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**Acceptance and Commitment Therapy for Stress and Burnout:
Evaluating the effect of the online training,
PsyFlex6
for Behavioural Therapists**

A thesis
submitted in partial fulfilment
of the requirements for the degree
of
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Abstract

The present research used a randomized controlled design to evaluate the effects of 'PsyFlex6,' an online Acceptance and Commitment Training paradigm, for behavioural therapists. Twelve participants completed the six-week ACT training protocol, while another twelve waited. All participants completed measures of psychological flexibility, psychological distress, and burnout at baseline, during training, and post training, and at one and two month follow up measures for trained participants. Later, nine control group participants accepted training, as well as an additional four new participants. In total, 21 individuals completed all training and measures; results from all participants were pooled to observe any effect of the training over all time periods. As hypothesized, initial group comparisons revealed significant benefit for trained participants over controls in areas of psychological flexibility and psychological distress. Further hypotheses that burnout components (total burnout, emotional exhaustion, depersonalization and personal accomplishment) would be improved, were not supported, but trained participants did exhibit positive change for each of these dimensions. When data were pooled, significant positive changes were observed for psychological flexibility, distress, emotional exhaustion and total burnout, after training and maintained at follow up periods. Personal accomplishment and depersonalization were also improved from baseline, but not significantly so. In general, social validity data indicate that training content was well comprehended, useful, and that strategies were often used outside of training. Therefore, these

findings support the use of PsyFlex6 as a training tool for improving the psychological wellbeing of behavioural therapists.

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Chapter 1: Introduction

Stress and Burnout

Stress is a natural phenomenon, a physiological response to a perceived threat, and has been described as an inevitable part of life, experienced continuously by all living organisms (Selye, 1974). Frequently, the term 'stress' is used to describe only the negative experience of stress, which, when ongoing is often detrimental to an organism's ability to flourish and survive. However, stress also encompasses 'eustress,' which is a positive, short-term experience, aiding one's performance and survival (Selye, 1974). Here, we refer to stress and distress synonymously. Biologically, when distress occurs, the sympathetic nervous system (SNS) prepares the body for 'fight or flight' response by releasing adrenalin and other associated functions, which help the individual to survive by responding quickly (Harvard Health Publications, 2016). The SNS responses may continue after threat is actually removed, and so adrenaline continues to be released, which, over time has adverse physiological effects on the human body. Long-term exposure to, or perception of stressors can therefore have serious health complications Immunity is reduced, digestive and reproductive functions affected, sleep disrupted and blood pressure increases, which can lead to increased risk of heart disease, diabetes, depression, and anxiety disorders (National Institute of Mental Health, n.d.)

The brief stress response serves an adaptive function, allowing humans to respond appropriately to environmental threats such as predators, diminishing resources, natural disasters and extreme weather patterns. It might be argued that the present day environment presents

markedly more stimuli, which may function as stressors than did the early human environment in which these responses evolved. These may be routine events for example, work deadlines, traffic, financial complications, family responsibilities, or it may be a larger event, such as losing a job, divorce, an illness or injury, or the death of a loved one. A common leading cause for stress is work, with forty-five per cent of Australian adults reporting that their workplace is a source of stress (Australian Psychological Society, 2014).

Job stress occurs when work demands exceed the employee's resources to cope with the demand (Lazarus, 1999, as cited by Dewe, O'Driscoll & Cooper, 2012). Ongoing exposure to, or failure to recover from, job stressors and the continued activation of the physiological stress response leads to a prolonged syndrome referred to as 'burnout,' the underlying construct of which has been a major focus of organisational behaviour research for the past 40 years (Maslach, Leiter & Jackson, 2011). The title of 'burnout,' encapsulates the notion of a fire, once burning, but has burned out due to lack of fuel (Schaufeli, Leiter & Maslach, 2009), and is a metaphor for how an individual loses the desire and ability to make an impact in their work, due to the reduction in internal or lack of, external resources.

Burnout is characterised by three main responses: emotional exhaustion, development of cynical perceptions or negative thoughts about clients (depersonalisation), and increasing doubts of professional competence (Maslach, Leiter & Jackson, 2011); and occurs as a gradual process over time, due to continued exposure to stress. The developmental trajectory of the components of burnout is still discussed in the literature.

Originally, Leiter and Maslach (1988) posited that the emotional exhaustion component develops first as a result of a frequent or intense job stressors, before the emergence of depersonalisation, which is perhaps a coping strategy in response to exhaustion. Then, self-appraised personal accomplishment worsens due to reduced efficacy in meeting work goals. Conversely, Leiter (1993, as cited by Schaufeli, 1993) proposed that in some environments, each dimension could develop independently, resulting from differing aspects of the work environment that are causing stress or strain. Further, it is suggested that burnout on the personal development dimension may be affected by lack of resources, while exhaustion and depersonalisation may develop due to an overload of demands and conflicts with clients or other employees (Leiter, 1993, as cited by Schaufeli, 1993).

Effects of Stress and Burnout

There are a number of adverse medical issues associated with burnout. Individuals suffering from chronic stress and burnout have been found to be at increased risk of developing a number of medical conditions, from the relatively minor common cold (Cohen et al. 2011), to more debilitating conditions such as insomnia, (Armon, Shirom, Shapira & Melamed, 2008), coronary heart disease and myocardial infarction (Kakiashvili, Leszek & Rutkowski, 2003), Type-2 diabetes (Melamed, Shirom, Toker & Shapira, 2006), cardiovascular disease in males, and musculoskeletal diseases in females (Honkonen et al, 2006). A population-based sample of Finnish employees indicated that severely burned out participants had a co-occurring mental illness (62% of females and 55% of

males) compared to those who were mildly burned out (14% and 18%, respectively) (Ahola et al. 2008). A systematic review of burnout literature found an association between burnout and declines in cognitive functioning - namely, executive functions, attention and, in particular, working memory (Deligkaris et al. 2014). This finding has implications for people employed in positions requiring constant vigilance or high reliance on memory if they are burned out - because their ability to perform work tasks effectively may then be compromised. Burnout has also been related to decreased productivity (Dewa, Loong, Bonato, Thanh & Jacobs, 2014) and the decreased ability to cope with stress (Kakiashvili, Leszek & Rutkowski, 2003).

The effects of burnout extend past individual health issues. Burnout-related disorders of the musculoskeletal, respiratory and cardiovascular systems, and mental and behavioural disorders have been associated with increased likelihood of employee absenteeism (Toppinen-Tanner et al. 2005). Emotional exhaustion and depersonalisation is also linked to 'presenteeism' - whereby the chronically stressed or unwell employee continues to present for work, but productivity is affected due to illness (Demerouti et al, 2008). Associations between stress/burnout and employee intention to resign have been demonstrated (Kozak, Kersten, Schillmöller, Nienhaus, 2012), as well as actual turnover (Tziner, Rabenu, Radomski & Belkin, 2015). Absenteeism and presenteeism related to workplace stress are reported to cost Australian employers \$10.11 billion per annum - before accounting for the additional costs associated with turnover, or workplace health claims (Medibank, 2008).

Another cost to the organisation is the decreased quality of service provision to clients. Continuity of services is disrupted with high rates of

worker turnover and absenteeism (Blackledge, Ciarrochi & Deane, 2009). Leiter, Harvie and Frizzell (1998) found that the level of worker burnout or engagement was associated with the client's prediction of service quality, while one meta-analysis indicated that high levels of burnout was associated with low levels of job performance (Taris, 2006). Lawson and O'Brien (1994, cited by Blackledge et al., 2009) found that staff under high levels of stress initiated fewer interactions with clients, and of these, fewer interactions were positive. Highly stressed employees can be less effective in managing challenging behaviour of clients (Hastings 2002; Rose et al. 2004), and staff contact and support of clients has been shown to directly impact client quality of life (Felce & Emerson, 2001). The role of staff behaviour in the development and care of clients with disabilities is of great importance (Sharrard, 1992).

High Risk Industries

Some employment positions may be more susceptible to the development of employee burnout. Originally, the model of burnout was developed with respect to those working in human services roles (i.e., those working with clients who have complicated needs, such as Autism Spectrum Disorder, intellectual disabilities, mental health issues, severe behavioural issues, or physical disabilities) because these workers were at high risk of burnout (Maslach, 1976, as cited by Schaufeli, Leiter & Maslach, 2009). Results from surveys in the United Kingdom revealed that up to 30% of employees working with intellectually disabled clients were experiencing clinical levels of stress (Hatton & Lobbon 2007, as cited by Blackledge, et

al., 2009). This is compared with 18% of employees in the general population.

Human services workers support clients who frequently exhibit challenging behaviour, topographies of which may be self-injurious or externalised aggression, as well as stereotyped behaviour. Prevalence of stereotypical and self injurious behaviours in one sample of individuals with profound and multiple disabilities was found to be at 82%, while externally directed aggressive or destructive behaviour was observed in 45% of the same sample (Poppes, Putten & Vlaskamp, 2010). Frequency of aggressive/destructive behaviour of intellectually disabled clients over a 12-month period was demonstrated at 51.8% (Crocker et al. 2006). Several studies have investigated the effects of such behaviour on disability workers. Elgie and Hastings (2002) found that staff identified outwardly directed challenging behaviour of clients (e.g., aggression, destruction of property) as being more challenging than other topographies (e.g., stereotyped behaviour, self injury). Residential support workers for individuals with challenging behaviour had higher ratings on anxiety scales than their counterparts working with clients who did not engage in such behaviour (Jenkins, Rose & Lovell, 1997), and disability support workers exposed to challenging behaviour scored highly in scores of perceived stress as well as the emotional exhaustion component of burnout (Smyth, Healy & Lydon, 2015). Challenging behaviour has also been associated with increased scores on all three components of burnout (Ko, Lunsy, Hensel & Dewa, 2012). Another potential contributor to burnout is the higher needs (e.g. dependence on others) of clients and the strain that this places on the employee. These high needs may not be able to be met by a worker

due to resource constraints (Schaufeli, Leiter & Maslach, 2009), or lack of experience or training (Hatton & Lobbon 2007, as cited by Blackledge, et al., 2009). Emotional reactions to clients may themselves be a stressor - such as feelings of hopelessness and inability to comprehend behaviour (Bromley & Emerson, 1995).

In addition to these factors, a number of organisational characteristics common amongst human services organisations appear to influence burnout. Male and May (1997) found teachers of children with severe learning difficulties had high workloads and long work hours. The extreme workload of teachers and direct care workers of people with intellectual and developmental disabilities has been associated with burnout (Hakanen, Bakker, & Schaufeli, 2006; Gray-Stanley & Muramatsu, 2011). A study of 1328 mental health workers found that fewer positive organisational changes and fewer rewards predicted higher scores of cynicism, while lower job control predicted decreased professional accomplishment (Lasalvia et al. 2009). Further, higher exhaustion was found for workers who more frequently interacted with clients - although the most significant predictor of exhaustion was high workload. Similarly, high workload and low decision-making power were associated with increased emotional exhaustion in employees working with individuals with disabilities (Kowalski et al. 2009). Bakker, Killmer, Siegrist and Schaufeli (2006) found that a lack of balance between employee effort and subsequent reward or recognition was related to higher emotional exhaustion and feelings of depersonalisation. Behavioural therapists working with children with Autism Spectrum Disorder (ASD) have rated the inconsistencies between job

demands and their own ability as being the most stressful aspect of their job (Elfert & Mirenda, 2006).

Established Interventions

Given the high costs, both personal and organisational, associated with employee burnout, the applied research surrounding burnout interventions has received much attention. Interventions generally fall within the scope of either organisation focused, or individual focused. At the organisational level, these seek to alter the occupational context and job design in order to reduce the number of stress-inducing stimuli, while interventions focused on individuals themselves aim to increase coping abilities or stress management strategies (van der Klink, Blonk, Schene, & van Dijk, 2001). However, organisational focused interventions can be expensive, and require a deal of effort and commitment on the parts of the organisational leaders and employees. In addition, for factors such as challenging client behaviour or high needs, it may be difficult to quickly or completely reduce the frequency of these antecedents. Individual focused interventions are an alternate option for reducing or preventing burnout in staff. While it may not be possible to avoid stress altogether, we can learn strategies to manage it better.

Individual focused interventions generally aim to teach employees to manage stress more effectively (van der Klink et al., 2001). Some examples of stress management interventions include cognitive-behavioural interventions, in which individuals are encouraged to challenge and alter their cognitions and behaviours with the aim of coping with stressors more effectively; relaxation training, whereby relaxation strategies are taught as a

method of mitigating stress effects; and acceptance based therapies, which aim to alter the way an individual responds to difficult thoughts and emotions using acceptance, mindfulness and values based strategies. Each of these techniques have been empirically supported for use with worker stress and burnout, although it is not clear what components of the techniques contribute to subsequent psychological change.

Traditional cognitive behavioural therapies are based on the notion that an individual's perception of their environment will shape their cognitions, emotions and behaviour, and therefore changing these perceptions and beliefs will result in reductions in symptoms (e.g. experience of stress, depression.). A cognitive behavioural therapist aims to assist an individual to identify 'incorrect or unhelpful' cognitive patterns and behaviours and then target these for change or reduction in frequency in order to reduce psychopathological symptoms (Beck Institute for Cognitive Behaviour Therapy, 2016). Often, there is a focus on helping a client evaluate how 'true' a thought is, and to encourage realistic thinking and problem solving. These interventions have received some empirical support with respect to decreasing stress and burnout in employees. Richardson and Rothstein (2008) performed a meta-analysis on the published and unpublished literature (including only those studies with strong experimental design) on stress management interventions for work stress, finding that cognitive behavioural interventions had the largest effect, although noting that follow up measures were not taken to indicate any residual or long-term effect of treatment. They cited a possible contributor to this success being that these interventions required active participation from the subject - which is not an element specific to CBT. This suggests that it may not be

specifically CBT techniques that produced change. Interestingly, the more elements that were added to an intervention, the less effective it became. This indicates that it is hugely important to know which components are responsible for therapeutic progress with a client, instead of including as many hypothetically useful elements as possible.

Most CBTs encourage attempting to alter, stop or at least reduce difficult thoughts. However, attempting to suppress, modify or avoid cognitions or emotions has been demonstrated to be cognitively demanding and indeed not always effective in the long term. Dostoevsky (1863, as cited by the American Psychological Association, 2011) wrote: "Try to pose for yourself this task; not to think of a polar bear, and the cursed thing will come to mind every minute." Inspired by this candid reflection, Wegner and colleagues enacted the early stages of research on thought suppression (American Psychological Association, 2011). They instructed a group of participants to think aloud, and not to think of white polar bears; if they did, they were to ring a bell (Wegner, Schneider, Carter & White, 1987). Later, participants were asked to think aloud again, but this time to think of white polar bears. Another group completed these same conditions, but in reversed order. Famously, they demonstrated that not only is it difficult to suppress thoughts when instructed to do so, but that attempts to suppress a thought may in fact increase the frequency of this thought occurring in future. With respect to employee burnout and stress, if attempting to suppress thoughts about stressful situations only increases those thoughts in future, this might further contribute to burnout.

Avoidance and Acceptance

Such attempts to alter the form and frequency of cognitions (encapsulating thoughts, emotions, memories, associated bodily sensations and all private events), or avoid them altogether have been termed 'experiential avoidance' (Hayes, Strosahl & Wilson, 1999). Behaviourally, this may present as harmful over-engagement in exercise, alcohol or drug consumption, watching television, attempts to cognitively distract oneself, or actively avoiding the contexts in which these cognitions frequently occur. Behavioural and experiential avoidance is linked to a number of psychological issues, including anxiety disorders (Zinbarg, Barlow, Brown & Hertz, 1992), depression (Cribb, Moulds & Carter, 2012; Ottenbreit, Dobson & Quigley, 2014), and eating disorders (Rawal, Park & Williams, 2010; Cowdrey & Park, 2012). Higher perceived work demands and burnout of workers have also been associated with engagement in avoidance strategies such as wishful thinking (Devereux, Hastings & Noone, 2009) and experiential avoidance (Hinds, Jones, Gau, Forrester & Biglan, 2015).

Conversely, experiential *acceptance* involves focusing attention towards the stressor and associated cognitive and somatic processes, and allowing these to occur without attempts to regulate or change them. Acceptance strategies have been shown to have more adaptive, longer term benefits than avoidance strategies (Suls & Fletcher, 1985) and cognitively, accepting emotions has been demonstrated to be less demanding than attempts to suppress emotions (Alberts, Schneider & Martjin, 2012). Butler and Ciarrochi (2007) studied acceptance of individuals in a nursing home, finding that individuals with higher psychological acceptance had better quality of life, health and productivity than those who

had lower acceptance. Acceptance has also been found to predict general mental health and physical well being of workers (Donaldson-Feilder & Bond, 2004), and, in mothers of children with ASD, acceptance and mindful parenting significantly mediated stress, depression and anxiety (Jones, Hastings, Totsika, Keane & Rhule, 2014).

Therapies that seek to promote acceptance have been implicated in positive treatment outcomes for depression (Bohlmeijer, Fledderus, Rokx & Pieterse, 2010), and have been linked to reduced stress and burnout among staff (Blackledge et al., 2009). Noone and Hastings (2009) showed that an acceptance based intervention for staff working with individuals with disabilities resulted in decreased psychological distress. Thus, promoting acceptance as a coping strategy may assist in changing the relationship with the stressful event without having to change the event itself. When working with individuals with behavioural issues, antecedent events such as challenging behaviour are frequent, so it could be beneficial to teach an employee to accept rather than attempt to change the environment, which might be a longer-term process.

Acceptance and Commitment Therapy and Relational Frame Theory

One intervention that has been shown to be beneficial in increasing acceptance of cognitions and emotions is Acceptance and Commitment Therapy. Referred to as 'ACT' (Hayes et al., 1999), this therapy has been the subject of more than 30 years of a dedicated research program. The therapeutic process in ACT focuses on modifying the individual's relationship with, or *function* of psychological phenomena, rather than

changing their *form* or presence, as is a traditional aim of CBT. Acceptance and Commitment Therapy is empirically supported in treating a wide range of pathological disorders, as well as a range of severity of disorders (Hayes et al. 2006). The long-standing research efforts have given ACT a strong empirical account for the underlying mechanisms of therapeutic change.

To understand the therapeutic processes in ACT, it is useful to build understanding of the ACT model and related research. Acceptance and Commitment Therapy is primarily built on two psychological approaches. The first is behaviourism, which is underpinned by the view that all behaviour occurs as a result of its antecedents and consequences (Cooper, Heron & Heward, 2007). The second is functional contextualism, which refers to a system of concepts that have been developed through the scientific study of behaviour, and are used to predict and manipulate behaviour (Biglan and Hayes, 1996). ACT is referred to as a third wave behavioural therapy (Hayes et al., 2004), because of its evolution from respondent and operant conditioning (first wave) and traditional cognitive-behavioural therapies (second wave). Earlier cognitive therapies sought to expand on early behavioural principles to include phenomenon existing in the cognitive realms (Hayes et al., 2006). As CBT models emerged, it became evident that there was a clash between CBT's mechanistic approach to describing psychological phenomena, and the functional analytic, contextual nature of behaviour analysis (Hayes et al., 2006). Many of the concepts created by cognitive theorists tend to be hypothetical constructs (Cooper et al., 2007) and because these are unobservable entities (e.g., cognitive schemas), they cannot be studied, or manipulated as is crucial in behaviour analysis. In addition, from a behaviourist

perspective, private events such as cognitions and emotions cannot have any causal effect on behaviour (Hayes & Brownstein, 1986, as cited by Zettle, 2005), and they are seen as behaviour. While CBT has been shown to have positive effects for a range of psychological disorders compared to control groups, the lack of evidence for hypothesised processes of change leaves the model open to criticism from an objective, empirical standpoint which seeks to understand the components important for outcomes. After all, Hayes and Shenk (2004) note how the scientific community agrees that deriving understanding of how a treatment works, not just that it does work is a vital strand of therapy research. As a result, the third wave of cognitive behaviour therapies sought to provide a functional contextualistic approach to understanding the relations between private and public events (Hayes, 2004).

A central part of ACT research is focused on Relational Frame Theory, which provides a functional analytic account of human language and cognition and has importantly demonstrated that both language and cognition are learned operant behaviours, sensitive to context and which have the ability to alter effects of other behavioural events (Hayes, 2004). Crucially, the 'ability to alter the effects of other behavioural events' must not be construed as a causal relationship. Ciarrochi and Bilich (2010) describe the relationship more aptly: "Low acceptance is part of a behavioural chain that temporally precedes symptoms, but does not cause symptoms" (pg. 3).

In greater detail, RFT explains how language emerges as we develop. The acquisition of the operant 'relational framing' involves three important abilities (Harris 2009). The basic building block of this is learning

how to derive relations between stimuli, which is a developmental norm for children around the age of 14-16 months old. Understanding this concept is simplified when exemplars are used. Consider an adapted example from Harris (2009): A child looking at fruit in a supermarket; mum points to a fruit and generates the tact “apple”, and her toddler repeats the word. When the mother reinforces his behaviour, the child learns the relation between the sight of the apple, and the sound “apple.” His mother then asks him “Can you point to the apple?” He could then point to anything, as he has not learned this relation. If however, he then points to the apple, his mother says “Yes! That’s the apple.” Now the child has learned a second relation between “apple” and the sight of the apple.

Over time, the child will not require specific training in both directions of relations, and will learn to derive one relation if explicitly taught the other. For example, in a trip to the supermarket several months later, mum points to a dragonfruit, which he has never seen before, and says “Dragonfruit!” The child repeats the word. Then mum says, “Can you point to the dragonfruit?” A typically developing child will point to the dragonfruit, having then derived the relation between “dragonfruit” and the sight of the dragonfruit, without being it being directly taught. It is then said that there is ‘stimulus equivalence.’

Frames of comparison between stimuli can also be derived: if we learn that an apple is smaller than a dragonfruit, then we automatically derive that a dragonfruit is bigger than an apple. This ability allows us to derive multiple relations between many different stimuli, and to create relational networks involving more than just two relations (e.g. if I learn that $A > B$, and $B > C$, then I also derive that $B < A$, $C < B$, $A > C$ and $C < A$).

Creating relational networks between multiple learned and derived relations is thus another important facet of relational framing. Another is 'transformation of stimulus function,' whereby the function of one stimulus transfers to another stimulus in the relational network. One novel stimulus can take on the functions of another known stimulus, after an association has been made between the two.

Therefore, RFT provides an explanation for the influence of context on the development of human language and cognition, and how this can lead to human suffering when one's behaviour is more sensitive to internal language rather than current environmental contingencies (Ciarrochi & Bilich, 2010). We could apply this central theory to the development of work burnout and stress. If a worker witnesses a client engage in aggressive behaviour that elicits a stress reaction for the worker, the worker may then associate the client or the situation with stress, and experience the same stress reaction when he later thinks about the client, or is in the same situation. Thus, a relational frame has been learned between the client and the experience of 'stress', and a stress reaction may occur as the client and associated stimuli have acquired properties of the original stressful context. Our capability for language and thought allows us to relive painful memories of previous events, contexts, people or stimuli. We can therefore experience stress even after the original stress-inducing stimulus has passed, or when we predict possible events of the future (Hayes, 2013). To continue with this example, this worker may then avoid contexts and cognitions that are part of the same relational network as the client, as they come to elicit the same stress reaction. Therefore, the employee is responding to rules or contingencies described by language in previous experience, and becomes

less sensitive to current environmental contingencies. Both behavioural and experiential avoidance of the context, client and associated cognitions might be negatively reinforced through successful avoidance of the aversive stress reaction associated with the client and context, and would therefore be more likely to occur in future.

The overall goal of ACT is to create mindful, valued living (Harris, 2009). Importantly, ACT's goals do not include the objective of symptom reduction - instead, this is considered a by-product of working towards more mindful living. ACT seeks to meet its goal by increasing a client's level of psychological flexibility, defined as the ability to be present in the current context, being willing and open to experience the full range of normal human emotion and cognition, engaging in values guided action (Fletcher & Hayes, 2005). To explore psychological flexibility more we can first focus on psychological *inflexibility*, it is important to point out that while this type of inflexibility is present in many psychopathological disorders, the causal mechanisms between these two factors has not been properly defined (Kashdan & Rottenberg, 2010). These authors submit that whether it has an antecedent or consequence relation to maladaptive psychological processes, this inflexible responding seems to be strongly linked to presence of psychological disorder. In particular, links between inflexibility and depression, stress and anxiety have been found (Bond et al., 2011). When one is psychologically inflexible, one engages in maladaptive patterns of behaviour which are inconsistent with values (which are often conflicting or unclear) and which compete with the ability to live mindfully (Harris, 2009). This occurs as they hold too tightly to certain beliefs, rules of

expectations about themselves or others (cognitive fusion), and are experientially avoidant (Bond et al., 2011).

In order to combat these maladaptive processes, ACT aims to teach and develop psychological flexibility, by focusing on the following six core processes and related strategies to build these:

- 1) Acceptance: The client is taught to willingly experience all thoughts and emotions, to actively open up and make room for these, whether difficult or pleasant, because all are normal parts of human life. Importantly, true acceptance is regarded as that which does not target negative cognitions or emotions for reduction. Acceptance is taught as an adaptive alternative to avoidance (Cullen, 2008), when control or avoidance is limited or would lead to a reduction in quality of life (Harris, 2009). The role of acceptance in contributing to positive therapeutic progress has been examined - benefits such as reductions in avoidance and anxiety have been reported for participants who practise acceptance compared to avoidance, or those in control groups (Levitt, Brown, Orsillo, & Barlow, 2004; Eifert & Heffner, 2003), thus providing support that acceptance is an effective component of therapy.
- 2) Cognitive defusion: Aims to teach clients how to change the function of a cognition or emotion without changing the form or frequency of it. Hayes, Luoma, Bond, Masuda and Lillis (2006) describe this succinctly - "ACT attempts to change the way one interacts with or relates to thoughts by creating contexts in which their unhelpful functions are diminished" (pg. 12). Strategies such as singing a thought to the tune of 'Happy Birthday' are used to help client to see

a thought as images, letters or words, rather than a reality. Masuda, Hayes, Sackett and Twohig (2004) found that the use of one defusion strategy - rapidly repeating the same word, was associated with reductions in believability and associated discomfort of negative thoughts about the self, indicating support for the use of defusion as an effective component of ACT.

