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**Dialectical Behaviour Therapy skills use in a Substance Use Disorder
and Borderline Personality Trait population**

**A thesis presented in partial fulfilment of the requirements for the degree of
Master of Arts in Psychology**

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Abstract

This study examined the skills use^{cl} within a Dialectical Behaviour Therapy programme for 13 clients presenting with comorbid Substance Use Disorders and Borderline Personality Disorder traits at the Community Alcohol and Drugs Service North. This was the first known study to evaluate skills use within a 12-month Dialectical Behaviour Therapy programme for this client population in an outpatient alcohol and drug community based treatment service in New Zealand.

Dialectical Behaviour Therapy is an evidence-based treatment comprised of four components, one being the training and practice of behavioural skills. Skills training has been suggested as an important element in attaining positive treatment outcomes. This study was designed to explore the frequency and variety of skills used by clients in this population.

Skills use was recorded on the daily diary cards completed by clients over the course of treatment. The findings indicated that the clients made statistically significant increases in their rate of skills use as treatment progressed. Increases in all skills modules were observed, with the skills module of Core Mindfulness being used the most frequently, followed by Emotion Regulation, Distress Tolerance, and Interpersonal Effectiveness. In addition, findings also indicated reductions in substance use and substance use urges.

These findings suggest tentative support for the use of Dialectical Behaviour Therapy skills training with Substance Use Disorder and Borderline Personality Disorder trait clients in an alcohol and drug community based setting.

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Chapter 1: Introduction

Maladaptive or excessive substance use is recognised as one of the most important and costly problems in society today. The World Health Organization's World Mental Health Survey Initiative recently explored the 12 month prevalence of Substance Use Disorders in 14 countries (Kessler & Ustun, 2004). While the results are varied between countries (0.1% in Italy to 6.4% in the Ukraine) the increase in the prevalence of SUDs is a worldwide trend that New Zealand is not immune from. Wells and colleagues (2006) reported the 12 month prevalence of any SUD within the New Zealand population as 3.5%, with the lifetime prevalence increasing to 12.3%.

The burden attributed to maladaptive and problematic substance use is wide and varied. Such use is highly associated with criminal acts, healthcare expenditures, psychological illness, loss of earnings, premature mortality, and personal costs (Cartwright, 2008; Rehm, Taylor, & Room, 2006; Room Babor, & Rehm, 2005). Recent research has also identified alcohol consumption as a risk factor for the wellbeing of children and young people, potentially impacting on the child's quality of life, contributing to family violence, and the under-supervision of children due to intoxicated caregivers (Child and Youth Mortality Review Committee, 2009). Maladaptive substance use can also result in a range of medical and neuropsychological difficulties (Brick, 2008; Moser, Frantz, & Brick, 2008).

In addition, findings from reviews, cohort studies, and psychological autopsy studies have shown that substance use is strongly associated with suicidal behaviour (Cavanagh, Carson, Sharpe, & Lawrie, 2003; Farrell, Neeleman, Griffiths, & Strang, 1996; Harris & Barraclough, 1997; Mino, Bousquet, & Broers, 1999; Wilcox, Conner, & Caine, 2004). Alcohol use, in particular, has also been linked with deliberate self-harm (Gratz & Tull, 2010).

The complex nature of substance abuse and dependence is often further complicated by comorbid psychiatric disorders, with Major Depressive Disorder, Post-Traumatic Disorder, and Personality Disorders being common comorbid diagnoses (Brady, Back, & Coffey, 2004; Skodol, Oldham, & Gallaher, 1999; Watkins et al, 2004). Borderline Personality Disorder is one such comorbid personality disorder, characterised by difficulties in emotion regulation, and sharing many features with substance dependence. However, to date, there are limited treatment options available for those individuals who present with these comorbid diagnoses. The current study examines aspects of a potential treatment for this population.

Substance use disorders

Some individuals who use substances casually will continue to do so. However, there are those individuals who will go on to become substance abusers or substance dependent. It is often these individuals who will present for treatment. While substance abuse and substance dependence are often thought of synonymously, these terms actually describe two different patterns of use. Substance abuse can be described as a pattern of excessive use which continues despite numerous negative consequences (American Psychiatric Association, 2000). Substance dependence, on the other hand, is a term that indicates some measure of psychological and/or physical addiction. A key diagnostic criterion for substance dependence is “a maladaptive pattern of substance use, leading to clinically significant impairment or distress” within a 12 month period (DSM-IV-TR; American Psychiatric Association, 2000, p. 197). To meet this criteria the individual’s distress must present in three of the following ways, (1) tolerance, (2) withdrawal, (3) increased amounts of the substance or a longer period of intoxication, (4) desire or unsuccessful attempts to cease use, (5) increased time spent procuring the substance, (6) social, occupational, or recreational activities ceased, and (7) continued use despite recurrent psychological or physical difficulties likely caused by use (American Psychiatric Association, 2000). On reflection of these diagnostic criteria, it is apparent that substance dependence is a debilitating and chronic condition.

It is well known that individuals who misuse substances are prone to develop serious medical difficulties. Substance abuse affects almost every physiological system in the body, with consequences including neurophysiological complications, psychiatric disorders, cancer, and immune system impairment (Gossop et al., 2007; Khalsa, Treisman, McCance-Katz, & Tedaldi, 2008; Moser, Frantz, & Brick, 2008). Physical health difficulties are common among patients seeking treatment for substance problems (Gossop et al., 2007). Gastrointestinal and liver diseases, such as gastritis and liver cirrhosis, are prominent consequences of substance misuse, in particular alcohol misuse (Gossop et al., 2007).

Excessive alcohol consumption has been identified as a risk factor for cardiovascular disease, such as hypertension, and some forms of cancer (Gossop et al., 2007). Accidental injuries are frequent occurrences as psychomotor impairment while under the influence can result in an increased risk of automobile accidents, pedestrian and fall-down injuries, and fire and burn injuries (Brick, 2008). Chronic or

acute alcohol consumption also increases the risk of neuropsychological difficulties, including Wernicke-Korsakoff syndrome and alcohol-induced dementia, and neurological disorders, such as central nervous system impairment (Brick, 2008; Gossop et al., 2007).

In addition to the vast range of medical and psychological consequences, maladaptive or excessive substance use is associated with a range of economic, societal, and personal costs, arising from crime, loss of earnings, substance-attributable diseases, accidents, and self-harming behaviour (Cartwright, 2008; Mino, Bousquet, & Broers, 1999; Rehm, Taylor, & Room, 2006; Room et al., 2005). In New Zealand, alcohol use in particular has proved to be increasingly problematic and is now considered the leading substance of misuse nationwide (Adamson, Sellman, Deering, Robertson, & de Zwart, 2006).

Etiology. The acknowledgement of the global trend in increases of maladaptive substance use has led to a growing body of literature exploring factors that surround the development and maintenance of such use. A number of factors have been suggested as influencing maladaptive or excessive substance use, due to the substantial amount of literature available a brief review of some of the key etiologic factors is offered here.

A large amount of literature has been published on possible genetic influences on Substance Use Disorders (SUDs) indicating that the genetics of maladaptive substance use are complex. At present the possible genetic influences of alcohol dependence is more advanced than that of drug dependence, possibly as a result of societal acceptance and availability of alcohol (Ball & Collier, 2002). Results from family and twin studies have consistently suggested that the risk of developing alcohol dependence runs in families, with most finding heritability estimates of around 50% (Heath et al, 1997; Prescott et al., 2005; Sigvardsson, Bohman, & Cloninger, 1996; True et al., 1996). Twin and adoption studies have also identified similar heritability in the case of illicit drug use (McGue, Elkins, & Iacono, 2000; Tsuang et al., 1996).

In addition to genetic factors influencing the development of substance dependence, family background, parental support, parental supervision, and exposure to parental substance use have all been identified as factors that can increase the risk of substance dependence (Fergusson, Boden, & Horwood, 2008; Pears, Capaldi, & Owen, 2007). The results from Kilpatrick and colleagues (2000) national household

survey found that childhood exposure to parental illicit drug use increased the risk of substance use among adolescents, indicating that patterns of maladaptive use are likely transmitted across generations. In addition, low levels of parental monitoring and high levels of parental criminality have also been identified as important risk factors for the development of substance dependence (Chilcoat & Anthony, 1996; Duncan, Duncan, Biglan, & Ary, 1998; Hayatbakhsh, Kinner, Jamrozik, Najman, & Mamun, 2007).

Furthermore, research has identified a link between early childhood trauma, including sexual abuse, physical abuse, and being witness to parental violence, and substance dependence in adulthood (Christoffersen & Sothill, 2003; Simpson & Miller, 2002). The increased risk of developing substance dependence after traumatic experiences is thought to be due to the need to self-medicate the symptoms associated with the trauma (Khoury, Tang, Bradley, Cubells, & Ressler, 2010). This self-medicating theory may also help explain the heavier use found in survivors of childhood abuse (Fergusson et al., 2008).

Certain personality characteristics or traits have also been implicated in the development of maladaptive substance use. Research has reported a link between the traits of impulsivity and sensation-seeking and SUDs (Acton, 2003; Ersche, Turton, Pradhan, Bullmore, & Robbins, 2010). Models of addiction suggest impulsivity as an important behavioural endophenotype that predisposes the risk of substance dependence, with evidence that not only is trait-impulsivity higher in substance users, but also in their siblings (Ersche et al., 2010). This emphasis on impulsivity may also reflect that individuals with SUDs tend to show higher frequencies of comorbid personality disorders, in particular borderline personality disorder (Trull, Sher, Minks-Brown, Durbin, & Burr, 2000); a disorder that includes impulsivity in its diagnostic criteria. Similarly, sensation-seeking, the need to seek intense sensations and willingness to take risks, has also been suggested as an influencing factor as the individuals need for greater stimulation is likely to enhance motivation for use (Ersche et al., 2010). In addition, research has identified neuroticism/negative emotionality as a risk factor for increased alcohol use (Sher, Grekin, & Williams, 2005), with alcohol dependent individuals scoring higher on measures of both (Jackson & Sher, 2003; Swendsen, Conway, Rounsaville, & Merikangas, 2002).

It is clear from the literature that the development of substance dependence is indeed complicated, but may include genetic, parental, trauma, and personality factors. However, additional research is needed to explore the complex way in which

these factors combine to contribute to the development of substance dependence.

Treatment. Although treatment approaches for a SUDs population may vary depending on organisation and therapist orientation, Motivational Interviewing (MI; Miller & Rollnick, 1991) has become a leading treatment for maladaptive substance use. The premise of MI is to enhance client motivation for change in their substance use, and emphasises Carl Rogers's patient-centered approach of empathy and positive regard (Burke, Dunn, Atkins, & Phelps, 2004). MI is typically a brief intervention administered through only a few sessions, and examines those factors that may challenge the individuals' motivation for behavioural change and employs strategies for the management of these changes. However, despite gaining popularity as a treatment for SUDs clients, MI may not meet the needs of multidisordered clients such as those with comorbid diagnoses (Newman, Moffitt, Caspi, & Silva, 1998).

Borderline personality disorder

Borderline Personality Disorder (BPD) is a serious psychiatric disorder described as "a pervasive pattern of instability of interpersonal relationships, self-image, and affects, and marked impulsivity beginning by early adulthood and present in a variety of contexts" (American Psychiatric Association, 2000, p. 710). In order to meet diagnostic criteria for this disorder the individual must meet at least five of the following, (1) frantic avoidance of real or imagined abandonment, (2) a pattern of intense/unstable interpersonal relationship, (3) identity disturbance, (4) impulsivity in two areas (e.g., spending, substance abuse), (5) recurrent suicidal or self-mutilating behaviour, (6) affective instability, (7) chronic feelings of emptiness, (8) inappropriate or difficult to control anger, and (9) transient paranoid ideation (American Psychiatric Association, 2000).

While five of the diagnostic criteria listed above must be met to warrant a BPD diagnosis, some individuals may not meet a total of five of the diagnostic criteria or not meet the threshold for impairment in social and occupational functioning yet their lives are still affected by BPD related traits. Similarly, an individual may meet the diagnostic criteria but the threshold for the general diagnostic criteria for Personality Disorders is not met. For these individuals, while a formal diagnosis of BPD is not given, they are still affected by BPD

related traits and as such may require therapy to assist in managing these.

Linehan (1993a) further organized these diagnostic criteria into five areas of psychopathology, the first being that of affective dysregulation. Individuals with BPD show a range of dysphoric affects in addition to pervasive emotional lability. The second area, interpersonal dysregulation, is characterised by an intense fear of abandonment and tumultuous interpersonal relationships often marked by arguments, anger, and break-ups. The third area of psychopathology is that of behavioural dysregulation. This area is characterised by the engagement in impulsive and potentially dangerous behaviours, including suicide/self-harm, substance use, spending sprees, and disordered eating. The area of cognitive dysregulation, the fourth area, typically manifests in three levels of symptomology; (1) non-psychotic ideas or experiences, (2) quasi-psychotic or psychotic-like ideas or experiences, and (3) delusion and/or hallucinations. The final area, self-dysregulation or disturbed self-image, is primarily concerned with the individual's false self-beliefs (Lieb, Zanarini, Schmahl, Linehan, & Bohus, 2004; Linehan, 1993a; Swales et al., 2000).

While the prevalence of BPD in the general population is approximately 2% (American Psychiatric Association, 2000; Torgersen, Kringlen, & Cramer, 2001), the rate of individuals presenting with BPD in outpatient psychiatric services is far larger at 10% (American Psychiatric Association, 2000). Treatment for individuals with BPD can be both challenging and complex as evidenced by their substantial rate of treatment utilisation in psychiatric services. Research indicates that individuals with BPD typically access a wider range and a higher frequency of medical and psychiatric services and psychotropic medications than patients with other psychiatric disorders (Bender et al. 2001; Linehan, 1993a; Zanarini, Frankenburg, Hennen, & Silk, 2004), show higher psychiatric comorbidity rates (Zanarini, Frankenburg, Hennen, Reich, & Silk, 2004), and incur a substantial societal cost (van Asselt, Dirksen, Arntz, & Severens, 2007). Although the prevalence of BPD in males and females have been shown to be similar in population based samples (Skodol & Bender, 2003; Torgersen, Kringlen, & Cramer, 2001), more female than males present for treatment in clinical settings (Lieb et al., 2004)

Etiology. Unlike many other disorders, research on the etiology of BPD has been surprisingly sparse given the prevalence of the disorder and the potentially dangerous behaviours that are often accompany it. While several etiological models have been

proposed as a way of explaining the development of BPD (for models see Fonagy, Target, & Gergely, 2000; Judd & McGlashan, 2003; Kernberg, 1975), Linehan's Biosocial Theory (1993a) is among the most thoroughly delineated etiological models in the literature to date will be presented here.

Biosocial theory conceptualises BPD as a disorder of pervasive emotion dysregulation developing over time as a result of two factors; a biological vulnerability to emotion, and invalidating environments. The theory asserts that the presence of one factor alone is not enough to influence the development of BPD, instead it is the combined presence of, and transactional process between, these factors that result in the emotion dysregulation that is the hallmark of the disorder. As a result of these factors the individual may develop an emotional system highly sensitive to environmental stimuli which, in turn, can negatively influence affective, behavioural, interpersonal, cognitive, and self-dysregulation domains of functioning (Linehan, 1993a).

