infractions. These data were gathered from each participant's institutional record for the time periods one month prior to, the month during, and one month following treatment. Distress tolerance was also measured by self-reported skills

use, and self-reported urges for and actions of destructive behavior on weekly diary cards.

The PAI-BOR

The Personality Assessment Inventory – Borderline Features scale (PAI – BOR; Morey, 1991) was selected as the measure of borderline symptomology. Its 24 items are rated along a 4-point Likert scale (totally false, slightly true, mainly true, and very true), giving it the potential to be more sensitive in detecting changes in borderline pathology in comparison with dichotomous ratings (present or absent) of symptomology. The PAI – BOR assesses features of severe borderline personality pathology. In addition to the overall frequency of BPD symptoms, four subscales are included to measure symptom clusters in the categories of identity problems, affective instability, negative relationships, and self harm. The PAI – BOR scale has demonstrated a high internal consistency for both a norm group ($\alpha = .81$) and a clinical group ($\alpha = .86$) (Morey, 1991), as well as good convergent validity ($r = .77$) with selected items on the Minnesota Multiphasic Personality Inventory (Morey, Waugh, & Blashfield; Trull, 1995) and the Structured Clinical Interview for Axis II disorders (Jacobo, Blais, Baity, & Harley, 2007). The scale score was used in this study.

The STAXI-2

The State-Trait Anger Expression Inventory – 2 (STAXI - 2; Spielberger, 1999) was selected as the self report measure for distress tolerance because intense anger and the inability to express anger in a nondestructive manner are often characteristic of individuals diagnosed with BPD (Linehan, 1993b). The 57 items, rated on a 4-point Likert scale, yield three primary scores, State Anger (S-Ang), Trait Anger (T-Ang), and

Anger Expression index (AX Index). S-Ang evaluates the intensity of angry feelings at a given time. T-Ang measures a person's predisposition to experience anger. AX Index looks at the expression and control one shows over her emotions. The scales show good internal consistency for both normal females and psychiatric females, respectively, with $\alpha = .92$ and $\alpha = .95$ for State Anger, $\alpha = .84$ and $\alpha = .87$ for Trait Anger, and $\alpha = .75$ and $\alpha = .76$ for the Anger Expression Index. The Anger Expression Index was used for this study.

The FFMQ

The Five Facet Mindfulness Questionnaire (FFMQ; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006) was chosen to measure changes in mindfulness skills at the suggestion of the lead author. This measure was created based on results of an exploratory factor analysis of five existing measures of mindfulness. Combination of all the tests' items yielded five distinct subscales of mindfulness: Non-reactivity to internal experience, Observing thoughts sensations and feelings, Acting with awareness, Describing or labeling with words, and Non-judgment of experience. The 39 items are rated on a five-point Likert scale (never or very rarely true, rarely true, sometimes true, often true, very often or always true) to yield scores in these five areas of mindfulness. The subscales showed adequate to good internal consistency as denoted by the following alpha levels: Non-reactivity = .75, Observing = .83, Acting with awareness = .87, Describing = .91, and Nonjudging = .87. Regression analyses showed that each scale's systematic variance was mostly unique. These values ranged from .56 to .75 (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006). The composite score was used for this study.

None of these measures have been normed on the current population of study, female inmates. This is noted as a limitation. However, subjects' scores were used to compare pre-test and post-test ratings for the same subjects as well as post treatment ratings with others from the same population. The rationale for choosing these particular measures was that these measures are considered to be valid and/or the best available measures for each construct of interest.

Weekly diary cards were collected from participants. Diary cards are a vehicle by which fluctuations in the intensity and frequency of impulsive urges, frequency of behaviors, intensity of moods and type and level of skills usage are self-monitored on a daily basis. Trends in these areas were measured over the four weeks of treatment.

In addition to the self-report standardized measures, the diary cards added further information regarding changes in the targeted areas. Distress tolerance was measured by the ratio of urges to engage in negative behavior as compared to the frequency of actually engaging in the behavior. The urges and behaviors monitored by self-report on the diary cards included: verbal aggression, physical aggression toward others, physical aggression toward self, and property damage. Increased distress tolerance was also indicated by an increase in the frequency of skills use. The use of diary cards was prescribed by the manualized structure of DBT so this was an existing data source that the group participants would be completing regardless of the study.

The group leader also monitored attendance and rate the level of participation for each client during each session on a five-point scale. The points were defined as follows: none = slept, not attentive, no participation; limited = attentive, few comments, shared homework or diary card; average = attentive, some offerings to the discussion shared

homework and diary card; good = average plus actively engaged with many thoughtful offerings; and excellent = good plus engaging others in the learning process, teaching concepts.

During post-test evaluation, participants were asked to complete a brief evaluation of their experience in group. It included items rated on a five-point scale regarding their attitudes toward and experiences in treatment. They were also encouraged to narratively describe any coping strategies they now used as a result of this training. This measure was included to assess the inmate's opinion of the usefulness of the group training.

A measure to address therapist adherence to the DBT model was also included in this study. The skills training manual delineates the structure of the group sessions including lecture points, discussion points, and illustrative examples along with the specific skills to be covered for each meeting. A check list was created based on the manual's delivery instructions for each session. After each session, the therapist identified which topics and skills were covered that day along with any additional topics. Comparing these adherence measures allow examination of materials covered for each session of each of the three groups that occurred over the two month period. It is noted that the same therapist led all skills training groups.

Statistical Analysis

A between-subjects multiple analyses of covariance (MANCOVA) was used to test for treatment effects against a wait-list control group. Post-test scores were adjusted by pre-test scores, which were used as covariates. The three self-report dependent variables were included in this analysis: Borderline Features, Mindfulness, and Anger Expression. In order to detect a Mahalanobis distance medium effect size ($D^2 = .64$) with

three dependent variables, a sample of 50 analyzable subjects per condition (treatment vs. control) was needed to detect such a difference with 90% power at the 0.05 significance level (Stevens, 2002). The availability of fewer subjects than initially sought reduced the power to detect differences. The use of multivariate analyses instead of several univariate analyses accounts for alpha inflation and adjusts the p value as necessary to enhance statistical conclusion validity (Stevens, 2002).

The objective measure of institutional infractions was evaluated prior to, during, and the month after assigned group participation for all 67 women. This variable was analyzed with two repeated-measures ANOVAs, one for completers and one for dropouts. Distress tolerance as measured by self-reported skills-use was evaluated with a repeated measures ANOVA. Self-reported destructive urges and behaviors were to be described with ratios.

Clinically significant change was analyzed as detailed in Jacobson and Truax (1991). This procedure was designed to identify the degree to which and individual moves from a dysfunctional range toward a normal range of functioning during the course of a therapeutic treatment. This process looked beyond statistically significant group change and effect sizes to identify how many and which subjects actually experienced treatment efficacy.

Treatment adherence was analyzed by the percent of material actually covered as compared to that scheduled to be covered. Satisfaction survey results were presented descriptively.

Conclusion

This study used a non-randomized pre-test, post-test control group design to evaluate the effectiveness of this group therapy treatment as offered to volunteering female inmates at KCIW. Information was gathered through self report and record review. In the next chapter, results of the statistical analyses are reported. Chapter five describes this treatment's impact on the safety, security, and financial interests of this institution, as well as thoughts for future research.

CHAPTER 4

RESULTS

The purpose of this study was to evaluate the effectiveness of a partial DBT skills group as delivered in a naturalistic setting to female inmates who volunteer for treatment. This chapter reports the results of the data analyses. It was hypothesized that by participating in the treatment group, inmates would show the following:

- An increase in mindfulness,
- An increase in distress tolerance as shown by a decrease in anger expression,
- A decrease in borderline symptomology, and
- A decrease in environmentally disruptive and rule-breaking behaviors.

The independent variable in this study was the partial DBT skills treatment. The independent variable has two levels (i.e., treatment vs. control). The first three dependent variables of interest in this study were borderline personality disorder symptomology as measured by : the Borderline Features scale of the Personality Assessment Inventory (PAI – BOR; Morey, 1991); distress tolerance as measured by the State-Trait Anger Expression Inventory – 2, Anger Expression index (STAXI - 2; Spielberger, 1999); and mindfulness as measured by the Five Facet Mindfulness Questionnaire (FFMQ; Baer,

Smith, Hopkins, Krietemeyer, & Toney, 2006). A between subjects multivariate analysis of covariance (MANCOVA) was used to test the first three hypotheses.

