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The Effects of Successful Completion of Dialectical Behavior Therapy on Reduction of High Cost Emergency Service Utilization

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Abstract

Dialectical Behavior Therapy is one of the most highly researched evidence-based practices for the treatment of personality disorders as well as functional deficits in emotional regulation, distress tolerance and interpersonal skills (Brazier et al., 2006). These symptoms untreated often lead to the utilization of crisis management mental health treatment including inpatient hospitalizations and emergency department visits (Lieb et al., 2004). This research study examined whether DBT is an effective treatment modality to reduce high cost emergency service usage. This research study is a secondary analysis of data that has been collected by a community mental health organization. Aggregate data was analyzed using a t-test to determine if there is a statistically significant difference in the amount of emergency services participants used in the six months prior to beginning DBT and the six months after completion of DBT. Completion of the DBT program was found to be effective in reducing the number of days of inpatient stay as well as emergency department visits.

Keywords: *Dialectical Behavior Therapy, personality disorder, service utilization*

Literature Review

Dialectical Behavior Therapy (DBT) is one of the most widely researched and supported evidence-based practices for treating mental health symptoms that are often indicative of personality disorders, including distress intolerance, emotional deregulation, and poor interpersonal skills (Brazier et al., 2006). Individuals diagnosed with personality disorders or presenting with these symptoms, are often high users of crisis services due to a lack of coping skills to regulate emotion, poor impulse control, and elevated risk for self-harm and suicidal behavior (Lieb et al, 2004). These symptoms are associated with high levels of use of crisis services including inpatient hospitalization, mobile crisis, and emergency department visits (Salsman & Linehan, 2006). Frequent use of emergency mental health treatment services is incredibly costly and ineffective in treating the root causes and creating long-term change for the client. DBT has been associated with successfully decreasing these symptoms and leading to greater stability within interpersonal relationships, emotional regulation, and distress tolerance (Linehan et al., 1991). However, there is a lack of research on the secondary effects of this, including the utilization of community mental health services after completion of DBT treatment and the cost-effectiveness of the reduction of these services. Analyzing the long-term effects of DBT treatment on creating stability in the client's life is essential in exploring the effectiveness of this treatment.

Studies have shown that DBT is correlated with significant long-term improvements in psychological functioning, including an improvement in quality of life, depression, overall distress, and global functioning (Ben-Porath, Peterson & Smee, 2004; Dams, Schommer & Ropke, 2007; Nee & Farman, 2005; Prendergast & McCausland, 2007). The next step in the progression is to analyze whether these changes in psychological functioning manifest

behaviorally in the decrease of the utilization of community emergency and crisis services. If successful completion of a DBT program were correlated with a decrease in costly community mental health services, it would have wide-reaching implications socially and economically for treatment providers, insurance companies, and the individual themselves. Despite the significant volumes of research verifying the effectiveness of this modality (Salsman & Linehan, 2006), high fidelity DBT programs may be rare, as they require more time and resources than other modalities of treatment (Black, Blum & Pfohl, 2004; Prendergast & McCausland, 2007). Organizations sometimes modify their DBT programs in order to reduce costs, time, and resources (Black, Blum & Pfohl, 2004; Prendergast & McCausland, 2007). It is important to explore the effectiveness of a high fidelity evidence based DBT program in reducing the mental health symptoms associated with high cost service utilization, so that current client care can be optimized and so that organizations are able to offer quality and cost-effective methods of treatment.

This paper will explore the relationship between personality disorders and the utilization of high cost emergency mental health services such as emergency department visits, inpatient hospitalizations, and mobile crisis. An explanation on the creation, structure, and function of DBT to address the symptoms associated with emergency psychiatric treatment is provided. This research paper then outlines the procedure utilized to study the relationship between completion of a DBT program at a community mental health provider and the possible long-term effects of client service utilization.