- 3) Self as context: Encourages the client to contact the present moment and respond to events as they occur, without becoming fused with past events or expected future events (Larmar, Wiatrowski & Lewis-Driver, 2014). Mindfulness exercises are included in teaching and practise methods.
- 4) Being present: Involves paying attention, with curiosity and without judgement to the present moment, including the environment, as well as inner sensations, emotions and thoughts. The goal of this is to allow clients to learn to respond more flexibly to internal and environmental events (Hayes et al., 2006).
- 5) Values: This involves the client gaining a greater, more refined sense of the values which are most important to them, and which will function to motivate the client to engage in the other processes to increase psychological flexibility (Larmar et al., 2014). Values have been established as a critical influence on one's ability to tolerate pain-inducing stimuli, compared to a control group who had not defined values (Páez-Blarrina et al., 2008). This study focused only the effects of identifying and clarifying values without teaching any specific coping strategy, this indicates that values based work is a useful component in alleviation of psychopathological symptoms.

- 6) Committed action: Clients are encouraged to engage in behaviours which allow for effective action in pursuit of short, medium and long term goals (likened to the behavioural change method of shaping), motivated by values (Hayes et al., 2006).

Applications of ACT.

As discussed, the components of ACT have individually been demonstrated to have positive effects on symptoms of psychological disorders. ACT has been successful in treating a wide range of both clinical and non-clinical issues, including, but not limited to, reducing reported depression and anxiety (Forman et al., 2007; Dalrymple & Herbert, 2007), reducing self stigma associated with substance abuse (Luoma et al., 2008), reducing behaviours of self harm related to a diagnosis of borderline personality disorder (Gratz & Gunderson, 2006); increasing quality of life and acceptance with chronic pain patients (Johnston, Foster, Shennan, Starkey, & Johnson, 2010), reducing math anxiety (Zettle, 2003), reducing work related stress (Bond & Bunce, 2000), and reducing distress and depression in parents of children with ASD (Blackledge & Hayes, 2006). Studies that are of particular significance for this thesis are those that demonstrate that increased psychological flexibility mediate improvements on the symptoms of the relevant disorder. Forman et al. (2007) found that psychological acceptance facilitated positive treatment outcomes for university students with anxiety or depression. Another study demonstrated that decreases in experiential avoidance predicted later reductions in symptom severity of patients with social anxiety disorder (Dalrymple & Herbert, 2007). Bond and Bunce (2000) implemented an ACT intervention for employees of a large media organisation and found significant

improvements on the Acceptance and Action Questionnaire (AAQ; a specific measure for psychological flexibility), Beck Depression Inventory (BDI), and General Health Questionnaire (GHQ) for those who received intervention compared with control counterparts. Furthermore, they also found that significant proportions of outcome variance (GHQ, BDI) were mediated by improvements on the AAQ.

As mentioned, the effectiveness of Acceptance and Commitment Therapy in increasing psychological flexibility of non-clinical participants has also been demonstrated - one increasingly popular application has been for work related stress and burnout. A number of studies have adapted ACT to become Acceptance and Commitment Training as opposed to traditional therapy, as these populations are generally not diagnosed with any psychopathological disorders.

Lloyd, Bond and Flaxman (2013) sought to examine the process by which ACT training may affect the components of burnout in government employees. One hundred government workers were randomly assigned to either an ACT intervention condition (delivered in three half days over 2.5 months), or a waitlisted control group. Data collection at several time points throughout training indicated that ACT trained staff reported increases in psychological flexibility (measure by the AAQ-II) between training sessions two and three, and that this increase mediated a later decrease in emotional exhaustion. Because the control group experienced an increase in depersonalisation, but trained staff did not, authors suggest that the decrease in emotional exhaustion of trained staff may have prevented them from developing feelings of depersonalisation.

As previously mentioned, burnout and stress is particularly common amongst employees working directly with clients with a disability (Hatton & Lobban, 2007). Preliminary evidence suggests that Acceptance and Commitment Training may be effective in reducing stress or burnout in these staff. Noone and Hastings (2009) used ACT training for support workers of clients with intellectual disabilities and found that they had reduced levels of psychological distress (as measured by the General Health Questionnaire 12 item - GHQ-12) post training, even though their perception of work related demands was actually increased. This indicates that such an intervention may have a positive effect on psychological well being, even when stressors increase, implying that in cases where environmental stressors cannot be reduced, positive therapeutic change can be achieved.

Hayes et al. (2004) implemented a one day (6 hours) ACT training session for drug and alcohol counsellors and explored its effects on burnout and stigmatising beliefs about their clients, versus participants assigned to either education about drug addiction, or education about prejudice and stigmatization. Total burnout (MBI) was decreased for ACT training participants at post intervention compared to controls, but not at a 3 month follow up, while scores on the personal accomplishment dimension were improved at follow up but not directly post training. Given the short training protocol, authors suggested that more change to burnout might be observed when participants are exposed to a longer training period.

Brinkborg, Michanek, Hesser and Berglund (2011) investigated the effect of an ACT stress management intervention for Swedish social workers, delivered in four sessions of 3 hours each over eight weeks. For

participants with high stress levels at baseline, significant change in all components of the MBI were found compared to a control group. While no significant change to AAQ was found, the researcher conducted exploratory correlation analyses, which indicated that change on AAQ was correlated with improvements on secondary measures such as the MBI. The authors highlighted that participants already scored very high on the AAQ at baseline and therefore there was little room to improve, and cited this as a possible reason for why non-significant change to the AAQ measure was found.

Bethay, Wilson, Schnetzer, Nassar and Bordieri (2013) aimed to test the effectiveness of ACT and Applied Behavioural Analysis (ABA) as a stress reduction intervention for intellectual disability staff. Staff underwent training in either ACT (6 hours) + ABA (3 hours), or ABA only (9 hours). Decreases in distress (as measured by the GHQ-12) were observed for those in the ACT + ABA condition compared to the ABA only condition. Significantly larger reductions in stress were observed for those experiencing a high level of psychological distress at baseline. There was no significant effect observed for any of the burnout dimensions (as measured by the MBI) however, given the lack of a no-treatment control group (i.e in the ABA group, increased behavioural management skills may reduce client behaviour and thus a stressor), lack of specific psychological flexibility measures and small sample size, these results should be interpreted carefully. Further evidence is required to fully ascertain the effects of ACT treatment on burnout dimensions.

In another study, support staffs for individuals with intellectual disabilities were randomly assigned either to an ACT training group, or wait

listed control (McConachie, McKenzie, Morris & Walley (2014). Post intervention, a decrease in psychological distress (as measured by the GHQ-12) was seen for the ACT group compared to their control counterparts, and greater changes were observed for more distressed participants. However, because there were no significant changes to scores on AAQ-II after treatment in the McConachie et al. (2014) study, these changes cannot necessarily be attributed to increases in psychological flexibility. Authors note that the use of the newer AAQ-II may not have detected change, as compared to previous findings of ACT studies which found improvements to psychological flexibility when utilising the older AAQ (Bond & Bunce, 2000; Lloyd et al., 2013). Caution should be taken in attributing any therapeutic change to specific ACT processes for this particular study.

Thomas (2011) reported the effects of an ACT based self-help book, used by disability support staff over a seven-week period, and compared results to a wait-listed control group. At post intervention, ACT trained participants showed decreases in depersonalisation (burnout) and increases in psychological acceptance compared to their control counterparts, and significant changes over time for emotional exhaustion and total burnout scores.

Utility of online ACT interventions.

Emerging evidence suggests that ACT can be delivered effectively in modalities other than just face to face with a therapist, particularly with the use of self-help materials. Successful ACT delivery has been observed using a smartphone application for stress management of managers (Ly, Asplund & Andersson, 2014), self help books for reducing stress and

depersonalisation in disability workers (Thomas, 2011) and through online platforms (Lappalainen et al., 2014; Savvides & Karekla, 2015; Räsänen, Lappalainen, Muotka, & Lappalainen, 2016).

Lappalainen et al. (2014) compared the effectiveness of therapist delivered ACT and internet based ACT over a 6 week therapy period, in treating outpatients who displayed mild depressive symptoms. Data were taken at baseline, post therapy, 6 and 18 month follow up, and indicated positive effects of therapy on depressive symptoms, psychological flexibility, stress and life satisfaction. Effects were maintained at the 18-month follow up. Interestingly, larger effect sizes were found for those in the online therapy group, indicating that there may be a larger benefit for this treatment modality compared to face-to-face therapy. However, replication is required given a) the lack of ability to assess adherence to the ACT model for the face-to-face group, and b) the small number of participants.

Significantly, Potts et al. (2016) found that there were no particular individual characteristics which would predict whether a web-based application of ACT would be successful or not for participants with depressive symptoms. Although this evidence is preliminary in that it has not been replicated amongst varied clinical or non-clinical issues, it does indicate that web-delivered ACT is likely to be beneficial in producing change for a variety of people and complaints. Coupled with findings from Lappalainen et al. (2014), it seems there may be little or no detriment compared to face-to-face delivery. Given that stress and burnout is a mounting issue for particular industries, it is promising that a large number of employees could receive benefit from an Internet based ACT intervention, rather than requiring frequent therapist guidance. Certainly,

given these results and the additional resource required for face to face intervention, it could be argued that on an effort-effect basis, online ACT trainings are worth pursuing.

Summary, Rationale and Aims for the Present Study

Behavioural therapists who support clients with Autism Spectrum Disorder (ASD) are disability workers who have been reported to be under considerable work stress (Hastings & Symes, 2002; Jennett, Harris & Mesibov, 2013; Elfert & Mirenda, 2006) and who may benefit from stress/burnout interventions. An individual diagnosed with an ASD displays impairments in social and communicative domains and typically engages in repetitive or restricted patterns of behaviour, and these problems can cause significant impairment in daily functioning (American Psychiatric Association, 2013). Behavioural therapists work according to principles of Applied Behaviour Analysis (ABA), a scientific technology dedicated to improving behaviour primarily by studying and manipulating antecedents and consequences for a client's behaviour (Cooper et al., 2007). The effectiveness of ABA as a treatment for ASD has been demonstrated beginning with the pioneering works of Ivar Lovaas (1987) and again in a meta-analysis by Virués-Ortega (2010). Behaviour therapists utilise reinforcement, task analyses, and discrete teaching methods as the primary methods for building skills of clients, as well as using functional analyses, extinction, reinforcement and punishment for modifying behaviour (Cooper et al., 2007). Intensive early intervention (<5 years old) usually involves a client receiving therapy in a 1:1 setting, and it has been recommended that a child receive up to 40 hours of structured intervention time (Lovaas,

1987). The intensity of such a program, while hugely beneficial for the client, has the potential to negatively impact a therapist. Along with client behavioural challenges and limited cognitive ability, therapists have reported the high intensity of a behavioural therapy program as being highly challenging (Jennett et al., 2003).

As previously discussed, there are associations between burnout with disability workers and challenging client behaviour (e.g., Jenkins et al., 1997; Smyth et al., 2015; Ko et al., 2012), and high workload (e.g., Hakanen et al., 2006; Gray-Stanley & Muramatsu, 2011); we would therefore expect similar burnout trends with ABA therapists because they work with similar populations and conditions. Burnout and stress have also been linked to high rates of staff turnover, and parents who employ ABA therapists have noted the difficulties faced with regard to high therapist turnover (Grindle, Kovshoff, Hastings & Remington, 2009). Hastings and Symes (2002) highlighted that high turnover negatively affects therapeutic progress, and given the urgent nature of a therapy that is effective at early intervention, this could drastically affect a client's early development. Therefore, efforts to maintain therapist well-being may be imperative in the delivery of a high quality ABA program.

Preliminary evidence of benefits of ACT training for individuals caring for people with disabilities is emerging, although the degree and type of change has yet to be agreed upon. Studies have indicated that ACT interventions or training may positively impact psychological well being measures such as psychological distress in parents of children with ASD (Blackledge & Hayes, 2006), and intellectual disability support staff (Noone & Hastings, 2009; McConachie et al., 2014; Bethay et al., 2013). Given the

previously discussed limitations of these studies, further evidence to demonstrate a relation between ACT training and reductions in psychological distress is required.

The effect of ACT training on burnout measures is also still unclear. Scores on burnout measures have also been reduced, post ACT training; for the components of depersonalisation in disability workers (Thomas, 2011), but another study indicated that there was no significant effect of ACT training on burnout in intellectual disability workers (Bethay et al., 2012). Hayes et al., (2004) showed positive changes to total burnout post ACT intervention but not follow up, and a converse effect for personal accomplishment. Again, design limitations are perhaps responsible for these discrepancies between studies; additional studies are needed to elucidate these relationships.

In conjunction with this, to date, no studies were found which test the effects of ACT interventions on the psychological well being of ABA therapists working with children with ASD. The research reviewed here suggests that an Acceptance and Commitment Training paradigm might be useful in decreasing psychological distress and burnout for this group of workers. Additionally, given the documented efficacy of web-based ACT interventions, even with minimal face to face ACT therapist contact, and given the increased number of clients web-based interventions could benefit, the current research question was posed: Does an online Acceptance and Commitment Therapy based training increase psychological flexibility, and positively affect scores on measures of psychological distress and burnout for ABA therapists? Here, we sought to determine the effectiveness of an established online ACT training program -

“PsyFlex6”, designed specifically for the training of employees in psychological flexibility. Hypotheses are outlined below:

1. Psychological flexibility (as measured by the Acceptance and Action - II Questionnaire) will increase over the course of and upon completion of the intervention. Increases in psychological flexibility indicate the efficacy of this particular training to the ACT model, in that PsyFlex6 actually makes positive changes to psychological acceptance levels.
2. Psychological distress (as measured by the General Health Questionnaire-12 item) will decrease over the course of and upon completion of the intervention.
3. Scores of emotional exhaustion, depersonalisation, and total burnout (as measured by the Maslach Burnout Inventory - Human Services Survey) will decrease over the course of and upon completion of the intervention, and scores of personal accomplishment will increase over the course of and at the end of training.
4. The effects of intervention will be maintained at one month and two month follow up testing.

Chapter 2: Method

Ethical Approval

Ethical approval was obtained from the School of Psychology Research Ethics Committee, with approval number #16:40. Approval to recruit participants from the organisation was also obtained from the organisation's Directors.

Participants

Initial recruitment of participants included 27 employees (Female = 26; male = 1), with 14 randomly assigned to Group A (treatment group), and 13 randomly assigned to Group B (wait list control group). A secondary recruitment phase included a further four participants (Female = 4) who were assigned to Group C (the title of Group C was used just to distinguish participants from those who had already been participating in the study, it did not denote any different conditions). Table 1a and 1b present demographic details of all participants, and indicates their gender, length of time employed as an ABA therapist, estimated number of hours per week worked and highest qualification, as well as their assigned participant number.

The Demographic Information Collected for Participants in Group A

Demographic						
Part. Number	Gender	Age (yrs)	Length of service in ABA	Hours worked per week	Education	Complete Training? Y/N
1	F	25-28	4 years +	32-38 hours	Masters	Y
3	M	31-34	2 years	17-24 hours	VCE	Y
5	F	22-25	7-12 months	32-38 hours	PGDip	Y
7	F	22-25	12-18 months	17-24 hours	Bachelor	Y
9	F	25-28	7-12 months	32-38 hours	Bachelor	Y
11	F	25-28	4 years +	32-38 hours	Masters	Y
13	F	22-25	7-12 months	32-38 hours	Graduate Diploma	Y
15	F	25-28	4 years +	32-38 hours	Bachelor	Y
17	F	22-25	12-18 months	25-32 hours	Bachelor	Y
19	F	22-25	2 years	32-38 hours	Bachelor	Y
21	F	22-25	0-6 months	32-38 hours	Bachelor	Y
23	F	35+	4 years +	9-16 hours	Bachelor	Y
25	F	25-28	12-18 months	32-38 hours	Bachelor	N
27	F	31-14	12-18 months	32-38 hours	Honours	N

Table 1b.

The Demographic Information Collected for Participants in Group B and C

Demographic							
Group	Part. Number	Gender	Age	Length of service in ABA	Hours worked per week	Education	Complete Training? Y/N
B	2	F	25-28	0-6 months	32-38 hours	Bachelor	N
	4	F	25-28	4 years +	32-38 hours	Bachelor	N
	6	F	22-25	19-24 months	32-38 hours	Bachelor	N
	8	F	22-25	4 years +	32-38 hours	Graduate Diploma	N
	10	F	22-25	0-6 months	17-24 hours	Honours	Y
	12	F	22-25	0-6 months	9-16 hours	Bachelor	Y
	14	F	22-25	3 years	9-16 hours	Bachelor	N
	16	F	22-25	12-18 months	32-38 hours	Bachelor	Y
	18	F	22-25	3 years	25-32 hours	VCE	Y
	20	F	22-25	0-6 months	25-32 hours	PGDip	Y
	22	F	25-28	0-6 months	25-32 hours	Bachelor	Y
	24	F	25-28	4 years +	32-38 hours	Bachelor	N
C	28	F	22-25	3 years	32-38 hours	Graduate Diploma	N
	29	F	29-31	7-12 months	32-38 hours	Honours	Y
	20	F	22-25	7-12 months	25-32 hours	Honours	Y
	31	F	22-25	0-6 months	17-24 hours	Honours	Y

Apparatus

As part of the inclusion requirements of the study, it was vital that participants had access to either a computer, smart-phone or tablet, and an Internet connection as outlined in the information sheets provided (Appendices Two, Three and Four).

Information was collected from participants through Google Forms, an online platform in which forms can be designed and sent to participants for completion. This includes demographic questionnaires, measures and content evaluations.

Setting

The primary researcher scheduled individual meetings with each potential participant to discuss the study and offer an opportunity to give informed consent. This occurred at their respective places of work (either the company head office, or an outreach school program). Once participants had completed initial measures and demographic questionnaire, the primary researcher met them again at their workplace to deliver workbooks prior to their commencing training. Participants were then able to complete all other components of the study (training, measures) in locations of their choosing, using the online methods described later.

Materials

- *Information sheet.* The initial recruitment email (Appendix One) included an information sheet that outlined information relating to the recruitment process, time requirements involved in participation, participation prerequisites and broad study aims (See Appendix

Two). A second information sheet which was used to invite the wait listed controls to participate in training can be seen in Appendix Three and a third information sheet to advise staff of a secondary recruitment phase is in Appendix Four.

- *Consent form.* When interested parties met with the researcher to discuss potential involvement in the study, they were given a consent form to sign. The consent form stated that they had been given the information sheet, the opportunity to ask any questions and had been informed that they could withdraw from the study at any time. All participants signed an identical consent form, which can be seen in Appendix Five.
- *PsyFlex6 workbook.* The workbook delivered to each participant at the time they commenced online training was designed by the company PsyFlex in order to support online materials. Each section includes activities that were focused on in the online training. The workbook has six sections, each one corresponding to an online module. The module content is outlined below, and adheres to the six core processes of ACT.

Week 1. Introduction of definitions of terms used in the training, including psychological flexibility, resilience, mindfulness, stress. Debunks common myths about happiness in line with ACT, outlines how our minds work, and how acting ineffectively in response to difficult thoughts and emotions can move us towards a state of burnout.

Week 2. Explores psychological flexibility in more detail, and introduces some strategies to help trainees ‘unhook’ from difficult thoughts and feelings and exercise mindfulness.

Week 3. Continues with solidification of unhooking strategies, highlights maladaptive strategies of avoiding difficult thoughts and feelings, and ways to practise defusion.

Week 4. Introduces the concept of values versus goals, why clarification of values is important for ACT and begins bringing strategies together to apply to real life situations.

Week 5. Continues developing psychological resilience by assisting participants to apply learning to their own situations. An outline of values guided goal setting was given, and provided an opportunity for participants to practise this.

Week 6. Brings all components of the training together, provides multiple opportunities for participants to reflect on their own behaviour and current coping strategies, and to continue building more adaptive techniques to build acceptance rather than avoidance.

- *Online training “PsyFlex6”.* The training used in this thesis was created and supplied by PsyFlex. This is an independent organisation, with no ties to the ABA provider that employed the participants, or any of the researchers involved in this project. Each

module was supported by the workbook, and was presented by way of a collection of short videos, each between 5-10 minutes in length. The videos were informative or activity based, and presented by Dr. Russ Harris, one of the training creators. The participants had to work through each video one at a time, and could not move to the next module until all videos in the section had been viewed. Some modules included mp3 format audio recordings of exercises, which participants had to download and listen to before moving to the next item. The primary researcher could view each participant's progress by logging onto the administration of PsyFlex6.

- *Content Evaluations.* In order to assess participant comprehension and engagement in the training, a content evaluation was designed by the primary researcher and completed by participants during each week they trained. As stated, responses were collected via Google Forms, and exemplars of each content evaluation are located in Appendix Six.

Research Design

Between Subjects

This study employed a randomised between subjects design, which included a control group and experimental (ACT training) group. This design was utilised in order to observe any difference between groups - specifically, to ascertain whether the ACT training resulted in any significant change for the tested measures. Pooling all participant codes and alternating group assignment based on the order in which their code was pulled out of a hat achieved randomisation. Before beginning the study, the

researchers decided that should there be a positive effect of training observed for the experimental group, training would be offered to the control group participants. Given that there were no psychological interventions offered at the outset of the study, a waitlisted control group was judged to be ethical given that they were technically waiting already.

Within Subjects

A within subjects design was also employed to test the effects of training across several time points throughout the study (baseline, training and follow up). Upon the collection of all measures for all participants who completed the study, data from both groups were pooled. A timeline of data collection and training is presented in Table 2.

Table 2.

Timeline of Measures and Training Completed for Groups A, B and C.

Week	Group					
	A		B		C	
	Training	Measures	Training	Measures	Training	Measures
0		Baseline		Baseline		
1	Module 1					
2	Module 2					
3	Module 3	3rd Week		3rd Week		
4	Module 4					
5	Module 5					
6	Module 6					
7		1 week post		1 week post*		
8					Baseline	
9			Module 1		Module 1	
10		1 month post	Module 2		Module 2	
11			Module 3	3rd Week	Module 3	3rd Week
12			Module 4		Module 4	
13			Module 5		Module 5	
14		2 months post	Module 6		Module 6	
15				1 week post		1 week post
16						
17						
18				1 month post		1 month post
19						



* Served as the baseline for the training period for Group B

Table 3.

Displays information relating to all measures used in this study.

Name of test	Abbreviation	What it measures	When utilized	Time taken to complete (minutes)
Acceptance and Action Questionnaire -II	AAQ-II	Psychological flexibility	Baseline, Week 3 of training, 1 week post, 1 month post, 2 months post	<5
General Health Questionnaire – 12 item	GHQ-12	Presence of minor psychological disorder	Baseline, Week 3 of training, 1 week post, 1 month post, 2 months post	<5
Maslach Burnout Inventory – Human Services Survey	MBI-EE/ MBI-DP MBI-PA MBI-Total	Burnout on three subscales: Emotional Exhaustion, Depersonalisation, Personal Accomplishment, Total burnout (EE + DP)	Baseline, Week 3 of training, 1 week post, 1 month post, 2 months post	<10

Measures

Participants were required to complete a demographic questionnaire before beginning the study, as well as three standardised tests at several time points throughout the study to test the hypotheses. Table C. displays information regarding each measure utilised, including name, what it measures, time taken to complete, and when completed.

Demographic Questionnaire. Information about each participant was collected using a self-report form. Information obtained included: age range, gender, length of time employed as an ABA therapist, number of hours a week currently working as an ABA therapist, highest qualification obtained and whether the participant currently or previously had accessed any mental health/wellbeing interventions/training. This questionnaire can be viewed in Appendix Seven.

Acceptance and Action Questionnaire II (AAQ-II). The AAQ-II is a seven-item questionnaire designed to test an individual's level of psychological inflexibility (or flexibility). Participants are asked to rate their answers to these items on a seven point Likert Scale (1 = Never true, 7 = frequently true), and a score is calculated by summing all scores (Bond et al., 2011). Higher scores on AAQ-II indicate higher levels of psychological inflexibility, and lower scores indicate higher levels of psychological flexibility. Bond et al. (2011) explored the psychometric properties of the AAQ-II and found it to have good reliability scores across samples, as well as test-retest reliability.

General Health Questionnaire-12 Item (GHQ-12). This measure is designed to identify presence of minor psychological disorder/level of psychological distress. It measures current psychological state by

questioning if the individual has recently experienced a behaviour or symptom and how this differs from their normal experience. Respondents are asked to make a selection of one of four scaled options, e.g. “Better than usual/same as usual/less than usual/much less than usual”.

GHQ-12 can be scored using one of four methods. In this study, the GHQ method of scoring was chosen, which assigns a score of 0, 0, 1, 1 to responses, respectively. This yields a score in the range of 0-12; where scores above 2/3 are said to indicate presence of minor psychiatric disorder. This method of scoring is reported to have good reliability, with various studies finding coefficients to be within the range of 0.78 and 0.95 (Jackson, 2007).