A fourth dependent variable, environmentally disruptive and rule breaking behavior was measured by record review of the frequency of institutional infractions by each participant. The frequency of institutional infractions was analyzed with repeated measures ANOVAs. Skills usage, another measure of distress tolerance, was also analyzed with a repeated-measures ANOVA. Clinically significant change was determined for each participant based on a procedure from Jacobson & Traux (1991). Treatment adherence was analyzed and lastly, results of a group satisfaction survey were presented descriptively.

Dependent Variables: STAXI-2 Anger Expression Index, PAI-BOR, and FFMQ

The first three dependent variables of interest were analyzed with a between subjects MANCOVA (Tabachnick & Fidell, 2007). Box's Test of Equality of Covariance Matrices tested the null hypotheses that observed covariance matrices of the dependent variables are equal across groups. The test statistic (Box's $M=9.354$) was not significant, $F(6, 7419.17) = 1.399, p = .211$. Because equal variances were assumed, the multivariate test statistic used was Wilks' Λ (Tabachnick & Fidell, 2007). The overall MANCOVA results can be seen in Table 3 and showed a significant multivariate effect for the treatment on the dependent variables with pretest scores as covariates. The test statistic was significant: Wilks' $\Lambda = .678, F(3, 27) = 4.269, p = .014$, as shown in Table 3. The effect size of this measures was large, partial $\eta^2 = .322$. This means that 32% of the variance across the three dependent variables can be attributed to the treatment. Post hoc analyses shown in Table 4 indicated the treatment group scored significantly lower on the

measure of anger expression and significantly higher on the measure of mindfulness than the control group after the treatment occurred. Post hoc analysis in Table 5 show that the treatment group showed statistically significant change from pre to post test on the measures of anger expression and mindfulness but not for borderline symptomology. Table 5 also shows that the control group showed not significant change on any of the measures from pretest to posttest.

Table 3

MANCOVA Results for Partial DBT Skills Group Treatment

	Wilk's Λ	F (3, 27)	<i>p</i>	Partial η^2
Treatment	.678	4.27	.014	.322

Table 4

Post Hoc Between Groups Univariate Analyses with Posttest Means

	Treatment		Control		F(1, 29)	<i>p</i>	<i>d</i>
	Mean	SD	Mean	SD			
STAXI-2 AX-Index	38.12	11.96	51.88	17.39	10.429	.003*	.92
FFMQ	125.47	12.90	112.76	15.14	7.229	.012*	.53
PAI-BOR	38.71	9.97	43.35	7.40	.952	.337	.90

Note. STAXI-2 AX Index = State-Trait Anger Expression Inventory – 2, Anger Expression Index. FFMQ = Five Facet Mindfulness Questionnaire. PAI-BOR = Borderline Features scale of the Personality Assessment Inventory. *p* = Bonferroni adjustment for multiple comparisons. * = $p < .05$. *d* = Cohen's *d* effect size.

Table 5

Post Hoc Repeated Measures Univariate Analyses for Treatment and Control Groups

		Pretest		Posttest		F(1, 16)	p	d
		Mean	SD	Mean	SD			
STAXI-2 AX- Index	Control	56.06	15.57	51.88	17.39	3.81	.069	.25
	Treatment	50.88	14.98	38.12	11.96	23.84	<.000*	.94
FFMQ	Control	106.82	15.06	112.76	15.14	2.31	.148	.39
	Treatment	110.88	14.16	125.47	12.90	14.17	.002*	1.08
PAI-BOR	Control	42.71	8.45	43.35	7.40	.145	.709	.08
	Treatment	39.24	10.15	38.71	9.97	.041	.843	.05

Note. STAXI-2 AX Index = State-Trait Anger Expression Inventory – 2, Anger Expression Index. FFMQ = Five Facet Mindfulness Questionnaire. PAI-BOR = Borderline Features scale of the Personality Assessment Inventory. *p* = Bonferroni adjustment for multiple comparisons. * = *p* < .05. *d* = Cohen's *d* effect size.

Dependent Variable: Institutional Infractions

Institutional infractions for all 67 women were measured during the month prior to group, the month of group, and the month after group. The first analysis was for the 28 women who completed the treatment group. Of the 28, 24 stayed in the prison long enough to have these data collected. These data were analyzed with a repeated-measures ANOVA which determined if the women who completed the treatment incurred significantly fewer infractions during or after the treatment than prior to the treatment. The assumption of sphericity was violated according to Mauchly's test, $\chi^2(2) = 25.67, p < .000$. This means that the variances of the differences among the levels were significantly different. Therefore degrees of freedom were corrected using Greenhouse-Geisser ($\epsilon = .592$). The results of the repeated measures ANOVA indicated that there

was a marginally significant difference in the occurrences of infractions across time for the treatment group, $F(1.184, 27.241) = 3.854$ ($p = .054$). Post hoc t-tests were used to determine the location and direction of significant change. Results shown in Table 6 indicated decreases in the number of infractions received across comparisons. However, with using the more conservative Bonferroni adjustment for multiple comparisons, the only comparison that approached significance was from the month prior to treatment to

Table 6

Post Hoc Analyses of Infractions Received

Month	Mean Difference	Standard Error	<i>p</i>	<i>d</i>
Prior - During	-.208	.120	.288	.43
Prior - Post	-.250	.109	.092*	.54
During - Post	-.042	.042	.983	.16

Note. * $p < .10$. p = Bonferroni adjustment for multiple comparisons. d = Cohen's d effect size.

the month following treatment. This was significant at the $p < .10$ level but not the $p < .05$ level. This finding should be interpreted with caution.

The second analysis of infraction occurrences was for the 39 women who dropped out of the treatment. Of the 39, 30 remained in the institution long enough to have these data collected. The data were analyzed with a repeated measures ANOVA which determined if the women who did not participate in the treatment incurred significantly fewer infractions during or after the treatment period than prior to the treatment period.

Maulchly's test, $\chi^2(2) = 14.821, p = .001$ indicated that the assumption of sphericity was not met. This means that the variances of the differences among the levels were significantly different. Therefore degrees of freedom were corrected using Greenhouse-Geisser ($\epsilon = .709$). The results of the repeated measures ANOVA indicated that there were no significant differences across time for the control group, $F(1.417, 41.105) = .209, p = .735$. Therefore, no post-hoc analyses were computed.

Dependent Variable: Skills Usage

In addition to the STAXI-2 Anger Expression Index, distress tolerance was also measured by frequency of skills use across the weeks of treatment. Twenty-three women submitted completed data on skills use for each of the three weeks of treatment. Data were analyzed using a repeated-measures ANOVA. This was used to determine if there were significant changes in reported skills use over the duration of the treatment. Mauchly's test, $\chi^2(2) = 3.77, p = .152$ indicated that the assumption of sphericity was met. This means that the variances of the differences between each time point were not significantly different and the results could be analyzed with sphericity assumed. The repeated measures ANOVA yielded $F(2, 44) = 9.170, p < .000$. Clearly, there was a significant difference in mean skills usage among the three weeks of the group. In order to determine where the significant differences were located, post hoc t-tests were used. Results shown in Table 7 indicated a significant increase in mean skills use from weeks one to two and weeks one to three. There was no significant difference between weeks two and three. An attempt was made to collect data via diary cards on urges and actions to say mean things, hurt self, hurt others, and destroy property. However, only six of the 28 treatment completers gave complete data and therefore those data were not analyzed.

Table 7

Post Hoc Analyses of Weekly Skills Usage Reports

Weeks	Mean Difference	Standard Error	<i>p</i>	<i>d</i>
1-2	14.74	3.78	.002*	.55
1-3	19.04	5.44	.006*	.67
2-3	4.30	4.63	1.000	.15

Note. * $p < .05$. *d* = Cohen's *d* effect size.

Clinical Significance

Jacobson and Traux (1991) define psychotherapy treatment efficacy as “the benefits derived from it, its potency, its impact on clients, or its ability to make a difference in people’s lives” (p.12). They noted that inferential statistical conclusions are limited in determining treatment efficacy in two ways. First, mean comparisons offer no information about an individual’s response to treatment, something that is important to clinicians. Second, statistical significance refers to difference not being due to chance, but tells nothing about how well the treatment actually works. Jacobson and Traux (1991) note that effect size statistics have these limitations as well. They offer an example of a comparison of treatment and control group targeting obesity. If the mean weight loss of the treatment group was two pounds and of the control group zero pounds, both with little within-group variability, the effect size would be large. However, a loss of two pounds in the treatment of obesity is far from a return to a normal weight and is unlikely to be clinically significant.