Diagnosis and Symptomology of Personality Disorders

Personality disorders, as defined by the American Psychiatric Association (APA), are “pervasive, inflexible, and enduring patterns of inner experiences and behavior that can lead to

clinically significant distress or impairment in social, occupational, or other areas of functioning" (APA, 2013; pp. 645). Personality disorders are broken down into three clusters, categorized by their enduring patterns of behavior. Cluster A includes those personality disorders that have a cognitive component and are characterized by odd and eccentric behaviors such as paranoid, schizoid, and schizotypal disorders. Cluster B includes personality disorders that are characterized by externalizing dimensions and exhibit dramatic, emotional, or erratic behaviors. These include antisocial, borderline, histrionic, and narcissistic disorders. While cluster C is comprised of personality disorders characterized by internalizing dimensions and often exhibit anxious or fearful behavior. This includes avoidant, dependent, and obsessive-compulsive personality disorders (American Psychiatric Association, 2013).

Borderline personality disorder and antisocial personality disorder are the most highly correlated with use of acute crisis services (Byrne, Henagulph, McIvor, Ramsey & Carson, 2014). For this reason, this paper will explore these two in more detail than other types of personality disorders. Borderline personality disorder is characterized by a pervasive pattern of instability in interpersonal relationships, sense of self, affect, and marked impulsivity. Symptoms often include risk taking behaviors, intense and frequent mood changes, fear of abandonment, feelings of emptiness, depression, impulsivity, and hostility (American Psychiatric Association, 2013). Antisocial personality disorder on the other hand is characterized by a pattern of disregard for the feelings and wellbeing of others, an egocentric identity, lack of empathy and intimacy in interpersonal relationships, hostility, deceitfulness, risk taking behaviors, and impulsivity (American Psychiatric Association, 2013). For these reasons, these two types of personality disorders are at a higher risk for psychiatric and crisis care.

When looking at personality disorders in terms of mental health treatment, it is important to remember that personality disorders are chronic, pervasive and deep-seated patterns of cognition and behavior. This creates complexity and challenge in psychiatric care (Byrne et al., 2014). As with other forms of mental illness, personality disorders are attributed to a combination of genetic predisposition and environmental influences (Johnson, Cohen, Brown, Smailes & Bernstein, 1999). However, personality disorders are highly correlated with childhood trauma, abuse, and detrimental attachment styles with caregivers (Johnson, et al., 1999). Due to a history of trauma and the chronic nature of this diagnosis, personality disorders are a predictor for poorer responses in mental health treatment (Reich, 2003) and higher utilization of emergency and crisis mental health services such as emergency department visits, psychiatric inpatient hospitalizations, and mobile crisis (Byrne, 2014).

Emergency Service Utilization

In a national study conducted in 2014, Maclean, Xu, French and Ettner found a statistically significant correlation between personality disorders and use of emergency department visits and hospital admissions. This study was the first to quantitatively document the effects of a personality disorder on healthcare utilization on a large and nationally representative sample. In addition, borderline personality disorder presented the strongest association with healthcare utilization for both men and women, while antisocial personality disorder presented a strong association with healthcare utilization for women (Maclean et al., 2014). Individuals with personality disorders were shown to utilize hospital and emergency services up to 45% more than their counterparts without personality disorders (Maclean et al., 2014).

Personality Disorders have been empirically linked to high rates of injuries and self-harm (Chen et al., 2008), violence (Yu, Geddes & Fazel, 2012), comorbid diagnoses (Grant et al.,

2008), substance use (Rounsaville et al., 1998), and suicidal behavior (Brent et al., 1994). In particular, cluster B personality disorders are often associated with high levels of service utilization due to the impulsivity, emotional lability, distress intolerance, violence, and recurrent suicidal and self-harming behaviors (Byrne et al., 2014). Individuals with Borderline personality disorder account for 10% of all psychiatric outpatient clients and 20% of all psychiatric inpatient clients, a higher percentage than any other mental illness (Salsman & Linehan, 2006). This demonstrates the role of personality disorders in creating instability and the need for crisis services.

According to the Centers for Medicare and Medicaid Services Office of the Actuary (2016), per capita healthcare costs have risen from $147 per person annually in the 1960's, to $9,024 per person annually in 2016. Emergency department visits and hospitalizations are the highest cost healthcare services. Personality disorders, more specifically borderline and antisocial personality disorders, are significant risk factors for high cost healthcare service utilization (Maclean et al., 2014). This is due to a higher frequency of physical and psychiatric crises experienced by this population, including self-harm, suicide attempts, impulsive aggression, anger, anxiety, and depression. These types of crises are often responded to by psychiatric and acute hospital emergency services in order to provide stabilization and crisis management. Individuals with personality disorders are often regular users of acute emergency services (Maclean et al., 2014). This results in extremely high health care costs per individual.

