

EVALUATING PROCESS VARIABLES IN ACCEPTANCE
AND COMMITMENT THERAPY

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Acceptance and commitment therapy (ACT) was developed to specifically target experiential avoidance (EA) rather than any specific diagnostic category. A functional ACT manual was presented and used to treat diagnostically diverse clients in a large sliding fee-for-service training clinic. A multiple baseline across participants and behaviors research design was used to evaluate session-by-session changes in EA, values identification, valued action, and clinical distress. The Acceptance and Action Questionnaire-2 (AAQ2), Valued Living Questionnaire (VLQ), and Outcome Questionnaire (OQ-45) were given to measure processes and outcomes given the functional ACT model presented in the introduction to the paper. Baseline included the Structured Clinical Interview for DSM-IV Axis I and II Disorders given across 2-5 50-minute sessions. The treatment phase consisted of 7-10 50-minute sessions. Participants were 10 clients. Four participants completed sufficient treatment sessions (4-9) to test the study hypotheses. Participants generally improved across time, but most improvements could not be attributed to the functional application of ACT due to changes during baseline for AAQ, VLQ-Consistency, and OQ-45. VLQ-Importance significantly improved for all participants given ACT.

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CHAPTER 1

EVALUATING PROCESS VARIABLES IN ACCEPTANCE AND COMMITMENT THERAPY

Recently, the debate over adherence to empirically supported therapies (ESTs; Chambliss & Ollendyck, 2001; McCabe, 2004; Persons, 1995; Rosen & Davidson, 2003; Westen, Novotny, and Thompson-Brenner, 2004) has quieted with the shift to empirically based practice (EBP; APA, 2006). EBP refers to the practice of therapy that utilizes techniques with research support for particular symptoms given a theoretical reasoning for doing so. This shift has allowed for great flexibility in the use of a variety of empirically based techniques. Some therapies were developed with the ideas of EBP at their core. Acceptance and commitment therapy (ACT; Hayes, Strosahl, & Wilson, 1999; Hayes & Strosahl, 2004) is one such therapy.

ACT is based in functional contextual philosophy of science (Hayes et al, 1999). Functional contextualism states that truth is defined by workability, and therefore is a-ontological. Due to this worldview, the purpose of ACT is the prediction and influence of psychological events and behavior. In order to most efficiently predict behavior, the ACT developers used science to identify a way to describe or diagnose psychological problems that was more amenable to treatment than the current model.

Functional Dimensional Diagnosis

Hayes et al. (1996) proposed a functional diagnostic approach based on the idea that many problems that have been categorized into a number of psychological disorders, such as anxiety and mood disorders, substance use disorders, and others, have a common function. This function has been termed experiential avoidance (EA).

EA is defined as “the phenomenon that occurs when one is unwilling to remain in contact with particular private experiences and takes steps to alter the form or frequency of these events and the contexts that occasion them (Hayes et al., 1996, p. 1154).” Many Axis I disorders are easily conceptualized in this way, and criteria for some disorders are specific to this type of avoidance. For instance, avoidance is a main criterion for the diagnosis of post traumatic stress disorder (PTSD). To receive a diagnosis of PTSD, one must engage in avoidance of thoughts and/or situations that trigger memories or flashbacks. Similarly, substance use disorders are often thought to be maintained by the need of individuals to change the way that they feel (avoid negative feelings of either illness with heroin or mental torture from coming off of cocaine). Also, PTSD is frequently comorbid with substance abuse disorders. Thus, a diagnosis of experiential avoidance disorder (Hayes & Follette, 1993) is one descriptive diagnostic label that incorporates these current two diagnostic categories that frequently occur comorbidly.

Research on Experiential Avoidance

Mounting research demonstrates the ubiquity of the process of EA and the detrimental outcomes associated with its pervasiveness. This research has been conducted via psychometric and survey studies, as well as through experimental manipulation of behavior. Varied methods have been used in order to reveal the possibility of excessive levels of EA underlying several current diagnostic categories. One of the first necessary ventures was the development of a measure of EA. The Acceptance and Action Questionnaire (AAQ; Hayes et al., 2004) was developed to measure the continuum of psychological flexibility with acceptance at one end and

experiential avoidance at the other. It has been modified over several versions with varying item lengths, but has maintained its construct validity across each version with a focus on improving internal consistency. The resulting AAQ has been shown to have strong construct validity and adequate internal consistency across a variety of clinical and non-clinical samples (Bond et al., 2006; Bond et al., in press).

Survey research including the AAQ has indicated strong positive correlations with psychological distress variables and psychopathological symptomology as would be expected given the theoretical statement of EA as a potential diagnostic category. For example, when attempting to further understand risk factors leading to substance abuse in a predominately male veteran sample ($n = 90$ male, 4 female) seeking treatment for substance abuse problems, Forsyth, Parker, and Finlay (2003) determined that a) EA is strongly positively correlated with anxiety sensitivity, b) EA is positively correlated with anxiety and depression, and c) EA significantly decreased from pre to post treatment, but differentially across different classifications of substance abusers. Thus, EA discriminated primary from comorbid substance use disorders and correlated with depression, anxiety sensitivity, bodily sensations, and control of anxiety. Similarly, Stewart, Zvolensky, and Eifert (2002) aimed to determine the motivating factors for drinking in a sample of 205 undergraduate students who had drunk alcohol within one year of the study date. It was determined that EA was in range of a typical non-clinical sample, and yet was still correlated with all types of drinking motivations (coping, conformity, enhancement, and social). Furthermore, high EA significantly predicted coping motives for drinking in this sample. Thus taken together these studies (Forsyth et al., 2005 & Stewart et al., 2002) indicate that higher levels of EA predict drinking

patterns that are diagnosable when pervasive – levels of EA are predictive of the existence and severity of substance use.

Using regression analyses, many studies have shown that EA underlies a variety of the anxiety, repetitive behavior, substance abuse, mood, and personality disorders, as well as general clinical distress. EA predicts the following disorders and symptomology: social anxiety (Kashdan, 2007), generalized anxiety disorder (Roemer & Orsillo, 2007), psychological distress and symptomology related to PTSD (Boelen, van den Bout, & van den Bout, 2010; Boeschen, Koss, Figueredo, & Coan, 2001; Kashdan, Morina, & Prieb, 2009; Marx & Sloan, 2005; Orcutt, Pickett, & Pope, 2005; Plumb, Orsillo, & Leterek, 2004; Thompson & Waltz, 2010; Tull & Roemer, 2003; Tull, Gratz, Salters, & Roemer, 2004), obsessive beliefs and symptoms of obsessive compulsive disorder (Manos, Cahill, Wetterneck, Conelea, Ross, & Riemann, 2010), hair-pulling severity and cognitive symptoms associated with Trichotillomania (Norberg, Wetterneck, Woods, & Conelea, 2007; Begotka, Woods, & Wetterneck, 2004), chronic skin picking (Flessner & Woods, 2006; Twohig, Hayes, & Masuda, 2006), features and symptoms of borderline personality disorder (Chapman & Cellucci, 2007; Chapman, Dixon-Gordon, & Walters, 2011; Gratz, Rosenthal, Tull, Lejuez, & Gunderson, 2006), substance abuse (Chapman & Cellucci, 2007; Polusny, Rosenthal, Aban, & Follette, 2004; Forsyth, Parker, & Finlay, 2003), self-harm behaviors (Gratz & Gunderson, 2006), eating disorders (Merwin et al, 2011; Rawal, Park, & Willims, 2010), internalized homophobia and symptom severity in sexual assault victims (Gold, Marx, & Lexington, 2007), depression (Spira, et al., 2007) and rumination (Bjornsson et al., 2010; Cribb, Moulds, &

Carter, 2006; Giorgio et al., 2010), as well as general psychopathology, anxiety, depression, specific fears, trauma, and lower quality of life (Hayes et al., 2004).

EA mediates relationships between a variety of events and later psychopathology. Rosenthal, Hall, Palm, Batten, and Follette (2005) examined the relationship between childhood sexual abuse severity and later symptoms as a function of the level of EA in 153 female undergraduate students. Using a mediation analyses, it was determined that EA as a mediator accounts for about 21% of the exacerbation of symptoms following childhood sexual abuse (Rosenthal, Hall, Palm, Batten, & Follette, 2005). Likewise, EA mediates the relationship between sexual victimization and future psychopathology such as depression, psychological distress and substance use disorders (Polusny, Rosenthal, Aban, & Follette, 2004), trauma and PTSD (Orcutt, Pickett, & Pope, 2005), trauma exposure and somatic stress (Morina, Ford, Risch, Morina, & Stangier, 2010), pre-term birth and maternal adjustment (Greco, et al 2005), childhood sexual abuse and psychological distress (Marx & Sloan, 2002), childhood sexual abuse and high risk sexual behaviors (Batten, Follette, & Aban, 2001) and problematic coping strategies and psychopathology (Fledderus, Bohlmeijer, & Pieterse, 2010). Also, EA partially mediates the rape-PTSD relationship (Boeschen, Koss, Figueredo, & Coan, 2001).

Furthermore, negative correlations between EA and variables related to psychological wellbeing strengthen the case for EA as a possible diagnostic category. As such, emergent research suggests that EA is negatively correlated with a variety of normal range life issues. For example, Kashdan, Barrios, Forsyth, and Steger (2006) examined the role of EA in coping in a sample of 382 undergraduate students. They

found that EA was correlated with a variety of coping and emotion regulation strategies; emotion focused coping, detached coping, and less avoidant coping, and impulsivity are all correlated at varying degrees with EA. Furthermore, EA mediated the relationship between coping style and anxiety related symptoms, indicating that EA provides a more thorough explanation of anxiety than coping style in a non-clinical sample. In a more longitudinal design, Kashdan et al. (2006) examined EA as a true linear predictor of coping and affect across 21 days in a sample of 97 undergraduates. EA was positively correlated with emotional suppression and negatively correlated with cognitive reappraisal. EA was inversely related to daily positive affect and overall quality of life variables, but positively related to negative affect and social anxiety. In fact, all relationships between emotion regulation strategies and positive and negative affect and outcomes were mediated by EA. Karekla and Panayiotou (2011) suggest that EA is therefore a style of coping that accounts for almost all coping styles, but adds some additional explained variance to the model.

EA moderates the relationship between trauma and post-traumatic growth (Kashdan & Kane, 2011), mediates the relationship between materialism and well-being (Kashdan & Breen, 2007), predicts burnout in critical care nurses (Iglesias, de Bengoa Vallejo, & Fuentes, 2010). EA is also negatively correlated with aspects of mindfulness such as describing emotions or experiences, acting with awareness, and acceptance of the surrounding environment (Baer, Smith & Allen, 2004). Given this relationship with acceptance and mindfulness, EA and acceptance have been studied in analog laboratory research to further examine the process underlying ACT and potentially other acceptance or mindfulness based approaches to therapy.

Several studies have further investigated the role of EA in distress or pain tolerance using experimental and/or behavioral methodologies. Zettle et al. (2005) used the cold pressor task – 25 participants were asked to hold a hand in a bucket full of ice water for as long as they could. Participants higher in EA (at least 1 SD above the mean of a large undergraduate sample) removed their hands before participants lower in EA (at least 1 SD below the mean), indicating that high EA is associated with less pain tolerance. Similarly, Feldner, Hekmat, Zvolensky, Vowels, Secrist, and Leen-Feldner (2006) found that participants with lower EA persisted in the cold pressor task longer than did those with higher EA. Furthermore, in a behavioral study, when given acceptance or control rationales before beginning a cold pressor task, those given the acceptance rationale persisted in the task longer than those in the control condition (Hayes et al, 1999, described in more detail in the *Acceptance* section below). These results taken together indicate that in non-clinical samples, higher levels of EA are consistent with shorter persistence in the presence of pain than those with lower levels of EA, and that this behavior can be modified given an acceptance rationale before the task.

Likewise, several studies demonstrate the effect of EA on various other behavioral tasks when non-clinical samples are given aversive stimulation. When asked to sort items while wearing “drunk goggles,” participants lower in EA sorted more items than did those higher in EA (Zettle, Petersen, Hocker, & Provines, 2007). In a pain procedure that administered shock, participants given an acceptance rationale persisted in taking more shocks to earn money than the participants instructed to control their feelings (Gutiérrez-Martínez, Luciano-Soriano, Rodríguez-Valverde, & Fink, 2004).

Surprising, but theoretically consistent, are findings in clinical populations that even with high levels of EA, acceptance rationales produce significantly different behavioral results than no rationale or a control rationale. For instance, 60 participants with panic disorder were given either an acceptance, suppression, or no rationale and then engaged in a 15 minute CO₂ challenge, which is not dangerous but induces panic symptoms (Levitt, Brown, Orsillo, & Barlow, 2004). Following the procedure, participants were asked if they would complete the process again. More participants from the acceptance group were willing to engage in the CO₂ challenge another time than the other participants. Eifert and Heffner (2003) compared control and acceptance exercises before a CO₂ challenge with anxious participants. Results showed a reduction in avoidance, anxiety symptoms, and anxious cognitions for participants in the acceptance condition during the CO₂ challenge as compared to the participants taught controlled breathing. Feldner, Zvolensky, Eifert, and Spira (2003) found that participants high in EA showed more anxiety in response to a CO₂ challenge, particularly when instructed to suppress their emotions during the task. During a CO₂ challenge, more participants in a high EA group than low EA group reported more symptoms indicating avoidance as risk factor for development and maintenance of anxiety disorders (Karekla, Forsyth, & Kelly, 2004).

In sum, EA is positively related to symptoms of psychopathology in a variety of domains as well as negatively correlated with a variety of positive predictors of psychological wellbeing. Therefore, EA is best conceptualized psychometrically on a continuum from EA to acceptance and behaviorally as a process that underlies many of the symptoms of psychopathology throughout diagnostic categories of the DSM. Thus,

a treatment approach that targets the process of EA directly appears to be of benefit to a wide range of difficulties.

Acceptance and Commitment Therapy

The components of ACT designed to target experiential avoidance from a functional contextual approach, as outlined by Hayes and Strosahl (2004), are: acceptance, defusion, self-as-context, contact with the present moment, valuing, and committed action. These components of treatment are largely interconnected, and it is suggested that they are most effective when applied together to foster psychological flexibility. Thus, in the upcoming paragraphs the components of ACT will be defined and described, and the empirical evidence for their action will be outlined.

Acceptance

This treatment component is intended to undermine EA and control by uncovering the hopelessness of EA. This process is sometimes clinically referred to as the client's unworkable change agenda (Hayes, Strosahl, & Wilson, 1999). Acceptance is not resignation, or simply recognizing that one may have a particular emotion, thought or situation, rather it is the inspiration of willingness. Willingness is born out of the idea that emotions are fundamentally and functionally similar, and when individuals begin to suppress one emotion, they become less likely or able to experience the range of emotions. Once one can see each emotion as occurring via the same mechanism or process, willingness and acceptance of that process can lead to alternatives to control. In other words, when a person recognizes, for example, that the experience of feeling sad is no different in kind than the experience of feeling happy, he or she will likely have less need to control sad content (thoughts and feelings about situations). Willingness

and acceptance when conceptualized in this fashion are behavior that can be shaped via therapy and generalized to the client's everyday life.

This component's underpinnings fit nicely with the flattening and restricted range of affect seen in disorders like major depression, PTSD, and schizophrenia. A common exercise or metaphor used to demonstrate willingness from an ACT perspective involves describing a lever system in which one lever is the willingness lever and when that lever is set to low (low level of client willingness to experience emotion, particularly negative), the lever that controls the range of emotions is locked in at a certain range and can then only vary a small amount. The idea of this metaphor is that when the client is unwilling to experience sadness, anxiety, fear, or any other emotion, they in turn are unable to experience joy and happiness fully as a result of limiting the range of variability in emotions.

Acceptance strategies have been tested in a variety of experimental paradigms to examine the usefulness of acceptance strategies for everything from physical symptoms of anxiety to pain to obsessive thoughts. Levitt, Brown, Orsillo, & Barlow (2004) subjected individuals with panic disorder ($n = 60$) to a 15 minute CO₂ challenge, which induces symptoms of panic, following acceptance, suppression or control rationale. The acceptance group was told, "Being willing to experience your thoughts and feelings, good and bad, can free you up to focus on what really matters in your life. If you are willing to feel happy, sad, anxious, unsure, joyful and any other emotions that come up for you, you can choose the activities that you want to participate in, so that you ultimately choose your directions in life, instead of letting your fear of anxious thoughts and feelings make those choices for you." In a similar format to the acceptance

rationale, the suppression group was told “When you are feeling anxious, but you know you have to do something, you can push the feelings away in order to accomplish the task. That's what I am going to encourage you to do today. Try not to feel anxious, try not to think anxious thoughts, try to just get through the task with as little anxiety and discomfort as possible.” The control condition listened to an article from National Geographic for the same amount of time as the acceptance and suppression rationales. The acceptance group was able to do the challenge for longer, and more willing to repeat the procedure than either the suppression or control condition.

With similar rationales, Eifert and Heffner (2003) conducted a randomized study comparing control versus acceptance during a CO₂ challenge with anxious subjects. An acceptance oriented exercise (the finger trap) reduced avoidance, anxiety symptoms, and anxious cognitions as compared to breathing training. Also, Feldner, Zvolensky, Eifert, and Spira (2003) demonstrated that subjects high in emotional avoidance showed more anxiety in response to CO₂, particularly when instructed to suppress their emotions.

Hayes et al. (1999) challenged participants to a cold pressor task after being given an acceptance exercise, cognitive therapy rationale, or an attentional control. The participants in the acceptance condition were asked by a “therapist” to notice their thoughts as thoughts and decide if it was necessary to act on those thoughts by removing their hands from the icy water, whereas the cognitive therapy group was aided by a “therapist” to recall in detail a positive image or memory from their past to help them avoid the pain of the icy water. The control condition met with a “therapist” for psychoeducation about pain for the same amount of time as it took to give the

acceptance and cognitive therapy rationales. The participants in the acceptance group were able to keep their hands in water longer than the other two groups.

Given similar instructions, several studies have supported the usefulness of acceptance strategies for coping with pain in the short term. For example, Gutiérrez-Martínez, Luciano-Soriano, Rodríguez-Valverde, & Fink (2004) demonstrated that an acceptance group was more willing to take the pain of shock to gain points for money than control groups. Takahashi, Muto, Tada, & Sugiyama (2002) gave an ACT rationale combined with either control based exercises or ACT consistent exercises; it was determined that both rationale and exercises were necessary for benefit in terms of pain tolerance. Keogh, Bond, Hanmer, & Tilston (2005) showed that a simple acceptance-based coping instructions improved affective pain more than distraction, but only for women.

Marcks and Woods conducted both a correlational (2005) and experimental (2007) study comparing acceptance and control rationales in obsessive thinking. The correlational study showed suppressing personally relevant intrusive thoughts is associated with more thoughts, more distress, and greater urge to do something. Those who were accepting had fewer obsessions, and were less depressed and anxious. The experimental study demonstrated that instructions to suppress do not work and lead to increased level of distress; instructions to accept (using a couple of short metaphors drawn from Hayes, Strosahl & Wilson, 1999) decreased discomfort but not thought frequency. When taken together these studies illuminate the effectiveness of an acceptance strategy on pain and discomfort tolerance in the face of some behavioral event and lend support to the inclusion of acceptance work in ACT.

In sum, acceptance strategies are appropriate for use when the client is experientially avoiding and the avoidance is of an operant nature. Specifically, when a client has aversive stimulation, either physical or emotional pain, acceptance exercises can be used to increase willingness to experience aversives. Several conversation topics, stories, exercises, and metaphors can be useful in this situation. There is no specified way to address acceptance; rather acceptance is a process that can be reached in many ways. Some ways of fostering acceptance may include metaphors of carrying things lightly like wearing a loose garment. For instance, could one have a difficult emotion like wearing an old favorite t-shirt? Another example of acceptance may be the story of the old mule that fell in a well; as the old farmer tried to bury him alive, his fear caused him to shake and became the very thing that saved his life.

To reiterate, acceptance is not resignation to suffering with emotions or emotional wallowing, nor is it necessarily liking or wanting the feelings. Rather, acceptance is choosing to have all emotions (and other internal content) available, fully, so that one is more likely to move in a chosen direction. The idea is that acceptance can allow for more effective action. Similarly, the next component, defusion, fosters psychological flexibility with the purpose of effective action.

Both acceptance and defusion techniques may look similar to classic behavioral interventions such as exposure. However, in ACT the exposure is typically delivered via mindfulness exercises and imagined exposure, thus the thing the client is being exposed to is a private experience. Just as in exposure, acceptance and defusion strategies are practically useless for clinical purposes if they fail to facilitate overt behavior change in the moment. When doing these techniques, the therapist should be

able to detect the emotion of interest before beginning the intervention of acceptance or defusion.

Defusion

Defusion is the client's interacting with thoughts in a different way through exposure to indirectly conditioned events. Defusion differs from acceptance in presentation – it frequently looks more like a traditional imaginal exposure exercise. Also, defusion is frequently the chosen intervention when the inflexibility appears to be under antecedent control. This treatment component is intended to undermine cognitive fusion. Cognitive fusion occurs when a client appears trapped by a thought or has become rigid with respect to a rule or thought of how life *should be*. Defusion is the process whereby other directly and indirectly conditioned psychological (stimulus) functions become available. It can include anything that involves interacting with the aversive event that is not avoidance. Optimally, it will provide the client with a wide variety of rich interactions. This is typically called undermining language. It is accomplished by changing the relation between the words or images involved with thinking and the reactions to them. A simple way to accomplish this goal is to say a word repeatedly until it only becomes a set of sounds and loses meaning, frequently called the “milk, milk, milk exercise” due to the use of the word milk in a common example. Defusion of a single word can occur in only a minute or two (Masuda, Hayes, Sackett, & Twohig, 2004).

Defusion can also take the form of questioning in a standard clinical interview type arrangement. This approach may look more like a regular conversation directed by the therapist such that exposure to internal experience is salient and can be defused.

Just as in exposure, the clinician looks for changes in the client's behavior, posture, speech, or related behavior to determine if the exercise has come to an end and been effective. Defusion exercises are typically as different as possible from the usual ways of interacting with content (functionally, if not formally).

Fusion is the dominance of particular verbal functions over other directly and indirectly available psychological functions and fusion with verbal content can exercise control over behavior. Negative thoughts, feelings, memories, and sensations are not deadly; still, many clients see them as a matter of life or death – and some would rather die than have them. Thus, defusion exercises should attack aspects of context that support narrowness. These can be done in both didactic and experiential exercises in therapy. In efforts to defuse, client and clinician can begin to treat “the mind” as an external event, almost as a separate person, point out a literal paradox inherent in normal thinking, change language to get rid of “buts” and “tries”, or use metaphors. With eyes closed, several exercises can be useful to demonstrate the effectiveness of defusion.

Mindfulness exercises are very useful here, particularly the leaves on a stream exercise and physicalizing discomfort (Hayes et al., 1999). In the leaves on a stream exercise, the client sits for a moment and attempts to watch thoughts and feelings go by oneself as leaves float down a stream. The instructions are to picture a stream with leaves floating down, and attempt to place each thought that comes to mind onto a leaf and float it past without engaging with any single leaf. The physicalizing exercise is more interactive and has the individual describe different thoughts, feelings, or symptoms as if it were an object. Given mass, volume, texture, weight, smell, etc. of the

feeling, the client begins to interact with the feeling in a different way, and this newly identified object can be manipulated in different ways to demonstrate the concept or process of defusion.

Defusion, like acceptance has been studied in the laboratory with promising results. Hayes et al. (1999) used a defusion exercise that facilitated the group to hold their hands in the cold pressor task for longer than cognitive therapy or attentional control groups. Masuda et al. (2004) demonstrated that, in a series of time-series designs and a group study, that the “milk, milk, milk” defusion technique reduced distress and believability of negative self-referential thoughts. Gutiérrez-Martínez, Luciano-Soriano, Rodríguez-Valverde, & Fink (2004) demonstrated that in a randomized study with an analogue pain task, a defusion exercise facilitated greater tolerance for pain as compared to a closely paralleled cognitive-control based condition.

In sum, empirical evidence is growing for the effectiveness of defusion as a useful process to deliteralize language, and create space for the client to more freely choose behaviors. However, it is suspected that in order to effectively deliteralize and create the behavioral space, a person must have a stable sense of self in order to feel comfortable distancing from thoughts about self. Work with self-as-context provides this groundwork.

Self-as-Context

A common defusion technique is to help clients create space between thoughts and the thinker. Can the client distinguish a verbally conceptualized, evaluated world from one that is being directly experienced? Sometimes it is necessary to change a client’s verbal use of language in order to create that space. Often asking a client to

say, “I am having the thought...” rather than stating the way they are thinking as fact can create this space easily. This type of work is elaborated upon through the use of self-as-context techniques.

Self-as-context is the ability to see the constant self that is always present. An invaluable technique used to demonstrate this component is the observer self exercise. During this exercise, the clinician leads clients in an eyes closed exercise to see different points in their lives in which different experiences have occurred, and then invites them to see the selves that are the same in each experience, yet are changed by them. The client’s self that sees these things happen and is constant is the perspective or place from which therapy can occur. A common problem in individuals that is relevant to this component is this: Clients see themselves as their problems, or diagnoses, and lack any awareness of a larger, constant self. In this component of therapy, it becomes extremely important for the therapist to work from a position of neutrality and acceptance of the client and view her as a whole, unbroken human being. For a theoretical review of this issue, see Hayes and Wilson (2003).

This process begins to create distinction between thinking and self; it helps to create an “I” that experiences emotions, but is separate and distinct from thinking and emotions. Roles, thoughts, or any other content of private experience becomes part of the conceptualized self that is hierarchically below the self as context, which is the place from which all the thought processes occur. The conceptualized self is the verbal construction of self that is formed as clients predict, explain, evaluate, interpret, or otherwise interact with their behavior verbally. The chessboard metaphor is a good example of how one can distance from the content of thinking. This exercise asks that

the client picture each of the pieces of private content as a piece on the chessboard. Each piece is a thought or struggle the client is currently having or has had in the past. Next, the client is asked what the chessboard is, or even instructed that he is like the chessboard – a place for all of the things to happen and the game to be played, but consistent and never-changing. Self-as-context is seen as a constant perspective from which one has all experiences and engages in all behavior. Contacting this place can be calming, peaceful for clients, if done well. If not done carefully, there is risk. Clients who come to treatment feeling as if they are their problems will need gentle reminders that their core being still exists as they are learning that they are not merely their content. Contact with the here and now, in a non-evaluative, non-judgmental way is integral to this process. Therefore, ACT clinicians are often engaged in fostering peace via contact with the present moment.