Jacobson and Traux (1991) identified three ways to establish cutoffs for clinically significant change (or movement to the non-clinically distressed population). The first method suggested that level of functioning after therapy should be at least two standard deviations from the mean of the clinically distressed population (in the direction of non-distress). The second method suggested that the post therapy level of functioning should fall within two standard deviations of the non-clinically distressed population. The third method suggested that the level of post-therapy functioning be closer to the mean of the non-clinically distressed population than the clinically distressed population. Both the second and third methods require normative data on a non-clinically distressed population, which is not always available. When normative data are available and distressed and non-distressed populations overlap, Jacobson and Traux (1991) recommend using the third method. If the populations do not overlap they recommend the second method. If no normative data are available, then the first method must be used.

For this analysis, the first step in the process was identifying a cutoff point for clinically significant changes for each of the three self-report measures. Based on the testing normative information available, the third method was used for the STAXI-2 Anger Expression index and the first method was used with the PAI-BOR and the FFMQ. On the STAXI-2 Anger Expression Index scores may range from 0 – 96 with higher scores indicating higher levels of anger. The STAXI-2 manual presents normative data that show an overlap between the distress and non-distressed populations. Based on this information and analysis with the third method described above, a cutoff of less than or equal to 34 was calculated to indicate the non-clinically distressed population. This was

calculated with means and standard deviations of the normal (M_0 , s_0) and clinically distressed (M_1 , s_1) populations reported in the STAXI-2 manual. The formula used follows:

$$\text{Cutoff} = \frac{s_0 M_1 + s_1 M_0}{s_0 + s_1} = \frac{(36.80)(13.66) + (32.04)(14.23)}{13.66 + 14.23} = 34$$

On the PAI-BOR, scores could range from 0 – 72 with higher scores indicated higher levels of borderline symptomology. Scores greater than 37 were considered significantly high (Trull, 1995). Based on this, the first method was used to identify a cutoff of less than or equal to 14 which identifies the non-clinically distressed population. The formula used follows:

$$\text{Cutoff} = M_1 - 2s_1 = 37 - 2(11.32) = 14$$

On the FFMQ scores could range from 39 -195 with higher scores indicating higher levels of mindfulness. No normative data were available for this measure. Again with the use of the first method, a score must be equal to or above 152 to be considered highly mindful. The formula used follows:

$$\text{Cutoff} = M_1 + 2s_1 = 114.24 + 2(19.107) = 152$$

To account for measurement error, Jacobson and Traux (1991) recommend developing a confidence interval for the cutoff scores using the Reliable Change (RC)

formula for standard error of the measurement (see Table 7). Because test-retest reliability information was not available for the measures, the pretest internal consistency measure, Cronbach's α , was used. They are listed as follows: STAXI-2 Anger Expression index $\alpha = .748$, PAI-BOR $\alpha = .879$, and FFMQ $\alpha = .868$. Adjusting the cutoff scores to include confidence intervals leads to a revised STAXI-2 cutoff confidence interval of 34 ± 8 . The formula follows:

$$S_E = s_1 \sqrt{1 - r_{xx}} = 16.627 \sqrt{1 - .748} = 8.347$$

The revised PAI-BOR cutoff confidence interval is 14 ± 4 . The formula follows:

$$S_E = s_1 \sqrt{1 - r_{xx}} = 11.32 \sqrt{1 - .879} = 3.939$$

The revised FFMQ cutoff interval is 152 ± 7 . The formula follows:

$$S_E = s_1 \sqrt{1 - r_{xx}} = 19.107 \sqrt{1 - .868} = 6.936$$

The next step in this analysis was to determine the Reliable Change (RC) index score for each participant on each measure. The RC index was defined as how much change occurred during treatment. Jacobson & Traux (1991) refer to a formula for measuring change (Christensen and Mendoza, 1986, as cited in Jacobson and Traux, 1991; see Tables 8 and 9).

Table 8

Formulas for Christensen & Mendoza's (1986) Reliable Change (RC) Index

$$RC = \frac{x_2 - x_1}{S_{diff}} \quad S_{diff} = \sqrt{2(S_E)^2} \quad S_E = s_1 \sqrt{1 - r_{xx}}$$

Table 9

Symbols Used in Jacobson and Traux's (1991) Reliable Change (RC) Index

Symbol	Definition
x_1	Inmate's pretest score
x_2	Inmate's posttest score
S_{diff}	Standard error of the difference between the two test scores
S_E	Standard error of the measurement
r_{xx}	Test-retests reliability*

Note. For this study r_{xx} replaced by Cronbach's alpha measure of internal consistency

Jacobson and Traux (1991) noted that when distressed and non-distressed population distributions overlap it may be possible to cross the cutoff score, but only by chance measurement error. For this reason they recommend the use of a confidence band at the 95th percentile. The Reliable Change score must be greater than 1.96 times S_{diff} for an individual to be considered clinically significantly changed. The RC indices were calculated to be for the STAXI-2 ± 23 ; for the PAI-BOR ± 11 ; and for the FFMQ ± 19 .

Inmates pretest and posttest scores were analyzed to determine if, with 95% confidence, the individual showed clinically significant improvement or recovery during the treatment. Improvement was defined as a change from pretest to posttest greater than the RC in the desired direction. Deterioration was defined as a change greater than the RC in the opposite direction. Recovery was defined as change greater than the RC in the

desired direction and moving beyond the cutoff confidence interval listed above on any measure.

Individuals without posttest score were not included in percentage totals which resulted in 24 subjects for each measure. Individuals with pretest scores within the non-clinically distressed range were not counted as improved or recovered and were not included in the percentage totals. Of the 24 inmates with pretest and posttest scores, only one had a pretest score in the non-distressed range and this was on the STAXI-2. Her score was unchanged from pretest to posttest. Individuals whose change was greater than the RC index in the desired direction, but fell within the confidence interval for the cutoff scores were considered improved but not recovered in the percentage totals.

The results describe clinically significant improvement and recovery on the chosen measures and are shown in Tables 10 – 12 and a summary is shown in Table 13. On the STAXI-2 Anger Expression index, 3 of 23 (13%) inmates moved into the non-clinically distressed range, 3 of 23 (13%) showed clinically significant improvement, and none deteriorated. On the PAI-BOR, no inmates moved into the non-clinically distressed range, 4 of 24 (17%) inmates showed clinically significant improvement, and 4 of 24 (17%) showed deterioration. On the FFMQ 9 of 24 (38%) inmates showed clinically significant improvement and 1 of 24 (4%) moved into the highly mindful range based on this analysis.

Table 10

Individual Scores and Change Scores and Status on STAXI-2 Anger Expression Index with Reliable Change Index ± 23

Subject	Pretest	Posttest	No Significant Change	Significantly Deteriorated	Significantly Improved	Recovered
1	37	29	-8			
2	56	--	--	--	--	--
3	75	60	-15			
4	20	20	0			
5	68	73	+5			
6	64	31			-33	
7	51	--	--	--	--	--
8	23	--	--	--	--	--
9	67	39			-28	
10	45	39	-6			
11	39	24	-15			
12	52	48	-4			
13	51	46	-5			
14	49	26				-23
15	63	24				-39
16	65	47	-18			
17	69	67	-2			
18	49	49	0			
19	48	43	-5			
20	34	32	-2			
21	62	54	-8			
22	53	36	-17			
23	47	42	-5			
24	32	36	+4			
25	61	63	+2			
26	22	--	--	--	--	--
27	46	21				-25
28	80	47			-33	

Note. STAXI-2 = State Trait Anger Expression Inventory. Y = yes; N = no. Dash = information not available

Table 11

Individual Scores and Change Status and Scores on PAI-BOR with Reliable Change Index ± 11 .

