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A Pilot Study of the Effectiveness and Feasibility of a Brief, Online, and Self-Guided Acceptance and Commitment Therapy Intervention for Intellectual and Developmental Disability Support Staff

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A thesis submitted in partial fulfillment of the requirements for the Master of Arts degree in Education

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Abstract

The present research pilots a brief, online, and self-guided adaptation of an Acceptance and Commitment Therapy (ACT) intervention for intellectual and developmental disability (IDD) support staff to reduce burnout and psychological distress and increase psychological flexibility and work performance. A randomized waitlist control trial was implemented with an intervention group (*n*=5) and waitlist control group (*n*=11). Participants completed a demographic questionnaire, the Kessler Psychological Distress Scale (K10), the Acceptance and Action Questionnaire (AAQ-II), the Comprehensive Assessment of Acceptance and Commitment Therapy Processes (CompACT), the Maslach Burnout Inventory – Human Service Version (MBI-HS), the Individual Work Performance Questionnaire (IWPQ), and a follow-up feasibility questionnaire. Independent t-tests and Wilcoxon signed-rank tests indicated that the intervention significantly reduced burnout and increased psychological flexibility between-groups and within the waitlist group only. The findings demonstrate preliminary evidence for implementing self-guided and online-based interventions for IDD support staff; and present feasible future directions in enhancing workplace mental health and well-being.

Keywords

Acceptance and commitment therapy, Psychological flexibility, Burnout, Psychological distress, Work performance, Intellectual and developmental disability staff

Summary for Lay Audience

Acceptance and Commitment Therapy (ACT) is a psychological intervention that helps individuals build skills in mindfulness and acceptance of difficult internal experiences (thoughts, sensations, emotions), and move toward a rich and meaningful life by pursuing valued action. ACT has demonstrated effectiveness in supporting the mental health of a wide range of frontline worker populations across several work-related outcomes. Intellectual and developmental disability (IDD) support staff are frontline workers who experience high rates of burnout, especially during the COVID-19 pandemic, and have been observed to benefit from ACT interventions. While brief ACT for IDD support staff has been examined, research is limited in investigating online and self-guided delivery modes. The implementation of ACT can be costly and time-consuming, thus creating barriers to accessibility given IDD support staff's busy work schedules. Variations of brief, online, and self-guided ACT interventions have been supported in other populations for their cost-effective and flexible implementation. Thus, adapting ACT interventions to feature these aspects simultaneously may be a valuable next step in providing accessible care to IDD support staff. This pilot study examines the effectiveness and feasibility of a brief, online, and self-guided ACT intervention to support the well-being of IDD support staff. Specifically, we examined the intervention's impact on burnout, psychological distress, psychological flexibility, and work performance.

We adapted a 3-week modularized version of ACT that required approximately 6 hours of direct engagement with content. An intervention (n=5) and waitlist (n=11) group of IDD support staff completed outcome measures pre- and post-intervention, and were compared for treatment effects. Thematic analysis was used to identify key themes and patterns in the qualitative open-ended questions regarding the intervention's feasibility. The results provide preliminary support for a brief, online, and self-guided ACT to effectively reduce burnout and increase psychological flexibility in a small sample of IDD support staff. Participants held generally favorable attitudes toward ACT for their working role, shared an interest in learning more about ACT, and provided clear future directions for module improvement. These findings could contribute to the development of future online-based interventions for specialized working groups, and to better understand how such delivery modes can benefit IDD support staff.

Acknowledgments

I would like to thank my thesis supervisor, Dr. Albert Malkin, for inspiring me to step outside my comfort zone with this project, and for all the patience, motivation, and guidance he extended to me every step of the way.

I would also like to thank Dr. Colin King, for his enthusiastic feedback and direction in guiding the framework of this thesis.

A special thank you to the IDD support staff who dedicated their voluntary time and efforts in participating in this research. The work you do is tremendously valuable for instilling autonomy and hope in the disability community, and it does not go unnoticed.

I would like to thank my professors in the Master of Arts, Counselling Psychology program here at Western University for believing in this research, and in me, and for endlessly supporting my growth as both a researcher and a clinician.

Finally, I would like to extend my utmost gratitude to my parents and loved ones, for their undying support and encouragement. You instill in me the courage to be creative and think outside the box.

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Chapter 1

1 Introduction

Burnout is a prevalent issue that occurs in various individuals employed in “high risk” professions such as the human service sector (Lizano, 2015; Maslach & Jackson, 1986; Shaddock et al., 1998). Burnout is a syndrome that develops in response to chronic exposure to workplace stress (Lizano, 2015), and is characterized by three dimensions: emotional exhaustion, depersonalization, and a reduced sense of personal accomplishment (Maslach & Jackson, 1986). According to job burnout theory, emotional exhaustion is the central dimension of burnout, and is characterized by feelings of being emotionally overextended and depleted of emotional resources (Maslach & Jackson, 1981; Maslach et al., 2001). Emotional exhaustion precedes depersonalization, which is characterized by distancing oneself from others and developing cynical attitudes towards one’s clients (Maslach & Jackson, 1981; Shaddock et al., 1998). Thereafter, a reduced sense of personal accomplishment refers to feelings of ineffectiveness and reduced self-efficacy in the workplace (Lizano, 2015; Maslach et al., 2001). The effects of burnout are far-reaching and risk negative implications for employee mental health and work-related well-being.

Burnout is associated with mental health challenges such as depression, anxiety, psychological distress, and a stream of physical health risks (e.g., Emery & Vandenburg, 2010; Johnson et al., 2005; Leiter & Maslach, 2001; Lizano, 2015; Morse et al., 2012). Burnout effects workers' well-being by depleting them of their personal resources, thus leading to declines in affective, psychological, physical, and behavioral health (Lizano, 2015). This subsequent depletion of personal resources is linked to deleterious effects on the immune system (Leiter & Maslach, 2001). Other health complications linked to burnout include chronic fatigue, recurrent flu, infections, colds, and headaches (Cordes & Dougherty, 1993), issues with memory (Peterson et al., 2008), heart disease, and back pain (Johnson et al., 2005). Responses to burnout can also manifest in maladaptive behavior patterns, as some workers exhibit increased smoking (Maslach, 1978), caffeine consumption (Johnson et al., 2005), and alcohol use as coping mechanisms (Lizano,

2015; Peterson et al., 2008). Cross-sectional studies on burnout in human service workers found a significant positive relationship between depersonalization and the use of sleep and pain medications (Burke et al., 2010). Significant negative relationships between emotional exhaustion, nutrition, and exercise practices were also observed (Puig et al., 2012). In a cross-comparison of 26 occupations, social service work was found to be one of the six professions with the most negative experiences of physical health, psychological well-being, and job satisfaction (Johnson et al., 2005). Due to the deleterious impacts of burnout on the overall well-being of workers, authors have argued that organizational leaders have an ethical responsibility to safeguard the well-being of frontline workers against burnout (Burton, 2010; Skirrow & Hatton, 2007).

Burnout is also a significant contributor to industry-level stressors, and has been deemed an occupational hazard (Lizano, 2015; Lloyd, 2013; Maslach & Leiter, 2016). Highly burned-out workers tend to display compromised work performance (Hastings & Remington, 1994; Lizano, 2015; Taris, 2006), have fewer positive interactions with their clients (Rose et al., 1998), are more reluctant to work through/respond to challenging work scenarios (Emery & Vandenberg, 2010), and experience feelings of inefficacy and negative self-evaluation (Cordes & Dougherty, 1993). Burnout is also a social phenomenon influenced by relationships in the workplace environment (Maslach et al., 2001). Hence, burnout is further exacerbated by working with challenging clients (Dyer & Quine, 1998; Jenkins et al., 1997), navigating long hours and irregular shift patterns (White et al., 2006), and receiving limited on-the-job support from co-workers and superiors (Rose et al., 2010). The organizational costs of burnout include reduced job commitment (Billingsley & Cross, 1992), increased rates of staff turnover (Emery & Vandenberg, 2010), low staff morale (Shaddock et al., 1998), absenteeism (Hastings et al., 2004), and intent to quit (Maslach, 1996). Such industry-level costs pose severe risks to service provision and outcomes in client care (Burton, 2010), and call for a need to better understand the risk factors and correlates of burnout in specialized worker groups.

1.1 Burnout in IDD support staff

Burnout has been well-documented in human service professions like intellectual and developmental disability support staff (hereafter referred to as “IDD support staff”;

Bethay et al., 2012; Emery & Vandenberg, 2010; McConachie et al., 2014; Noone & Hastings, 2010; Noone & Hastings, 201; Pingo et al., 2020a; Reeve et al., 2018; Schwetschenau, 2008; Shaddock et al., 1998; Smith & Gore, 2012). IDD support staff are at an exceptionally high risk of burnout due to the emotional nature of their work (Guy et al., 2010; Johnson et al., 2005). Understandably, servicing clients in a state of vulnerability or crisis can often precede emotionally charged exchanges for workers (Hasenfeld, 2010). These exchanges make individuals more vulnerable to stress than those working in other occupations that do not require such emotional displays, further risking emotional exhaustion (Johnson et al., 2005). Emotional exhaustion is significantly related to psychological distress, negative affect, and job dissatisfaction, which lead to compromised client care (Sánchez-Moreno et al., 2014). Additionally, the ongoing threats of violence, exposure to aggression and challenging behavior, and work overload present more vulnerabilities for IDD support staff to experience high levels of stress (e.g., Hensel et al., 2014; Johnson et al., 2005, Leoni et al., 2016). Such violent incidents at work can be emotionally draining, and further lead to staff psychologically distancing themselves from their clients to safeguard their mental well-being (Maslach & Leiter, 2016). Unfortunately, IDD support staff often face challenging experiences where it may not be possible to change, challenge, or effectively solve their problems, which risks further psychological distress (McConachie et al., 2014). Evidence suggests that high levels of stress in IDD support staff increases the risk of counterproductive work behaviors that include poor quality service provision and even physical and mental abuse toward clients (Montaner et al., 2021; White et al., 2003). Overall, work-related stressors and burnout pose a severe threat to the welfare of both IDD support staff and their clients (Johnson et al, 2005; Reeve et al., 2018; Shaddock et al., 1998).

Since the COVID-19 pandemic was declared on March 11th 2020, rates of burnout increased across a wide range of frontline professionals – pooling at a prevalence of 52% among healthcare workers (Ghahramani et al., 2021; Morgantini et al., 2020; Talaee et al., 2020; World Health Organization, 2020). The pandemic led to increased risk factors for mental health issues, economic downturn, work stress, loss of income, and financial repercussions (Moreno et al., 2020). These factors were observed to hinder access to mental health services and exacerbate pre-existing mental health conditions (Moreno et

al., 2020). Individuals in long-term care homes, including those with an intellectual disability have been considered especially vulnerable to COVID-19 due to higher proportions of comorbidity with other underlying health conditions (Courtenay & Perera, 2020; WHO, 2020). The increased prevalence of such work-related stressors has placed essential frontline workers like IDD support staff at an even higher risk for mental health challenges, burnout, and compromised work performance (e.g., Embregts et al., 2020; Lunsky et al., 2021; Sokal et al., 2020; Talaee et al., 2020). For IDD support staff, burnout during the pandemic is associated with a series of unprecedented hardships, as enforced compliance with COVID-19 restrictions, understaffing, and increased agitation and distress among clients make job obligations increasingly more demanding (Embregts et al., 2020; Lunsky et al., 2021). Hence, it is critical to allocate appropriate interventions that can cater to the needs of IDD support staff, as well as support them in their working role to be effective with their clients.

1.2 Acceptance and Commitment Therapy

Acceptance and values-based methods like Acceptance and Commitment Therapy (ACT) fit well as an intervention for human service workers like IDD support staff (Bethay et al., 2012; Garcia et al., 2021; Noone & Hastings, 2010). Since human service work is defined by the value of helping others, ACT complements this by focusing on values identification, clarification, and action linked to meaningful activity (Emery & Vandenburg, 2010; Veage et al., 2014). ACT is a third-wave therapeutic intervention that derives from behavior analysis and is based on the philosophical roots of functional contextualism (Gifford & Hayes, 1999; Hayes, 2004). Functional contextualism aims to develop “an organized system of empirically-based concepts and rules that allow behavioral phenomena to be predicted and influenced with precision, depth, and scope” (Biglan & Hayes, 1996, p. 50-51). The basic conceptual theory underlying ACT is Relational Frame Theory (RFT), which is a more cohesive and progressive account of human language and cognition (e.g., Hayes, 2004; 2006; Vilardaga et al., 2007). Functional contextualism and RFT inform the understanding of ACT as a process-based therapy (PBT), which emphasizes the importance of relevant therapeutic processes (i.e., psychological flexibility) as change mechanisms, as well as the interaction between

language and cognition to understand how desirable treatment goals are attained (Hayes et al., 2006; Hofmann & Hayes, 2019). ACT aims to change how people interact with and handle their distressing thoughts; which is in contrast to more traditional methods like Cognitive-Behavioral Therapy (CBT), which aim to change/reframe the content of distressing thoughts (Hofmann & Hayes, 2019; Reeve et al., 2018). Individuals may often experience internal events (thoughts, emotions, somatic experiences, etc.) that could create challenges in pursuing values-based actions. ACT focuses on altering the behavioral influence of psychological events through combinations of mindfulness and values-based behavioral activation strategies (Hayes et al., 2011b; Hayes et al., 2006). Therefore, psychologically flexible individuals can approach these problematic events with mindfulness on a moment-to-moment basis, and engage in value-driven action (Bond et al., 2013). Overall, ACT underscores how individuals are more psychologically healthy and perform more effectively when their action-oriented decisions are based on their values and goals (Bond et al., 2011).

ACT has been described differently based on the population and context it is applied to. Although the acronym "ACT" traditionally stands for "acceptance and commitment t*herapy*", over the last 15 years, the term "acceptance and commitment *training*" has been used to describe applications of ACT in non-psychotherapeutic settings (Tarbox et al., 2022; Hayes et al., 2011; Hayes et al., 2004). In fact, Tarbox et al. (2022) used the acronym "ACTraining" (pg. 13) to emphasize the difference between ACT as applied in psychotherapeutic/counselling settings and the scope of practice for their intervention; which focused on Board Certified Behavior Analysts (BCBAs). Similarly, Kelly and Kelly (2022) use the term "ACTr" in their discussion of employing ACT in the scope of applied behavior analysis. Other authors note that ACT as "training" has garnered an empirical basis within workplace intervention research (Pingo et al., 2020a), which suggests that workplace contexts constitute settings that are considered non-psychotherapeutic. Hence, in the current research, the term "ACT training" will be used to describe the psychoeducation and skills-based nature of applying a brief, online, and self-guided delivery mode of ACT for IDD support staff.

1.2.1 Acceptance and Commitment Therapy Model

The ACT model contains six core interrelated processes: acceptance, defusion, self as context, present moment, values, and committed action, and are often referred to as the main components of the ACT "hexaflex" (Hayes et al., 1999; Hayes et al., 2006) (see Appendix A). Together, these six processes aim to transform the relationship between complex thoughts and internal experiences by targeting and increasing the core ACT construct known as *psychological flexibility*, which is defined as "the ability to contact the present moment more fully as a conscious human being, and to change or persist in behavior when doing so serves valued ends" (Hayes et al., 2006, pg. 7). Psychological flexibility has also been pragmatically defined in terms of three "dyadic processes": 1) openness to experience and detachment from literality (acceptance and defusion), 2) self-awareness and perspective-taking (present moment and self as context), and 3) motivation and activation (values and committed action; Hayes et al., 2011b). Psychological flexibility is considered a transdiagnostic construct predicting a wide range of mental health, well-being, and behavioral outcomes such as, but not limited to, anxiety, depression, smoking, diabetes management, borderline personality disorder, post-traumatic stress disorder, psychosis, stress, pain, addiction, and work performance (e.g., Bond et al., 2013; Dindo et al., 2017; Hayes, 2004; Hayes et al., 2006; 2013).

1.2.2 Acceptance and Commitment Therapy for Burnout

Research supports ACT as an effective intervention for workplace settings, as job-related stressors are seemingly unavoidable for high-risk professionals like IDD support staff (e.g., Bond & Bunce, 2000; Flaxman & Bond, 2006; Flaxman et al., 2013; McConachie et al., 2014). In research on burnout, psychological flexibility is positively associated with decreased psychological distress, and increased work performance and job satisfaction (e.g., Bond & Bunce, 2003; Dindo et al., 2017; Emery & Vandenberg, 2010; Lloyd et al., 2013). Psychological flexibility is also associated with improvements in employee's general mental health, well-being, and behavioral effectiveness (e.g., Bond & Bunce, 2000; Bond & Bunce, 2003; Bond et al., 2013; Hayes et al., 2011a). Specifically, ACT interventions demonstrated effectiveness in various working populations like addiction counsellors (Hayes et al., 2004; Vilardaga et al., 2011), special education

teachers (Biglan et al., 2013; Emery & Vandenberg, 2010; Jeffcoat & Hayes, 2012), health insurance workers (Hofer et al., 2018), government workers (Lloyd et al., 2013), and social and health care professionals (Barrett & Stewart, 2020; Smith & Gore, 2012). ACT has also been effective for other population groups that experience high stress like university students (Lappaleinen et al., 2014; Räsänen et al., 2016) and veterans diagnosed with PTSD (Wharton et al., 2019). Given that individuals experiencing burnout are more likely to be less productive at work, it is valuable to investigate the implications of ACT interventions for burnout and behavioral outcomes such as work performance.

1.2.3 Acceptance and Commitment Therapy for Work Performance

ACT is theorized to increase employees' sensitivity to work performance and skill-related contingencies of reinforcement (Bond & Bunce, 2003). Specifically, engaging in ACT skills helps workers decrease responses to verbal events and increase responses to current circumstances using acceptance and mindfulness strategies (Pingo et al., 2020a; Leoni et al., 2016). Research by Singh et al. (2009; 2015) investigated the effectiveness of two mindfulness-based trainings with IDD support staff to reduce the occurrence of undesirable and unsafe work behaviors. Their results found significant reductions in various outcomes such as the use of physical restraints, injuries, and work-related stress (Singh et al., 2009; 2015). Additionally, research by Brooker et al. (2013) found that IDD support staff who completed an "Occupational Mindfulness" training program had engaged in lower frequencies of medication delivery and emergency seclusions. Since ACT incorporates mindfulness as a significant therapeutic component, it has been deemed a fruitful direction of research in organizational behavior management (OBM) for IDD support staff (Noone & Hastings, 2010; Pingo et al., 2020a).

1.2.4 Delivery Modes for Acceptance and Commitment Therapy

ACT is a malleable intervention that can cater to a wide range of populations and address a variety of different issues through flexible delivery modes (Dindo et al., 2017; Ruiz, 2010). In workplace settings, ACT has often been translated and adapted into brief skills-

based training programs that could be tailored to general working populations (Waters, 2017). In delivering brief ACT, the "2 + 1" format has received considerable research support; which typically incorporates a total of three sessions (2 sessions in consecutive weeks and a "reminder/booster" session between a one and three-month follow-up) (Bond & Bunce, 2000; Hayes et al., 2012a). ACT programming has also been adapted to encompass elements of self-guided (e.g., Jeffcoat & Hayes, 2012) and online delivery modes (Brown et al., 2020) with demonstrable effectiveness for stress and well-being outcomes.

Research also supports combinations of brief, self-guided, and online aspects for delivering ACT. For instance, Hofer et al. (2018) assessed the effectiveness of an online self-help version of ACT (that did not consist of any therapist contact) for reducing stress and burnout in health insurance workers. Similarly, Barrett and Stewart (2020) investigated an ACT and CBT combined intervention that was brief and online to reduce stress and burnout in social and healthcare workers. Other populations outside of frontline workers have also been studied with varying delivery modes for ACT, such as online coach-guided versions for distressed university students (Levin et al., 2020; Räsänen et al., 2016), a self-help mobile app version for help-seeking adults (Krafft et al., 2019), and a brief online guided intervention for outpatients experiencing mild depressive symptoms (Lappalainen et al., 2014). In sum, the flexibility that ACT offers within several delivery formats has made this modality exceptionally versatile for meeting the needs of various populations, ensuring adherence to treatment, and increasing successful distribution into a variety of everyday and clinical settings (Dindo et al., 2017).

1.2.5 Acceptance and Commitment Therapy During COVID-19

During the COVID-19 pandemic, mental health service providers have rapidly adopted online platforms consisting of video, teleconferencing, self-help apps, and blended formats to continue delivering individual and group-based therapy (Moreno et al., 2020). Such virtual formats have been appraised as convenient and low-cost alternatives to traditional in-person interventions (Brown et al., 2020; Hedman et al., 2011; Stoll et al., 2020). As online-based interventions are continuing to accumulate in use (Trindade et al., 2021), research support is growing for their effectiveness and feasibility as pandemic-

appropriate means to mental health services (Johnson et al., 2020; Kirk et al., 2022; Liu et al., 2020).

Researchers contend that the onset of the challenges from the pandemic could provide much-needed opportunities to scale and improve mental health interventions to be more accessible, user-friendly, and cost-effective for those that may need them the most (Moreno et al., 2020). IDD support staff are a population group that demonstrates an increased need for such mental health interventions (e.g., Embregts et al., 2020; Lunsky et al., 2021; Moreno et al., 2020; Morgantini et al., 2020). ACT meets pandemic-specific requirements by offering flexibility in intervention structure and delivery options, while also complying with public health mandates and social-distancing restrictions (Dindo et al., 2017). Additionally, the growing evidence-base for variations of brief, self-guided, and online ACT has demonstrated promising preliminary outcomes in supporting frontline worker mental health (e.g., Bethay et al., 2012; Jeffcoat & Hayes, 2012; Brown et al., 2020; Barrett & Stewart, 2020). Here, it can be anticipated that a brief, online, and self-guided ACT intervention may offer a novel and much-needed avenue of support to IDD support staff by enhancing the cost-effectiveness of therapy, and permitting greater accessibility and scalability for a larger number of workers at a given time (Kirk et al., 2022).

Chapter 2

2 Literature Review

In the current literature review, we evaluated peer-reviewed empirical studies on the application of ACT for IDD support staff that met at least two of the following four criteria: 1) utilized a measure of psychological flexibility or at least one core ACT process (acceptance, diffusion, self-as-context, present moment, values, committed action), 2) utilized a measure of burnout or work-related stress 3) utilized a measure of psychological distress, 4) utilized a measure of objective or self-reported work performance. A summary of the measurement tools used to assess these constructs will also be provided.

A review of the research employing brief ACT for IDD support staff yielded a total of 12 articles (Bethay et al., 2012; McConachie et al., 2014; Montaner et al., 2021; Noone & Hastings, 2009; Noone & Hastings, 2010; Noone & Hastings, 2011; Pingo et al., 2020a; Pingo et al., 2020b; Schwetschenau, 2008; Smith & Gore, 2012; Waters, 2017). Out of the 12 studies mentioned, the shortest length of time spent directly engaged in ACT material was a total of 6 hours (Bethay et al., 2012; Schwetschenau, 2008), and the longest was a total of 9 hours (Noone & Hastings, 2010; Montaner et al., 2021). Definitions appear unclear over what could be considered a standard length of time for a "brief" ACT intervention. Inclusion criteria for characterizing brief ACT interventions consisted of studies that either: a) explicitly described their ACT intervention as "brief", or b) did not exceed administering 9 hours of ACT material. ACT interventions were delivered through one-day or half-day workshops, or weekly consecutive "sessions" with follow-up periods occurring between 6 weeks (McConachie et al., 2014) to 12 months (Montaner et al., 2021) later. Further, the methodology of each study was carefully reviewed to note the number of hours a "one-day" or "half-day" intervention entailed. Studies that exceeded 9 hours of ACT were excluded from the current literature review, as the consensus across studies revealed how studied applying less than 9 hours of ACT material were described as "brief". To our knowledge, no research has implemented online or self-guided methods of ACT for burnout in IDD support staff. Hence, the

current review was limited to examining the effectiveness of ACT in brief, in-person, and group-based contexts.

2.1 Effectiveness of Brief ACT for IDD support staff

2.1.1 Psychological flexibility

One research study implemented a 1-day ACT workshop as part of a routine staff support service and reported significant improvements in psychological flexibility and mindfulness post-intervention (Waters, 2017). Other research studies in the current review did not find significant changes in psychological flexibility or other ACT-related processes from pre-test to post-test (Montaner et al., 2021; McConachie et al., 2014; Smith & Gore, 2012). However, while significant changes were not found immediately post-intervention, Montaner et al. (2021) found a progressive increase in psychological flexibility scores from 3-month to 12-month follow-up that was nearly statistically significant. These findings support the effectiveness of a brief ACT intervention in improving psychological flexibility in IDD support staff.