In an effort to address risky and harmful behavior associated with personality disorders, Dialectical Behavior Therapy was created. Despite the challenges and complexity of treatment with personality disorders, research has demonstrated the effectiveness of Dialectical Behavior Therapy in addressing the symptoms that are most associated with high cost healthcare service

utilization and personality disorders (Bohus et al., 2004; Kroger et al., 2006; Linehan et al., 2006).

Dialectical Behavior Therapy

Dialectical Behavior Therapy (DBT) is an evidence-based treatment modality that was developed in the early 90's by Marsha Linehan (Linehan, Armstrong, Suarez, Allmon & Heard, 1991). Its inception was originally developed for a target population of individuals with Borderline Personality Disorder engaging in chronic parasuicidal behavior. Since its establishment, DBT has been shown to be widely effective for the treatment of Borderline Personality Disorders (Linehan & Dimeff, 2001) and a substantial amount of controlled trials independent of Linehan's research team have demonstrated its efficacy (Meyers, Landers & Thuras, 2014; Brazier et al., 2006; Johnson et al., 1999). DBT has also been recognized by the Substance Abuse and Mental Health Services Administration (SAMHSA) as an evidence-based practice for reducing suicide attempts, nonsuicidal self-injury, symptoms of eating disorders, substance abuse, anger, depression, and hopelessness (SAMHSA, 2013).

Dialectical Behavior Therapy is comprised of three different pieces that create a comprehensive and intensive treatment team for each individual engaged in DBT. The three pieces include skills training in group therapy, individual therapy sessions, and a consultation group for the therapists of the individuals. A DBT program runs for about 20 weeks and each of these pieces occur on a weekly basis (Linehan et al., 1991; 1993). Each of these components will be discussed in further detail.

Skill Training Group

Weekly skill-training groups run for 1.5 hours to 2.5 hours per week. Skill-training group is a highly structured setting where individuals progress through four modules of learning and

are able to practice the skills in real time within the group, as well as to discuss their experience utilizing the skills in their personal lives (Linehan, 1993). Skill training groups are facilitated by trained DBT therapists and require participants to complete worksheets, activities, and homework assignments related to skill acquisition and practice. The skill-training group is broken down into four modules and taught in progressing order. The first of the four modules is mindfulness, as it is considered a core concept and skill for the principles of DBT (Linehan, 1993).

Mindfulness is the act of paying attention, non-judgmentally, to the present moment and experiencing one's emotions and senses fully, while also maintaining perspective (Linehan, 1993). Mindfulness gives participants a tool to accept and tolerate powerful emotions in the moment. Participants are taught to follow a series of steps in order to practice mindfulness. The steps include nonjudgmentally observing one's environment including within and outside of oneself, describing what one has observed without using judgment statements, and to participate in the moment by being fully focused on and involved in the moment (Linehan, 1993).

The second module in the DBT skills-training group is the concept of distress tolerance. Instead of teaching individuals to remove or avoid distressing situations, this involves teaching skills to help an individual learn to cope with high intensity emotions and distress on their own or by utilizing supports. The purpose is to improve one's ability to accept, finding meaning for, and tolerate distress in a healthy manner (Linehan, 1993). Distress tolerance builds off mindfulness in that it teaches participants to calmly recognize negative situations instead of being overwhelmed by them. Techniques in this module include how to find healthy temporary distractions from distress, how to engage in self-soothing behaviors including treating oneself in a kind, nurturing, and comforting way, and skills used to relax in moments of distress. Key

concepts utilized in this module include evaluating pros and cons of distress, radical acceptance which involves accepting your situation exactly as it is, turning the mind towards an acceptance stance, being open and willing versus being willful against acceptance (Linehan, 2003).