Subject	Pretest	Posttest	No Significant Change	Significant Deterioration	Significant Improvement	Recovered
1	35	56		+21		
2	55	--	--	--	--	--
3	38	42	+6			
4	24	20	-4			
5	42	43	+1			
6	49	54	+5			
7	42	--	--	--	--	--
8	6	--	--	--	--	--
9	46	36	-10			
10	26	29	+3			
11	34	32	-2			
12	45	40	-5			
13	34	52		+18		
14	33	38	+5			
15	47	36			-11	
16	49	41	+8			
17	52	42	-10			
18	28	32	+4			
19	36	25			-11	
20	27	50		+23		
21	42	42	0			
22	43	39	-4			
23	48	36			-12	
24	34	42	+8			
25	36	48		+12		
26	46	--	--	--	--	--
27	50	32			-18	
28	60	50	-10			

Note. PAI-BOR = Personality Assessment Inventory Borderline Scale. Y = yes; N = no. Dash = information not available

Table 12

Individual Scores and Change Scores and Status on the FFMQ with Reliable Change Index ± 19

Subject	Pretest	Posttest	No Significant Change	Significantly Deteriorated	Significantly Improved	Recovered
1	97	100	+3			
2	107	--	--	--	--	--
3	135	125	-10			
4	123	128	+5			
5	104	132			+28	
6	103	136			+33	
7	112	--	--	--	--	--
8	169	--	--	--	--	--
9	71	108			+37	
10	112	115	+3			
11	117	141			+24	
12	100	115	+15			
13	83	105			+22	
14	127	119	-8			
15	118	159				+41
16	97	134			+37	
17	96	109	+13			
18	119	117	-2			
19	117	140			+23	
20	115	115	0			
21	121	134	+13			
22	112	130	+18			
23	102	120	+18			
24	119	103	-16			
25	124	112	-12			
26	117	--	--	--	--	--
27	113	151			+38	
28	75	113			+38	

Note. FFMQ = Five Facet Mindfulness Inventory Questionnaire. Y = yes; N = no.
Dash = information not available

Table 13

Percentages of Improved, Recovered, Unchanged and Deteriorated Inmates on STAXI-2, PAI-BOR, and FFMQ

Measures	<i>N</i>	% recovered	% improved	% unchanged	% deteriorated
STAXI-2	23	13	13	74	0
PAI-BOR	24	0	17	66	17
FFMQ	24	4	38	58	0

Note. STAXI-2 = State Trait Anger Expression Inventory Anger Expression Index. PAI-BOR = Personality Assessment Inventory – Borderline Scale. FFMQ = Five Facet Mindfulness Questionnaire

Treatment Adherence

Treatment adherence of the therapist to the program was defined by the ratio of exercises actually taught to exercises scheduled to be taught. Seven to ten exercises were scheduled for each group session. For the first group of the first month the adherence ratio was 90% for the second group of the first month it was 85%. For the combined group during the second month adherence was 82%.

Satisfaction Survey

A satisfaction survey was developed by the author to gain multi-method (Teddle & Tashakkori, 2009) information that might be useful for enhancing future treatment programs. A total of 23 participants completed surveys. Respondents rated eight items on a five-point Likert scale (see Table 14). Participants also listed the skills they remembered learning during the group. These lists ranged from 3 skills to 18 skills with

a mean of 7.3. Participants were asked to identify the best and worst parts of group, how the group could be improved, and any additional comments.

Table 14

Satisfaction Survey 5-Point Likert Scale Results

Item	Min	Max	Mean	SD
I enjoyed the Stress Management Group.	2	5	4.61	.722
I would not recommend this group to other women.	1	5	1.39	1.076
The group leader was prepared for group.	5	5	5.00	.000
The group leader did not seem to care about the group members.	1	1	1.00	.000
The group leader seemed interested in the information.	4	5	4.78	.422
The information presented in the group was not helpful.	1	3	1.17	.491
The daily diary cards were helpful to me.	3	5	4.61	.583
I learned new skills in this group.	4	5	4.83	.388

Note. 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral or No Opinion, 4 = Agree, 5 = Strongly Agree.

Conclusion

This chapter provided findings from this study. One of the main analyses was a MANCOVA that tested the first three hypotheses. It compared 17 treatment recipients to 17 wait-list control recipients on three post-test measures while controlling for the differences in those measures at pretest. Results showed that there was a statistically significant overall effect for treatment. Another analysis examined the amount of clinical

change each participant showed. A fourth hypotheses reflecting rule-breaking behavior was tested with two repeated measures ANOVAs.

The first hypothesis was that there would be an increase in mindfulness for treatment participants. This was measured by the Five Facet Mindfulness Questionnaire. Post-hoc univariate analyses showed that there was statistically significant change in mindfulness from pre-test to post-test for the treatment group but not for the control group. There was also a significant difference between the control treatment groups at posttest. The treatment group scores increased which reflects a higher level of mindfulness. The analysis of clinically significant change showed improvement for 9 of 24 (38%) of the inmates, while 1 of 24 (4%) reached the highly mindful range, and the remaining 14 (58%) were unchanged on the measure.

The second hypothesis was that there would be an increase in distress tolerance. This was measured in two ways. First was with the State-Trait Anger Expression Inventory – Anger Expression Index. Post hoc analyses indicated a significant decrease in mean scores on this measure from pretest to posttest for the treatment group but not the control group, which suggests lower levels of anger and is thought to reflect higher levels of distress tolerance. The treatment group also scored significantly lower than the control group at posttest. Second, distress tolerance was measured by the frequency of reported skills over three of the four weeks of treatment. Twenty-three inmates submitted completed data on skills usage. Analysis showed a significant increase in the use of adaptive coping skills from week one to week two and from week one to week three. There was no significant change between weeks two and three. Distress Tolerance was also to be measured by the ratio of reported urges for destructive actions to the rate of

completing the actions. However, insufficient data were submitted for this analysis. The analysis of clinical significance indicated that 3 of 23 (13%) inmates significantly improved while 3 of 23 (13%) moved into the non-clinically distressed range, and the remaining 17 (74%) showed no change.

The third hypothesis was there would be a decrease in borderline symptomology as measured by the Personality Assessment Inventory – Borderline Scale. Post hoc analyses showed no significant change in the level of borderline symptomology for either the treatment or control groups from pre to post-testing, nor a significant difference between the two groups at posttest. The analysis of clinical significance showed that 4 of 24 (17%) improved on this measure, another 4 (17%) deteriorated on this measure, and the remaining 16 (66%) showed no change.

The fourth hypothesis was that there would be a decrease in environmentally disruptive and rule-breaking behavior as measured by the number of institutional infractions received in the months prior to, during, and following treatment. Twenty four of the 28 treatment completers stayed in the institution long enough to have data for this analysis. A repeated-measures ANOVA showed for these 24 women, there was a marginally significant difference ($p = .054$) over time for infraction occurrences. Post hoc t-tests with a Bonferroni adjustment for multiple comparisons did not show significant change at the $p < .05$ level. However, at the $p < .10$ level there was a significant decrease in infractions received from the month prior to treatment to the month following treatment. During the same time period, data were also collected on the inmates who dropped out of treatment. Of the 39 who dropped out of treatment, 30 stayed at the institution long enough to have these data collected. A repeated-measures

ANOVA showed no significant change in frequency of infractions across this time period.

In addition to the four hypotheses, treatment adherence was also examined. It was defined as the percent of information covered in group as compared to what was scheduled to be covered. This ranged from 82% to 90%.

Satisfaction surveys were administered and showed high levels of satisfaction with the group, the group leader, and the information covered. The next chapter will give an overview of this study, relate the findings to the previous literature, note unexpected findings, and offer suggestions for practice and for further study.

CHAPTER 5

DISCUSSION

Chapter Five presents a summary of the study and conclusions drawn from the results of data analyses. It offers a discussion of the impact of this treatment on the institution's safety, security, and financial interests and offers suggestions for further study.

Summary of Study

Overview and Hypotheses.

Maintaining safety and security is a primary mission for correctional institutions. Mental health services can aid this task by increasing safe, adaptive behaviors and decreasing disruptive and dangerous behaviors. The psychology staff members at the Kentucky Correctional Institution for Women (KCIW) observed that many inmates engaged in disruptive or dangerous situations when acting out of extreme emotionality. The emotionality observed was similar to some behaviors displayed by individuals with Borderline Personality Disorder (BPD). Based on this observation, the psychology staff members began offering the skills training component of Dialectical Behavior Therapy (DBT). Comprehensive DBT has much empirical support in the literature (Linehan, Armstrong, Suarez, Almon, & Heard, 1991; Linehan, Heard, & Armstrong, 1993; Linehan, Tutek, Heard, & Armstrong, 1994), and some research support exists for the use of portions of this treatment (Harley, Sprich, Safren, Jacobo, & Fava, 2008; Kirby &

Baucom, 2007; Nelson-Gray et al., 2006; Rajalin, Wickholm-Pethrus, Hursti, & Jokinen, 2009; Soler et al., 2009). This purpose of this study was to evaluate the effectiveness of a partial Dialectical Behavior Therapy (DBT) skills group as delivered in a naturalistic setting. I hypothesized that following treatment, inmates would show:

- An increase in mindfulness,
- An increase in distress tolerance as shown by a decrease in anger expression,
- A decrease in borderline symptomology, and
- A decrease in environmentally disruptive and rule-breaking behaviors.

Review of Methodology.