Biological Vulnerability. Linehan (1993a) theorised that difficulties in regulating emotions are, in part, the result of a biological predisposition to greater emotional vulnerability. This emotional vulnerability can be characterised by three factors; (1) emotional sensitivity, a heightened sensitivity for emotional reactions and quick to react to emotional stimuli, (2) emotional intensity, the tendency to respond to emotional stimuli with extreme reactions, and (3) slow return to baseline level in which the individual takes a long time to return to their baseline level of emotion (Hamed, Banawan, & Lynch, 2006). As many processes depend on effective emotion regulation, emotional dysregulation can cause significant difficulties in many areas of functioning, for example, interpersonal relationships (Koerner & Dimeff, 2007).

As a detailed description of all structural, neurochemical, and genetic factors proposed to contribute to biological vulnerabilities in BPD is beyond the scope of this review, a brief description of only those factors that feature most prominently in the literature is given. Research has highlighted the role of neurotransmitter system dysfunction, particularly serotonin, in emotion dysregulation. Results suggest that impairment in the central serotonin (5-HT) system is related to affective instability and BPD associated behaviours, such as suicidal and self-injurious behavior, and aggression (Kamali, Oquendo, & Mann, 2001). Research has also suggested that certain genes within the serotonin system may leave an individual susceptible to BPD-related symptoms such as impulsivity, and emotional instability (Maurex, Zaboli, Ohman, Asberg, & Leopardi, 2010; Ni, Chan, Chan, McMMain, & Kennedy, 2009). Additional

neurotransmitter systems, including dopamine, vasopressin, acetylcholine, and noradrenaline, are also beginning to be explored regarding their role in borderline pathology. (for a detailed review see Crowell, Beauchaine, & Linehan, 2009). Electrophysiological research on individuals with BPD have identified abnormal brain electrical activity such as decreased REM latency, diffuse EEG slowing, and prolonged latency in evoked potential (for a full review see Boutros, Torello, & McGlashan, 2003).

Furthermore, structural imaging studies have identified reductions in hippocampus and amygdala volume (Schmahl & Bremner, 2006; Schmahl, Vermetten, Elzinga, & Bremner, 2003), and impaired neural networks and systems (Williams, Sidis, Gordon, & Mearns, 2006), as contributing to the impulsive behaviour and emotional instability often associated with BPD. Although research into the biological vulnerabilities associated with BPD is promising, as it stands it is still too soon to form a complete picture on the biological bases of BPD.

Invalidating Environments. As stated previously Linehan (1993a) posits that a biological vulnerability alone is not enough to produce BPD; this vulnerability to emotion must be combined with an inability to regulate emotions. According to research, an individual is likely to present with emotion regulation difficulties as a result of failing to acquire the basic emotion management skills typically learned in childhood (Koons, 2008). The role of invalidating environments in failing to facilitate learning of these skills, and their subsequent influence on the development of BPD has been the subject of extensive research of late. According to Linehan (1993a) there are two prominent characteristics of invalidation: (1) it communicates to the child that his/her experiences are wrong and (2) it attributes the child's experience to socially unacceptable personal traits. An invalidating environment is best characterised as one in which an individual's personal experiences, such as emotions, sense of pain, and behaviour, are pervasively dismissed, punished, attributed to negative traits, and inconsistently reinforced (Koons, 2008; Rosenthal, Lynch, & Linehan, 2005). This inconsistent punishment and reinforcement of emotional expression takes place over time, and fails to provide any sense of validation of an individual's feelings.

In its most extreme, an invalidating environment can include psychological, physical, and sexual abuse. There is considerable empirical data to suggest that pervasive invalidation in childhood is an etiological factor for BPD. A number of studies report rates of childhood emotional, physical, and sexual abuse, violence within the family, emotional neglect, separation from caregivers, and ineffective parenting styles as higher

among BPD clients than healthy comparison controls (Bandelow et al., 2005; Helgeland & Torgersen, 2004; Herman, Perry, & Kolk, 1989; Zanarini et al., 1997). Research also suggests that the severity of sexual abuse is a predictor of both the severity of symptoms and adult suicidal behavior; the greater the extent of the abuse, the greater the symptoms (Soloff, Lynch & Kelley, 2002; Zanarini et al., 2002). Furthermore, repeated abuse, multiple types of abuse, multiple abusers, and early age of abuse onset have all been identified as factors involved in the development of BPD (Laporte & Guttman, 1996; Zanarini et al., 1997).

Failing to acquire key basic emotion regulation skills in childhood as a result of invalidating environments has its consequences. By encouraging the child to suppress their emotional experiences and reactions the child fails to learn how to label emotions, how to manage emotional arousal, and tolerate distressing situations (Harned, et al, 2006). As the child is forced to exhibit intense displays of emotion to garner a response, the child learns to oscillate between extreme emotional inhibition and extreme emotional expression, a pattern of behaviour often continued into adulthood (Linehan, 1993a).

Treatment. With regards to the treatment of BPD clients, who are often multidisordered, the development of Dialectical Behaviour Therapy (DBT; Linehan, 1993a) was a milestone, and was developed in conjunction with Linehan's theoretical model of BPD. This cognitive-behavioural therapy, extensively discussed further on, uses the concepts of acceptance and change to promote cessation of maladaptive behaviours, such as substance use, and is concerned with teaching the patient the skills needed to manage their emotional lability, the hallmark of BPD.

Comorbidity of BPD and SUDs

Epidemiological and clinical studies report high rates of comorbidity between BPD and SUDs, with BPD being identified as one of the leading comorbid diagnoses present with SUDs diagnoses. In their extensive review of BPD and SUD comorbidity rates gathered from a range of studies, Trull and colleagues (2000) found that across those BPD studies who reported rates of SUDs, 57.4% of the BPD participants met diagnostic criteria for a SUD. Conversely, examination of those studies assessing SUDs, the results indicated that among those who were seeking treatment for substance abuse, 27.4% met diagnostic criteria for BPD (Trull et al., 2000). Of those with maladaptive alcohol use, 14.3% met criteria for BPD. For other leading substances of misuse, cocaine and opioid

use rates of BPD were 16.8% and 18.5% respectively (Trull et al., 2000).

Further evidence for high BPD-SUD comorbidity was provided by Darke and colleagues (2005) who examined the presence of BPD among 615 heroin abusers receiving treatment. Of the treatment sample, 46% met diagnostic criteria for BPD, and the presence of BPD actually increased the risk of overdose, polydrug use, and suicide. In similar research, this time with alcohol dependent patients, Preuss et al. (2009) found that 26.1% of alcohol dependent patients also had met diagnostic criteria for BPD. Furthermore, results from Hasin and colleagues (2011) research on personality disorders in persistent SUDs suggested that the presence of BPD actually predicted the persistence of SUDs.

Conversely, Zanarini and colleagues (2004) sought to assess the presence of comorbid Axis I disorders among 290 patients who met BPD diagnostic criteria. The findings indicated that at baseline 62.1% of BPD patients also met diagnostic criteria for a SUD, and suggested that substance use disorders are closely associated with failure to achieve remission in BPD. Additionally, research has suggested that SUDs can actually be considered a manifestation of BPD rather than an independent comorbid condition (van den Bosch, Verheul, Schippers, van den Brink, 2002). In sum, despite there being variation across studies in the rates of BPD among SUD patients, that there is a clear overlap between these two disorders.

Understanding the association between SUDs and BPD

As discussed previously, both SUDs and BPD are severe diagnoses that present with intense instability across a range of domains, with this instability having the potential to lead to dangerous and harmful behaviour. When presenting in combination, however, the result is often more debilitating than the presence of one disorder alone (Darke, Ross, Williamson, & Teesson, 2005; Links, Heslegrave, Mitton, Van Reekum, & Patrick, 1995). Research suggests that those patients who meet criteria for both disorders are more likely to have attempted suicide in the 12 months prior to presentation for treatment. Furthermore, the presence of BPD in a SUDs population predicts a higher risk of overdose, poly-substance use, treatment drop-out, major depression, and impaired global psychological functioning (Darke et al., 2004; Darke et al., 2005; Links et al., 1995). The high rate of comorbidity between SUDs and BPD can perhaps be best explained as the result of numerous common risk factors and symptomology including those of trauma, emotion dysregulation/instability, impulsivity, and suicide/self-harm.

Increased levels of Post-Traumatic Stress Disorder (PTSD) have been found in both BPD and SUDs patients; however, research is yet to clearly describe the nature of the relationship between these three disorders. PTSD is a complex anxiety disorder that presents following exposure to a traumatic event. PTSD is often associated with suicidality and high psychiatric comorbidity, particularly SUDs (Leeies, Pagura, Sareen, & Bolton, 2010). It has been proposed that the most common kind of trauma for individuals suffering both SUDs and PTSD is interpersonal, typically involving sexual and/or physical abuse in childhood (Brady, Back, & Coffey, 2004; Brems, Johnson, Neal, & Freemon, 2004). Furthermore, research has suggested that chronic substance use may actually be used as a method of self-medication, that is, a SUD may develop as a result of attempting to relieve symptoms of trauma (Leeies et al., 2010). It is likely then that substance use may function as a method, albeit unhelpfully, of managing distress or emotional instability for these individuals (Brown et al., 2002). Similarly, the emphasis in BPD on invalidating environments in childhood highlights the role of trauma in the development of the disorder, with research suggesting that the greater the severity of PTSD symptoms, particularly re-experiencing and hyperarousal symptoms, the greater the emotion dysregulation among individuals with BPD (Marshall-Berenz, Morrison, Schumacher, & Coffey, 2011). Exposure to trauma has the potential to negatively impact the individuals' emotional and behavioural responses resulting in difficulties in emotion regulation (Braquehais, Oquendo, Baca-García, & Sher, 2010). It seems possible then that trauma, particularly interpersonal, not only influences the development of SUDs and BPD, but may actually serve as a catalyst for their development.

Impulsivity is a trait that features in a wide range of psychiatric disorders, including that of BPD and SUDs. In its simplest form, impulsivity refers to the tendency to initiate inappropriate or maladaptive behaviour with no forethought of the consequences (Maloney, Degenhardt, Darke, & Nelson, 2009; De Wit, 2008). Impulsivity is a core construct within the BPD diagnostic criteria and is characterised by erratic and inappropriate behaviour, and heightened sensitivity in response to emotional stimuli (Trull et al., 2000). Similarly, impulsivity is associated with substance use and dependence, with research suggesting that impulsivity may contribute to the development of substance abuse, and conversely, substance abuse may increase levels of impulsivity (Perry & Carroll, 2008). This association between high levels of impulsive behaviour to substance use, both as a determinant and a consequence, has the potential to result in shorter periods of abstinence and reduced treatment success (Perry & Carroll, 2008). In addition, while impulsivity is a contributing factor to both BPD and SUDs,

research has indicated that individuals with both disorders show higher levels of impulsivity than those with one disorder alone (Links et al., 1995). It seems possible that the relationship between impulsivity in BPD and SUDs may be described as cyclical; impulsivity in BPD may increase the risk of substance abuse and dependence, and substance abuse may exacerbate impulsivity in BPD.

Additionally, research has also suggested that impulsivity and emotion dysregulation are associated with suicidal/self-harming behaviour (Mann, Waternaux, Haas, & Malone, 1999). While the rate of suicidal/self-harming behaviour is high among BPD patients (for a review see Pompili, Girardi, Ruberto, & Tatarelli, 2005), and substance abuse (Dougherty, Mathias, Marsh, Moeller, & Swann, 2004; Schneider, 2009), when an individual presents with both disorders they are more likely to be at greater risk for suicidal/self-harming behaviour and ideation and other dangerous impulsive behaviours (Black, Blum, Pfohl, & Hale, 2004). Research suggests that high levels of impulsivity and meeting diagnostic criteria for BPD can place substance abusing individuals at risk of suicidal/self-harming behaviour (Maloney et al., 2009). This association between BPD and suicidal/self-harming behaviour is of little surprise given that BPD, by definition, is characterised by recurrent suicidal behaviours and ideation. Furthermore, both suicide/self-harm and substance use behaviours have been conceptualised as ways of attempting to regulate emotional difficulties, the hallmark of BPD (Gratz, 2003).

In sum, the high comorbidity rate between SUDs and BPD may be explained as a consequence of the high trait overlap of trauma, impulsivity, suicide/self-harm, and emotion dysregulation/instability. While these features are not an exhaustive list of all contributing factors, they begin to illustrate influences in the development and maintenance of BPD and SUDs. However the complex way in which these factors interact requires further research. Given the clinically significant difficulties encountered by those individuals who present with SUDs and BPD, there is a need to consider what type of intervention may be appropriate and beneficial for this population. As a result of the complex nature of both disorders and the increase in psychopathology when they present comorbidly, it remains unclear whether standard treatment such as MI provided in the addictions realm is effective in treating these multidisordered clients. While originally developed for the treatment of BPD, recent adaptations of DBT for the treatment of comorbid BPD and SUDs have shown some success (Dimeff, Rizvi, Brown, & Linehan, 2000; Linehan et al., 1999; Linehan et al., 2002; Verheul et al., 2003).

Chapter 2: Dialectical Behaviour Therapy

DBT, a cognitive-behavioural treatment, was originally developed by Marsha M. Linehan and colleagues (1993a; 1993b) to treat chronically suicidal women who met criteria for BPD. These patients presented with emotion lability, difficulties in interpersonal relationships, and impulse control difficulties alongside chronic suicidal ideation and self-harming behaviour. When Linehan began working with chronically suicidal women she found that these patients were not responding to standard cognitive-behavioural therapy. The perceived lack of progress made by these patients when treated with standard cognitive-behavioural therapy spurred Linehan to develop a treatment model that effectively met the needs of this population. The result was DBT, a mix of cognitive-behavioural techniques blended with such Buddhist concepts as mindfulness and acceptance (Linehan, 1993a).

DBT applies a wide range of therapeutic strategies to the difficulties that usually accompany BPD. Many of these strategies, problem-solving, contingency management, skills training, and exposure, have long been successful treatment strategies in cognitive and behavioural therapies (Linehan, 1993a). However, while many strategies are shared between standard cognitive and behavioural therapies and DBT, these standard therapies were not developed for clients with severe personality disorders (Linehan, 1993b). The expansion of cognitive-behavioural therapy into DBT stemmed from four additional theoretical elements: (1) an emphasis of the acceptance and validation of behaviour, (2) an emphasis on treating both the clients and therapist's therapy-interfering behaviour, (3) an increased emphasis on the therapeutic relationship, and (4) an emphasis on dialectical processes (Linehan, 1993b).

Broadly speaking, DBT stems from three branches of knowledge; behaviourism, Zen, and dialectics (Koons, 2008). DBT is a behaviourally oriented treatment and as such seeks to not only explore how maladaptive behaviours are learned, but also how to change and replace persistent maladaptive behaviours with more skillful behaviours. Behaviourism proposes that these maladaptive behaviours are influenced by a range of environmental methods, such as modelling, conditioning, and reinforcement. In order to change these maladaptive behaviours, the same methods are utilised. In DBT the therapist will effectively model adaptive skills and behaviours through the therapeutic relationship, helping to counteract previous maladaptive models (Koons, 2008). Conditioning in DBT is delivered through exploring specific occurrences of maladaptive

behaviour in context, which includes associated thoughts, feelings, and urges, and then implementing adaptive solutions to change maladaptive responses, such as substance use, should these behaviours occur again (Koons, 2008).