Maslach Burnout Inventory Human Services Survey (MBI-HSS). The MBI-HSS is a 22-item survey that measures burnout using three sub-scales: Emotional Exhaustion (EE), Depersonalisation (DP), and Personal Accomplishment (PA). Participants rate how often they experience symptoms using a seven point Likert Scale (0 = Never, 6 = Every day). A score is calculated for each sub-scale by summing the responses that fall into each of the categories. Table 4 shows the score ranges that indicate a high, moderate and low score on each subscale. Hastings, Horne and Mitchell (2004) explored the applicability of these burnout components for staff working in the intellectual disability sector and found evidence to support the construct validity and reliability of the MBI-HSS for this population of workers.

Table 4.

Shows Scoring Ranges that Indicate Levels of Burnout

	Maslach Burnout Inventory Sub-scale		
	Emotional Exhaustion	Depersonalisation	Personal Accomplishment
High	27+	13+	0-31
Medium	17-26	7-12	32-38
Low	0-16	0-6	39+

Procedure

Consent was first obtained from the organisation for the researcher to recruit participants. An introductory email and information sheet was sent via email to all behavioural therapists employed by a private ABA Therapy provider in Melbourne, Australia. The information sheet provided brief details regarding the study, approximate time investment necessary from participants, and eligibility requirements. Employees were asked to signal their interest in participating in the study by sending a reply email to the primary researcher. Individual times were then arranged for the researcher to meet with interested candidates to provide additional information, opportunity to ask questions, and informed consent where applicable. In order to maintain confidentiality of participants, the organisation was not given any information regarding which employees were participating.

Participants then provided their preferred email for the primary mode of contact, were provided with a randomised participant code, and were sent access to the first set of measures and demographic questionnaire via email link to the Google forms sites. Completing all tests took approximately 15-20 minutes. Once all participants had completed measures, they were randomly assigned to either Group A (begin training immediately), or Group B (wait-listed control, to begin training later), and were notified of this by

email. The primary researcher made the training booklet available to all Group A participants by delivering this to their employment or home address.

Group A participants were contacted by administration of PsyFlex6 by email, stating that access to the training had been opened. Group A then began their first week of training. Each weekly module involved watching 4-6 short (5-6 minute) video clips and completing exercises in the workbook provided, with the content for each week lasting approximately one hour. All participants were able to keep their copy of the workbook after training ended.

At the end of each training week, those completing the training were sent a link via email to a brief content evaluation, which participants completed once they had finished the content for that week's module. Each content evaluation took approximately 10 minutes to complete.

While Group A completed training, Group B waited, and completed measures at the same intervals as Group A. Once all participants had completed measures for Week 7, preliminary results were scored to assess if there had been any effect of training. Because a positive effect of training was observed at one week post training, the same training was then offered to Group B, as well as to any other employees in the company. Additional participants (N = 4) were assigned to Group C, underwent the same routine for giving informed consent, obtaining participant codes and completing measures as Groups A and B. Training for Groups B and C then commenced. Measures for these participants were taken before commencing training, Week 3 of their training, Week 7 (1 Week post training), Week 10 (1 month post training), and Week 14 (1 month post

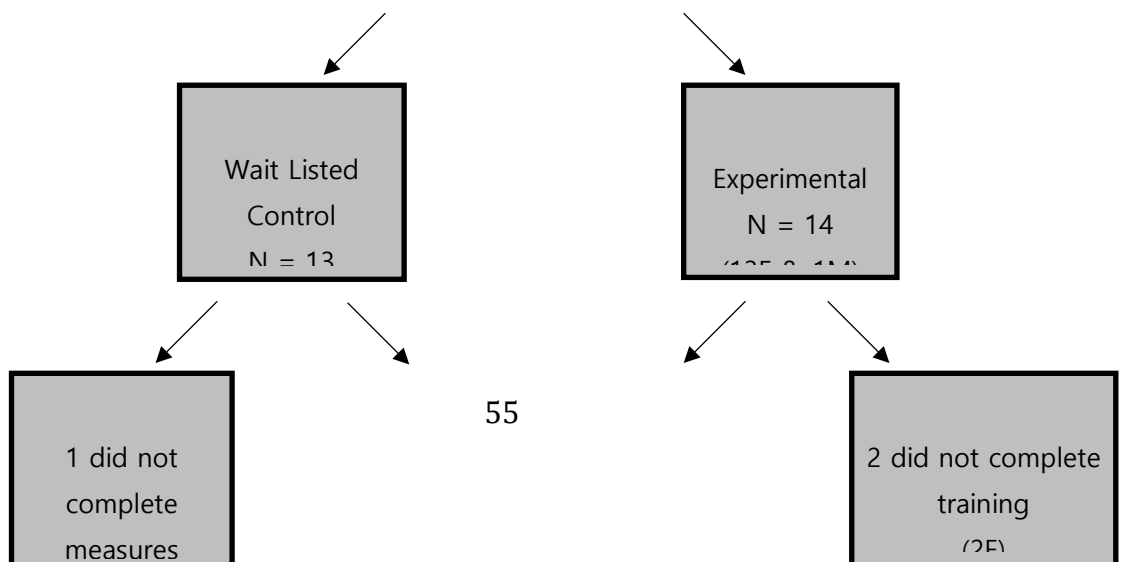
training). Table 2 displays information relating to timing of events throughout the

N = 27

information relating to study.

Figure 1 shows the attrition of participants during the study. In total, twelve participants from Group A completed the online training and all associated measures (Week 0, 3, 7, 10, 14). Two Group A participants completed measures throughout training, however, their data was excluded from the study on the basis that only part of their training was completed. With respect to Group B, one participant completed initial measures but dropped out during the initial wait-listed period (Weeks 1-6), the remaining 12 completed all wait listed measures and were offered training after Group A had finished.

Three participants from Group B did not elect to access PsyFlex6 training. Nine participants began training but three of these dropped out after Weeks 2 (N = 1) and 3, respectively. One participant from Group C dropped out after Week 4. In total, nine participants from Groups B and C completed training, and measures throughout training and follow up, except for one participant who did not complete measures at the one week follow up (Week 7).



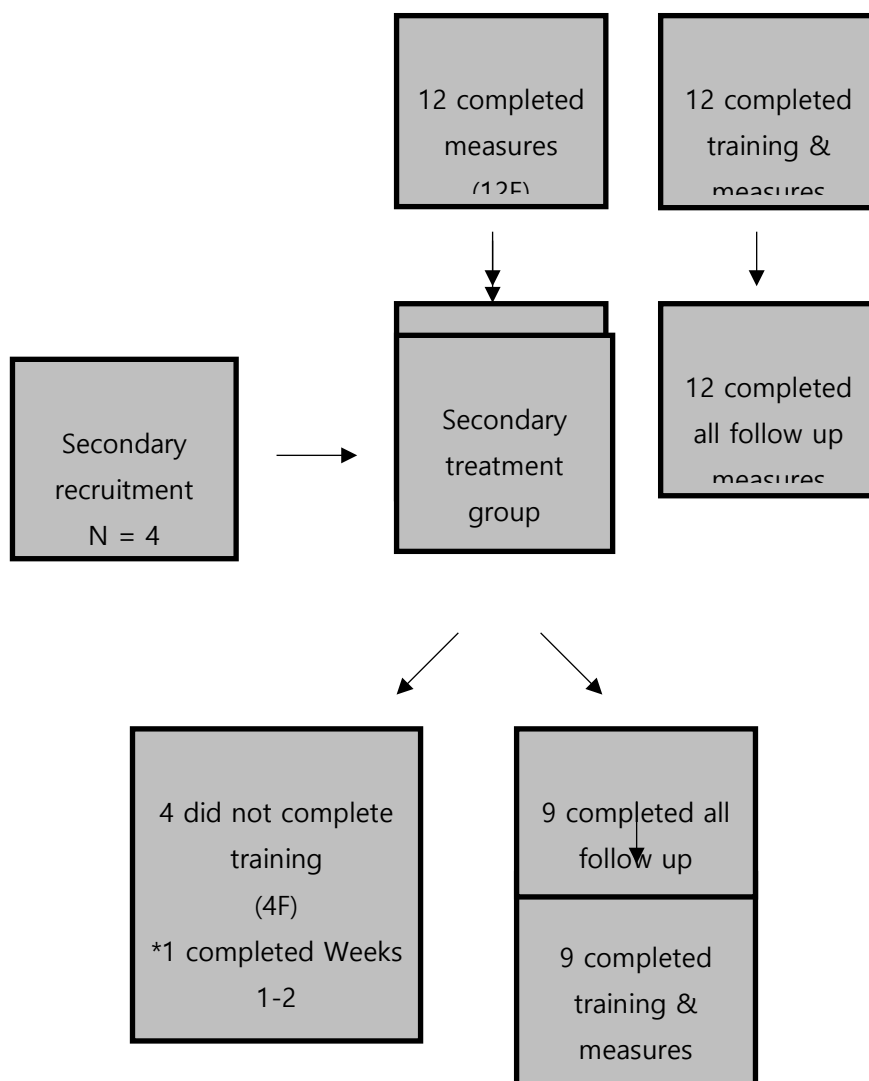


Figure 1. Shows attrition of participants throughout duration of study.

Statistical Analysis

The data were analysed using the most recent version (version 24) of Statistical Package for Social Sciences (SPSS). Data were collected for all participants, at all time points as detailed previously. To calculate a final score for each participant each measure was scored as stipulated in its instructions. Two way mixed ANOVAs, and appropriate post-hoc tests were completed to determine any difference between groups across time points during the training period. As part of this ANOVA, effect sizes were also calculated (partial η^2) to determine the magnitude of any change for each

measure. According to Ferguson (2009), effect sizes for partial η^2 should be considered small if between .04 and .24, moderate if between .25 and .63, and strong if above .64.

Tests of normality reported that data for GHQ-12 and MBI-Depersonalisation were not normally distributed. Attempts to normalise these data were made by performing a log10 transformation (+1 was added to each data point to avoid scores of 0 being interpreted as missing data). Caution is required in drawing conclusions from the test of GHQ-12 as, in spite of attempts to normalise the data, the data were not normal, given the Shapiro-Wilk test. After transformation of MBI-DP scores, all except one set of data were found to be normal given the Shapiro-Wilk test so conclusions may be more reliable. Non-transformed and transformed data are presented in tables in the results section, and only transformed data are presented in figures. ANOVAs were performed with transformed data; therefore this data is presented. Unless stated, in all the following ANOVA's, Mauchly's Test of Sphericity was non significant ($p > .05$) and therefore, sphericity was assumed.

A main two-way interaction was found for both AAQ-II and GHQ-12, so simple main effects of group and time were interpreted. Pairwise comparisons were calculated for AAQ-II and GHQ-12 using Bonferroni post hoc tests to observe differences in scores between time points. There was no statistically significant two-way interaction found for MBI-EE, MBI-DP, MBI-PA and MBI-Total, therefore main effects for group and time were calculated. A significant main effect for time was observed for both MBI-EE

and MBI-Total and so additional Bonferroni comparisons were performed for data of these two measures.

Later, data from both groups were included to observe any trend of treatment effect over time points by performing a one-way ANOVA. The alpha level for statistical significance is .05 ($p = .05$) and is used throughout this thesis. As stated, one participant's data was not completed for one round of measures collection at Week 7 (post training). In order to run statistical analyses, an average of all other participant scores was taken and inserted. This decision was made upon consultation with supervisors.

Again, data for GHQ-12 and MBI-DP were found to be not normal, so data were transformed by adding one and performing a log10 transformation, as was done previously. After transformation, data were still not normal for either measure as assessed by Shapiro-Wilk testing, thus caution is advised when interpreting these results also. Non-transformed and transformed data are presented in tables in the results section, and only transformed data are presented in figures. ANOVAs were performed with transformed data; therefore this data is presented. One week of data for Maslach Burnout Inventory - Emotional Exhaustion were not normally distributed (as found by the Shapiro-Wilk Test); however because all other data in this set were normal, they were not transformed. The reader should be aware of this non-normal data when drawing conclusions.

For the one way repeated measures ANOVA, where assumptions of sphericity were violated ($p < .05$) for AAQ-II, GHQ-12 and MBI-DP, the sphericity assumed values (degrees of freedom [df], F and p values, partial

η^2) were reported. This was done given that the Greenhouse-Geisser corrections made no difference to p values and thus, statistical significance. This is reported in results wherever applicable, and given that sphericity was violated, the reader should take care when drawing conclusions from these results.

The Bonferroni post hoc tests performed after the one way repeated measures ANOVA produced comparisons between each time point with every other time point. In order to test the relevant hypotheses, we report the comparisons between Week 0 and Week 7 (change to measure from baseline to post training), and between Week 7 and 10, Week 7 and 14 to test if any post training results were maintained at one month and two month follow ups.

Chapter 3: Results

The aim of this thesis was to evaluate the effect of the online ACT training program 'PsyFlex' for ABA therapists as compared to a similar group used as a wait-list control. Specifically, this research project sought to determine its effect on psychological flexibility, psychological distress and burnout measures.

Between Group Comparisons

The first section of data analysis reports the results of treatment and control groups for Weeks 0, 3 and 7, and excludes follow up data (Weeks 10, 14). Here, Week 0 refers to baseline data, Week 3 refers to the time point corresponding with the completion of the third week of training for the treatment group, and Week 7 refers to one week post training for the treatment group. Table 5 displays the number of participants (N) who completed the training and measures in entirety, mean (M) and standard deviation (SD) for each group on each measure across the first three time points. Both transformed and untransformed data are presented in the table. This is so that the reader can compare the true and transformed data.

Results of Treatment Effect by Measure

Psychological flexibility as measured by AAQ-II. Figure 2 shows psychological flexibility scores for all participants in the intervention group over the first three time points. A decrease in score indicates an increase in psychological flexibility. From baseline to Week 3, psychological flexibility increased for eight participants, remained stable for one participant, and

decreased for three participants. From Week 3 to Week 7, an increase in psychological flexibility was observed for eight participants, remained stable for two, and decreased for two participants. Overall, from baseline to Week 7, psychological flexibility increased for 11 participants and decreased for one participant. Figure X shows the means for AAQ-II, and demonstrate the mean decrease in scores (i.e. increase in psychological flexibility) from Week 0 to 3, 3 to 7 and overall from Week 0-7 for the intervention group.

Control group psychological flexibility scores can be seen in Figure 3. Between baseline and Week 3, a decrease in psychological flexibility was observed for nine participants and remained stable for three participants, with increases in psychological flexibility seen for no control participants. From Week 3 to Week 7, increases in psychological flexibility was observed in five participants, no change was seen in two participants, and a decrease in psychological flexibility was found for five participants. Overall change from baseline to Week 7 showed a decrease in psychological flexibility for eight participants, no change for one, and an increase for three individuals. Mean scores for AAQ-II are shown in Figure 4., which demonstrates a mean increase between Week, 0 and 3 and 0 and 7, and a mean decrease between 3 to 7.

Table 5.

The Number of Participants (N), Mean (M) and Standard Deviation (SD) of Group Scores for Both Control and Experimental group on All Measures, Across Weeks 0, 3 and 7.

Measure	Week	Control Group (B)			Experimental Group (A)		
		N	M	SD	N	Mean	SD
AAQ-II	0	12	17.08	7.32	12	25.67	7.62
	3	12	19.83	9.01	12	24.00	6.81
	7	12	18.17	7.26	12	18.25	4.69
GHQ-12	0	12	1.92	1.88	12	2.33	2.39
	3	12	3.67	3.58	12	.42	.67
	7	12	1.58	3.42	12	1.25	1.91
GHQ-12*	0	12	.37	.30	12	.47	.27
	3	12	.55	.35	12	.11	.17
	7	12	.23	.35	12	.23	.31
MBI-EE	0	12	22.58	8.88	12	29.42	5.99
	3	12	21.42	11.20	12	22.83	7.52
	7	12	19.92	12.01	12	20.50	8.38
MBI-DP	0	12	4.33	4.03	12	5.17	4.78
	3	12	4.67	4.98	12	4.25	4.73
	7	12	4.08	4.80	12	4.00	4.65
MBI-DP*	0	12	.59	.39	12	.64	.40
	3	12	.59	.41	12	.55	.42
	7	12	.52	.42	12	.48	.48
MBI-PA	0	12	36.67	7.09	12	35.08	4.14
	3	12	35.25	8.32	12	35.08	4.58
	7	12	38.00	5.20	12	36.25	6.41
MBI- Total	0	12	26.92	11.87	12	34.58	8.45
	3	12	26.08	15.89	12	27.08	9.59
	7	12	24.00	16.44	12	24.50	9.42

AAQ-II = Acceptance and Action Questionnaire, GHQ-12 = General Health Questionnaire, 12 item, MBI-EE = Maslach Burnout Inventory Emotional Exhaustion, MBI-DP = Maslach Burnout Inventory Depersonalisation, MBI-PA = Maslach Burnout Inventory Personal Accomplishment, MBI-Total = Maslach Burnout Inventory (EE+DP).

* Data transformed by adding 1 and applying \log^{10} .

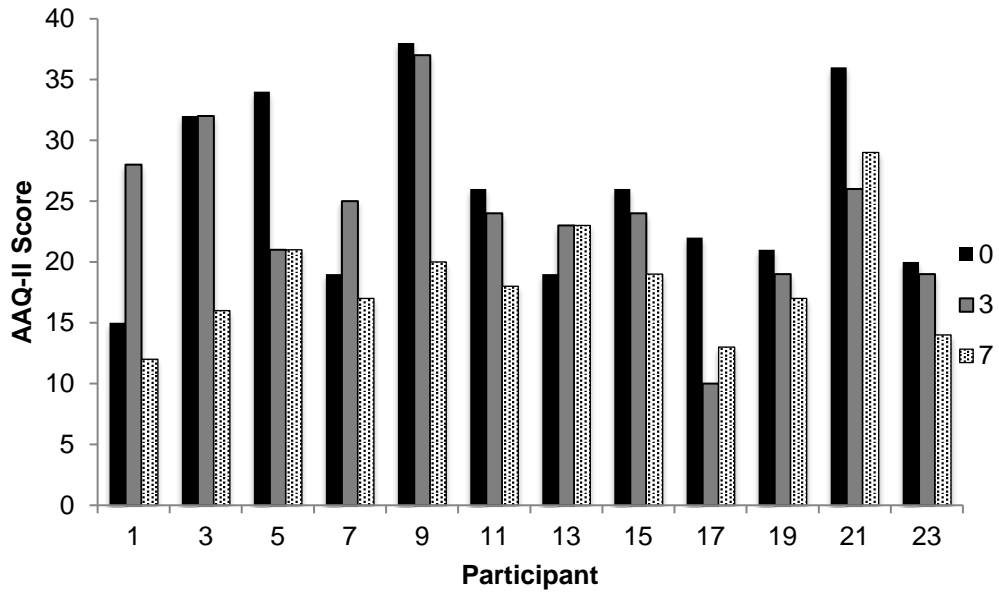


Figure 2. Week 0, 3 and 7 Acceptance and Action (AAQ-II) scores for each experimental group participant (Group A)

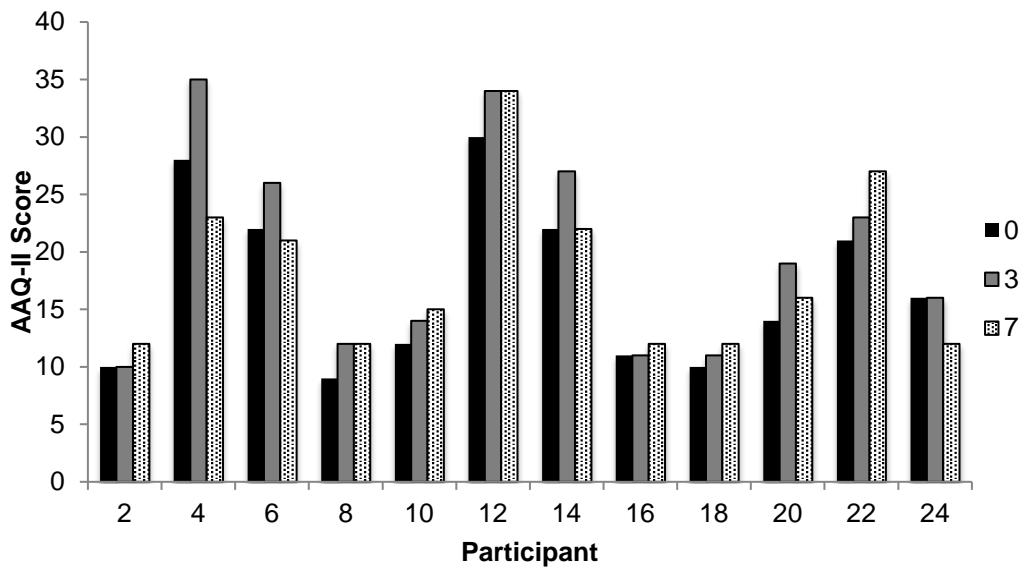


Figure 3. Week 0, 3 and 7 Acceptance and Action Questionnaire – II (AAQ-II) scores for each control group participant (Group B).

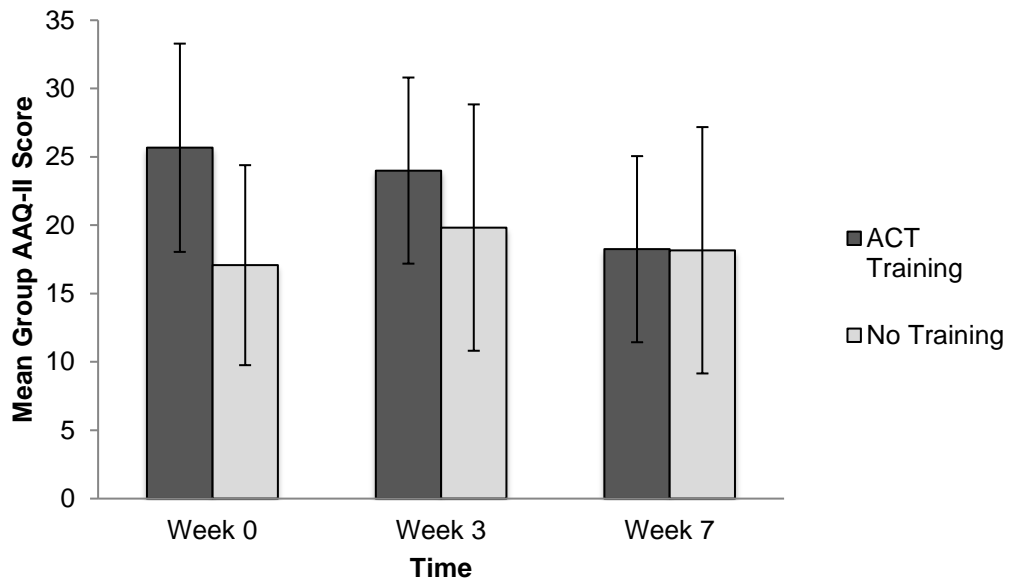


Figure 4. Mean group scores on Acceptance and Action Questionnaire (AAQ – II) Across Week 0, 3 and 7, with error bars indicating one standard deviation.

Results from the two way mixed ANOVA are presented in Table 6 and indicate that there was a statistically significant interaction between the intervention and time on psychological flexibility ($F(2, 44) = 108.431$, $p = .002$, partial $\eta^2 = .247$), and the effect size was small (Ferguson, 2009). Table 7 shows simple main effects for both group and time, and demonstrates that there was a statistically significant difference between mean intervention group and control group psychological flexibility at baseline ($F(1, 22) = 7.922$, $p = .010$, partial $\eta^2 = .265$), but no significant difference between group means at Week 3 ($F(1,22) = 1.633$, $p = .215$, partial $\eta^2 = .069$) and Week 7 ($F(1,22) = .001$, $p = .974$, partial $\eta^2 = .000$). The simple main effect for time indicated a statistically significant effect of time on psychological flexibility for the intervention group

($F(2, 22) = 7.477, p = .003, \text{partial } \eta^2 = .405$). For the control group, a statistically significant effect of time on AAQ was found, ($F(2,22) = 4.022, p = .032, \text{partial } \eta^2 = .268$), although sphericity was violated for this result so should be interpreted with care.

Results from post hoc Bonferroni comparisons are shown in Table 8, which demonstrate for the treatment group, that there was no statistically significant difference in psychological flexibility between Weeks 0 to 3 ($M = 1.667, SE = 2.158, p = 1.0$), or between Week 3 to 7 ($M = 5.750, SE = 2.089, p = .056$), but that the increase in psychological flexibility between Week 0 to 7 was statistically significant ($M = 7.417, SE = 1.769, p = .005$).

For the control group, pairwise comparisons revealed a statistically significant decrease in mean psychological flexibility scores between Week 0 and 3 ($M = 2.750, SE = .664, p = .005$), but there was no statistically significant difference between scores of psychological flexibility between Week 0 and 7 ($M = 1.083, SE = .917, p = .787$), or Week 3 and 7 ($M = 1.667, SE = 1.257, p = .636$). Figure 4 shows the means for AAQ-II, and demonstrates the overall change over time for each group, with an overall increase in psychological flexibility for the intervention group, and minor overall decrease for the control group.