Contact with the Present Moment

ACT clinicians are charged with being constantly engaged in fostering contact with the present moment. This is done using techniques and exercises adapted from Eastern Buddhist culture of mindfulness practice, and other meditative sources. For example, meditative exercises like the leaves on a stream described above are commonly used in ACT. ACT therapists and clients are less concerned with the development of a mindfulness practice than some of the other mindfulness-based therapies suggest and are rather more interested in the individual's ability to be in contact with the present external and internal context. This component is added to allow the contingencies that are available in the surrounding environment to control behavior

when adaptive and not when maladaptive, thus allowing for psychological flexibility when used in tandem with acceptance of private experience.

Both contact with the present moment and self-as-context are lacking in direct empirical support, yet some of the exercises are similar in nature to mindfulness as practiced in other areas that have been empirically tested. Mindfulness meditation has led to improved outcomes in a variety of physical and mental health related difficulties. Mindfulness based practices have moderate immediate as well as long lasting effects on stress, quality of life, and health outcomes in a variety of medical problems (Reibel, Greeson, Brainard, & Rozensweig, 2001). In the short term, decreases in blood pressure and other metabolic activities are improved (Ditto, Eclache, & Goldman, 2006). Mindfulness is associated with positive outcomes in individuals experiencing chronic pain (Plews-Ogan, Owens, & Goodman, 2006; Shapiro, Bootzin, Figueredo, Lopez & Schwartz, 2003; Speca, Carlson, Goodey, & Angen, 2000; Altman, 2001; Carlson, Ursuliak, Goodey, Angen & Speca, 2001; Saxe et al., 2001; Carlson, Speca, Patel, & Goodey, 2004; Tacon, Caldera, & Ronaghan, 2004) in cancer patients; it is related to improved quality of life in individuals with traumatic brain injury (Bedard et al, 2005), and to reduced symptoms following organ transplants (Gross, Kreitzer, & Russas, 2004). Following mindfulness training, women with heart disease showed greater decreases in anxiety and increases in quality of life when compared to controls (Tacon, McComb, Cladera, & Randolph, 2003). Patients in a bi-lingual (Spanish and English) inner city health center showed improvements in quality of life, sleep, general health behaviors, and family harmony following 8-weeks of mindfulness (Roth & Robbins, 2004; Roth, 1997). It has also improved the quality of life and reduced stress levels in caregivers of

both children with chronic behavioral and health conditions (Minor, Carlson, Mackenzie, Zernicke & Jones, 2006) and older adults with severe illnesses (Epstein-Lubow, Miller, & McBee, 2006), as well as healthcare professionals (Shapiro, Astin, Bishop, & Cordova, 2005). Mindfulness practice has been shown to decrease binge eating and anxiety (Smith, Shelley, Leahigh, & Vanleit, 2006). When mindfulness is included in a cognitive therapy (CT) package, relapse rates for patients with recurrent depressive episodes are decreased (Teasdale et al., 2000; Ma & Teasdale, 2004). Surawy, Roberts, and Silver (2005) indicated that a mindfulness program significantly improved subjective reports of distress, anxiety, fatigue, depression, physical activity, and quality of life. Furthermore, mindfulness has been effective at reducing residual depressive symptoms following depressive episodes (Kingston, Dooley, Bates, Lawlor, & Malone, 2007), and decreasing treatment-resistant depression (Kenny & Williams, 2007). Mindfulness also appears to increase self-efficacy and positive mind states (Chang et al., 2004). Participants in group administrations have indicated personal value of the groups due to improved quality of life (Murphy, 2006; Mackenzie, Carlson, Munoz, & Speca, 2007).

Some contradictory information exists as to the general effectiveness of mindfulness techniques. Teasdale, Segal, and Williams (2003) indicate that care needs to be taken to match mindfulness techniques and meditation with the problem being treated in psychotherapy. While they suggest that mindfulness is helpful for all of the difficulties mentioned in the previous paragraph, they caution clinicians who intend to use mindfulness as a treatment for all clients they are treating without a careful analysis of the development and maintenance of the problem. They go on to present evidence

that mindfulness training is actually harmful for clients without several previous relapses into depression (Teasdale et al., 2000; Ma & Teasdale, 2004). However, this research (Teasdale et al., 2000) was conducted with mindfulness training meditation, where clients are trained to sit quietly with eyes closed for extended periods of time alone (and/or in groups) focusing on breathing and other bodily and mental sensations. This is not what is suggested by either self-as-context or contact with the present moment. However, care should be taken when using mindfulness based approaches to have a complete theoretical, and when possible, empirical conceptualization of the case prior to implementation of these components of ACT.

Valuing

Many clients have been so focused on the elimination of some symptoms or disorders, that they have lost nearly all other direction. ACT therapists attempt to foster reevaluation of the client's life direction in order to choose a motivator for therapy that is devoid of elimination of symptoms. Choosing a valued direction is somewhat like picking a guiding star that can guide behavior and therapeutic goals. However, this is not a hard and fast rule. Clients are encouraged to freely choose values and directions repeatedly. Valuing is better thought of as a behavior, and a behavioral process of choosing behavior that is important in and of itself. For instance, a person who values parenting as well as a host of other things may stop working on an important project to comfort a crying child. Comforting the child is important not because it makes the child stop crying, but because it is in the person's valued direction of being a good parent. If clients are more able to choose behaviors and experience emotions, then subsequently more control over living is possible. This effect is paradoxical in nature, but allows

flexibility for clients trapped in lives focused on elimination of experiences. We “measure” values in terms of what people value or importance of such values and how people are doing with respect to behaving in accordance with their values, or consistency of valuing.

Sometimes there is a task analysis needed when asking a client what is important. Breaking down choosing into discrete simple steps may help to erode fusion and inflexibility that is blocking choice. Clients may be unable to identify things that they may want to work towards because many clients have never done this. Therefore, valuing often has to be done over and over again, asking questions about why a particular direction is chosen.

Valuing is related to and predictive of psychological wellbeing. Several studies have shown that valuing is negatively correlated with various symptoms of psychopathology (Adcock, Murrell, & Woods, 2007; Plumb et al. 2007; VanDyke, Rogers, & Wilson, 2006; Taravella, 2010). In addition, McCracken and Yang (2006) determined that living in accordance with patient chosen values predicted level of functioning with a sample of 144 chronic pain patients. The prediction was independent of the level of pain acceptance, indicating that valuing and acceptance are independent processes that each are important in functioning in the presence of pain (McCracken & Yang, 2006). Thus, empirical evidence supports the inclusion of valuing as a component of ACT. However, valuing without a public display or commitment may not make lasting changes.

Committed Action

Committed action cannot be accomplished in the absence of asking clients what they really want out of life. Working from a place that assumes all people have and are exactly what they need (or that behavior is a product of experience) allows the client and therapist to work together to identify values and goals. Small therapeutic goals that are in the clients chosen valued direction are spoken out loud and contracts are made between the therapist and client in the committed action component. When commitment is in the service of making life about valued living rather than about eliminating pain, the commitment is likely to feel different to the client and foster behavioral changes. When changes occur and then lapses in behavior happen, team building between the client and clinician can occur – barriers to change can be noted, failures can be analyzed, and the need to recommit on a regular basis can be addressed in therapy. Clinicians often find it useful to have the client commit to be committed when they slip. A quote from Margaret Young can help facilitate use of the idea of committed action:

Often people attempt to live their lives backwards; they try to have more things, or more money, in order to do more of what they want, so they will be happier. The way it actually works is the reverse. You must first be who you really are, then do what you need to do, in order to have what you want.

There is no direct empirical evidence for committed action as is utilized in ACT, yet it is based in empirical evidence and is very similar in function to behavioral activation (BA) which has demonstrated positive outcomes. Hayes (1986) determined that a public commitment to studying increased the likelihood of self-reinforcement for completion of self-designated study requirements, lending support for the inclusion of an out-loud commitment for behavior change. Furthermore, BA has shown dramatic effects in clients with depression (Meresman et al., 2003; Hopko, Bell, Armento, Hunt, &

Lejuez, 2005; Gortner, 2000; Dimidjian et al., 2006; Andrusyna, 2008) and depression comorbid with PTSD (Mulick & Naugle, 2004; Mulick, 2003).

In sum, each component of ACT has empirical support for its underlying theory and use. However, the specific support for the pieces is less conclusive than the initial support for the use of the package as a whole. There is more support for the entire package as a whole.

Empirical Support for ACT

ACT has been evaluated as a treatment for a variety of disorders and problems in living that have been categorized as Experiential Avoidance Disorders (Hayes & Follette, 1992). Though the model allows for a non-manualized, functional approach without reliance on classic diagnostic categorization, many ACT studies have been conducted within the classic diagnostic system. Thus, the diagnostic categories of depression, anxiety-related disorders, eating disorders, substance use disorders, psychoses, and several other problems have been successfully treated with ACT in burgeoning studies that are described in the coming sections.

Depression

The first of these studies was a randomized controlled trial conducted in 1986 that compared an early version of the therapy now called ACT to cognitive therapy (CT) for depression (Zettle & Hayes, 1986). ACT resulted in long-term gains above and beyond those of CT, which has been the case in several of studies that have followed.

As in the original ACT study, Zettle and Raines (1989) conducted an evaluation of ACT for depression, this time in a group setting over 12 weeks. ACT ($n = 11$) was compared to either a complete version of CT ($n = 10$) or a partial version of CT ($n = 10$).

Positive changes in depressive symptoms were evident and equivalent for each of the three groups. However, the therapies appeared to work via different processes because ACT participants did not evidence changes in dysfunctional attitudes whereas the CT groups did.

Folke and Parling (2004) treated a group of 18 individuals suffering from depression and on sick leave from work with a group ACT protocol and compared them to a group of 16 individuals receiving treatment as usual from the Swedish unified health care system in an RCT format. While all participants in the study remained on sick leave, ACT group participants were significantly less depressed and had a significant increase in overall quality of life at post treatment assessment, and this difference was in the opposite direction of differences observed in the TAU participants.

Forman, Herbert, Moritra, Yeomans, and Geller (2007) compared ACT ($n = 55$) to traditional CT ($n = 44$) for treating moderate to severe levels of depression and anxiety in a university counseling center setting. Outcomes demonstrated equal improvements in depression, anxiety, functional difficulties, quality of life, and life satisfaction; there were statistically significant decreases in depression and anxiety with large effect sizes as well as clinically significant changes for more than 35 percent (61% - depression, 55% - anxiety, 38% - functional difficulties) of clients across groups. Furthermore, this study was conducted using therapists trained in the core competencies and theory behind the treatment, and resulted in clients and therapists indicating significantly more enjoyment of therapy in the ACT group than the CT group. Clients and therapists reported this alliance with ACT in spite of the fact that they felt confused and like novices much of the time throughout treatment.

Anxiety Disorders

Block and Wulfert (2000) treated 11 individuals suffering with public speaking anxiety that met criteria for social phobia in a group format with either ACT ($n = 3$) or cognitive behavioral therapy (CBT; $n = 4$). Four participants served as a waitlist control group in this RCT. Participants in both the ACT and CBT groups improved with respect to decreased anxiety and increased willingness to engage public speaking, whereas the waitlist group did not evidence these changes. Furthermore, changes in the expected directions with respect to mechanisms of change were noted in the ACT group.

Orsillo, Roemer, and Barlow (2003) treated a group of four individuals with generalized anxiety disorder (GAD) using a manual derived from the original ACT book (Hayes et al., 1999). All individuals evidenced statistically significant changes in depression, anxiety, and EA, and 50% evidenced “high end state functioning.” Furthermore, each of the four clients in the group evidenced important life changes in the service of their values.

Roemer, Orsillo, and Salters-Pedneault (2008) used a waitlist control design ($n = 31$) to evaluate the effectiveness of a 16-session ACT protocol for GAD. Anxiety and depressive symptoms were decreased, but not statistically significantly so at the nine-month follow-up assessment. However, the proposed processes of change, EA and mindfulness, significantly changed following treatment and at the follow-up.

Similarly, twelve individuals with social phobia completed a 10-session group ACT protocol (Ossman, Wilson, Storaasli, & McNeill, 2006) in an open trial design. Participants reported decreases in social phobia and experiential avoidance with large

effect sizes at post treatment; however, no mediation analyses were possible because of the small sample size.

Dalrymple and Herbert (2007) provided a 12-week ACT protocol based treatment to 19 clients with social anxiety disorder following a 4-week baseline period. Early changes in EA predicted later decreases in symptoms with large effect sizes.

Zettle (2003) treated individuals experiencing severe mathematics anxiety with ACT ($n = 12$) or systematic desensitization (SD; $n = 12$) in an RCT. In both treatment conditions a manual was followed. The two treatments equally reduced math anxiety and neither improved math skills. However, there was a difference in the process by which these treatments work. Only ACT significantly decreased EA.

Twohig, Hayes, and Masuda (2006) used manualized ACT to treat a small sample of clients with obsessive-compulsive disorder (OCD) in a non-concurrent multiple baseline across-participants design. Clinically significant reductions in self-reported compulsions were seen across all four participants, and decreases in anxiety, depression, EA, believability of obsessions, and need to respond to obsessions were seen across all subjects. While no mediation analyses were conducted, the data suggested that ACT processes changed in a related way with outcomes.

Similarly, multiple baseline across-participant designs have been used to evaluate the effectiveness of ACT as treatment of other OC-spectrum disorders such as trichotillomania and chronic skin picking. Twohig, Hayes, and Masuda (2006) treated five clients with chronic skin picking with an 8-session protocol based on Hayes et al. (1999). All but one participant in this trial reported zero-levels of skin picking throughout treatment. However, these gains were not maintained at three months post treatment

except in one individual. An ACT protocol enhanced with habit reversal therapy (HRT) was effective at decreasing the number of hairs pulled, frequency of pulling, and urges to pull consistently across six participants (Twohig & Woods, 2004).

Twohig and Woods results were replicated in a larger sample with a waitlist control condition. Client improvements were seen following ACT for each group following treatment (Woods, Wetterneck, & Flessner, 2006). Furthermore, significant reductions in hairpulling severity, urges to pull, and EA were observed along with decreases in depressive symptomology. Additionally, when comparing the ordering of components when combining ACT with HRT, the order of treatment does not make a difference in the outcome (Flessner, Busch, Heideman, & Woods, 2008). Each of these studies examining ACT with HRT have utilized a manual and stringent experimental controls with significantly positive outcomes indicating that ACT is effective for impulse control disorders such as trichotillomania and chronic skin picking.

Carrascoso-Lopez (2000) tracked client changes in fear, panic, and escape from stimuli across sessions of a single case of ACT for panic disorder with agoraphobia. Each of the behavioral measurements changed from the baseline treatment to zero levels throughout the 12 sessions of therapy. However, none of the clinical symptom measures indicated clinically significant changes.

Twohig (2009) treated an individual with chronic, treatment resistant PTSD and depression using ACT. Both process and outcome variables were measured at four timepoints over the 21 sessions of ACT, and showed systematic reductions across all measured variables to non-clinical levels at post-treatment. Though systematic changes were evident, no order effects or mediation effects were evident in this case.

Braekkan (2007) treated a group of veterans with combat PTSD with a 12-session ACT group treatment protocol. No significant change in PTSD symptomology, depressive symptoms, believability of automatic thoughts, or life satisfaction was evident in the sample. EA and automatic thoughts significantly increased following ACT treatment, but when outliers were removed from the sample, no significant changes were evident. It is notable that this trial included a non-veteran community control group, which was significantly less severe on all measures at both pre and post treatment assessments.

Eating Disorders

An adolescent with anorexia nervosa was treated with an ACT protocol that included several experiential exercises and concrete examples of these exercises (Heffner, Sperry, Eifert, & Detweiler, 2002). The client's weight increased to a healthy 56 kilograms over the course of the 18 ACT sessions, and her menstrual cycle returned. Similarly, her relationship to her fears and concerns about weight changed.

Substance Use Disorders

The use of substances has been altered via ACT. Heffner, Eifert, and Parker (2003) described a case in which ACT was utilized with an emphasis on the valued living component which produced nearly 100% abstinence from alcohol use and a significant decrease in overall symptoms of distress, except in the area of interpersonal relationships.

Twohig, Shoenberger, and Hayes (2007) treated three clients with marijuana dependence using ACT in a multiple baseline across participants design. Over the course of the 8-session protocol modified from Hayes et al. (1999), each of the three

participants decreased their marijuana use to near-zero levels. However, two of the three returned to below baseline levels of use at the 3-month follow-up assessment. EA was measured at four time points throughout the study and was noted to decrease as therapy progressed; yet, mediation analyses were not possible due to the small sample size.

Hayes et al. (2004) evaluated ACT in the treatment of poly-substance abusing clients on methadone maintenance. Most (97%) of the sample had relapsed within the past 30 days. The clients that received the 16-week treatment protocol with 48 sessions of ACT ($n = 24$) and the Intensive Twelve Step Facilitation group ($n = 44$) reported and objectively tested to have lower drug use than the control group who received continued methadone maintenance ($n = 28$).

Luoma, Kolhenberg, Hayes, Bunting, and Rye (2008) offered an ACT intervention to 88 clients in treatment for substance abuse disorders. Forty-eight of these clients completed at least 4 hours of ACT in a group format that did not follow a specific protocol or manual, but used information and exercises from several different ACT books. Following treatment, participants were significantly less stigmatizing toward themselves and experienced less shame. Furthermore, EA decreased significantly following ACT treatment, and EA was highly correlated with outcome variables. However, no mediation analyses were possible because of the brevity of the research design and lack of a control group.

Likewise, smoking cessation was facilitated by the use of ACT (Gifford et al., 2004). Two trials have examined smoking cessation via ACT. Gilford et al. (2004) compared ACT ($n = 33$) to nicotine replacement (NRT; $n = 43$) for smoking cessation

using a well controlled RCT design with an individual and group protocol (7 individual and 7 group sessions lasting from 50 – 90 minutes). There were a significantly higher number of participants that had remained abstinent from smoking at the one-year follow-up assessment in the ACT group compared to NRT.

Additionally, in an open clinical trial, Brown et al. (2008) provided ACT to 12 smokers following multiple lapses in prior smoking cessation attempts. A manual was used that covered each component of ACT in 9 two-hour group sessions. Though mean quit times without lapse did not appear hugely effective, the median period of abstinence was more than 40 days in this group of chronic smokers.

Substance Use and Paraphilia

Severely socially inappropriate behavior has been successfully treated using ACT. Paul, Marx, and Orsillo (1999) provided ACT to an individual who was referred via the judicial system to treatment for exhibitionism and drug use. No manual was available at this time, thus the theory was utilized in a functional manner throughout treatment. Treatment successfully reduced drug use and public masturbation as well as reduced depression and anxiety and increased social skills.

Psychotic Disorders

Perhaps even more impressive is the effect ACT has had on reducing rehospitalization rates in psychotic patients. Veiga-Martínez, Pérez-Álvarez, and García-Montes (2008) provided 15 90-minute sessions of non-manualized ACT to a client with schizophrenia that had been on medication for six years and continuously in psychosocial treatment for three years. Throughout treatment the report of annoyance of psychotic symptoms changed minimally, while his work attendance increased to

perfect and his reports of other psychological difficulties (somatic concerns, anxiety, suicidality, etc.) decreased.

Bach and Hayes (2002) provided a brief protocolized ACT intervention (4 sessions) to 40 patients experiencing positive psychotic symptoms. When compared to a group of 40 patients who received treatment as usual (TAU), the ACT group was hospitalized about half as often as the TAU group. This result was despite the fact that the ACT group reported more psychotic symptoms, indicating acceptance of their symptoms, and decreased believability of their psychotic phenomena, indicating the processes of changes posited by ACT were the mediators of change between these groups.

Gaudiano and Herbert (2006) replicated the RCT results of Bach and Hayes with a sample of 40 adults whom were hospitalized for psychotic illnesses. The protocol from Bach and Hayes was modified and combined with the Hayes et al. (1999) book to guide treatment in the ACT condition. Both conditions received additional treatment sessions (an average of 3), to account for the additional time spent with a caring individual. The TAU group ($n = 20$) was rehospitalized at about 1.62 times more than the ACT group ($n = 18$). Furthermore, 50% of the ACT group was identified as reaching clinically significant effects from treatment whereas only 7% of the TAU group did. Additionally from this sample, Gaudiano, Miller, and Herbert (2007) determined that ACT produced clinically significant changes for individuals with both personality disorder and depressive disorder diagnoses in addition to psychotic symptoms. Thus, both Bach and Hayes (2002) and Gaudiano and Herbert (2006) significantly reduced the rate of

hospitalization in a large group of psychotic patients following ACT treatment along with treatment as usual (TAU) in an inpatient setting.

Chronic Health Conditions

In addition to the variety of mental health diagnoses successfully treated with ACT, it has also been effective in the treatment of health related problems. Gregg, Callahan, Hayes, and Glen-Lawson (2007) compared ACT + patient education ($n = 43$) to patient education alone ($n = 38$) in an RCT with a manualized workshop format for low SES patients with Type II diabetes. They determined that the ACT group produced better self-management and better blood glucose levels than patients in the education group. These changes were mediated by acceptance.

ACT ($n = 14$) decreased seizure activity and other psychological variables significantly more than supportive therapy ($n = 13$) in an RCT in a sample of South African individuals with drug refractory epilepsy (Lundgren, Dahl, Melin, & Kies, 2006). Furthermore, Lundgren, Dahl, and Hayes (2008) reported that the reduction in seizure activity in these South African patients was partially mediated by ACT processes such as acceptance and defusion, values, and persistence. Similarly, in West India a group of individuals with drug refractory epilepsy responded better to a protocol-based ACT intervention ($n = 10$) than Yoga practice ($n = 8$).

Chronic Pain

Chronic pain patients at risk for long term disability or early retirement treated with ACT had better outcomes on work related variables than those treated with medical treatment as usual (TAU) in an RCT; specifically, ACT prevented sick leave and disability in this group above and beyond TAU (Dahl, Wilson, & Nilsson, 2004). Dahl,

Wilson, and Nilsson (2004) conducted an RCT in Sweden with individuals with chronic pain. Eleven participants in the ACT condition received 4 one hour sessions that significantly reduced days missed from work, which was significantly more than the 8 participants in the TAU condition that continued to receive medical treatment for their problems. This was given a four-session ACT protocol that covered acceptance, values, defusion, and committed action one session per component.

McCracken, Vowles and Eccleston (2005) conducted an open trial examining the effects of ACT with 142 chronic pain patients, 89 of whom completed treatment and all follow-up assessments. Results indicated that significant decreases in pain related behaviors (fewer doctor visits, more activity, etc.) were evident at follow-up; these changes were not due to any medical treatment received by the patients in the trial. Acceptance of pain mediated outcomes in both the behavioral (sit-to-stand challenge) and psychological (depression, anxiety, etc.) domains, but did not have an effect on change in pain, medication use, or timed walking.

To treat 171 chronic pain patients, Vowles and McCracken (2008) used an intensive program with either 3 or 4 weeks of six hours of treatment daily with a combination of ACT, mindfulness practice (Kabat-Zinn, 1990), and interdisciplinary rehabilitation. Changes on all variables in the positive direction were seen with moderate to high effect sizes. Acceptance and values-based action were increased across treatment.

Vowles, McCracken, and Eccleston (2007) evaluated the processes of change in a large group of chronic pain patients following treatment with ACT ($n = 252$). In the same treatment protocol described above (Vowles & McCracken, 2008; McCracken et

al., 2005) positive outcomes were correlated with three process variables, acceptance, pain willingness, and catastrophizing.

Vowles, Wetherell, and Sorrell (2009) conducted two trials of ACT for pain and demonstrated positive outcomes. In the first study, 11 patients with chronic pain were treated using a manualized ACT treatment. Results indicated that ACT significantly improved pain acceptance, pain, and depression with large effect sizes. Study two compared ACT to CBT in a small group format. Two or three patients at a time completed four 90-minute group sessions of ACT or five 90-minute group sessions of CBT. The ACT group reported more severe chronic pain (on disability, more pain related anxiety, etc.) than the CBT group at pre-treatment. The ACT group significantly improved their depression more than CBT, but all other outcomes were equivalent and both ACT and CBT improved pain, anxiety, and acceptance.

A small group ($n = 14$) of adolescents were treated for chronic pain with an ACT protocol (Wicksell, Melin, and Olsson, 2007). Following a varied number of sessions both with the patient and/or their parents, a 63% functional ability improvement was seen at post treatment, and school absenteeism dropped 68%. All gains were despite the fact that pain symptoms remained constant. All gains were maintained through the 6-month follow-up assessment.

Similarly, Wicksell, Melin, Lekander, and Olsson (2009) provided a 10-session ACT protocol to adolescents suffering with chronic pain in an RCT comparing ACT ($n = 16$) to a multidisciplinary approach that included medication ($n = 16$) to pain treatment. The two groups were comparable on all pain outcome measures. However, that ACT group evidenced significantly less pain related discomfort, kinesophobia, and pain

intensity than the TAU group, and there was a trend toward less depression and catastrophizing.

Whiplash injury that resulted in chronic pain has been evaluated as an area where ACT may be beneficial. Wicksell, Ahlqvist, Bring, Melin, and Olsson (2008) evaluated a 10-session ACT protocol in a waitlist control design for whiplash injured individuals that had experienced pain for more than three months ($n = 20$; ACT = 11; control = 9). ACT was better than no treatment or treatment as usual which did not include any CBT techniques. ACT significantly reduced avoidance and fusion significantly over time through seven months follow-up.

Workplace Issues

Several studies in different areas of human experience have demonstrated the efficacy of ACT in a workshop format in a variety of realms of human life. Bond and Bunce (2000) conducted an RCT with workplace stress. They implemented nine hours of ACT training with 30 distressed workers and compared their outcomes with 30 individuals assigned to an Individual Improvement Program (IIP) and 30 in a waitlist control condition. Individuals in both the ACT and IIP significantly improved over the waitlist condition in mental health related outcomes, productivity, and other work related variables.