While behaviourism emphasises change, Zen stresses the notion of acceptance (Robins, 2002). Zen centres on the client's wisdom. In DBT this concept translates to the idea of 'wise mind', a synthesis of what the client is feeling and the actual facts of the situation, simply put, the client is to be mindful of their current feelings but approach reality without judgement (Koons, 2008). This acceptance of reality is pivotal in beginning the process of change, and mindfulness skills, discussed further on, are essential for those experiencing distress.

The last school of thought, dialectics, can be considered the result of a synthesis and balance of behaviourism and Zen (Koons, 2008). In DBT, the fundamental dialectic present is between the clients need to change maladaptive behaviours that impede their quality of life, and the need to accept both themselves and the current situation. As a theoretical position, dialectics is the foundation of DBT, and provides for a persuasive dialogue and relationship that informs the treatment strategies utilised by the therapist (Linehan, 1993b). The dialectical view stresses three main principles; interrelatedness, polarity, and constant change. The first principle, that of interrelatedness, stems from a systems perspective of reality and conceptualises the world as the sum of interrelated parts. As these parts both influence and are influenced by others, any examination of these interrelated parts holds little value unless it relates the part to the whole (Linehan, 1993a).

The second principle, polarity, posits that every part or position has an opposite, or a thesis and antithesis, and that the struggle between these opposites creates tension. In order to resolve this tension a synthesis of the two positions, the thesis and antithesis, is needed. Within the dialectical framework, when considering individuals who present with comorbid SUDs and BPD traits, the dichotomous thinking, behaviour, and emotions that often accompany such difficulties are viewed as dialectical failures. These failures stop the individual from moving onto a synthesis (Linehan, 1993b).

The third principle, continuous change, suggests that reality is a process of constant change, and that a change in one position influences change in another. As the newly created synthesis is also in a state of constant change, the synthesis becomes the next thesis to struggle with a new antithesis and the process is repeated *ad infinitum* (Chapman et al., 2005). DBT aims at treating the whole individual and every part of the emotion system as it recognises that each part is interconnected (Lynch et al., 2006).

Treatment structure

DBT is primarily an outpatient treatment programme that takes approximately 12 months to complete. To provide effective and comprehensive treatment, Linehan (1993a) describes five functions of DBT: (a) increasing motivation for change, (b) increasing capabilities, (c) the generalisation of new behaviour, (d) changing the client's environment, and (e) increasing the therapists' capabilities and motivation (Dimeff & Linehan, 2008). It is through these five functions that treatment stages, targets, and modes are delivered.

Treatment stages. As the very nature of both BPD and SUDs is complex and individuals are likely to present with multiple difficulties, DBT-SUD is tailored to five treatment stages (Koons, 2008). The first stage, *pre-treatment*, is focused on orienting the client to the therapeutic process and making preparations for therapy, allowing the therapist to describe the treatment process, modify any dysfunctional beliefs regarding therapy, gather patient history, discuss expectations of therapy, and conduct assessments (Linehan, 1993a). Commitment to therapy is sought, and ensuring that the client is committed to stopping substance use is crucial at this stage. As this may be a daunting task for those who suffer chronic substance use, the client is asked to commit in stages. When the negotiated time frame has expired commitment is again negotiated. The goal of these shorter time frames is to achieve abstinence through the collection of substance free periods.

After commitment to therapy is given the client enters *stage one*. The focus of this stage is to help the client attain behavioural control (Swales et al., 2000). The client ideally learns to control behaviours that are life-threatening (e.g suicidal/parasuicidal acts and maladaptive substance use), behaviours that interfere with therapy (e.g treatment drop-out and missed sessions), behaviours that interfere with the client's the quality of life (e.g losing employment), and increase behavioural skills (Koons, 2008).

Stage two is concerned with emotional experiencing. As a vast number of BPD and SUDs clients report histories of severe early childhood adversity, this stage explores previous trauma and helps the client to identify maladaptive thoughts and feelings through the use of exposure techniques (Linehan & Dexter-Mazza, 2008). This is achieved through treatment targets such as accepting previous trauma, reducing denial, reducing post-traumatic stress symptoms, and reducing self-blame (Koons, 2008).

In *stage three* of treatment the client is urged to increase happiness in everyday life.

Stage three targets focus on taking responsibility for behaviour, gaining self-respect, validating both themselves and their emotions, reducing interpersonal problems, and the attainment of goals (Koons, 2008; Swales et al., 2000).

In the last stage, *stage four*, the focus is on achieving a capacity for joy in life alongside a sense of well-being (Linehan, 1993a). The generalisation of new skills will continue outside the therapeutic setting and the individual is encouraged to take charge of their life (Koons, 2002).

Treatment targets. Much like standard cognitive-behavioural therapy, DBT is oriented around a behavioural target hierarchy. This target hierarchy highlights a set of behaviours that the client is to increase or decrease, all falling within stage one of the treatment process. The first of the primary behavioural targets is to decrease life threatening/suicidal behaviours. Within this treatment targets are five subcategories: (1) suicide crisis behaviours, (2) parasuicidal behaviours, (3) suicidal ideation, (4) suicide-related beliefs, and (5) suicide-related affect (Linehan, 1993a). DBT views this type of behaviour as maladaptive problem-solving techniques learned in response to life crises, environmental stress, and problematic relationships, which are often perceived as unbearable. When the life of the client is in immediate danger, the first job of both the therapist and the therapy agenda is to try and keep the client safe.

The second behavioural target in DBT is to reduce any therapy-interfering behaviours resulting from both the client and the therapist. As a treatment, DBT requires full engagement by both client and therapist in order for treatment to be successful so the rationale for this target should be evident; those who are either non-attentive or non-compliant will not benefit from the therapeutic process.

The third behavioural target focuses on decreasing behaviours that interfere with quality of life. Numerous behaviours are highlighted; however, at the top of the list is substance abuse (Linehan, 1993a). Sitting under this behavioural target are multiple smaller targets that focus on reducing physical discomfort, reducing urges/cravings to use, reducing associated cues, and increasing environmental reinforcement of adaptive 'wise-mind' behaviours, for example finding reliable employment and support from agencies such as Alcoholics Anonymous (Harned et al., 2006). In combination these smaller targets are called 'The Path to Clear Mind' (McMain, Sayrs, Dimeff, & Linehan, 2007). Other quality of life interfering behaviours often targeted include high-risk sexual behaviours, criminal behaviours, maladaptive employment-related behaviours, and dysfunctional mental health related patterns (Linehan, 1993a).

The final behavioural target is concerned with increasing behavioural skills, to be discussed later on (Harned et al., 2006). The skills training mode in DBT is designed to remedy the deficit of behavioural skills that commonly occur for individuals who meet criteria for BPD, with each training module targeting those problem areas highlighted in the BPD criteria.

Modes of therapy

Individual psychotherapy. Individual psychotherapy is the central feature of DBT of which all other modes revolve around. In DBT each client is allocated an individual therapist who then becomes their primary therapist on the treatment team. The therapist is responsible for helping the client enhance their motivation for change, in addition to helping the client identify their maladaptive behaviours and replace them with those more adaptive and skilful (Chapman & Linehan, 2005). Additional therapist roles include supporting the attainment of client therapy goals, and assisting in the management of crises (Lynch, Trost, Salsman, & Linehan, 2007).

Individual therapy sessions usually take place once a week in an outpatient setting and generally last from 50-60 to 90-110 minutes (Linehan, 1993a). In order for the therapist to know if any problematic situations and behaviours have occurred, the client is asked to complete a diary card. This diary card allows the therapist to obtain important information on the types and amounts of different substances ingested during the week, the level of suicidal ideation, the type and frequency of self-harming acts and urges, and reports of which skills have been utilised on what days and to what degree (Linehan, 1993a). These cards are reviewed at the start of every session and can be used for a multitude of reasons, the most common being the identification of the occurrence of targeted behaviours, or behaviours that interfere with the clients quality of life. For example, if the card identifies high urges for suicidal acts then this can be discussed fully and an assessment of risk can be made. Times of crises during the previous week are discussed, and daily diary cards can be used to highlight important treatment targets.

In DBT-SUD, both borderline symptoms and substance use are considered to be problematic behaviours. Once an instance of problematic behaviour had been identified on the diary card the next step is to develop chain analyses and solution analyses, which will be discussed further on. Chain and solution analyses are a crucial part of challenging clients' dysfunctional behaviour.

Skills training. As the focus of this study concerns the use of learned skills, the skills training module is discussed in detail further on.

Consultation team. Treating individuals with borderline traits and concurrent substance abuse can at times be incredibly mentally taxing and extremely stressful. As a result consultation team meetings are held on a weekly basis including all therapists and skills trainers to counter the negative impact often felt by DBT therapists (Linehan, 1993a). These team meetings provide a sense of validation and support for therapists and enhance their ability to conduct therapy effectively. By consulting with other members of the team the therapist may find that they are able to consider the client's case from a fresh perspective, therefore not only enhancing their motivation, but also bringing about new solutions (Koons, 2008).

Telephone consultation. Telephone consultation with individual therapist is an important part of the therapeutic process. This mode allows the client to have contact with the therapist in time of crisis while simultaneously offering the client help in utilising skills in place of dependent behaviour (Linehan, 1993b). Some clients find it difficult to ask for help, and this treatment mode enables the client to practice overcoming both their fears in asking for help, and their maladaptive behavioural patterns. Additionally, the client is able to call the therapist in times of crisis and receive the coaching they need to negotiate a situation safely.

Telephone consultation serves four main functions; reducing suicidal/parasuicidal and other maladaptive behaviours, allowing clients to practice asking for help, learning to generalisation skills outside of the therapeutic setting, and provide additional stability and structure within the therapeutic relationship (Ben-Porath & Koons, 2005; Linehan, 1993b). Through collaborative problem-solving with the therapist the client can obtain the coaching needed for identification of appropriate skills to use in a problematic situation, successful skill generalisation, and renegotiation of situations that may be potentially harmful.

Core treatment strategies

DBT utilises both validation strategies and problem-solving strategies when attending to the dialectic of acceptance and change. When considering the application of DBT to treat concurrent BPD and SUDs it was believed that therapy would benefit from

additional specific treatment strategies (McMain et al., 2007). These additional strategies can be grouped into four categories: (1) attachment strategies, (2) using skills to cope with urges and cravings, (3) self-management strategies, and (4) dialectical abstinence (McMain et al., 2007).

Validation strategies. In DBT-SUD there is a clear emphasis on the role of the therapist in creating a safe, empathic, and compassionate therapeutic relationship and environment (Rosenthal, Lynch, & Linehan, 2005). Validation of the client's thoughts and emotions is crucial as the kinds of environments they were raised and continue to live in are typically undermining and harmful. Validation strategies within the DBT-SUD framework are comprised of several levels; (1) showing interest, listening, and observation, (2) accurate reflection and summaries of the clients thoughts and feelings, (3) aiding in articulating unverbilised emotions and thoughts, (4) expressing an understanding of the clients behaviour as a valid response to previous trauma and biological predispositions, (5) communication of the clients behaviour as normative within the current context, and (6) responding with genuineness and treating the client as an equal (Rosenthal et al., 2005; Swales et al., 2000). These strategies are implemented under the dialectical pole of acceptance and are crucial for treating clients prone to emotional lability, a prime example being BPD-SUD clients.

Problem-solving strategies. Problem-solving strategies are the primary intervention strategy set under the dialectical pole of change and focus on changing the client's maladaptive behavioural patterns (Rosenthal et al., 2005). Problem-solving strategies consist of chain analyses and solution analyses. A chain analysis is a detailed description of the specific event that centres on the intensity, duration, vulnerability factors, preceding events and consequences for maladaptive behaviour, such as self-harm, identified in from the diary cards. After collaboratively examining the dysfunctional links in the chain analysis, the therapist and client can then explore more adaptive behavioural responses that can be implemented if the behaviour should reoccur, and help the client understand the context and consequences of maladaptive behaviours and provide strategies to reduce their impact (Rosenthal et al., 2005).

Attachment strategies. Engaging clients in the therapeutic process is essential for successful treatment. Engaging those who suffer BPD or SUDs is difficult at best, when combined however, this difficulty is amplified. Linehan and colleagues (1999)

characterise some patients as “butterflies”, that is, they flit in and out of treatment, fail to attend sessions, and fail to respond to the therapist’s phone calls. There are numerous explanations for difficulties attaching to treatment, and in the case of individuals with BPD and concurrent SUDs problems such as unemployment, homelessness, chronic intoxication, and an inability to discuss substance use may influence their decision to stay in treatment.

As a result of these difficulties, DBT-SUD incorporates a number of attachment strategies aimed at engaging clients and facilitating successful treatment (McMain et al., 2007). The therapist begins by orienting the client to the butterfly problem, discussing any potential obstacles to engagement, identification of warning signs, and constructing plans for if they should happen. Next, the therapist should have as much contact with client as possible, especially in the early stages of treatment to establish a stronger therapeutic relationship and increase the client’s positive feelings regarding therapy. The third strategy is to provide therapy *in vivo* and taking the therapy session to the client. Adjusting the length of sessions and adding sessions may also be encouraging to the client as it can help manage crises that the client may not be able to wait a week to resolve. If a client becomes “lost”, the therapist is to pursue the client and actively seek to reengage them in treatment. Finally, it is important, due to the chaotic and exhausting nature of the illnesses, that therapists are provided additional support if they begin to feel demoralised. It is not uncommon for therapist to feel burnt-out during treatment, for this reason the entire treatment team is to attempt to reach the client if they miss three consecutive sessions (McMain et al., 2007).

Using skills to cope with urges and cravings. DBT utilises four core skill modules; core mindfulness, interpersonal effectiveness, emotion regulation, and distress tolerance. For substance abusing clients these skill sets are delivered in standard format, as per usual DBT protocol, the only exception being the addition of the mindfulness skill of Clear Mind. How these skills aid in treating urges and cravings are discussed below in the skills training section.

Self-management strategies. For most, chronic substance use can lead to a range of difficulties that impact of the individual’s personal life, including interpersonal relationships, finances, and time management (McMain et al., 2007). In order to be successful in treating addiction it is important to build a healthy lifestyle that supports the recovery process and reduces the factors that can lead to substance use. The term

self-management strategies describes a set of behavioural capabilities the client will need when attempting to acquire further behavioural skills. Self-management strategies are emphasised to aid the client in learning, generalising, and maintaining their new behaviours, and to help prevent negative behavioural change (Linehan, 1993a). Such self-management strategies include knowledge of principles of behaviour change and maintenance, realistic goal setting, environmental analysis and control skills, contingency management skills, relapse prevention plans, and the ability to tolerate limited progress (Linehan, 1993a).