The DBT skills components delivered were Core Mindfulness and Distress Tolerance (Linehan, 1993b). Treatment was delivered in eight sessions over the course of four weeks. A total of 67 inmates volunteered to participate in the study. Of the 67, treatment was delivered to 28 participants in two one-month waves. The study used a non-randomized pretest, posttest design with 34 inmates (17 treatment and 17 control). The data were analyzed with a between-subjects MANCOVA. The dependent variables in this analysis were the Five Facet Mindfulness Questionnaire (FFMQ; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006); the State-Trait Anger Expression Inventory – 2, Anger Expression index (STAXI - 2; Spielberger, 1999) which is thought to be a measure of distress tolerance; and the Borderline Features scale of the Personality Assessment Inventory (PAI – BOR; Morey, 1991). Rule-breaking behavior was measured by the

frequency of institutional infractions. Data on reported skills usage were also gathered as an additional measure of distress tolerance. An additional analysis of clinically significant change for 24 of the treatment recipients was also completed.

Major Findings.

MANCOVA results indicated that there was an overall effect for treatment versus the waitlist control. The first hypothesis stated that there would be an increase in mindfulness for treatment participants as measured by the FFMQ. Post hoc analyses indicated the post test mean score on the FFMQ for the treatment group was significantly higher than the control group. Post hoc analysis also showed statistically significant change from pretest to posttest on this measure for the treatment group, but not the control group. Analysis of clinically significant change showed that 42% of the inmates showed some improvement, while the remaining 58% showed no significant change.

The second hypothesis stated there would be an increase in distress tolerance as measured by a decrease in the STAXI-2 Anger Expression index. MANCOVA and post hoc univariate analyses showed significant difference in the mean Anger Expression index at posttest between the treatment and control groups. Post hoc analysis also showed significant pretest to posttest change for the treatment group, but not the control group, which indicates less anger and is thought to indicate higher distress tolerance. Analysis of skills usage showed a significant increase in the reported use of adaptive coping skills from weeks one to two and weeks one to three of the treatment, but not from weeks 2 to 3. The analysis of clinically significant change indicated that 26% of participants improved or recovered on the STAXI-2 Anger Expression index measure while the remaining 74% showed no significant change.

The third hypothesis stated there would be a decrease in borderline symptomology as measured by the PAI-BOR. No statistically significant change was shown. Analysis of clinically significant change indicated that 17% of inmates improved on this measure and 17% deteriorated while the remaining 66% showed no significant change.

The fourth hypothesis stated there would be a decrease in environmentally disruptive and rule-breaking behavior as measured by the number of institutional infractions received in the months prior to, during, and following treatment. Repeated measures ANOVA results showed a change that approached significance at $p = .054$. Post hoc t-tests with a Bonferroni adjustment for multiple comparisons showed a decrease in the number of infractions received from the month prior to treatment to the month following treatment for participants that was significant at the $p < .10$ level. Data were also collected during the same time period on the inmates who dropped out of treatment. The dropouts showed no significant change in the number of infractions received across this time period.

Findings Related to the Literature

A significant reduction of anger expression was shown for the treatment group of this study with a large effect size. This is similar to results from previous studies of a year-long, full DBT program with women with BPD which showed a large effect size (Linehan, Armstrong, Suarez, Almon, & Heard, 1991) and a 6-month-long, full DBT program with female veterans with BPD which showed a large effect size (Koons, et al 2000). A year-long, full DBT program for women with BPD in a prison and a brief 12 – 16 week, full DBT program (Nee & Farman, 2005) noted positive but non-significant

changes on a similar measure. What is surprising is that compared to previous studies with treatments ranging from 12 weeks to a year of full year of DBT, the change in this study was shown after a brief, 8-session skills group intervention.

One major difference in the present study and past studies is that in previous studies inclusion criteria required a diagnosis of BPD. In the present study, no one who volunteered was excluded. It just happened that most of the participants had elevated levels of borderline symptomology. Only 9 of 67 (13%) inmates had pretest raw scores on the PAI-BOR that placed them in the non-clinically distressed range, while 39 of 67 (58%) had pretest scores high enough to place them in the clinically elevated range.

Not surprising was the fact that there was no significant change in Borderline symptomology during this brief intervention. Though a previous study of DBT with female inmates (Nee & Farman, 2005) did show a reduction in Borderline symptomology with a medium effect size, it is noted that this was the comprehensive DBT program for a full year. The PAI-BOR measure looks at ingrained characteristics which would be difficult to change in a month's time. A longer course of treatment may have more impact on the personality characteristics, or the skills group alone may not be intensive enough to modify personality traits. Changes found reflected behavioral changes, specifically behaviors as measured by skills usage and infraction occurrences.

Increased skills usage is thought to be related to decreased Borderline symptomology (Stepp et al., 2008) and this study posited it use as a measure of distress tolerance. In this study a significant increase was shown from weeks 1 to 2 and weeks 1 to 3 both with a medium effect size, but not weeks 2 to 3. One might argue that an increase could simply be a factor of having learned about more skills and thus showing

more usage on the diary card. However if this were the case, it would stand to reason that there would have been an increase between weeks 2 and 3, but there was not. This may indicate that the skills taught in the first several sessions of the group, the Core Mindfulness Skills are more used than the skills taught later in the group, the Distress Tolerance Skills. It is noted that previous research showed that skills increased over the duration of participation in a comprehensive DBT program and Core Mindfulness and Distress Tolerance skills were the most used skills overall (Lindenboim, Comtois, & Linehan, 2007).

Mindfulness is a process of observing, in a nonjudgmental way, the constant information that presents to us (Baer, 2003). Mindfulness is a core component of DBT Skills (Linehan, 1993a). It is taught to help people learn to become nonjudgmental and aware of the temporary state of urges and emotions without acting on them (Robins, 2002). It is the foundation upon which other skills can be built. Notable in this study is the fact that there was a statistically significant increase in the mean scores for mindfulness for the treatment group with a large effect size. In addition, 42% of the treatment participants showed individual clinically significant change on this measure. The Core Mindfulness skills were taught with a special emphasis on the concepts of validation and dialectics. Even though this treatment only spanned the course of one month, almost half the individuals showed great improvement in this area. Davenport, Bore, and Campbell (2010) evaluated a construct based on mindfulness, self control, in a study comparing individuals with BPD prior to taking comprehensive DBT to a group who had graduated from comprehensive DBT. The study showed that prior to treatment, individuals scored lower than average on a measure of self control. Those who had

graduated from DBT scored in the average range of self control at post test. No effect sizes were reported in this study. Another study of DBT with adolescents showed that of all DBT skills, three Mindfulness and one Distress Tolerance skills were rated most helpful (Miller, Wyman, Huppert, Glassman, & Rathus, 2000). Lynch et al. (2006) theorize that mindfulness may be one of the mechanisms of change in DBT. The mindfulness practice, Lynch et al. (2006) posit, creates extinction and classical conditioning processes that allow an individual to experience stimuli without associating the stimuli to positive or negative thoughts and feelings. However, the use of mindfulness as an outcome measure for DBT in the literature is sparse.

Another finding was that for the treatment group, but not for the control group, there was a decrease in infraction occurrences from the month prior to the month following treatment with a medium effect size. It is noted that this reached statistical significance only at the $p < .10$ level and not the $p < .05$ level, but this was a pilot study limited by low power due to a small n . With more subjects, the higher level of significance may be reached. A causal relationship cannot be inferred due to non-random assignment, but if treatment completion is related to fewer infraction occurrences, this could have widespread implications for the institution. One study that involved a 16 week skills group modified for a corrections population also showed a decrease in the number of disciplinary infractions for participants of the skills group with a small effect size. This gain was also maintained at a 6-month follow up (Shelton et. al, 2009).

Limitations and Suggestions Future Practice and Research

The limitations of this study offer suggestions for future research. First, this study took place in one state-run women's prison. In order to enhance generalizability, future

research may include additional facilities housing both men or women and the state and federal levels.

Second, this study had a small number of participants which reduced the power to find statistically significant changes. Even with this limitation, this study showed significant change in measures of mindfulness, anger, skills usage, and institutional infractions. A similar study with a larger number of participants may show even greater changes in these and other areas of interest.

Third, the treatment was delivered in 8 sessions over the course of 4 weeks rather than in weekly sessions. This gave a shorter time frame for the inmates to practice using skills with the structure of weekly diary card monitoring. Feedback from some participants indicated they would have preferred a longer course of treatment. As compared to comprehensive DBT where participants have weekly exposure to all skills lessons and cover each lesson twice over the course of a year, the current treatment is much more intense in the amount of concepts covered in each week. It is recommended that in future studies and practice the treatment take place weekly over the course of two months. Feedback from participants and subjective observations from the group leader support this due to the large amount of information covered during each session.