ACT has been used to prevent burnout and stigmatizing attitudes in substance abuse counselors with positive outcomes over standard multicultural training (Hayes et al., 2004), when a one day workshop protocol of ACT ($n = 30$) was compared to a similar workshop format of either a multicultural training ($n = 34$) or a biologically oriented educational training on methamphetamines ($n = 29$). The participants in the

ACT group maintained the impact that both treatments had on stigmatizing attitudes and burnout at post-intervention. Furthermore, ACT changed the believability of stigmatizing attitudes which mediated outcomes, but the multicultural training did not.

Luoma et al. (2007) determined that providing an ACT consultation group ($n = 14$) for drug abuse counselors made it more likely that they would implement an empirically supported group intervention for which they received a one day workshop and protocol than those counselors who did not receive such consultation ($n = 13$).

Similarly, Varra, Hayes, Roget, and Fisher (2008) compared ACT ($n = 30$) to an educational workshop ($n = 29$) in an RCT for drug abuse counselors prior to attending an educational workshop on empirically supported drug treatments for drug addiction treatment. Following the ACT workshop from the protocol used in Hayes et al. (2004), participants were more willing to recommend pharmacotherapy and reported more pharmacotherapy referrals. Furthermore, the ACT group reported more barriers to implementation, less believability in their barriers, and more psychological flexibility than the education group, which each statistically mediated the outcomes.

A single lecture (modified from the protocol in Hayes et al., 2004) on ACT was more successful at preventing prejudice in a classroom setting than an educational lecture on psychology of racial differences in 32 students in a within subjects design study (Lillis & Hayes, 2007). Furthermore, EA partially mediated the relationship between change in racial attitudes and type of training. In this study, positive outcomes were based on changes in EA, which changed more dramatically in the ACT condition.

Masuda et al. (2007) randomly assigned 95 undergraduate students to either an ACT intervention ($n = 52$) or educational control condition ($n = 43$) for the reduction of

mental health stigma. The ACT training was a modified version of the Hayes et al. (1999) manual. Participants were also grouped based on psychological flexibility as measured by the AAQ. The flexible ACT group, the inflexible ACT group, and the flexible education group all improved significantly in their use of stigmatizing attitudes, but the inflexible education group did not change following treatment. Though not explicit in these results a mediation effect of acceptance or EA in the outcomes of ACT are evident in the current RCT.

Parenting Disabled Children

ACT was applied to 20 parents of autistic children who were not necessarily distressed in order to be eligible for the study (Blackledge & Hayes, 2006). Even though the mean scores for individuals were not in the clinical range for depression, decreases in these measures were evident at post treatment and follow-up periods. Defusion mediated changes between the pre-treatment and follow-up scores on depression, but EA did not change significantly across time points and thus could not be analyzed as a mediator for this group.

In sum, ACT is efficacious with a variety of psychological disorders, problems in living, and within a range of normal human activities. It appears that the main process of change in ACT is acceptance, which differs from that of CBT (e.g., Zettle & Hayes, 1986; Hayes et al., 2004). Other processes involved in ACT were studied in this literature as well. Defusion or believability mediated outcomes (e.g. Bach & Hayes, 2000; Gudianno et al., 2006; Block & Wulfert, 2000), and valuing played an important role in some protocols and outcomes (e.g. Wicksell et al, 2006 & 2009; Dahl et al., 2004 & 2006). In fact, some studies have shown that these processes are effective even

when applied by novice therapists (Lappalainen, Lehtonen, Skarp, Taubert, Ojanen, & Hayes, 2007; Forman et al., 2006).

Effectiveness of ACT

Two effectiveness studies have indicated that ACT is effective. Lappalainen et al. (2007) conducted an effectiveness RCT comparing ACT ($n = 14$) to traditional cognitive behavior therapy (CBT; $n = 14$) in a clinic setting – all patients receiving treatment in the clinic were included regardless of diagnosis. ACT reduced symptoms to a greater degree than CBT, and ACT increased levels of acceptance (decreased EA) more than CBT, whereas CBT increased self-confidence. Self-confidence and acceptance were both predicative of psychological wellbeing. Acceptance remained a predictor when controlling for self-confidence; however, the reverse of this finding was not true, pointing to the strength of ACT in improving psychological wellbeing in clinical samples. However, this was with a small sample of clients. A larger-scale effectiveness study specifically studied a comorbid sample. It showed promising results for ACT within the anxiety and depression spectrum (Foreman et al., 2007). Findings of Forman et al. suggest that ACT can be effectively applied in a large sample without a treatment manual, and even suggested that ACT's proposed processes of acceptance and experiential avoidance mediate the changes seen in the ACT treatment. However, there was no mid-point treatment data collected, and the proposed mechanisms of change were not measured in a time constricted manner to determine changes in processes preceding changes in symptoms as ACT would predict.

Several of the above-mentioned studies highlighted the importance of EA as a mediator of outcome in ACT (see asterisked studies in Table 1). The proposed process

that underlies ACT, EA has been shown to change prior to positive outcomes and to statistically mediate the relationships between pre-test measures of psychological difficulties and positive changes in those same variables. Though they may have provided support for EA as the change mechanism or process, many of these studies were conducted in standard clinical trial format with a particular disorder being the target of treatment. From the theoretical literature on ACT and EA (Hayes et al, 1996; Hayes & Follette, 1992), it would appear that this approach may not be the best way to test the theory that ACT provides a treatment not based on the current diagnostic system, and that EA is a better guide in making diagnoses relevant to providing treatment.

Toward Functional Diagnosis and Treatment Evaluation

Biglan and Hayes (1996) have proposed that treatment based on function of the behavior labeled as problematic is potentially more effective than the current system. In other words, they advocated for utilizing the basic behavior analytic strategies, such as functional analysis, with each client on a moment-to-moment basis as described in the section above on the components of ACT. This is one of the premises under which ACT was created. Prior to the publication of the seminal ACT book, which has been used as a manual for several of the above mentioned efficacy studies (see Table 1 for a complete list), two of the originators of ACT conducted a field effectiveness trial to evaluate ACT training.

Table 1

Use of Treatment Manuals in ACT Outcome Studies

	Manual	No Manual
Depression	Folk & Parling, 2004	*Zettle et al., 1986; *Zettle et al, 1987
Anxiety or OC-Spectrum	*Orsillo et al., 2003; *Roember et al., 2009; Ossman et al., 2006; *Dalrymple & Herbert, 2007; *Zettle, 2003; *Twohig et al., 2006 a & b; Twohig & Woods, 2004; *Woods et al., 2006; Flessner et al., 2008	*Block & Wulfert, 2000
Substance Use Disorders	Twohig et al., 2007; Hayes et al., 2004; Gifford et al., 2004; Brown et al., 2008	*Luoma et al., 2008
Psychotic Disorders	*Bach & Hayes; 2002; *Gaudiano & Herbert, 2006	*Veiga-Martinez et al., 2008
Health Problems	Gregg et al., 2007	*Lundgren et al., 2006
Chronic Pain	*McCracken et al., 2005; Vowles et al., 2007, 2008, 2010; *Wicksell et al., a & b	Dahl et al., 2004; *Wicksell et al., 2006
Workplace Issues, Burnout, Stigma, etc.	*Hayes et al., 2004; Luoma et al., 2007; *Varra et al., 2008; *Lillis & Hayes, 2007; *Masuda et al., 2007; Blackledge & Hayes, 2006	*Bond & Bunce, 2000
Effectiveness trials (no specific diagnosis)		*Lappalainen et al., 2007; *Forman et al., 2007; *Strosahl et al., 1998

* denotes evidence of mediation of outcomes by processes of change variables in study

Two case examples have also provided data that the processes of change do change as predicted given ACT theory (Heffner et al., 2002; Heffner et al., 2003; Batten & Hayes, 2005). One such case study systematically evaluated the change in processes in a client with PTSD and substance abuse, and indicated changes that were theoretically consistent with ACT (Batten & Hayes, 2005). However, only one case was observed at a time in these studies, with a lack of experimental control. Consequently, the current study evaluated the processes of change in a session by session fashion with more than one individual in a well controlled research design with two-fold purpose: to examine processes of change and to evaluate the effectiveness of functionally applied ACT with a standard clinical sample.

The Current Project

This project aimed to empirically validate the functional ACT manual in a clinical setting. The functional manual did not prescribe processes to target in each session, rather it relied on functional analysis of client behavior for determining processes to target in each session. This functional manual was applied in a community-based training clinic with a small caseload of clients with a variety of diagnoses and comorbidity. The primary goal of the study was to determine if the functional application of ACT was effective for individual clients in this sample.

Additionally, the ACT theoretical model describes changes in process variables preceding changes in distress and symptomology. Thus, process variables such as experiential avoidance and valuing were tracked session-by-session throughout therapy to evaluate the effectiveness of this procedure and to determine if these changes were evident in the expected order based on ACT theory as Persons (2007) suggested.

A functional model of treatment research was applied for this evaluation. Thus, clients were diagnosed according to the functional dimensional model, cases were conceptualized based on an ACT approach, and ACT components were utilized in a corresponding functional manner. While doing this, the effectiveness of ACT in a clinical setting (the University of North Texas Psychology Clinic) was evaluated. Session-by-session data was collected on ACT process variables in order to test the hypotheses that each ACT component targets its stated process. A multiple baseline design across participants and behaviors was used, and ACT process variables, such as EA, values identification, and valued action were measured along with standard symptomatology.

Given the above conditions, four hypotheses were made. The first was that EA would decrease. Second, valuing would increase. Third, valued behavior would increase. And finally, symptoms would decrease.

CHAPTER 2

METHOD

Participants

Description

Participants were 10 clients seeking therapy services from a large, sliding fee for service, training clinic in the southwestern United States. Twelve clients were asked to participate, and two declined. Five participants dropped out after the intake interview, one dropped out after one treatment session, and four participants engaged in four or more treatment sessions and were included in the study analyses. Eighty percent of the total sample was female, 90% were European American, and one participant was an international student from India. Participants ranged in age from 19 – 57 with a mean age of 34.6 years.

Inclusion/Exclusion Criteria

No specific disorders or problems were selected for nor against; rather, the main inclusion criterion was the ability to conceptualize the case from the ACT perspective described in the previous sections. There was also the requirement that participants be at least 18 years of age, speak fluent English, and have the intellectual capacity required for talk therapy. These inclusion criteria were not directly tested, rather they were assumed given self-report and clinician's ability to easily communicate with the client.

Materials

Client Files

Standard clinic files were kept per the UNT Psychology Clinic policy. These files included intake paperwork with demographic information, consent forms, therapeutic progress notes, and any other assessment information. Progress notes were analyzed for treatment component implementation. All file materials, including relevant psychometric information and details about scores on standardized measures, will be discussed in terms of specific participant presentations.

Acceptance and Action Questionnaire

The Acceptance and Action Questionnaire II (AAQ-II; Bond et al., in press) is a ten-item questionnaire that measures experiential avoidance. Items are answered on a 7-point Likert-type scale. It is scored such that higher scores indicate higher levels of experiential avoidance. It has shown fair to good internal consistency with Chronbach's alphas ranging from .76 - .87 across seven samples with a total of 3,280 participants from treatment for substance abuse to the standard university students and community samples with a mean reliability coefficient of .83 (Bond et al., in press). Furthermore, test-retest reliability is adequate with a community sample across both a three-month (.80) and one year (.78) retest period.

The AAQ-II is correlated with a variety of psychological constructs and symptoms of psychological disorders. It is positively correlated with depression, anxiety, stress and overall psychological distress, and even has predicted greater psychological distress one year later (Bond et al., in press). Specifically, the AAQ-II is significantly positively correlated (.65) with the Global Symptom Index on the Symptom Checklist 90 in the

same large sample described above. Bond et al. also identified a range of AAQ-II scores that were indicative of significant psychological distress given the cut-scores of a variety of symptom measures given in the larger sample. Scores in the range of 22 to 25 were significantly predictive of symptomatology and thus, scores above this range are likely clinically significant.

In the current study the AAQ was used to measure EA at each session. The mean for the sample at the first session was 40 with a range from 29 to 49 indicating a moderate but clinical level of EA for the sample prior to treatment.

Valued Living Questionnaire

The Valued Living Questionnaire (VLQ; Wilson, Sandoz, Kitchens, & Roberts, 2010) is a 20-item questionnaire that assesses ten possible valued domains, including Family Relationships, Career, and other areas of life that many people deem important. Each item is answered on a 10-point Likert-like scale. Each of the ten domains is rated on personal importance (VLQ-I) and behavioral consistency (VLQ-C). When the VLQ-C score is subtracted from the VLQ-I score the result is a Valued Living Composite score. The VLQ (composite score) has shown only adequate internal consistency ($\alpha = .65-.74$) but good test-retest reliability (.75) in a sample of 57 undergraduate students (Wilson et al., 2010), and is thus far the best measure available for assessing valuing in the context of ACT. Furthermore, it was developed for use in clinical settings within the context of the ACT paradigm, and it can be used to aid in the discussion of valuing in the current trial.

In the current study the VLQ was used to measure valuing (VLQ-I) and valued behavior (VLQ-C) at each session. The VLQ-I mean for the sample at the first session

was 79 with a range from 36 to 93 indicating a varied level of values identification for the sample prior to treatment. The VLQ-C mean for the sample at the first session was 57 with a range from 43 to 72 indicating a low to moderate level of valued behavior for the sample prior to treatment.

Outcome Questionnaire

The Outcome Questionnaire – 45 Item (OQ-45; Lambert, Gregersen, & Burlingame, 2004) is a 45-item questionnaire that measures symptoms of anxiety and depression, interpersonal functioning, and social roles with higher scores indicating higher levels of distress. Items are answered on a 5-point Likert scale from *never* to *almost always*. The OQ-45 generates three subscale scores and an overall distress score (Lambert et al., 2004). The three subscale scores have fewer items and psychometric difficulties related to the small item pool, thus the overall distress score is what is typically chosen for analysis in outcome research. Total distress scores range from 0 – 180 with higher scores indicating more distress. The clinical cut-off for the overall distress score is 63.

The OQ-45 was developed as a measure of treatment outcome and this thus sensitive to changes in level of distress over short time periods (Lambert, Gregersen, & Burlingame, 2004). It has strong psychometric properties with adequate internal consistency ($\alpha = .93$) and test -re-test reliability ($r = .84$; Lambert et al., 2004). It has been validated as an outcome measure with various cultural groups seeking counseling at a university counseling center ($n = 952$; Lambert, Smart, Campbell, Hawkins, Harmon, & Slade, 2006).

In the current study the total OQ score was used to measure distress and symptoms at about every third session across the baseline and treatment phases. The mean for the sample at the first session was 89 with a range from 48 to 136 indicating a clinically significant level of distress for most participants in the sample prior to treatment.

Working Alliance Inventory

The Working Alliance Inventory (WAI; Tracey & Kokotovic, 1989) is a measure of the therapeutic relationship. It can be conceptualized and scored to represent three scales including goals, bond and tasks, or an overall score indicating overall alliance also has validity. The scale has demonstrated adequate psychometric properties (Horvath & Greenberg, 1989). Specifically, in a sample of clients engaged in therapy with varied theoretical approaches, the measure had good internal consistency ($\alpha = .92$), convergent validity with other measures of similar constructs such as empathy (48-52% shared variance), and predictive validity of client outcomes ($p < .05$). In addition, the factor structure indicated a bi-level structure with the overall score and the three subscales in a counseling center population (Tracey & Kokotovic, 1989).

The Short Form is also validated (Tracey & Kokotovic, 1989; Busseri & Tyler, 2003). The short form of the WAI was used in the current study. It consists of 12 items that are rated on a 7-point Likert-type scale from *never* to *always*; the range of scores is thus 12 to 84, with higher scores indicating a stronger alliance. The WAI was used to measure the therapeutic relationship and was given at about every third session across baseline and treatment. The mean for the sample at the first valid assessment (second

to fourth session) was 39 with a range from 16 to 52 indicating a varied perception of the therapeutic relationship from poor to good.

Structured Clinical Interview for DSM-IV Axis I Disorders

Structured Clinical Interview for DSM-IV Axis I Disorders (SCID; Spitzer, Williams, Gibbon, & First, 1992) is a well-researched structured interview for assessing of Axis I disorders. It has demonstrated high levels of reliability across symptoms and diagnostic categories (Segal, Kabacoff, Hersen, Van Hasselt, & Ryan, 1995; Skre, Onstad, Torgersen, & Kringlen, 1991; Zanarini & Frankenburg., 2000). Specifically, it resulted in 90% interrater reliability with Axis I disorder diagnosis. Thus, it was chosen as the diagnostic tool for the current project. Its sister instrument, the Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II) is also a sound diagnostic instrument (Farmer & Chapman, 2002; Zanarini & Frankenburg, 2000). The SCID-I and SCID-II have been used in combination in several outcome trials to present a full diagnostic picture of the clinical sample (Miniati et al., 2010; Vuorilehto, Melartin, & Isometsa, 2009; Zanarini & Frankenburg, 2000). Similarly, they have been used to evaluate long-term treatment outcomes from clinical trials (Angst, 1996; Svanborg, Wistedt, & Svanborg, 2008; Zanarini & Frankenburg, 2000).

In the current study, the SCID-I was given to all study participants, and the SCID-II was given to clients in the longer baseline conditions when Axis II features were suspected. The diagnoses included in the current study were major depressive disorder, recurrent, moderate, social phobia (social anxiety disorder), alcohol dependence, depressive disorder NOS, panic disorder without agoraphobia (past), poly substance dependence, in full sustained remission, borderline personality disorder, cannabis

abuse, alcohol abuse, in sustained remission, adjustment disorder with depressed mood (past), depressive disorder due to brain tumor, psychotic disorder due to brain tumor with hallucinations, anxiety disorder NOS (sub-clinical PTSD), alcohol dependence, in full sustained remission, posttraumatic stress disorder (PTSD), panic disorder with agoraphobia, dysthymic disorder, adjustment disorder NOS, posttraumatic stress disorder, alcohol abuse, cannabis abuse, major depressive disorder, single episode, in partial remission, and major depressive disorder, single episode, in partial remission. Two participants did not meet criteria for any current Axis I disorder at outset of the study, and six participants met criteria for three or more diagnoses.

Research Design

Borckardt et al. (2008) suggested the necessity of conducting smaller scale clinical research that inform scientist-practitioners of the mediators of therapy outcomes. Mediation directly addresses the hypotheses and research questions of the current study. Thus, a practical and methodologically sound single subject research design is needed for the current study. Most single subject designs require a return to baseline or removal of treatment; however, it would not be ethical or even possible to remove the treatment condition to prove a functional relation between the treatment and behavior in the current study. The multiple baseline design does not require that the participant engage a return to baseline or removal of therapy, and Kazdin (2003) describes it as one of the most useful single subject designs for the clinical setting. However, it requires that all participants begin treatment at the same time. A non-concurrent multiple-baseline across participant design does not have these requirements (Watson & Workman, 1981). The non-concurrent multiple baseline design (NMB) compares

individual clients at each time point of therapy with individuals beginning therapy at different times. A major strength of the design is that there is a control client in baseline for each client in treatment until the last phase of the study, similar to the waitlist control group design. Watson and Workman (1981) describe the NMB design as functional and easily used in the clinical setting.

The non-concurrent multiple baseline design was chosen based on its utility in a setting where a set number of clients may not be able to begin treatment on the same day. This design allows that each participant be randomly assigned to a length of time to wait before beginning the active treatment phase of the experiment. The current project included this design as described below.

Procedure

Baseline

There were three different target baseline time periods. It was expected that clients would complete three, five or seven baseline evaluations prior to beginning therapy. During the baseline, the therapist collected information about the client's history and the history of the problem, conducted the Structured Clinical Interview of DSM-IV (SCID), and engaged in supportive psychotherapy where necessary, specifically avoiding the use of any behavioral or ACT techniques.

This period of testing and treatment is not a true baseline, but rather a treatment phase that can be compared to the active treatment in an A-B design for each participant. This phase was chosen for ethical, empirical, and practical reasons. First, it would be unethical to ask clients seeking therapy from a community clinic to wait up to seven weeks for treatment, if that treatment was otherwise available during that time.

Also, structured interviews have been included in the current design to determine the DSM-IV diagnostic category of which the client suffers. This is a methodological enhancement as one main criticism of ACT research thus far has been the lack of empirical support for the treatment in specific diagnostic categories (Ost, 2008).

Treatment

The treatment phase of the design was predicted to last 8-10 sessions as provided in the manner described in the Introduction section of the current paper. No formal session-by-session manual was utilized in order to enhance the external validity of the results; the current results should be generalizable to the general clinic setting.

Therapists

The treatment was expected to be most effective when applied by one or only a few therapists trained in the functional use of ACT. Thus, the primary therapist was the author. An additional therapist was added when recruitment became problematic for study completion in a reasonable time frame.

The data were collected as part of the therapist's practicum experience at the aforementioned training clinic. The clinic limits the number of cases seen by any therapist at any particular time to be fair to the other student clinicians, thus only 6 to 8 clients can be seen at a time, with voluntary participation in the current research project. Therefore, the caseload was a major concern limiting the number of clients that could enter the study at any given time. Thus, single subject design was well suited for the current project, for both practical and research question purposes.

Data Analysis

Multiple baseline design (MBL) studies do not require statistical testing to examine the results, rather visual inspection of a graph of the data serves this function. Thus, the data analysis consists mostly of visual inspection of the data. Specifically, the data are examined for abrupt changes in the pattern of data, indicating treatment effect. However, given the relative complexity of the current study with comparison to an active treatment, the data were judged based on the four criteria outlined by Kazdin (2003). He suggests that the goal of data analysis is the same as when statistical test are used – identification of effects as consistent, reliable, and unlikely to have resulted from chance fluctuations. There are specific rules for visual inspection that can be easily applied by any eye; the characteristics of the data to be judged are magnitude and rate of the change (Kazdin, 2003). The two items pertaining to magnitude are mean and level. The mean refers to the average rate of performance. Level refers to the shift or discontinuity of performance from the end of one phase to the beginning of the next. The two items pertaining to rate of change are slope (or trend) and latency. Slope refers to the systematic increases or decreases in the variable measured. Latency refers to the period of time between the termination of the baseline condition and the change in the measured variable given treatment. Each of the variables measured were judged in accordance with each of the characteristics of data change mentioned above. Only if they meet these criteria set forth by Kazdin (2003) were the hypotheses considered supported.

CHAPTER 3

RESULTS

Results of the current clinical trial will be presented on a case-by-case basis in the following paragraphs. A summary with hypothesis testing is presented at the end of this section.

Participant 1 (P1)

Baseline

P1 had an extended history of treatment for anxiety and substance use disorders. She tried several medications in the past, but was not taking any psychotropic medication when she entered the study. She had received individual counseling, as well as inpatient and weekend intensive workshop-type therapies for anxiety and substance abuse, all of which she felt helped her somewhat, but she felt that she was still very anxious and reportedly wanted to work toward her desired life goals.

P1 identified herself as a mother, wife, and daughter. Though her repeated difficulties with anxiety and substance abuse strained her relationships with her husband and family, they remained very supportive of her treatment, stating that they would like for her to "get better." She was very proud of her children and wanted to be more engaged with them.

P1 presented with mildly depressed mood and extremely anxious affect. Though she was open and communicative about her experiences, she sat with her hands under her leg or folded in her lap the entire time. She appeared very nervous, and spoke

slowly. She was interviewed for approximately two hours across the two in office baseline sessions.

Given the SCID-I, P1 was diagnosed with major depressive disorder, recurrent, moderate, social phobia (social anxiety disorder), and alcohol dependence. She reported feeling down and depressed for periods of two weeks in which she felt down and sad for most of the day nearly all day, had loss of interest in many activities that she used to enjoy over the past 5 years, 4 pounds of weight gain in the past few months, reported sleeping about 4 hours per night each night unless she drinks alcohol, which allowed her to sleep for longer periods without waking, feeling that she does not have enough energy to get through the day, feeling guilty and having a bad attitude toward herself most of the time. She also reported frequent recurrent thoughts about death and dying, but not suicidal ideation. P1 reported feeling anxious (sweats, heart races, shortness of breath) in all situations with other people, either avoiding all social situations or drinking alcohol before engaging with others in any capacity. P1 drank 6 cans of beer about three to four times per week, which was less than before the three different treatment centers for alcohol abuse in the prior year. She left the last one early against doctor's advice. Her drinking caused her problems in her family life.

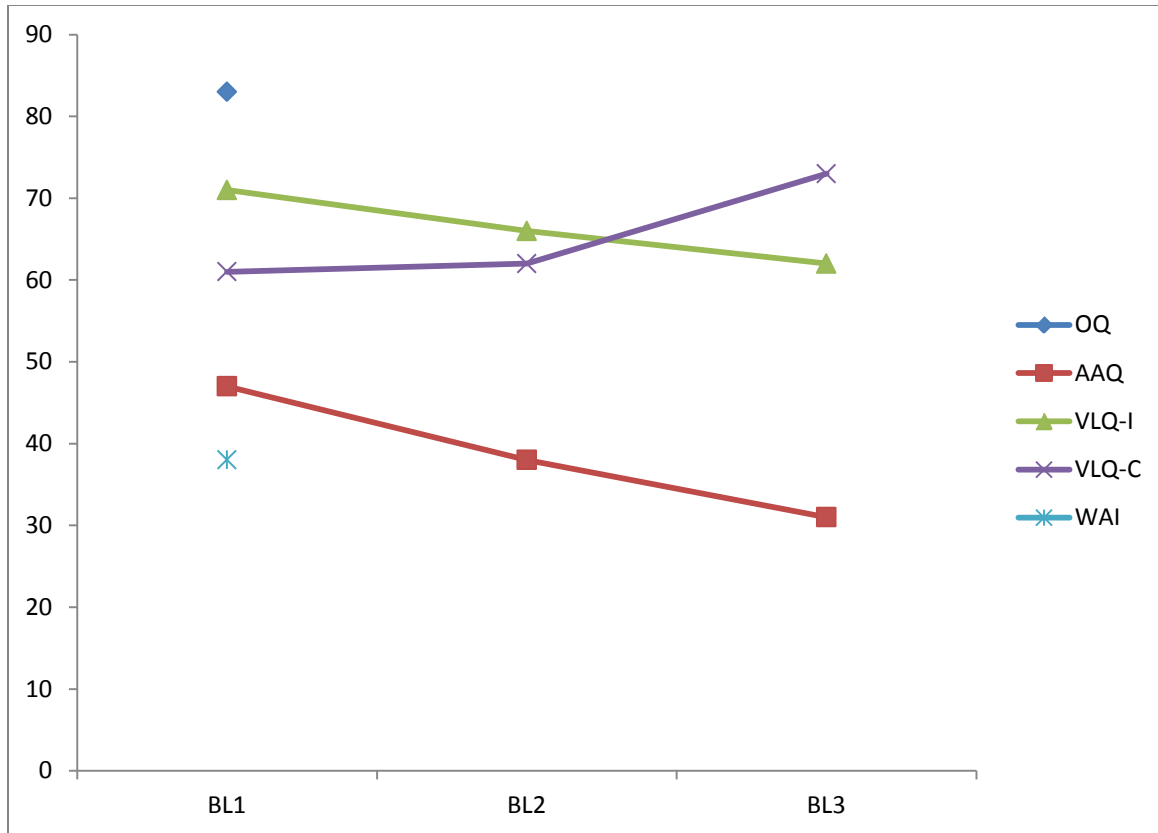


Figure 1. P1.