Dialectical abstinence. DBT holds the view that to live a fulfilling and balanced life abstinence from substance use is the ultimate goal; however, abstinence may leave a client distraught if they relapse. The intense feelings that may be felt in response to this perceived failure can in turn create conditions for continued use. The dialectical stance on substance use stresses a synthesis of insistence on abstinence, and radical acceptance and problem-solving should the client relapse (McMain et al., 2007). Simply put, there is a push for abstinence in all substance use (change), while also emphasising that if a relapse should occur it does not mean the end of therapy (acceptance).

Skills Training

As discussed previously, individuals who suffer BPD or BPD traits often lack crucial self-regulatory and distress tolerance skills that are typically acquired when young. This lack of skills, coupled with the maladaptive beliefs learned through invalidating environments, may result in the individual exhibiting inappropriate behaviour when faced with distressing emotions. It is crucial that they learn and develop important emotion regulatory skills now as an adult in order to develop a life they view as worth living. The DBT skills training mode was designed to facilitate remediation of behavioural deficits.

When considering an individual's behavioural skills deficits from the dialectical view, it is important for the therapist to view these deficits as interrelated. While learning new skills may already be difficult for the individual, it is made even harder when the individual's environment does not actively support such an acquisition (Linehan, 1993b). As a result, the individual must not only learn the new skill set, but must also, with the aid of the therapist, shape a better environment in which this learning can take place. This is especially true when considering DBT for substance dependence.

Through experience Linehan found that delivering skills training in individual therapy sessions was exceptionally difficult due to the need for crisis intervention and other issues, leaving little time for skills acquisition. As a result, skills training is delivered separately (Linehan, 1993a). Clients are required to undergo each skills cycle twice (each taking six months to complete) in order to enhance the learning of skills. The skills training mode is a mandatory part of the therapeutic process, and is typically provided by two co-facilitators on a weekly basis for 2-2.5 hours. A group setting allows the client to interact with and learn from others who have the same difficulties, whilst also allowing the facilitators to view the clients' interpersonal behaviours (Robins, 2002; Soler et al., 2009). The group format is also beneficial in creating an opportunity for the client to learn how to negotiate being in a group (Linehan, 1993b).

In order to continuously challenge the client's passive problem-solving behaviour, therapists must emphasise the acquisition and practice of learned skills at every opportunity. This task is conducted through the use of three skills training procedures; (1) skills acquisition, the teaching of adaptive behaviours, (2) skill strengthening, fine-tuning skills by rehearsal and reinforcement, and (3) skill generalisation, using the skill in different relevant situations through homework assignments (Linehan, 1993b).

The skills training module focuses on four areas of skill improvement; core

mindfulness, interpersonal effectiveness, emotion regulation, and distress tolerance (Linehan, 1993b). These areas were constructed to represent the central dialectic in DBT theory, that of acceptance (core mindfulness and distress tolerance skills), and change (interpersonal effectiveness and emotion regulation skills). The modules of interpersonal effectiveness, distress tolerance, and emotion regulation are typically taught in eight week blocks. In contrast, core mindfulness skills are taught in 2-3 sessions, and are then reviewed and expanded on at the start of the other three modules (Linehan, 1993b). Each client will generally attend skills training for one year, resulting in each eight week module being taught twice, with core mindfulness skills being taught numerous times. For those presenting with SUDs the learned skills play a crucial role in the struggle for dialectical abstinence by exploring the factors that may increase their substance use (Robins, 2002).

Core mindfulness skills are central to the therapeutic process and are thus the first skills taught in addition to being threaded through the other three modules (Robins, 2002; Lindenboim, Comtois, & Linehan, 2007). These skills are heavily influenced by Zen philosophy and are behavioural translations of Eastern meditation practice which highlight three states of mind: reasonable mind, emotion mind, and wise mind (Linehan, 1993a). When in their reasonable mind, the individual is able to think rationally and with logic, plans behaviour, is able to focus their attention, and is able to problem-solve effectively. Emotion mind, on the other hand, translates to their behaviour being controlled by their emotional state meaning that logical thought is difficult and cognition is distorted. To be in wise mind means a synthesis of reasonable mind and emotion mind, to be mindful of emotional experience while thinking logically and analytically (Linehan, 1993b). The skills taught in mindfulness training aid the client in focusing their attention onto the activity of the moment, or, learning how to be in their wise mind (Lynch et al., 2006).

The concept of 'Clear Mind' was introduced for clients who present with comorbid SUDs, and is the goal of the substance use targets in addition to being the main prerequisite for Wise Mind (McMain et al., 2007). Clear Mind is in itself a dialectic: a synthesis of being clean (clean mind) and being conscious of the problems associated with addictive thoughts and behaviours (addict mind) (McMain et al., 2007). Substance abusing individuals will typically begin treatment when in their Addict Mind with their behaviour and feelings primarily being influenced by cravings and urges. As treatment progresses the individual will move on to a state of Clean Mind, where the individual has ceased using but may fail to comprehend the ever present danger of using again

(McMain et al., 2007). Finally, in Clear Mind the individual reaches Clean Mind but is also aware that Addict Mind may return at any time.

Within the core mindfulness module there are three “what” skills and three “how” skills (Linehan, 1993a). The “what” skills focus on the client learning to observe, describe, and participate (Linehan, 1993a). As an assumption of DBT is that impulsive and emotion dependent behaviour is characteristic of unawareness, the goal of these skills is for the individual to learn to participate in life with full awareness. The skill of observing concerns learning how to experience emotional and behavioural responses without seeking to end them, that is, how to experience without responding. The second “what” skill, describing, encourages the individual to describe in words both an event and any personal response. This skill teaches the individual not to only respond to emotions without considering the environmental stressor, by putting words to an event and emotions the individual can learn to master them. The final skill in this skill set is to learn the ability to fully participate in the current moment without self-consciousness, that is, how to participate in the moment without rumination. Through learning how to observe and describe experiences and behaviour the individual can reach the ultimate goal of mindful participation in life.

The other three mindfulness skills reflect on *how* an individual observes, describes, and participates. These skills include being nonjudgmental, acting one-mindfully, and being effective. The first skill, being nonjudgmental, translates to experiencing the world with a nonjudgmental stance, a feat that may be difficult for individuals with BPD. Individuals who suffer BPD typically tend to judge themselves and others with either idealisation or devaluation, that is, excessively positive or excessively negative (Linehan, 1993a). Instead, this skill teaches them to separate the facts and their feelings, and focus on the consequences of the event without judging or labeling the event. The second *how* skill encourages the individual to focus their attention on one task at a time. This skill helps the individual focus on the here and now in order to help the individual improve concentration. The last *how* skill, being effective, aims at reducing the individual’s tendency to attend to what is right in favor of what is needed at that particular moment and achieving goals (Linehan, 1993b). The goal is to focus on what works (or what is effective) for that situation without placing judgment on what is right or wrong.

Mindfulness skills are a crucial part of battling addiction. Learning how to observe and describe is essential in helping individuals negotiate their cravings and urges therefore reducing their vulnerability for relapse (McMain et al., 2007). By

understanding that urges and craving are a natural part of substance abuse, the individual is able to take a step back and view them in a nonjudgmental and effective manner.

The next module, that of *distress tolerance*, emphasises learning the ability to tolerate distressful feelings in a skillful way. Distress is an inevitable part of life that cannot be avoided, and the inability to accept this distress in itself leads to more pain. Learning to tolerate this pain and accept life as it is in the current moment is essential (Linehan, 1993a). The distress tolerance skills are a natural progression from mindfulness skills and are concerned with being able to tolerate crises and accept reality as it is in that moment. Four sets of crises tolerance strategies are taught; distracting, self-soothing, improving the moment, and thinking of pros and cons. Acceptance of reality skills include Radical Acceptance, Turning the Mind, and Willingness (Linehan, 1993b; Lynch et al., 2007).

When considering the case of substance abusing individuals, the emotion regulation skills emphasise reaching abstinence and maintaining it for life. The skill Radical Acceptance, which highlights the importance of letting go of fighting reality and accepting the situation, is of particular importance in the first stages of therapy as it aids stability and abstinence.

The *interpersonal effectiveness* module is very similar to the many assertiveness and interpersonal relationship classes taught these days. They focus on social skills, assertiveness training, and problem-solving, and include strategies that teach an individual how to achieve healthier interpersonal relationships (Linehan, 1993b). While individuals may possess the skills needed for good interpersonal relationships, difficulties may arise when applying these skills to specific situations. The goal of this module is to teach individual how to apply specific interpersonal and assertiveness skills in order to change maladaptive or harmful environments and help them achieve their interpersonal goals (Linehan, 1993b). Emphasis is placed on helping the client to obtain the interpersonal goals they wish for, maintaining a healthy relationship, and keeping self-respect (Linehan, 1993a). In sum, these skills teach the individual how to assert their own wishes, negotiate, say no, and gain self-respect (Lindenboim et al., 2007; Linehan, 1993b).

For individuals with SUDs, the primary goal of these skills is to help change the individual's environment so changes made during treatment can be maintained. Role plays are introduced in which the individual practices learning to say no to drugs when offered. In addition, these skills aid in reinforcing effective behaviour through rehearsal, and help acquire the support of loved ones in order to increase environmental support for

substance free behaviour, a powerful incentive for substance dependent individuals (McMain et al., 2007).

Highly labile individuals, such as BPD-SUD individuals, typically exhibit high levels of frustration, anger, and depression, and difficulties in controlling these feelings can be central to the manifestation of maladaptive behaviour (Linehan, 1993b). The core basis of the behavioural difficulties with which BPD and SUD clients present are likely to stem from their difficulties with emotion regulation. The skills in the final module, *emotion regulation*, were constructed as a way of helping the individual negotiate the urge to carry harmful behaviours, such as suicidal/parasuicidal and substance abusing behaviours, which they use to escape the painful emotions they feel (Linehan, 1993b). Specific skills are utilised in an effort to target aspects of the emotional system (Chapman & Linehan, 2005). Like all other skills modules, emotion regulation skills require the application of mindfulness. Learning to identify and label emotions is the first step in regulating emotions, and requires the ability to observe one's responses and describe the context of the emotion without judgment (the application of mindfulness to the situation). The following skills of identifying obstacles to changing emotions, reducing vulnerability to "Emotion Mind", increasing positive emotional events, increasing mindfulness to current emotions, and taking opposite action allows for and understanding of the nature of emotions in addition to increased emotional stability (Linehan, 1993b).

Emotion regulation skills are essential in combating substance abuse behaviour. As many substance abusing individuals decide to use when faced with difficult emotions, there is a heavy emphasis on such skills as "Opposite Action" (acting in a way that is inconsistent with the emotion) and "PLEASE" (treating physical illness, eating, avoiding drugs, sleeping, exercising) to help patients change the emotion by changing the associated action, and attend to pain and other such vulnerabilities (McMain et al., 2007).

Literature review

Since the development of DBT, a handful of studies have sought to explore the efficacy of DBT for the treatment of BPD as compared to a treatment as usual (TAU) control group. These studies have shown some success. Linehan and colleagues (1991) conducted the first outcome study evaluating the effectiveness of DBT as a treatment for chronically suicidal women diagnosed with BPD. A total of 22 women were assigned to the DBT, another 22 to the treatment as usual (TAU) group. Treatment lasted 12 months, and patients were assessed every four months. Results identified a significant reduction both the prevalence and medical severity of self-harming behaviour, reductions in suicidal ideation, reductions in the number of days in spent in inpatient psychiatric services, and lower rates of drop-out for those in the DBT group as compared to TAU.

Following the publication of these results and follow-up studies (Linehan, Heard, & Armstrong, 1993; Linehan, Tutek, Heard, & Armstrong, 1994), there has been increased interest in DBT as a treatment for severely dysfunctional BPD sufferers. Research has since sought to replicate the original findings with results supporting the effectiveness of DBT (Koons et al, 2001; Linehan et al., 2006; Turner, 2000; Verheul et al, 2003). The findings of these studies also identified reductions in the prevalence and medical severity of self-harming/suicidal behaviour, inpatient psychiatric hospitalisations, in addition to increased treatment retention, increases in global and social functioning, and improvements in levels of depression.

After attaining some evidence as a treatment for BPD, research rapidly began to explore the effectiveness of DBT with different behavioural problems, including binge eating (Telch, Agras, & Linehan, 2001), bulimia (Safer, Telch, & Agras, 2001), depression in the elderly (Lynch, Morse, Mendelson, & Robins, 2003), and substance use (Linehan, Schmidt, Dimeff, Craft, Kanter, & Comtois, 1999; Linehan et al., 2002). The results of these studies indicate that the treatment can be beneficial for a range of disorders whose problems lie with pervasive behavioural difficulties.

Research on DBT for SUDs

The decision to utilise DBT with individuals presenting with comorbid BPD and SUDs was a result of a number of factors, including the emphasis in general mental health on overcoming addiction before the treatment of other difficulties (McMain et al., 2007). For many individuals, particularly those with comorbid SUDs and BPD, their

substance use may be tied into their difficulties in emotion regulation and can be used as a coping strategy. As a result, there has been a move to highlight the importance on integrative approaches to treat comorbid disorders.

When considering the high rates of comorbidity between BPD and SUDs Linehan sought to adapt DBT for substance-dependent individuals in an effort to treat both SUDs and BPD concurrently. This adaptation was further influenced by the success of DBT in treating the impulsive behaviours commonly found in both BPD and SUDs, particularly self-harming/suicidal behaviours. It was proposed that DBT could effectively treat maladaptive behaviours in multidisordered individuals who were not responding well to standard treatment (Linehan et al., 1991).

The notion that an individual's substance use may be the result of an inability to effectively regulate emotions has long been empirically supported (Kushner, Sher, & Beitman, 1990). Research has begun to examine the effectiveness of DBT with a BPD-SUDs population and a solid evidence-base is emerging in support of the use of DBT in the treatment of these two disorders.

To date only a handful of studies have examined the effectiveness of DBT as a treatment for BPD and comorbid SUDs. Linehan and colleagues (1999) conducted the first study that sought to examine whether DBT would be an effective treatment for 28 women in reducing their substance related behaviour. The women, who presented with both SUDs and BPD, were placed into either DBT ($n = 12$) or a TAU control group ($n = 16$) for 12-months of treatment. The majority of these women were polysubstance users (74%), with the most widely used substances being identified as cocaine (58%) and alcohol (52%). Participants also met diagnostic criteria for at least one other psychiatric disorder, the most common being Major Depressive Disorder (50%). Participants were assessed at 4, 8, and 12 months, and again at 4 months post-treatment. Results indicated that those within the DBT group showed significantly larger reductions in their substance use over the course of treatment and at follow-up than those in the TAU group. In addition, DBT was more effective in reducing treatment drop-out than the control group (63% and 27% respectively), and had significantly greater improvements in global and social adjustment at follow-up. However, although the assessment procedures were thorough, the sample size of only 12 in the DBT treatment group has the potential to limit statistical power when detecting small effects.

In a study similar to Linehan and colleagues (1999), Dimeff and colleagues (2000) sought to examine the effectiveness of DBT in reducing substance and self-harming related behaviours while also describing modifications made to DBT for use with SUDs

clients. This uncontrolled study evaluated a 12-month trial of modified DBT for three methamphetamine dependent women with a comorbid BPD diagnosis. Results indicated reductions in participant's suicidal/self-harming behaviours and an increase in their global functioning. In addition, two of the three participants completed treatment, achieved abstinence by six months, and maintained that abstinence six months post treatment. Despite these promising results, similar to Linehan et al.'s work (1999), the very small sample size of three participants, with only two participants completing treatment, makes generalisation of the findings difficult.