The third module taught in DBT skills-training group is emotion regulation (Linehan, 2003). Borderline Personality Disorder, in addition to other types of personality disorder, is often characterized by emotional liability, including marked fluctuations in mood and high intensity emotional experiences (Lieb, Zanarini, Schmahl, Linehan & Bohus, 2004). This module focuses on identification and labeling of emotions, identification of obstacles to changing emotions, reduction of feelings of vulnerability around experiencing emotions, increasing positive emotional experience, increasing mindfulness of current emotional experience, and applying distress tolerance techniques (Linehan, 1993). In addition, participants learn to examine the story of the emotion, including where and when it originated, interpretation of the event, bodily sensations, the urge to take action, and the most effective action that should be taken (Linehan, 1993). In collaboration with this, participants also discuss the body and mind connection to establish physically healthy boundaries and practices to enhance their emotional regulation. Key concepts outlined in this module include building mastery by practicing one skill per day, problem solving, and letting go of emotional suffering (Linehan, 1993).

The fourth and final module taught in skill training group is interpersonal skills. Interpersonal skills include effective strategies for asking what one wants, saying no to others, and handling interpersonal conflict. The objective is to learn how to change something or to resist change within relationships. This module teaches techniques that will be most effective in helping the individual achieve their goal within that relationship, while maintaining respect and the quality of the relationship (Linehan, 1993). Individuals with Borderline Personality Disorder

often have relationships with unhealthy boundaries and an unstable sense of self that relies heavily on how others treat them (Lieb et al., 2004). They may fluctuate between giving too much to the relationship and not giving anything. They lack equity or a healthy amount of give and take within relationships. This influences their sense of self and conflict within the relationships may lead to a crisis situation such as risk taking behavior, self-harm, or suicidal ideation (Chen et al., 2008).

The four modules of the skill-training group are meant to build on each other in a scaffolding design, allowing the individual time to practice and grasp basic skills that will aid in their acquiring of new skills from the next module (Linehan, 1993). Participants are required to practice the skills inside of the group setting as well as to report on their experiences utilizing the skills outside of the group setting (Swales & Heard, 2009). Skill-training group is one piece of the intensive DBT experience along with individual sessions and therapist consultation groups. Together, the skills learned in the skill training group are designed to provide the individual with the techniques to self-sooth and tolerate intense emotional reactions, the ability to create healthier and more stable relationships, the ability to accept situations and emotional responses as they are and without judgement, and the ability to be more self-aware of one's internal state (Swales & Heard, 2009). All of these abilities decrease the likelihood of the individual engaging in risk taking or harmful behaviors as maladaptive coping skills (Salsman & Linehan, 2006). This should increase emotional stabilization and decrease the need for emergency services.

Individual Therapy Sessions

Intensive DBT programs also require weekly 60-minute individual therapy sessions with a trained therapist. These sessions are utilized to take the skills learned in the group setting and to apply them to everyday life with more individualized support in this area (Linehan, 1993).

Therapists should be proficient or trained in DBT and be knowledgeable in the skills taught, worksheets, and activities that their clients are engaging in. This allows more detailed and individualized support in utilizing mindfulness, distress tolerance, emotion regulation, and interpersonal skills for specific situations in the client's daily life (Linehan, 1993).

Therapist Consultation Group

The final piece of the intensive DBT program that Linehan (1993) outlines, is the therapist consultation group. This group does not involve client participation and is for the benefit of the therapists on the treatment team including the group and individual therapists working with the DBT clients. The purpose of the team meeting is to assist in case conceptualization, exploration of the therapeutic relationship, and to apply treatment skillfully (Linehan, 1993). This collaboration ensures that the group therapists and individual therapists are jointly working on the same skills and reinforcing skill practice, application, and mastery (Linehan, 1993). Case conceptualization is also greatly benefited by the objective experience and deliberations of therapists that are not directly on the client's treatment team. Consultation group ensures the highest quality of services offered to the client via the treatment team, and provides professional expertise and support for therapists on the treatment team (Linehan, 1993).

The consultation group meeting is also highly structured and ensures that therapists are utilizing the same techniques within the meeting that clients are learning in skill-training group. Roles within the group include the Meeting Leader, Observer, Note Taker, and Consultation Members. A mindfulness practice run by the Meeting Leader opens the consultation group. Once the agenda is established and reviewed, the consultation takes place. Following consultation, time is dedicated to teaching from a certified and experienced DBT therapist (Linehan, 1993).