Research has exhibited considerable variance in assessment tools for capturing psychological flexibility/inflexibility in workplace contexts with IDD support staff. A common measure of psychological inflexibility in the current review is the Acceptance and Action Questionnaire (AAQ-II; Bond et al., 2011). Other ACT-related constructs such as values, mindfulness, and cognitive fusion/believability were assessed using the Support Staff Values Questionnaire (SSVQ-ID; Noone & Hastings, 2011), the Valued Living Questionnaire (Wilson et al., 2010), the Five-Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006), and the Automatic Thoughts Questionnaire (ATQ; Hollon & Kendall, 1980), respectively. Some authors have criticized the widespread AAQ-II for being conflated with other less relevant distress outcomes and its lack of clarity in capturing the six core ACT processes with uniformity (e.g., Wolgast, 2014; Gámez et al., 2011). This led researchers like Francis et al. (2016) to address the validity concerns of the AAQ-II by spearheading a new and improved measure of psychological flexibility that they called the Comprehensive Assessment of Acceptance and Commitment Therapy Processes (CompACT). The CompACT was developed by 1) utilizing a Delhi-congruent

(also see Hsu & Sanford, 2007) psychometric review of the existing ACT process measures along with other theoretically-related constructs, and 2) testing the psychometric properties of these measures in a non-clinical sample. The authors contend that the CompACT is a promising comprehensive measure of psychological flexibility (Francis et al., 2015). For statistical and conceptual comparison, the current research will evaluate the utility of the CompACT by using it alongside the AAQ-II to measure psychological flexibility and psychological inflexibility.

2.1.2 Psychological distress

Seven studies in the current literature review evaluated the impact of brief ACT interventions on psychological distress in IDD support staff (Bethay et al., 2012; McConachie et al., 2014; Noone & Hastings, 2009; Noone & Hastings, 2010; Schewtschenau, 2008; Smith & Gore, 2012; Waters, 2017). Three months after a 1-day ACT workshop, one study reported that 50% of their intervention participants and 69% of their waitlist control participants met the criteria for clinically meaningful improvement in psychological distress (Waters, 2017). Statistically significant decreases in psychological distress were also found in IDD support staff who participated in a brief single-day in-person ACT workshop followed by a half-day booster (Noone & Hastings, 2009). Such decreases were noted to be observed especially in participants who demonstrated higher baseline levels of psychological distress (McConachie et al., 2014; Noone and Hastings, 2010). Another similar study reported significant improvement in psychological distress following a one-and-a-half-day in-person ACT intervention (Smith and Gore, 2012). Another study combined brief ACT with training in applied behavior analysis, and found significant reductions in psychological distress after a 3-month follow-up (Bethay et al., 2012). However, these results were only significant for IDD support staff who reported actively practicing the ACT techniques they learned (Bethay et al., 2012). In another study investigating the causal relationships between psychological flexibility and psychological distress following a brief ACT intervention, results found that changes in psychological flexibility were marginally predictive of reduced psychological distress (Schwetschenau, 2008).

Across all the research mentioned above, the popular General Health Questionnaire (GHQ; Goldberg & Williams, 1988) was used to measure psychological distress. The Kessler Psychological Distress (K10; Kessler, 1996) is another global measure of psychological distress based on depression and anxiety symptoms. Validation research supports the K10 as a comparable measure of psychological distress that is significantly associated with the GHQ (Andrews & Slade, 2001). The K10 has been noted as a preferable measure over the GHQ due to its ability to elicit a more extensive range of scores and being openly accessible through the public domain (Andrews & Slade, 2001). However, to our knowledge, the K10 has not been previously used in research implementing ACT for IDD support staff. Hence, the current research will utilize the K10, and further contribute to the growing evidence base of the measurement tools used to capture relevant outcomes for ACT research in the workplace.

2.1.3 Burnout

In the current review, only two studies found treatment outcomes for burnout when implementing an ACT intervention for IDD support staff. In examining the three burnout dimensions: emotional exhaustion, depersonalization, and personal accomplishment, one study found that a 6-week session-based ACT intervention significantly decreased emotional exhaustion and increased personal accomplishment (Montaner et al., 2021). These results were also maintained at three and 12-month follow-up periods (Montaner et al. (2021). Other studies similarly reported marginally significant reductions in emotional exhaustion from pre- to post-intervention (Schwetschenau, 2008), and significant improvements in depersonalization for a selection of participant groups (Smith & Gore, 2012). Evidence for the effectiveness of ACT in reducing burnout in IDD support staff is mixed, with future directions suggesting a need for more robust conceptual and methodological research approaches on measuring burnout (see Reeve et al., 2018; Lizano, 2015 for systematic reviews).

Burnout in IDD support staff is often measured by the widespread Maslach Burnout Inventory – Human Service Version (MBI-HS; Maslach & Jackson, 1996; Skirrow & Hatton, 2007). Burnout-related constructs like work stress were measured by the Staff Stressor Questionnaire (SSQ; Hatton et al., 1999) and the Job-Related Tension Index

(JRTI; Kahn et al., 1964). A systematic review noted that the MBI has been applied inconsistently to study burnout, where some studies evaluated a composite measure of burnout by collapsing the three subscales together, while others assessed the three MBI subscales separately (Lizano, 2015). Authors have contended that this inconsistent use of the MBI has resulted in lost opportunities for systematic examination of the dynamic relationship between the burnout dimensions and various outcomes in worker well-being (Lizano, 2015; Lloyd et al., 2013). Thus, the three MBI subscales will be evaluated independently in the current research.

2.1.4 Work performance

As far as we know, only two published studies to date investigated work performance in ACT interventions for IDD support staff. Pingo et al. (2020a) implemented a work performance enhancement intervention (PEI) combined with ACT training to evaluate the frequency and technical competence of active treatment provided to clients. Results found significant increases in the frequency of active treatment within the PEI+ACT group when compared with a control group (no PEI or ACT) (Pingo et al., 2020a). Results also found that psychological flexibility, workplace stress, and job satisfaction remained stable for all participant groups. The authors noted that participants initially scored high in psychological flexibility and were not experiencing high levels of job stress or low job satisfaction; hence, non-significant treatment effects were anticipated (Pingo et al., 2020a). In a different study, the same group of researchers investigated the effect of verbal and written work performance feedback with an ACT-based training program on IDD support staff's frequency of engagement in active treatment and technical skills (Pingo et al., 2020b). Results indicated improvement across all work performance measures, with considerably greater improvement when combined with ACT training.

Within the scope of the current review, validated measurement tools for work performance in IDD support staff appear limited. The two studies mentioned above employed observational (i.e., peer or observer-evaluated) measures of work performance (Pingo et al., 2020a; Pingo et al., 2020b). These observational measures consisted of a selection of non-standardized approaches to measuring active treatment, operant teaching

skills, the percentage of observations of active treatment, the percentage of clients engaged in purposeful activity, and the percentage of clients who had learning/leisure materials within arm's reach. Given that ACT is a behavioral therapy (Hayes et al., 2006), improving IDD support staff's work performance is consistent with ACT's goal of influencing behavioral change. Research evaluating ACT in workplace contexts with IDD support staff has slowly increased in empirical attention in recent years (Pingo et al., 2020a). Overall, the use of work performance measures in research to understand constructs like burnout are lacking (Taris, 2006). Unfortunately, administering objective work performance measures may not always be feasible, as results risk conflation with team-level outcomes and rater bias (Taris, 2006). Therefore, validated measures of self-report behavior change may be used, although must be interpreted with caution. The current research will contribute to widening the evidence base on work performance measures by using the validated Individual Work Performance Questionnaire (IWPQ; Koopmans et al., 2013). The IWPQ was conceptually developed to focus on work performance as a set of behaviors or actions of the worker rather than on the results of the behaviors themselves (Koopmans, 2015). Based on our review, the extant ACT literature appears to be limited in exploring the relationship between work performance and other more commonly evaluated variables in the field like psychological flexibility, burnout, and psychological distress. Hence, one of the aims of the current research is to develop a better understanding of the relationship between these variables utilizing standardized and validated measures (see Hypothesis 1).

2.2 Present Study

The aim of the current research is twofold: 1) to design and implement a brief, online, and self-guided modularized version of ACT specifically for IDD support staff; and 2) to evaluate the effectiveness of the intervention for reducing burnout and psychological distress, and increasing psychological flexibility and work performance. These aims expand on the recommendation of Smith and Gore (2012): to evaluate the effectiveness of alternative delivery methods of ACT, such as "e-learning" (pg. 46), for IDD support staff. The current research will also contribute to the breadth of literature that evaluates individual classifications of brief, online, and self-guided methods of ACT interventions,

and the combination of all three of these aspects for the specialized population of IDD support staff. The research questions explored were the following: 1) What are the associations between psychological distress, psychological flexibility, burnout, and work performance? 2) How does the intervention influence psychological flexibility, burnout, psychological distress, and work performance in IDD support staff? and 3) How do IDD support staff rate the feasibility of the intervention? In accordance with our second research question, our hypotheses are as follows:

Null Hypothesis 1: The intervention will not have an effect on burnout.

Alternative Hypothesis 1: The intervention will reduce burnout.

Null Hypothesis 2: The intervention will not have an effect on psychological flexibility and psychological inflexibility.

Alternative Hypothesis 2: The intervention will increase psychological flexibility and decrease psychological inflexibility.

Null Hypothesis 3: The intervention will not have an effect on psychological distress.

Alternative Hypothesis 3: The intervention will reduce psychological distress.

Null Hypothesis 4: The intervention will not have an effect on work performance.

Alternative Hypothesis 4: The intervention will improve work performance.

With greater understanding of the relationship between psychological flexibility, burnout, psychological distress, work performance, and the feasibility of a brief, online, and self-guided ACT intervention, we will be able to develop a better understanding of the appropriate methods to enhance IDD support staff's wellbeing.

Chapter 3

3 Methodology

3.1 Participants

A total of 35 IDD support staff registered for the study and completed the demographics questionnaire and consent form. Simple randomization was conducted on this initial sample using a Microsoft Excel random function, resulting in participants being randomly sorted into either the intervention group (n=18) or the waitlist group (n=17). A total of nine participants from the intervention group and three participants from the waitlist group were excluded because they did not complete baseline (Time 1) measures. Four participants in the intervention group did not complete Time 2 measures (see "Module Design" section for details), and hence were excluded from subsequent analysis. Two participants in the waitlist group did not return to complete Time 2 measures, and one participant returned to complete Time 2 measures without having completed Time 1 measures; hence a total of three participants were dropped from the waitlist group. Data from 16 respondents (5 from the intervention group, 11 from the waitlist group) were retained for the main analyses (see Figure 1 for information on participant inclusion and attrition). Specific reasons for participant attrition were not recorded.

The initial aim of the current study was to recruit a sample of approximately 52 IDD support staff. This would have met the appropriate study parameters to reflect an alpha coefficient of 0.5, a beta coefficient of 0.1, and a power statistic of 0.9 (Cohen, 1988). Statistical power is limited due to a small sample size. The final sample consisted of 12 (75%) female-identifying participants, and 4 (25%) male-identifying participants. The age of participants ranged from 24-68 years old, with the most common age group being 25-35 years old (43.8%). We had representation across multiple client populations worked with, with the most common client diagnoses being autism spectrum disorder (28.9%) and intellectual disability (26.7%). Frequencies for additional demographic variables can be seen in Table 1.

Table 1.

Demographic characteristics of the sample (n=16)

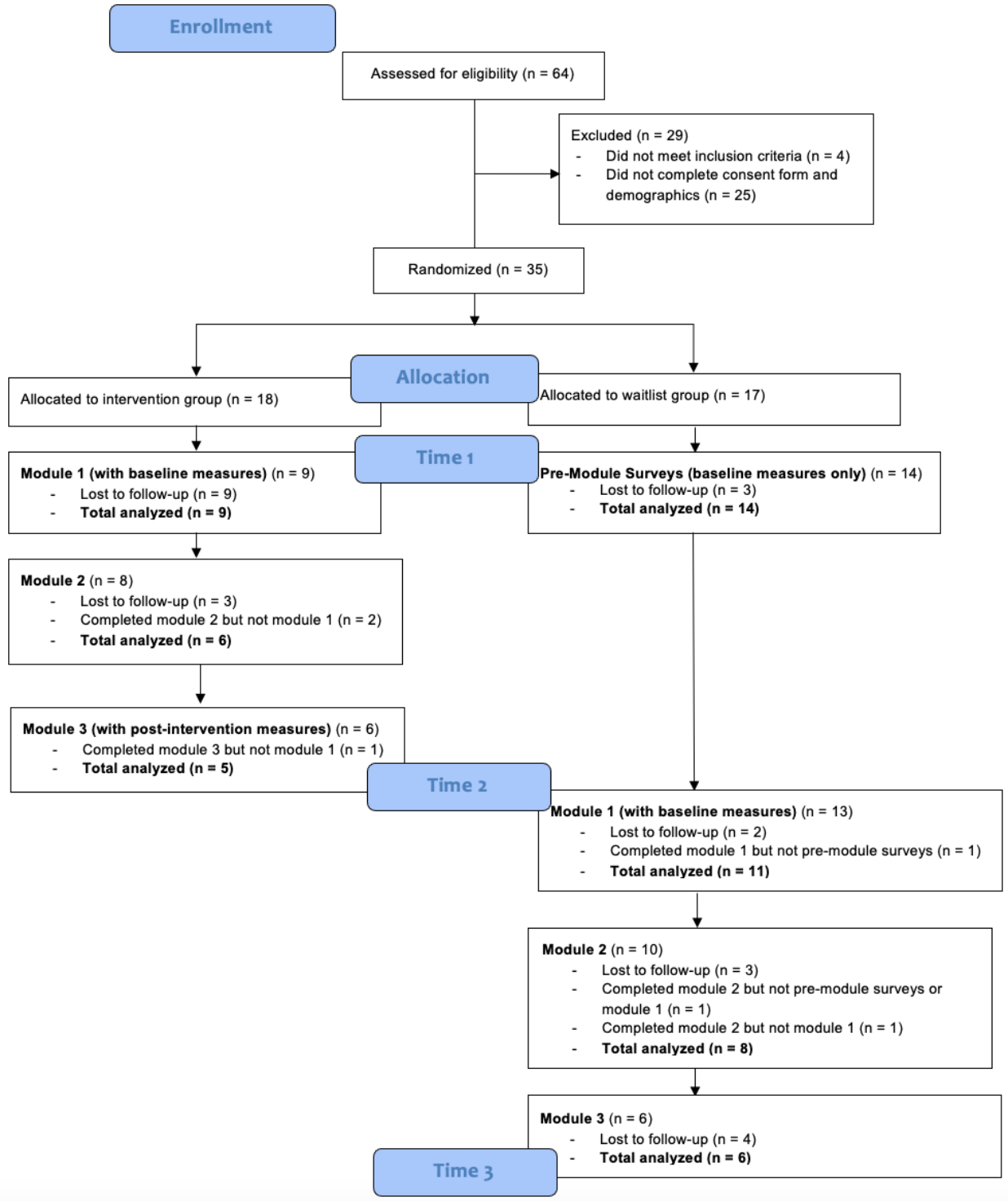
Baseline characteristics	Intervention group		Waitlist group		Full sample	
	n	%	*n*	%	*n*	%
Gender						
Female	4	80	8	72.7	12	75
Male	1	20	3	27.3	4	25
Age						
< 24	—	—	1	9.1	1	6.3
25-35	3	60	4	36.4	7	43.8
36-45	—	—	2	18.2	2	12.5
46-55	—	—	1	9.1	1	6.3
56-65	2	40	2	18.2	4	25.0
66+	—	—	1	9.1	1	6.3
Ethnicity						
Black	1	20	2	18.2	3	18.8
East Asian	1	20	—	—	1	6.3
South Asian	2	40	1	9.1	3	18.8
Southeast Asian	—	—	1	9.1	1	6.3
White/European	1	20	5	45.5	6	37.5
Ethnic group not listed	—	—	2	18.2	2	12.5
Education						
College Diploma	—	—	4	36.4	4	25
Bachelor's Degree	4	80	7	63.6	11	68.8
Master's Degree	1	20	—	—	1	6.3
Total Household Income						
$20,000-$34,999	2	40	1	9.1	3	18.8
$35,000-$49,999	—	—	1	9.1	1	6.3
$50,000-$74,999	1	20	3	27.3	4	25
$75,000-$99,999	2	40	5	45.5	7	43.8
> $100,000	—	—	1	9.1	1	6.3
Religious Affiliation						
Christian/Catholic	—	0	3	27.3	3	18.8
Christian/Non-Catholic	2	40	2	18.2	4	25
Jewish	—	—	1	9.1	1	6.3
Muslim	1	20	1	9.1	2	12.5
Agnostic	—	—	2	18.2	2	12.5
Atheist	1	20	—	—	1	6.3
Hindu	—	—	1	9.1	1	6.3
Religion not listed	1	20	1	9.1	2	12.5
Health and Work Characteristics						
Physical Health						
Good	3	60	6	54.5	9	56.3

Mild impairment	2	40	3	27.3	5	31.3
Severe impairment	—	—	1	9.1	1	6.3
Prefer not to say	—	—	1	9.1	1	6.3
Mental Health						
Anxiety	2	40	3	27.3	5	26.3
Depression	1	20	1	9.1	2	10.5
Alcohol Use Disorder	—	—	1	9.1	1	5.3
ADHD	—	—	1	9.1	1	5.3
No Diagnosis	3	60	7	63.6	10	52.6
Years worked in role						
1-2	1	20	—	—	1	6.3
3-5	3	60	4	45.5	8	50
10-19	—	—	4	36.4	4	25
20+	1	20	2	18.2	3	18.8
Hours worked per week						
Part-time (less than 34 hours)	2	40	4	36.4	6	37.5
Full-time (over 35 hours)	3	60	7	63.6	10	62.5
Types of clients						
ASD	5	100	8	72.7	13	28.9
Cerebral Palsy	—	—	3	27.3	3	6.7
Down Syndrome	—	—	3	27.3	3	6.7
FASD	1	20	3	27.3	4	8.9
Dementia/Brain Injury	—	—	3	27.3	3	6.7
Physical Disability	1	20	2	18.2	3	6.7
Fragile X Syndrome	—	—	2	18.2	2	4.4
Intellectual Disability	3	60	9	81.8	12	26.7
ADHD	—	—	1	9.1	1	2.2
OCD	—	—	1	9.1	1	2.2
Client symptom severity						
Aggression						
Low	1	20	2	18.2	3	18.8
Medium	4	80	7	63.6	11	68.8
High	—	—	1	9.1	1	6.3
Not applicable/prefer not to say	—	—	1	9.1	1	6.3
Life Skills						
Low	2	40	5	45.5	7	43.8
Medium	2	40	5	45.5	7	43.8
High	1	20	1	9.1	2	12.5
Need						
Low	1	20	—	—	1	6.3
Medium	2	40	5	45.5	7	43.8
High	2	40	6	54.5	8	50
Verbal Comprehension						
Low	1	20	3	27.3	4	25
Medium	2	40	6	54.5	8	50
High	2	40	2	18.2	4	25

Memory						
Low	2	40	2	18.2	4	25
Medium	3	60	6	54.5	9	56.3
High	—	—	2	18.2	2	12.5
Not applicable/prefer not to say	—	—	1	9.1	1	6.3
Level of Independence						
Low	2	40	4	36.4	6	37.5
Medium	2	40	7	63.6	9	56.3
High	1	20	—	—	1	6.3
Previous Experience in Mindfulness/Acceptance-based program or practice						
Yes	—	—	4	36.4	4	25
No	5	100	7	63.6	12	75

Figure 1.

CONSORT diagram of participant flow and module participation through the study.



3.2 Measures

We collected information on participants' demographic characteristics, and measured psychological distress, burnout (emotional exhaustion, depersonalization, and personal accomplishment subscales), and self-reported work performance (task performance, contextual performance, and counterproductive work behavior subscales), psychological inflexibility, and psychological flexibility (see specific scales below).

3.2.1 Demographics

Participants completed a 20-item demographic questionnaire that assessed information about their baseline characteristics (age, sex, gender, ethnicity, education, estimated combined annual household income, religious affiliation), health outcomes (general physical health, mental health), and work/client characteristics (length of employment, hours worked per week, types of client issues, self-reported levels of severity of client issues), and previous experience engaging in mindfulness/acceptance-based activities or practices (see Appendix B).

3.2.2 Kessler Psychological Distress Scale

The Kessler Psychological Distress Scale (K10; Kessler, 1996) is a widely used, simple self-report measure assessing psychological distress. The K10 consists of 10 questions scored on a 5-point Likert scale ranging from 1 (none of the time) to 5 (all of the time). The recall period for the K10 is one month. Cut-off scores indicate 1-15 as low psychological distress, 16-21 as moderate psychological distress, 22-29 as high psychological distress, and 30-50 as very high psychological distress (Andrews & Slade, 2001). Sample items include: "About how often did you feel hopeless?" and "About how often did you feel so sad that nothing could cheer you up?" (see Appendix C). Validation research amongst the general population reported a Cronbach's α of .89 (Kessler et al., 2002; 2003). The K10 also demonstrated good internal consistency in the current study, with a Cronbach's α of .88.

3.2.3 Maslach Burnout Inventory – Human Service Survey

The Maslach Burnout Inventory (MBI; Maslach et al., 1996) is a widely used measure of burnout in relevant psychological literature. Its reliability, validity, and factor structure have received support across many occupational settings, including direct care staff working in intellectual disabilities services (Hastings et al., 2004). In the Human Service version of the MBI, each of the 22 items is rated on a 7-point Likert-type scale, ranging from 0 (never) to 6 (every day), to indicate how often participants experience feelings related to their work. The inventory yields scores across three subscales: emotional exhaustion (feelings of being emotionally drained and overwhelmed by one's work), depersonalization (impersonal attitudes toward clients), and personal accomplishment (feelings of achievement and competence). Sample items include “I feel emotionally drained from my work” and “I worry that is job is hardening me emotionally” (see Appendix D). The MBI has been implemented within several work-related well-being studies in IDD support staff (Skirrow & Hatton, 2007) and demonstrates strong psychometric properties and factor structure (Hastings et al., 2004). Previous research reported a Cronbach’s α of .86 for the composite MBI measure, indicating good reliability (Coker & Omoluabi, 2009). Cronbach’s α for the collapsed total scale in the current study is .80. In terms of the MBI subscales, previous applications in IDD support staff found Cronbach α scores of .87 for emotional exhaustion, .68 for depersonalization, and .76 for personal accomplishment (Hastings et al., 2004). Cronbach’s α is .91 for emotional exhaustion, .80 for depersonalization, and .66 for personal accomplishment in the current study. It is important to note that for subscales consisting of 7-11 items with less than 100 respondents, a Cronbach’s α of .91 and .80 are considered “Excellent”, and .66 is considered “Fair” (Ponterotto & Charter, 2009, pg. 879)

3.2.4 Individual Work Performance Questionnaire – Short Form

The Individual Work Performance Questionnaire – Short Form (IWPQ; Koopmans, 2013) is an 18-item scale developed in the Netherlands to measure work performance along the following three dimensions: task performance, contextual performance, and counterproductive work behavior. Task performance is defined as “the proficiency with which individuals perform the core substantive or technical tasks central to their job”

(Campbell, 1990). Contextual performance is considered “behaviors that support the organization, social, and psychological environment in which the technical core must function” (Borman & Motowidlo, 1993). Counterproductive work behavior is considered “behavior that harms the well-being of the organization” (Rotundo & Sackett, 2002). The current research aims to offer a preliminary application of the IWPQ in an ACT intervention context for IDD support staff. All items in the IWPQ have a recall period of three months along a 5-point Likert scale (0 = seldom to 4 = always for task and contextual performance, and 0 = never to 4 = often for counterproductive work behavior). Sample items include: “I took on challenging work tasks, when available”, and “I was able to separate main issues from side issues at work” (see Appendix E). Previous cross-cultural adaptations reported Cronbach’s α for the three IWPQ dimensions: .79 for task performance, .83 for contextual performance, and .89 for counterproductive work behavior, suggesting good internal consistency (Koopmans et al., 2016). In the current study, Cronbach’s α for the three IWPQ subscales are as follows: .89 for task performance, .94 for contextual performance, and .89 for counterproductive work performance.

3.2.5 Acceptance and Action Questionnaire-II

The Acceptance and Action Questionnaire II (AAQ-II; Bond et al., 2011) is a widely used 7-item measure of psychological inflexibility in the ACT literature. The scale captures a person’s (lack of) willingness to experience undesirable psychological content and how difficult thoughts and feelings have maladaptive influence over behaviour. Sample items include: “I worry about not being able to waitlist my worries and feelings”, and “Worries get in the way of my success” (see Appendix F). Bond et al. (2011) also note that the AAQ-II shows acceptable discriminate validity and measures the same concept of the earlier scale version, the AAQ-I, although with better psychometric properties. Validation studies of the AAQ-II reported a Cronbach’s α of .88 (Shari et al., 2019), indicating good internal consistency. In the current study, reliability was also very good, with a Cronbach’s α of .94.