Table 6.
Results of Main Two Way Interaction for all Measures Over the First Three Time Points

Measure	Main two way interaction				
		df	F	p	partial η^2
	AAQ-II	2,44	108.431	.002	.247
	GHQ-12	2,44	11.852	.000	.350
	MBI-EE	2,44	3.084	.056	.123
	MBI-DP	2,44	.530	.593	.024
	MBI-PA	2,44	.337	.716	.015
	MBI-Total	2,44	2.820	.070	.114

Note: AAQ-II = Acceptance and Action Questionnaire, GHQ-12 = General Health Questionnaire, 12 item, MBI-EE = Maslach Burnout Inventory Emotional Exhaustion, MBI-DP = Maslach Burnout Inventory Depersonalisation, MBI-PA = Maslach Burnout Inventory Personal Accomplishment, MBI-Total = Maslach Burnout Inventory (EE+DP).
Italicised = statistically significant result ($p > .05$)

Table 7.
Results of Significant Two Way ANOVA Producing Simple Main Effects of Group and Time for AAQ-II and GHQ-12 Over the First Three Time Points

		Measure							
		AAQ-II				GHQ-12			
		df	F	p	partial η^2	df	F	p	partial η^2
Simple main effect of group	Week 0	1,22	7.922	.010	.265	1,22	.407	.530	.018
	Week 3	1,22	1.633	.215	.069	1,22	14.61	.001	.399
	Week 7	1,22	.001	.974	.000	1,22	.000	.984	.000
Simple main effect of time	Group A	2,22	7.477	.003	.405	2,22	8.136	.002	.425
	Group B*	2,22	4.022	.032	.268	2,22	8.663	.002	.441

AAQ-II = Acceptance and Action Questionnaire, GHQ-12 = General Health Questionnaire, 12 item

*Sphericity violated

Italicised = statistically significant result ($p > .05$)

Table 8.
Bonferroni Comparison for AAQ-II Measurement Over the First Three Time Points

	Comparisons	Mean Difference in Score	Std. Error	Sig	95% CI	
					Lower Bound	Upper Bound
Group A	Week 0 to 3	1.667	2.518	1.000	-4.419	7.752
	Week 3 to 7	5.750	2.089	.056	-.142	11.642
	Week 0 to 7	7.417	1.769	.005	2.429	12.404
Group B	Week 0 to 3	-2.750	.664	.005	-4.623	-.877
	Week 3 to 7	1.667	1.257	.636	-1.879	5.212
	Week 0 to 7	-1.083	.917	.787	-3.668	1.502

AAQ-II = Acceptance and Action Questionnaire
Italicised = statistically significant result ($p > .05$)

Psychological Flexibility

Summary of PsyFlex6 effects on Psychological Flexibility. PsyFlex6 training was found to affect levels of psychological flexibility, as measured by AAQ-II, and that the effect of training on this measure differed throughout the time points of training. Further analyses revealed that participants in the experimental group showed a significant increase in psychological flexibility compared to those who participated in the control group. For the experimental group, psychological flexibility increased over the time points, and the overall change in psychological flexibility between Week 0 and 7 was found to be statistically significant. While the results indicated that control group participants also experienced statistically significant change to their levels of psychological flexibility over time, this particular test result violated sphericity and must be interpreted carefully. Control group

participants only showed a statistically significant decrease in psychological flexibility between baseline and Week 3. These findings indicate a significantly positive effect of PsyFlex on participant level of psychological flexibility, compared with little decrease or no significant effect for a control condition.

General Psychological Distress

General Psychological Distress as measured by GHQ-12. Figure 5 shows bar graphs of GHQ-12 scores for all participants in the intervention group. A score above 2/3 indicates presence of minor psychiatric disorder, and a decrease in score indicates positive change. From baseline to Week 3, GHQ increased for no participants, remained stable for two participants, and decreased for ten participants. From Week 3 to Week 7, an increase in GHQ was observed for four participants, remained stable for six, and decreased for two participants. Overall, from baseline to Week 7, GHQ increased for three participants, remained the same for two participants and decreased for seven participants. Figure 7 shows the transformed means for GHQ-12, and demonstrates the mean decrease in scores from Week 0 to 3, increase between Week 3 to 7, and overall decrease between Week 0 to Week 7 for the intervention group.

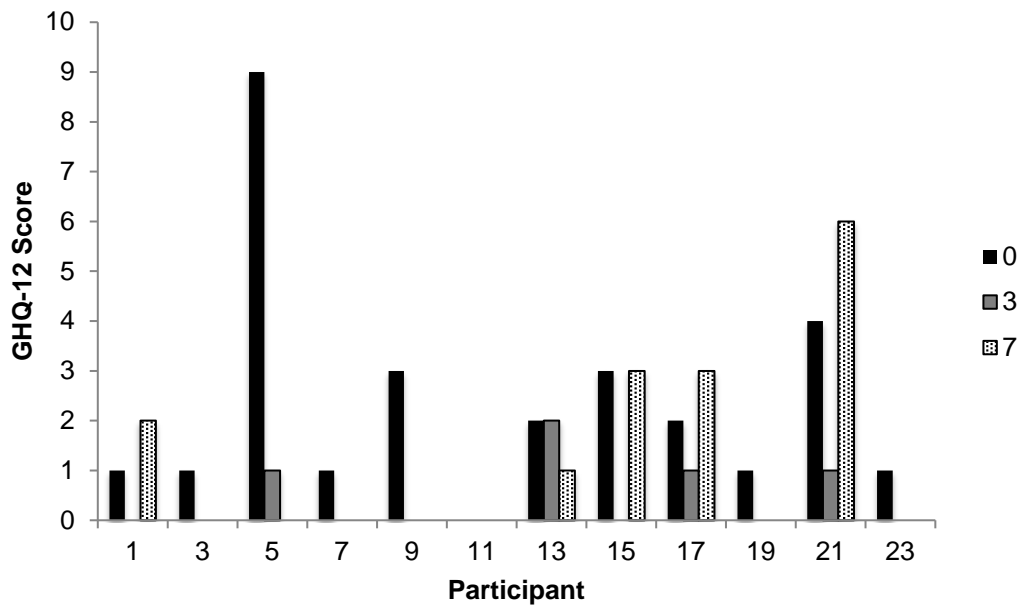


Figure 5. Week 0, 3 and 7 General Health Questionnaire (GHQ-12) scores across all experimental group participants (Group A)

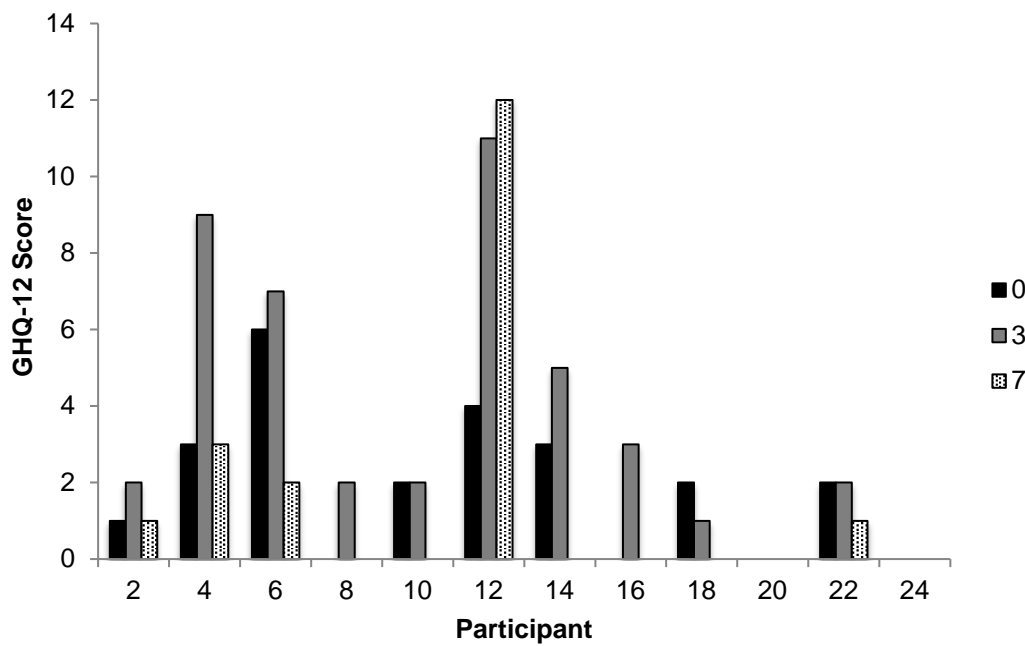


Figure 6. Week 0, 3 and 7 General Health Questionnaire (GHQ-12) scores across all control group participants (Group B)

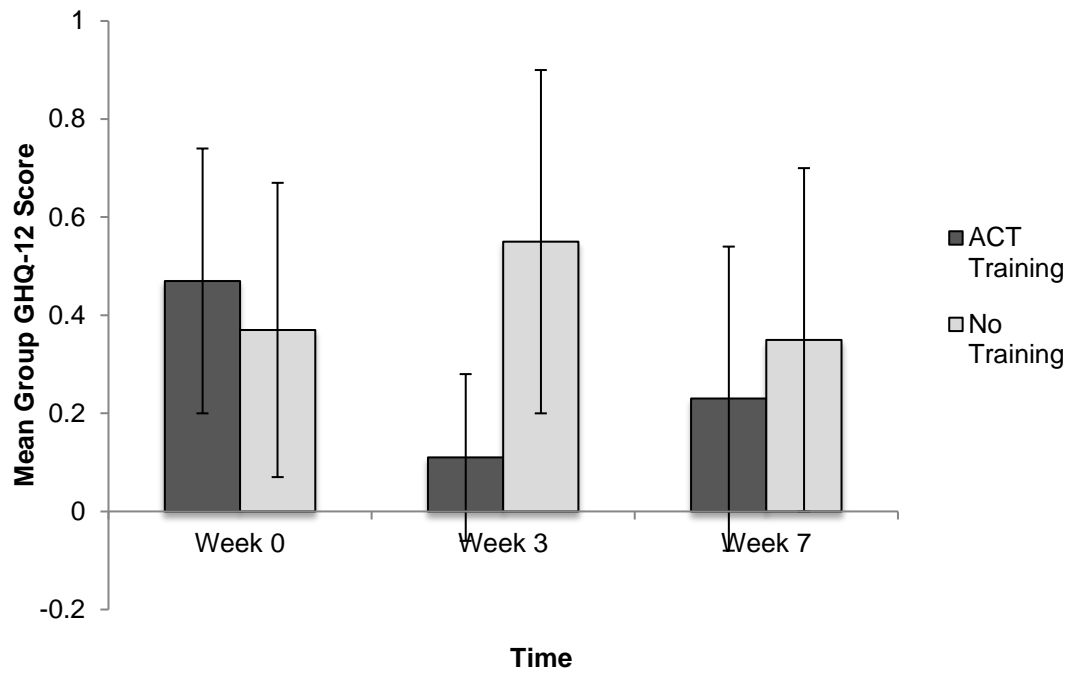


Figure 7. Mean group scores (transformed) on General Health Questionnaire- 12 item (GHQ-12) across week 0, 3, and 7, with error bars indicating one standard deviation.

Control group GHQ-12 scores are shown in Figure 6. Between baseline and Week 3, a decrease in GHQ was observed for one participant, remained stable for four participants, with increases in GHQ score seen for seven control participants. From Week 3 to Week 7, an increase in GHQ scores was observed in one participant, no change was seen in two participants, and a decrease in GHQ for nine participants. Overall change from baseline to Week 7 showed a decrease in GHQ for five participants, no change for six, and an increase for one individual. Mean scores for GHQ are shown in Figure 7, which demonstrate a mean increase between Week 0 and 3, decrease between 3 to 7, and an overall decrease between Week 0 to 7.

Results from the two way mixed ANOVA are presented in Table 6 and indicate that there was a statistically significant interaction between the intervention and time on GHQ scores ($F(2, 44) = 11.852, p < .000, \text{partial } \eta^2 = .350$), and the effect size was moderate. However, it must be noted that these data were not normal as assessed by the Shapiro-Wilk test, even after data transformation, and thus conclusions should be drawn carefully.

Table 7 presents simple main effects for group and shows there was no statistically significant difference in GHQ scores between conditions at baseline ($F(1, 22) = .407, p = .530, \text{partial } \eta^2 = .018$), or between interventions at Week 7 of the intervention, ($F(1, 22) = .000, p = .984, \text{partial } \eta^2 = .000$). However, there was a statistically significant difference in GHQ scores between interventions at Week 3 of the intervention ($F(1, 22) = 14.613, p = .001, \text{partial } \eta^2 = .399$).

Results from the simple main effects of time (see Table 7) indicate a statistically significant effect of time on GHQ for the intervention group, ($F(2, 22) = 8.136, p = .002, \text{partial } \eta^2 = .425$. Bonferroni comparisons shown in Table 9 indicate that GHQ was statistically significantly different between Week 0 and Week 3 ($M = .332, SE = .064, p = .001$), but GHQ was not statistically significantly different at Week 0 compared to Week 7 ($M = .211, SE = .099, p = .167$) and at Week 7 compared to Week 3 ($M = .121, SE = .084, p = .532$). There was a statistically significant effect of time on GHQ for the control group, $F(2, 22) = 8.663, p = .002, \text{partial } \eta^2 = .441$. For the control group, GHQ was not statistically significantly different between Week 0 and Week 3 ($M = .174, SE = .069, p = .083$), but GHQ was statistically significantly different at Week 7 compared to Week 3 ($M = .315, SE = .074, p = .004$), but not at Week 7

compared to Week 0 ($M = -.140$, $SE = .083$, $p = .362$). Means of both groups across time can be seen in Figure 7.

Table 9.

Bonferroni Comparison for GHQ-12 Over the First Three Time Points

	Comparisons	Mean Difference in score	Std. Error	Sig	95% CI	
					Lower Bound	Upper Bound
Group A	Week 0 to 3	.332	.064	<i>.001</i>	.152	.511
	Week 3 to 7	-.121	.084	.532	-.357	.115
	Week 0 to 7	.211	.099	.167	-.067	.490
Group B	Week 0 to 3	-.174	.069	.083	-.368	.020
	Week 3 to 7	.315	.074	<i>.004</i>	.105	.524
	Week 0 to 7	.140	.083	.362	-.095	.376

Italicised = statistically significant result ($p > .05$)

Summary of PsyFlex6 Effects on General Psychological Distress. PsyFlex6 training may have an effect on general psychological distress, as measured by GHQ-12, and that effect varied throughout the different time points of training. Again, results should be interpreted with care, as data were not normal despite transformation. For the intervention group, mean GHQ scores significantly decreased between Week 0 and 3, and overall decreased between Week 0 and 7, although this was not significant given the slight increase in psychological distress seen between Weeks 3 and 7. For the control group, a small increase in distress was found between

Weeks 0 and 3, and then a significant decrease in distress between Weeks 3 and 7. There was no significant change between Weeks 0 and 7 for the control group. These findings give rise to the significant two-way interaction between group and time on GHQ scores.

Total burnout.

Burnout (Total) as measured by MBI-HSS. Figure 8 shows MBI-Total scores for all participants in the intervention group. The score for MBI-Total is found by summing the scores for Emotional Exhaustion and Depersonalisation, and higher scores indicate higher burnout. From baseline to Week 3, MBI-Total increased for two participants and decreased for ten participants. From Week 3 to Week 7, an increase in burnout was observed for five participants and decreased for seven participants. Overall, from baseline to Week 7, burnout scores increased for two participants and decreased for ten participants in the experimental group. Figure 10 shows the means for MBI-Total, and demonstrates the mean decrease in scores from Week 0 to 3, decrease between Week 3 to 7, and overall decrease between Week 0 to Week 7 for the intervention group.

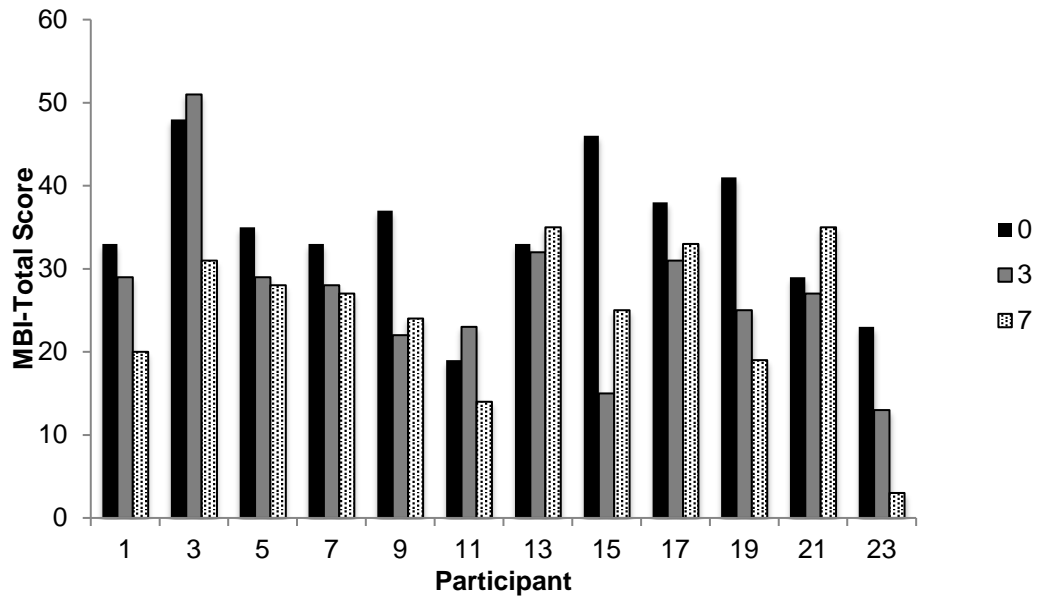


Figure 8. Week 0, 3 and 7 Maslach Burnout Inventory Total (MBI-Total) scores across all experimental group participants (Group A)

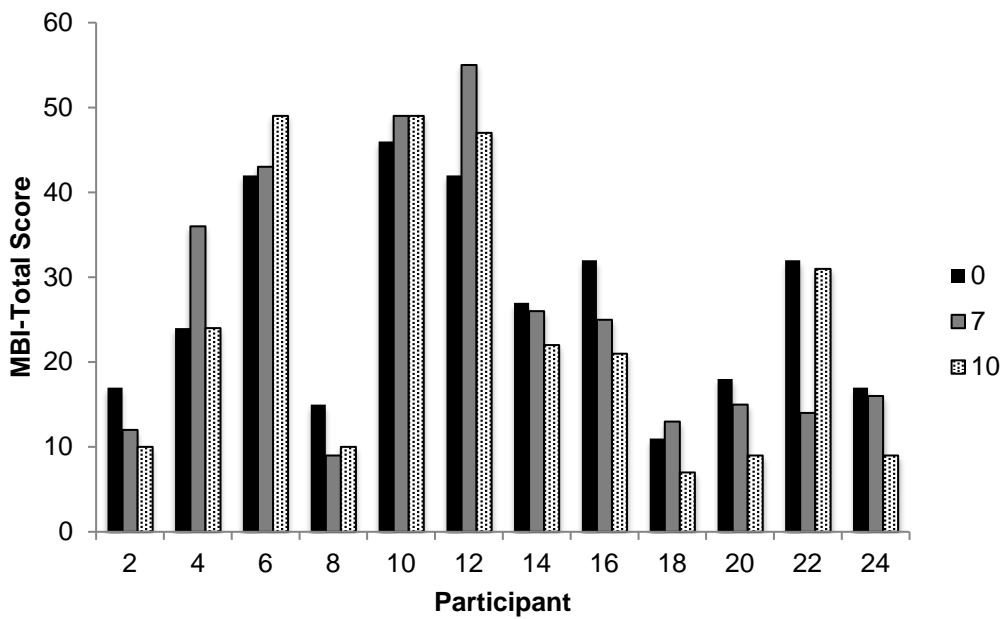


Figure 9. Week 0, 3 and 7 Maslach Burnout Inventory Total (MBI-Total) scores across all control group participants (Group B)

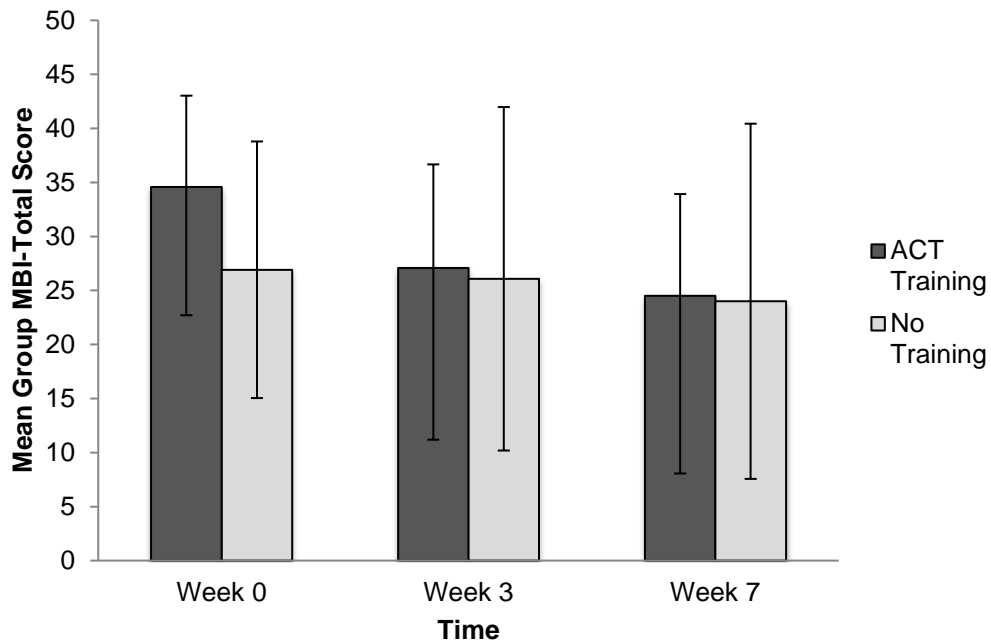


Figure 10. Mean group scores on Maslach Burnout Inventory (MBI-Total) across week 0, 3, 7, with error bars indicating standard deviation.

Control group MBI-Total scores can also be seen in Figure 9. Between baseline and Week 3, a decrease in burnout was observed for seven participants and increased for five participants. From Week 3 to Week 7, an increase in burnout was observed in three participants, no change for one participant and a decrease for eight individuals. Overall change from baseline to Week 7 showed a increase in burnout for three participants, no change for one participant and an decrease for eight individuals. Mean scores for burnout are shown in Figure 10, which demonstrate a mean decrease between Week 0 and 3, decrease between 3 to 7, and an overall decrease between Week 0 to 7.

Table 6 indicates that the analysis of variance for the measure of burnout (MBI-Total) found no statistically significant interaction between the

intervention and time on MBI ($F(2, 44) = 2.820, p = .070, \text{partial } \eta^2 = .114$).

The effect size found here was small. The main effect of time is displayed in Table 10, and showed a statistically significant difference in mean MBI-Total

Measure

at the different time points ($F(2, 44) = 7.639,$

$p = .001, \text{partial } \eta^2 = .258$). Pairwise comparisons (found in Table 11)

indicated a statistically significant difference between mean MBI scores at

baseline compared to Week 7 ($M = 6.500, SE = 1.551, p = .001$), but not

between baseline and Week 3 ($M = 4.167, SE = 1.840, p = .101$), or

between Week 3 and Week 7 ($M = 2.333, SE = 1.651, p = .515$). The main

effect of group showed that there was no statistically significant difference in

mean MBI between intervention groups ($F(1, 22) = .431, p = .518, \text{partial } \eta^2$

$= .019$). The decreasing trend in total burnout scores for both control and

treatment group over time can be seen in Figure 10.

Summary of PsyFlex6 effects on Total Burnout. There was no significant

interaction between time and PsyFlex training for MBI-Total due to

participants in both the experimental group and control group showing

decreases in total burnout between Week 0 and 3, 3 and 7, giving rise to a

significant decrease between Weeks 0 and 7. Differences in MBI-Total

scores between these groups were found to be non-significant, however,

indicating that while no negative effect of treatment was found, there was no

significantly greater benefit found for training vs. no training.

	MBI- Total				MBI-EE			
	df	F	p	partial η^2	df	F	p	partial η^2
Main effect for time	2,44	7.639	.001	.258	2,44	9.324	.000	.298
Main effect for group	1,22	.431	.518	.019	2,22	.740	.399	.033

Table 10.

Main Effects of Group and Time for MBI-Total and MBI-EE

MBI-EE = Maslach Burnout Inventory Emotional Exhaustion, MBI-Total = Maslach Burnout Inventory (EE+DP).

Italicised = statistically significant result ($p > .05$)

Table 11.

Bonferroni Comparison for MBI-Total Over the First Three Time Points

Comparisons	Mean Difference in score	Std. Error	Sig	95% CI	
				Lower Bound	Upper Bound
Week 0 to 3	4.167	1.840	.101	-.600	8.933
Week 3 to 7	2.333	1.651	.515	-1.946	6.612
Week 0 to 7	6.500	1.551	.001	2.482	10.518

Italicised = statistically significant result ($p > .05$)

MBI-Total = Maslach Burnout Inventory (EE+DP).

Emotional exhaustion.

Emotional Exhaustion as measured by MBI-EE. Figure 11 presents MBI-EE scores for all participants in the intervention group. For this measure, a score above 27 indicates high emotional exhaustion, 17-26 indicates moderate EE and low EE is signified by scores under 16. Therefore, a

decrease in score indicates decrease in emotional exhaustion. All data were found to be normal as assessed by the Shapiro-Wilk test, except for Week 7 control group data, which was non-normal. These results should therefore be treated with caution. From baseline to Week 3, MBI-EE increased for two participants, remained stable for one participant, and decreased for nine participants. From Week 3 to Week 7, an increase in emotional exhaustion was observed for seven participants and decreased for five participants. Overall, from baseline to Week 7, emotional exhaustion decreased for all twelve participants. Figure 13 shows the means for MBI-EE, and demonstrates the mean decrease in scores from Week 0 to 3, decrease between Week 3 to 7, and overall decrease between Week 0 to Week 7 for the intervention group.

Control group MBI-EE scores are presented in Figure 12. From baseline to Week 3, a decrease in emotional exhaustion was found for five participants, no change for three for three participants, with increases in emotional exhaustion scores seen for four participants. From Week 3 to Week 7, an increase in emotional exhaustion was observed in four participants and a decrease in emotional exhaustion seen in five participants. Overall change from baseline to Week 7 showed an increase in emotional exhaustion for five participants and a decrease for seven individuals. Mean scores for emotional exhaustion are shown in Figure 13, which demonstrate a mean decrease between Week 0 and 3, decrease between 3 to 7, and an overall decrease between Week 0 to 7.