Fourth, it was intended that participants in this study would be randomly assigned to the treatment or wait-list control conditions. However, the researcher did not follow through with documenting the initial process of assignment nor individual inmate requests to change groups due to other treatment, school, or work commitments. Randomization can help strengthen causal inferences and it is strongly recommended for

future studies. Researchers should be aware of the need to document these changes that may arise in a naturalistic setting, in order to maintain random assignment.

Fifth, mental health diagnoses and personality characteristics were not gathered on the participants in this in this study. It may be helpful in future studies to gather this information in order to understand which inmates with what characteristics benefit more or less from this program. This may be accomplished by using structured personality assessment measures at pretest such as the full-length Personality Assessment Inventory (Morey, 1991) or the Minnesota Multiphasic Personality Inventory - 2 (Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989). Research in this area could help make more cost-effective decisions as to whom to offer the program.

Sixth, longitudinal data were not gathered. It would be helpful to learn if gains are maintained and for how long after the conclusion of treatment. Longitudinal studies could also analyze if this program impacts behavior upon an individual's return to society. If long-term behavioral changes are made, the skills learned in this program could have a positive impact on recidivism rates.

Seventh, this study used a measure of mindfulness, the FFMQ, at the suggestion of the author; however, the FFMQ has limited normative data (Baer, 2008). A more well-researched measure, such as the Kentucky Inventory of Mindfulness skills (Baer, Smith, & Allen, 2004) is recommended for future research.

Eighth, this study used a wait-list control group who received no intervention. One way to strengthen future studies would be to compare this DBT treatment to other interventions such as a weekly process therapy group, a meditation class, or an exercise class. This may help to identify if something in the delivery and content of the DBT

material is what effects change or if other, even less-resource intensive alternatives could effect the same change.

Last, though most inmate characteristics were distributed evenly across the treatment, control, and dropout groups, one potentially confounding variable was noted, Substance Abuse Program (SAP) participation. Six SAP participants were in the treatment group and only one was in the control group. Because of this uneven distribution it cannot be determined if SAP participation alone or in conjunction with the DBT Skills group was the reason for change. Future researchers may want to control for this variable by either eliminating it or by evenly distributing the SAP participants between the treatment and control conditions.

Implications

In spite of the fact that the study was under-powered and the intervention was only a partial component of DBT, significant changes were found. Mindfulness increased, anger decreased, and infraction occurrences decreased for the treatment group but not the control group. The treatment group also showed a significant increase in skills usage over time. The results of this study seem to support the notion that a less resource-intensive portion of DBT can be helpful for female inmates who display symptoms of Borderline Personality Disorder. This treatment is associated with an increase in mindfulness which helps an individual to gather pertinent information from the scene to react less impulsively (Linehan, 1993a).

It is hopeful to find that a brief 8-session treatment can effect change in female inmates. Most of the research on the efficacy of DBT involves the comprehensive program, but more studies on the effectiveness of partial components of DBT are being

published. This was a small pilot study in a naturalistic setting that did not achieve random assignment, but it supports the notion that some DBT, delivered in the manner described, is better than no DBT for some individuals. Replication of this study with more subjects, more identified individual characteristics, randomization, and a treatment comparison group may reinforce these encouraging results.

Linehan (1993a) theorizes that dysfunctional patterns of behavior develop and are maintained due to an invalidating environment. This may be an environment that rewards negative behavior and punishes prosocial behavior. In a correctional setting, behaviors such as sharing items or standing up for someone who is treated unfairly is often interpreted as manipulation or as an attempt to take advantage of someone and disciplinary action is taken (McCann, Ivanoff, Schmidt, & Beach, 2007). Inmates are told what to do and where to be 24 hours per day. Inmates have very little power to effect change in their environment. The rules are in place for the overall safety and security of the institution and are necessary. But, on an individual level, enforcement of the rules can be highly invalidating. For an inmate with high affective instability, invalidation can serve to trigger emotional dysregulation and subsequent dysfunctional behavior. Learning the basic skill set in the Core Mindfulness and Distress Tolerance modules may help the inmates to better cope with their environment. Perhaps learning these skills is what effected change for inmates in this study. Maybe what the inmates responded to was being in a validating environment for a few hours per week. It is suspected that the attitude a DBT-trained therapist brings to the group setting combined with a helpful skill set is key to motivating change.

This brief intervention did not show significant improvement in Borderline symptomology. In fact, a few inmates' scores dropped on the measure of borderline symptomology. This suggests that caution should be taken if this treatment is delivered in the future to individuals with elevated levels of borderline symptoms as it may have some unintended consequences for a minority of subjects. These individuals should be monitored closely during treatment for signs of deterioration. Perhaps, for these individuals, a small portion of a valuable treatment (DBT skills group) is not better than nothing at all as Linehan (1993a) suggested. However, for other individuals this treatment seems to be highly beneficial. More research is needed to determine who actually benefits from this brief treatment.

Though originally hypothesized that borderline symptomology would improve, personality characteristics are long-standing and well ingrained. Thus, it seems more plausible that they would not change over the course of one month. The fact that borderline symptomology did not show overall change can contribute to the discriminant validity of this treatment: two plausibly-alterable-in-one-month variables showed significant improvement, and the third, less-plausibly-alterable-in-one-month variable (borderline symptomology) did not. This study helps to clarify the limitations of this brief treatment. It is not a substitute for the empirically supported comprehensive DBT treatment for Borderline Personality Disorder, but the intervention can affect some behavioral changes in individuals with this spectrum of symptomology.

What did change over the course of one month was problematic behavior. Inmates who voluntarily participated in the four week treatment in this study showed fewer problematic behaviors. Fewer problematic behaviors by inmates means the

correctional officers can maintain safety and security in more routine, controlled manner. Fewer problematic behaviors by inmates also lead to fewer incidents that could become dangerous or lead to costly medical treatment or segregation.

The national average for medical care per state inmate was \$2,625 annually. In Kentucky the rate was much lower at \$960 per inmate, per year (Stephan, 2004). The findings of this study, increased adaptive behavior and decreased infractions, suggest that 16 hours of therapeutic programming, with a DBT-training staff member, could potentially contribute favorably to lower costs.

The average cost to house and care for state inmate in 2001 was \$22,650 annually or \$62.05 per day. Kentucky was lower than the national average with \$17,818 per inmate annually (Stephan, 2004). Detainment in specialized settings, such as administrative segregation, costs even more. Again, this program may be able to help emotionally volatile inmates learn how to manage their reactivity more effectively, thus leading to fewer inmates, especially those with mental health issues, in segregation.

Between 2000 and 2009, the inmate population in Kentucky rose by 45% while national rates only rose 13% (West, Sabol, & Greenman, 2010). A larger inmate population leads to additional budget constraints. Programming that yields positive results while using fewer resources is likely to be appealing to legislators and tax payers. This intervention uses 16 hours of clinical staff time over the course of 2 months to potentially reach approximately 15 motivated inmates.

Beyond the prison setting, this brief intervention may have usefulness with other populations. If this 8-session intervention can increase mindfulness and reduce anger expressed it may be appropriate for use with other populations where validation and

accepting the environment are beneficial. For example this type of intervention may be promising for children who have not been adequately taught these skills at home. This type of intervention may also be useful in parent training to prevent some of the problems caused by an invalidating environment that a parent may unknowingly be providing.

Conclusions

This study evaluated a partial DBT skills program implemented in a state-run correctional facility for women. Participants of the 8-session treatment showed gains in levels of mindfulness and adaptive skills usage and showed decreases in anger expression and institutional infraction occurrences. This brief therapeutic program seems to be beneficial and may be a cost effective method of addressing the problem of emotional reactivity in female inmates. Additionally, this study included mindfulness as an outcome measure, which few other studies have. This study shows that mindfulness can be impacted in a relatively short period of time. Lynch et al. (2006) theorized that mindfulness may be one of the mechanisms of change in DBT. Future DBT studies with mindfulness as an outcome measure offer insight into this area. Overall this study adds to the growing literature that a partial component of comprehensive DBT, delivered in a naturalistic setting, can effect change in individuals with Borderline symptomology.

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APPENDIX A

FIVE FACET MINDFULNESS QUESTIONNAIRE

Please rate each of the following statements using the scale provided. Write the number in the blank that best describes your own opinion of what is generally true for you over the past two weeks.