In summary, DBT is a highly intensive and collaborative program, drawing on the skills of the therapists and the willingness and participation of the clients. DBT has a base in cognitive behavioral therapy which focuses on teaching skills to challenge thoughts and behaviors. It is also influenced by Eastern cultures and Buddhism to instill mindfulness, acceptance, and emotional intelligence (Swales & Heard, 2009). The combination of these factors allows the participant the safe space to learn and practice skills that will improve the stability of their daily lives and improve their emotional intelligence (Linehan, 1993). A study by Stepp, Epler, Jahng and Trull (2013) found that DBT skills are used by participants more frequently and consistently as the program progresses, signifying the building and internalization of skills. The use of skills was directly correlated to a significant decrease in symptoms of BPD, including affective instability, identity disturbance, and negative relationships. Additional studies have demonstrated similar results for the influence of DBT on enacting emotional intelligence and behavioral changes leading to a decrease in service utilization.

Conclusion and Implications for Research

Individuals with personality disorders are high users of emergency mental health services, which are costly and ineffective at creating long-term change and treatment (Lieb et al., 2004). Emergency services focus on immediate stabilization of symptoms and harm reduction. In order to be effective in reducing usage of these services and fostering long-term change, Dialectical Behavior Therapy provides intensive counseling and skills training to encourage awareness and behavioral change (Salsman & Linehan, 2006). DBT has been shown to provide individuals with the skills to increase emotion regulation, distress tolerance, and interpersonal skills, which helps to create a higher level of stability and emotional intelligence in daily life (Brazier et al., 2006). However, there is a lack of research on the secondary and long-term effects

that the increase in coping skills has on the utilization of mental health emergency and crisis services. If a DBT program is effective in teaching these skills and encouraging participants to implement these skills in their lives, there should be a measurable behavioral component that verifies the success of the DBT program.

Further information is needed to evaluate the outcomes of evidence-based DBT programs and the secondary effects they have on healthcare utilization, overall costs, and quality of client care. The following research study addresses these concerns by examining participants' usage of emergency services before and after completion of an evidence-based DBT program. The purpose of this quality assurance research is to explore the extent to which participation in a DBT program at a community based outpatient clinic has an effect on the service utilization of participants after completion. The purpose of DBT is to reduce symptoms that are associated with high service utilization and to incorporate coping skills to help the individual through times of crisis. If the DBT program is effective in accomplishing this purpose, a decrease in emergency service utilization for participants will be evident. This has profound effects on quality of service provided as well as the cost effectiveness for the mental health clinic and third party insurers.

The effectiveness of the evidence-based DBT program may be compromised when organizations create modifications and adjustments to their programs in order to save on time and resources. These providers are therefore not offering DBT in its evidence-based form or are not offering it at all, which has negative implications on the results of the treatment as well as the quality of service offered to the client. This research will examine if the high fidelity DBT program offered at a specific community outpatient mental health clinic, is effective at decreasing long-term community mental health costs associated with their participants. Long-term fiscal savings would prove profitable for the upfront increase in time and resources that are

necessary to provide a high fidelity DBT program. The hypothesis of this research study is that successful completion of the DBT program will be correlated with a decrease in the utilization of high-cost emergency and crisis services after completion.

Method

Methodology

The following research study took place at an urban community based outpatient clinic, serving adults with acute mental health disorders and symptoms. This is a secondary analysis of aggregate data. A paired t-test research design was used, which analyzes the amount of emergency services that each participant utilizes 6 months prior to beginning DBT and 6 months after completing DBT.

Participants

Data for this research was used from a list of clients who completed DBT at the community based mental health clinic between the dates of January 01, 2015 and August 31, 2016. The date of January 1, 2015 was chosen because the clinic began changing their DBT program so that it more closely resembled the evidenced based practice in the year 2014. Skills training groups were extended from 60 minutes to 90 minutes and weekly therapist consultation groups were implemented. Participants that began DBT in the second half of 2014 and completed sometime in 2015 were involved in the evidence based DBT. Clients who completed in first half of 2014 were involved in the modified DBT program. This research is concerned with the effectiveness of the evidence based DBT program so only those participants were included in the data sample. The date of August 31, 2016 was selected, as it is the last cutoff date that will allow for 6 months of service utilization data to be collected prior to this study being completed. Participants were recommended for DBT by their primary therapist if they were

deemed to have symptoms consistent with a personality disorder or deficits in interpersonal functioning, distress tolerance, and emotional regulation. Participants were excluded from the research if they did not successfully complete the entire 26-week DBT program. The resulting data sample consisted of 63 participants. They were all 18 years of age and older with their ages ranging from 23 to 68. 27% of the data sample were men and 73% were women.