As seen in Figure 1, P1 presented with significant levels of clinical distress as measured by the OQ-45 (83), EA as measured by the AAQ (47), a fairly low level of valuing (VLQ-I, 71; VLQ-C, 61). These scores began to improve in a consistent fashion, though there were not clinically significant changes prior to treatment implementation.

Treatment

Following the assessment and integrated feedback, P1 never returned for therapy.

Participant 2 (P2)

Baseline

P2 completed an intake interview with a therapist not involved in the study and was placed on a waitlist due to the high volume of intakes prior to the winter break. She

was referred to the study by clinic staff. She was then consented to the study and was assessed using the SCID and SCID-II over the course of 6 sessions, and was diagnosed with depressive disorder NOS, panic disorder without agoraphobia (past), poly substance dependence, in full sustained remission, and borderline personality disorder.

P2 presented for the first two sessions with depressed mood and anxious affect. P2 was very open about her experiences. She was animated in her descriptions of events and made fairly little eye contact. Her speech was pressured at times, but content and process were coherent.

During the interview P2 reported periods of 5 days when she felt very lethargic and generally bad and stated that she did not gain excitement from things that usually please her, and she did not engage in activities. P2 reported that she had nightmares from which she woke and does not return to sleep, resulting in only one hour of sleep per day during times of depression. She felt ashamed, frustrated, and pathetic during these times. P2 said she thought of death and ways of ending her life. She had not engaged in any of these behaviors since stopping drug use, and described them as “fleeting thoughts.” P2 began using marijuana at age 15. After using “weed” for some time, she began experimenting with other substances such as benzodiazepines, cough syrups, alcohol, cocaine, mushrooms, LSD, and MDMA. The combination of these drugs used at various times in various increments became a problem. As her use increased and became prolonged, she had various physical and mental symptoms of withdrawal. She received treatment for substance abuse when she was 15, and again 20 months prior to her intake to the study. Since then, she had not used any mind-

altering substances. P2 has had panic attacks in the past, but none in the month prior to intake. The last one was in October of 2009. Symptoms of panic she experienced in the past include racing heart, sweating, shortness of breath, chest pressure, nausea (following the attacks), derealization, fear of going crazy, and numbness. P2 feared abandonment and therefore avoided getting involved with people unless she was certain they would like her. She felt that she must find someone new to care for her immediately after the end of a relationship. She displayed rapidly shifting and shallow emotions during session. P2 said she became frantic when someone she is close to leaves her. She would plead with them not to go, or become mean and rude or act out with self-harm. She also reported that she had changed her sense of self a few times during her life. She was learning to be more consistent with her sense of self, but is still struggling to be consistent in different situations. P2 was impulsive and acted recklessly in the areas of spending, sex, and drug use. P2 displayed suicidal behavior in the past; she had cut and burned her arms and legs. She used to do this monthly, but had not hurt herself in the several months before the baseline phase. She reported frequent mood swings from normal to angry. Her anger lasts “too long” and during which she had outbursts and felt as if she lost control; she threw things when angry. These outbursts were at times in response to small things. P2 felt spaced out whenever she is under considerable stress, and she frequently felt empty on the inside. However, she stated that this is changing since joining Alcoholics Anonymous after her last substance abuse treatment.

P2's baseline data, as you can see in Figure 2, represented a significant level of clinical distress (OQ mean = 66.5, range 109-49), moderate EA (AAQ mean = 33, range

38-26), and healthy valuing behavior (VLQ-I mean = 95, range 91-98; VLQ-C mean 85, range 67-94). On all measures, P2 was improving across the baseline assessment phase. This result could be potentially explained by the strengthening therapeutic alliance, as the scores on the WAI were also improving. However, these scores continued to improve and to become more stable in the treatment phase.

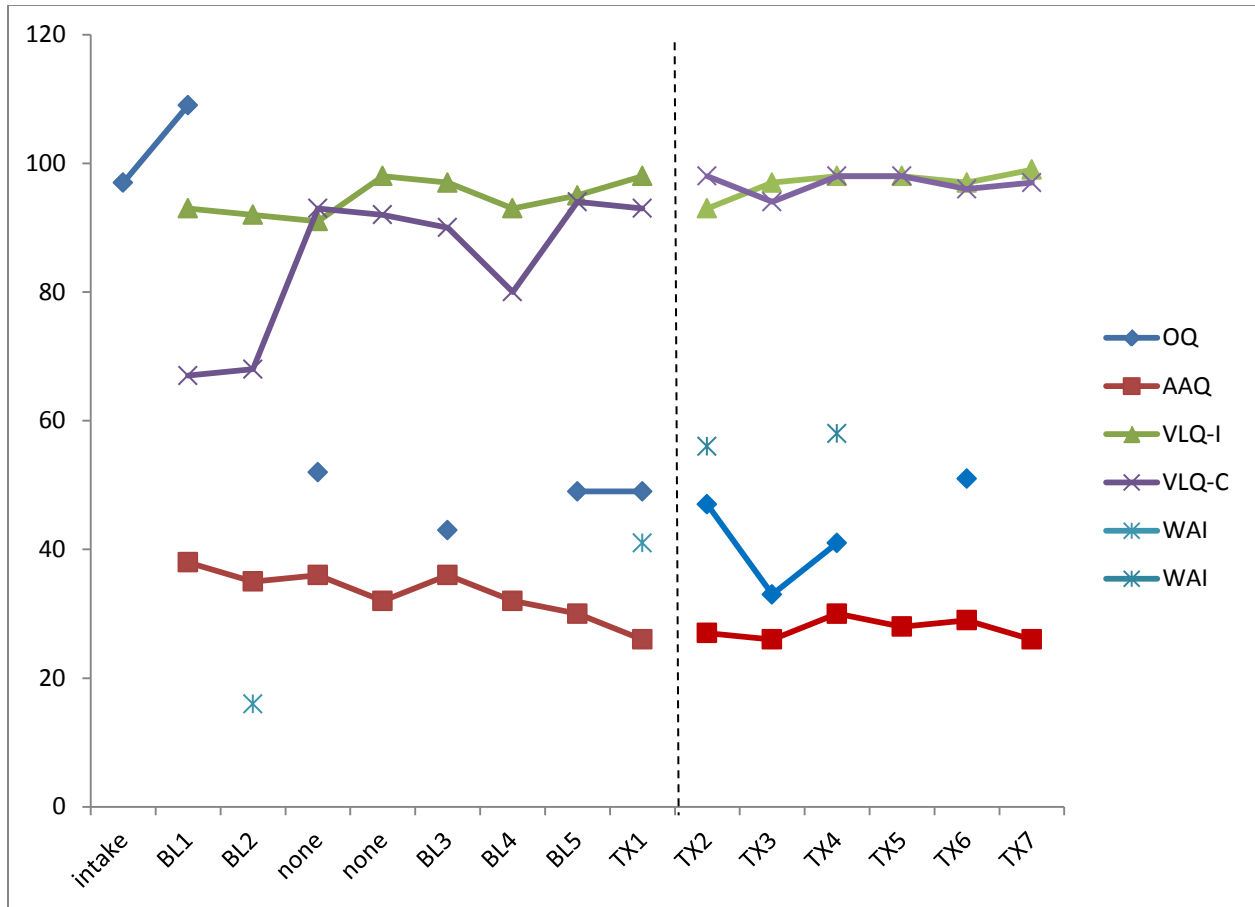


Figure 2. P2. Dotted line indicates phase shift.

Therapy

In the first therapy session, the mountain climber metaphor was used to introduce therapy as a collaborative process and gain perspective on the therapeutic relationship. The therapist described therapy as a process which is sometimes like

mountain climbing in that there may be times when the therapist can see the next foothold or where to go because of her having a different perspective rather than having some superior knowledge. P2 responded well to this analogy for therapy and agreed to begin the process together. In Session 1, P2 was fused with thoughts of *being stupid*, *not fitting*, and not being able to engage in relationships that she finds important. Thus, some defusion and willingness exercises were used to help P2 commit to an action in her valued direction of close personal relationships.

From the first session on, P2 noted her fusion with thoughts and became mindful of her actions. She began to notice thoughts of being “not herself” when acting in ways consistent with her values, because of her long history of avoidant behavior and lacking relationship skills. Thus, self-as-context became a focus of therapy. The following sessions (2-7) focused specifically on contacting the stable and consistent self from which P2 could choose her behavior. Defusion and mindfulness exercises were incorporated to further focus on breath, and choosing from the “self at the bottom of the breath.”

P2 faced being fired, but regained her job with mindful awareness of her actions in Session 4. This accounts for the increased OQ scores. Also, there was a large focus on acceptance of herself as human - she will not always be able to be present and mindful of her experiences (this is not obtainable), but this is a value she is capable of working toward as long as she chooses. She began to work toward using mindful awareness in all her relationships as well. This was the focus of Sessions 5 – 7.

In the final session, P2 identified some continued goals toward her values of being in close personal relationships and self care via mindful awareness. She intends

to continue her breathing exercises and trying to remain mindful during all of her activities. She also committed to using post-it notes to remind herself to breathe in this way. She intended to become more aware of her choice in dating relationships. To this end, she planned to create a list of desired characteristics in her partner and begin to act in those ways herself.

P2 reported that she enjoyed the therapy though it was not always easy. She felt it helped her remain accountable and remember to set goals for personal progress. Though she made significant progress as measured by her own account, as well as OQ, AAQ, VLQ scores, and the reduction of her diagnoses to merely poly substance dependence, in full sustained remission, she wanted to continue therapy. She was transferred to a different therapist for continued ACT outside of the study.

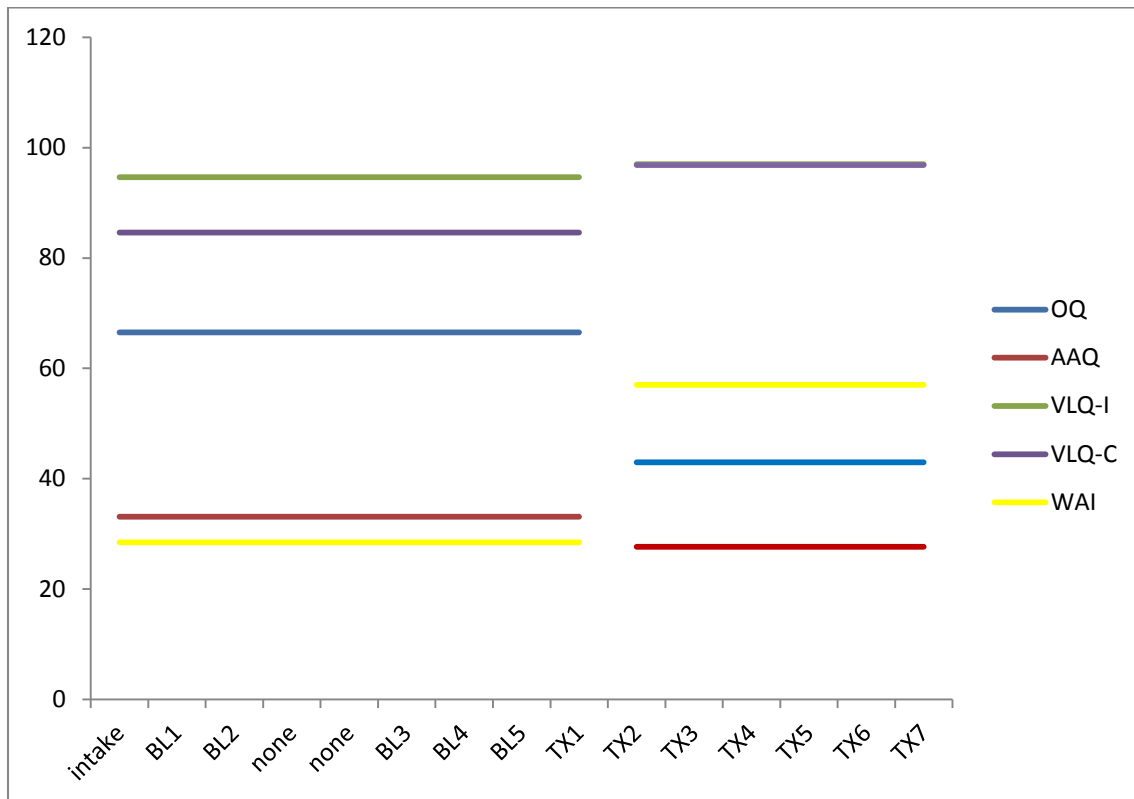


Figure 3. P2 means.

To address study hypotheses, the rules provided by Kazdin (2003) were applied to the data. Referring back to Figure 2, you can see a level shift in the VLQ-C scores where there is a significant jump from the last baseline data point to the first treatment phase data point. Similarly, there are level shifts in the VLQ-I and WAI. However, no level shifts are evident in the OQ or AAQ. As shown in Figure 3, the mean OQ scores decreased by a clinically significant amount from baseline to treatment, AAQ scores remained in a consistent range across phases, VLQ-I scores remained in the same range across phases, VLQ-C scores increased significantly across phases. Similarly, the WAI increased significantly. To evaluate the slope (or trend), trend lines were calculated and plotted. In Figure 4, OQ scores were improving during baseline and began to worsen during treatment. In Figure 5, AAQ scores were decreasing in baseline and flattened out during treatment. In Figure 6, VLQ-I slopes increased slightly from baseline to treatment. In Figure 7, VLQ-C increasing slope during baseline, and flattens out during treatment phase due to ceiling effects. Due to the fairly consistent nature of the treatment phase data across measures, latency analyses were not meaningful; the treatment data did not have a period of time prior to change.

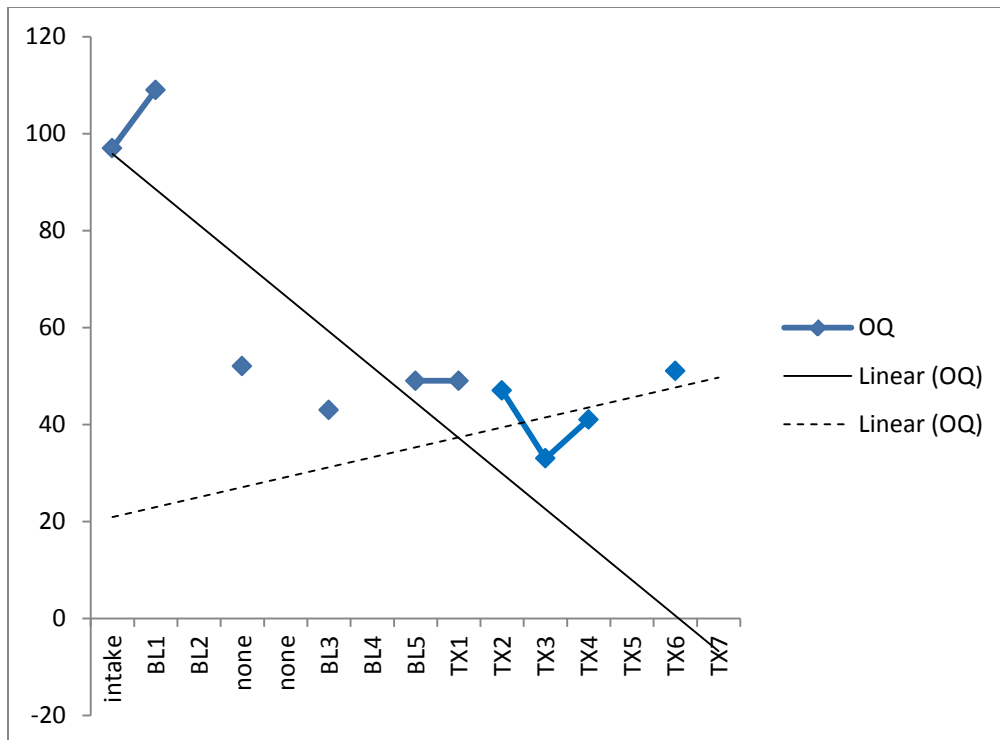


Figure 4. P2 OQ slope/trend analysis. Solid trendline represents baseline; dotted trendline represents treatment.

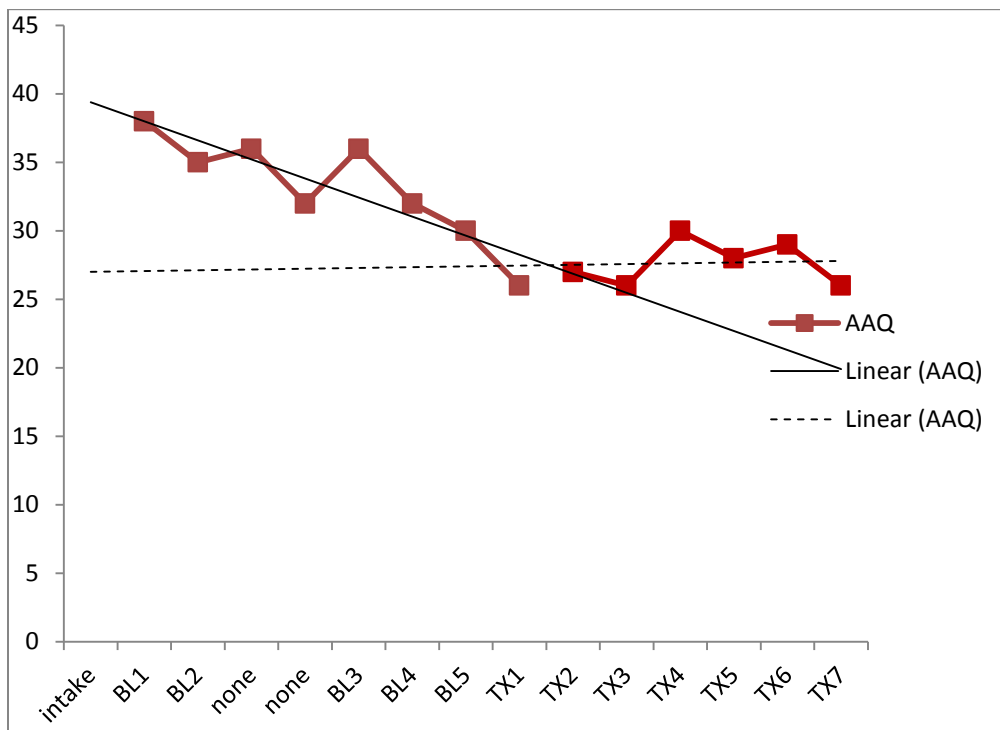


Figure 5. P2 AAQ slope/trend analysis. Solid trendline represents baseline; dotted trendline represents treatment.

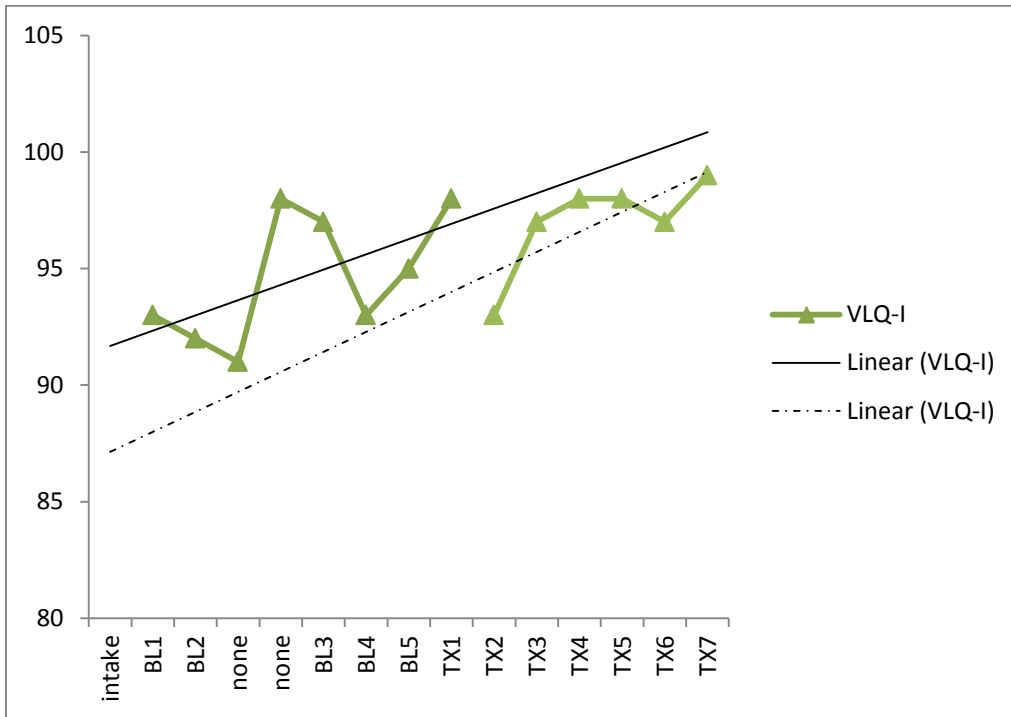


Figure 6. P2 VLQ-I slope/trend analysis. Solid trendline represents baseline; dotted trendline represents treatment.

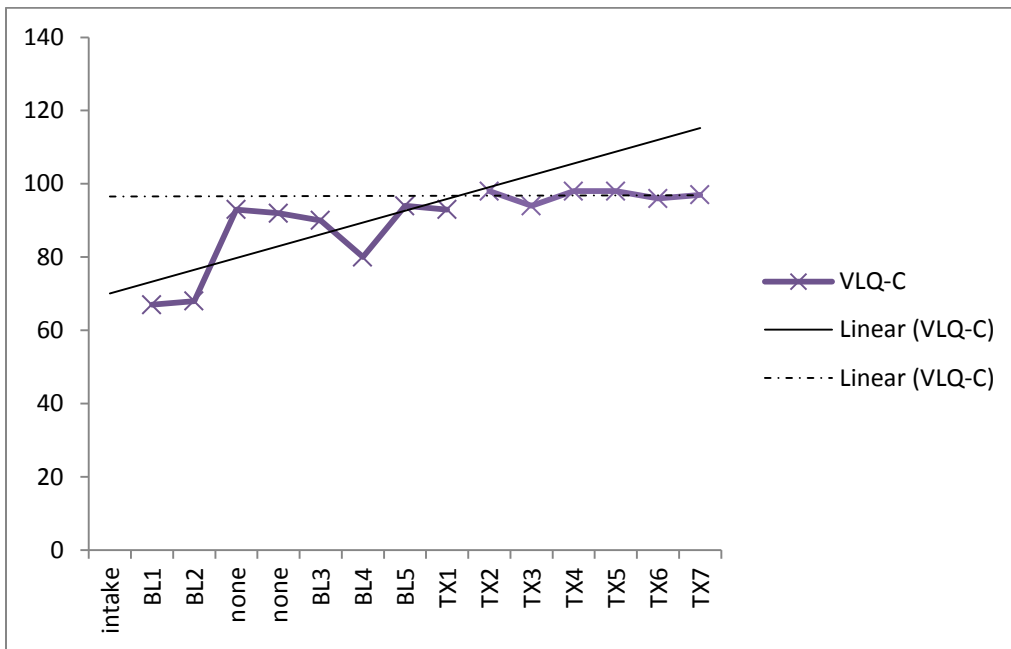


Figure 7. P2 VLQ-C slope/trend analysis. Solid trendline represents baseline; dotted trendline represents treatment.

Participant 3 (P3)

Baseline

P3 sought therapy for relationship issues and depression. She had adequate social support and was from a fairly stable family. She stated that she had been in a relationship with her current boyfriend for a year. She worked in a restaurant as a server and was happy doing so. At the time of the intake, she was currently a junior double major in French and international studies. She reported using alcohol more than she should in the past, but recently cut back significantly. She said she also used marijuana frequently, which she had considered quitting.

P3 presented with mildly depressed mood and anxious affect. She was somewhat guarded about her experiences, but opened up as the session continued. Her speech and behavior were otherwise normal.

P3 was interviewed for approximately one hour in one session. During the interview she reported relatively few psychological symptoms. The year prior to the intake, P3 experienced a prolonged period of sadness which lasted nearly the entire school year during which she lost 10 pounds because she did not feel hungry, slept at least 10 hours per day, always felt “blah” and like she did not have enough energy to get through the day, and felt as though her thoughts were jumbled. She also experienced panic attacks that included intense fear, racing mind, body tingling, feeling that she cannot sit still, shortness of breath, and increased heart rate. She had fewer than 5 attacks that year, but worried much of the time about having another. P3 said she worried about everything going on in her life. Specifically at times she worried about getting sad. At times she felt that she was worrying for no real reason at all. P3 admitted

to having problems in her life as a result of her alcohol and other substance use. She used marijuana daily, alcohol “more than [she] should” and experimented with mushrooms, LSD and MDMA. She was late for work and even missed one day of work due to this behavior. She said she also felt that it kept her feeling down and depressed. She thought about quitting or cutting back. Based on these symptoms, P3 was diagnosed with cannabis abuse, and alcohol abuse, in sustained remission. In the past, P3 would have met criteria for an adjustment disorder with depressed mood following her initial entrance into college.

P3s baseline data represented a mild level of clinical distress (OQ scores of 68 and 80) and EA (AAQ score of 31). However, she indicated finding fairly few things of importance to her (VLQ-I score of 66), and was not living with respect to those values that she did endorse (VLQ-C score of 43). Thus, the planned ACT intervention was focused on values.