3.2.6 Comprehensive Assessment of Acceptance and Commitment Therapy Processes

The Comprehensive Assessment of Acceptance and Commitment Therapy Processes (CompACT; Francis et al. 2016) is a 23-item questionnaire that was developed to assess the full range of the six core ACT processes across three subscale factors: Factor 1 is "openness to experience" (acceptance/defusion), Factor 2 is "behavioral awareness" (contact with the present moment/mindfulness), and Factor 3 is "valued action" (values/committed action). The items on the CompACT were scored on a seven-point Likert scale, ranging from 0 ("strongly disagree") to 6 ("strongly agree"). Sample items include: "I tell myself that I shouldn't have certain thoughts", and "My values are really reflected in my behavior" (see Appendix G). The CompACT is deemed reliable, as scale validation within a non-clinical sample yielded a Cronbach's alpha of .91 for the composite scale; and across the three subscales α was: .90 for openness to experience, .87 for behavioral awareness, and .90 for valued action (Francis et al., 2016). In the current study, Cronbach's α for the composite measure is .91. Across the three subscales, α is .84 for openness to experience, .91 for behavioral awareness, and .68 for valued action.

3.2.7 Module Engagement

Participant engagement in the online ACT modules was evaluated as an aspect of feasibility and was based on 1) the proportion of accurate responses provided on multiple-choice questions (i.e., "attention engagement"), and 2) the proportion of written responses provided on open-ended questions (i.e., "response engagement"). For attention engagement, participant scores were calculated by dividing the total number of correct responses by 18 multiple-choice questions. For response engagement, participant scores were calculated by dividing the total number of questions that had an open-ended answer provided by 31 open-ended questions. These measures may imply the internal validity and feasibility of the intervention.

3.2.8 Feasibility Questionnaire

The Feasibility Questionnaire consisted of 12 items that mainly focused on the acceptability of the intervention, with some questions evaluating the relevance and

convenience of the intervention for the participants' professional role. This questionnaire was administered post-intervention, upon completion of Module 3. Items #1-8 were developed by the authors and sought to evaluate participants' experience of the online modules, the utility of the user interface features, their perceptions of how helpful ACT could be for their professional role, and their likelihood of using ACT in the future. The items were scored on a seven-point Likert scale, ranging from 1 ("strongly disagree") to 7 ("strongly agree"), with higher scores indicating higher agreement with the statements. Sample items include: "I believe that ACT can be helpful in my work with my clients", "What I was learning in the online ACT modules resonated with me", and "I found the videos in the online ACT modules helpful". Items #8-12 were integrated from a related feasibility questionnaire designed to assess participants' impressions of the intervention and any potential areas that they found challenging (Mueller, 2021). Sample items adapted from Mueller (2021) include: "What information/skills discussed in the [online modules] do you think will be helpful for you in your professional role?", and "Were there parts of the [online modules] that you felt should have had more or less time spent on?" (see Appendix H).

3.3 Procedure

The author's academic institution granted Research Ethics Board approval to proceed with the recruitment and implementation of the intervention. IDD support staff were recruited across Ontario, Canada via e-mails sent from administrative staff and issued through their respective employment agencies. As mentioned earlier, since the aim of the current research was to deliver psychoeducational material to facilitate the development of ACT skills as opposed to provide therapeutic services (Hayes et al., 2012b), the intervention was described as "Acceptance and Commitment Training" in the recruitment e-mails to IDD support staff (Leoni et al., 2016; Pingo et al., 2020a; Hayes et al., 2011a; Hayes et al., 2004).

Prior to registration, interested respondents were screened for meeting the following criteria: (a) must be at least 18 years of age, (b) must be employed in their IDD support staff role for a minimum of one year (cumulative between different agencies, if applicable), (c) must be currently employed at a Canadian/US agency, and (d) must self-

declare as proficient in the English language for verbal, writing, and reading ability (see Appendix I). Respondents who met the inclusion criteria were then redirected to complete the letter of information and consent and a demographics questionnaire. Respondents who did not meet the inclusion criteria were redirected to an exit page thanking them for their interest in the study.

Once the consent form and demographics questionnaire were completed, participants were randomly assigned to either the intervention or waitlist group. Participants were aware of which group they were a part of (see Table 2 for study timelines). Recruitment took place in mid-November 2021 over a 6-week period, and the study launched at the beginning of January 2022. Participants were provided survey links via automated e-mails sent from the Qualtrics survey distribution feature. Reminder e-mails were sent to participants who did not complete the modules 72 hours into their allocated completion period, and once again 48 hours prior to the modules locking. After the completion of module 3, four participants were randomly drawn to receive a small sum of compensation for their participation in the pre-study surveys and each module (see Appendix J for letter of information and consent with compensation breakdown).

Table 2

6-week ACT programming timeline for the intervention and waitlist groups.

Week	Modules (ACT Processes)	Intervention Group	Waitlist Group
Pre-study period	No modules	Demographics questionnaire, e-mail with study information	Demographics questionnaire, e-mail with study information
1	Module 1 (Acceptance and Defusion)	Pre-module surveys (Time 1 measures), complete module 1	Pre-module surveys only (Time 1 measures), no module completion
2	Module 2 (Self as Context and Present Moment)	Complete module 2	No module completion
3	Module 3 (Values and Committed Action)	Complete module 3 (Time 2 measures), post-module surveys	No module completion
4	Module 1 (Acceptance and Defusion)	No module completion	Pre-module surveys (Time 2 measures), complete module 1

5	Module 2 (Self as Context and Present Moment)	No module completion	Complete module 2
6	Module 3 (Values and Committed Action)	No module completion	Complete module 3 (Time 3 measures), post-module surveys

3.3.1 Module Design

The content and design of the modules were adapted from the layout of a clinical toolkit created by Jenkins and Ahles (2019) entitled *When the Going Gets Tough, the Tough Get Mindful: A Toolkit Based on the Principles of Acceptance and Commitment Therapy*. This toolkit features a module-based ACT program that offers compatibility with online delivery (links to short videos, interactive exercises, short answers/journaling questions). The contents of this toolkit were integrated from *ACT Made Simple* (Harris, 2009), *The Reality Slap* (Harris, 2012), *The Happiness Trap* (Harris, 2007), *Getting Unstuck in ACT* (Harris, 2013), *Get Out of Your Mind and Into Your Life* (Hayes & Smith, 2005), *Learning ACT* (Luoma et al., 2007), and *The Big Book of ACT Metaphors* (Stoddard & Afari, 2014), and more. These are psychoeducation ACT sources authored by reputable ACT experts, trainers, and researchers in the field. We adapted the clinical toolkit for the current study; the contents of the modules were modified to tailor language and scenarios specifically relevant to IDD support staff. For example, activities such as "Introduction to Workplace Stress" in Module 1, "Being in the Present Moment" in Module 2, and "Your Retirement Party" in Module 3 had the language adjusted to specifically prompt participants' reflection on their working role as an IDD support staff, to describe scenarios they are likely to encounter with their clients, and reference other imagery relevant to the context of their working role. Reflection activities asked participants to share on how they *planned* on practicing the ACT skills learned, identify the barriers they may foresee to practicing their skills, and describe how they may anticipate addressing the said barriers while "at work". Short written activities were reformatted for compatibility via the online Qualtrics survey platform, with further prompts asking participants to reflect on their "working role as IDD support staff" as well as their interactions with their clients. See Table 3 for a list overview of the contents and activities featured in the online ACT modules.

From the onset of the study until completion, the total timeline was three weeks for the intervention group and six weeks for the waitlist group (including a 3-week delayed start to the modules). The study materials consisted of three modules. Each module followed the "dyadic process" model that focused on two core ACT processes at a time (Hayes et al., 2011b; see Table 2). Each module is permitted a one-week access window with the ability to start, stop, and/or progress at a self-guided pace. Each module required approximately two hours of completion (i.e., one hour per ACT process), totaling approximately 6 hours of direct engagement in ACT content. This timing is consistent with previous research that had implemented "brief" ACT in the workplace (e.g., Bethay et al., 2012; McConachie et al., 2014; Schwetschenau, 2008).

Table 3

Overview of the contents of the online ACT modules.

Module	Content
Module 1	
Introduction	Introduction to ACT[a]
	Descriptions of the 6 ACT Processes[a]
	What is ACT?[a]
	The 3 Happiness Myths[c]
	Introduction to Workplace Stress[b]
	Reflection Exercise 1 – My Coping Strategies[a,b]
	Leaves on a Stream Meditation[a]
Acceptance	Acceptance and Commitment Therapy: Acceptance[a]
	Accepting the Mind
	The Polygraph Metaphor[a]
	The Struggle Switch – By Dr. Russ Harris[a]
	Reflection Exercise 1 – Dealing with difficult emotions
	Reflection Exercise 2 – Plans to practice acceptance
	Likelihood/barriers/addressing barriers to practicing acceptance
Defusion	Acceptance and Commitment Therapy: Defusion[a]
	Changing Perspective[a]
	The Unwelcome Party Guest[a]
	Tug of War[a]
	Reflection Exercise 3 – Recall practicing Defusion at work
	Reflection Exercise 4 – Plans to practice Defusion
	Likelihood/barriers/addressing barriers to practicing Defusion
ACT Weekly Diary[c]	Describe stressful events and approaches to handle them
	Reflect on level of distress, struggle, workability, and valued action
Module 2	
Self-As-Context (The Observer)	Acceptance and Commitment Therapy: Observing Self[a]
	Underlying Calm[a]
	Internal Struggles Chessboard Metaphor by Dr. Russ Harris[a]
	Reflection Exercise 1 – 6 Minute Observer Self Exercise[d]
	Likelihood/barriers/addressing barriers to practicing Observing Self
Present Moment	Acceptance and Commitment Therapy: Presence[a]
	Dan Harris: Hack Your Brain's Default Mode with Meditation[a]
	Reflection Exercise 2 – Mindfulness of the Hand[d]
	Reflection Exercise 3 – Plans to practice Present Moment
	Likelihood/barriers/addressing barriers to practicing Present Moment
ACT Weekly Diary[c]	Describe stressful events and approaches to handle them
	Reflect on level of distress, struggle, workability, and valued action
Module 3	
Values	The Values-Focused vs. The Goals-Focused Life[c]
	Reflection Exercise 1 – Your Retirement Party[e]
	Reflection Exercise 2 – Reflecting on Your Values, Bullseye Diagram[d]
	Likelihood/barriers/addressing barriers to practicing Values
Committed Action	Acceptance and Commitment Therapy: Values and Committed Action[a]
	Reflection Exercise 3 – Demons On The Boat[c]
	The Choice Point: A Map for a Meaningful Life[c]
	Reflection Exercise 4 – SMART Goals[a]
	Likelihood/barriers/addressing barriers to practicing Committed Action
ACT Weekly Diary[c]	Describe stressful events and approaches to handle them
	Reflect on level of distress, struggle, workability, and valued action

[a] Jenkins and Ahles (2019)
[b] Bond and Hayes (2002)
[c] Harris (2007), [d]Harris (2009)
[e]Luoma et al. (2007)

3.3.2 User interface features and engagement

Past research implementing online-based modularized ACT found notable drawbacks through low adherence and engagement rates (Brown et al., 2020). Brown et al. (2020) suggest assessing user analytic tools such as the time spent accessing module content, and integrating more data collection points to measure engagement. To this end, we tracked user analytics on Qualtrics to calculate the length of time participants needed from the onset of module access until completion. This will permit a better understanding of how IDD support staff self-pace through an asynchronous ACT program. Participants were also permitted flexible access to complete the modules via a mobile smartphone, if preferred. Longer text passages exceeding 100 words included an option to listen to audio-recorded transcriptions of the activities (recorded by the authors), with the choice of listening to a "male" and/or "female" voice. These user interface features may help further determine the feasibility and appraisal of the intervention for IDD support staff.

4 Results

4.1 Statistical Analysis

Data were extracted from the Qualtrics survey platform, and statistical analysis was carried out using the Statistical Package for the Social Sciences (SPSS) software, version 27 for Mac. Descriptive statistics depicted participants' demographic characteristics (see Table 1). Fisher's exact tests and independent t-tests were used as preliminary analyses to explore demographic group differences and examine group differences on baseline (Time 1 measures). Main analyses included the following: 1) a Pearson R correlation matrix to measure the strength of the linear relationship between the outcome variables; 2) Independent t-tests to assess between-group difference scores from pre to post-intervention; and 3) Wilcoxon signed-rank tests to assess within-group change scores from pre- to -post intervention. Responses to the feasibility questionnaire were summarized and reported using descriptive statistics, and qualitative data were summarized using inductive thematic analysis (Braun & Clarke, 2006).

4.1.1 Data Analysis Plan

Fisher's exact tests of homogeneity were conducted to compare the demographic characteristics of the intervention and waitlist participants. Results revealed no significant group differences for age group, gender, ethnicity, education, income, religion, physical health, mental health, number of years worked, hours worked, types of clients worked with, and client levels of symptom severity. Next, differences in baseline measures were assessed for the 5 participants in the intervention group and the 11 in the waitlist group. Levene's test assessed the assumption of homogeneity of variance for the baseline measures, with all measures except for task performance and valued action meeting the assumption of homogeneity. Measures that violated this assumption were reported using the Welch t-test statistic (i.e., the "equal variances not assumed" output). All measures met the assumption of normality ($p > .05$) as assessed using the Shapiro-Wilk's test, except for the MBI subscale depersonalization for both groups. Since parametric tests are considered robust against violations of normality (Tabachnick & Fidel, 1996), we found it appropriate to proceed with a series of independent t-tests to assess group differences in baseline scores. The independent t-tests revealed no significant group differences across all baseline measures ($p > .05$). Outliers were present in the data for subsequent analyses but were retained due to the pilot nature of this study. Wilcoxon signed-rank tests are considered to be robust against outliers (Doane & Seward, 2007).

Effect sizes for the between-groups analyses were calculated using Hedge's *g* due to a small sample size, as well as unequal sample sizes between the intervention and waitlist groups (Hedges & Olkin, 1985). Effect sizes for the within-groups analyses for Wilcoxon signed-rank tests were calculated based on the parameters outlined by Pallant (2007). Means and standard deviations for all study times for both groups are reported in Table 5.

Waitlist group scores were examined between Time 1 and Time 2 (the pre-intervention period). Wilcoxon signed-ranks test results indicated a statistically significant median decrease ($Mdn = -7.00$) in valued action scores on the CompACT from Time 1 ($Mdn = 35.00$) to Time 2 ($Mdn = 25.00$), $z = -1.958$, $p = .05$. Out of the 11 participants, eight (73%) decreased in valued action scores, and three (27%) participants increased. No other statistically significant differences were found for other outcome measures. Additionally,

five participants were lost after completing Time 2 measures; thus a sample of six participants was retained for subsequent within-group analyses.

4.2 Research Question 1: What are the associations between psychological distress, psychological flexibility, burnout, and work performance?

Results from a Pearson correlation analysis for all measures and respective subscales are presented in Table 4. Guidelines for the interpretation of the strength of associations are as follows: small/weak ($r < .30$), moderate ($r = .30$ to $.50$), strong ($r > .50$) (Cohen, 1988). Scores on the K10 were strongly positively associated with AAQ-II scores, $r(14) = .805$, $p = .01$, as well as all three of the MBI subscales: emotional exhaustion, $r(14) = .574$, $p = .05$, depersonalization, $r(14) = .550$, $p = .05$, and counterproductive work behavior, $r(14) = .697$, $p = .01$. This suggests that higher psychological distress in IDD support staff is strongly associated with psychological inflexibility and all three dimensions of burnout. Scores on the K10 were also strongly negatively associated with openness to experience, $r(13) = -.522$, $p = .05$, and behavioral awareness, $r(13) = -.702$, $p = .01$; which are two subscales of psychological flexibility as measured by the CompACT. In sum, higher scores on psychological distress were strongly associated with lower willingness to experience internal events (thoughts, feelings, sensations) and lower mindfulness of one's current actions.

Scores on the AAQ-II were strongly positively associated with counterproductive work behavior, $r(14) = .567$, $p = .05$, and strongly negatively associated with task performance, $r(14) = -.625$, $p = .01$, and contextual performance, $r(14) = -.506$, $p = .05$. Hence, high psychological inflexibility in IDD support staff is strongly associated with behaviors that are harmful to the well-being of one's organization. In contrast, low psychological inflexibility in IDD support staff is strongly associated with behaviors that demonstrate proficiency in one's core substantive work tasks and those that support the environment in which such tasks must be carried out in. Scores on the AAQ-II were also strongly negatively associated with all of the CompACT subscales: openness to experience, $r(13) = -.737$, $p = .01$, behavioral awareness, $r(13) = -.778$, $p = .01$, and valued action, $r(14) = -.626$, $p = .01$. Hence, higher psychological inflexibility in IDD support staff is strongly

associated with less willingness to experience internal events, less mindful attention to current actions, and less pursuit of meaningful action.

Among the CompACT subscales, scores on openness to experience were strongly positively associated with behavioral awareness, $r(13) = .636$, $p = .05$, and task performance, $r(13) = .666$, $p = .01$. This suggests that higher willingness to experience internal events is linked to mindful attention to one's current actions, and higher proficiency in performing one's core substantive job tasks. Behavioral awareness was strongly positively associated with valued action, $r(13) = .764$, $p = .01$, personal accomplishment, $r(13) = .622$, $p = .05$, and task performance, $r(13) = .591$, $p = .05$. Hence, more mindful attention to one's current actions is linked to acting by one's values and a greater sense of personal accomplishment. Behavioral awareness also had a strong negative association with counterproductive work behavior, $r(13) = -.534$, $p = .05$, suggesting that lower awareness of one's current actions is linked to behavior that is harmful to the well-being of one's workplace. Valued action was strongly positively associated with personal accomplishment, $r(14) = .675$, $p = .01$, task performance, $r(14) = .557$, $p = .05$, and contextual performance, $r(14) = .544$, $p = .05$. Hence, acting by one's values is associated with higher feelings of personal accomplishment, enhanced performance on work-related tasks, and behaviors that support organizational well-being.

Across the burnout subscales, emotional exhaustion was strongly positively associated with depersonalization, $r(14) = .708$, $p = .01$, and counterproductive work behavior, $r(14) = .613$, $p = .05$. Thus, higher levels of emotional exhaustion are linked with feelings of detachment from the self and higher instances of work behavior that is harmful to one's organizational environment. Depersonalization likewise demonstrated a strong positive association with counterproductive work behavior, $r(14) = .685$, $p = .01$; suggesting that feelings of detachment from the self are also positively associated with behavior that was harmful to the well-being of one's organization. The lack of significant correlations between other variables will be discussed in greater detail in the Discussion section.

Table 4

Pearson correlations for baseline measures for all participants.

Measure (Time 1)	*n*	1	2	3	4	5	6	7	8	9	10
1. K10	16	—									
2. AAQ-II	16	.805**	—								
3. CompACT (OE)	15	-.522*	-.737**	—							
4. CompACT (BA)	15	-.702**	-.778**	.636*	—						
5. CompACT (VA)	16	-.314	-.626**	.446	.764**	—					
6. MBI (EE)	16	.574*	.490	-.155	-.460	-.325	—				
7. MBI (DP)	16	.550*	.363	-.007	-.456	-.446	.708**	—			
8. MBI (PA)	16	-.475	-.493	.406	.622*	.675**	-.339	-.400	—		
9. IWPQ (TP)	16	-.367	-.625**	.666**	.591*	.557*	-.387	-.177	.394	—	
10. IWPQ (CP)	16	-.116	-.506*	.368	.431	.544*	-.103	-.038	.291	.641**	—
11. IWPQ (CWB)	16	.697**	.567*	-.197	-.534*	-.405	.613*	.685**	-.407	-.373	-.206

Note: ** = correlation is significant at the 0.01 level (2-tailed), * = correlation is significant at the 0.05 level (2-tailed), K10 = Kessler Psychological Distress Scale, AAQ-II = Acceptance and Action Questionnaire, CompACT (OE) = Openness to experience CompACT subscale, CompACT (BA) = Behavioral awareness CompACT subscale, CompACT (VA) = Valued action CompACT subscale, MBI (EE) = Emotional exhaustion MBI subscale, MBI (DP) = Depersonalization MBI subscale, MBI (PA) = Personal accomplishment MBI subscale, IWPQ (TP) = Task performance IWPQ subscale, IWPQ (CP) = Contextual performance IWPQ subscale, IWPQ (CWB) = Counterproductive work behavior IWPQ subscale.

4.3 Research Questions 2: How does the intervention influence psychological flexibility, burnout, psychological distress, and work performance in IDD support staff?

4.3.1 Hypothesis 1: The intervention will reduce burnout

Assumptions of normality for change scores were met for each MBI subscale (except for depersonalization), as assessed by the Shapiro-Wilk's test (p >.05). Levene's test of homogeneity of variance was met for all measures (p > .05). Between-groups t-tests (with equal variances assumed) on change scores from pre-test to post-test indicated that the intervention group exhibited a significant reduction in emotional exhaustion scores (M = -6.60, SD = 7.40) compared to the waitlist (M = 1.64, SD =6.65) group, $t(14) = -2.221$, p =.043, g = -.96. No significant differences in change scores were found for the depersonalization $t(14) = -.827$, p = .422, g = .-.44, and personal accomplishment subscales $t(14) = .289$, p =.777, g = -.12 (see Table 5). Visual inspection of boxplots indicated that the range for emotional exhaustion scores decreased for both groups, and the medians remained fairly similar across all measures (see Figure 2). Figures with captions referring to "Time 1" and "Time 2" refer to the between-groups analysis, where the intervention group completed the ACT modules and the waitlist group did not. For the within-group analysis, "pre-intervention" refers to Time 1 for the intervention group and Time 2 for the waitlist group, and then "post-intervention" refers to Time 2 for the intervention group, and Time 3 for the waitlist group.

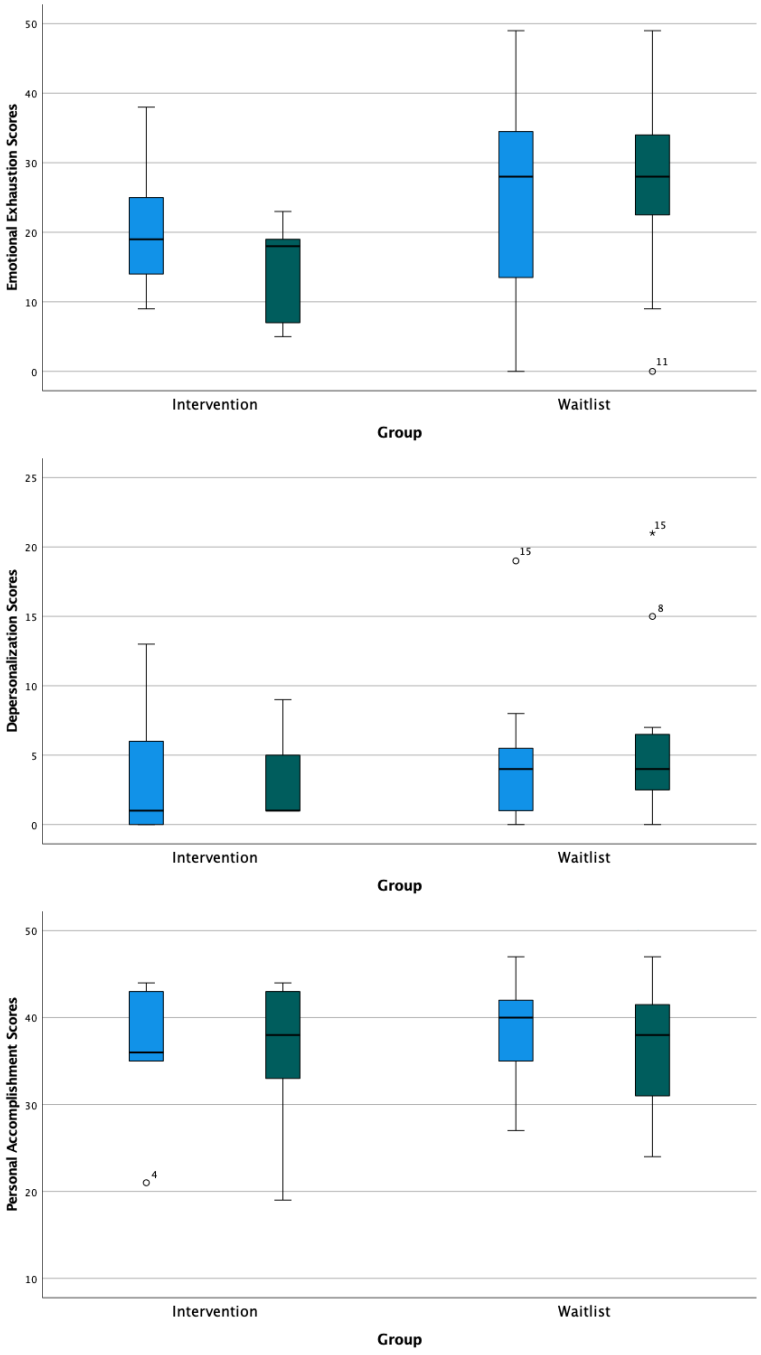
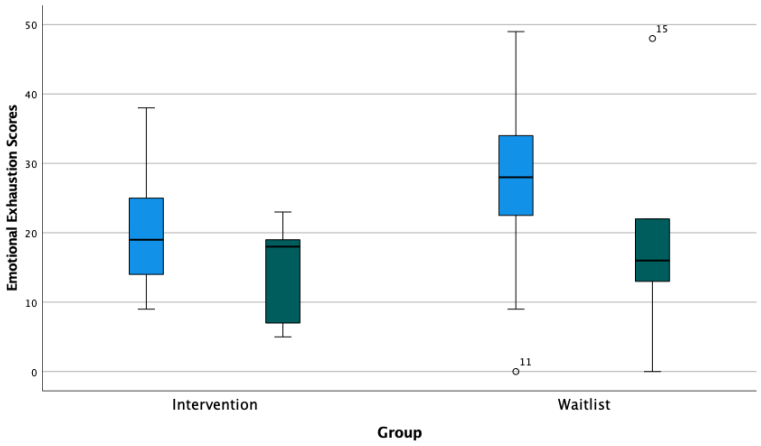


Figure 2. Box plots displaying between-group scores for emotional exhaustion, depersonalization, and personal accomplishment (Note: Blue = Time 1, Green = Time 2)

A Wilcoxon signed-rank test was conducted to determine the within-group effect for the intervention group across the three MBI subscales. The differences in scores were approximately symmetrically distributed for all measures, as confirmed by visual inspection of Q-Q plots with data points clustering closely along the line of best fit

(Doane & Seward, 2007; Field, 2009; see Appendix L). Results indicated that four (80%) participants in the intervention group exhibited median decreases in emotional exhaustion, and one (20%) participant exhibited an increase. There was no statistically significant median decrease in emotional exhaustion (pre-test *Mdn* = 19.00, post-test *Mdn* = 18.00, z = -1.63, p = .104, r = .51; see Table 6). However, visual inspection of the medians displayed a slight decrease in emotional exhaustion scores, as well as a decrease in range (see Figure 3). Non-significant changes were found for scores on depersonalization (pre-test *Mdn* = 1, post-test *Mdn* = 1, z = -.378, p = .705, r = .12) and personal accomplishment (pre-test *Mdn* = 36, post-test *Mdn* = 38, z = -.408, p = .683, r = . 13). Visual inspection indicated that median scores on depersonalization and personal accomplishment remained similar (see Figure 3).