The analysis of variance for the measure of emotional exhaustion (MBI-EE) found no statistically significant group x time interaction

($F(2, 44) = 3.084, p = .056, \text{partial } \eta^2 = .123$), while the effect size was small; these results are presented in Table 6. The statistics relating to the main effects of group and time can be seen in Table 10. The main effect of time showed a statistically significant difference in mean EE scores at the different time points, ($F(2, 44) = 9.324, p = .000, \text{partial } \eta^2 = .298$).

Pairwise comparisons, Table 12, indicated a statistically significant difference between mean EE scores at baseline compared to week 3 ($M = 3.875, SE = 1.466, p = .045$), and between baseline and Week 7 ($M = 5.792, SE = 1.253, p = .000$), but no statistically significant difference between mean EE scores at Week 3 and Week 7 ($M = 1.917, SE = 1.372, p = .529$). The main effect of group showed no statistically significant difference in EE scores between groups ($F(2, 22) = .740, p = .399, \text{partial } \eta^2 = .033$). Figure 13 shows the decreasing trend in EE scores for both control and treatment group over time.

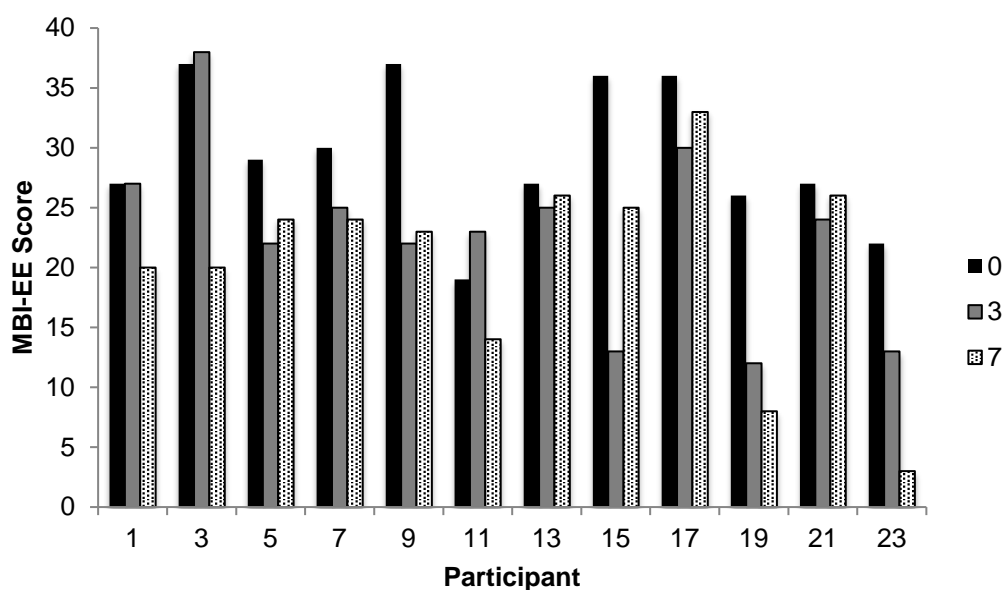


Figure 11. Week 0, 3 and 7 Maslach Burnout Inventory – Emotional Exhaustion (MBI-EE) scores across all experimental group participants (Group A)

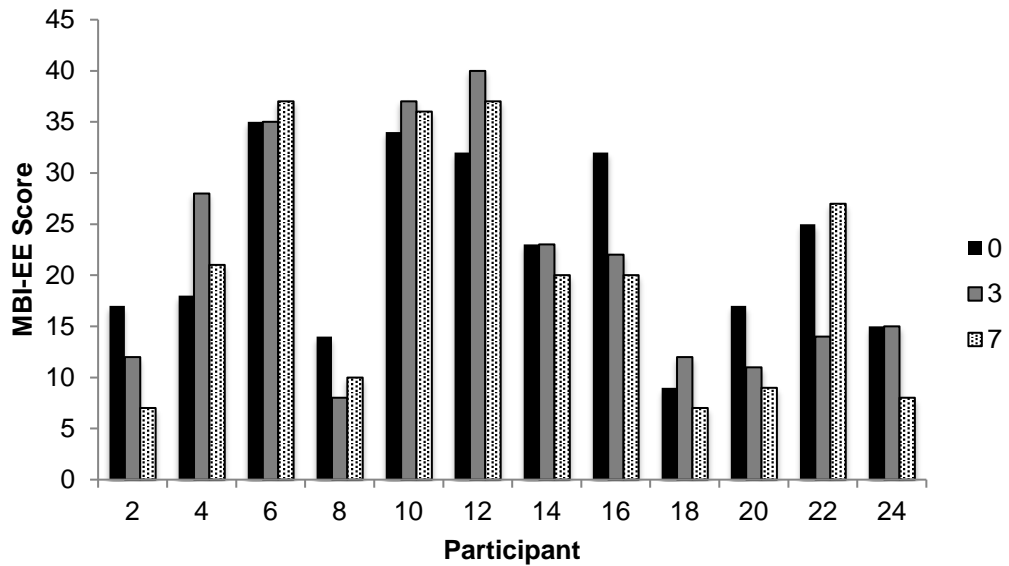


Figure 12. Week 0, 3 and 7 Maslach Burnout Inventory – Emotional Exhaustion (MBI-EE) scores across all control group participants (Group B)

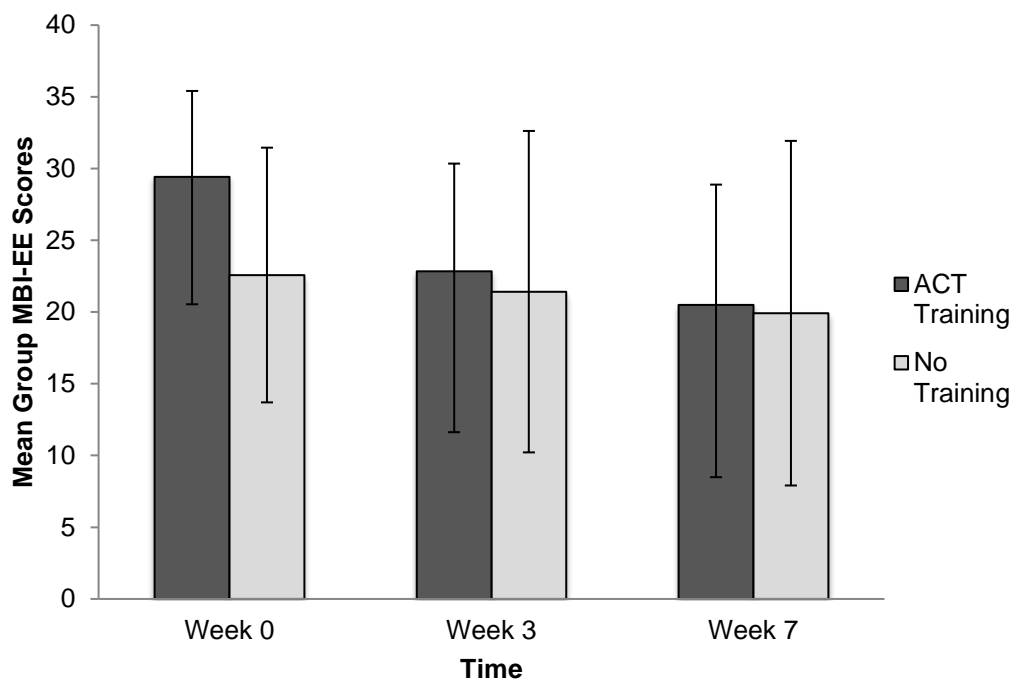


Figure 13. Mean group scores on Maslach Burnout Inventory - Emotional Exhaustion (MBI-EE) across week 0, 3, 7, with error bars indicating one standard deviation.

Table 12.
Bonferroni Comparison for MBI-EE Over the First Three Time Points

Comparisons	Mean Difference in score	Std. Error	Sig	95% CI	
				Lower Bound	Upper Bound
Week 0 to 3	3.875	1.466	<i>.045</i>	.077	7.673
Week 3 to 7	1.917	1.372	.529	-1.638	5.471
Week 0 to 7	5.792	1.253	<i>.000</i>	2.544	9.040

Italicised = statistically significant result

Summary of PsyFlex6 Effects on Emotional Exhaustion. The two way mixed ANOVA showed no significant interaction between time and PsyFlex training for MBI-Emotional Exhaustion, and a small effect size. Here, a statistically significant decrease in emotional exhaustion was observed for participants in both groups between Week 0 and Week 3, and between Week 0 and Week 7, but the decrease between Week 3 and 7 was not significant. The main effect of group indicated that there was no significant difference in MBI-EE scores between groups at any time point. Again, no adverse effect of treatment was found, but there was no significantly greater benefit observed for those accessing treatment compared to those waiting in a control condition.

Depersonalisation.

Depersonalisation as measured by MBI-DP. Figure 14 shows depersonalisation scores for all participants in the intervention group. High depersonalisation scores are those above 13, moderate depersonalisation are scores in the range of 7-12, and low depersonalisation are those under 6. Therefore, a decrease in scores indicates a decrease in the depersonalisation component of burnout. From baseline to Week 3, MBI-DP increased for five participants, remained stable for two participants, and decreased for five participants. From Week 3 to Week 7, an increase in depersonalisation score was observed for three participants, remained stable for three participants and decreased for six participants. Overall, from baseline to Week 7, scores of MBI-DP increased for three individuals, had no change for three participants, and decreased for five participants. Figure 16 shows the transformed means for MBI-DP, and demonstrates a decrease from Week 0 to 3, decrease between Week 3 to 7, and overall decrease between Week 0 to Week 7 for the intervention group.

Control group MBI-DP scores can be seen in Figure 15. Between baseline and Week 3, an increase in depersonalisation scores was observed for five participants and remained stable for three individuals, with decreases in MBI-DP scores seen for four participants. From Week 3 to Week 7, an increase in score was observed in four participants, no score change for one participant and a score decrease for seven participants. Overall change from Week 0 to Week 7 showed an increase in scores of depersonalisation for nine participants, no change in one participant and a decrease for seven individuals. Transformed means for MBI-DP are shown in Figure 16 which demonstrate a small mean decrease between Week 0

and 3, mean decrease between 3 to 7, and an overall decrease between Week 0 to 7.

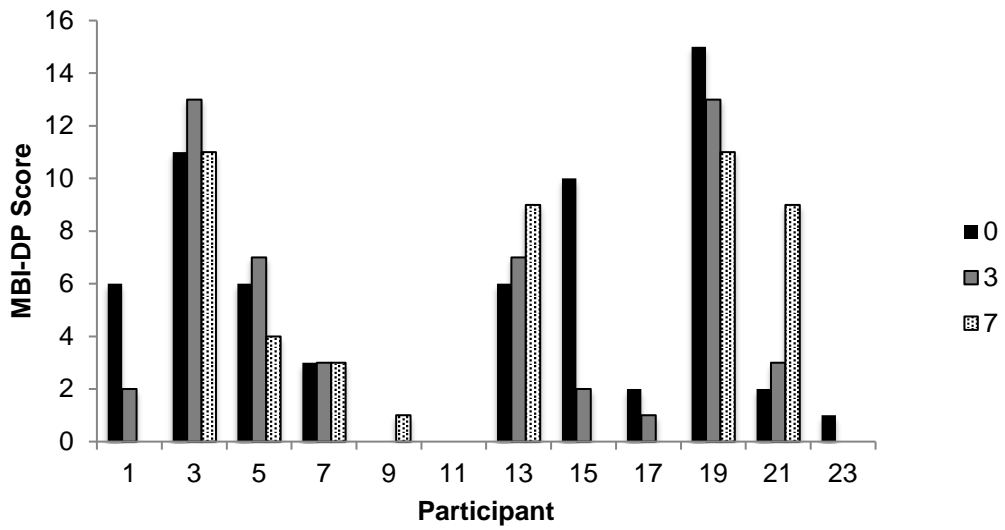


Figure 14. Week 0, 3 and 7 Maslach Burnout Inventory – Depersonalisation (MBI-DP) scores across all experimental group participants (Group A).

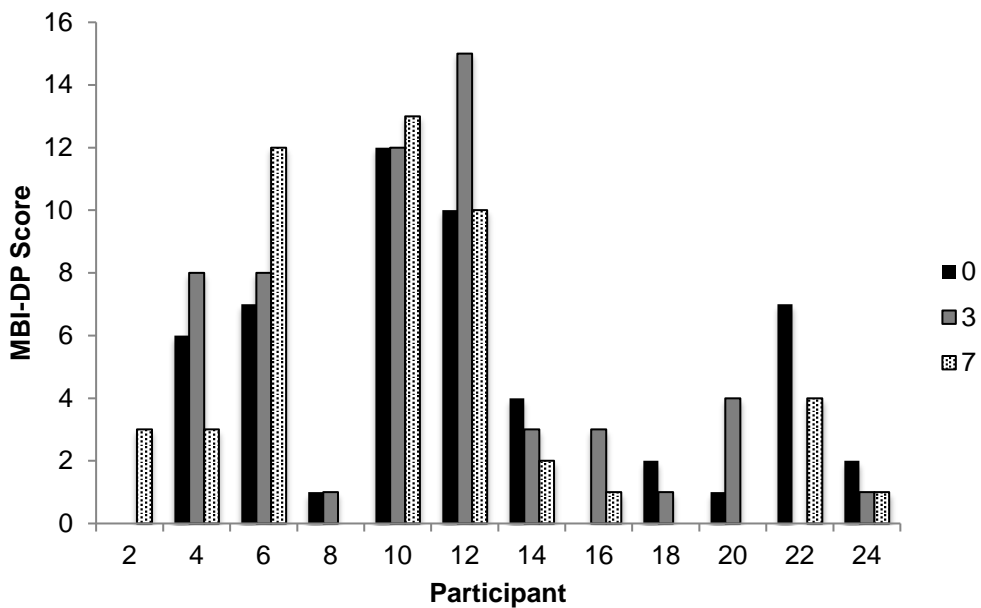


Figure 15. Week 0, 3 and 7 Maslach Burnout Inventory – Depersonalisation (MBI-DP) scores across all control group participants (Group B)

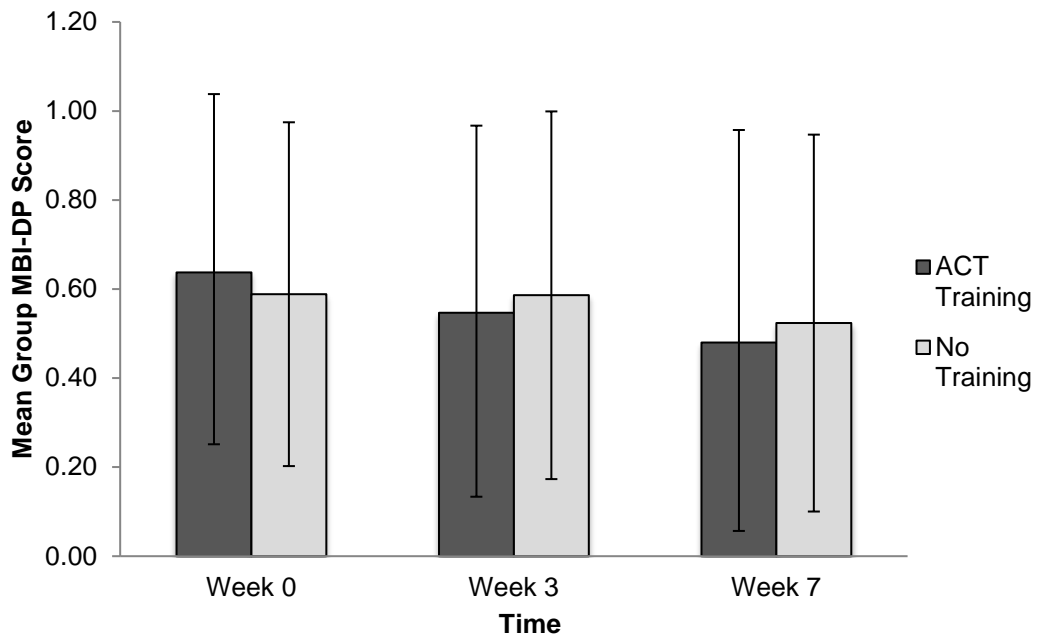


Figure 16. Mean Group Scores (Transformed) on Maslach Burnout Inventory – Depersonalisation (MBI-DP) Across Week 0, 3, 7, with error bars indicating one standard deviation.

Table 13.

Main effects of group and time for MBI-DP and MBI-PA

MBI-DP = Maslach Burnout Inventory Depersonalisation, MBI-PA = Maslach Burnout Inventory Personal Accomplishment

The results of the two way mixed ANOVA, shown in Table 6, indicated that there was no statistically significant interaction between the intervention and time on depersonalisation ($F(2, 44) = .284, p = .754, \text{partial } \eta^2 = .013$). This

	Measure							
	MBI-DP				MBI-PA			
	df	<i>F</i>	<i>p</i>	partial η^2	df	<i>F</i>	<i>p</i>	partial η^2
Main effect for time	2,44	1.292	.285	.055	2,44	1.749	.186	.074
Main effect for group	1,22	.006	.941	.000	2,22	.285	.599	.013

effect size is very small. Shown in Table 13, the main effect of time showed no statistically significant difference in mean depersonalisation at the different time points ($F(2, 44) = .1.292, p = .285, \text{partial } \eta^2 = .055$). Also seen in Table 13, the main effect of group showed that there was no statistically significant difference in mean DP scores between intervention groups ($F(1, 22) = .006 p = .941, \text{partial } \eta^2 = .000$).

Summary of PsyFlex6 Effects on Depersonalisation. No significant two way interaction was reported between the PsyFlex training and time. While a small overall decrease in depersonalisation occurred for the treatment group throughout the training, the results of the main effects indicated that there were no significant differences between scores of the intervention and control groups, and that there was no significant difference between scores over time. While there was no significant positive effect of treatment compared to controls, there was also no negative effect observed for those accessing treatment compared to no treatment.

Personal accomplishment.

Personal accomplishment as measured by MBI-PA. Figure 17 presents the MBI-PA scores for all participants in the intervention group. Here, high burnout on the personal accomplishment dimension shows scores below 31, moderate burnout is indicated by scores in the 32-38 bracket, and low PA burnout are scores above 39. Note that an increase in score indicates a decrease in burnout on the personal accomplishment dimension, and is therefore opposite to the other scales for the components of burnout. From baseline to Week 3, MBI-PA increased for five participants, remained stable for one participant, and decreased for six participants. From Week 3 to Week 7, an increase in personal accomplishment score was observed for nine participants, remained stable for one participant and decreased for two participants. Overall, from baseline to Week 7, scores of personal accomplishment increased for six individuals, had no change for two participants, and decreased for four participants. Figure 19 shows the means for MBI-PA, and demonstrates no mean change in scores from Week 0 to 3, increase between Week 3 to 7, and overall increase between Week 0 to Week 7 for the intervention group.

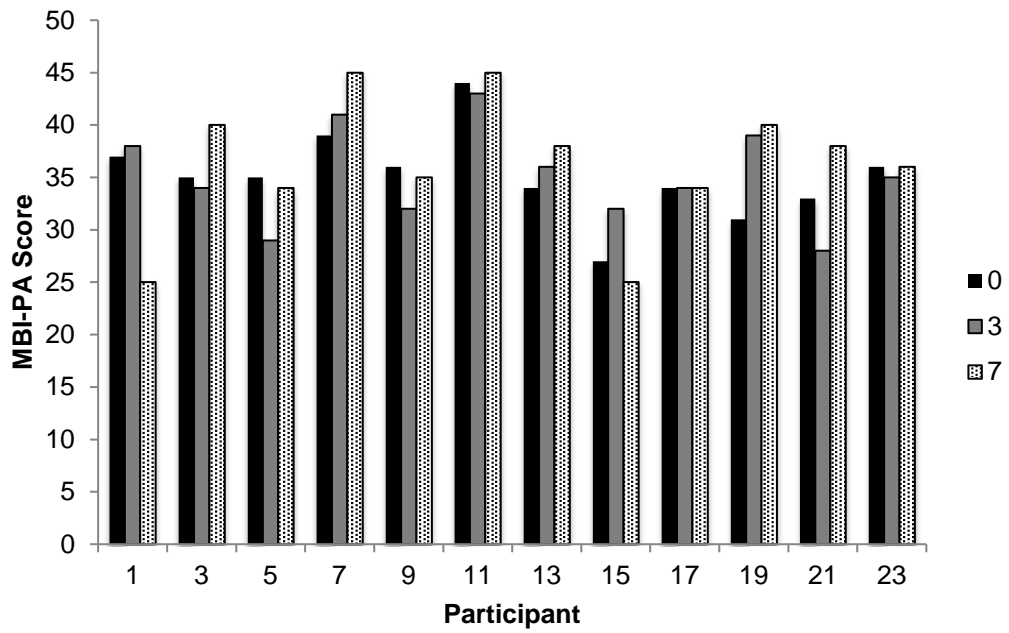


Figure 17. The week 0, 3 and 7 Personal Accomplishment scores across all experimental group participants (Group A)

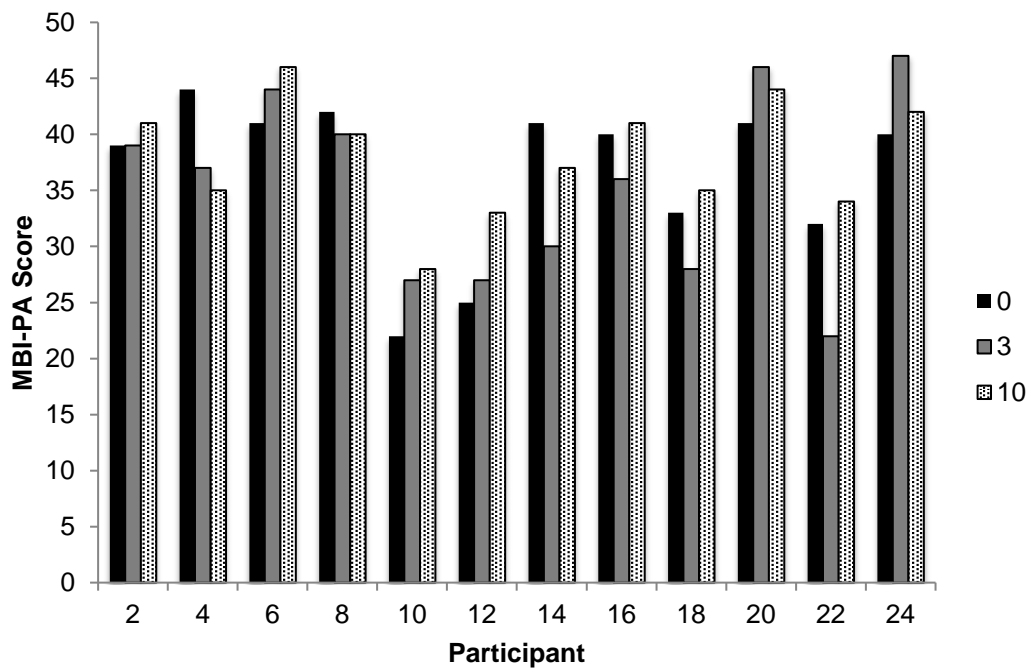


Figure 18. The week 0, 3 and 7 Personal Accomplishment scores across all control group participants (Group B)

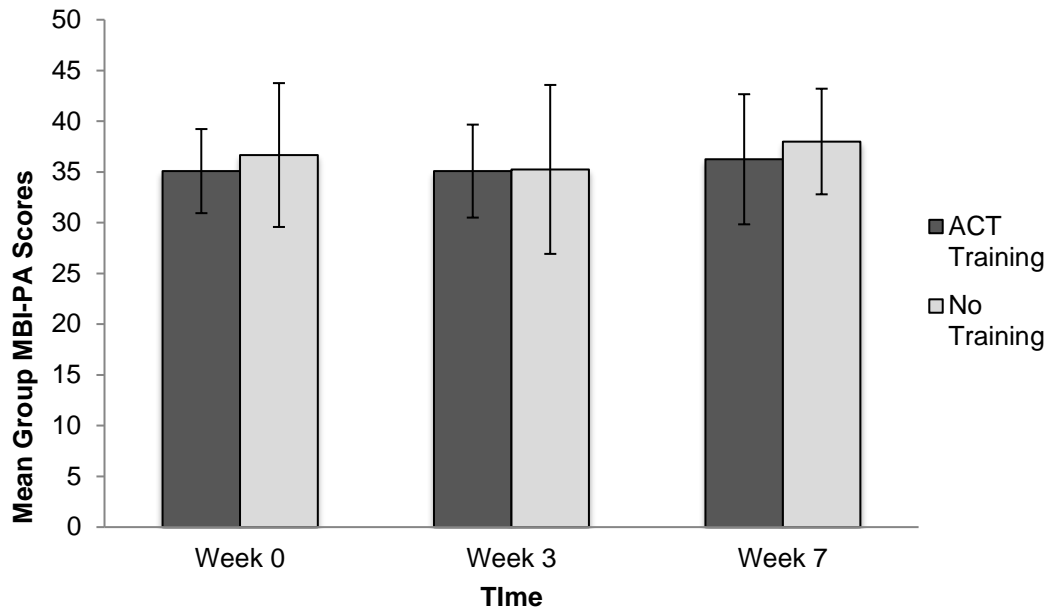


Figure 19. Mean Group Scores on Maslach Burnout Inventory - Personal Accomplishment (MBI-PA) Across Week 0, 3, 7, with error bars indicating one standard deviation.