Treatment

Though P3 sought therapy services, she did not return for therapy following the semester break. She called to cancel her first therapy session, and she requested a referral to a licensed clinical psychologist.

Participant 4 (P4)

Baseline

P4 grew up in a neglectful home situation, and moved out at a young age to care for himself. He did well in school, and even entered college earlier than expected. He reported that he is a very driven individual and has always worked hard for the things he has. P4 was assaulted by a man when he was 16 years old. P4 successfully avoided

thinking about this trauma until his life slowed down due to medical complications. P4 became worried about his condition when he began experiencing anger outbursts, which are not characteristic of his personality and behavior as he is employed by a high profile technical company. After months of these outbursts, he began hallucinating and feared he was going crazy. He was not having a psychotic break; rather he had a cancerous tumor in his brain. Surgeons removed the tumor, and P4 had mostly returned to normal. At intake, he complained of losing some memory and concentration abilities.

P4 presented with a shaven head and large scar from ear to ear across the top of his head. Psychomotor retardation was noted along with quiet voice with normal rate and tone. He had mildly depressed mood, though he was humorous throughout intake the session. He was forthcoming with information about his experiences, psychological symptoms and their effect on his life.

P4 was interviewed for approximately one hour in the office baseline session. During the interview he reported feeling down and depressed, and stated he had felt down, sad, and afraid for most of the day nearly all day for the last 8 months, during which time he had not engaged in his normal activities. He further said that he had lost 100 lbs in the last year, slept 2 – 4 hours per night, and felt that he cannot sleep more than this, experienced negative cognitions about not being happy. He was avoidant of talking about these issues, and worried that he had no short-term memory. P4 heard voices first whispering to him, then yelling at him before he was treated for brain cancer. P4 experienced assault from an older male when he was 16. He was raped. He had recurrent thoughts about the rape following surgery and during his forced break from work. P4 avoided thinking and talking about his rape. He also avoided situations that

may remind him of the event. He worked very hard to be in shape so that he could fight off anyone who tried to hurt him. He also felt “different” than others. He had difficulty recalling some important details of the event. P4 reported being constantly on guard, and looking around to be sure that no one is out to hurt him. Thus, P4 was diagnosed with depressive disorder due to brain tumor, psychotic disorder due to brain tumor with hallucinations, and anxiety disorder NOS (sub-clinical PTSD).

The baseline data indicated that P4 was severely clinically distressed (OQ score of 136) with mildly clinically significant EA (AAQ score of 29). However, P4 did not indicate finding many things important to him (VLQ-I score of 39), and was not living consistently with the values that he held (VLQ-C score of 62). Thus, the case was conceptualized as needing values based intervention.

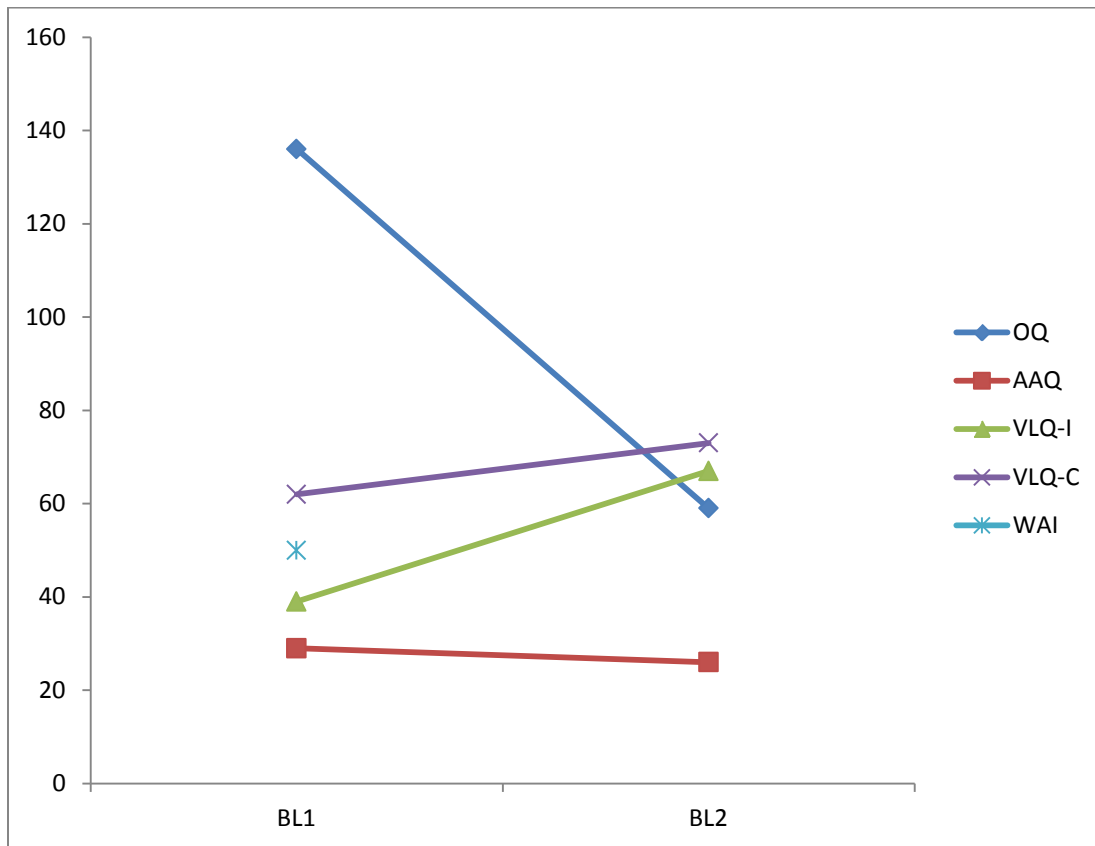


Figure 8. P4.

Treatment

P4 completed the initial intake and one therapy session. Data from these sessions are presented in Figure 8. He was consented to ACT and began to work on identifying valued directions in his life. These values included a long list of family relationships, work, and socializing, which he had already begun to re-engage at the time of the first therapy session. P4 scheduled a second therapy session and committed to 7 sessions. However, he canceled due to not feeling well, and never returned the therapist's phone calls.

This therapy termination by the client could have been due to the significant drop in clinical distress following the intake assessment. In the intake, feedback as to the diagnosis was given and psychoeducation was done. In addition, P4 was healing from his surgery and recovering well. Thus, therapy was no longer clinically indicated.

Participant 5 (P5)

Baseline

P5 was referred by her caseworker from a local agency for depression and anxiety treatment. P5 reportedly lived in a dirty and cluttered trailer home with her brother who also received disability. P5 had an extended history of anxiety related troubles. She had been diagnosed with generalized anxiety disorder and is currently medicated via MHMR with Zoloft and Trazadone. At the time of the intake, these seemed to be helping her sleep better at night, but she was still struggling with anxiety issues.

P5's family was part of an occult when she was young. Her early experiences did not include any formal religious experiences, but she "was a Christian" for a while

several years before this initial interview. She had struggled with the idea of religion and felt she had many questions in this area.

P5 presented with depressed mood and anxious affect. She was very guarded and had several questions for the therapist in the first session, but was open and communicative about her experiences. She was interviewed using for approximately two hours across three baseline sessions.

P5 was diagnosed with alcohol dependence, in full sustained remission, posttraumatic stress disorder (PTSD), panic disorder with agoraphobia, and dysthymic disorder due to the complexity of the following symptoms. P5 reported that she felt numb most of the time. She said that she rarely felt any emotion at all, or if she does, it is fear or anxiety. She had gained 5-10 lbs in the few months prior to baseline from eating alone in her room. P5 reportedly woke at 6 am every morning. She was on medication to help her sleep, which was working to help her sleep through the night. During the assessment time period, she said she fidgeted constantly, and frequently felt without enough energy to get her daily tasks accomplished. She felt as if she did not like herself; she felt ugly, unintelligent, and like a "basketcase." She found it difficult to make daily decisions. At times in her life, P5 had become suicidal, and had even received inpatient treatment for this, about 20 years prior. P5 experienced panic attacks from which she had been admitted to the hospital "every weekend." A doctor prescribed her medication that she believed was Effexor, which helped her not to experience panic as frequently. Her panic attacks included heart palpitations, sweating, shortness of breath, chest pain and pressure, and fear of dying. Just before these attacks began she was treated for irregular heart beat with Enderol; however, the following hospital visits

indicated no heart problems. These attacks rendered P5 nearly homebound, because of fear that she would experience another. P5 was raped by her brother and father repeatedly until she was old enough to leave home. She fought back anytime they did this to her, and she was afraid and felt guilty about it. P5 used to have recurrent dreams about the event, but had not in several years prior to this assessment. She also had intense fears about the occult and her experiences as a child that came to her from time to time. P5 felt more irritable than others, always on the lookout for something bad to happen, and screamed whenever startled. P5 was not interested in things she used to enjoy and felt estranged from others. P5 is a self-proclaimed alcoholic. She went to Alcoholics Anonymous in the past, and had not drunk alcohol since. P5 had had this combination of symptoms for several years.

P5's baseline data, as you can see in Figure 9, represented a significant level of clinical distress (OQ mean = 96, range 106-89) and moderately high EA (AAQ mean = 47, range 45-48). P5 did not indicate finding many things important to her (VLQ-I mean = 63, range 56-72), and was not living consistently with the values that she held (VLQ-C mean 39, range 27-48). Thus, the case was conceptualized as a traditional ACT case with all components being nearly equally important.

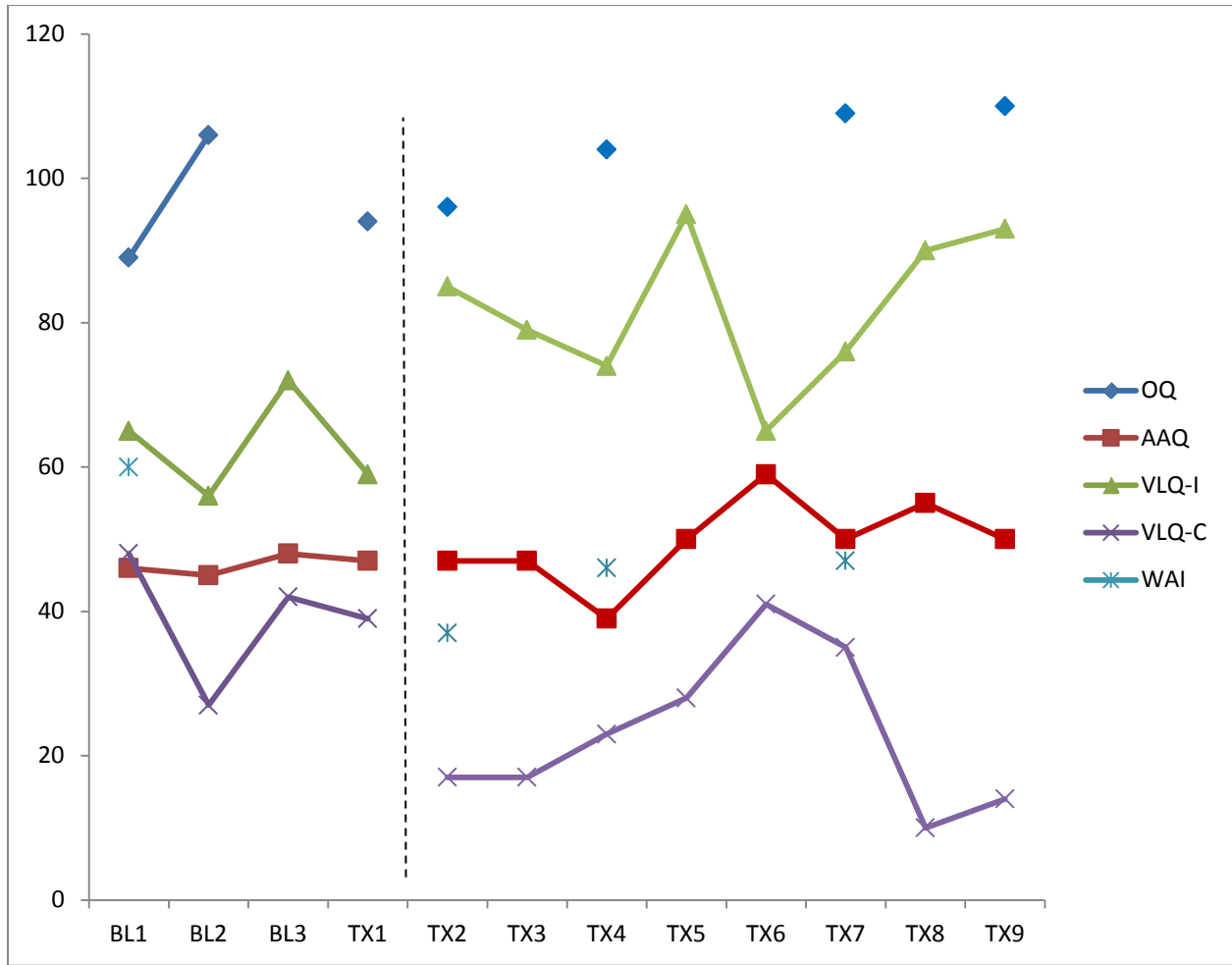


Figure 9. P5. Dotted line represents phase shift.

Treatment

P5 was seen for 9 therapy sessions. In the initial sessions, P5 was guarded and frequently asked the therapist if she was “just supposed to trust” her. The therapist responded that she might, if she thought it might help her move in her valued direction. The therapist listened carefully to P5 to help her identify things in her life that were particularly important and worth working toward. The identified values were close relationships with her children and others. As therapy progressed, P5 came to trust that the therapist was being honest with her about “not believing her mean mind”, and about

the therapist seeing many possibilities for P5. P5 began to work as if there were possibilities for her, also. Though this thought was merely passing, it was present at times for her.

During the 4th session, mindful breathing was introduced to help P5 slow down and be mindful of the present moment. P5 quit this exercise in the middle because it made her feel panicky (heart/breathing related anxieties surfaced). The therapist encouraged her to continue to let those feelings be present and continue the exercise for 8 breaths. This was assigned for homework, but was not completed.

The therapist continued to work with P5 on slowing down, by taking a breath before speaking. This was seen as a step toward her value of close personal relationships. This activity was practiced both in and out of session. Though P5 did not think it was related, the next session she reported having had positive interactions with her family the weekend between sessions.

The following Sessions 5 – 9 were focused on helping P5 to see her thoughts as separate from herself. This included many conversations about how she was different now than before, how she could do things that she said she could not, and how testing out her theories was not really helpful, because she did not believe the results.

P5 became more open with the therapist as the therapy focused more specifically on P5's mean mind. The therapist often said things like that she did not believe her mind or that her mind was being mean to her. Therapist also validated that all minds do this as part of their job to keep humans safe from danger.

In Session 7 the idea of being willing to experience negative emotions in the service of change – the possibility that something different may be on the other side of

the feelings – was presented. P5 was afraid, which is normal, and the therapist validated these feelings, and asked if she may be willing anyway in order to move toward her relationships with her children. P5 cried and committed to practicing breathing exercises.

The last two sessions focused on committed actions in the direction of her valued life directions. Specifically this was focused on remembering to breathe and think before she speaks. Also, the ideas of letting go of her fusion with figuring herself out and judgments of herself, asking herself if things are working to move toward her values/goals, and letting her feelings be what they are.

Though both client and therapist felt that ACT was working for P5, the study session limit had been met, and the therapist was moving away. Therefore, P5 was transferred to an available therapist in the clinic. No further data is available.

Referring back to Figure 9, a level shift is evident from the last baseline data point to the first treatment data point on the VLQ-I and VLQ-C scores, but not for the OQ or AAQ. The VLQ-I shifted in the expected direction, while the VLQ-C shifted in the opposite direction. As shown in Figure 10, OQ scores increased slightly in mean across phases, AAQ scores increased slightly in mean across phases, VLQ-I scores increased significantly in mean from baseline to treatment in the expected direction, VLQ-C scores decreased significantly across phases, and the WAI decreased. It is expected that the WAI results seen here are due to measurement error – the participant's first report was inaccurate based on her giving the therapist all positive scores due to her not understanding the measure.

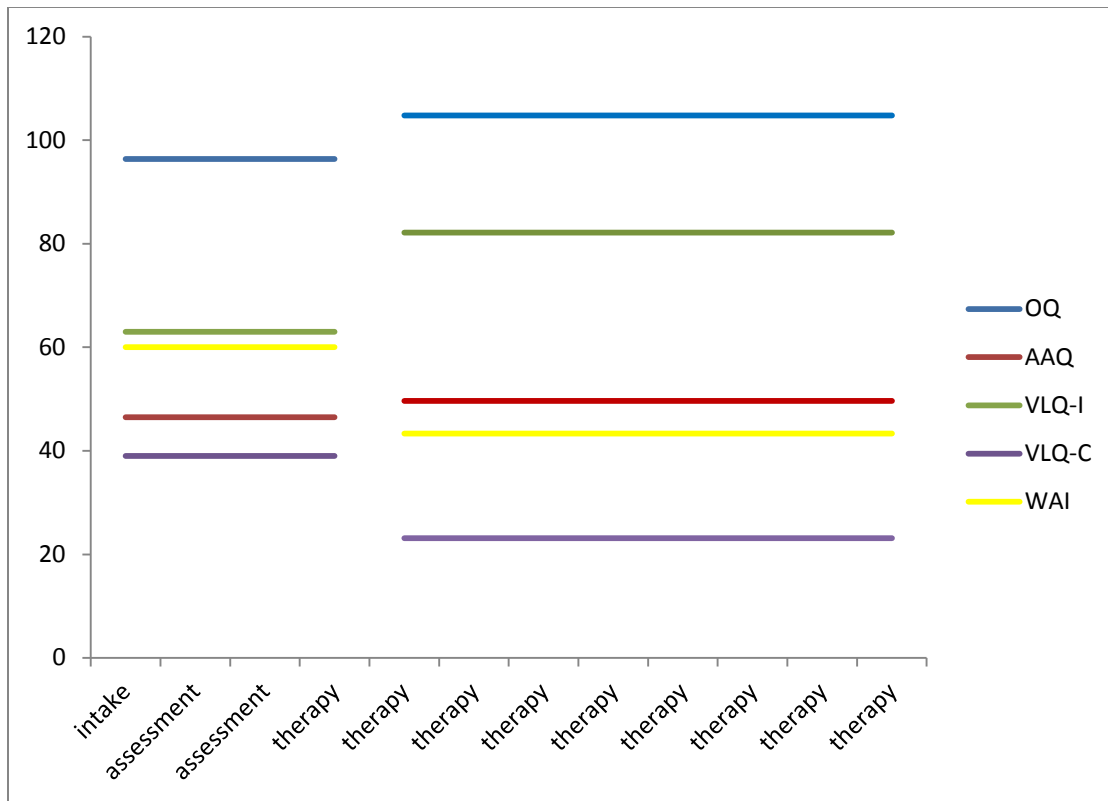


Figure 10. P5 means.

To evaluate the slope (or trend), trendlines were calculated and plotted. In Figure 11, OQ increased slope (worsening) in baseline indicating that she was a good candidate for treatment implementation, and the slope increased even more following treatment implementation. In Figure 12, the AAQ increased slope (worsening) in baseline indicating that she was a good candidate for treatment implementation, and the slope increased even more following treatment implementation. In Figure 13, the baseline trendline for the VLQ-I was decreasing, and the treatment trendline is increasing. Thus, change occurred in the expected direction on this measure. Following treatment implementation, P5 was able to verbalize more areas of her life that were important to her. In Figure 14, the baseline trend line for the VLQ-C was decreasing, but

the treatment trendline flattened out. This pattern indicates that P5 was more improved in her consistency across treatment. However, her pattern of responding indicates that while she was increasing for a time, those gains were short lived. The last session data did not follow this overall improving trend.

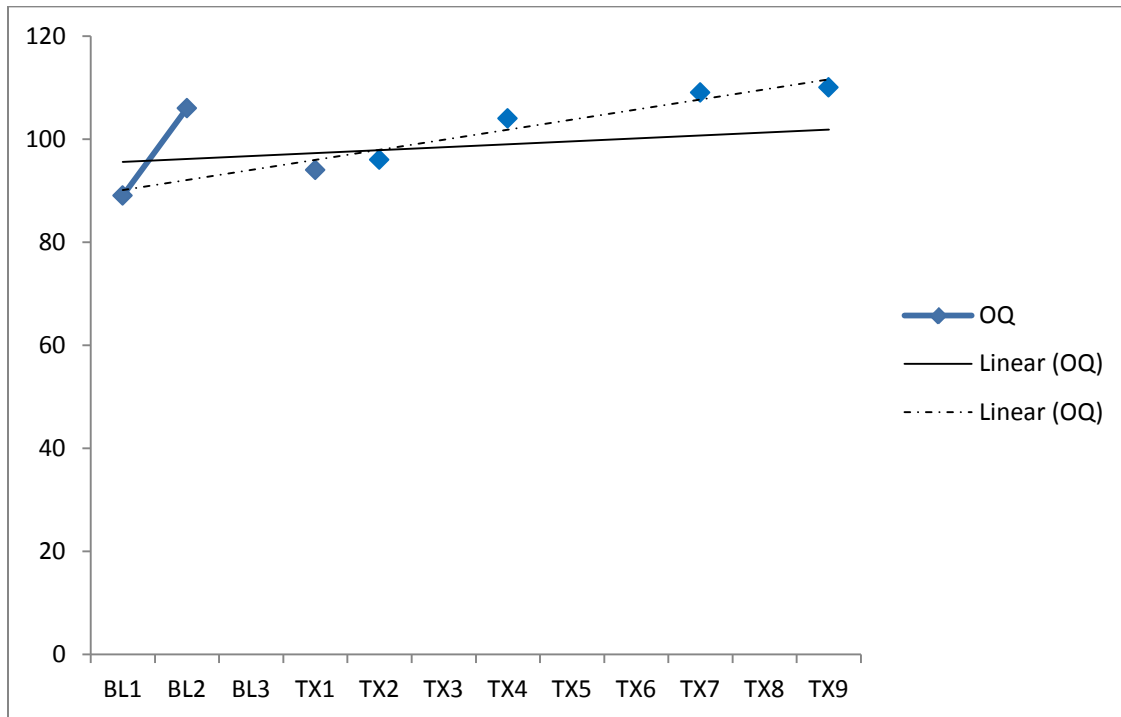


Figure 11. P5 OQ slope analysis. Solid trendline represents baseline; dotted trendline represents treatment.

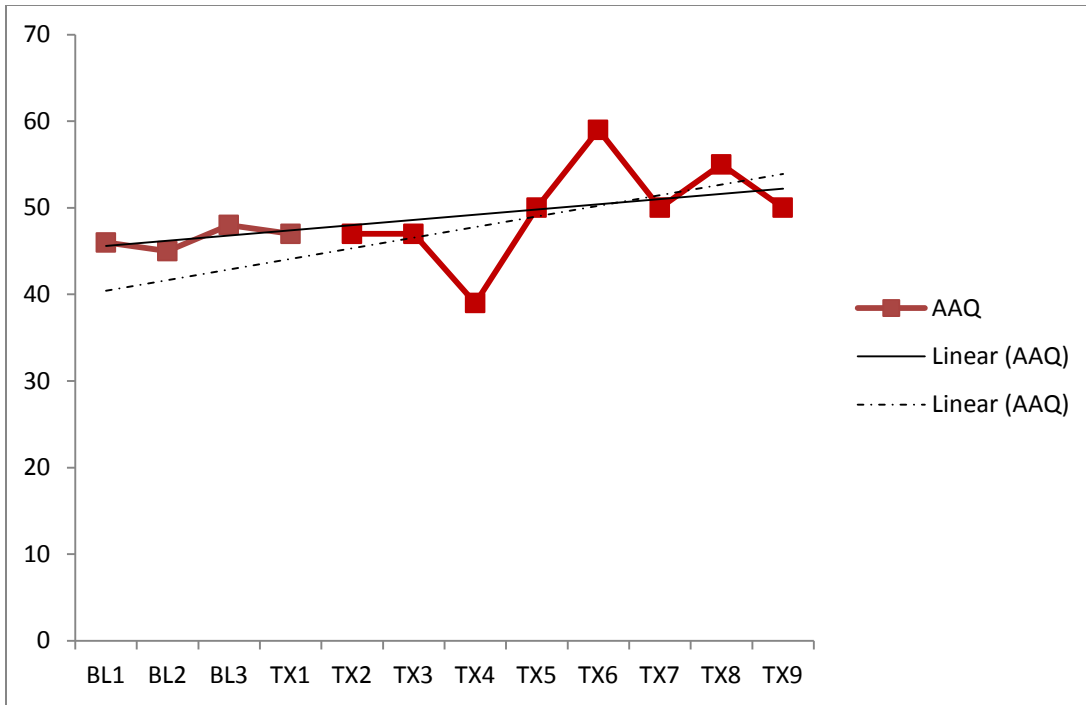


Figure 12. P5 slope analysis. Solid trendline represents baseline; dotted trendline represents treatment.

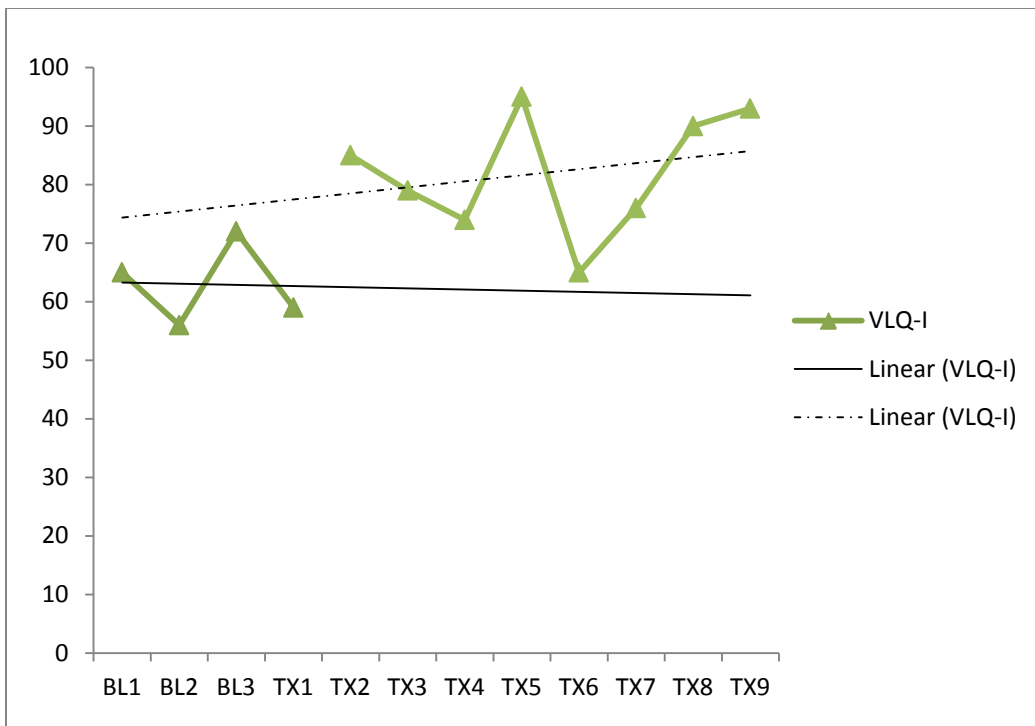


Figure 13. P5 slope analysis. Solid trendline represents baseline; dotted trendline represents treatment.