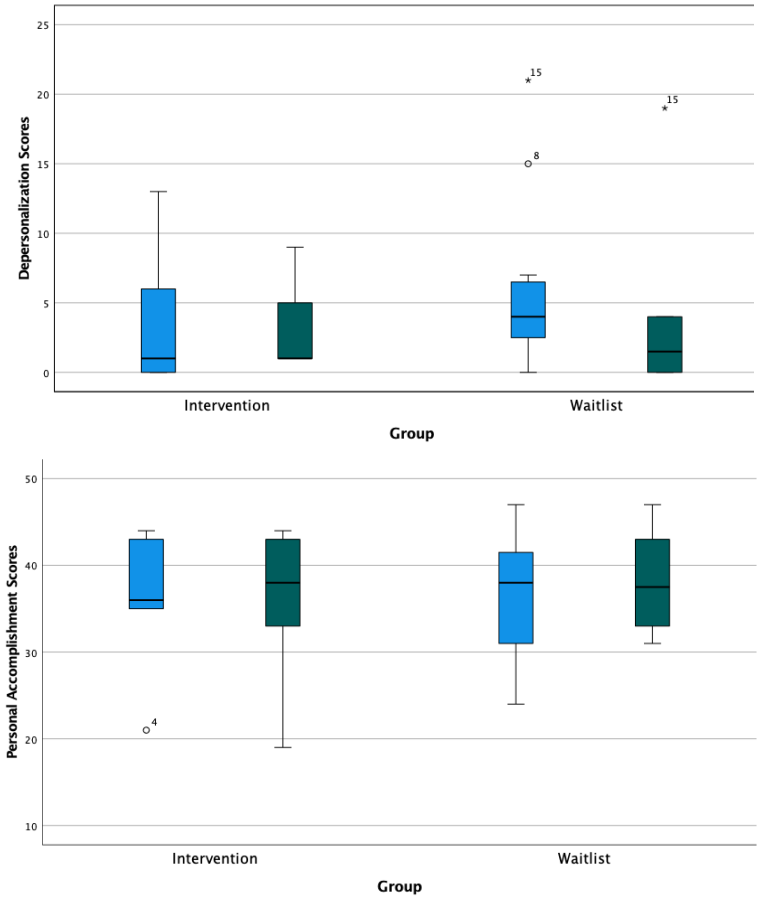


Figure 3. Box plots displaying within-group scores for emotional exhaustion, depersonalization, and personal accomplishment (Note: Blue = Pre-Intervention, Green = Post-Intervention)

A Wilcoxon signed-ranks test assessed differences in waitlist group scores on the MBI subscales. Visual inspection of Q-Q plots depicted approximately symmetrical distributions in the difference scores across all variables (see Appendix L). There was a statistically significant decrease in emotional exhaustion (pre-test *Mdn* = 28, post-test *Mdn* = 16, z = -2.032, p = .042, r = .59), with five (83%) participants displaying a decrease in scores, and one (17%) participant's scores staying the same. Similar to the intervention group, results indicated no significant differences in scores on depersonalization (pre-test *Mdn* = 4.00, post-test *Mdn* = 1.50, z = -1.841, p = .066, r = .53) or personal accomplishment (pre-test *Mdn* = 38.00, post-test *Mdn* = 37.5, z = -1.289, p = .197, r = .37; see Table 6). Visual inspection showed a slight decrease in depersonalization, whereas scores on personal accomplishment remained similar (see Figure 3).

Table 5

Means and standard deviations for all outcome measures across all study points for the intervention and waitlist groups (with independent t-test t and p values, and effect size).

Measure	Intervention Group				Waitlist Group						*t(14)*	*P*	Effect size (g)
	Time 1		Time 2		Time 1		Time 2		Time 3				
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*			
K10	22.60	8.17	24.40	4.10	21.27	6.90	21.73	8.38	20.33	9.95	.482	.637	.34
AAQ-II	22.80	13.92	21.00	8.37	18.45	8.07	21.00	9.87	19.83	8.23	-1.244	.637	0
IWPQ (TP)	12.40	6.66	10.80	5.02	9.73	3.52	11.00	3.29	12.33	4.71	-1.960	.070	-.05
IWPQ (CP)	15.00	9.27	13.40	8.88	19.82	9.77	18.81	8.80	21.33	7.87	-.161	.874	-.58
IWP (CWB)	5.60	4.62	5.60	4.62	4.91	4.64	4.91	4.64	5.67	4.72	-1.027	.322	-.15
CompACT (OE)	39.00	17.30	35.8	9.89	30.82	10.60	31.36	14.20	36.17	12.16	-.643	.532	.32
CompACT (BA)	21.75	10.90	18.6	6.43	19.18	8.33	18.46	9.63	21.33	9.44	-.606	.555	.02
CompACT (VA)	29.00	17.41	34.00	8.60	34.64	6.14	28.91	10.52	39.00	11.08	2.233	.042*	.48
MBI (EE)	21.00	11.20	14.4	7.92	25.00	15.15	26.64	13.36	19.17	15.92	-2.221	.043*	-.96
MBI (DP)	4.00	5.61	3.40	3.58	4.64	5.45	6.10	6.43	4.33	7.34	-.916	.375	-.44
MBI (PA)	35.80	9.20	35.40	10.16	38.18	5.51	36.45	7.09	38.17	6.40	.289	.777	-.12

Notes: The period between Time 1 and Time 2 included 5 participants in the intervention group, and 11 in the waitlist group. The period between Time 2 and Time 3 included 6 participants in the waitlist group. * = p > .05.

g = effect size using Hedges bias correction for unequal sample sizes, for differences in between-group post-intervention (Time 2) scores.

K10 = Kessler Psychological Distress Scale, AAQ-II = Acceptance and Action Questionnaire, CompACT (OE) = Openness to experience CompACT subscale, CompACT (BA) = Behavioral awareness CompACT subscale, CompACT (VA) = Valued action CompACT subscale, MBI (EE) = Emotional exhaustion MBI subscale, MBI (DP) = Depersonalization MBI subscale, MBI (PA) = Personal accomplishment MBI subscale, IWPQ (TP) = Task performance IWPQ subscale, IWPQ (CP) = Contextual performance IWPQ subscale, IWPQ (CWB) = Counterproductive work behavior IWPQ subscale.

Table 6

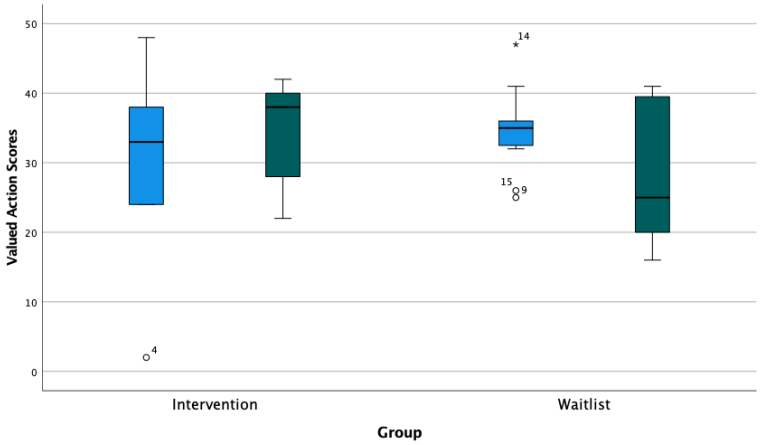
Results of Wilcoxon Signed-Rank Test for within-group differences between intervention and waitlist group, with median pre-test, post-test, difference scores, z and p values, and effect size.

Outcome measure	Median pre-test score	Median post-test score	Median difference	*Z* Value	*P* Value	[a]Effect size (r)
Intervention Group (n=5)						
MBI (EE)	19.00	18.00	-6.00	-1.625	.104	.51
MBI (DP)	1.00	1.00	0	-.378	.705	.12
MBI (PA)	36.00	38.00	24.00	-.408	.683	.13
CompACT (VA)	33.00	38.00	4.00	-.948	.343	.30
CompACT (BA)	25.00	20.00	-1.50	-.816	.414	.27
CompACT (OE)	45.00	36.00	-2.00	-.365	.715	.12
AAQ-II	20.00	23.00	-3.00	-.406	.684	.13
K10	26.00	23.00	0	-.730	.465	.23
IWPQ (TP)	14.00	9.00	-1.00	-.816	.414	.26
IWPQ (CP)	13.00	7.00	-3.00	-.962	.336	.30
IWQP (CWB)	5.00	5.00	0	-.730	.465	.23
Waitlist Group (n=6)						
MBI (EE)	28.00	16.00	-5.00	-2.032	.042*	.59
MBI (DP)	4.00	1.50	-1.00	-1.841	.066	.53
MBI (PA)	38.00	37.50	8.50	-1.289	.197	.37
CompACT (VA)	25.00	44.00	4.00	-2.226	.026*	.64
CompACT (BA)	22.00	24.50	-1.00	-.680	.496	.20
CompACT (OE)	31.00	30.50	0	-1.069	.285	.31
AAQ-II	25.00	19.50	-2.00	-1.156	.248	.33
K10	20.00	18.50	0.50	-.272	.785	.08
IWPQ (TP)	11.00	13.00	2.00	-.552	.581	.35
IWPQ (CP)	19.00	23.00	3.00	-1.214	.225	.35
IWQP (CWB)	3.00	4.50	0.50	-.271	.786	.08

Note: * = p > .05. [a]Effect size calculated by dividing Z value by the square root of N (Pallant, 2007). K10 = Kessler Psychological Distress Scale, AAQ-II = Acceptance and Action Questionnaire, CompACT (OE) = Openness to experience CompACT subscale, CompACT (BA) = Behavioral awareness CompACT subscale, CompACT (VA) = Valued action CompACT subscale, MBI (EE) = Emotional exhaustion MBI subscale, MBI (DP) = Depersonalization MBI subscale, MBI (PA) = Personal accomplishment MBI subscale, IWPQ (TP) = Task performance IWPQ subscale, IWPQ (CP) = Contextual performance IWPQ subscale, IWPQ (CWB) = Counterproductive work behavior IWPQ subscale.

4.3.2 Hypothesis 2: The intervention will increase psychological flexibility and decrease psychological inflexibility

Assumptions of normality for change scores between the intervention and waitlist groups were met for each subscale of the CompACT (openness to experience, behavioral awareness, and valued action) and the AAQ-II, as assessed by Shapiro-Wilk's test ($p > .05$). Homogeneity of variance was met for all measures, as assessed using Levene's test ($p > .05$). A between-groups *t*-test (with equal variances assumed) on change scores indicated that the intervention group displayed a significantly greater increase in valued action ($M = 5.00$, $SD = 10.68$) than the waitlist ($M = -5.73$, $SD = 8.09$) group, $t(14) = 2.233$, $p = .042$, $g = .48$. However, no significant change was found for openness to experience, $t(13) = -.643$, $p = .532$, $g = .32$, and behavioral awareness, $t(13) = -.606$, $p = .555$, $g = .02$. Likewise, no significant changes were observed for psychological inflexibility as measured by the AAQ-II, $t(14) = -1.244$, $p = .234$, $g = 0$ (see Table 5). Visual inspection of the data showed an increase in valued action and a decrease in openness to experience and behavioral awareness for the intervention group. The range for psychological inflexibility scores also decreased (see Figure 4).


Valued Action Scores
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40
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20
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Intervention
Waitlist
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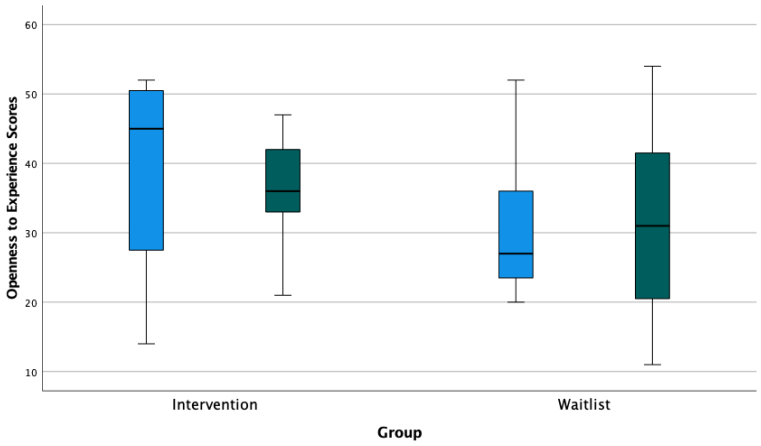
Openness to Experience Scores
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Waitlist
Group

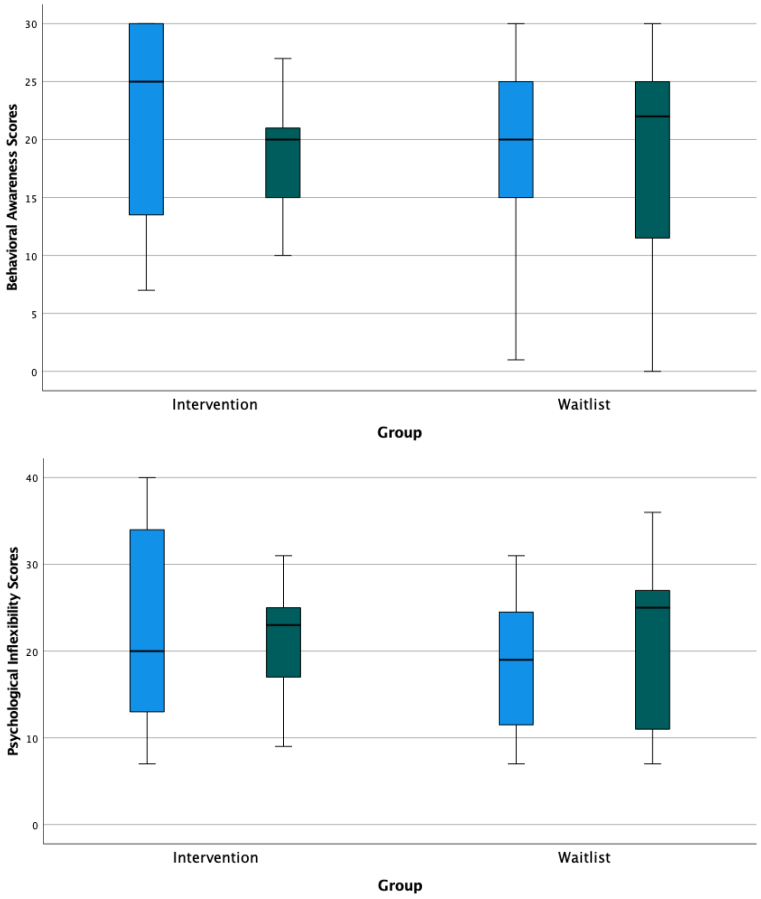
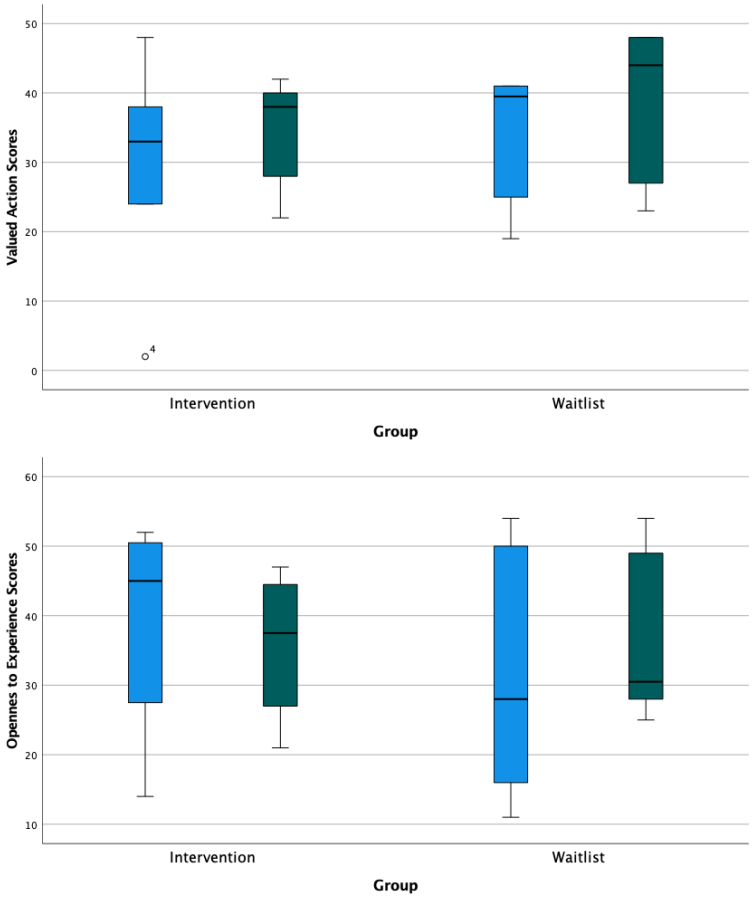


Figure 4. Box plots displaying between-group scores for valued action, openness to experience, and behavioral awareness, and psychological inflexibility (Note: Blue = Time 1, Green = Time 2)

Wilcoxon signed-rank tests were conducted to explore within-group outcomes for the intervention group on the psychological flexibility (CompACT) subscales and psychological inflexibility (AAQ-II). Visual inspection of Q-Q plots depicted an approximately symmetrical distribution in the difference scores across all variables (see Appendix K). Results revealed that four (80%) participants displayed an increase in valued action scores, and one (20%) participant displayed a decrease, although this change was not statistically significant (pre-test *Mdn* = 33, post-test *Mdn* = 38, *z* = -.948, *p* = .343 *r* = .30). Furthermore, there was no statistically significant change in scores on openness to experience (pre-test *Mdn* = 45, post-test *Mdn* = 36, *z* = -.365, *p* =.715, *r* = .12), or behavioral awareness (pre-test *Mdn* = 25, post-test *Mdn* = 20, *z* = -.816, *p* = .414 *r* = .27). Wilcoxon signed-rank test results on AAQ-II scores similarly displayed no significant differences in psychological inflexibility (pre-test *Mdn* = 20, post-test *Mdn* = -

3, z = -.406, p = .684, r = .13) (see Table 6). Visual scores on psychological inflexibility were observed to slightly increase (see Figure 5).



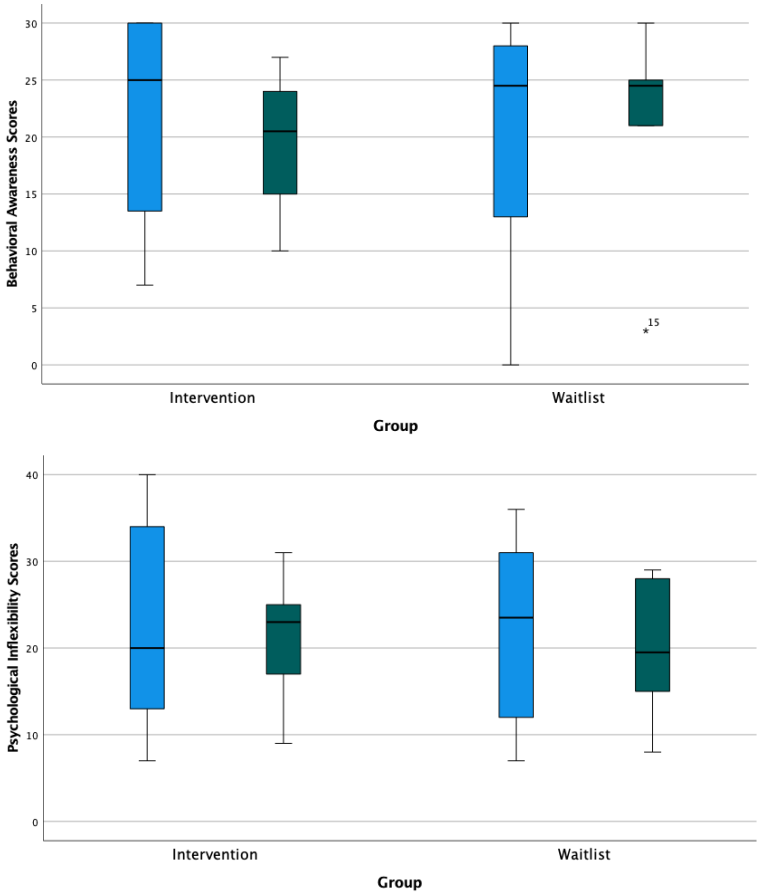


Figure 5. Box plots displaying within-group scores for valued action, openness to experience, behavioral awareness, and psychological inflexibility (Note: Blue = Pre-Intervention, Green = Post-intervention)

Wilcoxon signed-rank tests were also conducted to explore the within-group effects for waitlist participants on the psychological flexibility (CompACT) subscales and psychological inflexibility (AAQ-II). Inspection of Q-Q plots depicted approximately symmetrical distributions in the difference scores across all variables (see Appendix K). Wilcoxon signed-rank test results indicated a statistically significant median increase in valued action (pre-test *Mdn* = 25, post-test *Mdn* = 44, z = -2.226, p = .026, r = .64), with all six (100%) waitlist group participants displaying improvements in scores (see Table 6). As found in preliminary analyses, the waitlist group significantly decreased in scores on valued action during the pre-intervention period (Time 1 to Time 2). This follow-up Wilcoxon signed-rank test indicates that valued action scores may have regressed to baseline post-intervention (Time 2 and Time 3). There were no significant differences in scores between Time 1 and Time 3 for valued action, z = -.734, p = .463. There was also

no statistically significant change in scores for openness to experience (pre-test *Mdn* = 31, post-test *Mdn* = 30, *z* = -1.069, *p* =.285, *r* = .31), as well as behavioral awareness (pre-test *Mdn* = 22, post-test *Mdn* = 24.5, *z* = -.680, *p* = .496, *r* = .20). Visual inspection of the medians indicated that the waitlist group increased in valued action and decreased in range for openness to experience and behavioral awareness. Median scores for psychological inflexibility also visually decreased (see Figure 5).

An exploratory analysis of the composite measure of the CompACT (with the three subscales collapsed) displayed a statistically significant median increase in psychological flexibility (pre-test *Mdn* = 70, post-test *Mdn* = 96, *z* = -2.201, *p* = .028), with all six (100%) waitlist participants displaying improvements. Similar to the intervention group, the Wilcoxon signed-rank test results on AAQ-II scores for the waitlist group also displayed no significant differences in scores on psychological inflexibility (pre-test *Mdn* = 25, post-test *Mdn* = 19.5, *z* = -1.156, *p* = .248, *r* = .33) (see Table 6).