Materials

The materials used during this research study were the data sample with client names and database identifiers. This list was used to search through client charts in both Cerner and Epic, two electronic medical record systems used by the clinic and the larger governing health organization. Client charts were examined to find instances of emergency service utilization within the healthcare organization. Coordinated Care Services, Inc. provided data on any emergency service utilized outside of the healthcare organization, such as at any other hospitals, clinics, or mobile crisis services.

Procedure

A list of clients who were enrolled in DBT in the years 2015 and 2016 was collected from the clinic. The list was reviewed to determine clients who dropped out and did not successfully complete the full 26 weeks. These clients were excluded from the data sample. The client's medical record was examined for this, including case notes, treatment plans, and discharge summaries. In some cases their primary therapist was consulted as well. Clients were also excluded from the data if they completed DBT after August 31, 2016 due to there not being a full 6 months of data available after their completion. The remainder of the client list was utilized as the data sample.

The researcher reviewed each participant's chart for emergency services utilized 6 months prior to his or her start in DBT. Emergency services were broken down into two categories including emergency department visits and number of days spent in inpatient hospitalization. Surgeries and pre-existing medical conditions were not counted unless they were attributed in the documentation to a mental health condition. Hospitalizations due to drug use, fighting, anxiety, mental hygiene arrest, self-harm, and drug seeking behaviors were included in the data as they can all be attributed to a mental health condition. Emergency service utilization data was collected in the same manner for 6 months after each participant's completion of DBT. Any services used during the 26 weeks that the participant was enrolled in DBT were excluded from the data. This is due to the fact that clients have not learned all DBT material or been able to effectively implement skills until near completion. Data on emergency services utilized by participants outside of the larger healthcare organization, such as at other area hospitals, community clinics, was not able to be obtained at this time and is not included in the data.

A paired t-test design was used to compare the amount of emergency services used by the sample population for 6 months prior to enrollment in DBT and 6 months after completion of DBT. Two paired t-tests were run, one for number of days of inpatient hospitalization and one for the number of emergency department visits.

Results

According to the clinic's documentation, 181 individuals were enrolled in DBT during the designated time frame of January 1, 2015 to August 31, 2016. Out of the 181 individuals, 64 of them successfully completed the full 26-week course. One was eliminated from the data after moving out state following completion of DBT, as there is no information available to the researcher since he left the area. The total sample size was 63. The following results indicate the

outcomes for this sample. The descriptive statistics for the number of days of inpatient hospitalization and emergency department visits used by this sample before and after completion of DBT can be found in Table 1.

Table 1.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Inpatient Pre	1.38	63	4.379	.552
	Inpatient Post	.00	63	.000	.000
Pair 2	ED Visits Pre	.81	63	1.758	.222
	ED Visits Post	.25	63	.933	.118

With both emergency service types, a decrease was seen from before DBT to after DBT. A paired t-test was used to analyze whether the changes were statistically significant. Completion of the DBT program resulted in a statistically significant ($p = .015$) decrease of the number of days of inpatient hospitalization, which included both psychiatric inpatient and medical inpatient. Medical inpatient was included if it was deemed to be related to self-harming behaviors, drug use, or suicide attempts. The total number of days of inpatient hospitalization for the sample prior to DBT enrollment was 87 days. Following completion of DBT, the sample had 0 days of inpatient hospitalization.

Completion of the DBT program also resulted in a statistically significant ($p = .019$) decrease in emergency department visits, with a total of 47 emergency department visits for the sample prior to enrollment in DBT and 19 emergency department visits post completion of DBT. Further statistical information on these t-tests can be found in Table 2.

Table 2.

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Inpatient	87 - 0	1.381	4.379	.552	.278	2.484	2.503	62	.015
ED	47 - 20	.540	1.839	.232	.077	1.003	2.329	62	.023
Mobile Crisis	4 - 2	.032	.309	.039	-.046	.110	.814	62	.419

The results of this preliminary study support the hypothesis that DBT is effective in reducing high-cost emergency service utilization. DBT was found to be significantly effective in reducing psychiatric inpatient hospitalizations as well as medical hospitalizations related to self-harming behaviors, suicide attempts, and drug use. DBT was also found to be significantly effective in reducing the amount of emergency department visits.