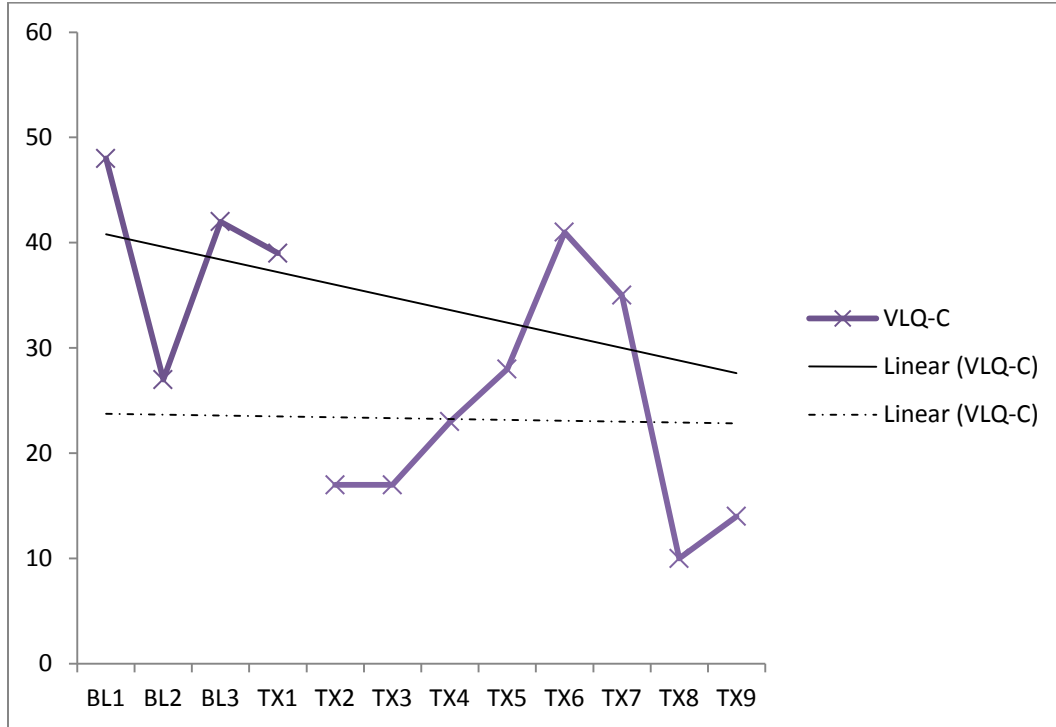


Figure 14. P5 slope analysis. Solid trendline represents baseline; dotted trendline represents treatment.

Participant 6 (P6)

Baseline

P6 sought therapy for his adjustment from prison and relationship issues. P6 was interviewed for approximately one hour in one session. P6 was separated from his wife and currently worked about 60 hours per week as an accountant, a job he had worked since his release from prison about a year and a half prior to his participation in the study.

P6 was incarcerated for charges of burglary and sexual assault. He served 16 years in prison for an age-based sex crime. He had experienced difficulty “keeping his

cool” since his release. However, he had maintained a relationship with his wife as well as a girlfriend and a steady job.

His childhood and education history was a bit rocky. P6 felt that his parents did not love each other and felt that the home environment was unstable. He did not graduate from high school. He completed the 10th grade following repeating the 9th grade. He completed a BBA degree in accounting in prison, which had allowed him to maintain a career.

P6 presented with euthymic mood with anxious affect. He was humorous throughout the intake session. He was forthcoming with information about his history as well as his psychological symptoms and their effect on his life. He did not report any significant psychological symptoms. He complained that he does not sleep well at times, and worries about the way his life had turned out. His chief complaint, and the reason that he is seeking services at this time is his failing marriage due to infidelity and a sometimes short temper. He began to notice these issues upon his release from prison. Therefore, P6 met criteria for an adjustment disorder NOS.

The baseline data indicated that P6 was experiencing a clinically significant amount of distress (OQ score of 89), a moderately high amount of EA (AAQ score of 45). Though P6 had many things that were of importance to him (VLQ-I score of 78), he had difficulty acting in accordance with his stated values (VLQ-C score of 53). He was a candidate for a values loaded full course of ACT per the above treatment description in the Introduction section of this paper.

Therapy

P6 was scheduled to begin therapy following the semester break. He was also asked to complete a packet of questionnaires and was told that the therapist would keep in contact over the break. His phone number entered into the computer system was incorrect, and resulted in no phone contact from the therapist. The therapist contacted P6 upon her return to the clinic, but P6 had filled the appointment time with work related items. He reported thoughts that the therapist did not like him because of his past behavior that he reported in the initial intake. The therapist assured him that it was merely a mistake and invited him back to the clinic, apologizing for the error. No further data is available.

Participant 7 (P7)

P7 self-referred to the UNT Psychology Clinic after learning about the clinic from a Google search. She sought therapy for relationship issues. Specifically she wanted to learn about herself and sort out some issues she had with her arranged marriage. At the time of the interview, P7 was married to a man living in a different state. Her marriage was arranged by her family, which is traditional in her family's culture. She is struggling with the being apart from her husband, and at the same time wanted to be free to have relationships with other people. P7 was completing a master's degree in computer science and living with two female roommates with whom she did not feel close. She reported having two good friends as well as her sister with whom she felt close.

P7 grew up in Dubai, India and had a traditional family culture. She had only recently begun to assimilate to the US culture, which had been difficult for her. While she enjoyed many US activities, she was conflicted about some specific aspects. She

had had difficulty with accepting her arranged marriage in the social culture. P7 had a relationship with a man that was not her husband, which left her feeling very guilty; she stated that “it was wrong, but I did it anyway.” She reportedly felt very badly, and sought therapy for this behavior and its resulting consequences in her marriage.

P7 presented with depressed mood and congruent affect. She cried during the interview. She was forthcoming with information about her history as well as her psychological symptoms. P6 was interviewed for approximately one hour in one baseline session. She did not report any significant psychological symptoms. However, her baseline data indicated a significant level of distress (OQ score of 74) with a moderate amount of EA (AAQ score of 42). Similarly, she only indicated a moderate amount of values (VLQ-I score of 63) and was experiencing difficulty living in accordance with her stated values (VLQ-C score of 60). Though P7 did not meet criteria for a diagnosis according to DSM criteria, her case was conceptualized from an ACT perspective as a struggle with identifying her own values within the context of the greater cultures of her family and current college society. However, P7 never returned a call to the clinic for counseling.

Participant 8 (P8)

Baseline

P8 self-referred to the UNT Psychology Clinic via internet search. She sought therapy for posttraumatic symptoms. P8 was completing a bachelor’s degree in social work and completing a practicum in a hospital setting. She felt a need to face issues from her own past in order to be effective with her clients. The issue she wanted to face was her own abuse and molestation from her father. P8 had a difficult childhood; she

was physically abused by her father and subsequently molested as a teenager, but had only recently recalled the specific events. She received counseling for “self-esteem issues” for about 8 months with 4 different therapists when she was 14 years old.

P8 presented with pleasant mood and anxious affect. She was very open and matter of fact about her experiences, and made good eye contact. Her speech was pressured at times, but content and process were coherent and congruent. She was interviewed for approximately three hours. During the interview she reported symptoms sufficient for diagnoses of posttraumatic stress disorder, alcohol abuse, and cannabis abuse. Specifically, she reported drinking until drunk on special occasions and about 4 beers per week otherwise. The year prior to the assessment, she received a DWI conviction and was still on probation for the offense (3 years). She had at times ended up drinking more than she intended, and attended AA for a short while, during which she did not drink for 3 months. P8 used marijuana on a regular basis, even though she was on probation and could have been randomly drug tested. She intended to smoke marijuana her entire life as she felt it helped to alleviate her psychological symptoms. Following her abuse and molestation by her father, P8 experienced dissociative flashbacks, had panic attacks in response to memories about the molestation, and recurrent memories almost daily that interfere with her daily life. At the time of the intake, she reported that the symptoms had waxed and waned over time, such that at times she did not think about it for weeks at a time. When these memories were present she became tearful and sad. P8 became angry when reminded of the event, and expressed that anger toward authority at times. P8 had avoided the memories in an extreme way; she had never talked about it, and feared that she did not even know now

how to verbalize the story of her abuse. P8 was frequently irritable and “snapped” at friends. She flinched when people raised their hands or arms.

Baseline data indicated that P8 was experiencing a significant level of distress (OQ mean of 97, range 106-87) and EA (AAQ average of 44, range 35-54). She could identify some things as important to her (VLQ-I mean of 66, range 61-71) and had been living only somewhat in accordance with these stated values (VLQ-C mean of 70, range 55-85). In fact, these data are fairly consistent across time, except for OQ scores, which presented a decreasing trend but remained in the clinical range. Thus, P8s case was conceptualized as a traditional ACT case where a thorough experience of control/avoidance as the problem would link nicely with her stated values and actions toward said values.

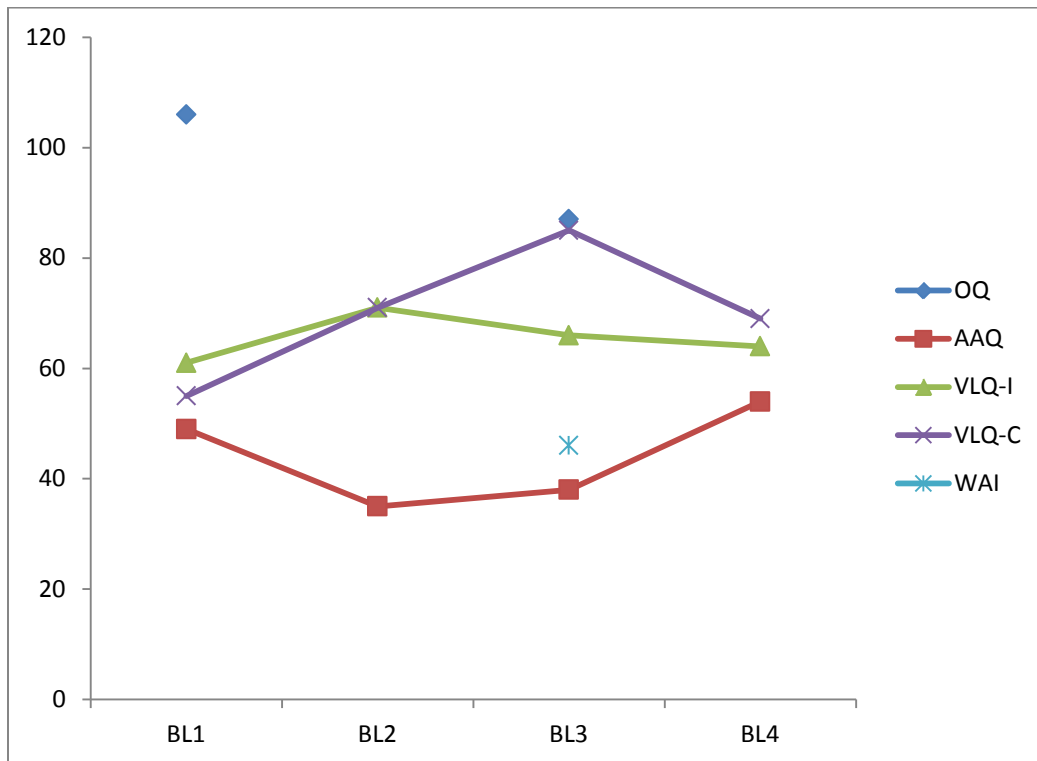


Figure 15. P8.

Therapy

P8 consented to receive therapy services as part of the trial; however her schedule was such that weekly meetings were not possible. She was transferred to another study clinician in attempts to coordinate with her schedule. She did not return for therapy, and no further data is available.

Participant 9 (P9)

Baseline

P9 was consented to the study by the other study therapist. She had been in therapy for marital dissatisfaction for 6 years at the time of the study. She had first sought therapy during the stress of her daughter's severe illness, and continued after her daughter was healthy, to work on issues of dependency and her ongoing relationship with her estranged husband. To this end, P9 was attending Alanon meetings regularly and was engaged with the materials of the program. Upon her entry to the study, she was living with her two adult children and hoping to reconcile her marriage as part of her Christian beliefs.

P9 presented with mildly depressed mood and sad affect. She became tearful during the interview. She was open about her history and was thoughtful toward the interview process. She reported relatively few symptoms of depression and anxiety, but did meet criteria for major depressive disorder, single episode, in partial remission based on her reported history. P9 reported the loss of her mother by suicide when she was a child and that her husband committed infidelity 9 years prior to her participation in the study. She denied any posttraumatic symptoms following these events, but did indicate one period of a few months 7 years earlier during which she experienced

depressed mood, lost 10 pounds, experienced psychomotor agitation, feeling as if her children would be better off without her, and difficulty making decisions. The psychomotor agitation had continued to the time of the assessment, and she reported difficulty knowing what to do with her energy.

The baseline data indicated that P9 was not reporting a clinically significant level of distress (OQ score of 48) and a mild, yet clinically significant level of EA (AAQ mean of 35, range 33-35). She was reportedly within the healthy range of values identification (VLQ-I mean of 77, range 75-79) and was living mostly in accordance with her stated values (VLQ-C mean of 75, range 72-78). However, her case could be conceptualized as needing acceptance based strategies that de-emphasize bettering her sense of self and focused on increasing behavior towards valued ends.

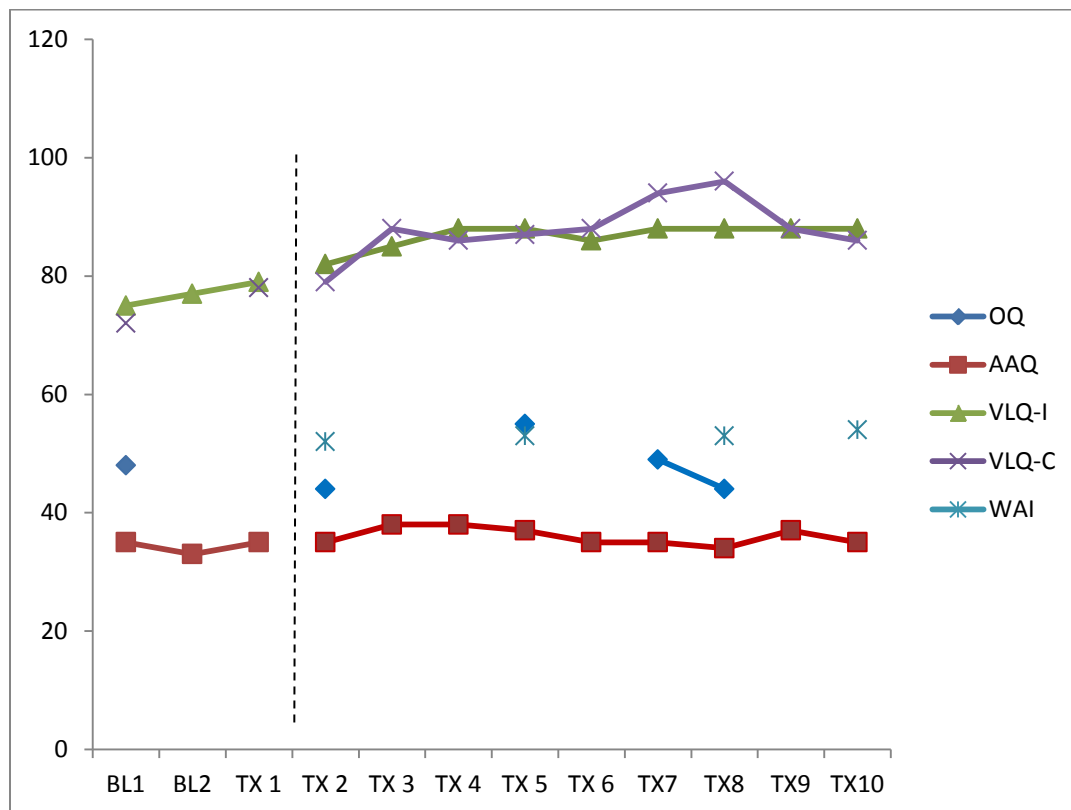


Figure 16. P9. Dotted line represents phase shift.

Therapy

P9 was seen for 10 sessions. The first session focused on identifying areas of fusion and pointing out the control agenda, with which the client had some experience from Alanon. Session 2 presented experiential exercises of acceptance of emotions related to her relationship and financial struggles with her husband, and worked toward her relationship with her children, a valued action. A homework assignment was given because there was a long break between sessions due to P9's vacation; she was to write about what her 40th wedding anniversary would be like. In Session 3, she read this and expressed anger and other emotions. These emotions became the focus of a brief acceptance/defusion exercise of sitting with feeling overwhelming emotions. Willingness to experience emotions rather than attempts to "figure them out" or change them in some way was the focus of Sessions 3 – 9 with metaphors and experiential exercises presented at each session. Session 10 returned to valued action and focused on her "being a good mom."

Referring back to Figure 16, no level shifts are evident for P9; there was no change in any measure from last baseline evaluation to first treatment evaluation. There were no baseline assessments of WAI for this participant, and thus no analysis of this variable is possible. As shown in Figure 17, the means for the OQ and AAQ remained fairly consistent across phases, but the mean values identification and consistency significantly increased.

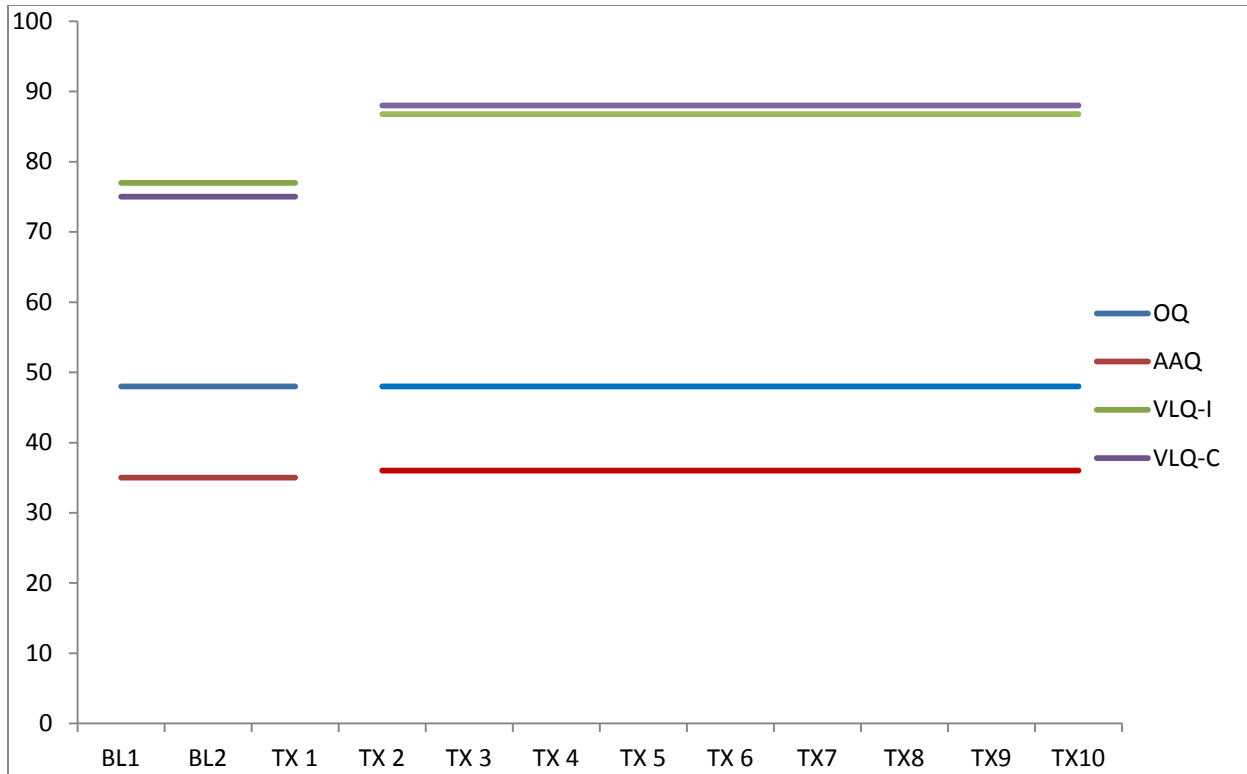


Figure 17. P9 means.

No slope or trend analysis was conducted on OQ scores for P9, because there was only one BL assessment of OQ. Figure 18 depicts a fairly stable AAQ score across BL, with a decreasing slope across the treatment phase. This is trending in the expected direction, though the treatment slope is due in part to the increased AAQ scores early in treatment (Sessions 3 & 4). In Figure 19, VLQ-I scores were increasing slightly during baseline, but increased and stabilized during treatment. The same pattern is evident for VLQ-C scores in Figure 20.

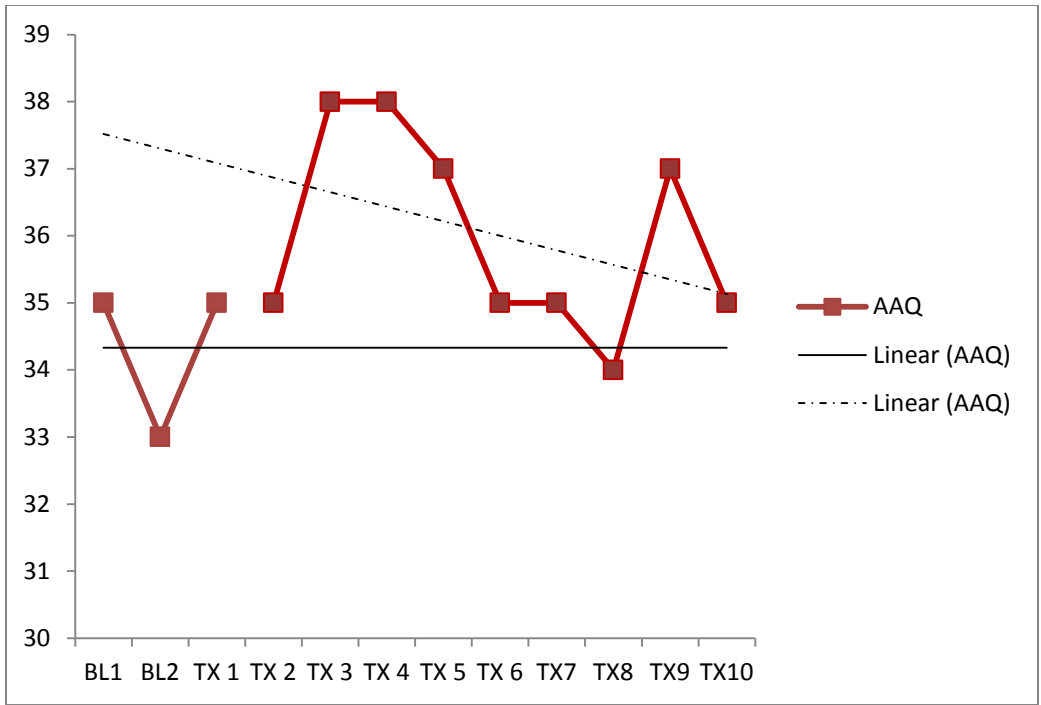


Figure 18. P9 AAQ slope analysis. Solid trendline represents baseline; dotted trendline represents treatment.

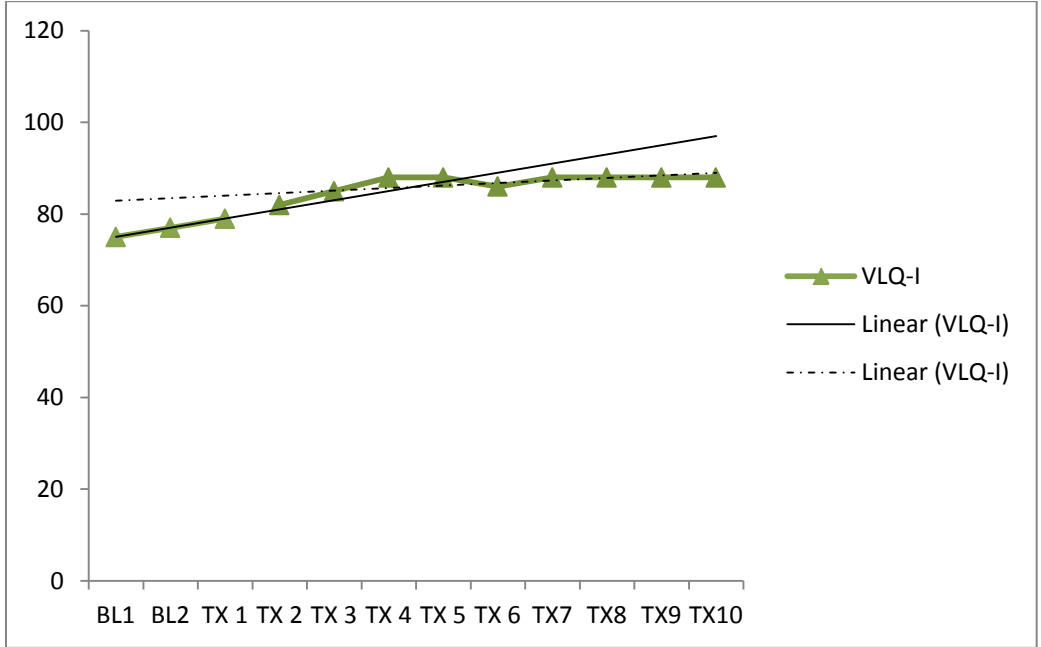


Figure 19. P9 VLQ-I slope analysis. Solid trendline represents baseline; dotted trendline represents treatment.