1	2	3	4	5
never or very rarely true	rarely true	sometimes true	often true	very often or always true

- _____ 1. When I'm walking, I deliberately notice the sensations of my body moving.
- _____ 2. I'm good at finding words to describe my feelings.
- _____ 3. I criticize myself for having irrational or inappropriate emotions.
- _____ 4. I perceive my feelings and emotions without having to react to them.
- _____ 5. When I do things, my mind wanders off and I'm easily distracted.
- _____ 6. When I take a shower or bath, I stay alert to the sensations of water on my body.
- _____ 7. I can easily put my beliefs, opinions, and expectations into words.
- _____ 8. I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted.
- _____ 9. I watch my feelings without getting lost in them.
- _____ 10. I tell myself I shouldn't be feeling the way I'm feeling.
- _____ 11. I notice how foods and drinks affect my thoughts, bodily sensations, and emotions.
- _____ 12. It's hard for me to find the words to describe what I'm thinking.
- _____ 13. I am easily distracted.
- _____ 14. I believe some of my thoughts are abnormal or bad and I shouldn't think that way.
- _____ 15. I pay attention to sensations, such as the wind in my hair or sun on my face.
- _____ 16. I have trouble thinking of the right words to express how I feel about things

- _____ 17. I make judgments about whether my thoughts are good or bad.
- _____ 18. I find it difficult to stay focused on what's happening in the present.
- _____ 19. When I have distressing thoughts or images, I "step back" and am aware of the thought or image without getting taken over by it.
- _____ 20. I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing
- _____ 21. In difficult situations, I can pause without immediately reacting.
- _____ 22. When I have a sensation in my body, it's difficult for me to describe it because I can't find the right words.
- _____ 23. It seems I am "running on automatic" without much awareness of what I'm doing.
- _____ 24. When I have distressing thoughts or images, I feel calm soon after.
- _____ 25. I tell myself that I shouldn't be thinking the way I'm thinking.
- _____ 26. I notice the smells and aromas of things.
- _____ 27. Even when I'm feeling terribly upset, I can find a way to put it into words.
- _____ 28. I rush through activities without being really attentive to them.
- _____ 29. When I have distressing thoughts or images I am able just to notice them without reacting.
- _____ 30. I think some of my emotions are bad or inappropriate and I shouldn't feel them.
- _____ 31. I notice visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadow.
- _____ 32. My natural tendency is to put my experiences into words.
- _____ 33. When I have distressing thoughts or images, I just notice them and let them go.
- _____ 34. I do jobs or tasks automatically without being aware of what I'm doing.
- _____ 35. When I have distressing thoughts or images, I judge myself as good or bad, depending what the thought/image is about.
- _____ 36. I pay attention to how my emotions affect my thoughts and behavior.
- _____ 37. I can usually describe how I feel at the moment in considerable detail.
- _____ 38. I find myself doing things without paying attention.
- _____ 39. I disapprove of myself when I have irrational ideas.

Curriculum Vitae
Clare Thompson Wahl
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Louisville, KY 40229
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EDUCATION

UNIVERSITY OF LOUISVILLE, KY

Ph.D. Candidate in Counseling Psychology

Dissertation Defense March 2011

Dissertation: Evaluation of a Dialectical Behavior Therapy Skills Group for Female
Inmates who Voluntarily Seek Treatment: A Pilot Study

SPALDING UNIVERSITY, LOUISVILLE, KY

Master of Arts in Clinical Psychology

GPA: 3.85, August 2003

BELLARMINE UNIVERSITY, LOUISVILLE, KY

Bachelor of Arts in Psychology, May 1999

Cum Laude, Highest Honors

CLINICAL WORK EXPERIENCE

Mar 2009 – present

COMMUNICARE, INC

BARDSTOWN, KY

Licensed Psychological Associate in Kentucky #0926, Outpatient Therapist

Supervisor: Karel Disponett, PhD, Licensed Psychologist

- Clientele – Community outpatient males and females, adults and adolescents with diagnoses ranging from Adjustment Disorder to Chronic Schizophrenia
- Provide outpatient treatment planning and Dialectical Behavior Based Therapy, Cognitive Behavioral Therapy, and Expressive Therapy
- Evaluate adults for involuntary psychiatric hospitalization due to a Mental Inquest Warrant

Aug 2007 – Oct 2008

FULTON STATE HOSPITAL

FULTON, MO

New Outlook for Behavior and Mood Self-Management Program – Psychological Associate

Supervisor: Sharon Robbins, PhD, Licensed Psychologist

- Clientele – Newly designed program for adults who are dually diagnosed with intellectual deficits and mood dysregulation disorders who require a maximum security inpatient setting
- Many clients involved in the legal system
- Participate in a multidisciplinary treatment team
- Participate in Dialectical Behavior Therapy consultation team
- Provide individual therapy with an emphasis on Dialectical Behavior Therapy skills
- Lead and Co-lead skills group therapy with emphases in expressive therapy, Dialectical Behavior Therapy Skills
- Provide individual Dialectical Behavior Therapy
- Provide case management services

APA Accredited Pre-Doctoral Internship

Aug 2006 – Aug 2007

FULTON STATE HOSPITAL

FULTON, MO

Social Learning Program (6 Month Rotation)

Supervisor: Eric Martin, PhD, Licensed Psychologist

Fulton State Hospital

- Clientele – Adults with severe and chronic mental illnesses who require a maximum security inpatient setting
- Provide individual supportive and cognitive behavioral therapy
- Lead and Co-lead skills group therapy with emphases in basic interpersonal communication, problem solving, distress tolerance
- Participate in interdisciplinary treatment planning team weekly meetings
- Provide psychological testing to assist in diagnostic clarification and treatment planning

New Outlook for Behavior and Mood Self-Management Program (6 Month Rotation)

Supervisor: Sharon Robbins, PhD, Licensed Psychologist

- Clientele – Newly designed program for adults who are dually diagnosed with intellectual deficits and mood dysregulation disorders who require an intermediate security inpatient setting
- Many clients involved in the legal system

- Provide individual therapy with an emphasis on Dialectical Behavior Therapy skills
- Lead and Co-lead skills group therapy with emphases in anger management, problem solving, and Dialectical Behavior Therapy Skills
- Provide psychological testing to assist in diagnostic clarification and treatment planning
- Provide basic case management services

Comprehensive Dialectical Behavior Therapy (12 Month Rotation)

Psychological Services Clinic

University of Missouri – Columbia

Supervisors: Jeremy Skinner, PhD; Tim Trull, PhD; Chris Lawrence, PhD

- Clientele – self-referred, adult, outpatients diagnosed with Borderline Personality Disorder
- Participate in weekly consultation team meetings
- Provide structured individual DBT sessions
- Co-lead weekly DBT skills group
- Provide structured phone coaching support to clients as needed

Motivational Interviewing (12 Month Rotation)

UBH

Columbia, MO

Supervisor: Neils Beck, PhD

- Clientele – Outpatient adults dually diagnosed with substance abuse and mental disorders. Many clients were court mandated to treatment.
- Co-lead motivational interviewing group Motivation for Change

Practica

Aug 2004- July 2005

KENTUCKY CORRECTIONAL INSTITUTE FOR WOMEN

PEE WEE VALLEY, KY

Site Supervisors: Tricia Meyer, Psy.D. and Roberta Jonkers, M.Ed., ATR-BC

University Supervisor: Patrick Hardesty, Ph.D.

- Provide individual psychotherapy and art therapy to incarcerated adult females ages 22 – 67 with a variety of diagnosis including psychotic, anxiety, depressive and personality disorders
- Conduct needs assessments and provide referrals, when necessary, to various institutional programs and services
- Provide mini-trainings for corrections staff on mental health and wellness
- Receive 1 hour individual supervision weekly with Psychologist, including videotape critique
- Receive 1 hour individual supervision weekly with Art Therapist
- Participate in weekly mental health collaborative treatment planning

Aug 2003 - July 2004

EDELSON & ASSOCIATES

LOUISVILLE, KY

Site Supervisors: Richard Edelson, Ph.D. & Robert Underwood, Ph.D.

University Supervisor: Kathleen Kirby, Ed.D.

- Administer and interpret neuropsychological tests for adult and geriatric patients in a variety of settings including: medical hospitals, psychiatric hospitals, rehabilitation unit, and nursing home, and for children and adolescents as outpatients
- Write neuropsychological evaluations for use in diagnostic clarification and treatment planning
- Identify DSM-IV-TR and ICD-10 diagnoses including Alzheimer's dementia, vascular dementia, alcoholic dementia, mild cognitive impairment, amnesic disorder, bipolar disorder, schizoaffective disorder, depression, anxiety disorder, delirium, psychosis, ADHD, ODD, organic brain syndrome, learning disabilities
- Provide psychotherapy to nursing home inpatients
- Participate in weekly neuropsychological training sessions
- Receive individual and group supervision
- Attend training sessions provided by pharmaceuticals representatives

Aug 2002 - May 2003

MINORS LANE ELEMENTARY SCHOOL FAMILY RESOURCE CENTER,

LOUISVILLE, KY

Site Supervisor: Holly Gustafson, Ph.D.