4.3.3 Hypothesis 3: The intervention will reduce psychological distress

Assumptions of normality for change scores in psychological distress between the intervention and waitlist groups were met, as assessed by Shapiro-Wilk's test ($p > .05$), as well as homogeneity of variance, as assessed by Leven's test ($p > .05$). A between-groups *t*-test (with equal variances assumed) on change scores from pre-test to post-test on psychological distress indicated no significant group differences, $t(14) = .482$, $p = .637$, $g = .34$ (see Table 5). Visual inspection indicated that psychological distress scores decreased in range for the intervention group, yet increased in the waitlist group. Median scores appeared to decrease only slightly in the intervention group. (see Figure 6).

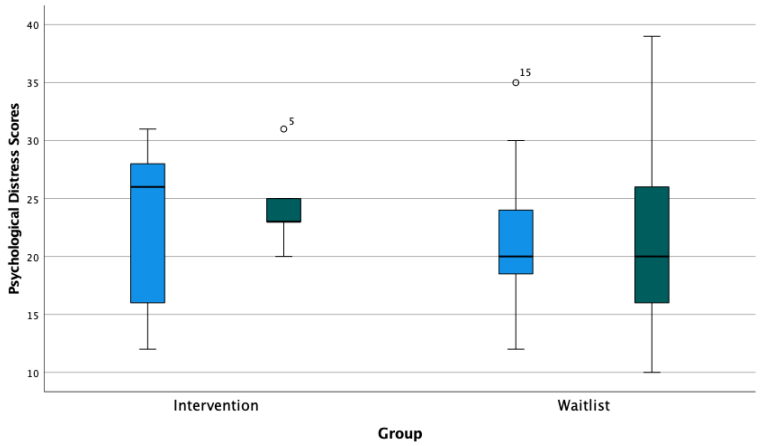


Figure 6. Box plots displaying between-group scores for psychological distress (Note: Blue = Time 1, Green = Time 2)

A Wilcoxon signed-rank test was conducted to evaluate the within-group effect of the intervention on psychological distress. Inspection of Q-Q plots depicted approximately symmetrical distribution in the difference scores from pre-test to post-test (see Appendix K). Results of the Wilcoxon signed-rank test indicated that out of the five intervention group participants, two (40%) participants decreased in psychological distress, whereas two (40%) participants increased, and one (20%) participant's scores did not change. There was no statistically significant median decrease in psychological distress scores (pre-test *Mdn* = 26.00, post-test *Mdn* = 23.00, z = -.730, p = .465, r = .23) (see Table 6). However, visual inspection of the medians indicated that the intervention group exhibited a slight decrease in psychological distress, with scores narrowing in range from pre to post-intervention (see Figure 7).

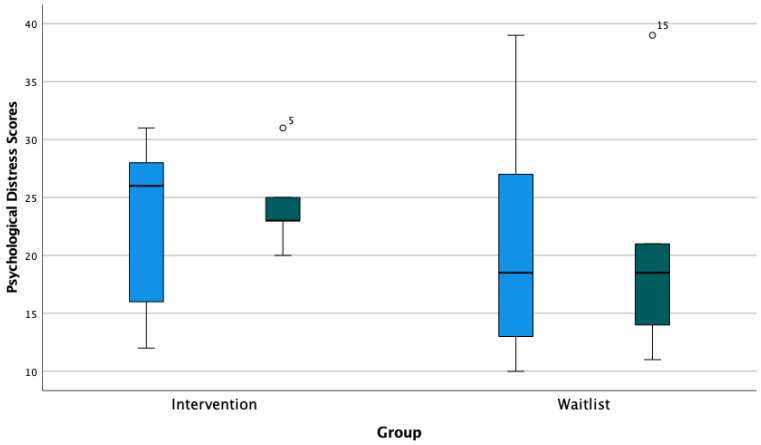


Figure 7. Box plots displaying within-group scores for psychological distress (Note: Blue = Pre-Intervention, Green = Post-intervention)

For the waitlist group, psychological distress scores were also approximately symmetrically distributed, as shown in Q-Q plots (see Appendix K). Wilcoxon signed-rank test results found that two (33%) out of six waitlist group participants displayed decreases in psychological distress, three (50%) displayed increases, and one (17%) participant's scores did not change. Similar to the intervention group, there were no statistically significant change in psychological distress scores (pre-test *Mdn* = 20.00, post-test *Mdn* = 18.50, z = -.272, p = .786, r = .08) (see Table 6). Visual inspection indicated no change in median scores in the waitlist group (see Figure 7).

4.3.4 Hypothesis 4: The intervention will improve work performance

Assumptions of normality for change scores for all subscales of the IWPQ (task performance, contextual performance, and counterproductive work behavior) between the intervention and waitlist groups were met (p > .05), as well as homogeneity of variance (p > .05). A between-groups t-test (with equal variances assumed) on change scores from pre-test to post-test revealed no significant differences on all of the IWPQ subscales: task performance $t(14)$ = -1.960, p = .070, g = -.05, contextual performance $t(14)$ = -.161, p = .874, g = -.58, or counterproductive work behavior $t(14)$ = -1.027, p = .322, g = -.15 (see Table 5). For the intervention group, visual inspection revealed a median decrease in task performance and contextual performance, while median scores on counterproductive work behavior stayed the same. Waitlist group scores remained similar (see Figure 8).

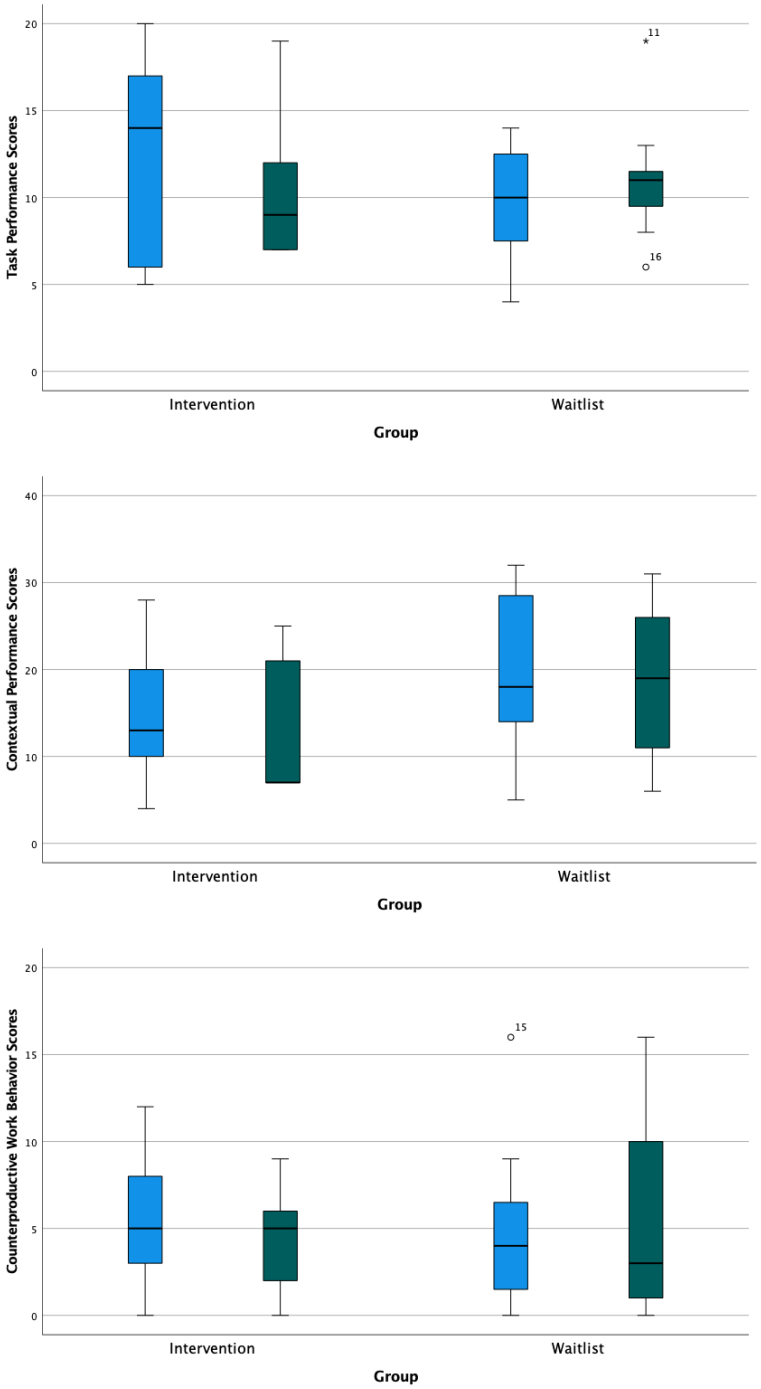


Figure 8. Box plots displaying between-group scores for task performance, contextual performance, and counterproductive work behavior (Note: Blue = Time 1, Green = Time 2)

Wilcoxon signed-rank tests were used to explore the within-group effect of the intervention on work performance scores across the three IWPQ subscales. Inspection of Q-Q plots depicted approximately symmetrical distributions in the difference scores from

pre-test to post-test for all measures (see Appendix K). There were no statistically significant median differences in scores on task performance (pre-test *Mdn* = 14.00, post-test *Mdn* = 9.00, *z* = -.816, *p* = .414 *r* = .26) (see Table 6). However, visual inspection of the medians indicated that the intervention group slightly decreased in task performance (see Figure 9). There were no statistically significant median differences in contextual performance (pre-test *Mdn* = 13.00, post-test *Mdn* = 7.00, *z* = -.962, *p* = .336, *r* = .30). Visual inspection indicated a decrease in median scores on contextual performance, with a slight decrease in the range from pre-test to post-test (see Figure 9). Results showed no significant median differences in scores on counterproductive work behavior (pre-test *Mdn* = 5.00, post-test *Mdn* = 5.00, *z* = -.730, *p* = .465, *r* = .23) (see Table 6). Visual inspection indicated a slight decrease in the range of scores from pre-test to post-test, although the median score appeared unchanged (see Figure 9).

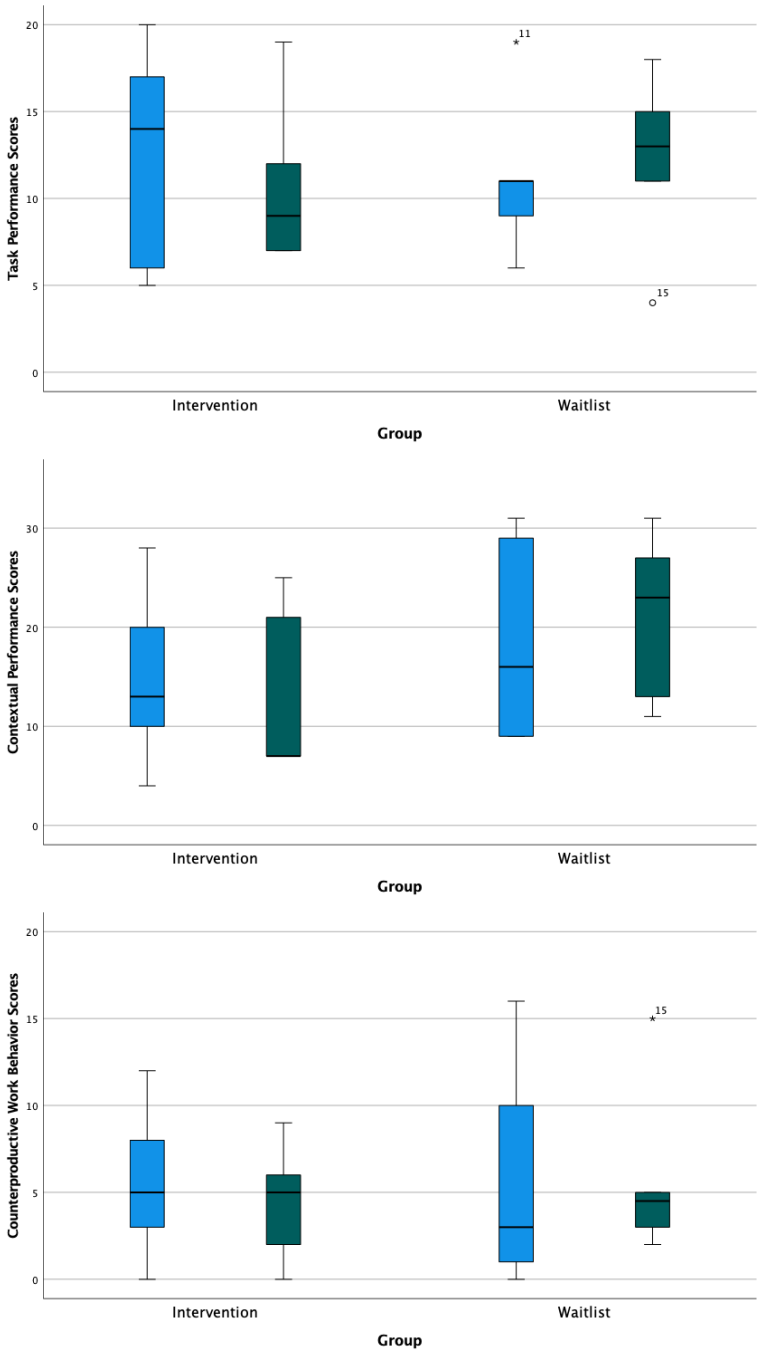


Figure 9. Box plots displaying within-group scores for task performance, contextual performance, and counterproductive work behaviour (Note: Blue = Pre-Intervention, Green = Post-intervention)

Wilcoxon signed-rank tests were conducted to explore the effect of the intervention on the waitlist group scores for the three IWPQ subscales. Difference scores were symmetrically distributed, as confirmed by inspection of Q-Q plots (see Appendix K). Differences in scores on task performance were not statistically significant, (pre-test *Mdn*

= 11.00, post-test *Mdn* = 13.00, *z* = -.552, *p* = .581, *r* = .35) (see Table 6). Results for change scores for contextual performance (pre-test *Mdn* = 19.00), post-test *Mdn* = 23.00, *z* = -1.214, *p* = .225, *r* = .35) and counterproductive work behavior (pre-test *Mdn* = 3.00, post-test *Mdn* = 4.50, *z* = -.271, *p* = .786, *r* = .08) were likewise not statistically significant (see Table 6). Visual inspection of the medians indicated increases on all three IWPQ subscales from pre-test to post-test for the waitlist group (see Figure 9).

4.4 Research Question 3: How do IDD support staff rate the feasibility of the intervention?

A feasibility questionnaire was developed for the current study to examine participants' perceptions of the intervention's acceptability, convenience, and relevance to their professional role. Means and standard deviations for items on the feasibility questionnaire are summarized in Table 7. Across a 7-point Likert scale with higher scores indicating higher agreement, the highest rates of agreement were found in the waitlist group (*n* = 6) respondents on item #1 "I believe that ACT can be helpful in my work with my clients" (*M* = 6.67, *SD* = .516) and item #2 "What I was learning in the online ACT modules resonated with me" (*M* = 6.67, *SD* = .516). The intervention group (*n* = 5) reported neither agreement nor disagreement to item #5 "I found the reflection activities/exercises in the modules helpful" (*M* = 4.80, *SD* = 1.095). Overall, both groups provided positive feedback on the feasibility of the intervention, with average feasibility scores being higher for the waitlist group (*M* = 6.86, *SD* = .402) than the intervention group (*M* = 5.43, *SD* = .728). Exploratory independent t-test results showed that this was a statistically significant difference in scores, *M* = .929, 95% CI [-1.71, -1.47], *t*(9) = -2.688, *p* =.025. Further, across the change scores for all outcome variables, only the waitlist group exhibited strong significant associations between change scores on valued action and feasibility ratings, *r*(4) = .88, *p* = .02. This finding suggests that IDD support staff who perceive the intervention as more feasible tend to demonstrate higher increases in valued action.

Table 7

Means and standard deviations for the feasibility questionnaire for all participants.

Item	Intervention Group (*n*=5)		Waitlist Group (*n*=6)		Total sample (*N*=11)	
	M	*SD*	*M*	*SD*	*M*	*SD*
1. I believe that ACT can be helpful in my work with my clients.	5.60	.894	6.67	.516	6.18	.874
2. What I was learning in the online ACT modules resonated with me.	5.00	1.00	6.67	.816	5.91	1.221
3. I feel that ACT is a convenient training for me.	5.40	.894	6.33	.816	5.91	.944
4. I found the videos in the online ACT modules helpful.	5.60	.548	5.83	.983	5.73	.786
5. I found the reflection activities/exercises in the modules helpful.	4.80	1.095	6.50	.837	5.73	1.272
6. I found the online ACT modules easy to navigate.	6.20	.837	6.50	.548	6.36	.674
7. I foresee myself using ACT skills in my work with my clients.	5.40	1.140	6.00	.894	5.73	1.009

Statements generated from five open-ended questions regarding feasibility were used to explore additional feedback about which components of the modules participants found helpful, unhelpful, and/or confusing. Participants were also invited to reflect on how the online ACT modules could be improved and which parts could have more or less time spent on them. We grouped each of the participant's responses into themes for each question, and evaluated the proportion (%) of responses that clustered around each particular theme. The aim of evaluating the proportions of responses to each theme was to further determine which themes were most common/relevant among IDD support staff.

The first question regarding information or skills that were helpful for participants' professional role were grouped into the following themes: 1) Acceptance/Defusion, 2) Present Moment/The Observer, 3) Self-As-Context, 4) Values/Committed Action, and 5) All Information and Skills. Overall, the components of the models were positively endorsed by the participants. In terms of the more specific components that were identified as helpful for the working role of an IDD support staff, nearly half the sample reported on "acceptance/defusion" (60%) and "values/committed action" (40%) skills. A smaller proportion of participants (30%) noted the "present moment/the observer" skills

as helpful, and an even smaller proportion (10%) endorsed the "self-as-context" skills. The results to this first open-ended question are summarized in Table 8.

Table 8

Responses to what information/skills in the modules were helpful for participants' professional role as an IDD support staff (open-ended question; n = 10)

Theme/Skill	Examples of Contributing Data	Responses (%)
Acceptance/Defusion	"Acceptance." "Accepting the thoughts and be[ing] mindful" "Being able to accept difficult thoughts/feelings without getting hooked by them…" "Acceptance and defusion can be helpful in the midst of a stressful situation" "Just taking the time to accept my emotions and make space for them while not letting them take over completely" "Not to get distracted nor caught up with the negative going on around me"	60
Present Moment/The Observer	"Ability to recognize challenges as passing weather and we remain the sky" "The skills such as being a self-observer, remaining mindful and letting emotions pass by can help to handle the stressful emotions effectively" "Presence and the observing self seem most helpful during pairing"	30
Self-As-Context	"… helpful in taking a big picture perspective and not getting as hung up on day-to-day happenings in the workplace"	10
Values /Committed Action	"Giving more time to work on my core values and really getting to how I can make more time to focus on them" "Values and committed actions would always be helpful" "My action plan is really practical and helpful" "Not to let my thought hinder me from living my best life"	40
All Information and Skills	"I think all the information and skills will be helpful in my professional roles" "I think all of the skills discussed will be helpful in my role"	20

The second question regarding what information or skills were found unhelpful for participants' professional role were grouped into the following themes: 1) Needing more practice, 2) Language limitations, and 3) All components were helpful. While the majority of participants (78%) reported that no aspects of the modules were unhelpful, a smaller proportion of participants (11%) shared concerns regarding the level of English language complexity used; and how this may further create barriers to understanding the information in the modules by non-native English speakers. Additionally, 22% of participants spoke about the limitations in opportunities to practice the skills outlined in the modules directly with their clients. Specifically, written feedback outlined how "some of the skills would not be possible to practice with certain clients until I have practiced them more in other settings". Responses to this question are summarized in Table 9.

Table 9

Responses to what information/skills in the modules were unhelpful for participants' professional role as an IDD support staff (open-ended question; n = 9)

Theme	Examples of Contributing Data	Responses (%)
Needing more practice	"Some of the skills would not be possible to practice with certain clients until I have practiced them more in other settings. For example, observing-self would be difficult to practice for the first time during an aggressive episode, but would be more doable after additional practice" "… still interested in learning more about using ACT/related principles to directly help clients with their difficult experiences"	22
Comprehension	"The use of complex English language words [are] hard for people whose English is not their first language"	11
All components were helpful	"All are helpful" "I think, the information relates in some way to my professional role" "They were all helpful" "Not unhelpful to me, but I'm still interested in learning more about using ACT/related principles to directly help clients with their difficult experiences"	78

The third question regarding how the online ACT modules can be improved were grouped into the following themes: 1) More resources/information, 2) Formatting/visual issues, 3) Technological errors, 4) Relevance to real-world application, 5) Practice opportunities, and 6) Diversity considerations. Nearly half of the participants (44%) reported that the modules could be improved by providing more resources/information about ACT, and spending more time on specific ACT skills like values/committed action. The same proportion of participants (44%) also suggested improvements in formatting and noted the negative impact of visual and technical issues on their user experience. Specifically, participants reported how issues in expanding YouTube videos, pages automatically timing out, and the excessiveness of open-text fields contributed to feelings of stress and created distraction. Some participants (22%) recommended incorporating more practical and real-world examples in the reflection activities, including "ways to gain momentum when we find that our actions don't align with our values", "providing realistic scenarios", and more opportunities to "test/apply knowledge". Additional feedback (11%) spoke to the value of diversity considerations for participants, specifically toward the importance of incorporating more user-friendly language to improve the understanding of module content. Responses to this question are summarized in Table 10.

Table 10

Responses to how the online ACT modules can be improved (open-ended question; n = 9)

Theme	Examples of Contributing Data	Responses (%)
More resources/information	"Can provide more resources for those who would like to learn more" "Offer resources" "Need little more explanation for each module" "I would have appreciated more explanation … of the committed action section"	44
Formatting/visual issues	"… wish I could put the videos in full screen viewing mode, to view them better and with fewer distractions" "Make it more mobile device friendly. The YouTube videos wouldn't expand without opening the YouTube app" "Many open-ended questions asking for three-	44

	point answers followed by the explanations were stressful for me as a learner and led to answer[ing] for [the sake of it] rather than getting out the real experiences" "The formatting on the phone version could be improved… the videos are very similar and … sometimes felt redundant"	
Technological errors	"… at some points my answers disappeared when the page timed out"	11
Relevance to real-world application	"Providing realistic scenarios followed by some questions about the effects, challenges, or handling strategies" "How can we increase our value-oriented action when our society is very goal oriented… what are some ways to gain momentum when we find our actions do not align with our values especially due to burnout or other mental health reasons?"	22
Practice opportunities	"More sections to test/applied the knowledge" "Would have appreciated more… practice with the committed action section"	22
Diversity considerations	"User friendly language and realizing and recognizing the diversity of participants in the study"	11

The fourth question asked participants what components of the online ACT modules could have more or less time spent on them. Responses were grouped into the following themes: 1) Acceptance and/or Defusion, 2) Values and/or Committed Action, 3) All of the components needed more/less time, and 4) No components needed more/less time. Nearly half (40%) of the participants reported that more time could have been spent on acceptance and defusion skills. A smaller proportion (20%) expressed needing more time on values/committed action skills. Recommendations for minimizing redundancy were also offered by incorporating "less repetitive content in [the] videos", and spending more time on "different strategies of dealing with difficult emotions". Another smaller proportion (20%) of the participants noted how all the components of the modules could have had more time spent on them, with further supporting comments on how diversity considerations of language abilities would have been valuable to help participants "learn more and retain more knowledge". A third of the sample reported that no specific adjustments to timing were needed, suggesting that the timing and organization of the module content was acceptable. Responses to this question are summarized in Table 11.

Table 11

Responses to what components of the modules could have more or less time spent on them (open-ended question; n = 10)

Theme/Skill	Examples of Contributing Data	Responses (%)
Acceptance and/or Defusion	"The first module needs more time and explanation" "… more time practicing defusion" "Less repetitive content in videos (especially for acceptance and defusion)" "More time could be spent on the different strategies of dealing with difficult emotions"	40%
Values and Committed Action	"More committed action…" "Working on core values"	20%
All of the components/modules needed more or less time	"Yes" "All of them, due to the diversity of the participants to learn more and retain more knowledge"	20%
No components/modules needed more or less time	"No" "N/A" "Not really"	30%

The fifth question regarding what components of the online ACT modules felt confusing were grouped into the following themes: 1) Weekly ACT Diary, 2) General Content, 3) Reflection Questions, and 4) No components were confusing. A small proportion (10%) of the sample reported uncertainty around the requirements for the Weekly ACT Diary. This suggests the need for further clarity and instruction when introducing virtual journaling activities in online asynchronous settings. Another smaller proportion (10%) of participants reported confusion in comprehending the content of the models, as there was a need to "reread some parts to wrap [their] head around the concepts". Further participant feedback (10%) noted some confusion regarding the written reflection activities that asked about future plans to apply ACT skills at work. Finally, most participants (70%) noted no confusion for any of the module components, and commented that the content was all "well presented". Responses to this question are summarized in Table 12.