In a later study that targeted a more specific population of substance abusers Linehan and colleagues (2002) examined the efficacy of DBT with 23 opiate dependent and BPD women. Participants were randomly assigned to either 12 months DBT ($n = 11$) or the newly developed Comprehensive Validation Therapy with 12-step meetings (CVT; $n = 12$). Created for the purposes of this study, CVT is a manualised therapy that includes the acceptance-based treatment strategies employed in DBT in addition to participation in a 12-step programs. Participants' drug use was measured over the course of treatment, primarily through the urinalyses, to gauge if these treatments aid in reducing use. Three key findings were revealed. Firstly, results of the urinalyses indicated that both treatment groups were effective in reducing participants' opiate use, however, the DBT treatment group maintained drug use reductions over the 12 months of treatment while those in the CVT group significantly increased their use in the last four months of treatment. In explaining these results the authors suggest that gains made through a treatment such as CVT that focuses solely on validation without emphasising behavioural change may not be maintainable in the long-term. Secondly, with regards to retention rates, the results showed that while CVT retained all participants in the trial, DBT only had a 64% retention rate. No definitive explanation was given for this finding; however, the authors did state that this was a likely result of the therapists' difficulty in understanding the perspective of the client. Finally, at post-treatment and 16-month follow-up both treatment groups showed statistically significant reductions in their level of psychopathology, including psychosocial adjustment and parasuicidal behaviour.

The results of this study suggest that validation strategies may play a part in the treatment of drug use, but these strategies should be balanced with an emphasis on behavioural change. However, the authors' restriction in this study to only opiate dependent participants makes generalisation of the findings difficult. In addition, reflecting the previously mentioned studies, a larger sample size may have strengthened the results.

In the first replication study with SUDs and BPD women outside of Linehan's team, Verheul and colleagues (2003) randomised 58 women both with and without SUDs to either one year of DBT ($n = 27$) or one year TAU ($n = 31$). As an objective of this study was to assess standard DBT in the treatment of SUDs the authors did not employ the modifications for use with substance-dependent clients, and therefore did not specifically target substance use behaviour. Results indicated that DBT was more effective than TAU in reducing treatment drop-out, and reducing the frequency of suicidal and self-harming behaviour including alcohol abuse, however, there were no differences with regards to other substances. Further findings on this research reported by van den Bosch and colleagues (2002) suggest that while standard DBT is effective in reducing self-harm in the BPD-SUDs population, there appears to be no difference to TAU in reducing substance-related behaviours. The limited improvement made by patients with regards to their substance use may be the result of such behaviour not being directly targeted in standard DBT treatment. These findings may support the use of employing modified treatment strategies when working with substance-dependent patients.

In another independent evaluation of DBT, one that included substance-related modifications, McMain et al. (2004; as cited in McMain & Ellery, 2008) randomised 27 women who met criteria for both BPD and SUDs to either DBT or a TAU control group. When examining alcohol use, results indicated a significant decrease in the severity of use over the course of treatment. In comparison, the scores of the TAU group revealed no significant changes in alcohol use severity. The results also indicated that while both treatment groups showed improvement in the use of other substances, DBT participants showed greater reductions in the initial stages of treatment and TAU participants showed overall greater improvement in substance use. Similar to Verhuel and colleagues (2003), these findings indicate that DBT was specifically more beneficial for use with maladaptive alcohol use.

Together the results from these studies suggest that the implementation of DBT for BPD and SUD patients may be beneficial in reducing substance use, and advantageous in improving behavioural difficulties such as impulsivity and suicidal/self-harming behaviour, whilst also increasing treatment retention. However, there are some limitations in the research to date. All studies have so far included relatively small sample sizes which may limit the ability to generalise the findings to the wider population. The strict criteria listed in previous research that has seen those patients presenting with such difficulties as bipolar disorder and psychosis being excluded from

these trials (Linehan, et al., 1999; Linehan et al., 2002; Verheul et al., 2003). Although these selection criteria may serve to control for possible complications, it may not be an accurate reflection of the wider BPD population. Another limitation apparent throughout the literature is the lack of males being included in the trials with the focus being almost exclusively on female participants. While the disproportionate number of female to male BPD patients may be the rationale for the lack of males represented in the research, males can and do present with this debilitating disorder (Preuss et al., 2009). Finally, the possibility of differences between therapists for DBT and TAU conditions makes it hard to rule out therapist factors, such as treatment adherence, when examining the effectiveness of each treatment.

Research on DBT skills use

Researchers have speculated that DBT's continued effectiveness as a treatment for individuals suffering pervasive difficulties in living may stem from its multicomponent approach (Linehan, Bohus, & Lynch, 2007). In recent years research has begun to evaluate which of the many components within DBT may have the most impact on client improvement, with the effectiveness of the skills group mode increasingly becoming of interest.

A handful of studies have examined the role of standard or modified DBT skills training alone with some success in improving treatment drop-out, anger, depression, hopelessness, and reducing BPD features (Iverson, Shenk, & Fruzzetti, 2009; Soler et al. 2009). However, few studies have examined skills utilisation as delivered within the larger DBT programme.

In their study on the role of skills use in DBT, Miller and colleagues (2000) examined participant perception DBT skills, with a sample of 27 suicidal adolescents with BPD or BPD features. Using pre- and post-treatment evaluations of the 12 week programme, the study explored participant perception of the helpfulness and effectiveness of 22 DBT skills. The results suggested that the modules of distress tolerance and core mindfulness were the most effective, due to participants identifying one distress tolerance skill and three core mindfulness skills as the most helpful during treatment. Results indicate a statistically significant reduction in overall BPD features, as measured by the structured clinical interview for DSM-III-R personality disorders (First, Spitzer, Gibbon, & Williams, 1995). However, despite exploring the perceived utility of DBT skills, the actual use of skills was not examined leaving it unknown whether actual skills use

reflected those skills identified as most helpful. In addition, as the study centred on an adolescent treatment sample, the results may not generalise to an adult treatment sample such as the one in the current study. Furthermore, the treatment programme ran for only 12 weeks, less than a quarter of the full treatment year.

In a similar study, Lindenboim and colleagues (2007), in their examination of DBT skills use and homework compliance, explored the type and frequency of skills utilisation for 49 women, who met criteria for BPD and current chronic suicidal behavior. Participants engaged in 12 months standard DBT, and skill use was recorded using the diary cards completed every week. Results indicated that participants reported practicing skills most days throughout treatment. In addition, results also identified an increase in the number of skills used by participants over the course of treatment. Results showed that the skills modules of Core Mindfulness and Distress Tolerance were reported as the most utilised by participants and the Interpersonal Effectiveness module the least. A strength of the study was the very thorough examination of skills use. Every day in the treatment year was examined in addition to each individual skill. This approach allowed for a detailed account of participants skill use over the course of treatment. However, despite promising findings and a thorough approach, the study was heavily reliant on participants self-report for data, making it possible that some individuals may have over-reported or under-reported their skills use. Furthermore, the authors chose to exclude those potential participants who presented with such difficulties as bipolar disorder and psychosis, or the need for treatment for another debilitating condition. While this may be convenient for research purposes, it may not accurately reflect the wider population of those within DBT programmes in the wider community. Also, while the sample size was adequate, the majority of the sample was Caucasian (85.7%), making it difficult to generalise results of this study to other ethnic groups.

Also heavily reliant on participant self-report for data was the work of Stepp, Epler, Jahng, & Trull (2008) who examined the impact of skills utilisation on BPD features for 27 outpatients (23 female, four male) at a university-affiliated community mental health clinic. Both BPD features and skills utilisation were measured. Results identified an increase in the participants' use of skills over the course of treatment. Similar to the findings of Lindenboim and colleagues (2007), the Core Mindfulness and Distress Tolerance skill modules were the most practiced, which, as the authors expected, resulted in significant reductions on the Identity Problems and Self-Harm subscales. Results also identified significant reductions in BPD features on the PAI-BOR. When gender was added as a covariate, a significant reduction in the Negative Relationships

subscale, intended to be addressed by interpersonal effectiveness skills, was also noted. While this study was the first to examine skills use in a community outpatient setting, the relatively small sample size had the potential to limit statistical power to detect small effects.

Although this research has supported the effectiveness of DBT skills, little research had been conducted to determine if an increase in skills use has an effect on treatment outcome. To address this, Neacsiu, Rizvi, and Linehan (2010) examined the role of DBT behavioural skills use in improving treatment outcome of suicide attempts, non-suicidal self-injury, anger, and depression. In a study that combined three previous research studies, the authors examined the skills use of 108 women (54 DBT, 54 control treatments) who met criteria for BPD and completed 12 months of treatment. Participants completed the DBT Ways of Coping Checklist, the Suicide Attempt and Self-Injury Interview, the Hamilton Rating Scale for Depression, and the State-Trait Anger Expression Inventory in order to assess changes over the course of treatment. Results indicated those in DBT used three times more skills than those assigned to the control treatment. In addition, DBT skills use fully mediated the decrease in suicide attempts in addition to mediating change in levels of depression and anger, and partially mediated reductions in nonsuicidal self-harm over time. These findings provide further support for skills training as an active part of the behavioural change process in DBT.

Together, the findings of these studies extend the research on DBT by examining a particular component of the treatment, namely skills use. The findings suggest that skills utilisation in general increases over the course of treatment. In addition, the research has consistently identified Core Mindfulness and Distress Tolerance as the most used and most helpful skills modules, and Interpersonal Effectiveness the least. Furthermore, the representation of both research settings and community settings allow a measure of generalisation of the findings across treatment settings. The findings also suggest that skills use may be related to reductions in BPD features, aiding in reducing symptoms. Future research might benefit from exploring the role of each of the three other treatment modalities, in addition to their effect on skills use. Also, research would benefit from examining the effect of skills use in populations other than BPD, such as SUDs.

Despite the recent research into both DBT for SUDs and DBT skills use, to this author's knowledge no research has looked at DBT skills use for a BPD-SUDs population. While research has started to identify which skills and modules are most used with BPD clients, additional research is needed to explore which skills are the most used and beneficial with a SUDs population.

The Current Study

Rationale

Research has provided some empirical support for the effectiveness of DBT with a SUDs population in reducing substance-related behaviours, medical and psychiatric admissions, and suicidal/self-harming behaviours (Dimeff et al., 2000; Linehan 1999, 2002; Verheul et al., 2003).

Furthermore, research has also begun to explore which DBT components may have the most impact on positive treatment outcome with the skills group mode becoming increasingly of interest. Skills use has been indicated as a mediator in decreasing BPD features/traits, suicidal/self-harming behavior, suicidal ideation and action, and levels of depression and anger (Harley, Baity, Blais, & Jacobo, 2007; Neacsiu, Rizvi, & Linehan, 2010; Stepp et al., 2008). While research has also begun to explore whether skills use increases over the course of treatment, and which skills modules and skills are utilised most often by those in treatment (Lindenboim et al., 2007; Stepp et al., 2008), to the author's knowledge no such research exists examining the utilisation of skills use with a SUDs population. There also appears to be no published research exploring DBT skills use in New Zealand. The current study seeks to address these two specific gaps in the literature.

Aims

The overall aim of this study was to explore clients' skills use in a SUDs and BPD-trait population undergoing DBT treatment in an alcohol and drug treatment service setting. Additional aims focused on how effective the treatment package was as a whole in reducing clients' substance use. Descriptions of the aims are as follows:

1. Exploration of skills use:
 - Determine if skills use increased over the course of treatment.
 - Determine which skills are used the most.
 - Determine which skills modules are used the most.
2. Determine if there is a reduction in reported substance use days and substance use urges over the course of treatment.

Chapter 3: Research Design and Method

Clients

A total of 19 clients enrolled in the programme, 15 females, and four males. Of these 19, five clients dropped out of the treatment process. In addition, one client, although having completed treatment, was excluded from data analyses due to insufficient data. This left a study sample of 13, 11 females and two males. None of those clients who dropped out of treatment were lost for substance use reasons. A demographic description of clients who completed 12 months treatment is provided in Table 1.

Client age ranged from 20 to 58, with the mean age being 37.5 ($SD = 10.3$). The majority of clients were NZ European (61.5%), followed by European (23.1%), Pacific Islander (7.7%), and Other (7.7). In terms of the primary SUDs diagnosis, 12 clients had a diagnosis of Alcohol Dependence (92.3%), and one with Cannabis Dependence (7.7%). In total, four clients presented with more than one substance of dependence, with these diagnoses being Cannabis Dependence, Opioid Dependence, and Benzodiazepine Dependence. All but one client had at least two diagnoses, including their SUDs diagnosis, and eight clients (61.5%) presented with three or more comorbid diagnoses, a common occurrence with SUD diagnoses (Skinstad & Swain, 2001). The most common comorbid non-SUD diagnosis was MDD (69.2%; $n = 9$), and six clients (46.2%) met full diagnostic criteria for BPD.

Clinician training

A group of 10 clinicians administered the therapy sessions. Of these clinicians eight had completed 12-days intensive training through BehaviorTech; 10-days standard DBT training and two days specialised training in DBT for addictions. The remaining two clinicians had received post-graduate training in psychology and received DBT training at the commencement of the DBT programme.

Table 1. *Patient Characteristics*

	Prevalence			
	M	SD	N	(%)
Age	37.5	10.3		
Gender				
Female			11	85.6%
Male			2	15.4%
Ethnicity				
NZ European			8	61.5%
European			3	23.1%
Pacific Islander			1	7.7%
Other			1	7.7%
Marital status				
Single			9	69.2%
In a relationship			4	30.8%
Work status				
Not working			8	61.5%
Working			5	38.5%

Procedure

All clients in this sample presented at the Community Alcohol and Drug Service (CADS) North seeking treatment for substance dependence. The CADS North facility provides government funded treatment targeting alcohol and drug problems in the North Auckland area. The service provides a number of therapy options for those with maladaptive substance use, including that of their DBT programme. As per CADS North standard intake procedure, upon entry into the service clients were administered a range of psychometric measures in order to gauge their treatment needs. These measures included the Alcohol and Drug screening assessment form which included the Alcohol Use Disorders Identification Test, Leeds Dependence Questionnaire, Severity of Dependence Scale, and an assessment of risk. Upon being accepted into the service clients were allocated a primary counsellor. Those clients, who exhibited significant difficulties in regulating their emotions as noted by their primary counsellor, were approached regarding potential enrolment in the DBT treatment programme.

Inclusion criteria for entry into the DBT programme consisted of a 12-month commitment to treatment signed contract, a SUD diagnosis, and BPD related trait criteria. Unlike previous studies, no formal BPD diagnosis was required for

programme inclusion, however, clients were required to present with BPD related traits present in three areas; (1) interpersonal difficulties, that is, a pattern of unstable relationships and a lack of assertiveness, (2) emotional difficulties, that is, high reactivity/hypersensitivity and difficulties in emotional management, and (3) behavioural difficulties, that is, impulsive behaviour and suicidal/self-harm acts and urges. Unlike many previous studies, there were no restrictions made with regards to comorbid diagnoses, and both male and female clients were accepted into treatment. If inclusion criteria were met, and the client expressed a willingness and commitment to engage in DBT, they were admitted into the programme. The DBT programme at CADS North incorporates all the core elements of standard manualised DBT in addition to the modifications for use with a SUDs population, including attachment strategies, skills to cope with urges, self-management strategies, and dialectical abstinence.