Discussion

These results are important for the quality assurance of the clinic's DBT program, as well as an excellent starting point in assessing how DBT programs work to create long-term change and stability for people. It is evident that DBT is associated with a reduction in emotional reactivity, self-harming and risk-taking behaviors, as well as an increase in self-awareness, emotional intelligence, healthy interpersonal skills and distress tolerance. This allows the individual to handle the crisis independently or in a healthier manner, and reduces the need for emergency services.

As discussed previously, many mental health organizations are not reimbursed fully for the amount of time and resources necessary to provide an evidence-based DBT program, and may choose to not offer it in order to save valuable resources and economic stability. In 2014, it

was estimated that one day of inpatient stay in a local or government hospital in New York State cost an average of $2,478 per day (Becker's Hospital Review, 2014). If we consider the sample of individuals represented in this research study, about $215,586 was spent on them in the six months prior to beginning DBT. The sample had 0 days of inpatient following DBT, with a 100% cost reduction. The estimated average cost of an emergency room visit across the nation is around $1,223 (Caldwell, Srebotnjak, Wang & Hsia, 2013). The current research sample had 47 emergency department visits, adding up to about $57,481 for the six months prior to beginning DBT and $24,460 in the 6 months following completion of DBT. The projected financial savings for the sample are about $248,600. The implications are important for third party insurers to take into consideration when looking to save healthcare costs. Further information and analysis in this area could be beneficial and insightful.

Limitations of This Study

The largest limitation of this study is that data from outside of the healthcare organization was unable to be attained in a timely manner in order to include it within the results. The healthcare organization that this study was conducted through consists of three large hospitals in the local area, as well as two outpatient mental health facilities, and two outpatient chemical dependency facilities. Emergency service usage data from another large area hospital was unable to be accessed. If the individual was involved in outpatient mental health treatment at the time that they were admitted to inpatient or visited the emergency department of the other hospital, it was documented within the client chart and added to the data. If the emergency service usage occurred after the client was no longer involved in outpatient mental health, the researcher was not able to access it. In order to make this study stronger and more comprehensive, a full record of emergency services used anywhere in the community is essential.

Another limitation to consider is ambiguity regarding individual's presentations to the emergency room. To promote accuracy and to avoid researcher bias, only emergency department visits attributed to mental health, substance use, violence, suicidal ideation, homicidal ideation, and psychosis were included in the data. Additional presentations for problematic eating and weight, unsafe sexual activity, and ambiguous medical injuries such as trips/falls, broken bones and bruises not attributed to violence were not included in the data. However, there is a possibility that they are related to behavioral patterns associated with borderline personality disorder symptoms such as promiscuity, binge eating, impulsivity, and risk-taking. Without knowing the individual's history and specific behavioral patterns, it is difficult to discern this.

Implications for Future Research

The six month time frame used in this research study gives an idea of the impact that DBT can have on service utilization. However, it is a relatively short time frame to be looking at, considering that personality disorders are chronic and pervasive patterns of behavior that have developed throughout the lifespan. A longer time frame, such as 1 to 2 years, following completion of DBT may provide insight into longer-term skill retention and implementation. While estimations for cost effectiveness were discussed here, an official cost analysis of the program would also provide more concrete details regarding its cost effectiveness and the importance of investing in evidence-based programs for long-term financial gain.

Conclusion

The results of this study demonstrate the efficacy of Dialectical Behavior Therapy in addressing symptoms that create a high risk for emergency services, such as risk-taking, emotional lability, self-harming, violence, substance use, and comorbid diagnoses. Individuals who successfully completed the DBT program offered at an outpatient behavioral health clinic

had a measurable decrease in the number of days of inpatient hospitalization and number of emergency department visits. While this study has significant limitations, it is beneficial in the sense that it demonstrates the importance of using evidence-based models in addressing treatment needs of clients in order to provide quality care. It also introduces estimated healthcare cost savings, an encouragement for insurance companies to invest in DBT programs and for mental health agencies to offer the program. Substantial research has been completed demonstrating DBT's effectiveness in reducing symptoms. It is also clear that it reduces emergency service usage for those who successfully complete and creates a greater sense of stability and overall wellness.

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