Table 12

Responses to what components of the modules felt confusing (open-ended question; n = 10)

Theme/Skill	Examples of Contributing Data	Responses (%)
Weekly ACT Diary	"The journal. I didn't know if I was supposed to relate it back to the content or if it needed to be work related"	10
General Content	"Had to reread some parts to wrap my head around the concepts…"	10
Reflection questions	"Especially the questions asking for what I would do in coming days with their rational"	10
No components were confusing	"Well presented" "Not really" "No" "N/A"	70

4.4.1 User-interface features and engagement

The feasibility of the intervention was further examined via user interface features (i.e., time spent on modules), questions that assessed participants' choice of device for module completion, and participants' use of the option to listen to voice recordings of longer text passages (over 100 words). A frequency analysis was conducted on the median time from the onset of module access until completion, factoring in only the participants who fully completed 100% of each module. Results indicated that on average, Module 1 (n=13) was accessed and completed within a median of 24.07 hours (range = .33 – 151.30), Module 2 (n=12) was completed within a median of 3.25 hours (range = .22 – 115.39), and Module 3 (n=11) was completed within a median of 20.64 hours (range = .77 – 125.74).

Across all three modules, the highest proportion of participants that used each type of device was up to: 46% for mobile/smart phone, 54% for laptop computer, 19% for a desktop computer, and 9% for other devices (see Table 13). Regarding the usefulness of the voice recordings for longer text passages, 91% of participants reported this option as helpful, whereas 9% reported feeling indifferent/not utilizing this feature. Out of the participants who did listen to the voice recordings of longer passages, 40% indicated a

preference for the female voice, and 60% reported feeling indifferent/having no preference for either voice.

Table 13

Type of device used to complete each module for the intervention and waitlist groups.

Module & Device Used	Intervention group (%)	Waitlist group (%)	Total (%)
Module 1	(n=5)	(n=11)	(n=16)
Mobile device/smart phone	20	46	38
Laptop Computer	80	27	44
Desktop Computer	—	27	19
Module 2	(n=5)	(n=8)	(n=13)
Mobile device/smart phone	20	38	31
Laptop Computer	80	38	54
Desktop Computer	—	25	15
Module 3	(n=5)	(n=6)	(n=11)
Mobile device/smart phone	20	67	46
Laptop Computer	60	33	46
Other	20	—	9

Attention engagement was slightly higher in the intervention group (89%) than the waitlist group (84%), and response engagement was lower in the intervention group (85%) than the waitlist group (94%). Overall, both groups exhibited high degrees of engagement with the module content. Table 14 summarizes the percentages of attention engagement and response engagement scores for each group, as well as the full sample.

Table 14

Percentages of attention engagement and response engagement for the intervention and waitlist groups.

Engagement Type	Intervention group (n=5)		Waitlist group (n=6)		Total (n=11)	
	%	*SD*	*%*	*SD*	*%*	*SD*
Attention Engagement	89	5.56	84	14.66	86	11.21
Response Engagement	85	26.56	94	10.08	90	18.83

4.5 Exploratory Analyses

We conducted additional exploratory analyses to examine the feasibility of the intervention by IDD support staff, given that the participant dropout rate was 69% after the completion of demographics. Demographic characteristics were re-examined with

Fisher's Exact tests for the initial registered pool of 35 IDD support staff. Differences in proportions on demographic characteristics between those who participated fully in all components of the study (n = 11) were compared with those who did not participate fully (n = 24); from here on, referred to as "full-participants" and "non-participants", respectively.

Fisher's Exact test (2 x 2) results indicated statistically significant differences in proportions for hours worked between the two participant groups, p =. 015. Out of the full-participants, five (46%) were full-time workers, and six (55%) were part-time workers; whereas non-participants consisted of 21 (88%) full-time workers and three (13%) part-time workers (see Appendix L). A Fisher's Exact test (2 x c) was also conducted on age groups between full-participants and non-participants and indicated that the two multinomial probability distributions were not equal, p = .048. Observed frequencies and percentages of age groups for each type of participant group are presented in Table 15.

Table 15

Crosstabulation of age group and participant group (full-participants and non-participants).

Age Group (in years)	Full-participants (n=11)		Non-participants (n=24)	
	Count	% within group	Count	% within group
Less than 24	0	0	1	4.2
25-35	5	45.5	8	33.3
36-45	2	18.2	7	29.2
46-55	0	0	7	29.2
56-65	3	27.3	1	4.2
Over 66	1	9.1	0	0

Chapter 4

5 Discussion

The current study aimed to examine the preliminary effects of a brief, online, and self-guided adaptation of ACT for IDD support staff on self-reported burnout, psychological distress, psychological flexibility/inflexibility, and work performance. Previous research on the effectiveness of ACT for IDD support staff has been limited to in-person group-based brief interventions. The current study is the first to implement a brief ACT intervention for IDD support staff that is also simultaneously online-based and self-guided, in accordance with recommendations offered by Smith and Gore (2012).

It was hypothesized that the intervention would reduce burnout and psychological distress and increase psychological flexibility and work performance. Our results indicate that we can reject the null hypotheses for the intervention reducing burnout and increasing psychological flexibility only in the waitlist group. However, our results fail to reject the null hypothesis for the intervention reducing psychological distress and improving work performance in both the intervention and waitlist groups. These results should be interpreted with caution due to the impacts of a small sample size. Understanding the effectiveness of a brief, online, and self-guided format of ACT on well-being and work-related outcomes in IDD support staff may expand the evidence base for the malleability of this modality. The findings may further support this delivery mode of ACT as a feasible alternative to 1:1 in-person therapy. The results may shape future designs of online-based ACT interventions. Qualitative feedback regarding the feasibility of the intervention may further inform future designs for online-based ACT programming for specialized populations.

5.1 Research Question 1: What are the associations between psychological flexibility, psychological distress, burnout, and work performance?

The Pearson correlation analysis demonstrated that psychological inflexibility (as measured by the AAQ-II) and psychological flexibility (as measured by the CompACT subscales: openness to experience, behavioral awareness, and valued action) were

significantly inversely related, as expected. Psychological inflexibility was also strongly positively associated with psychological distress; this is consistent with previous research finding how IDD support staff high in psychological inflexibility tend to experience higher distress, negative affect, and symptoms of depression and anxiety (E.g., Hayes et al., 2006; Lizano, 2015; Reeve et al., 2018).

Across the burnout subscales of the MBI (emotional exhaustion, depersonalization, and personal accomplishment), psychological distress was highly significantly associated with emotional exhaustion and depersonalization. These associations are consistent with research supporting psychological distress as an integral component in the experience of burnout for IDD support staff (Bethay et al., 2012; Reeve et al., 2018). Psychological inflexibility also showed moderate positive associations with emotional exhaustion and depersonalization, and a moderate negative association with personal accomplishment. However, these links were non-significant. The non-significant associations between these variables are consistent with the lack of treatment effects in previous studies implementing ACT for burnout in IDD support staff (Reeve et al., 2018). This may suggest the potential limitations of the AAQ-II as an effective measurement tool in capturing the relevant correlates to the MBI subscales. Research investigating the content validity of the AAQ-II highlighted issues in discriminant validity between psychological inflexibility and other distress outcomes/psychopathology (Wolgast, 2014). Hence, this presents a need for more robust ACT-related measurement tools to study burnout treatment outcomes.

Across the psychological flexibility subscales of the CompACT (openness to experience, behavioural awareness, valued action), psychological distress was strongly negatively associated with openness to experience and behavioral awareness. This is consistent with previous research that indicates how avoidance of unpleasant emotional responses increases the risk of stress and burnout in IDD support staff (Leoni et al., 2016). Additionally, higher acceptance has been associated with lower psychological distress (Noone & Hastings, 2011). Only behavioral awareness and valued action were strongly positively related to personal accomplishment for burnout. This finding is consistent with previous literature that found positive associations between IDD support staff values and

personal accomplishment (Noone & Hastings, 2011). Additionally, paying more mindful attention to one's current thoughts and actions is conducive to stress management strategies that lend to mitigating burnout (Hofer et al., 2018; Leoni et al., 2016; Vilardaga et al., 2011). None of the psychological flexibility subscales were significantly associated with emotional exhaustion or depersonalization. These varying outcomes across the burnout dimensions have been previously documented, as research supports how the personal accomplishment dimension depicts relatively low correlations with the other two burnout dimensions (Lloyd et al., 2013). These findings suggest that different patterns of associations may be expected to emerge between personal accomplishment and other work-related variables (Lloyd et al, 2013). Interventions may benefit from investigating effective methods for enhancing behavioral awareness in IDD support staff to reduce burnout and increase work performance.

Previous research underscored the need to further investigate the relationship between ACT components and IDD support staff's work performance (Pingo et al., 2020a). The current research found that out of the subscales of the IWPQ (task performance, contextual performance, counterproductive work behavior), task performance was strongly positively associated with all three of the psychological flexibility subscales. This is consistent with research finding that higher psychological flexibility correlates with and longitudinally predicts better job performance (Bond & Bunce, 2003). However, only contextual performance was positively significantly related to valued action, and counterproductive work behavior was negatively significantly related to behavioral awareness. These findings may suggest the advantage of targeting the individual components of psychological flexibility separately to better understand their relationship with specific elements of work performance. This also suggests that harmful work behaviors are most likely to occur in IDD support staff with lower awareness of their current actions. This finding is consistent with previous literature that states that present-moment awareness of thoughts and actions lead to more opportunities to dedicate positive work-related behaviors (Noone & Hastings 2010). These findings further support the value of utilizing more robust measurement tools (like the CompACT) to capture dynamic constructs like psychological flexibility. This may permit a more precise understanding of how more individualized ACT constructs relate to different aspects of

work performance. As expected, psychological inflexibility was strongly negatively associated with task performance and contextual performance, strongly positively associated with counterproductive work behavior. Additionally, we were surprised to find that only counterproductive work behavior was significantly positively correlated with psychological distress, whereas task performance and contextual performance were not significantly correlated. This suggests that work performance aspects that are specifically aligned with behaviors that are harmful to the well-being of an organization (i.e., absenteeism, off-task behavior, theft, substance abuse) are the ones most closely associated psychological distress (Rotundo & Sackette, 2002; Koopmans et al., 2011). Overall, these associations confirm that higher psychological inflexibility, similar to psychological distress, presents challenges for work performance in IDD support staff.

Across the MBI and IWPQ subscales, only emotional exhaustion and depersonalization had large positive significant associations with counterproductive work behavior. This is consistent with previous literature that found burned-out IDD support staff at a higher risk of underperforming and engaging in problematic work behaviors (Lizano, 2015; Reeve et al., 2018; Taris, 2006). In this sense, high levels of exhaustion may signify workers possessing insufficient resources to effectively deal with their job demands, thus leading to impaired job performance (Taris, 2006). The lack of significance between the other variables may be due to a small sample size, or a true lack of significant results.

5.2 Research Question 2: How does the intervention influence psychological flexibility, burnout, psychological distress, and work performance in IDD support staff?

5.2.1 Hypothesis 1: The intervention will reduce burnout

We evaluated the three subscales of the MBI (emotional exhaustion, depersonalization, personal accomplishment) in our main analysis and found that our first hypothesis was supported, hence we can reject the null hypothesis stating that the intervention will not have an effect on burnout, and accept the alternative hypothesis. The intervention significantly reduced emotional exhaustion when comparing differences between the

intervention and waitlist groups and differences within the waitlist group alone. This may further offer valuable practical implications for the effectiveness of online-based ACT in reducing burnout and enhancing workplace mental health. Subsequently, reducing emotional exhaustion has been supported as a workforce management strategy to protect the well-being of frontline workers (Lizano, 2015), and provide organizational advantages in delivering better client care (Taris, 2006). However, no significant effect was found within the intervention group. Previous research observed greater reductions in burnout when scores were lower to begin with (Schwetschenau, 2008), suggesting that ACT interventions may be better received by initially less burned-out individuals. This was inconsistent with our data, as all participants averaged at moderate levels of emotional exhaustion pre-intervention, based on cut-off scores reported by Thorsen et al. (2011). However, the effect size for emotional exhaustion was large within the intervention group (r = .51), suggesting that the lack of significant results may be attributed to a small sample size (Cook & Campbell, 1979). We also did not find any between or within-group differences for depersonalization or personal accomplishment post-intervention. The waitlist group displayed medium to large effect sizes for depersonalization (r = .53) and personal accomplishment (r = .37), which further suggest that a significant treatment effect would likely be present if the sample was larger.

Overall, these findings are consistent with a meta-analysis of 47 randomized controlled interventions for reducing burnout in employees, including healthcare and social service workers (Maricutoiu et al., 2016). Significant effect sizes were consistently found for reducing emotional exhaustion but not for depersonalization or personal accomplishment (Maricutoiu et al., 2016). Lack of consistency in well-being outcomes for depersonalization and personal accomplishment was previously documented (Lizano, 2015). This indicates a need for further investigation. This trend has also been suggested to reinforce the theory of job burnout, which proposes that emotional exhaustion is the most central dimension of burnout (Maslach et al., 1981). Hence, meaningful changes in emotional exhaustion can lead to a greater understanding of the experience of burnout in IDD support staff. Overall, although online-based ACT demonstrates effectiveness in reducing emotional exhaustion in IDD support staff, the theoretical framework of this

modality may be limited in meaningfully impacting the depersonalization and personal accomplishment components of burnout.

5.2.2 Hypothesis 2: The intervention will increase psychological flexibility

The current study is the first to employ the CompACT in assessing a brief, online, and self-guided ACT intervention for burnout in a sample of IDD support staff. Our second hypothesis was supported regarding the intervention increasing psychological flexibility, so we can reject the null hypothesis stating that the intervention will not have an effect on psychological flexibility. Specifically, there was a significant increase in valued action between the intervention and waitlist groups and within the waitlist group alone. No significant between or within-group differences were observed for behavioral awareness and openness to experience. Considering the suggestions proposed by Bethay et al. (2012), the current study focused on personal values clarification and committed action within the online modules. It is possible that engaging participants in active reflection of their work-related values facilitated improvement in self-reported meaningful action. Consistent with previous literature, these findings reinforce the utility of maximizing the personal relevance of ACT-based interventions to target groups to enhance treatment effects (Bethay et al., 2012; Noone & Hastings, 2010). Other authors also state that interventions aimed at IDD support staff should include components that support a dedication to “commitment”, to further help staff take meaningful actions in the service of their values (Leoni et al., 2016).

Additional exploratory analyses assessed a composite score for psychological flexibility (i.e., collapsing the three CompACT subscales together). Results indicated that the waitlist group exhibited a significant overall increase in scores, whereas the intervention group did not. This result may be explained by the intervention group slightly decreasing on two out of three psychological flexibility subscales (openness to experience and behavioral awareness) from pre to post-intervention. In contrast, the waitlist group exhibited gradual increases across all three subscales. As psychological flexibility and psychological inflexibility were inversely correlated, we expected significant increases in psychological flexibility to precede decreases in psychological inflexibility (and vice

versa). However, the intervention did not significantly decrease psychological inflexibility scores between or within both study groups. These findings further highlight the importance of utilizing more robust measurement tools for psychological flexibility (e.g., CompACT) to better capture nuances in treatment effects that a composite measure (e.g., AAQ-II) may otherwise not be able to capture (Francis et al., 2016; Reeve et al., 2018).

5.2.3 Hypothesis 3: The intervention will reduce psychological distress

Our third hypothesis was not supported, as the intervention did not significantly effect psychological distress for both the intervention and waitlist groups; hence we fail to reject the null hypothesis that states the intervention will not have an effect on psychological distress. Based on previous literature on the application of ACT for IDD support staff, a reduction in psychological distress was a strongly anticipated finding (Bethay et al., 2012; McConachie et al., 2014; Noone & Hastings, 2009; Noone & Hastings, 2010; Reeve et al., 2018; Schewtschenau, 2008; Smith & Gore, 2012; Waters, 2017). Out of these studies, a smaller proportion observed significant reductions in psychological distress scores when they were high at baseline (Bethay et al., 2012; McConachie et al., 2014; Noone & Hastings, 2010; Leoni et al., 2016). However, this trend was not supported in the current study despite the intervention (M = 22.60, SD = 8.173) and waitlist (M = 21.73, SD = 8.38) groups exhibiting high average baseline levels of psychological distress, according to cutoff scores appointed by Andrews & Slade (2001). However, the effect size for the between-group analysis was moderate (g = .34), which is consistent with previous research applying self-guided online-based interventions for depressive symptoms (Lappalainen et al., 2013). This suggests that the non-significant findings may further be attributed to a small sample size.

It is also possible that the non-significant differences in openness to experience and behavioral awareness (mentioned earlier) may be linked to the non-significant results for psychological distress. This is consistent with research supporting how higher psychological flexibility predicts lower psychological distress (e.g., Bond & Bunce, 2003; Leoni et al., 2016; Lloyd et al., 2013). Finally, the lack of significant findings may

also be attributed to the measurement tool used for psychological distress, as the current study utilized the K10. In contrast, previous research evaluating ACT for IDD support staff employed variations of the popular GHQ, and less commonly the SSQ. Although the K10 has been supported as a valid and preferable measure of psychological distress over the GHQ (Andrews & Slade, 2001), the items of the K10 may measure more distinct attributes of psychological distress (e.g., anxiety and depression symptoms) that a brief, self-guided, and online-based ACT intervention may not be able to influence. Overall, inconsistent findings on the effects of ACT interventions for psychological distress in IDD support staff have been documented (Reeve et al., 2018). Future research may benefit from illuminating why some participants demonstrate improvement in psychological distress while others do not.

5.2.4 Hypothesis 4: The intervention will improve work performance

The current study incorporated a measure of work performance, as recommended by Smith and Gore (2012) to broaden the applicability of ACT interventions in understanding human service worker well-being. However, our fourth hypothesis was not supported, hence we fail to reject the null hypothesis that states that the intervention will not have an effect on work performance. Specifically, the intervention did not significantly increase self-reported work performance in both study groups. Visual inspection of the data indicated that the waitlist group exhibited median increases in task performance and contextual performance, whereas the intervention group decreased. It is possible that the intervention group's median decreases in task performance and contextual performance (although non-significant) may be attributed to the ACT model of change, indicating how engaging in mindfulness-based skills awareness and acceptance of thoughts may lend to enhanced awareness of one's own shortcomings in work performance. Additionally, the within-groups analyses exhibited small to moderate effect sizes for task performance and contextual performance for both groups (r = .26 - .35). This suggests the potential for significant treatment effects with a larger sample.

According to cut-off scores suggested by Koopmans (2015), baseline work performance for each of the IWPQ subscales fell into the average range for the intervention group.

Baseline scores were low for task performance, very high for contextual performance, and average for counterproductive work behavior in the waitlist group. Although the waitlist group increased from low to average task performance after the intervention, this was not a statistically significant improvement. Overall, these predominantly average baseline scores in work performance suggest that our sample of IDD support staff may have had limited room for improvement to begin with, leading to non-significant treatment effects. Examining treatment effects in individuals struggling with low baseline work performance may increase the likelihood of finding a significant treatment outcome.

5.3 Research Question 3: How do IDD support staff rate the feasibility of the intervention?

We developed a post-intervention feasibility measure to gather IDD support staff's feedback on their experience completing the online modules, as suggested by authors in the field (Noone & Hastings, 2009). Recommendations further suggested capturing the degree to which participants found ACT techniques acceptable and relevant to their working role (Noone & Hastings, 2009). The results of the questionnaire-based feedback may suggest preliminary evidence for a brief, online, and self-guided ACT being positively endorsed by IDD support staff for its accessibility and relevance/helpfulness to their specific role. These findings are consistent with previous research finding generally high acceptability ratings of online-based ACT interventions (Hofer et al., 2018; Lappalainen et al., 2014; Levin et al., 2020). Additionally, the waitlist group exhibited significantly higher feasibility scores than the intervention group, with higher feasibility scores being significantly associated with improvement in valued action. This suggests that the individuals in the waitlist group may have resonated with the ACT intervention more and found it more valuable for their professional role. Future research is needed to explore nuanced differences in IDD support staff that favourably perceive the intervention. Additionally, nearly half of the participants (44%) expressed further interest in learning about ACT. These findings are consistent with previous literature that indicates how interventions emphasizing acceptance and mindfulness skills resonate well with IDD support staff (e.g., Emery & Vandenberg, 2010; Leoni et al., 2016; Noone & Hastings, 2010; Noone & Hastings, 2011).

Qualitative answers to the open-ended questions provided further support for the feasibility of the intervention and subsequent suggestions for module improvement. A smaller proportion of participants highlighted concerns regarding English language complexity in the module design. This feedback is consistent with research noting the prevalence of communication challenges in online settings, as the absence of non-verbal cues may contribute to misunderstandings over text-based media (Bauman & Rivers, 2015; Harris & Birnbaum, 2015). Additionally, participants commented on the practical limitations of the online ACT intervention to adequately prepare them to apply their learned skills in their work with their clients. Participants also commented on the need to improve user-interface complications and allocate more attention to real-world relevance/application activities. Additional commentary noted the importance of minimizing redundancy in module content and providing more strategies for dealing with difficult emotions. Future studies should take this feedback into account to make the best use of participants' time.

Some participants described unclear expectations for some features/activities, and experienced issues understanding the ACT concepts. This feedback is consistent with a similar theme across previous qualitative open-ended answers that spoke to the barriers in comprehension. This may reinforce the importance of mitigating English language complexities to improve participants' understanding of the module content. Future research may also consider testing English comprehension levels prior to enrollment. Greater clarity/instruction to complete the written reflection activities (e.g., by providing "sample answers" as examples or offering step-by-step written walk-throughs of expectations) may also be provided. Overall, although the online ACT modules demonstrate clear room for improvement, most participants reported that the modules were well presented.

Exploratory analyses revealed that the participants who dropped out of the study consisted of nearly twice the number of full-time workers than those who fully participated. This suggests that the design of the intervention may not have presented a suitable time commitment for full-time working IDD support staff. Additionally, the age group differences in proportions between full-participants and non-participants suggest

that the intervention may have been the most feasible for 25-35 year-olds. Thus, in a sample of predominantly part-time working IDD support staff, nearly half (46%) of which were 25-35 years old, attitudes were generally favorable toward the feasibility of the intervention for their specific working role. Given that young adults are the most likely age demographic to utilize the internet and seek health information online (Chiauzzi et al., 2008; Hanauer et al., 2004), our sample pool is representative of the age demographic of the IDD support staff that may find an online-based intervention most appealing.

5.3.1 User interface features and engagement

We found that both attention engagement (86%) and response engagement (90%) were overall high across all participants. This suggests that participants were able to interact intentionally with the module content, pay attention to the concepts being taught, and provide meaningful reflection. These assessments of engagement may also indicate the validity of the intervention. Previous researchers have used similar approaches in calculating the frequency of exercises completed and accurate quiz answers as structured measures of adherence/engagement in an online ACT setting (Hofer et al., 2018). Our findings also suggest that including alternative methods for presenting written information like audio transcriptions may be a helpful feature in enhancing the feasibility of online interventions for IDD support staff.

Chapter 6

6 Limitations & Future Directions

This study provides preliminary evidence for the effectiveness of a brief, online, and self-guided ACT intervention for IDD support staff for reducing burnout and increasing psychological flexibility, but several limitations must be acknowledged.

6.1 Sample size

The statistical findings of the current study are limited due to small sample sizes in the intervention and waitlist groups, which presents an issue of low statistical power and increases the probability of a Type II error (Cook & Campbell, 1979). However, some between-group outcomes showed non-significant results with moderate effect sizes, such as psychological distress (g = .34), contextual performance (g = -.58), openness to experience (g = .32), and depersonalization (g = -.44). This suggests that a significant finding may have been present if the sample was larger (Cook & Campbell, 1979). Future studies are encouraged to incorporate a larger sample size to increase statistical power and attain statistically significant results while also considering approaches to minimize participant attrition.

6.1.1 Participant attrition

The participant drop-out rate was 69% after completing demographics, these trends underscore the need for future considerations in mitigating participant attrition. Low treatment adherence has also been documented in previous research implementing online-based ACT with healthcare workers (Brown et al., 2020), which suggests that additional hurdles may exist in retaining participants in online environments. Additionally, since this research was conducted during the ongoing COVID-19 pandemic, a series of pandemic-related stressors may have presented challenges for some IDD support staff to remain in the study. Regardless, our research did not directly explore the reasons for participant attrition. Future research may consider investigating specific reasons for participant withdrawal by incorporating follow-up dropout measures, and/or

administering baseline measures along with the demographics questionnaire to explore the influence of potential clinical implications (e.g., burnout).

6.1.2 Participation Incentive

It is also important to note that the current research recruited IDD support staff on a voluntary basis. Hence, no additional incentive beyond draws for monetary compensation were offered. This makes it challenging to determine the true level of clinical need for support in our sample, and if a brief, online, and self-guided ACT would have otherwise attracted more participants under mandated conditions. While incentivizing participants is valuable, encouraging participation in ACT interventions in applied settings may have the potential to reach a greater number of workers (Waters, 2017). Offering additional outlets for employees to access ACT training can be possible through staff onboarding training or integration into routine-practice settings in employment organizations (Lizano, 2015; Waters, 2017). Since ACT interventions are often implemented in workplaces with no previously mandated ACT programming (Waters, 2017); such organizational-level efforts to encourage participation in ACT can promote more seamless opportunities for a greater number of workers to access support; as well as function as a preventative measure to avoid future burnout.