Enrolment into the DBT programme at CADS North is on an “as needed” basis. The programme itself can be considered “rolling” in that clients can join at any stage of the programme, and graduate after 12 months. This may mean that a client joins at the start of the Distress Tolerance module, a module usually taught later in the treatment process, but will still complete the requisite 12 months of treatment. As a result both enrolment and completion of the DBT programme was staggered, taking place between April 2009 and November 2011, allowing for data from a sufficient number of clients to be gathered. Client demographic and diagnostic data was collected at service admission, including gender, age, marital status, employment status, and comorbid psychiatric/medical diagnoses.

All clients in this treatment sample received 12 months of DBT treatment. The skills training group consisted of two hours of weekly skills training which included the teaching of all skills, rehearsal of skills, feedback, and homework. In addition, clients received an hour of individual therapy every week with their primary therapist to enhance skills generalisation and management of crises.

Client daily skills use was recorded on the diary cards in order to identify which skills were being utilised by the clients, which modules were being utilised the most, and if skills use increased over the course of treatment. Client substance use was measured through self-reported days of use. Diary cards were collected each week by the therapist at the start of each individual therapy session.

Data collection and analysis on client skills use and substance use was conducted by the student researcher using client DBT skills diary cards and the Brief Treatment

Outcome Assessment forms following ethical approval from Waitemata District Health Board and the Massey University Human Ethics Committee (MUHECN10/003).

Measures and scoring methods

Substance Use. Substance use was calculated by summing the total number of client reported days of substance use, as identified on the diary cards, from day one of the programme to the last day of the sixth month (Time 1), and again from the first day of the seventh month until the last day of the programme (Time 2), giving a client substance use total for each of the two time periods. As the skills group takes approximately six months to complete one cycle of each skills module, it was hypothesised that upon cessation of the first skill module cycle at the end of the sixth month patients would possess an increased behavioural repertoire with which to manage their substance use and substance use urges.

Diary Cards. Clients reported skills use was assessed by using diary cards. The diary card used in this study lists the 28 skills taught during treatment (see diary card in Appendix). The 28 skills listed on the diary card consisted of seven core mindfulness skills, seven interpersonal effectiveness skills, seven emotion regulation skills, and seven distress tolerance skills. For each day of the week the client was to identify which skills they practiced that day regardless of whether the skills helped or not. The weekly diary card also allowed for a range of other information including the recording of the clients' daily substance use and substance use urges.

Scoring Methods. Information on client skills use was gathered from clients' diary cards collected by the therapist each week. As the diary card gives the option of rating daily skills use according to a 7 point scale, for ease of coding the responses were simplified into dichotomous variables, that is, daily skills use was classed as either practice (coded as 1) or no practice (coded as 0) for each skill on each day.

Clients who attended a therapy session without a completed diary card were asked to complete the card with as much data as they could recall on substance use and behavioural targets in session, however, not necessarily skills use, leaving the skills portion of the form mostly blank and creating missing data.

Despite best efforts to collect diary cards and substance use data, attainment of

these recordings was not always possible and, due to missed or cancelled therapy sessions, some cards were missing and not available for collection. In these instances, as it was unclear whether clients had practiced skills that week, these cards were scored as “missing”, meaning they would be unavailable for analysis. Those cards that were present but the entire skills section was blank, either due to non-practice of skills or inability to recall information, were coded as “no practice”, that is, no skills practiced that week. While this method would give a very conservative estimate of skills use, it was hypothesised to be the best method to employ due to the ambiguity of some diary cards.

Data collection

In order to explore client skills use, the student researcher collected every completed diary card available for each client. At the bottom of each diary card the individual skills and days of the week are listed. The client records their skills use by placing a tick or a rating score in the appropriate area. As a result, in this study there are 196 potential data points (seven days, and 28 skills) on each card (maximum of 52 cards) for each client (13). This amounts to a maximum of 132,496 data points being entered. To manage the large amount of data produced by this study all cards were input into Microsoft Excel spreadsheets for ease of use. The total number of skills practiced per day, as indicated on the diary cards, was recorded. The data on clients' reported substance use was collected in a similar way. The number of substance use days, as indicated on the diary cards, was collected and tallied for each half of the 12 month treatment period (Time 1, the first six months, and Time 2, the second six months) in order to measure potential reductions in use. In addition, clients' daily substance use urges were also collected from the diary cards.

Data analysis

This study used several quantitative statistical analyses to evaluate hypothesised differences in clients' utilisation of learned skills and substance use. Data was categorised into daily time periods for learned skills, and Time 1 and Time 2 for substance use. In relevant analyses, statistical significance was tested at the $p < .05$ level. Data was analysed using SPSS Statistics 19. The primary methods of data analysis were Empirical Growth Plots, t-tests, and Pearson's correlation. Pearson's

correlations were chosen instead of Spearman's correlations to examine relationships due to the variables under examination being interval data, continuous in nature, and having an assumed linear relationship. Only those clients who completed the 12 month treatment were included in data analysis. Tests of Kurtosis and Skewness conducted for each variable under analysis indicated normally distributed data.

Applied Longitudinal Data Analysis. As the primary aim of this study was to explore potential changes in clients' skills use over time, and the collected data was both longitudinal in nature and consisted of multiple waves, it was decided that the data would best be analysed through the Applied Longitudinal Data Analysis (ALDA) method (Singer & Willett, 2003). ALDA methods were employed as Empirical Growth Plot's (EGP) to provide a descriptive analysis of within-person change and between-person differences over time. Descriptive analyses help to reveal "the nature and idiosyncrasies of each person's temporal pattern of growth" (Singer & Willett, 2003, p. 23). An EGP is a method that plots each wave of data, or measurement, on a graph allowing for the simplest way of visualising client change over time. A strength of the ALDA technique is that it allows for missing data, which was appropriate for this study as there were missing diary cards. In addition, Pearson's correlations were used to model skills use as a function of time in treatment. These methods allowed for measurement of the potential relationship, the strength of the potential relationship, and intra- and inter-individual differences.

Chapter 4: Results

Diary card compliance

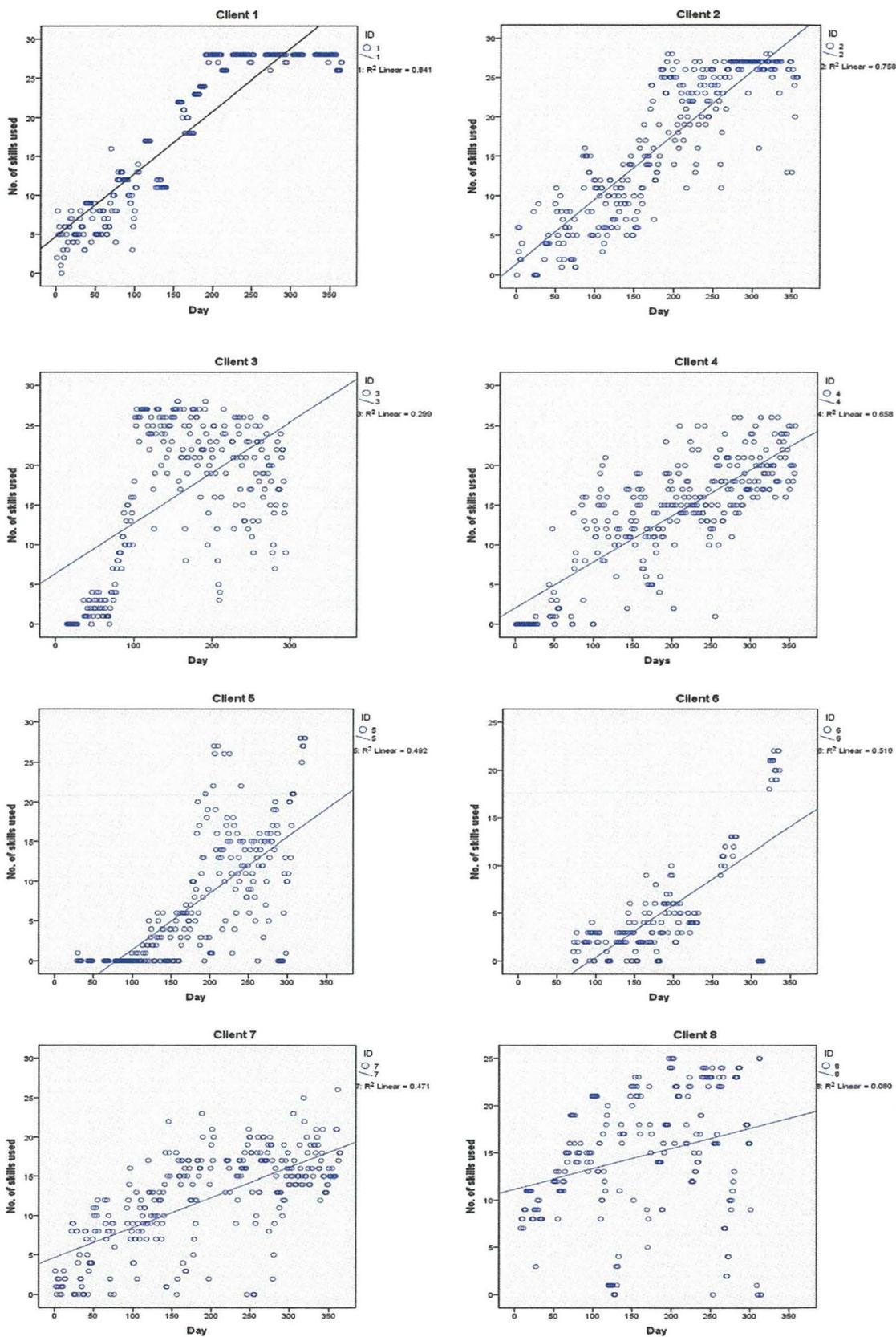
All 13 clients in this study completed the full 52 weeks of DBT treatment. On the whole, compliance with weekly diary cards was as expected for a naturalistic study. The average number of diary cards completed was 37.2 ($SD = 7.8$), meaning that 71% (or 257 days) of time in treatment was accounted for. The lowest number of completed diary cards was 24 (46%), and the highest was 45 (86%).

Skills use over time

One aim of this study was to examine whether clients use of skills would increase over the course of treatment. The average number of skills used per day across clients was calculated for Time 1 and Time 2. A paired samples t-test was conducted to investigate potential differences in skills use between these two time periods. Results indicated a statistically significant difference in the number of skills used per day between Time 1 ($M = 8.43$, $SD = 3.64$) and Time 2 ($M = 17.29$, $SD = 2.60$) of treatment; $t(181) = 41.3$, $p = .00$. The results suggest a statistically significant increase in daily skills use between the first and second halves of treatment.

Next, as per the ALDA methods described in data analysis section, 13 EGP's were constructed to represent each client's growth pattern of skills use over the course of treatment (Figure 1). These graphs plot the total number of skills used across each day of the treatment. The growth trajectory of each client was then calculated using the line of best fit. In addition, for ease of illustration, the entire set of client growth trajectories were plotted on a single graph (Figure 2). Examination of the individual EGP's in Figure 1 identified some variation between clients with regards to their skills use over time. The graphs indicate an increase in skills use as the number of days in treatment increased. Looking at the quality of fit for each client, they ranged from a low of 8% and 9% for clients eight and 11 respectively (whose lines of best fit are relatively flat and the data scattered) to a high of 84% and 80% clients one and 12 respectively (whose data is concentrated around the line of best fit, and show the most rapid rate of growth).

Figure 1. Empirical growth plots



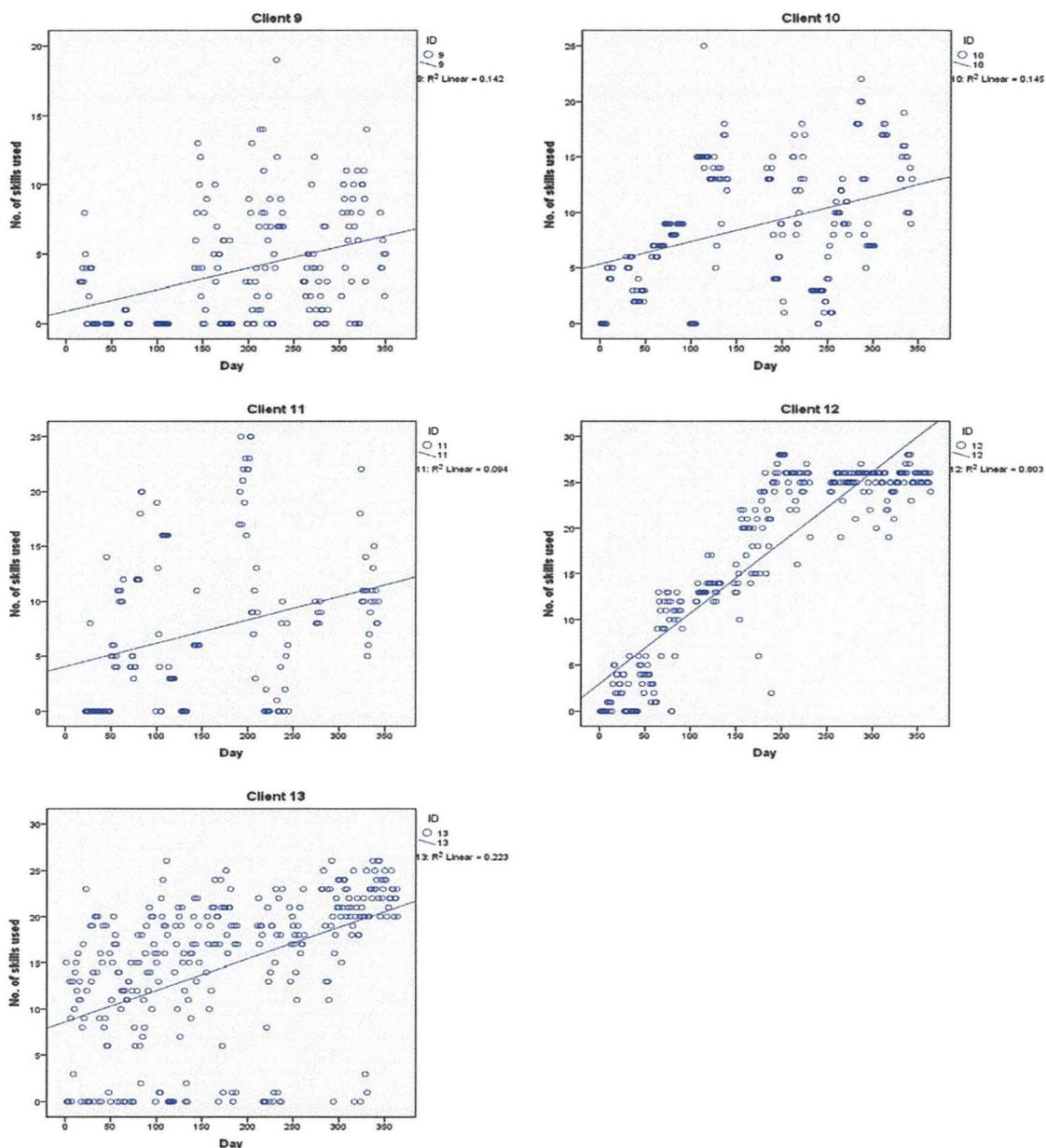
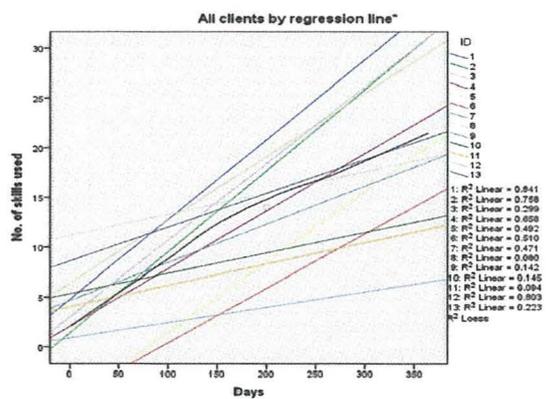


Figure 2. The growth trajectories of all clients



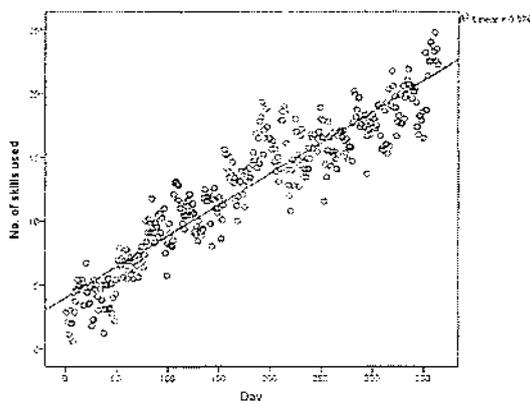
As Figure 2 suggests, when looking at the entire set of growth trajectories there is a definite linear relationship between skills use and days in treatment, however, there is also some variation in this relationship between clients. This may likely suggest that some clients made and sustained a larger increase in skills use than others.