Control group MBI-PA scores are displayed in Figure 18. Between baseline and Week 3, a increase in personal accomplishment scores was observed for five participants and remained stable for one individual, with decreases in MBI-PA scores seen for six participants. From Week 3 to Week 7, increases in personal accomplishment scores were observed in nine participants, no change for one participant and a decrease in MBI-PA for two participants. Overall change from Week 0 to Week 7 showed an increase in scores of personal accomplishment for nine participants and a decrease for three individuals. Mean scores for MBI-PA are shown in Figure 19 and demonstrate a mean decrease between Week 0 and 3, increase between 3 to 7, and an overall increase between Week 0 to 7.

Table 6 shows the results of the analysis of variance for the measure of personal accomplishment (MBI-PA), and indicates there was no statistically significant interaction between the intervention and time on PA ($F(2, 44) = .337, p = .716, \text{partial } \eta^2 = .015$). This effect size is very small. The main effect of time, Table 13, showed no statistically significant difference in mean PA scores at the different time points ($F(2, 44) = 1.749, p = .186, \text{partial } \eta^2 = .074$). The main effect of group was not statistically significant for PA scores between groups ($F(2, 22) = .285, p = .599, \text{partial } \eta^2 = .013$); this is also shown in Table 13.

Overall Summary of Effect of PsyFlex6

Summary of PsyFlex6 effects on Personal Accomplishment. For the personal accomplishment dimension of the burnout measure, there was no significant two-way interaction found between time and PsyFlex training. Main effects indicated no significant differences between MBI-PA scores of groups, or any significant changes to scores between Weeks 0 - 7.

This section of results presents combined data for the Group A (experimental group), Group B (waitlisted control group) and C (secondary recruitment phase) participants. For Group B, only data from baseline, during training and post training is included, excluding control period data. Data from all groups were combined to observe any overall effect of training over time on each measure, and follow up data were compared to the post-training results. As in the previous section of results, Weeks, 0, 3 and 7 still refer to baseline, third week of training and one week post training, while Week 10 and Week 14 are one month, and two month follow up, respectively. Table 14 displays the number of participants (N), mean (M)

and standard deviation (SD) for each group on each measure at baseline, during training, one week post training, and one and two month follow up. Data were transformed for both GHQ-12 and MBI-Depersonalisation, and both transformed and non-transformed data are reported in Table 14. The reader can therefore observe the original means in relation to scoring cut-offs for each measure, and to present the transformed data, which is used in associated ANOVAs and figures. Numbers are rounded and reported to 2 decimal places.

Psychological Flexibility as measured by AAQ-II.

A one-way repeated measures ANOVA was conducted to determine whether there were statistically significant differences in AAQ over the course of a six-week training period and over a total follow up period of two months. The assumption of sphericity was violated, as assessed by Mauchly's test of sphericity, $\chi^2(2) = 19.744$, $p = .020$. However, 'sphericity assumed' results are presented given there was no change to statistical significance in reporting results using corrected degrees of freedom.

Table 14.

The Number of Participants (N), Mean (M) and Standard Deviation (SD) of all Participants on All Measures, Across Weeks 0, 3, 7, 10 and 14.

Measure	Week	N	M	SD
AAQ-II	0	21	22.52	8.62
	3	21	21.38	7.81
	7	21	16.48	4.93
	10	21	17.14	6.25
	14	21	15.57	5.15
GHQ-12	0	21	2.61	2.36
	3	21	.67	1.39
	7	21	.82	1.53
	10	21	.90	2.43
	14	21	.43	.98
GHQ-12*	0	21	.42	.34
	3	21	.13	.24
	7	21	.17	.26
	10	21	.15	.28
	14	21	.10	.20
MBI- Total	0	21	30.38	11.96
	3	21	25.24	10.89
	7	21	23.11	11.91
	10	21	21.24	11.44
	14	21	19.24	10.98
MBI-EE	0	21	26.48	9.42
	3	21	21.19	8.18
	7	21	19.00	9.66
	10	21	17.57	10.38
	14	21	15.86	9.22
MBI-DP	0	21	5.53	4.69
	3	21	5.05	4.36
	7	21	5.10	4.36
	10	21	4.67	3.84
	14	21	4.38	4.06
MBI-DP*	0	21	.57	.42
	3	21	.54	.39
	7	21	.51	.45
	10	21	.51	.39
	14	21	.45	.42
MBI-PA	0	21	36.04	4.64
	3	21	35.24	4.60
	7	21	37.64	6.29
	10	21	38.67	5.24
	14	21	38.62	4.63

* Data transformed by adding 1 and applying \log^{10} .

As shown in Table 15, the PsyFlex training elicited statistically significant changes in AAQ over time, ($F(4,80) = 11.501, p = .000$), with psychological inflexibility decreasing from baseline ($M = 22.52, SD = 8.61$) to Week 3 ($M = 21.38, SD = 7.81$), continuing to decrease at Week 7 ($M = 16.48, SD = 4.93$) with a slight increase at one month follow up ($M = 17.14, SD = 6.25$), but continued decrease at two month follow up ($M = 15.57, SD = 5.15$). The effect size for this ANOVA was found to be moderate (partial $\eta^2 = .365$). Figure 20 demonstrates the mean AAQ-II scores across testing points.

Table 15.

Results of One Way Repeated Measures ANOVA for all Measures Over Weeks 0, 3, 7, 10 and 14.

Measure	Treatment over time				
		df	<i>F</i>	<i>p</i>	partial η^2
AAQ-II	4,80*	11.501	.000	.365	
GHQ-12	4,80	6.395	.000	.242	
MBI-Total	4,80*	11.474	.000	.365	
MBI-EE	4,80	14.074	.000	.413	
MBI-DP	4,80*	.818	.518	.039	
MBI-PA	4,80	3.571	.010	.152	

AAQ-II = Acceptance and Action Questionnaire, GHQ-12 = General Health Questionnaire, 12 item, MBI-EE = Maslach Burnout Inventory Emotional Exhaustion, MBI-DP = Maslach Burnout Inventory Depersonalisation, MBI-PA = Maslach Burnout Inventory Personal Accomplishment, MBI-Total = Maslach Burnout Inventory (EE+DP).

Italicised = statistically significant result ($p > .05$)

* Sphericity violated

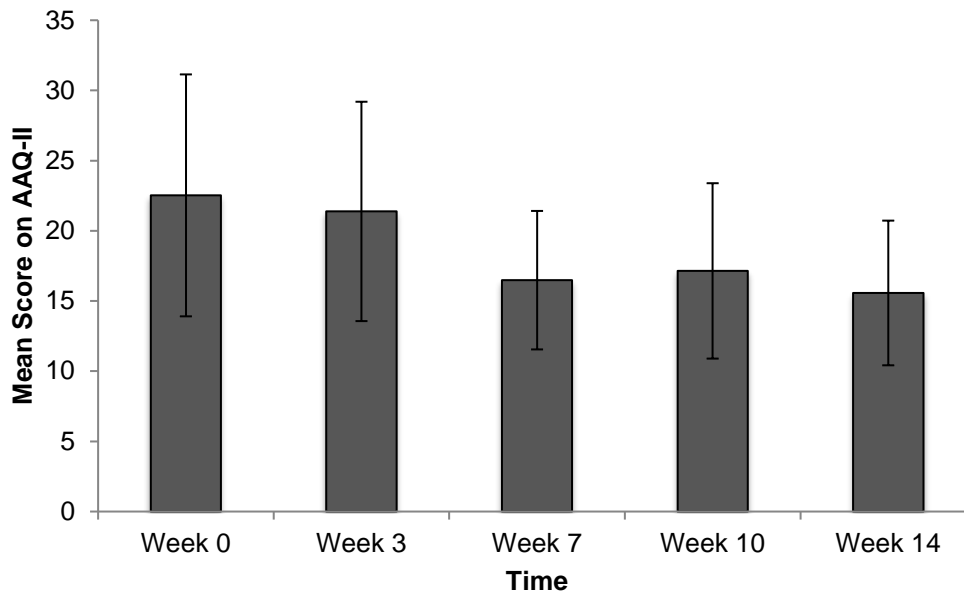


Figure 20. Mean Scores on Acceptance and Action Questionnaire - II (AAQ-II) Across Weeks 0, 3, 7, 10, 14, with error bars indicating one standard deviation.

Post hoc analysis with a Bonferroni adjustment revealed that psychological inflexibility was statistically significantly decreased at Week 7 compared to baseline ($M = -6.042$, $SE = 1.255$, $p = .001$). Levels of psychological flexibility were not statistically significantly changed at Week 10 (one month follow up) compared to Week 7 ($M = .661$, $SE = 1.114$, $p = 1.000$), or at Week 14 (2 month follow up) compared to Week 7 ($M = -.911$, $SE = .716$, $p = 1.000$). In addition, these follow up means were statistically significantly reduced from baseline ($M = -5.381$, $SE = 1.503$, $p = .019$; $M = -6.952$, $SE = 1.283$, $p = .000$, for Week 10 and 14, respectively).

Table 16.

Bonferroni Comparisons for AAQ-II Across Weeks 0, 3, 7, 10, 14

Comparisons	Mean Difference in score	Std. Error	Sig	95% CI	
				Lower Bound	Upper Bound
Week 7 to 0	-6.042	1.255	<i>.001</i>	-9.999	-2.084
Week 10 to 0	-5.381	.1503	<i>.019</i>	-10.121	-.641
Week 10 to 7	5.792	1.253	<i>.000</i>	2.544	9.040
Week 14 to 0	.661	1.114	1.000	-2.853	4.174
Week 14 to 7	-.911	.716	1.000	-3.167	1.346

Italicised = statistically significant result ($p > .05$)

Summary of PsyFlex6 Effects on Psychological Flexibility

PsyFlex6 resulted in participants reporting increased psychological flexibility. In particular, significant increases from pre-training scores were found at the mid point of training, post training, and these effects were maintained when participants were tested at one and two month follow ups.

General Psychological Distress as measured by GHQ-12.

Data for this measure were found to violate the assumptions of normality as tested by the Shapiro-Wilk test. Despite transformation, data still violated this test; therefore, the following should be interpreted carefully. As shown in Table 15, the PsyFlex training elicited statistically significant changes to levels of general psychological distress of participants over time, ($F(4,80) = 6.395, p = .000$), with psychological inflexibility decreasing from baseline

($M = 2.61$, $SD = 2.36$) to Week 3 ($M = .67$, $SD = 1.39$), increase at Week 7 ($M = .82$, $SD = 1.53$) increase at one month follow up ($M = .90$, $SD = 2.43$), and decrease at two month follow up ($M = .43$, $SD = .98$). The effect size for this ANOVA was found to be small (partial $\eta^2 = .242$). Figure 21 demonstrates the mean GHQ-12 scores across testing points.

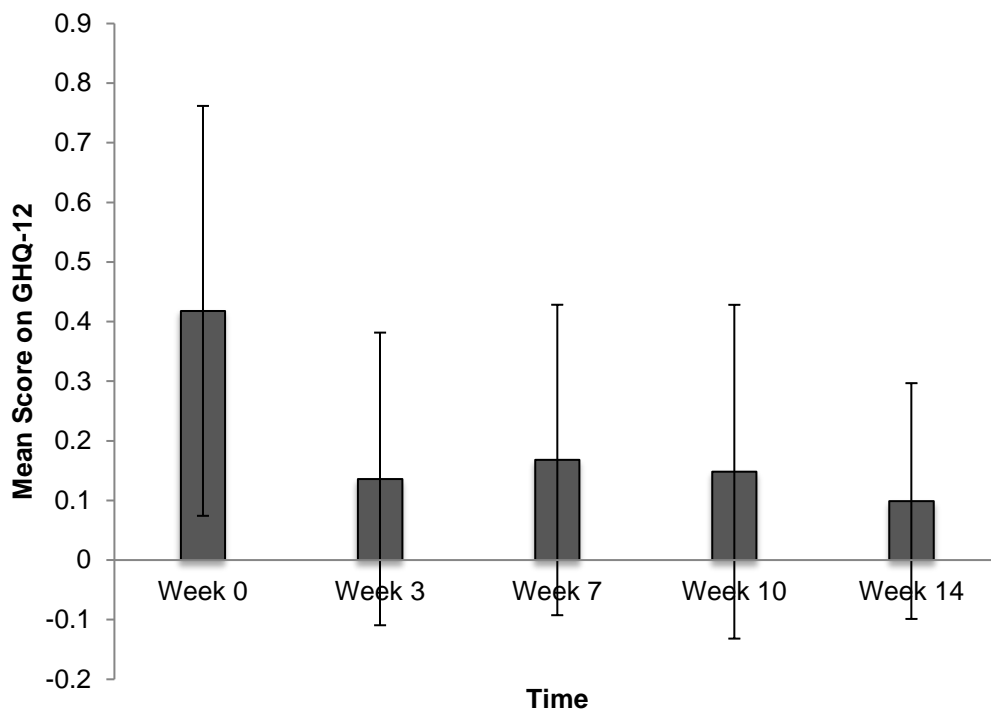


Figure 21. Mean scores on General Health Questionnaire – 12 item (GHQ-12) across weeks 0, 3, 7, 10, 14, with error bars indicating one standard deviation.

Post hoc analysis with a Bonferroni adjustment results are presented in Table 17 and indicated that psychological distress was statistically significantly decreased at Week 3 compared to baseline ($M = -.282$, $SE = .059$, $p = .001$), but the mean at Week 7 was not statistically significantly changed from baseline ($M = -.250$, $SE = .083$, $p = .067$). Levels of psychological distress were not statistically significantly changed at Week 10 (one month follow up) compared to Week 7 ($M = -.020$, $SE = .078$, $p = 1.000$), or at Week 14 (2 month follow up) compared to Week 7 ($M = -.069$, $SE = .045$, $p = 1.000$). The mean at one month follow up was not statistically significantly reduced from baseline ($M = -.270$, $SE = .087$, $p = .055$), however the mean at two month follow up was significantly decreased from baseline ($M = -.319$, $SE = .079$, $p = .006$).

Table 17.

Bonferroni Comparisons for GHQ-12 Across Weeks 0, 3, 7, 10, 14

Comparison	Mean Difference in score	Std. Error	Sig	95% CI	
				Lower Bound	Upper Bound
Week 3 to 0	-.282	.059	<i>.001</i>	.095	.469
Week 7 to 0	-.250	.083	.67	-.511	.011
Week 10 to 0	-.270	.087	.055	-.543	.004
Week 10 to 7	-.020	.078	1.000	-.267	.228
Week 14 to 0	-.319	.079	<i>.006</i>	-.568	-.070
Week 14 to 7	-.069	.045	1.000	-.210	.072

Italicised = statistically significant result ($p > .05$)

Individual results are not presented for the purpose of brevity, however it was noted that some individuals who scored highly on the GHQ-12 at baseline (or throughout the control period for those in this group) showed large decreases on this measure during, post and at follow ups. For example, Participant 5 scored 9 at baseline, reducing to 1 at Week 3 of training, then 0 at Week 7, and maintained this score at follow ups. Similarly, Participant 31 scored 9 at baseline, 0 at Week 3 of training, 1 at Week 7, and then remained a 0 for both follow-ups. Moreover, Participant 12 was first in the control condition, scoring 4, 11, and 12 at original baseline, third week of no training, and seventh week of no training, respectively. Once training began, this reduced to 5 at Week 3 of training, 0 at Week 7, 2 at one month follow up, then 0 at two months follow up.

Summary of PsyFlex6 Effects on General Psychological Distress

PsyFlex6 resulted in statistically significant changes to scores on the GHQ-12 over time. Significant reductions in GHQ-12 scores from baseline were observed at Week 3 of intervention, and at the 2-month follow up. Despite reductions in distress scores seen at the other time points in comparison to pre-training, none of these changes were statistically significant. When looking at individual data, it appears that more distressed participants at baseline experienced larger decreases once training began and maintained these at follow up.

Burnout as measured by MBI-HSS Total.

A one-way repeated measures ANOVA was conducted to determine whether there were statistically significant differences in burnout over the same period described as previous. The assumption of sphericity was violated, as assessed by Mauchly's test of sphericity, $\chi^2(2) = 17.294$, $p = .009$. As with AAQ-II, 'sphericity assumed' results are presented given that using correct degrees of freedom did not result in a change to the p value and thus no change to statistical significance.

The PsyFlex training elicited statistically significant changes in burnout over time, ($F(4,80) = 11.474$, $p = .000$, partial $\eta^2 = .365$), with a moderate effect size found. Table 15 shows the means of this measure over time. Burnout scores decreased from baseline ($M = 30.38$, $SD = 13.55$) to Week 3 ($M = 25.24$, $SD = 10.89$), with further decreases at Week 7 ($M = 23.11$, $SD = 11.91$) one month ($M = 21.24$, $SD = 11.44$), and at the two month follow up ($M = 19.24$, $SD = 10.98$). Figure 22 demonstrates the mean MBI-Total scores across testing points.

Results from a post hoc analysis using a Bonferroni adjustment are shown in Table 18. These showed that burnout was statistically significantly decreased from at Week 7 compared to baseline ($M = -7.274$, $SE = 2.052$, $p = .020$). Levels of burnout were not statistically significantly changed at Week 10 (one month follow up) compared to Week 7 ($M = -1.869$, $SE = 1.548$, $p = 1.000$), or at the Week 14 mark (2 month follow up) compared to Week 7 ($M = -3.869$, $SE = 1.442$, $p = .143$). These means were statistically significantly decreased compared to baseline means ($M = -9.143$, $SE = 2.246$, $p = .006$; $M = -11.143$, $SE = 2.197$, $p = .001$, for Week 10 and 14, respectively).

Summary of PsyFlex6 effects on Total Burnout

PsyFlex6 influenced scores of Total Burnout over the different testing points of the study, with data showing significant decreases at Week 7 compared to baseline and this positive change maintained one and two months after training. This indicates there was a positive treatment effect on total burnout.

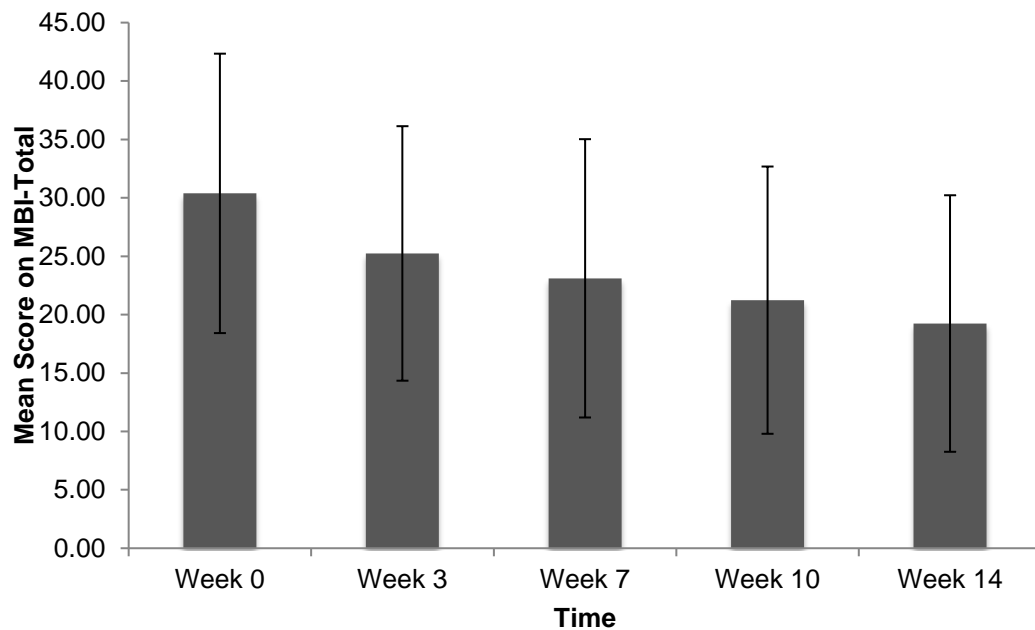


Figure 22. Mean scores on Maslach Burnout Inventory – Total (MBI-Total) across weeks 0, 3, 7, 10, 14, with error bars indicating one standard deviation.

Table 18.

Bonferroni Comparisons for MBI-Total Across Weeks 0, 3, 7, 10, 14

Comparisons	Mean Difference in score	Std. Error	Sig	95% CI	
				Lower Bound	Upper Bound
Week 7 to 0	-7.274	2.052	<i>.020</i>	-13.745	-.803
Week 10 to 0	-9.143	2.246	<i>.006</i>	-16.225	-2.061
Week 10 to 7	-1.869	1.548	1.00 0	-6.751	3.013
Week 14 to 0	-11.143	2.197	<i>.001</i>	-18.070	-4.216
Week 14 to 7	-3.869	1.442	.143	-8.416	.678

Italicised = statistically significant result ($p > .05$)

Emotional Exhaustion as measured by MBI-EE.

Data from Week 0 were found to be not normal as assessed by Shapiro-Wilk test, but no other weeks violated the assumption of normality. Results of the one way repeated measures ANOVA are presented in Table 15. The PsyFlex training resulted in statistically significant changes in emotional exhaustion over time, ($F(4,80) = 14.074, p = .000$) and a moderate effect size (partial $\eta^2 = .413$). Mean scores for each time point are shown in Table 14 and displayed graphically in Figure 22. Emotional exhaustion decreased from baseline ($M = 25.86, SD = 10.45$) to Week 3 ($M = 21.19, SD = 8.18$) with continued decreases at Week 7 ($M = 19.00, SD = 9.66$), at one month ($M = 17.57, SD = 10.37$), and at the two-month follow up mark ($M = 15.86, SD = 9.22$).

Post hoc analysis with a Bonferroni adjustment was performed; these results are presented in Table 19. These revealed that emotional

exhaustion was statistically significantly decreased at Week 7 compared to baseline ($M = -6.857$, $SE = 1.644$, $p = .005$) and also indicated that levels of psychological flexibility were not statistically significantly changed at Week 10 (one month follow up) compared to Week 7 ($M = -1.429$, $SE = 1.408$, $p = 1.000$), or Week 14 (2 month follow up) compared to Week 7 ($M = -3.143$, $SE = 1.288$, $p = .241$), but that these were statistically significantly decreased compared to baseline ($M = -8.286$, $SE = 1.629$, $p = .001$; $M = -10.000$, $SE = 1.750$, $p = .000$, for Week 10 and 14, respectively).

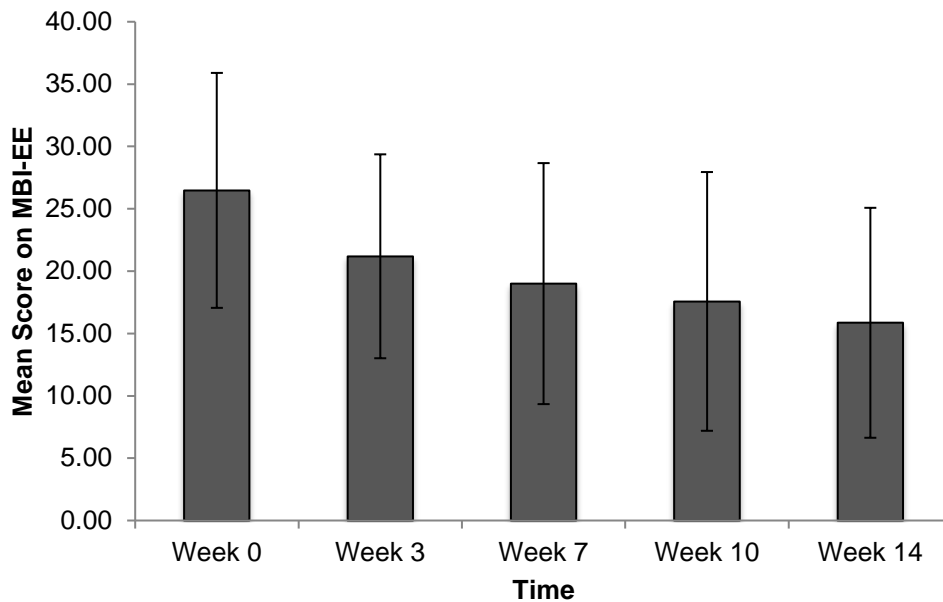


Figure 23. Mean scores on Maslach Burnout Inventory – Emotional Exhaustion (MBI-EE) across weeks 0, 3, 7, 10, and 14, with error bars indicating one standard deviation.

Table 19.

Bonferroni Comparisons for MBI-EE Across Weeks 0, 3, 7, 10, 14

Comparisons	Mean Difference in score	Std. Error	Sig	95% CI	
				Lower Bound	Upper Bound
Week 7 to 0	-6.857	1.644	<i>.005</i>	12.040	-1.674
Week 10 to 0	-8.286	1.629	<i>.001</i>	-13.422	-3.149
Week 10 to 7	-1.429	1.408	1.000	-5.870	3.013
Week 14 to 0	-10.000	1.750	<i>.000</i>	-15.518	-4.482
Week 14 to 7	-3.143	1.288	.241	-7.204	.918

Italicised = statistically significant result ($p > .05$)

Summary of PsyFlex6 effects on Emotional Exhaustion

PsyFlex training had a significant effect on the emotional exhaustion component of burnout, as demonstrated in the decrease at post training compared to baseline, with these effects stable at one and two month follow ups.

Depersonalisation as measured by MBI-DP.