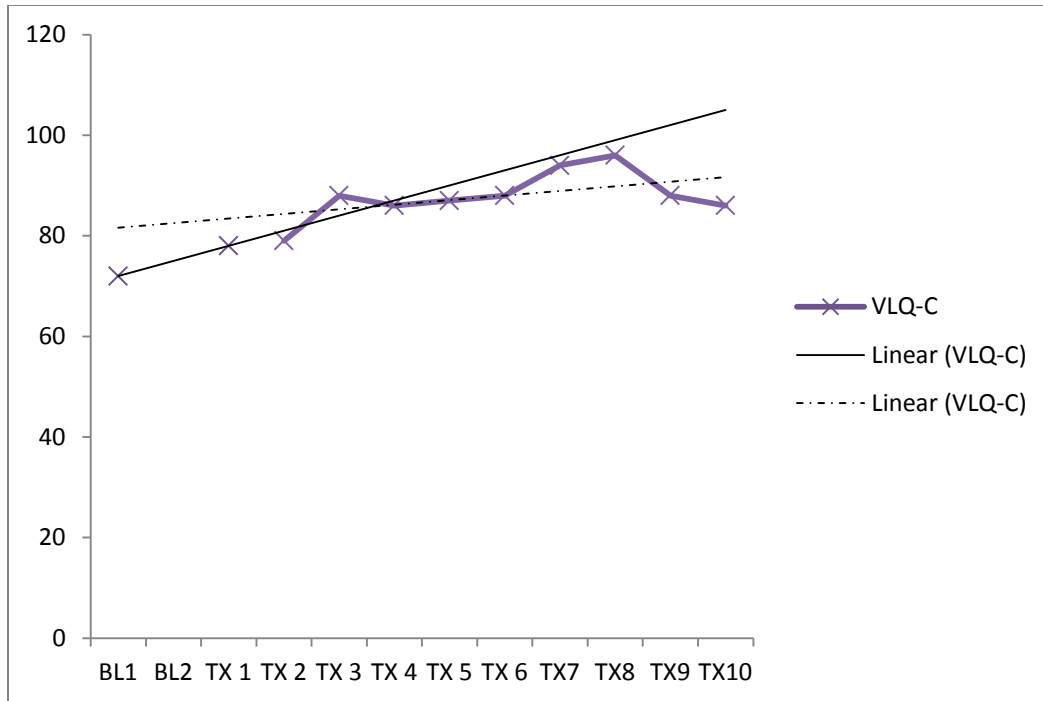


Figure 20. P9 VLQ-C slope analysis. Solid trendline represents baseline; dotted trendline represents treatment.

Participant 10 (P10)

Baseline

P10 sought therapy, with the same therapist as P9, for anxiety related to several recent stressful experiences including losing her job, divorce, family stress, and illness in the family. She was open and friendly.

P10's recent psychological history included both outpatient and inpatient treatment in the months prior to her beginning this study. Specifically, her physician prescribed Lexapro (20mg), which she did not feel worked quickly enough. She subsequently attended outpatient mental health services from a psychiatrist who continued with Lexapro (20mg) and added Ativan (1 mg) for anxiety and sleep. P10 reported that the antidepressant was not effective, and she began to have suicidal

thoughts that led to her checking in as an inpatient for 7 days where her medication was adjusted to Celexa (20 mg) for depression and Trazodone (75mg) to help her sleep. In the two weeks prior to beginning the study, she had been taking only 50 mg of Trazodone per night to help her sleep.

P10 was interviewed for approximately two hours over two sessions. She was diagnosed with major depressive disorder, single episode, in partial remission based on her reported symptoms. Specifically, she reported feelings of depression and worthlessness most of the day nearly every day for approximately 30-45 days. She had lost interest in things she used to enjoy, lost 10 pounds during this time while not dieting or trying to lose weight, and was only sleeping approximately 3-4 hours per night. She felt that she moved more slowly than usual, felt tired, and generally felt “not good” about herself, worthless and hopeless. She experienced difficulty concentrating at work and at school, as well as while doing things around the house. She had fleeting thoughts of suicide. In addition to these symptoms of depression, she had been experiencing panic attacks the 5 months prior to the study that occurred daily, but had recently decreased to 3-4 full blown attacks over the past 3 weeks. Her panic attacks were characterized by tightness in her chest, heart palpitations, trembling or shaking, shortness of breath, nausea, fear of losing control, and feeling flushed. Because the onsets of these attacks were within 3 months of her divorce and family stressors, she was diagnosed with adjustment disorder with anxiety in addition to the MDD diagnosis.

P10s BL data suggest that she was experiencing a clinically significant level of distress (OQ mean of 72, range 70-73) with a mildly significant level of EA (AAQ mean of 32, range 26-37). She identified a healthy range of valued life directions (VLQ-I mean

76, range 82-67), but reported difficulty behaving consistently with these values (VLQ-C mean 50, range 47-55). Thus, her case was conceptualized as needing to focus on willingness to live consistently with her chosen values in the context of difficult emotions.

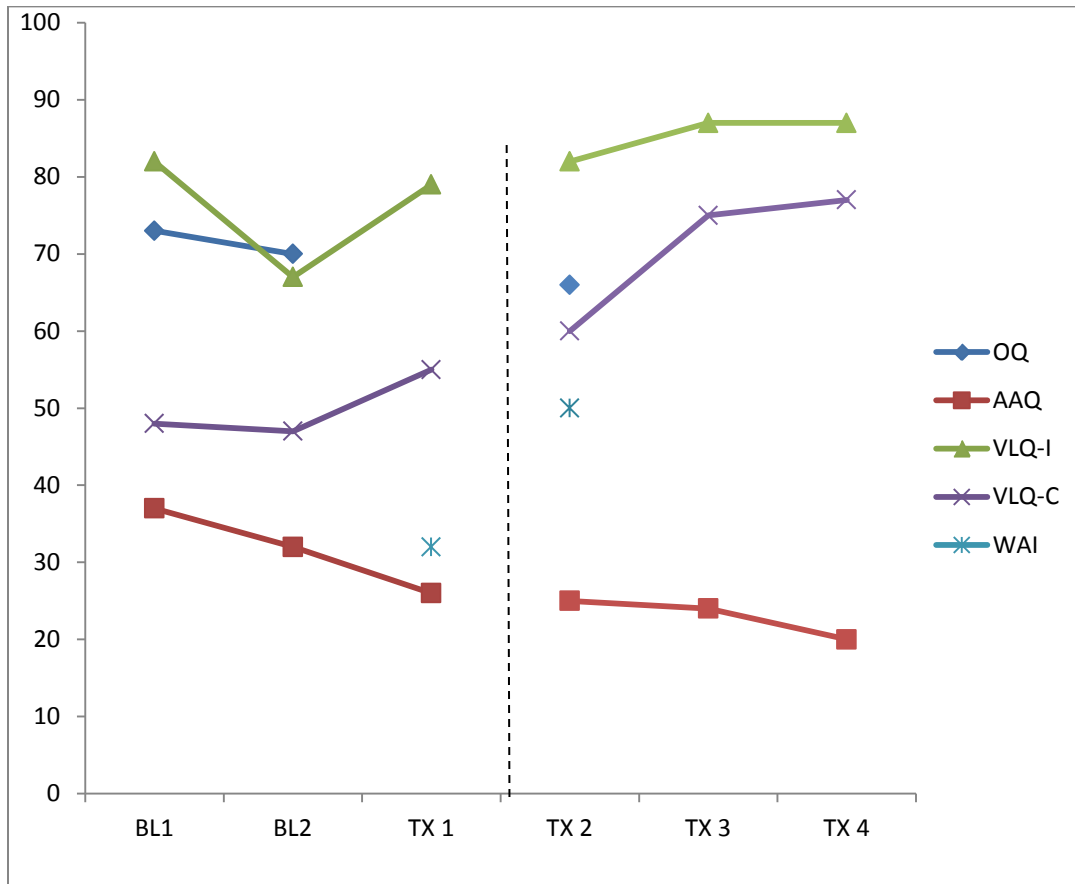


Figure 21. P10. Dotted line represents phase shift.

Treatment

P10 agreed to 8 sessions of ACT. The focus of the first session was feedback from the assessment process and identification of the treatment contract to focus the treatment on psychological flexibility around her ongoing relationship with her ex-husband in the service of her values of being a good parent and spirituality. Specifically,

she felt that she needed to maintain a sexual relationship with her ex-husband, and that left her feeling badly about her spiritual beliefs in order to be a “good parent” to her son. She agreed to this therapeutic contract. In Sessions 2 – 4 the focus of treatment was acceptance of her internal experiences and memories that come up for her as she began to set limits and notice what happened for her as she did this. In Session 3, P10 had ended a sexual relationship for her value of spirituality. This change in her behavior is evident in the increased VLQ-C scores seen for that session in Figure 21. A defusion exercise aimed at creating distance between P10 and her thoughts and feelings in the service of valued directions was done in Session 4.

Session 4 was the last session that P10 attended. Though she had been working toward creating healthy boundaries between herself and her ex-husband, she decided to go back to a previous marriage counselor with her ex-husband. She presented this as a valued action in the service of “good parenting.”

Referring back to Figure 21, there were two changes from the last baseline evaluation (TX1) to first treatment evaluation (TX2), a slight change in VLQ-C scores and a notable change in WAI scores, indicating a level shift in the expected direction for each of these measures. As shown in Figure 22, the means for all study measures changed in the expected directions. This decrease in AAQ scores (32 to 23) and decrease in VLQ-C scores (50 to 71) was clinically significant.

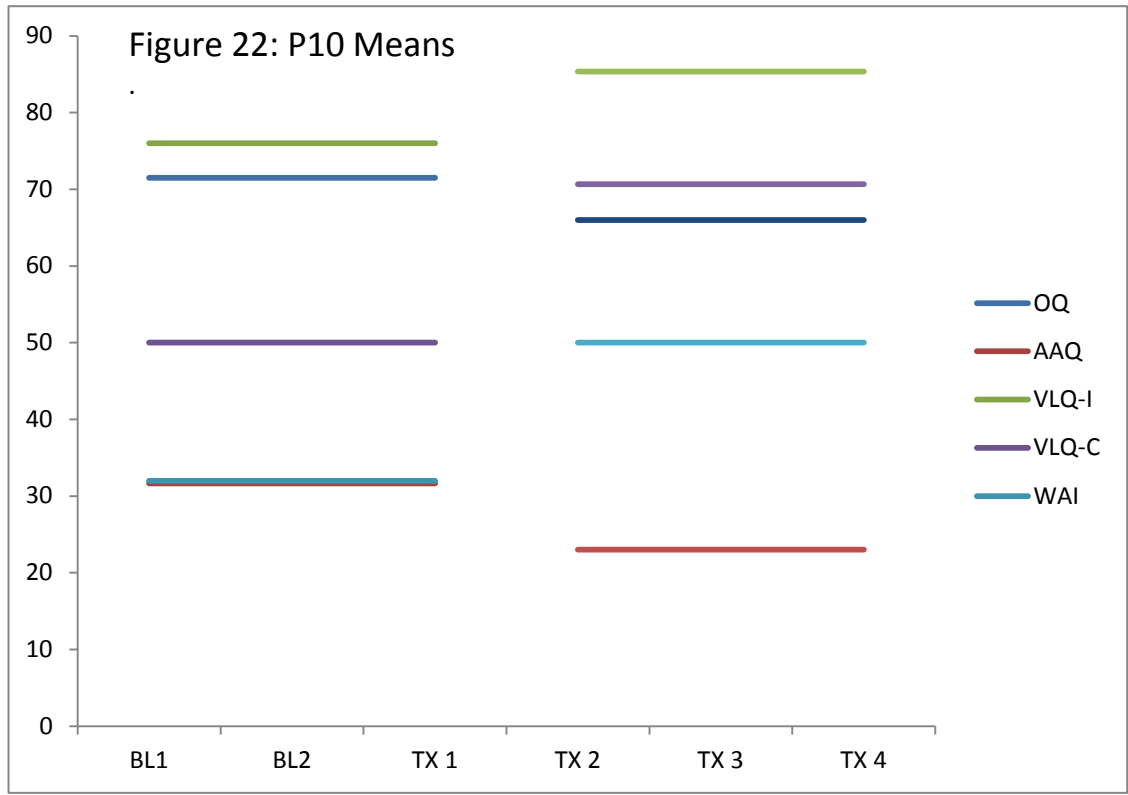


Figure 22. P10 means.

No slope or trend analysis was conducted on OQ scores for P10, because there was only one assessment of OQ following the implementation of treatment. Figure 23 depicts decreasing AAQ score across BL, with a decreasing slope across the treatment phase. This is trending in the expected direction, though the baseline slope is problematic for the analysis in that the AAQ scores were decreasing prior to the implementation of treatment. Figure 24 depicts decreasing VLQ-I scores during baseline, but increased and stabilized during treatment. Figure 25 depicts an increasing trend for VLQ-C scores in baseline that increases at a more intense rate following the implementation of treatment.

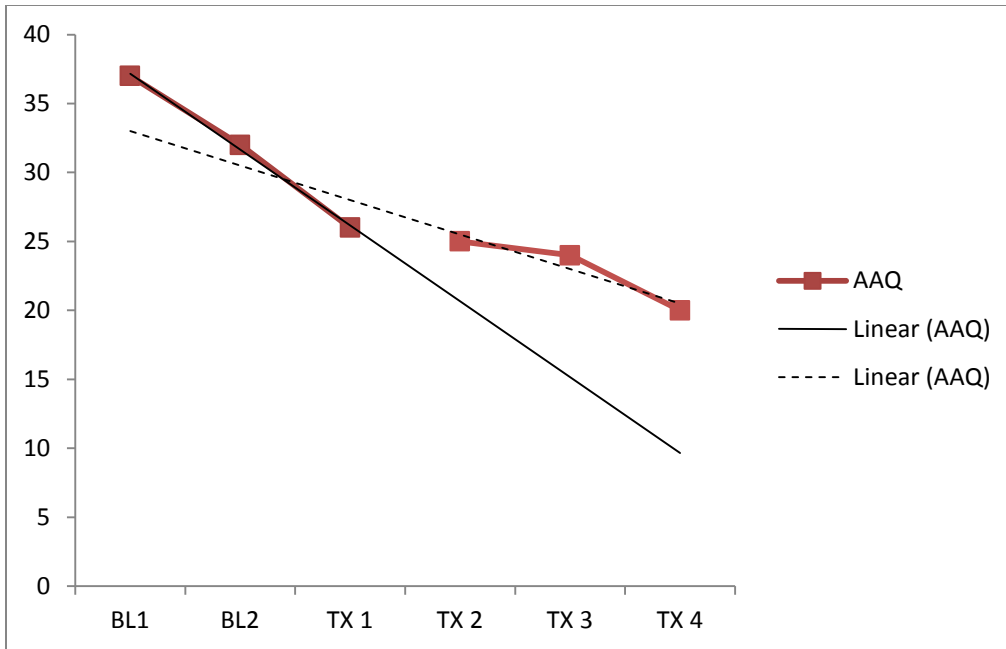


Figure 23. P10 AAQ slope analysis. Solid trendline represents baseline; dotted trendline represents treatment.

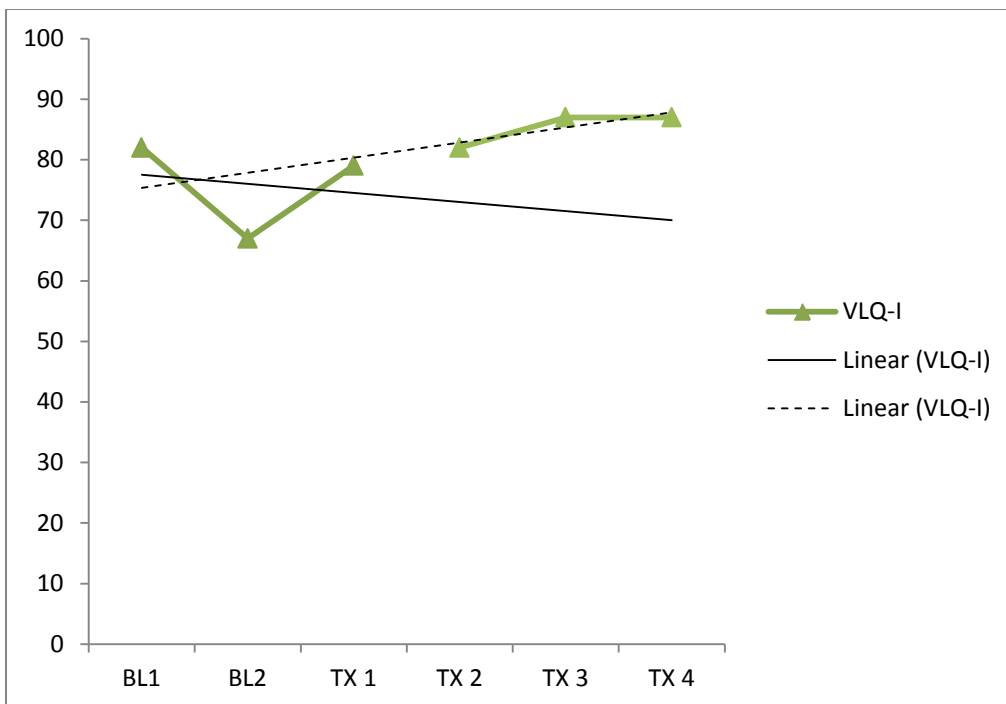


Figure 24. P10 VLQ-I slope analysis. Solid trendline represents baseline; dotted trendline represents treatment.

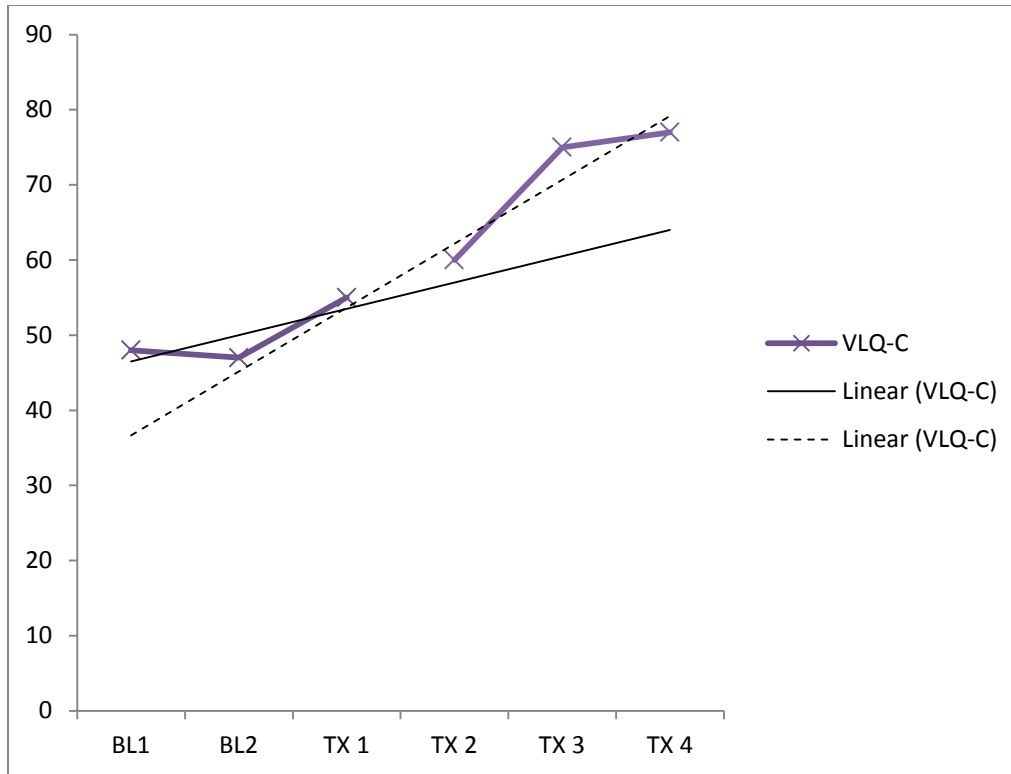


Figure 25. P10 VLQ-C slope analysis. Solid trendline represents baseline; dotted trendline represents treatment.

Summary

Taken together, these data represent a multiple baseline across participants study that can be replicated in the various study measures to test the study hypotheses.

Hypothesis 1. EA would decrease.

It was hypothesized that AAQ scores would decrease following the implementation of treatment, and that this finding would be consistent across participants. In order to test this hypothesis, the results presented above were reviewed in relation to the four tests presented by Kazdin (2003) of mean, level, slope, and latency. Looking back at the data presented for each case above, AAQ scores remained in a consistent range for two participants (P2 & P9), decreased for one participant

(P10), and increased for one participant (P5) following the implementation of treatment. The AAQ scores changed in the expected direction for only one of the four participants who engaged in treatment. These results in combination with Figure 26, do not present enough evidence to support the hypothesis that EA would decrease given the functional application of ACT.

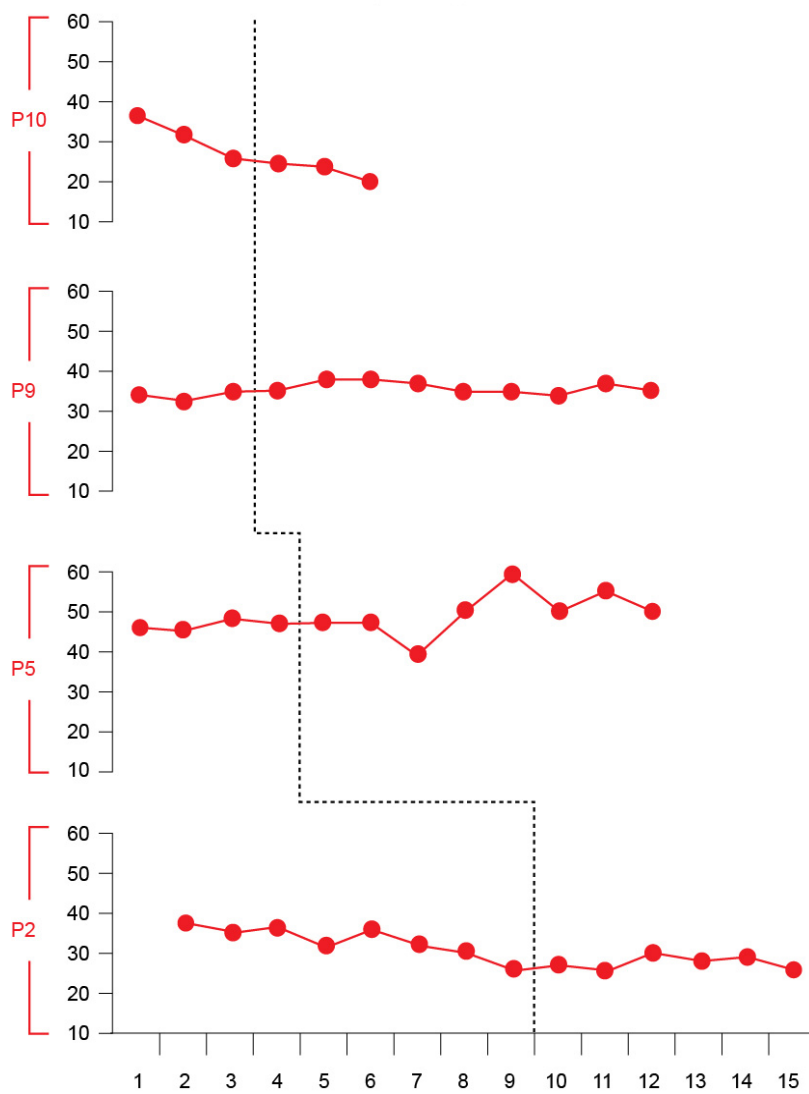


Figure 26. AAQ MBL graph. Dotted line represents phase shift.

Hypothesis 2: Valuing would increase.

Results from Kazdin's tests indicated that scores on the VLQ-I generally increased. Figure 27, represents all the available VLQ-I scores from the study in one graph with the dotted line indicating the shift to treatment phase. From this graph, it is easy to see the overall improving trend in values identification. Therefore, the hypothesis that valuing would increase given the functional application of ACT is supported.

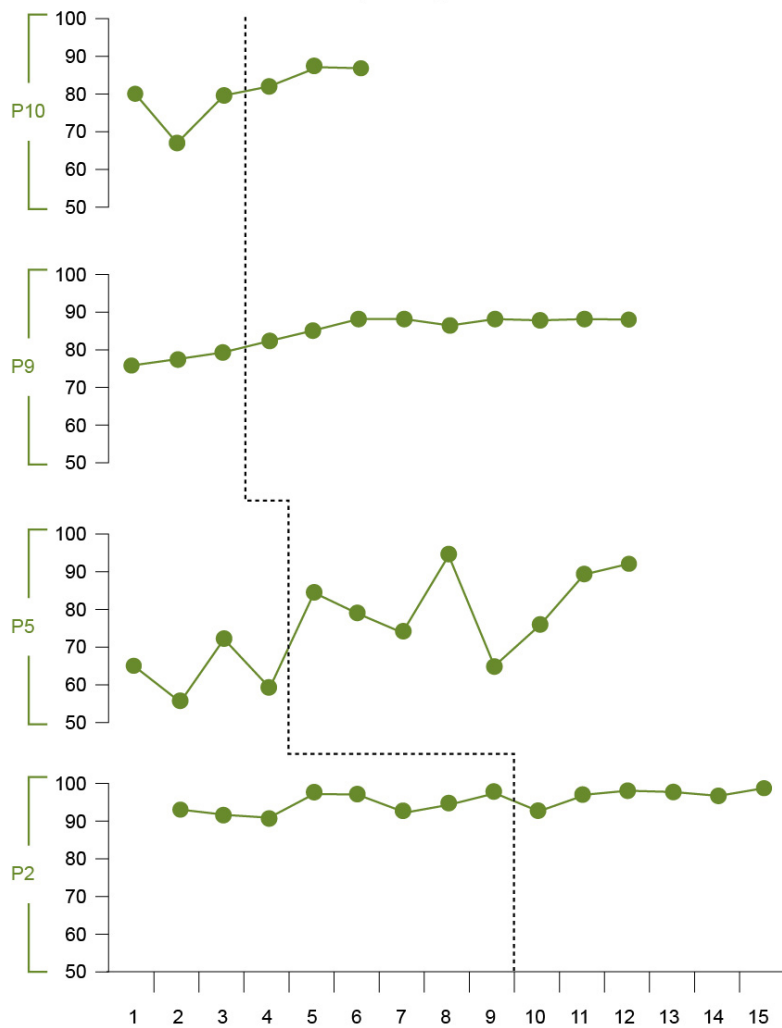


Figure 27. VLQ-I MBL graph. Dotted line represents phase shift.