In order to further understand skills use, the relationship between the total number of skills used and days in treatment was explored. The number of skills used across clients per day was averaged to give a total score of skills used for correlation with days in treatment to examine whether these two variables covaried, and measure the strength of any potential relationship. It was hypothesised that skills use would increase as a function of days spent in treatment. The results of the Pearson's correlation suggest a moderate but statistically significant positive correlation between these two variables ($r = .55, p = .00$). This is a fairly moderate correlation as it indicates a total of 30% ($r^2 = .30$) of variance for skills use was explained by the variance of days in treatment. These findings supported the hypothesis and indicated that as the number of days spent in treatment increased, the average number of skills used per day across clients also increased.

Furthermore, to examine this increase in skills use in more detail, skills use at Time 1 ($M = 8.43, SD = 3.64$) and Time 2 ($M = 17.29, SD = 2.60$) were then correlated with days at Time 1 and Time 2 (both $M = 91.49, SD = 52.68$) respectively. These correlations were conducted to explore whether the identified increase in skills use remained consistent throughout the course of treatment. Results of Pearson's correlation identified a very strong positive correlation between skills use and days in treatment at Time 1 ($r = .91, p = .00$), indicating a statistically significant relationship between the increase in skills use, and the increase in days in treatment. The second Pearson's correlation, that of skills use and days in treatment at Time 2, also identified a strong positive relationship ($r = .67, p = .00$), indicating that, although the rate of change at Time 2 may have slowed slightly, skills use was maintained throughout the course of treatment.

Next, an additional graph was plotted using the mean number of skills used as a function of days in treatment, with line of best fit added, to illustrate this increase in skills use across clients (Figure 3).

Figure 3. Mean number of skills used for all clients



Together, the findings support the notion that clients not only acquired skills, they also reported increased use of these skills, and maintained that use over the course of treatment.

Frequency of skills use

Another important aim of this study was to explore the variety and frequency of skills used by clients. Across all clients the average number of skills used per day was 12.8 ($SD = 8.91$; 46%), with skills use increasing from Time 1 ($M = 8.45$, $SD = 3.64$; 30%) to Time 2 ($M = 17.28$, $SD = 2.60$; 61%). The relatively large standard deviations for these results may suggest variability between clients in their skills use.

To identify which skills were used with the most frequency, all 28 skills were averaged across clients to produce a total average number of days each skill was used over the course of treatment. Table 2 displays the average days of use per skill, in addition to the percentage of time these averages equate to presented in descending order according to rate of practice. As the table indicates, there was marked variation in use between the 28 skills. The skill of “Wise Mind” was the most frequently used skill, being used on average 184.2 days ($SD = 72.2$; 51%). In contrast, the skill of “TIP” was used the least, being used only 40.6 days ($SD = 63.1$; 11%). The top six skills most frequently used were all skills from the core mindfulness module.

Next, the average number of days each skill module was used was calculated. These results suggest some difference in use between skills modules (Table 3). The most frequently used module was core mindfulness, being used 161.2 days during treatment ($SD = 75.1$; 44%), followed by emotion regulation ($M = 115.2$, $SD = 81.7$; 32%), distress tolerance ($M = 104.7$, $SD = 79.1$; 29%), and finally interpersonal effectiveness ($M = 89.5$, $SD = 69.2$; 25%).

Table 2. Mean number of days skills were used over treatment by skill^a

Module ^b	Skill	Skill Definition	M. days used		
			M ^c	SD	(%)
CM	Wise Mind	Synthesis of emotions and reason	184.2	72.2	51%
CM	Observe	Observe the experience without describing	183.2	74.5	50%
CM	Describe	Describe the experience with words	170.5	79.6	47%
CM	Participate	Enter into the experience	168.1	74.2	46%
CM	Effectiveness	Focus on what works	167.4	72.4	46%
CM	One-Mindfully	Focus on the present moment	144.0	78.7	40%
ER	Mindfulness of current emotion	Focus on emotions of the experience	143.9	83.7	40%
IE	Attend to relationships	Focus on what is needed in relationships	139.9	73.5	38%
DT	Mindfulness of current thoughts	Focus on thoughts of the experience	136.9	81.6	38%
DT	Distract/self-soothe/improve the moment	Reducing contact with the stimulus, soothe the senses	130.9	76.9	36%
ER	Describing emotions	Describe the emotion with words	125.4	81.0	34%
DT	Half-smiling	Adopting a serene facial expression	122.0	96.3	34%
ER	Opposite-to-emotion action	Acting in a way inconsistent with emotion	120.5	92.8	33%
DT	Willingness	Doing what is needed in the situation	118.6	76.7	33%
ER	PLEASE	Treating physical illness, eating, avoiding drugs, sleeping, exercise	115.1	74.9	32%
ER	Build mastery, cope ahead	Completing a goal, drawing up a plan to cope with the situation	112.3	90.0	31%
CM	Non-judgmental	Not judging as good or bad	110.1	62.6	30%
ER	Accumulate positives	Increasing positive experiences	101.3	72.5	28%
DT	Radical acceptance	Acceptance of what is	99.9	59.8	27%
IE	Figure out interpersonal goals	Planning interpersonal goals	94.8	74.7	26%
IE	GIVE	Gentle, interested, validate, easy manner	91.6	71.9	25%
ER	Problem-solving	Develop strategies for change	87.7	83.2	24%
IE	FAST	Fair, no-apologies, stick to values, truthful	85.5	67.8	23%
DT	Pros and cons	Pros and cons of tolerating distress	83.7	65.8	23%
IE	DEAR	Describe, express, assert yourself, and reinforce	80.7	66.5	22%
IE	MAN	Appear confident, and negotiate	80.4	63.5	22%
IE	MAN-Mindful	Stay mindful, ignore attacks, appear confident, negotiate	53.5	49.3	15%
DT	TIP	Temperature ice/heat, intense exercise, progressive relaxation	40.6	63.1	11%

^a Findings are displayed in descending order according to frequency of use.

^b Modules: CM = Core Mindfulness, DT = Distress Tolerance, ER = Emotion Regulation, and IE = Interpersonal Effectiveness.

^c Mean number of days skills were used for all clients in the 364 treatment period.

Table 3. *Mean number of days skills modules were used over treatment by module*

Module	M	SD	(%)
Core Mindfulness	161.2	75.1	44%
Emotion Regulation	115.2	81.7	32%
Distress Tolerance	104.7	79.1	29%
Interpersonal Effectiveness	89.5	69.2	25%

Skills use and substance use urges

Of interest was a potential relationship between skills use and clients' substance use urges. Daily urge ratings were collected for the entire treatment year, and were rated from 0 (no urges) to 5 (strong urges). These urges were then averaged per day across clients to provide a total score representative of all clients. A Pearson's correlation identified a small but statistically significant negative correlation between daily skills use and daily urges, ($r = -.29, p = .00$). This negative correlation indicates that as skills use increased the rate of substance use urges decreased, lending tentative support for the use of skills training in the treatment of SUDs.

To examine this decrease in urges in more detail, daily skills use at Time 1 ($M = 8.43, SD = 3.64$) and Time 2 ($M = 17.29, SD = 2.60$) were correlated with urges at Time 1 ($M = 1.73, SD = .71$) and Time 2 ($M = 1.67, SD = .49$) respectively. These correlations were conducted in order to explore whether the decrease in urges remained consistent throughout the course of treatment. Results of Pearson's correlation at Time 1 identified a moderate negative correlation ($r = -.57, p = .00$) between skills use and urges, indicating a statistically significant relationship between an increase in skills use and a decrease in urges. Results of the second Pearson's correlation, that of skills use and urges at Time 2, also identified a negative correlation ($r = -.18, p < .05$). However, the correlation at Time 2 was smaller indicating that although there was still a small relationship between skills use and urges at Time 2, the rate of change may have slowed or plateaued.

Substance use

In order to examine potential reductions in the number of clients' reported substance use days between Time 1 and Time 2, a paired samples t-test was conducted. The results identified a statistically significant difference in the number of clients' reported substance use days between Time 1 ($M = 34.6, SD = 36.0$) and

Time 2 ($M = 14.3$, $SD = 17.6$); $t(12) = 2.54$, $p = .026$. In addition, Cohen's effect size was .72. These results suggest a significant reduction in clients' substance use between Time 1 and Time 2, which lends tentative support for the use of DBT as a treatment for SUDs.

Together, these findings on substance use and substance use urges suggest that over the course of treatment substance use decreased across clients. In addition, skills use was found to have a small, but significant, relationship to substance use urges, more so at Time 1, suggesting that an increase in skills use may be related to a decrease in substance use urges.

Chapter 5: Discussion

The primary aim of the current study was to examine clients' DBT skills use in the treatment of SUDs. Specifically, four aims were addressed: (1) does skills use increase over the course of treatment, (2) which skills are used the most often, (3) which skills modules are used the most often, and (4) is there a reduction in reported substance use days over the course of treatment. A small body of literature has explored the use of skills as an important part of the DBT treatment programme for BPD clients. However, to the author's knowledge, this is the first study examining DBT skills use in the treatment of SUDs for a SUDs and BPD/BPD trait treatment sample. Important findings emerged and are discussed in detail below.

Skills use over time

The first aim addressed in this study was whether the rate of skills use increased over time. It is important to examine the use of skills as in DBT an emphasis is placed on behavioural change through acquiring skills.

On examination of skills use for all clients across the treatment year findings suggested that skills use increased over the course of treatment. As a treatment programme, DBT intends to teach skills as a method of remediating the skills deficits clients are thought to possess. It would make intuitive sense then that clients may both learn these taught skills, and strengthen their usage. The increase in skills use over the course of treatment is consistent with both Lindenboim et al.'s (2007) and Stepp et al.'s (2008) research. This consistency across studies was to be expected, as it is likely that the high rates of skills use found throughout the literature is the result of the emphasis in DBT on reporting skills use in session, therefore facilitating compliance with filling diary cards. Having a separate skills training mode in addition to telephone contact with the therapist for coaching when skills are most needed may also help to solidify skills acquisition and generalisation.

To explore the use of skills in greater detail, treatment was divided into halves to compare skills use between the first and second half of treatment to control for the fact that it takes approximately six months to learn all skills. Findings identified a larger increase in skills use in the first half of treatment. A possible explanation is that clients may have reported using more skills during this time due to practicing what they had learned in skills training that week. After being introduced to a skill, it

stands to reason that clients would be likely to practice them both in session and out. With regards to the lower, although still high, rate of use in the second half of treatment, it is possible that the clients, having already tried all skills, would have become familiar with the skills they found the most useful and those that worked for them. It is also possible that as treatment progressed the clients may have started to make gains and therefore may not have needed to use skills with the same frequency. This higher rate of skills use in the first half of the treatment year is consistent with the findings of Lindenboim and colleagues (2007) who also found a higher rate of use in the first six months of treatment. The authors explain the slightly slower increase in skills use in the second half of treatment as due to possible ceiling effects, that is, reflecting the true number of skills clients are able to use daily.

While overall skills use increased over the course of treatment, there was variation in the rate of skills use between clients (as seen in the EGP's). This variation in skills use between clients may reflect differences in each client's motivation for change. Those clients who were highly motivated to change their maladaptive behaviours may have been more likely to practice skills and thus use them in situations outside of the therapy setting. In addition, clients may have received positive reinforcement through repeated use of skills with helpful consequences.

Frequency of skills use

The next two aims to be addressed focused on examining the use of each individual skill to see if all skills and skills modules were practiced with similar frequency. Of interest was whether the skills and skills modules most frequently used by clients in this study would be similar to those used most frequently in research with a BPD population. Does the addition of a SUDs diagnosis produce different results?

The daily average number of skills used across all clients was more than 12 skills per day, and increased over the course of treatment. This daily rate of use is considerably higher than rates found in the work of Lindenboim et al. (2007; $M = 4.96$, $SD = 3.64$), and Stepp et al. (2008; $M = 7.1$, $SD = 3.5$), but notably this treatment sample was slightly different. The sample in the current study presented with a SUDs diagnosis in addition to the BPD/BPD traits also found in previous studies. It may be possible that clients in the current study could have used more skills in an effort to manage their substance use and substance use urges. It must also

be noted that there were differences in number of skills taught between this study (28), as compared to 19 skills in Lindenboim et al.'s (2007), and 22 in Stepp et al.'s (2008) studies, which may have increased the rate of skills use as there were more skills to draw on. This high rate of daily skills use may suggest that while engaged in treatment each client learned new skills and strengthened their skills use, and as a result may have been able to apply these newly learned skills to negotiate difficult situations. Furthermore, this high rate of skills usage generally supports the results found in previous studies.

Descriptive analysis of individual skills indicated a marked variation in use between skills over the course of treatment, a full description of each skill is provided in Table 2 (page 46). For the clients in this study the most frequently used skill over the course of treatment was the core mindfulness skill of "Wise Mind" (the synthesis of emotions and reason), used on average 184.2 days (51%). This high frequency of use was to be expected as "Wise Mind" is a core concept in DBT that permeates all other skills and emphasises the acceptance of reality without judgement. The findings are consistent with previous research by Lindenboim et al. (2007) who also found that "Wise Mind", scored very highly, being the second most frequently used skill by participants (their highest ranking skill being "Distract", a distress tolerance skill ranked as 10th in this study). In contrast, Miller et al. (2000), while rating the perceived helpfulness of skills rather than actual skills use, found that "Wise Mind" fell into the mid-range of skills identified as most helpful by participants. The reason for these mixed findings is unclear; however, it is possible that the reason may lie with the different treatment samples, being that of adolescents for Miller et al. (2000).