University Supervisor: John Embry, Ph.D.

- Provide individual, play and family therapy to children ages 5-11 with a variety of diagnoses including ADHD, ODD, anxiety and depressive disorders. 15-20 hrs/wk
- Conduct psychological assessments and treatment planning
- Provide case management and crisis intervention to children and their families
- Conduct classroom observation and teacher consultation
- Conduct needs assessments and provide referrals, when necessary, to outside medical, psychiatric and/or social support organizations
- Receive 2 hours of individual supervision weekly, including regular videotape critique, to develop therapeutic microskills.

March 2002 - Sept 2002

KENTUCKY STATE REFORMATORY,

LA GRANGE, KY

Site Supervisor: Wayne Herner, Psy.D.

University Supervisor: Steve Simon, Ph.D.

- Administer and interpret psychological tests to inpatients on Corrections Psychiatric Treatment Unit
- Write psychological evaluations for use with treatment planning and program referrals

Aug 2001 - March 2002

ARCHDIOSESE OF LOUISVILLE FAMILY COUNSELING CENTER
LOUISVILLE, KY

Site Supervisor: George Haarman, Psy.D.

University Supervisor: Pat Pernicano, Psy.D.

- Administer and interpret psychological tests to children ages 5-14 in the school setting
- Write psychological evaluations for use with educational programming
- Provide feedback on testing and recommendations to parents and school personnel

RELATED WORK EXPERIENCE

August 1999 - August 2003

SEVEN COUNTIES SERVICES, KENTUCKY IMPACT PROGRAM

LOUISVILLE, KY

Supervisor: Noreen McHolland, MS

Service Coordinator/ Senior Service Coordinator

- Develop and monitor service teams to work with severely emotionally disturbed children and adolescents
- Coordinate with caregivers, schools, courts, therapists, and other service providers to create and monitor treatment plans aimed at reducing negative symptomology
- Provide 24-hour, on-call crisis intervention
- Educate and empower families to use community resources effectively
- Conduct needs assessments and provide referrals, when necessary, to outside medical, psychiatric and/or social support organizations

Sept 1998 - Sept 1999

SEVEN COUNTIES SERVICES, KENTUCKY *IMPACT* PROGRAM
LOUISVILLE, KY

Supervisor: Scott Young, BA

Therapeutic Aide/ Senior Therapeutic Aide

- Provide weekly assistance in the development of social and daily living skills to adolescents with severe emotional and behavior problems
- Consult with caregivers, school, and other service providers
- Provide behavior modification planning and other support as needed

July 1997 - Aug 1999

CARITAS PEACE CENTER

LOUISVILLE, KY: Supervisor: Debbie White, ARNP

Mental Health Worker II

- Maintain a safe environment for adolescent inpatients at a psychiatric hospital
- Lead focus classes and structured recreation, model positive social skills, and provide therapeutic interaction
- Maintain flexibility while working with diverse populations throughout the hospital such as inpatient geriatric, children, chemically dependent adults and adolescents; mentally retarded children and adolescents who have dual diagnosis; and outpatient adults, adolescents, and children.

Teaching and Research Experience

Fall 2005

Graduate Teaching Assistant for Personality Assessment, University of Louisville

Supervisor: Gina Owens, Instructor, University of Louisville

- Evaluate student administration of objective personality measures including: MMPI-II, PIA, NEO-PI-4, and BDI

September 2005 - June 2006

Graduate Research Assistant

Supervisor: Samuel Stringfield, Ph.D. Professor, University of Louisville

- Participated in ongoing research related to building safer schools and communities.

July 2004 - June 2005

Graduate Research Assistant

Supervisor: Lohelen B. Hambrick, Director, Minority Teacher Recruitment Project, University of Louisville

- Research grant opportunities and assist in developing grant proposals

- Research empirically supported strategies for recruiting and retaining minority teaching students and improving minority standardized test scores
- Gather, analyze, and summarize program statistics
- Participate in recruitment activities

July 2003 - June 2004

Graduate Research Assistant

Supervisor: Nancy J. Cunningham, Ph.D. Professor, University of Louisville

- Participated in ongoing research related to building safer schools and communities.

Nov 2002 - June 2003

Multi Systemic Therapy, Spalding University

- Evaluated the effectiveness of a program that targets adolescent offenders through the use of MST in the home.

Jan 1998 - Oct 1999

Peer Mentoring, Bellarmine University

Supervisor and Research Advisor: Pam Cartor, Ph.D., Professor, Bellarmine University

- Researched, developed, and supervised a program that targeted traditional freshmen at risk for poor academic performance.
- Participated in one-on-one mentoring of freshmen students and supervision of the senior mentors.
- Secured funding for the program.

Sept 1997 - May 1999

Peer Academic Advisor and Psychology Tutor, Bellarmine University

Supervisor: Cathy Sutton, Ph.D., Coordinator, Academic Resource Center, Bellarmine University

- Provided individual and group tutoring to students in undergraduate psychology and statistics courses
- Consulted with freshmen regarding academic issues such

Aug 1998 - Dec 1998

Assistant Teacher

Assistant to Pam Cartor, Ph.D., Professor, Bellarmine University

- Co-led weekly freshmen seminar
- Provided information and support to freshmen during the transition to college
- Assisted in administering, interpreting, and giving feed back to students on measures of personality

Jan 1998 - May 1998

Undergraduate Teaching Assistant

Assistant to Thomas Wilson, Ph.D., Professor, Bellarmine University

- Developed and led weekly study sessions for undergraduate level Research Methods and Design course
- Assisted in scoring tests and assignments
- Provided individual tutoring and consultation as needed

Jan 1997 - May 1997

Ego Development

- Evaluated differences in high school honors and general education students on levels of ego development.
- Developed proficiency in scoring Loevinger Sentence Completion Test.

PRESENTATIONS

Cunningham, N. J., McCane, A., Wahl, C. T., Look, L. F. & Nordloh, G.E. (2005, August). Bullies, Victims, and Bully-Victims' Perceptions of Safety and Support in the Middle School Environment. (Poster) 113th American Psychological Association Annual Convention, Washington, DC.

Cunningham, N. J., Look, L. F. & Wahl, C. T. (2005, August). Understanding Bullying Middle Schools: A Whole School Approach. (Workshop) Seven Counties Services Training for Family Connections Therapists, Louisville, KY.

Cunningham, N. J., Parrish, M., Look, L. F., McCane, A., Wahl, C. T. & Nordloh, G. E. (2005, March). Understanding Bullying Middle Schools: A Whole School Approach. (Workshop) Annual Choices and Changes Collaborative Conference: Reaching for Success, Louisville, KY.

Cunningham, N. J., Parrish, M., Look, L. F., Wahl, C. T. & Krug, J. (2004, November). A Comprehensive Approach to Preventing Bullying and Victimization in Middle Schools. (Workshop) 16th National Dropout Prevention Network Annual Conference, Orlando, FL.

Cunningham, N. J., Parrish, M., Wahl, C. T., Look, L. F. & Krug, J. (2004, October). Adolescent Bullying and Victimization: Is it Really Like it is in the Movies?. (Workshop) 47th Kentucky Counseling Association Annual Conference, Louisville, KY.

- Cunningham, N. J., Look, L.F., Wahl, C. T., & McCane, A. (2004, October). Bullying and Victimization in Early Adolescence: Who, What, Where, and How? (Poster) 47th Kentucky Counseling Association Annual Conference, Louisville, KY.
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- Thompson (Wahl), C. & Cartor, P. (1999, November). Developing a Peer Mentoring Model. (Workshop) Kentucky Psychological Association Annual Conference, Louisville, KY.
- Thompson (Wahl), C. (1997, March). Comparing Levels of Ego Development in High School Student. (Workshop) Mid-American Undergraduate Psychological Research Conference, Evansville, IN.
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HONORS

Outstanding Psychology Graduate Award for Academics and Service, Bellarmine

Kappa Gamma Pi National Catholic Honor and Service Society

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Kentucky Psychological Association of Graduate Students

American Psychological Association of Graduate Students

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Educational and Counseling Psychology Doctoral Student Organization,
President (2005 – 2006), President-Elect (2004 - 2005)

American Psychological Association of Graduate Students,
Advocacy Coordination Team, Campus Representative

Spalding University Graduate Advisory Committee

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