Hypothesis 3: Valuing behavior would increase.

It was hypothesized that VLQ-C scores would increase following treatment. There was an inconsistency in the mean analysis; three participants (P2, P9, & P10) increased in VLQ-C across phases, but one decreased (P5). There was a level shift increase for P2 and P10, decrease for P5, and no shift for P9. These patterns are evident in Figure 28, as well. However, the pattern is only consistent for two participants (P2 & P9), and the improvements began prior to the beginning of the treatment phase. Thus, the hypothesis that VLQ-C scores would increase following treatment is not supported.

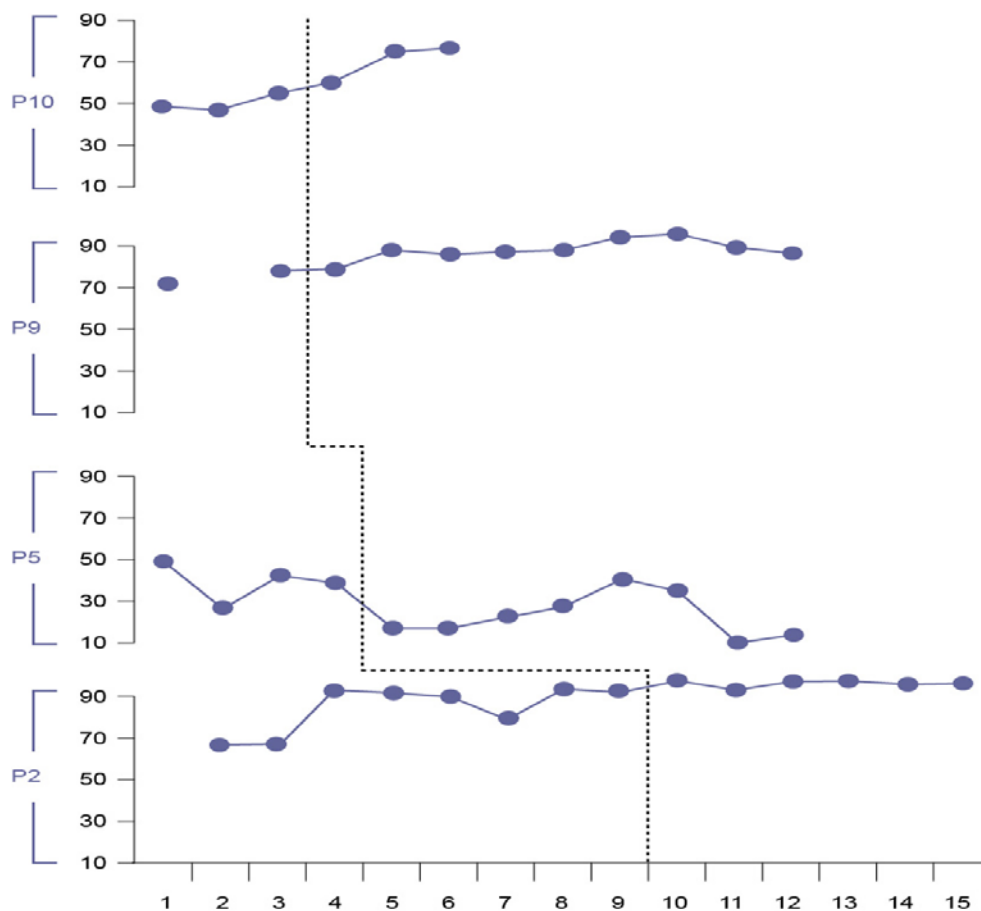


Figure 28. VLQ-C MBL graph. Dotted line represents phase shift.

Hypothesis 4: Symptoms would decrease.

It was hypothesized that OQ scores would decrease following treatment. There was an inconsistency in the mean analysis; two decreased (P2 & P10), one increased (P5), and one remained consistent (P9). There were no level shift changes. Analysis of slope did not yield changes in the expected directions. Figure 29, represents the difficulty in analysis; there were relatively small changes in OQ scores, except for the significant decrease for P2 during BL. Thus, the hypothesis that OQ scores would decrease following treatment is not supported.

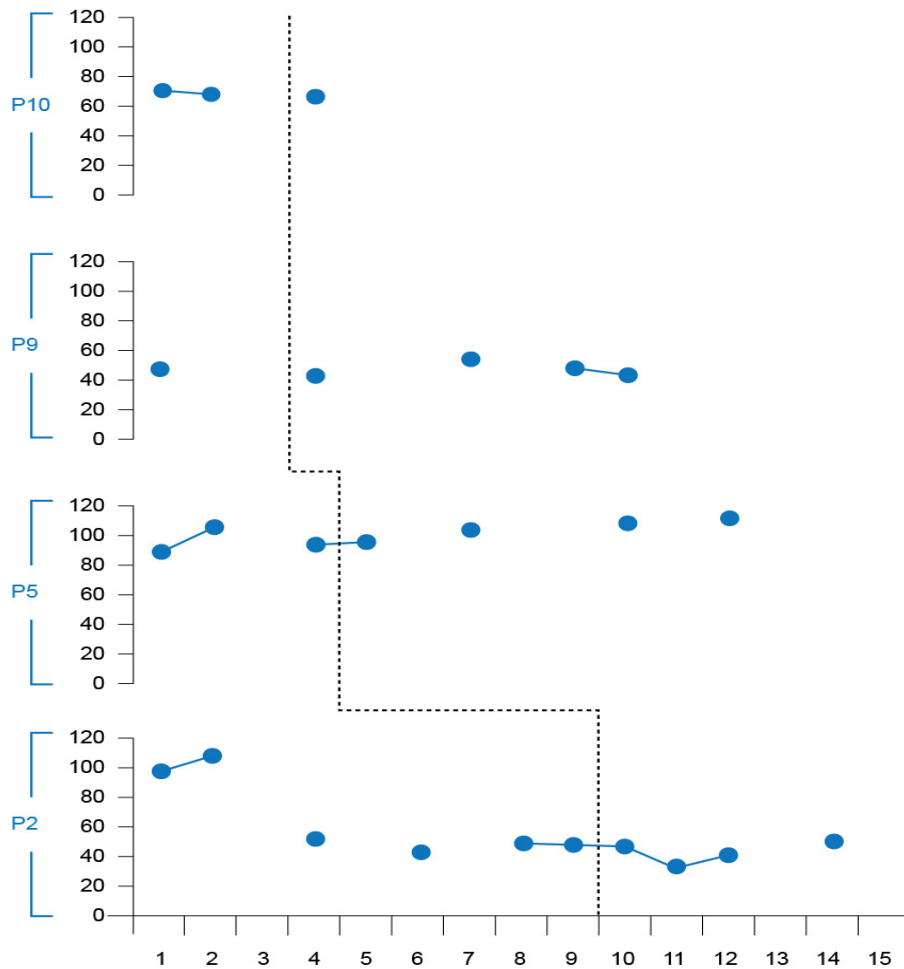


Figure 29. OQ MBL graph. Dotted line represents phase shift.

CHAPTER 4

DISCUSSION

The purpose of the study was twofold; the study aimed to a.) evaluate the effectiveness of the functional ACT manual on client outcomes in a small sample from a large sliding fee-for-service training clinic and to b.) evaluate the processes of change in ACT. The current data provide little support for the use of the functional manual. The changes seen were varied across outcome measures, and were not consistent across variables and participants. Specifically, experiential avoidance as measured by the AAQ, valuing behavior as measured by the VLQ-C, and distress as measured by the OQ-45 did not consistently change with the implementation of the ACT manual described in the introduction to this paper as was expected. However, values identification as measured by the VLQ-I did consistently improve across participants as expected. The findings for each study hypothesis will be briefly elaborated below. Following the discussion of each hypothesis and its relation to previous literature, the implications of results will be described. Next, the limitations of the current study will be addressed. The concluding focus of the paper will be on directions for future research.

The first study hypothesis was generated based on the development of ACT as a treatment for excessive and problematic EA. Thus, it was hypothesized that EA would decrease given ACT. This hypothesis could not be upheld in this dataset for two main reasons. First, AAQ scores across two participants (P2 & P10) began to decrease during the baseline phase. The treatment effect for these two participants cannot be attributed to ACT, because of this pre-treatment decrease in scores. This improvement in the baseline phase is somewhat expected given the current body of literature as the

baseline included client contact with the therapist in the context of assessment. Previous effectiveness research indicates that any form of mental health intervention produces positive outcomes and client reported improvements (Seligman, 1995). In addition, some studies show improvements within the first few sessions (Baldwin, Berkeljon, Atkins, Olsen, & Nielsen, 2009; Callahan, Swift, & Hynan, 2006; Callahan & Hynan, 2005). Specifically, research on the dose effect in psychotherapy has indicated that about 36 percent of clients evidence clinically significant improvements by the third session (Baldwin et al., 2009).

Second, the other two participants either did not change across time (P9) or increased in EA across time (P5). This inconsistency in the data is in contrast to previous ACT literature, which found decreases in EA given ACT (e.g., Hayes et al., 2006; Lappalainen et al., 2007; Forman et al., 2007; Strosahl et al., 1998). However, one ACT outcome trial in a veteran sample with severe PTSD evidenced a similar increase in reported EA (Braekkan, 2007), and increased reported symptoms have been seen following some ACT trials (Bach & Hayes, 2002), brief mindfulness based interventions (Coyne & Silvia, 2007), and in mindfulness interventions used with clients who are not appropriate for this type of treatment (Teasdale et al., 2000; Ma & Teasdale, 2004).

In the current study, all cases were carefully conceptualized and the participant whose EA increased actually wanted to continue therapy using the current model of therapy at termination of the study. Thus, though the data indicate that this particular client was deteriorating, this may be an artifact of the measurement. The therapy process identified avoidant behavior patterns in an attempt to reinforce psychological

flexibility, and the identification of avoidance may have increased rather than necessarily the avoidance itself increasing. In addition, this participant's subjective report indicated hope that the model would work for her. Research on the phase model of psychotherapy (Howard, Lueger, Maling, & Martinovich, 1993) indicates that hope is the first stage of the psychotherapy change process. Thus, these findings may have shifted given a longer period of treatment and follow-up evaluation. This theory is supported by previous findings in the ACT literature that found incubation effects; while symptoms had not improved at post-treatment assessment, they frequently had improved at follow-up without additional therapy (Blackledge & Hayes, 2006; Gfford et al., 2004; Hayes et al., 2004).

The second study hypothesis was formulated from the ACT model's focus on workability according to client-identified values (Wilson & Murrell, 2004). Because values must be identified in some form in order to perform ACT, it was hypothesized that identifying values life domains as important to the client would increase following ACT. In order to test this hypothesis, the VLQ-I score that is usually combined with the VLQ-C score to create the composite value score for the VLQ was used alone. The VLQ-I scores consistently improved following and not before the implementation of ACT for each participant. Because of the novel use of the VLQ-I as a stand-alone scale, there is little empirical data to compare this finding. However, it is theoretically consistent with the overall ACT case conceptualization of values. Values work is based on consistent questioning of what is important to the client in order to orient and motivate the behavioral aspects of the treatment and determine outcomes. Values importance has also been correlated with positive mental health outcomes such as

lower levels of distress (Adcock et al, 2007; Taravella, 2010), which would suggest that this is a positive finding for the functional ACT model.

The third study hypothesis that valuing behavior would increase was formulated based on the ACT model case conceptualization targeting values oriented behavior. Similar to the second study hypothesis, the VLQ-C score was used as a stand-alone scale for measuring valued behavior. The VLQ-C scores for three participants (P2, P9 & P10) increased during baseline, limiting the ability to say that valued behavior increased due to ACT. However, for these three participants, VLQ-C scores did continue to increase and become more consistent over time in ACT. This finding is as expected in the current body of ACT literature. Specifically, in the research on chronic pain, valued behavior was frequently seen as a mediator of positive outcomes in therapy (e.g., Wicksell, et al. 2009, Vowels, et al., 2007).

The final study hypothesis was included to situate the current study within the larger psychotherapy outcome literature. ACT does not directly target symptom reduction (Hayes, 2004), instead it encourages acceptance of emotional experiences and pain in the service of values (Hayes et al., 1999; Hayes & Strosahl, 2004). Thus, in early ACT research it was somewhat surprising that symptoms decreased at all (Zettle & Hayes, 1986), and less surprising in fact, that at least initially at times, symptoms increased (Bach & Hayes, 2002). However, for most of the outcome literature on ACT thus far, psychological symptoms have decreased (Hayes Luoma, Bond, Masuda, & Lillis, 2006; Powers et al., 2009; Pull, 2009). Thus, in order to address the potential reduction in a large variety of symptoms, a measure of clinical distress that is frequently used in clinical outcome research was used (Lambert et al., 2004). The OQ scores for

three participants remained in a consistent clinical range, and only one participant significantly decreased across time. This one significant decrease occurred during baseline, and by the fifth session, consistent with the dose-effect and phase model literature described above (Howard et al., 1986; Callahan et al., 2006).

In sum, participants generally improved across time, except for one client (P5) whose data was erratic in general. However, changes in the measures were frequently occurring in the direction of recovery prior to implementation of ACT. There are three possible explanations for the pre-treatment improvements. First, two of the participants were actively involved in a 12-Step recovery program (AA and Alanon) at intake. These recovery programs have principles that overlap with ACT (Wilson, Hayes, & Byrd, 2000). For example, both point to control as being beyond the human capacity, and encourage acceptance of thinking and feeling, as they are, and choosing to behave differently. Thus, the improvements in the process measures for P2 and P9 prior to the treatment phase may be attributable to 12-Step Program work.

Another theory for baseline improvements is that this phase was not a true waitlist type baseline. Assessment and supportive therapy occurred during baseline data collection to be ethically sensitive and culturally appropriate. Some psychologists view assessment as intervention that when conducted in particular ways provides a therapeutic impact (Finn, 1996; Finn & Tonsager, 1992). Similarly, it may have been the therapeutic relationship that provided sufficient conditions for clinical improvements. The WAI was given in attempts to account for this possibility. In looking back at the WAI data, this possibility cannot be ruled out as the working alliance significantly improved during baseline for the longest baseline as the symptom and process measures also

improved. However, it is unclear if the alliance improved because the client was getting better or vice versa because the WAI was not given at every session.

Another possible explanation for the improvements seen before treatment implementation was the lack of blind evaluators. The same clinician conducted the assessment during the baseline phase as conducted therapy with each participant. This was done intentionally to develop a therapeutic relationship prior to the start of ACT. However, this may have introduced a confound in that both study therapists had significant training in ACT. Thus, though not officially providing ACT during baseline, the overall attitude of the therapist may have been more accepting in nature than may have been preferred.

A secondary aim of the study was to study mediation effects of the process variables. The initially proposed method for analyzing mediation was not reliable; looking for reliable changes in one variable as dependent on the other requires stability in the variables measured or at least that they change erratically together. This level of analysis was not possible in the present data due to the variability across participants and across behaviors. However, it is possible to look for changes in therapy session content that may have resulted in changes in the data. There were only two specific instances of this in the current process data. The VLQ-C data significantly decreased at session 8 for P5 following discussion of her practicing breathing and pausing before speaking in the previous session. This decrease was partially due to her feeling that because she had not been practicing the exercises outside of session she was not now living up to her commitment to her family and friends. P5 had created a rule and was punishing herself for not following the new rule. This was indicative of her strong

avoidance repertoire. The other instance of VLQ-C sensitivity to in session changes is the significant increase at session 3 for P10, which is reflective of an increase in consistency with her value of spirituality by ending a sexual relationship.

The VLQ data appear to have been more sensitive to changes in the current study. The VLQ-I was the only measure that changed reliably as hypothesized, and the VLQ-C appeared most sensitive to in-session exercises. This noted sensitivity may be due to two different factors. First, the VLQ-C is a report of behavior, and MBL designs were created to measure specific changes in counted behaviors rather than psychometric tests. Previous psychotherapy outcome research has noted that this design is most powerful when the dependent variable in the study is a specific behavior (Kanter et al., 2006). Thus, the VLQ-C is the closest proximity to a count of behavior that was collected in the current study. Second, the VLQ-C may have been more sensitive to changes in the current study as result of the heavy focus on values based behavior in the case conceptualization for each participant. Values were conceptualized as a motivator for therapy and the determinant of positive outcomes; thus, it is reasonable that given the heavy influence of values based interventions throughout the study, the VLQ would be the measure most influenced.

The current study adds to the literature on ACT by studying the feasibility of data collection in a sliding fee-for-service training clinic with a small sample of clients with heterogeneous DSM diagnoses and comorbidity. Though the only hypothesis supported was increased valuing, the functional ACT manual did increase one of the proposed processes of change. And, this change occurred regardless of DSM diagnostic category or level of distress. There were mood, anxiety, psychotic, substance, adjustment, and

personality disorders represented in baseline assessment. Six participants met criteria for three or more diagnoses at intake. These statistics are representative of the high comorbidity rates seen across diagnostic categories as in the existing literature, which suggests that about 60 percent of individuals diagnosed with one disorder will currently meet criteria for another disorder (Kessler et al., 1997), and those with a personality disorder are likely to meet criteria for three or four more personality disorders (Widiger, 2007). One of the three treatment responders met criteria for three diagnoses at intake, but would not have met criteria for any by the end of treatment, representing a clinically significant recovery. This 25 percent recovery rate is similar to recovery rates presented in other comorbid samples that were followed over up to 9 years (Angst, 1996; Svanborg, Wistedt, & Svanborg, 2008). The participant that did not respond to treatment in the expected way was the most complex and long-standing case treated; personality disorders were not ruled out in the case. Personality disorder diagnoses have been shown to predict poorer outcomes over the long term (Angst, 1996; Svanborg et al., 2008) and may require more intensive and longer-term treatments (Linehan, 1993). Thus, the functional ACT model over 8 sessions did not appear to have the expected effect in this small sample. The limited number of sessions was one of many limitations of the current study.

Limitations

The study design was selected for external validity over internal validity in order to increase the generalizability to clinical settings. Specifically, the study was constructed in such a way as to address multiple factors typically of concern to clinicians, such as multiple comorbid diagnoses, number of sessions funded by third

party payers, and practical and ethical requirements for treatment, as well as research design requirements such as baseline requirements. However, this complexity caused a variety of issues and limitations. These limitations include setting effects, method effects, stymied resources for clinician and supervisory availability, and limited sensitivity of the measures used.

This study was conducted in a training clinic that provided assessment and therapy services on a sliding scale fee for service basis. The setting effects introduced some limitations. Training clinics typically have a higher dropout rate (Callahan, Aubuchon-Endsley, Borja, & Swift, 2009) and a longer dose-response curve (Callahan & Hynan, 2006) than standard clinics. In training clinics it takes longer to see the effects typically seen in the first 5 sessions in a standard clinic. The fact that the therapists for the study were each student clinicians may have introduced confounding variables in the treatment such as perceived level of confidence on the part of the client and the clinician. At times student clinicians may question their competence in assessment or therapy, which may result in poor outcomes or inflexibility on the part of the therapist. Though this type of experience was present in one ACT study with diagnostic complexity (Forman et al., 2007), it did not appear to cause poorer outcomes.

Student clinicians require supervision. Specifically, weekly supervisions sessions were required during which the supervisor would review video of the sessions for each client and discuss the ACT relevant processes that occurred during each session and compare these experiences to changes in the measured variables. This level of supervision is demanding on both the student therapist and the supervisor. Therefore, only a limited number of clients could be entered into the study at any given time. At one

point during the study, the primary clinician had a caseload of over 12 clients, but only 2 clients in the therapy phase of this study. Thus, the small sample size is reflective of the difficulty retaining clients in the clinic for the length of treatment proposed.

The length of treatment in the current study was 8-10 sessions. This length was chosen based on the standard length of treatment reimbursed by third party payers. However, this length of treatment may have artificially limited the findings. Based on estimates by Callahan et al. (2006), in the training clinic it may have taken longer to see the typically positive response to ACT (Powers et al., 2009). In fact, some larger institutions such as the Veteran's Affairs Medical Center are recommending 12-16 sessions of ACT as an empirically supported intervention of choice for depression and multi-problemmed clients (Walser, Chartier, & Gifford, 2010).

Another limitation of the current study was that the baseline in the current project was not a true baseline as in typical MBL designs. Typically, in MBL the baseline period is similar to a waitlist in therapy outcome research; no treatment is offered during baseline. However, in a clinic setting with cultural and ethical requirements, it is irresponsible to have clients wait for care if treatment is otherwise available to them. Thus, the baseline phase of the current study was a treatment comparison with as little active therapy as possible. The therapist conducted structured diagnostic interview with mild supportive therapy only when required. However, the therapist still had contact with the client and formed a therapeutic relationship through the assessment. This is evident in the data presented above on working alliance (WAI scores increased for all participants with data across baseline). In addition, as mentioned above, it is possible that though no active ACT components were discussed or applied during the baseline

phase, the attitude of the clinician may have been generally more accepting than is normal during diagnostic interviewing or would have been preferred in baseline for the current study. This may have resulted in therapist modeling of acceptance and psychological flexibility and influenced the participants reporting of EA on the AAQ.

The resource demand on the supervisor for this project was high and introduced a limitation. The primary therapist and author was the clinician for participants 1 through 8, but had to move out of the area before completion of the study. Therefore, an additional therapist served as clinician for P9 and P10. P9 may not have been included in the study due to the low level of symptoms and the absence of diagnosable current conditions. However, the level of supervision required for the added therapist to know this information was not currently in place. None of the study measures were scored and presented during supervision sessions due to lack of time for the intensive supervision required to review scores, processes and match processes with scores. This intensive supervision was not completed for this participant. However, it did occur for P10, and this is evident in the participant outcomes.

Another limitation of the study was the use of measures selected for broad applicability across a variety of mental health concerns. The OQ was selected because of the broad catchment of psychological distress and its frequent use in measuring treatment outcomes (Lambert et al., 2004). The OQ is good for assessing clinically significant change in psychological distress, if pre-treatment scores are above the clinical range. However, one study participant began below the clinical cut-score for the OQ. Thus, there was no way to assess clinically significant change for that participant. Similarly, the AAQ is a general measure of EA. It was selected to measure EA without

limiting the scope of the study to a particular type of avoidance, symptom cluster, or diagnosis. However, recent research indicates that the more specific AAQ versions that were create for particular problem areas are more sensitive to changes in treatment (Lillis & Hayes, 2008; Luoma, Drake, Hayes, & Kohlenberg, 2011; MacKenzie & Kocovski, 2010).

Future Directions

There are several ways in which the current data could be extended to add to the burgeoning ACT literature. Specifically, there are ways in which both effectiveness research, as a well as a tightly controlled designed study could address the current limitations. A group of researchers in the ACT community are supporting ACT clinical research via database for single cases to be combined for data analysis and effectiveness research. The clinicians may upload any data gathered in clinical work. This data could be used to evaluate the individual cases, and compared in the ways that the current study was analyzed. This would be one way to solve the resource scarcity. In addition, this effectiveness design would allow for analysis of a larger sample of data, and may even be a way to evaluate the difference between the more structured session-by-session treatment protocols verses the functional application of ACT. However, a well controlled, MBL study could address the efficacy of the two different manual types.

A MBL design would be an effective way to evaluate the difference between the use of a manualized treatment compared to the functional ACT manual presented in the introduction to this paper. This trial would be structured such that at least three participants would be in each condition with varying lengths of baseline without

interaction. In order to accomplish this, at intake, participants could be given study measures to complete upon contact from the study personnel at various times before beginning therapy, as was used during the semester break in the current study. The study should recruit more than the needed sample size in order to account for the dropout rate and participants who will not complete the baseline data collection procedures. Then, the treatment effect of the participants in the manualized treatment condition may be compared to the treatment effect of the participants in the functional treatment condition. Similarly, if enough resources were available, an RCT could also address this question without the use of a stepped baseline phase.

In the context of limited resources, it would be possible to address the measurement limitation of the current design. The problem in the current study was the use of broad measures, such as the AAQ, which are not as sensitive to therapeutic changes as more specific measures appear to be (Lillis & Hayes, 2008; Luoma et al., 2011; MacKenzie & Kocovski, 2010). Thus, even in a small sample, it may be possible to compare across various versions of the AAQ by using the mean score. However, in a more functional, clinical behavior analytic model, it would be more interesting to measure specific avoidant behaviors given certain contextual factors. An advisable way to measure avoidance given context is to video interactions and code each turn as avoidant or not. For many years researchers have been using video or audio recorded interaction coding to evaluate therapy outcomes (e.g., Klein, Mathieu, Gendlin, & Kiesler, 1969). More recently, clinical behavior analysts have coded therapy tapes in a turn-by-turn fashion looking for therapist reinforcement of clinically relevant behaviors in session and subsequent engagement from clients in healthy ways (Busch, Callaghan,

Kanter, Baruch, & Weeks, 2010). In fact, this very coding system could potentially be used to code the video recordings from the current dataset with the ACT processes of change as the clinically relevant behaviors of interest. This is one possible future direction for the current study.

Another possible future direction came out of one of the limitations, which led to a particularly interesting finding in the current data. In comparing P9 to P10, there was clinically significant change in the case of P10 who was more carefully supervised by an ACT trainer than the case of P9. This finding supports the idea that supervision that is directly focused on the processes of change and measurement of these processes led to more clinically significant changes. Thus, more research is needed to determine the effects of supervision styles on client outcomes. A similar design to the current study could be used to address this possibility. In a larger sample, clients could be randomized to process supervision or supervision as usual. The process measures should change more significantly in the process supervision group than the supervision as usual group if the type of supervision has an effect on client outcomes.

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