Interestingly, the top four most frequently used skills in the current study, "Wise Mind", "Observe", "Describe", and "Participate", also happen to be the first four skills listed at the top of the diary card. It is entirely possible that these skills may have been subject to a primacy effect, in that they are the first skills the client may remember to use when confronted with a distressing situation or emotion. In addition, these four skills, like all other core mindfulness skills, actually permeate all other taught skills so it would make intuitive sense for them to be ranked highly.

The reason for the frequent use of core mindfulness skills may consist of a number of factors. The skills within the core mindfulness module are taught the most frequently over the course of treatment, with these skills also being integrated into other skills modules. In addition, as Lindenboim and colleagues (2007) explain, the time it takes to use core mindfulness skills is shorter than the time it takes to use

many other skills from the other three skills modules. It is also important to note that core mindfulness skills are highlighted as being crucial in the treatment of addiction and helping individuals manage their substance use urges (McMain et al., 2007). With regards to substance use, the reductions noted in both use and urges in addition to the high frequency of use for core mindfulness skills may suggest that the clients in this study may have become more adept at viewing cravings and urges in a more nonjudgmental and effective manner as treatment progressed. Alternatively, these skills may simply be those skills clients feel are the most helpful.

The least practiced skill in the current study was “TIP” (temperature ice/heat, intense exercise, progressive relaxation), a distress tolerance practiced on average 40.6 days (11%). However, it is not possible to compare this result to other research as it is one of the nine additional skills included on our diary card. The “TIP” skill includes the technique of dunking one’s head, face or other parts of the body into ice cold water to induce the dive reflex, a reflex that causes both heart rate and breathing rate to slow. It may be possible then that the low ranking of “TIP” was the result of a difficulty to apply this skill due to the lack of access to a container of ice cold water or its inappropriateness in a variety of situations. Those skills following “TIP” as the lowest ranked were the interpersonal effectiveness skills of “MAN-Mindful”, “MAN”, and “DEAR”. This is again consistent with previous research identifying interpersonal effectiveness skills as being practiced with the least frequency (Lindenboim et al., 2007; Stepp et al., 2008). One possible explanation for low use of interpersonal effectiveness skills could be that there was simply less opportunity to use these skills than the other modules. As Lindenboim et al. (2007) hypothesises, these skills are most needed and used when the client is engaging in new interpersonal situations, such as entering or changing a relationship. For clients with BPD/BPD traits, these situations are often avoided, resulting in a lack of opportunity for skills practice. Regardless of the reason for lack of use, DBT clients may require more encouragement to practice these skills.

With regards to both the emotion regulation and distress tolerance skills, the findings of the current study differed from previous research. Results identified emotion regulation as the second most frequently used module, contrasting previous research identifying the second ranked module as distress tolerance (Lindenboim et al., 2007; Stepp et al., 2008). Despite being different in produced percentage of use, most emotion regulation and distress tolerance skills were used at an intermediate rate. It is possible that some clients, such as those within this study, would practice

both these skills modules equally due to the significant amount of distress and crises they experience. The occurrence of a crisis may prompt the client to use skills from both skills modules to negotiate the stressful situation, for example “Distract/Self-soothe” by reducing contact with the emotional stimulus, and act in a way opposite to the current emotion (“Opposite Action”). To further explore the intermediate rates of use for these two modules, future research may benefit from comparing the distress clients feel during treatment with skills use to establish whether the two modules skills increase as a function of distress. It is possible that the minimal (3%) difference in rankings between these two skills modules in the current study may have been influenced by the low ranking of the distress tolerance skill “TIP”. The low ranking of “TIP” may have lowered the overall ranking of the distress tolerance module.

In addition, with regards to the treatment of addiction, the emotion regulation skills of “Opposite Action” and “PLEASE” are two skills in particular that have been highlighted as important skills (McMain et al., 2007). However, results show that these skills were ranked at 13th and 15th place respectively out of 28. These are low rankings for skills reported to be extremely beneficial in treating SUDs.

It is important to note that in this study the skills training DBT component was not delivered in isolation. The skills training mode was part of the larger treatment programme and without examining this mode singularly it is unknown to what degree these positive changes in skills use were the direct result of skills training alone. It is possible that any gains made over the course of treatment were the product of all treatment components, such as phone consultation with therapist to aid the generalisation of skills outside the treatment setting, or the individual therapy to discuss crises and put into place skills-based solutions. Despite some studies having examined treatment gains made by skills training in isolation, to the author’s knowledge no such study exists with a SUDs population.

Module use

The rank order of frequency of skills use per module in this study was as follows: core mindfulness (44%), emotion regulation (32%), distress tolerance (29%), and interpersonal effectiveness (25%). These findings are consistent with both Lindenboim et al. (2007) and Stepp et al. (2008) who also found that the core mindfulness was the most frequently used skills module, and interpersonal effectiveness the least. In addition, participants in Miller et al.’s (2000) study also

identified skills within the core mindfulness modules the most helpful, and interpersonal effectiveness the least helpful during treatment.

Substance use and substance use urges

The final aim of this study was to determine whether there was a reduction in the rate of substance use over the course of treatment. Analysis of substance use rates between the first and second halves of the treatment year identified a statistically significant reduction in number of substance use days across clients, suggesting that the treatment was beneficial to these clients in helping to reduce their substance use. To further explore the area of substance use, daily skills use was then correlated with daily urges identifying a small but significant negative correlation, indicating that as skills use increased, the rate of substance use urges decreased. This is a promising result, and tentatively suggests that the delivery of a skills training component may impact the clients' urge to use substances.

Deeper examination into this relationship between the first and second halves of the treatment year revealed that, although slightly slowed in the last six months, this increase in skills use and related decrease in substance use urges remained consistent over time. While the relationship between skills use and substance use urges is of interest in the treatment SUDs, exploring the relationship between actual substance use and skills use would also be beneficial.

Together, these findings indicate that over the course of treatment not only did the rate of substance use decrease across clients, but an increase in skills use was also found to have a small, but significant, relationship to substance use urges. These findings provide tentative support for the use of DBT in reducing substance use and substance use urges for a SUDs and BPD/BPD trait population.

Strengths and limitations

The data collected for this study was almost exclusively reliant on client self-report, and, as a result, has the potential to include bias. While there is no reason to believe that there was consistent over- or under-reporting of skills use and/or substance use, it cannot be ruled out. Furthermore, as skills use is given a rating out of a seven point scale on the diary card but was simplified to either a practice or no practice in this study, the intensity of practice and the number of times the skill was

practiced per day was not assessed. An interesting possible area for future research would be to explore both the intensity and rate of practice of each skill per day, providing a deeper understanding of which skills are utilised most frequently.

Another limitation of this study was the amount of missing data. As some cards were either unavailable for collection, not completed, or only partially completed, it remained unclear at times how to best explore skills use. For this reason it was decided that the most conservative scoring method would be employed in order to minimise this limitation. This method was consistent with previous research (Lindenboim et al. (2007)).

A lack of control group with which to compare DBT clients reported substance use over the course of treatment limits the ability to generalise the findings. All clients who could potentially benefit from DBT are invited into the programme; therefore no control group was available for comparison. As a result, it is not possible to infer that treatment gains regarding increased use of skills and reductions in substance use were directly due to the DBT programme. It may be of benefit for future research to include some form of control group, be it a matched treatment as usual group, or a wait-list control group.

An additional limitation was the small sample size which may have limited power to detect smaller effects. However, this study was based in a real world naturalistic setting and small treatment numbers are not uncommon. Furthermore, as the primary SUD diagnosis of the sample was almost exclusively Alcohol Dependence, the lack of representation of other SUD diagnoses limits the ability to generalise the results of this study to other substances.

Despite some limitations, this study does have strengths. To the authors knowledge this is the only known study to have examined the utilisation of skills for 12-months DBT within New Zealand. Furthermore, this study extends current research on DBT skills use by being the first known study to examine skills use for the treatment of maladaptive substance use in a SUDs and BPD/BPD traits population.

It is also important to highlight the statistical model used in this study. With the use of ALDA techniques, trends and patterns of skills use over time could be identified without a loss of accuracy due to missing data. The examination of skills use in this study was very thorough, with every day of the 12-month period being examined. The use of all 28 skills was examined allowing for a detailed account of how skills use increased over time, which skills were practiced the most, and how skills use compared between clients.

Recommendations for Future Research

The results from this small study suggest that it would be beneficial to further examine the role of DBT skills use in the treatment of SUDs and BPD/BPD traits in the New Zealand population. An important aspect in future research would be to include a control group to control for extraneous variables not addressed in the current study. In keeping with CADS stance on DBT treatment for all clients who are in need, the use of a wait-list control group would allow comparisons to be made in addition to eliminating alternate explanations for study findings. A larger sample size would also be of benefit as it may give added depth to the findings.

Research would also benefit from investigating DBT skills use with a wider range of substances outside of an Alcohol Dependence diagnosis. While the disproportionate number of Alcohol Dependent diagnoses in the current study may reflect the prevalence of this disorder in the population, the inclusion of larger numbers of clients presenting with other drugs of dependence are needed to examine the use of DBT skills for multiple substances.

Given that research has consistently found interpersonal effectiveness skills to be the least used skills over the course of treatment, an area for future research may be to explore the acquisition of interpersonal effectiveness skills as compared to the other three skills modules.

Finally, future studies may benefit from delivering skills training in isolation with a SUDs population in order to see more directly its effects on skills acquisition and use, substance use, and substance use urges. In addition, it may be useful explore the relationship between actual substance use and skills use to determine whether substance use decreases as a function of skills use over time.

Some important contributions to the current literature on DBT skills use are made by this study. This is the first known study to explore skills use in the treatment of SUDs. While this makes comparison of findings difficult, it is an important step in exploring the effectiveness of both the skills training component for diagnoses other than BPD. In addition, this is also the first known study to examine DBT skills use within a New Zealand context. Furthermore, the consistency in findings between the current study and previous research may suggest that the skills learned in the skills training mode are transferable to other domains, such as SUDs.

In conclusion, the findings of this first study on skills use in a SUDs and BPD/BPD trait population are very encouraging, indicating an increase in frequency and variety of skills used over the course of treatment in addition to reductions in substance use and substance use urges. The clients in this study were receiving treatment in a real world mental health service setting, and as such, reflected the complexities that one would expect when treating patients in such a setting, including that of missing data and a lack of control group. While such a setting makes the generalisation of findings and drawing of causal conclusions difficult, this study is the first step in examining DBT skills use in a SUDs population, an area that requires further exploration.

Appendix Diary card

Dialectical Behaviour Therapy Skills Diary Card				How often did you fill out this side? ___ daily ___ 2-3x ___ 4-6x ___ once						Name: _____			Filled out at session? Y N		Date Started: ___/___/___				
Circle Start day	Urges To			Emotions						Drugs/ Medications			Other		Actions				
	suicide	Self harm	Use drugs	guilt	sad	shame	anger	fear	joy	Meds as prescribed?	Drugs	Alcohol	Over the counter			Self harm	Open doors	Lying	Skills
	0-5	0-5	0-5	0-5	0-5	0-5	0-5	0-5	0-5	Y/N	specify	specify			Y/N	Y/N	#	0-7	
MON																			
TUE																			
WED																			
THUR																			
FRI																			
SAT																			
SUN																			

Notes: _____

***Used Skills:** _____

0 = Not thought about or used
 1 = Thought about, didn't use, didn't want to
 2 = Thought about, didn't use, wanted to
 3 = Tried but couldn't use them
 4 = Tried, could do them, but they didn't work
 5 = Tried, could use them, helped
 6 = Didn't try, used them, didn't help
 7 = Didn't try, used them, helped

Circle the day you worked on each skill							Filled out this side? ___ Daily ___ 2-3x ___ 4-6x ___ Once ___ In session						
MON	TUE	WED	THUR	FRI	SAT	SUN	1. Wise Mind						
MON	TUE	WED	THUR	FRI	SAT	SUN	2. Observe					(just notice)	
MON	TUE	WED	THUR	FRI	SAT	SUN	3. Describe					(put words on, just the facts)	
MON	TUE	WED	THUR	FRI	SAT	SUN	4. Participate					(enter into the experience)	
MON	TUE	WED	THUR	FRI	SAT	SUN	5. Non-judgmental						
MON	TUE	WED	THUR	FRI	SAT	SUN	6. One-mindfully					(present moment)	
MON	TUE	WED	THUR	FRI	SAT	SUN	7. Effectiveness					(focus on what works)	
MON	TUE	WED	THUR	FRI	SAT	SUN	8. Figure out interpersonal goals						
MON	TUE	WED	THUR	FRI	SAT	SUN	9. DEAR					(Describe, Express, Assert, Reinforce)	
MON	TUE	WED	THUR	FRI	SAT	SUN	10. MAN - Mindful					(Broken Record, ignore Attacks)	
MON	TUE	WED	THUR	FRI	SAT	SUN	11. MAN					(Appear confident, Negotiate)	
MON	TUE	WED	THUR	FRI	SAT	SUN	12. GIVE					(Gentle, Interested, Validate, Easy Manner)	
MON	TUE	WED	THUR	FRI	SAT	SUN	13. FAST					(Fair, no-Apologies, Stick to values, Truthful)	
MON	TUE	WED	THUR	FRI	SAT	SUN	14. Attend to relationships						
MON	TUE	WED	THUR	FRI	SAT	SUN	15. Describing emotions						
MON	TUE	WED	THUR	FRI	SAT	SUN	16. Opposite-to-emotion action						
MON	TUE	WED	THUR	FRI	SAT	SUN	17. Problem solving						
MON	TUE	WED	THUR	FRI	SAT	SUN	18. Accumulate positives					(Positive events or Valued Actions)	
MON	TUE	WED	THUR	FRI	SAT	SUN	19. Build Mastery, Cope ahead						
MON	TUE	WED	THUR	FRI	SAT	SUN	20. PLEASE					(Physical Ills, Eating, Avoid drugs, Sleep, Exercise)	
MON	TUE	WED	THUR	FRI	SAT	SUN	21. Mindfulness of Current Emotion						
MON	TUE	WED	THUR	FRI	SAT	SUN	22. TIP					(Temperature, ice or heat/ Intense exercise / Progressive relax)	
MON	TUE	WED	THUR	FRI	SAT	SUN	23. Pros and Cons						
MON	TUE	WED	THUR	FRI	SAT	SUN	24. Distract / Self soothe / Improve the moment						
MON	TUE	WED	THUR	FRI	SAT	SUN	25. Radical Acceptance						
MON	TUE	WED	THUR	FRI	SAT	SUN	26. Willingness						
MON	TUE	WED	THUR	FRI	SAT	SUN	27. Mindfulness of current thoughts						
MON	TUE	WED	THUR	FRI	SAT	SUN	28. Half smiling						

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