Data for this measure were found to be not normal, as assessed by the Shapiro-Wilk test, and although transformed, all data except that of Week 0 still violated these assumptions of normality. The one-way repeated measures ANOVA also indicated that assumptions of sphericity were also violated, given these reasons; ANOVA data should be interpreted with caution. Table 15 shows that the PsyFlex training had no statistically significant effect on mean scores of depersonalisation across the time points of this study ($F(4,80) = 818, p = .518$), and the effect size was so

small so as to suggest no difference (partial $\eta^2 = .039$). From baseline, mean depersonalisation scores ($M = 5.52$, $SD = 4.69$) decreased at Week 3 ($M = 5.05$, $SD = 4.36$), increased at Week 7 ($M = 5.10$, $SD = 4.36$), with decreases again at Week 10 ($M = 4.67$, $SD = 3.84$), and at Week 14 ($M = 4.38$, $SD = 4.06$). Mean changes to depersonalisation over time are graphically presented in Figure 24.

Post hoc pairwise comparisons obtained from a Bonferroni test indicated that none of the changes observed were statistically significant, the results can be observed in Table 20.

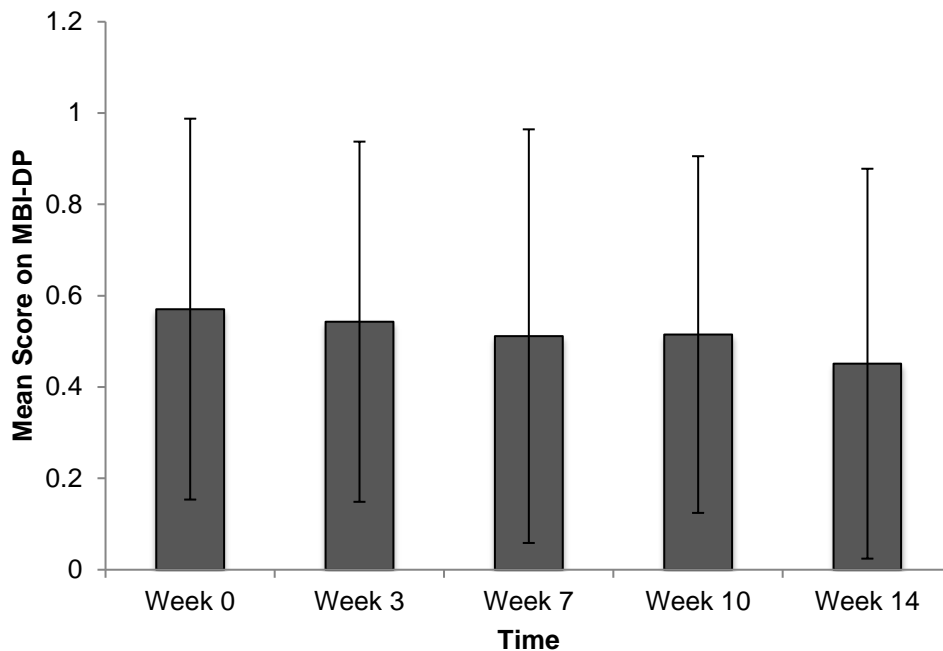


Figure 24. Mean scores on Maslach Burnout Inventory – Depersonalisation (MBI-DP) across weeks 0, 3, 7, 10, and 14, with error bars indicating one standard deviation.

Table 20.

Bonferroni Comparisons for MBI-DP Across Weeks 0, 3, 7, 10, 14

Comparison	Mean Difference in score	Std. Error	Sig	95% CI	
				Lower Bound	Upper Bound
Week 7 to 0	-0.417	.765	1.000	-2.830	1.996
Week 10 to 0	-0.857	.863	1.000	-3.578	1.863
Week 10 to 7	-0.440	.665	1.000	-2.536	1.655
Week 14 to 0	-1.143	.708	1.000	-3.376	1.090
Week 14 to 7	-0.726	.357	.553	-1.852	.399

Italicised = statistically significant result ($p > .05$)

Summary of PsyFlex6 effects on Depersonalisation

These results indicate that while depersonalisation scores decreased at post training compared to baseline, none of the changes observed were found to be significant.

Personal Accomplishment as measured by MBI-PA.

A one-way repeated measures ANOVA was conducted to determine whether there were statistically significant differences in the personal accomplishment dimension of burnout (as measured by MBI-PA) during training, post training, and at one and two month follow ups, compared to baseline data. The PsyFlex6 training resulted in statistically significant changes in personal accomplishment over time, ($F(4,80) = 3.571, p = .010$)

and a small effect size (partial $\eta^2 = .152$). Personal accomplishment increased from baseline ($M = 36.04$, $SD = 4.64$) to Week 3 ($M = 35.24$, $SD = 4.60$) increasing again at Week 7 ($M = 37.64$, $SD = 6.29$) and one month follow up ($M = 38.67$, $SD = 5.24$), but small decrease between one month and two month follow-ups ($M = 38.62$, $SD = 4.63$). These means can be seen visually in Figure 25.

Post hoc analysis using a Bonferroni adjustment were performed and results are presented in Table revealed that the increase in personal accomplishment was not statistically significant between baseline and Week 7 ($M = 1.595$, $SE = 1.166$, $p = 1.000$), that the increase at Week 10 compared to Week 7 was also not significant ($M = 1.024$, $SE = 1.460$, $p = 1.000$), as was the increase at Week 14 compared to Week 7 ($M = .976$, $SE = 1.172$, $p = 1.000$). However, a statistically significant increase was observed at Week 10 compared to Week 3 ($M = 3.429$, $SE = 1.077$, $p = .047$) and between Week 3 and Week 14 ($M = 3.381$, $SE = 1.063$, $p = .047$). This gives rise to the statistically significant change observed in the result of the ANOVA.

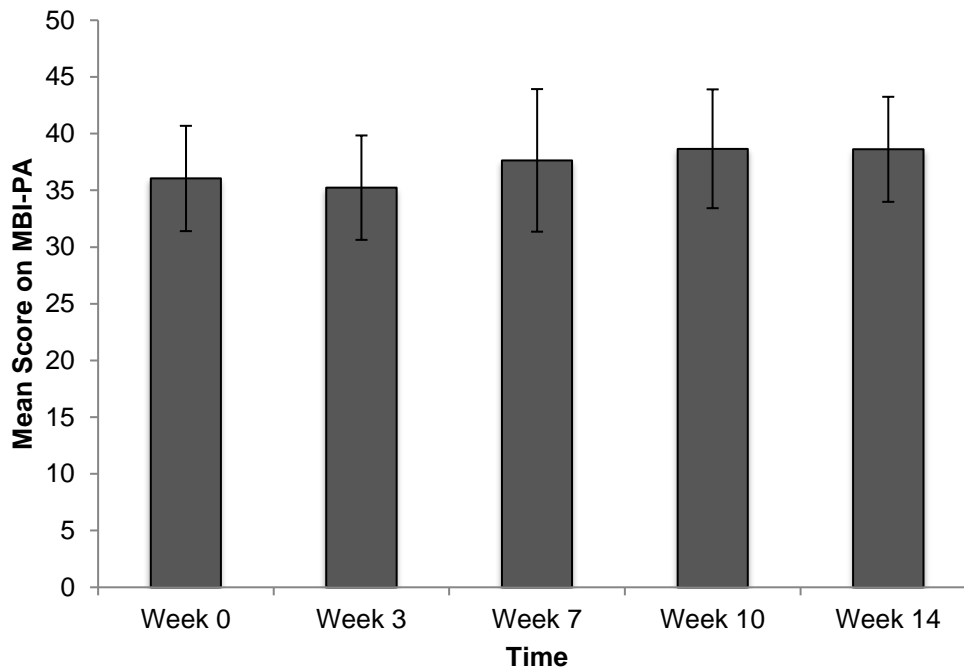


Figure 25. Mean scores on Maslach Burnout Inventory – Personal Accomplishment (MBI-PA) across weeks 0, 3, 7,10,14, with error bars indicating one standard deviation.

Summary of PsyFlex6 effects on Personal Accomplishment

PsyFlex6 had an impact on mean scores of personal accomplishment across the time points in the study. Because of a decrease to personal accomplishment scores at Week 3 of training from baseline, later increases meant that there was a significant difference between Week 3 and Week 10, as well as between Week 3 and Week 14. No other changes were found to be statistically significant.

Table 21.

Bonferroni comparisons for MBI-PA Across Weeks 0, 3, 7, 10, 14

Comparisons	Mean Difference in score	Std. Error	Sig	95% CI	
				Lower Bound	Upper Bound
Week 7 to 0	1.595	1.166	1.000	-2.081	5.271
Week 10 to 0	2.619	1.233	.464	-1.270	6.509
Week 10 to 3	3.429	1.077	<i>.047</i>	.032	6.825
Week 10 to 7	1.024	1.460	1.000	-3.580	5.628
Week 14 to 0	2.571	1.146	.363	-1.041	6.184
Week 14 to 3	3.381	1.063	<i>.047</i>	.028	6.734
Week 14 to 7	.976	1.172	1.000	-2.721	4.673

Italicised = statistically significant result ($p > .05$)

Overall Summary of Effect of PsyFlex6

The results of this research have indicated that PsyFlex6 is a useful training program for increasing psychological flexibility of behavioural therapists, during training, after and maintaining this follow up points of one and two months. The strength of this finding is demonstrated in the statistical analyses performed between groups, for which the effect size was small, and when data was pooled across both training groups, which showed a moderate effect size. Specifically, at the final two-month follow up, all but one trained participant had shown increases in psychological flexibility.

With respect to general psychological distress, PsyFlex6 may have had some effects, although due to data violating assumptions of normality, the reader is reminded to take heed with drawing conclusions. In

comparison to their control counterparts, trained participants self-reported lower ratings of psychological distress upon completion of the training, and this had a moderate effect size. Additionally, when data were combined from both groups, GHQ scores were significantly changed, and this result had a small effect size. Specifically, there was a decrease from baseline to Week 3 and also at the 2-month follow up, although not at any other time points.

PsyFlex6 training appears to also have had some positive effect on some aspects of burnout, as measured by the Maslach Burnout Inventory. In particular, the between groups analysis for emotional exhaustion revealed a non-significant interaction, but small effect size. When combining data from both trained groups, there was a significant decrease over time (with moderate effect size), and positive change was maintained even one and two months after training finished. The results for total burnout show a non-significant interaction and small effect size for the between groups analyses. However, when data were pooled, a significant decrease was seen post training and maintained one and two months later.

The burnout component of personal accomplishment may also be affected by PsyFlex6 training, although this is a small effect. There was no significant change to scores for the intervention group, and the effect size was small. However, when combining scores of both groups, scores of personal accomplishment were significantly increased at one and two-month follow-up compared to the third week of training.

Lastly, the depersonalisation component of burnout was not significantly affected by PsyFlex6 training. When comparing data between trained vs. control participants, no significant difference in depersonalisation scores was found, and neither was there any significant change over time. Across all trained participants, a minor decrease was observed post training, and there was a continued decrease at follow-ups. But, these changes were non significant, and effect size was small.

Social Validity Data

At the end of each week of PsyFlex6 training, participants were asked to complete a short evaluation of the week's content. Questions were designed to evaluate a) what they had learned from the training that week, b) their rating of difficulty of material presented, c) the frequency with which they practiced the strategies presented, and d) how helpful they thought the training and strategies were for that week. This data were collected in order to provide more information about the training itself; the form was sent to each participant but not followed up if they did not complete it. Therefore, not all participants responded to each week's evaluation. Only data from those participants who completed the entire training and intervention are included.

Comprehension of material.

Figure 26 presents the mean percentage correct for the comprehension section of the weekly content evaluations. The general trend across weeks is an increasing comprehension of content, although the results of Weeks 1, 3 and 4 suggest that the content of these weeks might have been slightly more difficult to comprehend than the other weeks.

Despite this, overall scores each week were quite high, with the highest accuracy scores being at Weeks 5 and 6.

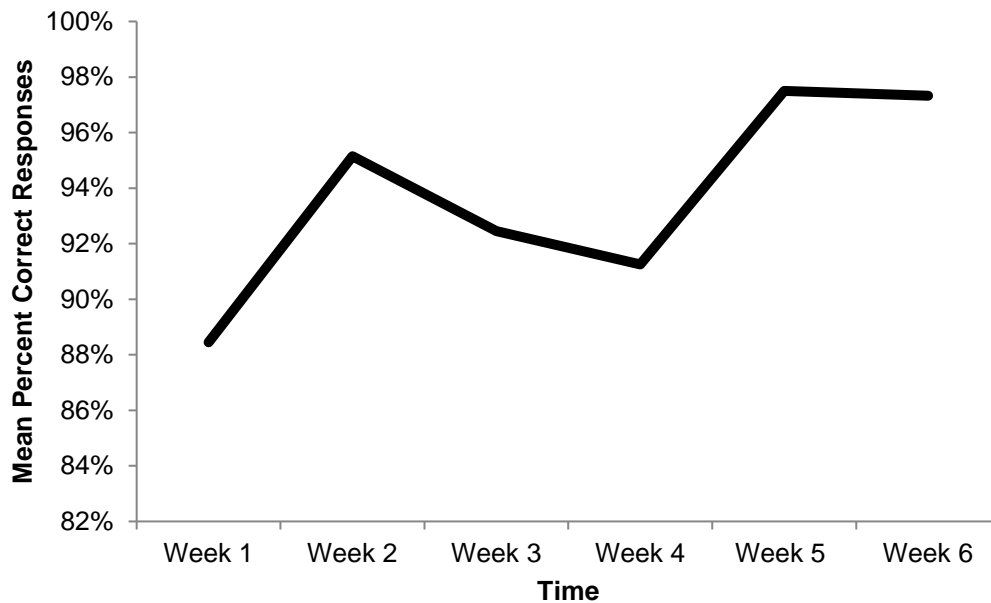


Figure 26. Mean per cent correct responses for comprehension questions in weekly content evaluations

Participant self-report.

“How easy was it to understand the module content?” Figure 27 shows the results for the question “How easy was it to understand the module content?” Participants were asked to select one of four responses “Very Easy”/“Moderately Easy”/“Moderately Difficult”/“Very Difficult.” Those who did not respond to the evaluation were scored as “No response.”

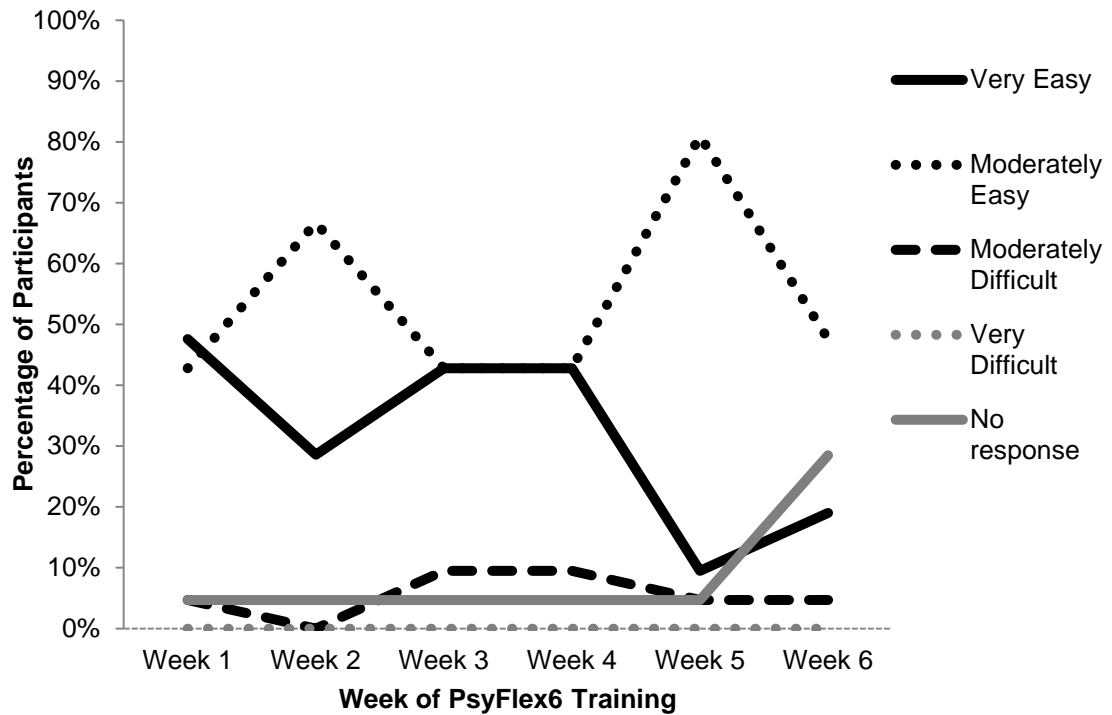


Figure 27. Per cent of response type for the question “How easy was it to understand the module content?” for each week of PsyFlex6 Training

As can be seen in Figure 27, most participants responded saying that the content was either very easy, or moderately easy to understand. The option of ‘Very difficult’ was never selected, with ‘moderately difficult’ being selected by a small minority of participants. The last week saw an increase in the number of participants who did not respond. Interestingly, the number of responses for “Moderately difficult” were higher at Weeks 1, 3 and 4, which also coincided with lower comprehension scores for those weeks, as shown in Figure 26.

“How often did you practice the strategies used in the training so far?” Figure 28 displays the responses to this question across all six weeks of training. For this question, participants could select one of the following:

“Every day”/“When completing the module, and once or twice for the rest of the week”/“Only when completing the module”/“Not at all.” Again, non-responses were scored as “No response.”

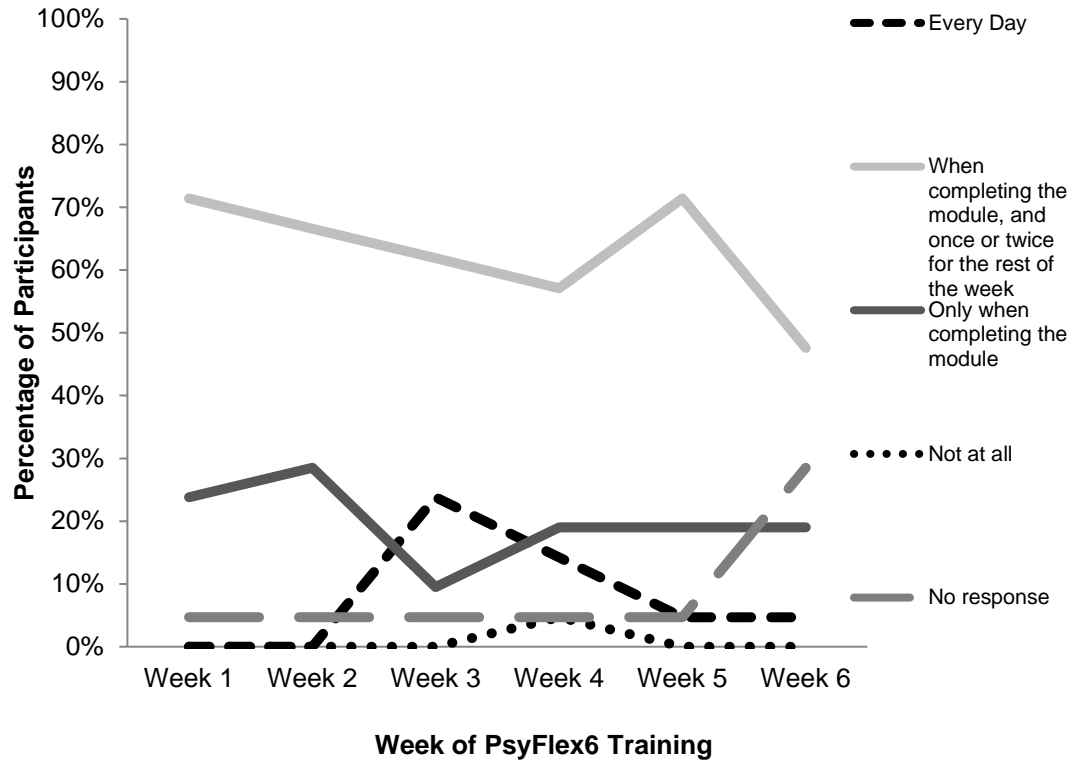


Figure 28. Per cent of response type for the question “How often did you practice the strategies used in the training so far?”

Across weeks, the majority of participants reported that they practiced the strategies once or twice as well as during the training. Week 3 saw the highest number of participants reporting that they practiced everyday, but this was relatively low compared to other response selections. A small number said that they practiced only when completing the module. Only one participant reported that for one week, they never practiced any of the strategies.

“How helpful did you find this training module and the strategies taught this week?” Respondents were given three options for this question:

“Very helpful”/“Moderately helpful”/“Not helpful at all,” and non responses were scored as “No response.” As seen in Figure 29, participants mostly reported that the training and strategies were either very helpful or moderately helpful. Week 3 appeared to be the most helpful week. Weeks 2 and 4 were the only weeks that someone reported the training to be not helpful at all.

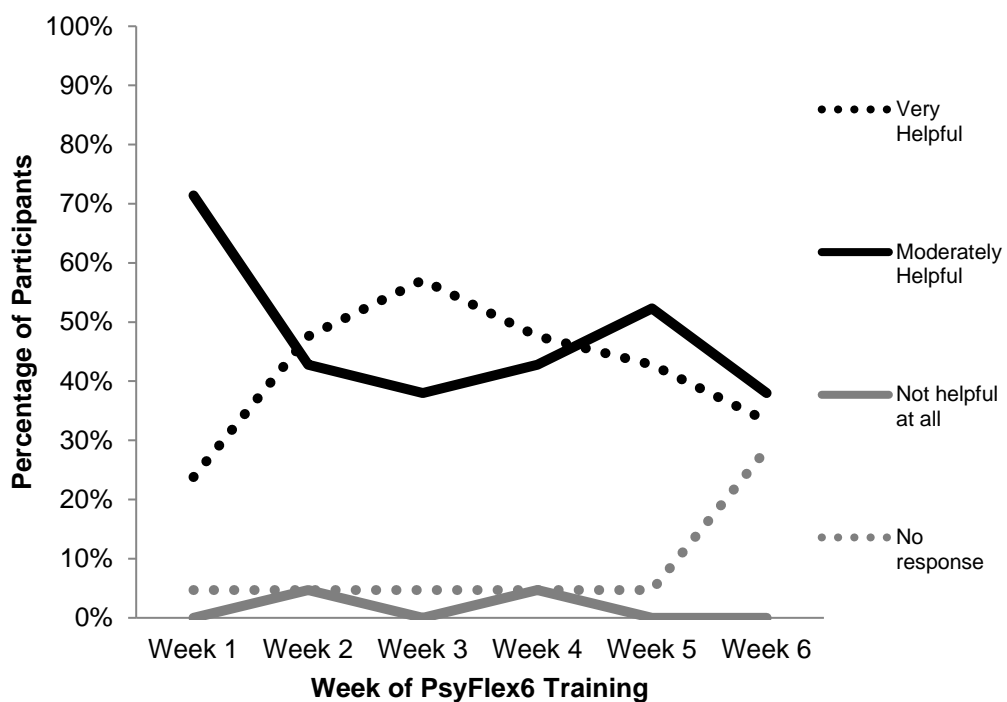


Figure 29. Percent of response type for the question “How helpful did you find this training module and the strategies taught this week?”

Chapter 4: Discussion

Psychological flexibility

The results show that participation in PsyFlex6 training led to a

significant increase in psychological flexibility, compared to a control group, and when the data were grouped and observed over time. This supported the hypotheses and was a result similar to that found by Thomas (2011), Lloyd, Bond and Flaxman (2013) and Bond and Bunce (2000). In the present study, increased levels of psychological flexibility were found to be maintained (slightly increased) at one and two month follow ups. This was different from the finding in Lloyd et al.'s (2013) study, where improvements to psychological flexibility were not maintained at the six-month follow up. This different follow up results across these studies may have occurred for a number of reasons - perhaps due to the different follow up periods, or to differences in quality/delivery of ACT. Future research is required to address which factors influence whether or not flexibility levels are maintained, and if and when this skill may begin to decrease. This would help to determine whether 'refresher' courses might be beneficial to maintain or increase participants' psychological flexibility for longer periods post training. In our study, participants reported that they practised the strategies suggested at least once or twice per week outside of the training. It is possible this might have influenced the maintenance at follow up.

PsyFlex6 was written, developed and presented by two ACT practitioners, both of whom have considerable experience in the application of ACT in the field of occupational well being. In addition, PsyFlex6 consistently promotes and teaches a wide range of strategies to assist participants in becoming more accepting of difficult psychological experiences at, and associated with work. Teaching the strategies with reference to difficult work situations might have made it easier for

participants to understand and relate to their lives. Indeed, the social validity data show a relatively high comprehension of the material throughout all weeks of training. These factors might contribute to the success of PsyFlex6 in increasing psychological flexibility.

Psychological distress

Overall, there was a positive effect of training on psychological distress, compared to that in the control groups, when all data were grouped over time. In Week 3 of the first round of training, the ACT training group had decreased distress scores, while the control group had a small increase in distress scores. Interestingly, Lloyd et al. (2010) and Bond and Bunce (2000) found almost identical trends, with ACT-trained participants reporting reduced distress between the second and third training sessions, while the controls reported increased distress between the same time points. Distress decreased for one group and increased for the other group over the same time points, thus, perhaps an effect of the training was that the trained participants were better equipped to deal with stressors, while the control group reported higher distress, as a result of knowing that another group was being supported while they were not.

Another study has also indicated that there may be a mediator in the relation between psychological flexibility and psychological distress (Bond & Bunce, 2000). Given the similarities in trend for both psychological flexibility and distress, perhaps changes to psychological flexibility were associated with similar changes to distress. Lloyd, Bond and Flaxman (2010) did not identify any mediator variables for stress in their study; therefore the nature of the relation between psychological flexibility and GHQ-12 requires further

exploration.