6.1.3 Time Commitment

As mentioned previously, out of the participants who dropped out of the study, most (85%) worked full-time hours. This suggests that a three-week intervention timeline consisting of approximately 6 hours of asynchronous ACT may not be well suited to the busy work schedules of full-time IDD support staff. Previous research recommends that briefer and more frequent sessions may be particularly appealing to IDD support staff, who are often limited in the amount of time they can spend away from their clients (Bethay et al., 2012; Pingo et al., 2020a; Waters, 2017). Hence, future directions may consider targeting each of the ACT processes in individual, even shorter modules (i.e., six modules total, each focusing on one core process, occupying 30-45 minutes per module) to respect IDD support staff's time and further promote intervention adherence. Additionally, the timeline of the ACT modules may be tailored to provide participants

more choices in how they wish to allocate their time. For instance, modules may be personalized based on participants' interests in developing particular ACT skills (i.e., focusing more on values as opposed to acceptance/mindfulness). This not only permits exposure to specific skills that participants would be most interested in developing, but it also supports participants' using their time in ways that feel the most valuable to them.

6.2 Measurement tools

6.2.1 Psychological Flexibility

The findings may be limited by the measurement tools used for psychological flexibility. As noted previously, the AAQ-II has been criticized for issues with construct validity and conflation with psychopathology (Wolgast, 2014; Gámez et al., 2011). Although the CompACT was developed to address the shortcomings of the AAQ-II, the scale has an uneven focus on the six ACT processes, with no items explicitly focusing on the core process "self-as-context" (Francis et al., 2016). Given that self-as-context skills were identified as particularly useful for a portion of our sample, the measurement tools used were unable to capture this ACT process. Future research may consider testing more newly developed and contextually sensitive measures of psychological flexibility, such as the Psy-Flex (Gloster et al., 2021). The Psyc-Flex is considered to have good convergent, divergent, and incremental validity, assesses all six core ACT processes, and can differentiate between clinical and non-clinical samples in predicting a range of well-being outcomes (Gloster et al., 2021).

6.2.2 Process-based Variables

The findings eof the current research may further be limited by evaluating psychological flexibility as an outcome rather than a process variable. Previous research supports evidence for ACT working in part by modifyin*g* an individuals' relationship with harmful/difficult psychological content (Waters, 2017). Additional research in work-related contexts also supports psychological flexibility as a mediating variable for ameliorating psychological distress (Flaxman & Bond, 2010; Schwetschenau, 2008). Hence, investigating the mediating/moderating impact of psychological flexibility and other individual ACT-related processes (values, acceptance, defusion, etc.) may present

valuable insights in further understanding the effectiveness of online-based ACT for IDD support staff (Bond et al., 2013).

Future research on ACT in workplace contexts may also consider maximizing the predictive utility of ACT-related process variables by utilizing more contextually relevant measures, such as the Work-Related Acceptance and Action Questionnaire (WAAQ; Bond et al., 2013). The WAAQ has been observed to correlate significantly more strongly with work-specific outcomes (e.g., burnout). In contrast, the AAQ-II correlates more strongly with contextually stable outcomes (i.e., mental health, personality; Bond et al., 2013). Another relevant ACT-process measure is the Support Staff Values Questionnaire (SSVQ; Noone & Hastings, 2011). The SSVQ examines specific IDD support staff work-related values such as commitment to clients, making a difference to them, and other general aspects of their working role and relationships with co-workers (Noone & Hastings, 2011). Previous research showed that higher congruence between life values and personal work-related values was linked to higher well-being and lower burnout (Veage et al., 2014). Hence, greater understanding of the values that are specific to IDD support staff may be a fruitful future direction in designing more effective and feasible online ACT-based treatments for this population group.

6.2.3 Work performance

Although there were significant associations between burnout (i.e., emotional exhaustion and depersonalization) and counterproductive work behavior in the current study, the effects of the intervention may be limited by the shortcomings of using a subjective self-report measure of work performance. Self-report work performance measures risk inflation in associations between outcome variables due to factors such as negative affectivity, halo effects, and self-report bias (Podsakoff et al., 2003; Taris, 2006). Additionally, the high levels of cognitive processing required for subjective measures of work performance are noted to risk in bias in scores (Frese & Zapf, 1988). This reinforces the importance of using objective measures of work performance in future ACT research (Pingo et al., 2020a; Pingo et al., 2020b; Taris, 2006). However, some researchers contend that key issues in the measurement of work performance come down to the importance of them being reliable and valid instead of objective vs. subjective

(Kompier, 2005). Future research may consider using validated objective measures of work performance that include reports from supervisors/managers regarding productivity, or evaluation of work behaviors in naturalistic settings. Measures that are developed specifically for IDD support staff may further be relevant to incorporate, such as the four work performance measures developed by Hatton et al (2009). These measures consist of self-rated, client-rated, family member-rated, and manager-rated scales reflecting the priorities of individuals with disabilities and their families. Overall, it is valuable to continue implementing ACT interventions that are specifically geared toward increasing job performance in IDD support staff (Pingo et al., 2020a; Taris, 2006), as well as developing and applying relevant measures for effective evaluation.

6.3 Feasibility of Brief, Online, and Self-Guided ACT

6.3.1 Selection Strategies

As the breadth of target issues (e.g., burnout) is higher in IDD support staff that work more frequently (Leoni et al., 2016), it is crucial to design online-based ACT interventions to be feasible for those who may benefit from them the most (Ahola et al., 2017; Hofer et al., 2018; Schwetschenau, 2008; Waters, 2017). For instance, future research may consider revising eligibility criteria by screening individuals for high levels of psychological distress and/or burnout. In terms of implementation strategies, employment agencies may consider administering routine online-based ACT programming to workers on an optional basis, via referrals from supervisors, or invitations from employee assistance programs (Bethay et al., 2012). Thus, catering interventions on a needs-based paradigm can be especially useful as opposed to a universal application (Bethay et al., 2012). These more selective strategies for enrollment may help avoid the “dilution effect” observed in previous studies of ACT at work, in which presenting issues can be widely variable in groups of workers (Waters, 2017). Overall, it is vital for organizations to implement ACT-based interventions for greater numbers of IDD support staff as a preventative strategy (Leoni et al., 2016). Such strategies are needed to protect workers from the development of unnecessary work-related issues or clinical conditions.

6.3.2 Comprehension Issues

As noted in participants' qualitative feedback, the effectiveness of the intervention may have been further limited by issues in comprehending the module content. Future research in designing online-based ACT may benefit from incorporating: 1) more stringent eligibility criteria to confirm English-language proficiency, 2) including more simple language in the online modules when describing complex ACT concepts, and 3) providing more explicit instructions and clarification of expectations for reflection activities. It may also be helpful to include a frequently asked questions page, provide example answers, and obtain feedback from/collaborate with individuals who have English as a second language to ensure clarity.

6.3.3 Lack of Tailored Feedback

It is also important to highlight that the current study did not implement tailored feedback to participants, which may have presented limitations for those who may have been willing to seek out clarification about the module content but were not able to do so. Previous research implemented online-based ACT with tailored feedback from coaches for a sample of distressed university students, and found significant treatment effects and a high adherence rate (about 90%) (Räsänen et al., 2016). Some responsibilities of the coaches in this study were to provide participants with opportunities to clarify misconceptions about the ACT material they were learning and offer empathic encouragement to complete the modules (Räsänen et al., 2016). Incorporating the option of connecting with a live coach/therapist as a feature to clarify any content-related confusion, support participant retention, and enhance intervention effectiveness may be a helpful consideration in forthcoming applications of ACT. Overall, future research is encouraged to continue exploring the feasibility of brief, online, and self-guided interventions to further gain insights as to what kind of IDD support staff is an ideal candidate for this type of delivery mode, and what specific aspects maximize therapeutic effectiveness.

6.3.4 Research Designs

Research highlights the prevalence of knowledge gaps in the effectiveness of online interventions in comparison to in-person interventions (Barnett & Scheetz, 2003; Moreno et al., 2020). In this sense, evidenced-based therapeutic interventions do not always translate effectively into online and self-guided platforms (Moreno et al., 2020; Rosen & Lilienfeld, 2016). While comparisons of online-based and in-person ACT were previously researched in university students (Lappalenain et al., 2014), such comparisons may be limited in generalizing findings toward more specialized working groups like IDD support staff. Direct comparison studies may offer more conceptual clarity in understanding the more nuanced feasibility characteristics that are relevant for IDD support staff in in-person vs. online-based therapeutic environments.

6.3.4.1 Longitudinal

The current study did not incorporate follow-up measures. This may present limitations in observing the long-term impact of brief, online, and self-guided ACT, since previous research supports ACT for its culminating effects over time (e.g., Bond & Bunce, 2000; Hofer et al., 2018; Räsänen et al 2016; Schwetschenau, 2008). Tracking progress by implementing longer follow-up timepoints can help provide participants with more opportunities to consolidate their learning, engage in real-world application of skills, and demonstrate behavior change (Schwetschenau, 2008; Leoni et al., 2016). This may also address the qualitative feedback provided by participants who expressed not having opportunities to apply the ACT skills they learned, and increase the likelihood of finding significant treatment outcomes for work performance and psychological distress. Additionally, having ongoing ACT training may offer valuable opportunities to maintain appropriate levels of motivation, information, and reinforcement of learned material (Leoni et al., 2016), as most of our sample expressed interest to learn more about ACT. Understanding the trajectory of subsequent mental health outcomes (e.g., burnout) in workplace contexts over time can further inform future directions in bolstering employee mental health (Noone & Hastings, 2011; Lizano et al., 2016).

Chapter 7

7 Conclusion

The results of this pilot study highlight the preliminary effectiveness of a brief, online, and self-guided adaptation of ACT for IDD support staff to reduce burnout and increase psychological flexibility. The intervention did not improve psychological distress or work performance. Whereas brief ACT has been previously implemented to bolster workplace mental health, a delivery mode that is also simultaneously online and self-guided has not been previously evaluated for IDD support staff. This research extends the recommendations outlined by Smith and Gore (2012) in diversifying the delivery modes of ACT interventions for IDD support staff through the adaptation of self-guided and e-learning components. The conclusions drawn from these results are encouraged to be interpreted with caution due to the small sample size.

The current research also offers insight into the feasibility of brief, online, and self-guided ACT for IDD support staff; this delivery mode was positively endorsed by a mainly young adult, part-time working sample. Such cost-effective and flexible variations of ACT are relevant to understanding alternative formats of mental health support during the COVID-19 pandemic, which has exacerbated work-related stressors and burnout across a wide range of frontline professionals (Lunsky et al., 2021; Talaee et al., 2020). Our results are also meaningful given the prevalence of mental health problems in human service worker populations (Waters, 2017) and poor access-to-treatment rates (Hilton et al., 2008). Brief, online, and self-guided ACT may offer more cost-effective, flexible, and time-sensitive support for IDD support staff, which is crucial for individuals coming from low-income households or experiencing pandemic-related financial complications. Now is a critical time to implement research that will assess the effectiveness of online interventions and respond to a global need for mental health support in frontline workers. Future research is encouraged to continue exploring implementations of brief, online, and self-guided ACT to support the mental health and well-being of frontline workers, and further explore methods to enhance intervention design and feasibility.

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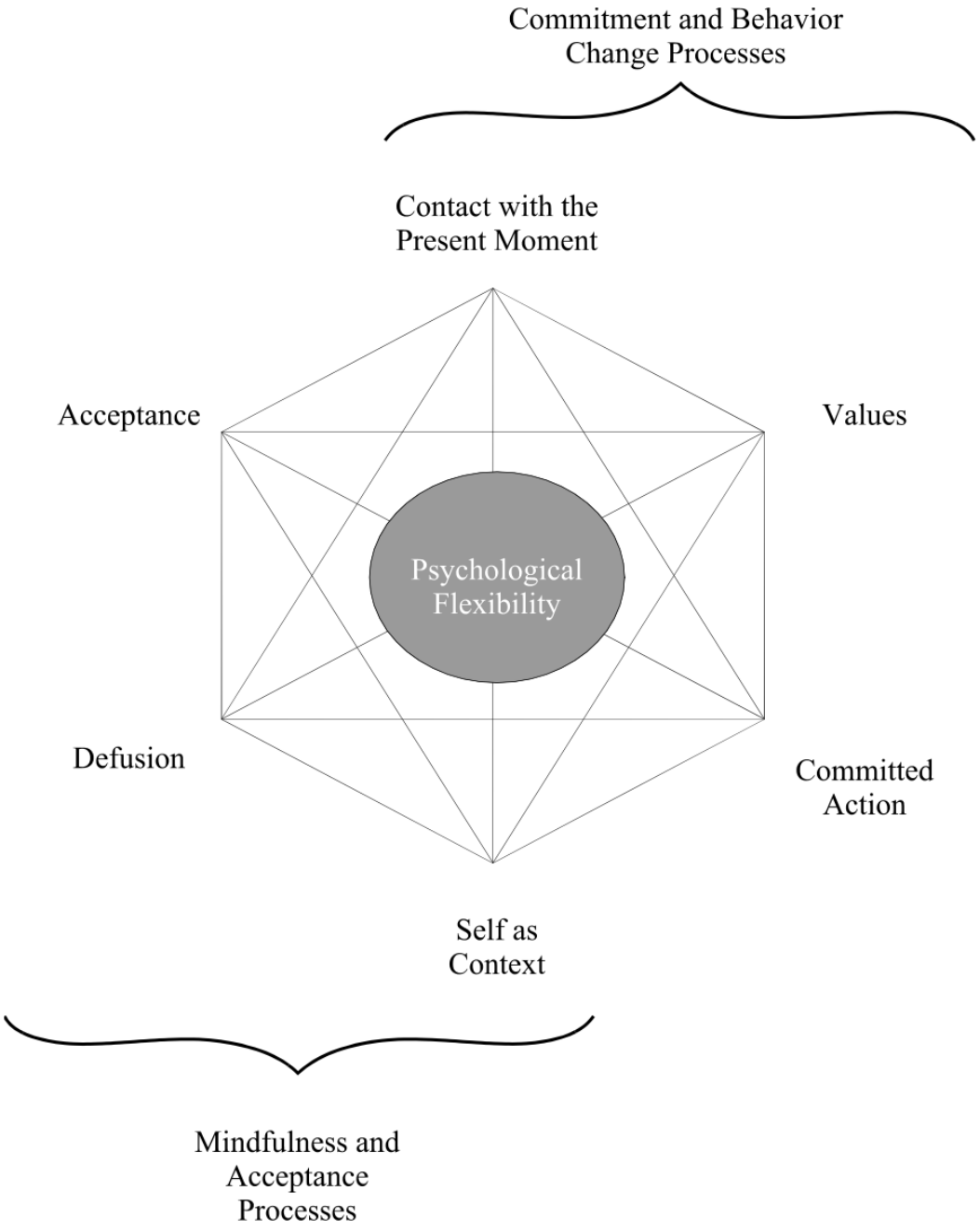
Appendices

Appendix A

The ACT Model ("hexaflex") with the six core processes (Hayes et al., 2006, p. 25)



Appendix B

Demographics Questionnaire

Note: When providing answers to open ended text-box questions, please ensure that you do not include any identifiable details regarding yourself, your co-workers/employers, or clients to further ensure additional confidentiality protections.

What is your age in years?

_____

What is your sex assigned at birth?

- ○ Male
- ○ Female
- ○ Prefer not to say

Which gender do you identify as?

- ○ Male
- ○ Female
- ○ Genderqueer/Non-binary
- ○ Transgender
- ○ Prefer to self-describe _____
- ○ Prefer not to say

With which ethnic groups do you identify? (Please select all that apply)

- ☐ Black (African, Afro-Caribbean, etc.)
- ☐ East Asian (Chinese, Japanese, Korean, etc.)
- ☐ Indigenous (First Nation, Inuit, Metis, etc.)
- ☐ Latinx/Hispanic
- ☐ Pacific Islander
- ☐ Middle Eastern (Iranian, Lebanese, Moroccan, etc.)
- ☐ South Asian (Indian, Pakistani, etc.)
- ☐ Southeast Asian (Vietnamese, Filipino, etc.)
- ☐ White/European
- ☐ My ethnic group is not listed: _____

Please indicate your highest level of education attained:

- ○ College Diploma
- ○ Bachelor's Degree
- ○ Master's Degree
- ○ Doctoral Degree

Please indicate your estimated annual household income (combined):

- ○ Less than $20,000
- ○ $20,000 - $34,999
- ○ $35,000 - $49,999
- ○ $50,000 - $74,999
- ○ $75,000 - $99,999
- ○ Over $100,000

Please indicate your religious affiliation:

- ○ Christian/Catholic
- ○ Christian/Non-Catholic
- ○ Buddhist
- ○ Jewish
- ○ Muslim
- ○ Agnostic
- ○ Atheist
- ○ My religious affiliation is not listed: _____

Please indicate the most representative answer for your current health status (professional or self-diagnosed) in the following questions.

How would you evaluate your overall physical health?

- ○ In good physical health (no illness or disabilities)
- ○ Mildly physically impaired (minor illness or disabilities)
- ○ Moderately physically impaired (requires substantial treatment)
- ○ Severely physically impaired (requires extensive treatment)
- ○ Prefer not to say

Please identify any mental health diagnosis (check all that apply):

- ☐ Anxiety
- ☐ Depression
- ☐ Obsessive-Compulsive Disorder (OCD)
- ☐ Post-Traumatic Stress Disorder (PTSD)
- ☐ Bipolar Disorder
- ☐ No diagnosis
- ☐ Other _____
- ☐ Prefer not to say

This section will ask you to indicate some more details about your support staff role and the types of individuals you work with.

Please indicate the total number of years you worked as a support staff:

- ○ 1-2
- ○ 3-5
- ○ 5-9
- ○ 10-19
- ○ 20+

Please indicate the number of hours you work per week:

- ○ Less than 10
- ○ 11-24
- ○ 25-34
- ○ 35+

Please indicate the types of clients you work most frequently with:
Note: You can select more than one

- ☐ Autism Spectrum Disorder
- ☐ Cerebral Palsy
- ☐ Down Syndrome
- ☐ Fetal Alcohol Spectrum Disorder
- ☐ Dementia/Brain Injury
- ☐ Physical Disability (i.e., paralysis)
- ☐ Fragile X Syndrome
- ☐ Tourette Syndrome
- ☐ Intellectual Disability
- ☐ Other _____

In this section, please think about the client that you typically **spend the most time working with**. Indicate the most representative level for the severity of the symptoms that client presents with:

Aggression

- ○ Low
- ○ Medium
- ○ High
- ○ Not applicable/prefer not to say
- ○

Life skills

- ○ Low
- ○ Medium
- ○ High
- ○ Not applicable/prefer not to say

Level of need

- ○ Low
- ○ Medium
- ○ High
- ○ Not applicable/prefer not to say

Verbal comprehension

- ○ Low
- ○ Medium
- ○ High
- ○ Not applicable/prefer not to say

Memory

- ○ Low
- ○ Medium
- ○ High
- ○ Not applicable/prefer not to say

Level of independence

- ○ Low
- ○ Medium
- ○ High
- ○ Not applicable/prefer not to say

If applicable, please indicate any other symptoms or severities that the clients you support present with:

_____

Do you have any previous experience participating in a mindfulness/acceptance-based program, study, or practice?

- ○ Yes
- ○ No

Appendix C

Kessler Psychological Distress Scale (K10)

For all questions, please circle the answer most commonly related to you. Questions 3 and 6 automatically receive a score of one if the proceeding question was 'none of the time'.

In the past four weeks:	None of the time	A little of the time	Some of the time	Most of the time	All of the time
1. About how often did you feel tired out for no good reason?	1	2	3	4	5
2. About how often did you feel nervous?	1	2	3	4	5
3. About how often did you feel so nervous that nothing could calm you down?	1	2	3	4	5
4. About how often did you feel hopeless?	1	2	3	4	5
5. About how often did you feel restless or fidgety?	1	2	3	4	5
6. About how often did you feel so restless you could not sit still?	1	2	3	4	5
7. About how often did you feel depressed?	1	2	3	4	5
8. About how often did you feel that everything is an effort?	1	2	3	4	5
9. About how often did you feel so sad that nothing could cheer you up?	1	2	3	4	5
10. About how often did you feel did you feel worthless?	1	2	3	4	5
Total:					

Appendix D

Maslach Burnout Inventory – Human Services Survey (MBI-HS)

For use by Kristina Axenova only. Received from Mind Garden, Inc. on January 15, 2022

MBI Human Services Survey

How often:	0	1	2	3	4	5	6
	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day

	How often 0-6	Statements:
1.	_____	I feel emotionally drained from my work.
2.	_____	I feel used up at the end of the workday.
3.	_____	I feel fatigued when I get up in the morning and have to face another day on the job.
4.	_____	I can easily understand how my recipients feel about things.
5.	_____	I feel I treat some recipients as if they were impersonal objects.
6.	_____	Working with people all day is really a strain for me.
7.	_____	I deal very effectively with the problems of my recipients.
8.	_____	I feel burned out from my work.
9.	_____	I feel I'm positively influencing other people's lives through my work.
10.	_____	I've become more callous toward people since I took this job.
11.	_____	I worry that this job is hardening me emotionally.
12.	_____	I feel very energetic.
13.	_____	I feel frustrated by my job.
14.	_____	I feel I'm working too hard on my job.
15.	_____	I don't really care what happens to some recipients.
16.	_____	Working with people directly puts too much stress on me.
17.	_____	I can easily create a relaxed atmosphere with my recipients.
18.	_____	I feel exhilarated after working closely with my recipients.
19.	_____	I have accomplished many worthwhile things in this job.
20.	_____	I feel like I'm at the end of my rope.
21.	_____	In my work, I deal with emotional problems very calmly.
22.	_____	I feel recipients blame me for some of their problems.

(Administrative use only)

EE Total score: _____ DP Total score: _____ PA Total score: _____

EE Average score: _____ DP Average score: _____ PA Average score: _____

Appendix E

Individual Work Performance Questionnaire (IWPQ)

Instructions:

The following questions relate to how you carried out your work during the past 3 months. In order to get an accurate picture of your conduct at work, it is important that you complete the questionnaire as carefully and honestly as possible. If you are uncertain about how to answer a particular question, please give the best possible answer. The questionnaire will take about 5 minutes to complete. The questionnaire is completely anonymous: your answers will not be seen by your supervisor(s) or colleagues.

Scale 1: Task performance (5 items)					
In the past 3 months…	Seldom	Sometimes	Regularly	Often	Always
1. I was able to plan my work so that I finished it on time.	☐	☐	☐	☐	☐
2. I kept in mind the work result I needed to achieve.	☐	☐	☐	☐	☐
3. I was able to set priorities.	☐	☐	☐	☐	☐
4. I was able to carry out my work efficiently.	☐	☐	☐	☐	☐
5. I managed my time well.	☐	☐	☐	☐	☐
Scale 2: Contextual performance (8 items)					
In the past 3 months…	Seldom	Sometimes	Regularly	Often	Always
6. On my own initiative, I started new tasks when my old tasks were completed.	☐	☐	☐	☐	☐
7. I took on challenging	☐	☐	☐	☐	☐

	tasks when they were available.					
8.	I worked on keeping my job-related knowledge up-to-date.	☐	☐	☐	☐	☐
9.	I worked on keeping my work skills up-to-date.	☐	☐	☐	☐	☐
10.	I came up with creative solutions for new problems.	☐	☐	☐	☐	☐
11.	I took on extra responsibilities.	☐	☐	☐	☐	☐
12.	I continually sought new challenges in my work.	☐	☐	☐	☐	☐
13.	I actively participated in meetings and/or consultations.	☐	☐	☐	☐	☐
Scale 3: Counterproductive work behavior (5 items)						
In the past 3 months…		Never	Seldom	Sometimes	Regularly	Often
14.	I complained about minor work-related issues at work.	☐	☐	☐	☐	☐
15.	I made problems at work bigger than they were.	☐	☐	☐	☐	☐
16.	I focused on the negative aspects of situation at work instead of the positive aspects.	☐	☐	☐	☐	☐
17.	I talked to colleagues about the negative aspects of my work.	☐	☐	☐	☐	☐
18.	I talked to people outside the organization about the negative aspects of my work.	☐	☐	☐	☐	☐

Appendix F

Acceptance and Action Questionnaire (AAQ-II)

AAQ-II

Below you will find a list of statements. Please rate how true each statement is for you by circling a number next to it. Use the scale below to make your choice.