The mean group scores on GHQ-12 were relatively low for both groups, and positive changes were particularly clear for participants who were highly distressed at baseline. This finding echoes the results of several other studies, where individuals who were more distressed at baseline experienced larger benefits of ACT training (McConachie, McKenzie, Morrie & Walley, 2014; Bethay et al., 2013; Brinkborg et al., 2011). If ACT training is the most beneficial for already distressed participants, perhaps the GHQ-12 could be used as a screening tool to help find those employees who might be more at risk, and therefore might benefit from immediate training. ACT training could then also be implemented as a primary prevention strategy to teach workers better stress management techniques. Moreover, this study provides additional evidence for the notion that web-based ACT training can be beneficial in decreasing distress (e.g., Lappalainen, 2014), and therefore shows how a large number of staff might be trained with less effort than needed for one to one ACT training sessions.

Burnout

Total burnout.

Positive change was found for total burnout scores during and after PsyFlex6 training, and these were maintained at both follow-up points. However, because the control participants also experienced a decrease to total burnout at these time points, this finding was not as strong as that of

previous studies. Hayes et al. (2004) found significant decreases to total burnout after an ACT intervention with drug and alcohol counsellors, but no sustained change at the 3-month follow up. The follow up periods in these two studies were similar, so perhaps the discrepancy could be due to differences in quality, delivery or length of ACT training. In particular, the Hayes et al. (2004) study was only one six-hour day, with the present study being six hours spread over the same number of weeks. Perhaps ongoing exposure to, and practise of ACT strategies resulted in ongoing adherence to these strategies and therefore in continued effects at follow up. Again, these factors could be explored to reveal important characteristics of effective ACT training paradigms.

Emotional exhaustion.

This study found initial support for the use of PsyFlex6 in reducing emotional exhaustion of behavioural therapists, particularly when all data were combined and changes examined over all time periods. Previous research has also shown that ACT training or therapy may be beneficial in reducing the emotional exhaustion component of burnout, e.g., Lloyd et al., (2010), Thomas (2011) and Brinkborg et al. (2011). But, there has been some disparity between findings, for example, Bethay et al. (2013) found no overall effect of ACT training on emotional exhaustion, and significant differences were observed for participants who actually applied the trained strategies. Our study initially observed no significantly greater benefit for trained participants than controls on these measures, but did find a significant reduction over time when all data were grouped. For most training weeks the majority of ACT participants reported that they practised

the strategies between one and three times that week. It is possible that frequency of strategy use might be a variable that influences the extent to which emotional exhaustion is affected for each individual, and this might explain the discrepancy between findings of these studies.

Reducing emotional exhaustion is not a primary objective of PsyFlex6; instead these decreases might be a secondary effect of increased psychological flexibility and ability to accept difficult emotions associated with work. Participants are taught several ways to unhook from difficult cognitions and emotions and accept them for what they are.

Devereux, Hastings and Noone (2009) found that the use of experiential avoidance strategies has been associated with higher emotional exhaustion of intellectual disability workers. Also, increased psychological flexibility has been found to mediate improvements on the emotional exhaustion scale (Lloyd, Bond & Flaxman, 2010). Our findings show similarities between the trends of psychological flexibility and emotional exhaustion, indicating a possible correlation between the two variables, i.e., a positive change for both measures after engaging in PsyFlex6. This training appears to result in a reduction in emotional exhaustion of trainees, not only directly after training, but there was also sustained benefit over the subsequent two-month period.

Depersonalisation.

With respect to the depersonalisation component of burnout, the results were unexpected, and at odds with previous findings. Thomas's (2011) strongest finding after implementing an ACT self help book with disability workers, was a decrease in depersonalisation scores compared to their

control counterparts, and both Lloyd et al. (2010) and Brinkborg et al. (2011) found similar changes evident post training. The following paragraphs seek to explain why these anomalies between studies might have occurred.

The Maslach Burnout Inventory asks respondents to rate how often they feel a certain way about their job, and the depersonalisation components focus on the relations between employee and service recipient, e.g., “I don’t really care what happens to some recipients.” It might be expected that behavioural therapists, who work very closely with a small number of clients, would be quite invested in the progress of their clients, and might therefore find such questions difficult to agree with. Indeed, over half of our participants scored within the low range of depersonalisation burnout before beginning training. These low levels of depersonalisation might have affected the ability to observe any functional relationship between PsyFlex6 and changes to this measure. There was a small decrease during and after training, so perhaps there was an effect of training, but the scores were too low to observe bigger change, a floor effect. It would certainly be interesting to intervene with individuals who report higher scores of depersonalisation burnout to see if there was an effect for them.

An alternate explanation for lack of effect on depersonalisation scores might be that PsyFlex6 simply did not impact this dimension of burnout. Situational examples used in training, while work specific, were not direct examples of situations experienced by behavioural therapists. It might have been helpful for trainees to identify specific events that result in cynical

thoughts towards clients, which may be more likely to impact depersonalisation. Further evidence is required to ascertain whether there is an effect of PsyFlex6, or ACT training in general, on depersonalisation, and if not, how ACT training might be adapted to reduce all components of burnout, therefore being a more effective and complete work place training package.

Personal Accomplishment

The results of this study did not show strong support for the hypotheses that Personal Accomplishment scores would be positively affected during training and at the two follow-ups. When data were grouped, a significant change was observed at follow ups compared to the midpoint of training, but this is likely a result of the very slight decrease at Week 3 compared to baseline. However, Hayes et al. (2004) found changes to personal accomplishment scores at their follow up and they also did not find them directly after ACT training, which is a similar finding to that observed here.

Our current finding is also at odds with findings from Brinkborg et al. (2011), who observed improvements to participants' levels of personal accomplishment post ACT training, but they found this only for highly stressed participants at baseline. It might be, as suggested above, the present participants were not highly stressed. Thomas (2011) reported a small positive effect of the ACT self-help book on this burnout dimension, but was not a strong finding. The anomalies between the findings of these studies indicate that the effects of ACT training on personal accomplishment are still unclear. It does appear that the effect is likely to be less than on the other dimensions of burnout such as emotional exhaustion

or total burnout. It might be that responses to some of the questions posed by the MBI-PA component, e.g., “I can easily understand how my recipients feel about things,” and “I have accomplished a many worthwhile things in this job” might be less sensitive to change over the short time periods used in these studies. In these cases, longer-term use of ACT strategies might affect responses to these questions – which might help explain the longer term positive effects of ACT on personal accomplishment for the present study. Regardless, further investigation into the effects of ACT training on this component is necessary, perhaps adapting the training to target feelings of professional inefficacy might be more effective.

Overall Findings

One interesting point that can be made in regard to the experimental group data is that, in spite of the random assignment to the first groups, the baseline mean was higher than that of the control group for measures of psychological flexibility, psychological distress, emotional exhaustion, and total burnout. Previous studies have found that changes to psychological flexibility are correlated with (and in some cases, might mediate) changes to psychological distress (Bond & Bunce, 2000), emotional exhaustion (Lloyd et al., 2013) and burnout (Brinkborg et al., 2011). If control group participants were already scoring lower on the measure of psychological inflexibility, it might be that these lower levels are partially responsible for the decreases to the other measures of burnout and distress over time. Moreover, these relationships might have impeded our ability to observe significant two-way interactions for the measures of burnout, given that both groups experienced decreases during training. A follow up study might seek

to assign participants to groups based on their scores of psychological flexibility, if both group means are even at baseline, it would be useful to see how a control group fares in comparison to a trained group.

Social Validity

Participants demonstrated high comprehension of material across all weeks. In addition, they mostly reported that material was easy to understand, but that Weeks 3 and 4 were slightly more difficult. Participants generally practised the strategies at least twice per week, and often said that the week's training was helpful. Thus, PsyFlex6 was quite accessible to this particular population, however this should not be generalised, given that many participants were current or former psychology students. They might have had greater prior knowledge or interest in the topic than a general population. It would be beneficial to know this information relation to the general population, as this is an important factor in whether trainees would commit to and apply the training. In addition, if comprehension or motivation to engage in strategies was low, the ease of access to treatment could be important.

Weaknesses

The present study had a small sample size, with all participants being employed by the same company, which limits generalizability of findings to behavioural therapists of other organisations. However, there might be advantages in using a group of participants employed at the same location, for example, many reported to the researcher informally that they discussed the training positively with other current trainees. This might have

helped motivate participants to continue with the training or reminded them to practise the techniques.

However, it should be noted these interactions might have confounded the results. Despite being asked not to share information about PsyFlex6 with control participants, the intervention participants may have done so. This might have affected control participants' levels of psychological flexibility, and therefore, the outcomes of the experiment. In an ideal world, it would be helpful to control whether participants are discussing the content, however, when carrying out applied research, this would be a difficult control to implement.

All measures employed in this study relied on self-report, and did not measure any impact of training on possible indicators of psychological flexibility, distress or burnout. Many of the behaviours that ACT seeks to influence are primarily private events (e.g. attachment to the conceptualised self, experiential avoidance), but a future direction of research might explore the effects of ACT training on potential behavioural indicators of increased psychological flexibility. For example, behavioural flexibility and responsiveness to environmental contingencies, and taking action in line with values and goals are public events, which could be operationally defined. These could subsequently be measured before, during and after training to observe relations between these and levels of psychological flexibility. Moreover, the validity of the AAQ-II might be further increased by showing that change to this self-report scale is associated with change to behavioural indicators of psychological flexibility.

Similarly, there are behaviours associated with increased employee stress and burnout, for example, absenteeism, turnover or presenteeism (Toppinen-Tanner et al., 2015; Tziner et al., 2015; Demerouti et al., 2008). It would most certainly be worthwhile assessing whether reductions in stress and burnout are associated with expected changes to measures of these behaviours. Furthermore, positive change to these behaviours could hold financial benefit for the company, as well as there being related advantages such as maintaining continuity of services, which was identified by Blackledge, Ciarrochi and Deane (2009) as an effect of high worker turnover or absenteeism.

Strengths of the study.

A strength of the study was the use of a randomised and controlled design, which allowed for the comparison between access to PsyFlex6 treatment or no treatment as a control condition.

A relatively small number dropped out during the training. A common reason given for drop out was that it was difficult to manage work, studying and completing PsyFlex6. Given that the aim of PsyFlex6 is to reduce stress, it would not make sense to overload a participant's already busy schedule – which might in itself cause stress. In light of this, if an organisation were to offer PsyFlex6 to their employees, perhaps allowing participants to find a less busy time to choose when they begin training would be helpful in reducing drop out.

A major strength demonstrated here is the success of PsyFlex6 despite participants not contacting any ACT therapist support throughout

training. This is a major advantage for a number of reasons. Firstly, there is little time and effort involved on the part of an organisation in implementing such training. Often human services organisations run as not for profit, and do not have funds to allow much spending on employee health; this online training could be a cost and time effective solution. Secondly, the training could be introduced as primary prevention, as well as an intervention when employees present with moderate levels of distress. As mentioned, refresher courses could be scheduled to ensure maintenance of strategies. Lastly, the material was reported to be easily comprehended and participants understood it even though there was no therapist to deliver information or answer questions.

Lastly, this study allowed for these employees access to training which they might not have sought out, or been offered otherwise. Both quantitative measures and self-report indicate that PsyFlex6 has been effective and valuable for those who completed the training.

Conclusion

Overall, this thesis has demonstrated that PsyFlex6 is a useful training paradigm for behavioural therapists. Specifically, it provides strong support for the use of this training to increase psychological flexibility. Positive effects were seen on participants' levels of psychological distress. The effect of training on burnout measures was not significant, although positive effects were observed. There was a greater effect of training for emotional exhaustion and total burnout than for personal accomplishment, and for depersonalisation. This demonstrated efficacy of PsyFlex6, a training tool which requires no face to face or individual support, suggest it

is a method of supporting a large number of workers who might be susceptible to stress and burnout because of their job demands. Moreover, both quantitative and qualitative data provided by this study gives the creators of PsyFlex6 information to tailor and support the delivery of their training to clients. Finally, PsyFlex6 could be a time and cost effective addition to an organisation's training scheme, used to support the wellbeing of their employees.

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Appendix One

An evaluation of the online training, PsyFlex6

You are being invited to take part in a research study that will seek to determine the effects of an Acceptance and Commitment Therapy training (PsyFlex6), which will be delivered through a six-week online training course.

In this study, you will be asked to complete one, hour-long module each week, which can be spread over the week, for a total of six weeks (six modules in total). At the end of each module, there will be a short online quiz to check understanding of, and evaluate the week's content. The modules are designed to teach participants strategies to improve psychological flexibility, and participants are expected to practice and use these strategies throughout the course of testing. Measures will be taken at several time points throughout the study, each of which is expected to take around 15-20 minutes to complete, and will be completed online. The first measure will be taken for all participants at Week 0, after which participants will be randomly allocated to one of two groups: one group will start training immediately, and one will start roughly 8 weeks later, provided the interim outcomes for the first group are positive. Participants in the first group will complete measures at Week 0, Week 3, Week 6, Week 10, and Week 18. If you are allocated to the second group, you will complete the measures in Week 0, Week 3, Week 6, (begin training in Week 8), Week 10, Week 13, Week 17 and Week 25.

In order to be eligible, willing candidates must be able to access an Internet capable computer/tablet for a minimum of one hour each week, for six weeks, and at two time points following in order to complete measures, as stated above. This eligibility criterion is in place as the training can only be delivered in an online format for the purposes of the research. Participants will not be compensated financially or otherwise, and participation in this study is expected to incur no cost to the participants.

This research study is being run in order to fulfill the thesis component of a Masters in Applied Psychology (Behaviour Analysis), through the University of Waikato (New Zealand). This research project has been approved by the School of Psychology Research and Ethics Committee of the Faculty of Arts and Social Sciences, University of Waikato. Any questions about the ethical conduct of this research may be sent to the convener of the Research and Ethics Committee (currently Dr. Rebecca Sargisson, phone 07 557 8673, email: rebeccas@waikato.ac.nz).

The researcher for this study is Carly Walker (carlywalkermasters@gmail.com), while the supervisor is Professor Mary Foster (m.foster@waikato.ac.nz) of the University of Waikato.

If you are interested in being a participant, or would like further information, please contact Carly on the above email address.

Thank you for your time and potential interest.

Carly.

Appendix Two

Information Sheet (1)

The purpose of this document is to provide the information necessary for potential participants to give informed consent for their participation in the following research study:

“An evaluation of the online training, Psyflex6”.

This research study is being run in order to fulfill the thesis component of a Masters in Applied Psychology (Behaviour Analysis), through the University of Waikato (New Zealand). This research project has been approved by the School of Psychology Research and Ethics Committee of the Faculty of Arts and Social Sciences, University of Waikato. Any questions about the ethical conduct of this research may be sent to the convener of the Research and Ethics Committee (currently Dr. Rebecca Sargisson, phone 07 557 8673, email: rebeccas@waikato.ac.nz).

Contact

The researcher for this study is Carly Walker (carlywalkermasters@gmail.com), while the supervisor is Professor Mary Foster (m.foster@waikato.ac.nz) of the University of Waikato. There will be no sponsorship associated with the funding of the project.

Participation Details and Time Commitment

Training will consist of completing one, hour-long module each week, for a total of six weeks (six modules in total). Each module can be spread over the week and so a bit can be done each day. The modules are designed to teach participants strategies to improve their own psychological flexibility, and participants are expected to practice and use these strategies throughout the course of testing. At the end of each module, there will be a short online quiz to check understanding of the week's content.

Measures will be taken at several time points throughout the study, each of which is expected to take around 15-20 minutes to complete, and will be completed online. The first measure will be taken for all participants at Week 0, after which participants will be randomly allocated to one of two groups: one group will start training immediately, and one will start roughly 8 weeks later, provided the interim outcomes for the first group are positive. Participants in the first group will complete measures at Week 0, Week 3, Week 6, Week 10, and Week 18. If you are allocated to the second group, you will be required to complete the measures in Week 0, Week 3, Week 6, (begin training in Week 8), Week 10, Week 13, Week 17, and Week 25.

Participation in this study will require completion of some standardized measures that are routinely employed in such research. The scores will be used only to determine effectiveness of the programme. Participants will be able to access their own scores at the completion of the study, and will be invited to a debrief presentation of the study's findings,

which will also be made accessible by video, should this be requested by any participant.

Participants should be aware that they may decline to answer any questions during the course of the study and during data collection, and may ask any further questions about the research, before or after giving consent. In addition, participants may withdraw from the study, up until the time at which analysis will be performed on their data.

Confidentiality/Anonymity and Data Collection/Storage

All participants will be given a participant code, which they will enter on all measures and quiz documents. Therefore, data collected will be de-identified, and names will never be associated with the material presented in drafts, or the final document, or in any presentation that may be made regarding the research study (e.g. debrief presentation, conferences etc.). Collected information will be stored digitally on an external hard drive for up to five years, and will be accessible only by the primary researcher.

Appendix Three

Information Sheet

The purpose of this document is to provide information for participants already enrolled in the research study:

“An evaluation of the online training, Psyflex6”.

The above study has been running for six weeks and we would like to thank you for your participation thus far. We have now collected enough data to determine that the interim outcomes for the first group completing training have been positive. Therefore, we would like to offer you to opportunity to complete the same online training course – PsyFlex6. Participation in the training will require a time commitment as follows:

Training will consist of completing one, hour-long module each week, for a total of six weeks (six modules in total). Each module can be spread over the week and so a bit can be done each day. The modules are designed to teach participants strategies to improve their own psychological flexibility, and participants are expected to practice and use these strategies throughout the course of testing. At the end of each module, there will be a short online quiz to check understanding of the week’s content, and a brief follow up phone call with the experimenter.

Measures will be taken at several time points throughout the study, each of which is expected to take around 15-20 minutes to complete, and will be completed online. You will be familiar with these measures, as you have already completed several rounds of these. For the remainder of this study, you will be required to complete further measures, at Weeks 10, 13, 17 and 25 (currently, we are in Week 7).

Should you elect not to participate in training, we ask if you are willing to continue completing measures at Weeks 10 and 18.

Participants should be aware that they may decline to answer any questions during the course of the study and during data collection, and may ask any further questions about the research, before or after giving consent. In addition, participants may withdraw from the study, up until the time at which analysis will be performed on their data.

If you are willing to continue to participate then please e-mail Carly as soon as possible. It would be good if you could reply within 48 hours of you getting this message as the training will be available from XXXX (date to be added). If you wish not to participate in training, could you indicate if you are prepared to continue to provide measures or not through a reply to this e-mail as soon as possible

If there is no confirmation email received by the researcher by the training commencement date, we will assume that you no longer wish to continue with the study, and we thank you for your participation to date. We will contact you once the study is completed to give you an outline of the outcomes.

Appendix Four

Information Sheet

The purpose of this document is to provide the information necessary for potential participants to give informed consent for their participation in the following research study:

“An evaluation of the online training, Psylflex6”.

This research study is being run in order to fulfill the thesis component of a Masters in Applied Psychology (Behaviour Analysis), through the University of Waikato (New Zealand). This research project has been approved by the School of Psychology Research and Ethics Committee of the Faculty of Arts and Social Sciences, University of Waikato. Any questions about the ethical conduct of this research may be sent to the convener of the Research and Ethics Committee (currently Dr. Rebecca Sargisson, phone 07 557 8673, email: rebeccas@waikato.ac.nz).

Contact

The researcher for this study is Carly Walker (carlywalkermasters@gmail.com), while the supervisor is Professor Mary Foster (m.foster@waikato.ac.nz) of the University of Waikato. There will be no sponsorship associated with the funding of the project.

Participation Details and Time Commitment

Training will consist of completing one, hour-long module each week, for a total of six weeks (six modules in total). Each module can be spread over the week and so a bit can be done each day. The modules are designed to teach participants strategies to improve their own psychological flexibility, and participants are expected to practice and use these strategies throughout the course of testing. At the end of each module, there will be a short online quiz to check understanding of the week’s content.

Measures will be taken at several time points throughout the study, each of which is expected to take around 15-20 minutes to complete, and will be completed online. The first measure will be taken immediately, after which, training will begin.

You will be required to complete the measures in at baseline, during training after Weeks 3 and 6, at 1 month follow up, and 3 months follow up.

Participation in this study will require completion of some standardized measures that are routinely employed in such research. The scores will be used only to determine effectiveness of the programme. Participants will be able to access their own scores at the completion of the study, and will be invited to a debrief presentation of the study’s findings, which will also be made accessible by video, should this be requested by any participant.

Participants should be aware that they may decline to answer any questions during the course of the study and during data collection, and may ask any further questions about the research, before or after giving consent. In

addition, participants may withdraw from the study, up until the time at which analysis will be performed on their data.

Confidentiality/Anonymity and Data Collection/Storage

All participants will be given a participant code, which they will enter on all measures and quiz documents. Therefore, data collected will be de-identified, and names will never be associated with the material presented in drafts, or the final document, or in any presentation that may be made regarding the research study (e.g. debrief presentation, conferences etc.). Collected information will be stored digitally on an external hard drive for up to five years, and will be accessible only by the primary researcher.

Appendix Five

CONSENT FORM

A completed copy of this form should be retained by both the researcher and the participant.

Research Project: Testing the effectiveness of an online ACT based training in reducing stress and burnout in ABA Therapists

Please complete the following checklist. Tick (✓) the appropriate box for each point.	YES	NO
1. I have read the Participant Information Sheet (or it has been read to me) and I understand it.		
2. I have been given sufficient time to consider whether or not to participate in this study		
3. I am satisfied with the answers I have been given regarding the study and I have a copy of this consent form and information sheet		
4. I understand that taking part in this study is voluntary (my choice) and that I may withdraw from the study at any time without penalty		
5. I have the right to decline to participate in any part of the research activity		
6. I know who to contact if I have any questions about the study in general.		
7. I understand that my participation in this study is confidential and that no material, which could identify me personally, will be used in any reports on this study.		
8. I wish to receive a copy of the findings		
9. I wish to view the summary report of my interview		

Declaration by participant:

I agree to participate in this research project and I understand that I may withdraw at any time. If I have any concerns about this project, I may contact the convenor of the Psychology Research and Ethics Committee (Dr Rebecca Sargisson, phone 07 557 8673, email: rebeccas@waikato.ac.nz)

Participant's name (Please print):	
Signature:	Date:

Declaration by member of research team:

I have given a verbal explanation of the research project to the participant, and have answered the participant's questions about it. I believe that the participant understands the study and has given informed consent to participate.

Researcher's name (Please print):	
Signature:	Date:

Appendix Six

Module 1 Content Evaluation:

1. What did you gather is the aim of Acceptance and Commitment Therapy?
2. This module introduces the idea of resilience; having completed the module, what do you think it means to say one has 'resilience'?
3. This module introduces the idea of psychological flexibility. What do you now understand this to mean?
4. What do you understand the term 'compliance' to mean, based on the material presented?
5. What do you understand the term 'commitment' to mean, based on the material presented?
6. What do you now think it means to be mindful?

Module 2 Content Evaluation:

1. What do you now think it means to be 'psychologically flexible'?
2. How do you think mindfulness would be a useful skill to have at work?
3. This module introduces the idea of 'unhooking' from difficult thoughts and feelings by being able to slow down and take note of what is happening in the 'here and now.'
How do you think this would be useful at work?
4. Remember the unhooking exercise when you put your hands in front of your face? What do you think your hands were meant to signify?
5. What are some of the activities that you remember the module describing as times that you can practice being mindful everyday?

Module 3 Content Evaluation:

1. What can you remember about the ways that we have been practicing 'unhooking' from difficult thoughts and feelings?
2. What does the module list as some of the common ways that people try to 'get rid' of the "I'm not good enough story"?

3. What do the modules suggest might be a better alternative than struggling with those difficult thoughts and feelings?
4. From what you have learned in this module, what do you understand 'fusion' to mean?
5. What do you understand 'defusion' to mean?
6. What are some of the 'wacky, zany' defusion techniques that Russ describes?

Module 4 Content Evaluation:

1. After completing this module, what do you now understand 'values' to mean?
2. Remember back to the video about differences between goals and values. What do you understand the difference to be?
3. The module tells a story about two children going to Disneyland. In this example, one of the children becomes disappointed when the car breaks down and they can no longer go to Disneyland. What do you understand about how this relates to being 'goals focused' vs. 'values focused'?
4. The modules use an example of a donkey being 'motivated' to walk either by being hit by a stick, or by walking towards a carrot. What are the carrot and stick metaphors for in relation to ourselves?

Module 5 Content Evaluation:

1. What do you understand that the 'resilience formula' means, and what option does ACT say would be the best?
2. Look at Exercise 10 in your booklet, In the 'choice point' exercise, what are some examples of 'helpers,' and what do you understand that they will 'help' you with?
3. Why do you think that it is important that we align our goals with our values?
4. What do you understand S.T.O.P. is meant to be used for?

Module 6 Content Evaluation:

1. F.E.A.R. stands for Fusion, Excessive goals, avoidance of discomfort, remoteness from values. What do you think all of these things are?

2. D.A.R.E. stands for defusion strategies, acceptance of discomfort, realistic goals, embracing values. What do you think all of these things are?
3. What do you understand about 'experiential avoidance'?
4. What are some of the common ways that people avoid or try to get rid of painful thoughts and feelings?
5. This module talks about 'the choice point.' What do you understand this as being?

Appendix Seven

Demographic questionnaire

1. Participant Code
2. Age (Years): 18-21 22-25 25-28 29-31 31-34 35+
3. I identify my gender as:
4. Estimate the length of time you have been employed as an ABA therapist:
0-6months 7-12months 12-18months 19-24months
2years 3years 4years+
5. Estimate the number of hours per week you are currently employed in an ABA therapist position:
0-8hours 9-16hours 17-24hours 25-32hours 32-38hours
6. What is your highest qualification obtained? (State degree level)
7. Do you currently access, or have you previously accessed any mental health/wellbeing interventions/training (e.g. CBT, ACT, mindfulness)?
Yes No I'd prefer not to say