1	2	3	4	5	6	7
never true	very seldom true	seldom true	sometimes true	frequently true	almost always true	always true

1.	My painful experiences and memories make it difficult for me to live a life that I would value.	1	2	3	4	5	6	7
2.	I'm afraid of my feelings.	1	2	3	4	5	6	7
3.	I worry about not being able to control my worries and feelings.	1	2	3	4	5	6	7
4.	My painful memories prevent me from having a fulfilling life.	1	2	3	4	5	6	7
5.	Emotions cause problems in my life.	1	2	3	4	5	6	7
6.	It seems like most people are handling their lives better than I am.	1	2	3	4	5	6	7
7.	Worries get in the way of my success.	1	2	3	4	5	6	7

This is a one-factor measure of psychological inflexibility, or experiential avoidance. Score the scale by summing the seven items. Higher scores equal greater levels of psychological inflexibility.

Appendix G

Comprehensive Assessment of Acceptance and Commitment Therapy Processes (CompACT)

CompACT

Name:	Date:

Please rate the following 23 statements using the scale below:

0	1	2	3	4	5	6
Strongly disagree	Moderately disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Moderately agree	Strongly agree

1. I can identify the things that really matter to me in life and pursue them	0	1	2	3	4	5	6
2. One of my big goals is to be free from painful emotions	0	1	2	3	4	5	6
3. I rush through meaningful activities without being really attentive to them	0	1	2	3	4	5	6
4. I try to stay busy to keep thoughts or feelings from coming	0	1	2	3	4	5	6
5. I act in ways that are consistent with how I wish to live my life	0	1	2	3	4	5	6
6. I get so caught up in my thoughts that I am unable to do the things that I most want to do	0	1	2	3	4	5	6
7. I make choices based on what is important to me, even if it is stressful	0	1	2	3	4	5	6
8. I tell myself that I shouldn't have certain thoughts	0	1	2	3	4	5	6
9. I find it difficult to stay focused on what's happening in the present	0	1	2	3	4	5	6
10. I behave in line with my personal values	0	1	2	3	4	5	6
11. I go out of my way to avoid situations that might bring difficult thoughts, feelings, or sensations	0	1	2	3	4	5	6
12. Even when doing the things that matter to me, I find myself doing them without paying attention	0	1	2	3	4	5	6
13. I am willing to fully experience whatever thoughts, feelings and sensations come up for me, without trying to change or defend against them	0	1	2	3	4	5	6
14. I undertake things that are meaningful to me, even when I find it hard to do so	0	1	2	3	4	5	6
15. I work hard to keep out upsetting feelings	0	1	2	3	4	5	6
16. I do jobs or tasks automatically, without being aware of what I'm doing	0	1	2	3	4	5	6
17. I am able to follow my long terms plans including times when progress is slow	0	1	2	3	4	5	6
18. Even when something is important to me, I'll rarely do it if there is a chance it will upset me	0	1	2	3	4	5	6
19. It seems I am "running on automatic" without much awareness of what I'm doing	0	1	2	3	4	5	6
20. Thoughts are just thoughts – they don't control what I do	0	1	2	3	4	5	6
21. My values are really reflected in my behaviour	0	1	2	3	4	5	6
22. I can take thoughts and feelings as they come, without attempting to control or avoid them	0	1	2	3	4	5	6
23. I can keep going with something when it's important to me	0	1	2	3	4	5	6

Appendix H

Feasibility Questionnaire

Feasibility of ACT Questionnaire

1	2	3	4	5	6	7
Strongly disagree	Disagree	Somewhat disagree	Neither agree or disagree	Somewhat agree	Agree	Strongly agree

1. I believe that ACT can be helpful in my work with my clients.
2. What I was learning in the online ACT modules resonated with me.
3. I feel that ACT is a convenient intervention for me.
4. I found the videos in the online ACT modules helpful.
5. I found the reflection activities/exercises in the modules helpful.
6. I found the online ACT modules easy to navigate.
7. I foresee myself using ACT skills in my work with my clients.

Qualitative open-ended questions:

8. What information/skills discussed in the online modules do you think will be helpful for you in your professional role?
   Please explain: _____
9. What information/skills discussed in the online modules do you think was not helpful for you in your professional role?
   Please explain: _____
10. In your opinion, how can the online ACT modules be improved and why?
    Please explain: _____
11. Were there parts of the online modules that you felt should have had more or less time spent on?
    Please explain: _____
12. Were there any parts of the online modules that you found confusing?
    Please explain: _____
13. I found the option to listen to voice recordings of longer text in the online modules helpful.
    a. Yes
    b. No
    c. I was indifferent/did not listen to the voice recordings
14. (If answered **yes** to above) Did you find a preference between listening to the male voice or the female voice?
    a. Yes, I preferred to listen to the male voice.
    b. Yes, I preferred to listen to the female voice.
    c. I was indifferent/had no preference.

Appendix I

Screening Form

Are you 18 years of age or older?

Yes

No

Do you self-declare as proficient in the English language for verbal, writing, and reading ability?

Yes

No

Have you been employed in your support work role for a minimum of one year?

Note: If you were employed at multiple different agencies in the past, and your combined length of employment in your past and current agencies are at least one year, then please select "Yes".

Yes

No

Are you currently employed at a Canadian or US agency?

Yes

No

Appendix J

Letter of Information and Consent Form

Letter of Information and Consent

Project Title
Brief Online Self-Guided ACT for Support Staff

Principal Investigator + Contact
Kristina Axenova, BA, Psychology
MA Candidate
Faculty of Education, Western University
[redacted]

Additional Research Staff + Contact
Albert Malkin, MA, BCBA
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Faculty of Education, Western University
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Conflict of Interest
The researchers undertaking this project do not declare any conflict of interest.

Invitation to Participate
You are being invited to participate in this research study about online Acceptance and Commitment Training because you are employed at a disability service/agency as a support staff who works directly with individuals with intellectual and/or developmental disabilities. The purpose of this letter is to provide you with information necessary for you to make an informed decision regarding participation in this research.

Why is this study being done?
Since the onset of the COVID-19 pandemic, frontline workers have experienced more difficulties at work than ever before. Intellectual and Developmental Disability Support Staff (IDD support staff) are amongst the frontline workers who have been experiencing high levels of challenges (even prior to the COVID-19 pandemic), and are amongst the most negatively impacted by pandemic-related changes in their working environment. With many mental health services transitioning to online platforms, there is a need to understand how online training interventions can support high-risk professionals like IDD support staff in their working role during the COVID-19 pandemic. The purpose of this study is to evaluate the effectiveness of a brief, online, and self-guided Acceptance and Commitment Training (ACT) intervention for IDD support staff during the COVID-19 pandemic.

How long will you be in this study?
It is expected that your participation in this study will last across a total of 7-10 weeks (1.75-2 months), depending on if you are randomly assigned to the experimental group (shorter participation, 7 weeks) or waitlist-control group (longer participation, 10 weeks).

What are the study procedures?
Upon signing the consent form, we will ask you to provide your preferred e-mail address to have on record to contact you with a) information and reminders about the steps of the study, and b) to enter you in a prize draw for compensation (details on compensation are mentioned below in this letter). You will also be asked self-generate a unique ID code using your initials (with specific instructions) that you will use consistently throughout your participation in the study. You will be asked to complete a series of pre-module questionnaires which include demographics and potentially sensitive questions pertaining to your mental health, well-being, and subjective work performance. The series of pre-module surveys will take approximately 15-25 minutes to complete, and will be administered a total of three times to the training group, and four times to the control group (although the demographics questionnaire will only be administered once in the beginning). Upon completion of the demographics, you will be contacted via e-mail approximately 1-2 weeks later with the group that you were randomly assigned to (training or control), as well as further information pertaining to next steps in the study for your specific group.

You will also be asked to progress through and complete a total of **three online asynchronous modules** which contain reading passages (with the alternative option to listen to longer reading passages via voice clip), a selection of short videos, brief multiple-choice questions reflecting the video content, and short written/reflection activities. The duration of time spent on the online asynchronous modules may vary based on personal working pace. The modules are designed to be completed across a 3-week time window (one module per week), and require approximately 1-2.5 hours per module to complete. The total time commitment to completing all module content may require an average of 6 hours.

Answering all of the questions in the modules are encouraged, but completely voluntary (hence, you will be prompted **once** for a response to any blank fields, but you will still be permitted to move forward without a response if you still prefer to not answer). Alternatively, you can consider the "prefer not to answer" options where applicable. The only required response in the study is the unique ID code, which is used to connect your responses across the three modules and pre/follow-up surveys. You will not receive feedback for any multiple choice or written answers at any point in the modules or post-module activities, as these questions are not intended to be viewed as a test of knowledge. Your responses will be used to examine your engagement in the material, *how* you subjectively resonate with the content, and how you reflect on and apply the ACT skills being taught. Finally, when you finish the final module (module 3), you be asked to complete a follow-up series of questionnaires 4 weeks later (which will take approximately 25-35 minutes to complete).

You will be permitted to progress through each module at your own self-guided pace, and will have 24/7 access to each module in the allotted 1-week window per

module. Response times will also be tracked via Qualtrics (specifically the number of seconds spent on each page) to capture the pacing and progression through the study content, as well as total time taken to complete the modules while being permitted self-guided access. For these reasons, it is strongly encouraged that you progress at your own pace that feels the most feasible in the allotted one-week access window provided per module. For further flexibility, you can also opt to complete the entire study on a mobile device (given that it has an internet connection and can support survey-viewing from an online browser).

You will be contacted through your preferred e-mail to receive your compensation if you are selected as a winner. Your preferred e-mail will also be used to communicate reminders for the dates and times that the next steps/modules in the study become unlocked and accessible for participation. You will also be provided with 48-hour e-mail reminders to complete a module/survey before it locks.

What are the risks and harms of participating in this study?
There are no known risks or harms of completing this study. However, the possible risks and harms to you could include emotional upset or distress as a result of the self-reflection required throughout the module and practice activities. At any point in the open text response fields of the surveys/modules or via e-mail, if you indicate that you are at severe risk of harming yourself, you may be contacted by a member of the research team to ensure your safety. If you have concerns about your safety or mental health during the course of this study, please refer to the mental health support resources below:

London Area Resources

Canadian Mental Health Association – Middlesex
24/7 Mental Health and Addictions Crisis Centre
648 Huron Street
London ON N5Y 4J8
Support Line: 519-601-8055

Western University Psychological Services (for students)
Western Student Services Building
Room 4113
519-661-3031

Reach Out 24/7 Crisis Services
519-433-2023

Mental Health Care Program
London Health Sciences Centre
800 Commissioners Road East
London, ON N6A 5W9
519-685-8500

Counselling and Accessibility Services

Fanshawe College
1001 Fanshawe College Blvd
London, ON N5Y 5R6
519-452-4430

National Resources

Crisis Services Canada
(24/7) 1-833-456-4566
Text support (4pm-12am EST daily): 45645

Canadian Crisis Hotline
1-888-353-2273

Crisis Call Centre
(24/7) 1-800-273-8255

What are the benefits of participating in this study?
At the current time, there are no known benefits to participating in this specific online training with this specific population. The goal of this research is to assess the general impact and effectiveness of online training with IDD support staff. However, it can be reasonably suspected that participants may develop some ACT skills in both the experimental and control groups. Also, evidence suggests that ACT can support psychological flexibility and work-related outcomes, hence, some participants may benefit from these outcomes. Additionally, the information gathered in this study may make valuable contributions to expanding social science research on online ACT.

Confidentiality
Your survey responses will be collected using a secure online survey platform called Qualtrics. Qualtrics uses encryption technology and restricted access authorizations to protect all data collected, and privacy standards are maintained under the General Data Protection Regulation. Indirectly identifiable information (e-mail address, sex, gender, etc) will be collected separately from study data and linked only by the unique ID code which will be self-generated (using your initials) prior to starting the study. Study data and the master list linking e-mail addresses to participant unique ID codes will be maintained on a password-protected Microsoft Excel file that will be stored in the Western University operated Microsoft Teams platform, a secure cloud server. The information stored in the secure Microsoft Teams server will only be accessible to the members of the research team. However, representatives of Western University's Non-Medical Research Ethics Board may require access in order to monitor the ethical conduct of the study. If the results of this study are published, only de-identified information will be made available. Your identity as a research participant in this project will not be released without your prior consent, and your employer will not be aware of who has consented to participate in the research.

When providing answers to open ended text-box questions, you will be asked to not include any identifiable details regarding yourself, your co-workers/employers, or clients to further ensure additional confidentiality protections. This will also be noted as a reminder in any applicable module/questionnaire that utilizes open-ended textbox answers. Your written survey responses may also be anonymously quoted if selected for use in research publication(s), in which ideas/wording may be directly quoted or summarized.

All research data and indirectly identifying information (e-mail address, initials for unique ID, age, gender, sex, ect) will be de-identified; neither the researchers nor anyone else will be able to identify you as a research participant. The researchers will keep all information gathered in the secure and confidential Microsoft Teams platform for 7 years, as per Western University's Faculty Collective Agreement, then permanently deleted. However, all data collected on the Qualtrics platform will be deleted upon the completion of the study.

As this research study utilizes Qualtrics as a third-party platform, please see the link to its privacy policy here (https://www.qualtrics.com/privacy-statement/). It is also important to indicate that although privacy and confidentiality matters are taken seriously, nothing over the internet is ever 100% safe.

Can participants choose to leave the study?
If you decide to withdraw from the study, you are permitted to do so at any time without penalty (and you will still be considered for pro-rated compensation). The information that was collected prior to you leaving the study will still be used. While we will do our best to protect the confidentiality of your information, there is a small chance that you may be identifiable based on your responses in the study. No new information will be collected without your permission. However, you do have a right to request a withdrawal of the data collected from you up until the point your participation ended, and you can do this by contacting any member of the research team (contact information provided at the bottom of this consent form). If requested to withdrawal your previously collected data, all of your study responses and information will be permanently deleted off the Qualtrics platform, as well as the Microsoft Teams server. Your data will not be permitted to be used beyond the purposes of the present study.

Compensation
As compensation for your participation, you will be entered into a prize draw for a chance to win up to $200-225 CAD in the form of Visa gift card(s).

The gift card draws will be allocated as follows:
- Draw to win a $25 Visa gift card for participation in the pre-module surveys (control group only)
- Draw to win a $50 Visa gift card for participation in Module 1
- Draw to win a $50 Visa gift card for participation in Module 2
- Draw to win a $50 Visa gift card for participation in Module 3

- Draw to win a $50 Visa gift card for participation in Module 3
- Draw to win a $50 Visa gift card for participation in the 4-week follow up surveys

The winner(s) of the gift cards will be contacted using their preferred e-mail. The prize draw and announcement will take place two weeks after participation in the 4-week follow-up.

Participant Rights
Your participation in this study is voluntary. You may decide not to be in this study. Even if you consent to participate, you have the right to not answer individual questions or to withdraw from the study at any time. If you choose not to participate or to leave the study at any time, it will have no effect on your employment status, nor will your employer be notified/have access to your participation or refusal of being in the study.

You do not waive any legal right by consenting to this study.

Contact
If you have questions about this research study please contact Kristina Axenova, [redacted], or Albert Malkin, [redacted]

If you have any questions about your rights as a research participant or the conduct of this study, you may contact The Office of Human Research Ethics (519) 661-3036, 1-844- 720-9816, ethics@uwo.ca. This office oversees the ethical conduct of research studies and is not part of the study team. Everything that you report will be kept confidential.

If you are interested in obtaining a copy of the published results of this research when it becomes available, you may contact the researchers directly via e-mail to request this.

Consent
This study has been explained to me and any questions I had have been answered. I know that I may leave the study at any time.

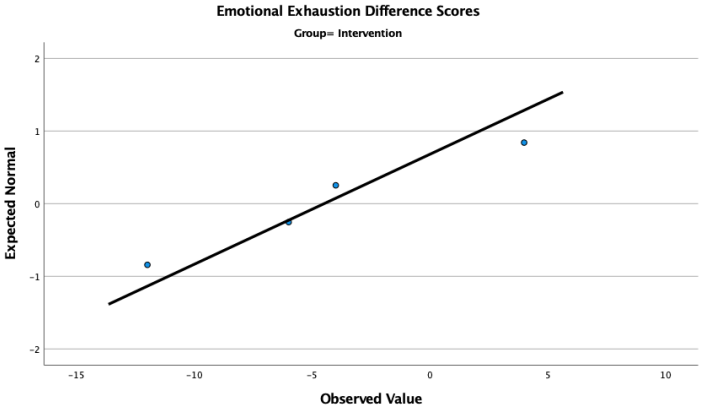
You indicate your voluntary agreement to participate by responding to the questions.

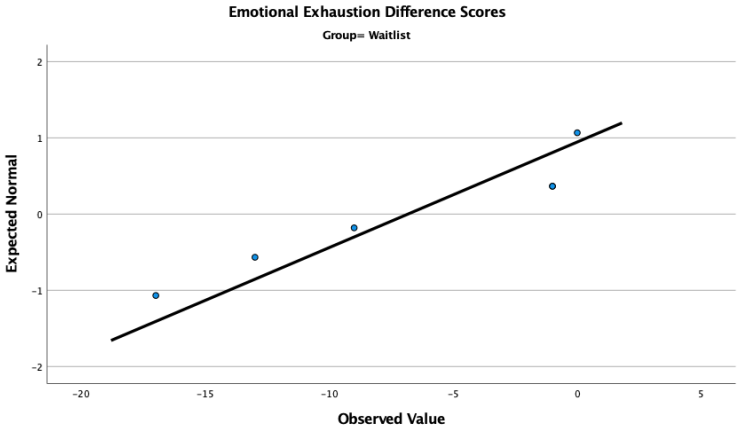
Please consider saving a PDF copy of this consent form for your records, which can be found via the hyperlink included at the bottom of this page.

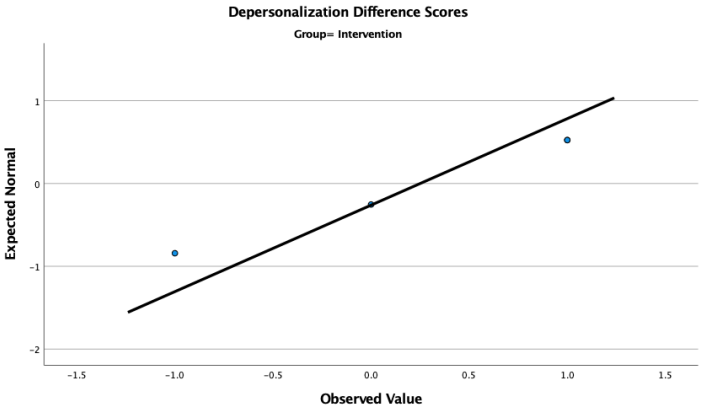
This letter is yours to keep for future reference.

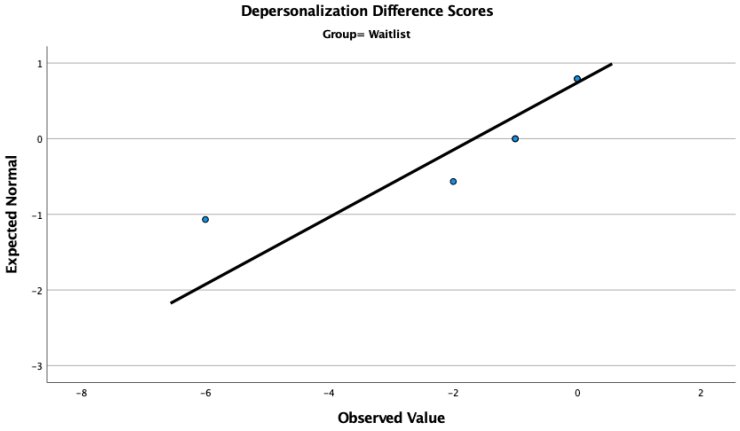
Appendix K

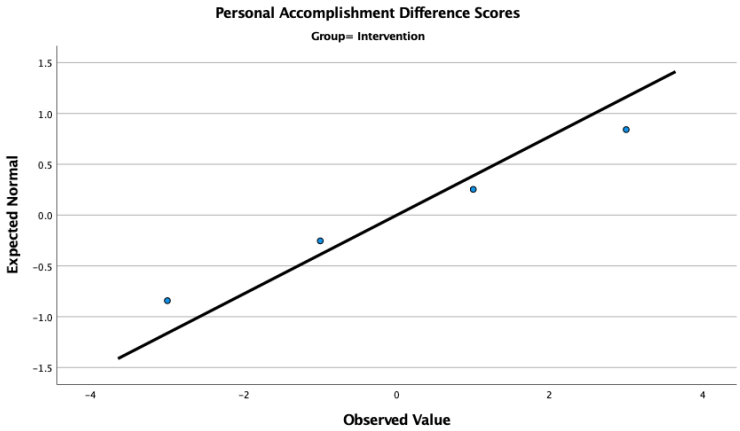
Q-Q plots of difference scores for the intervention (n=5) and waitlist (n=6) groups across all outcome measures from pre to post-intervention

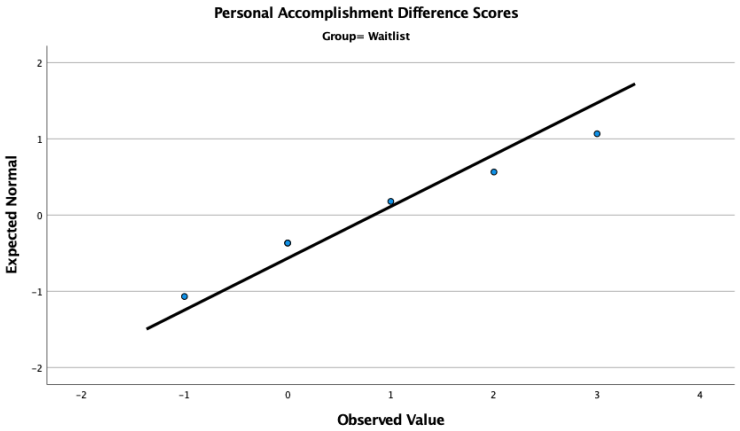


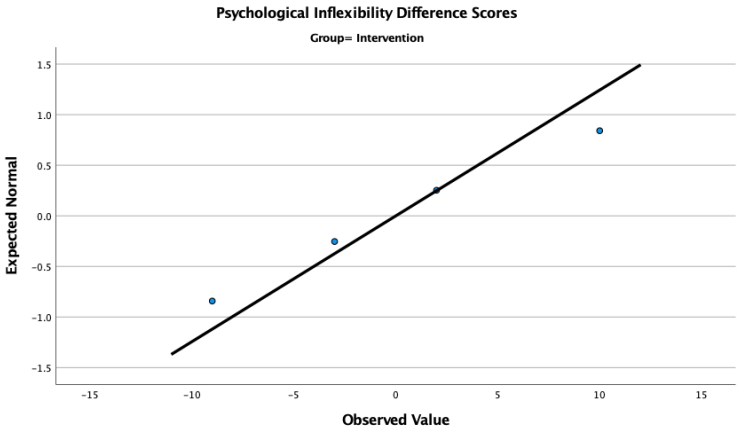


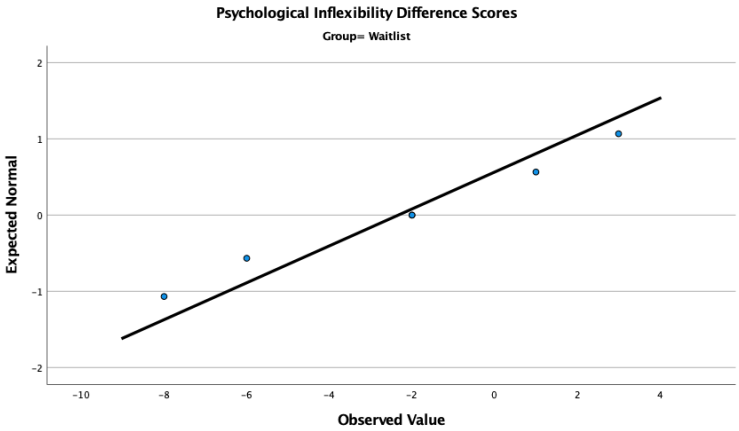


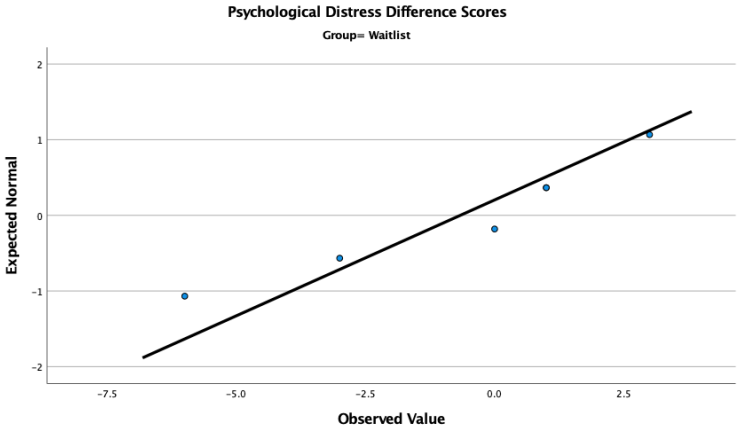


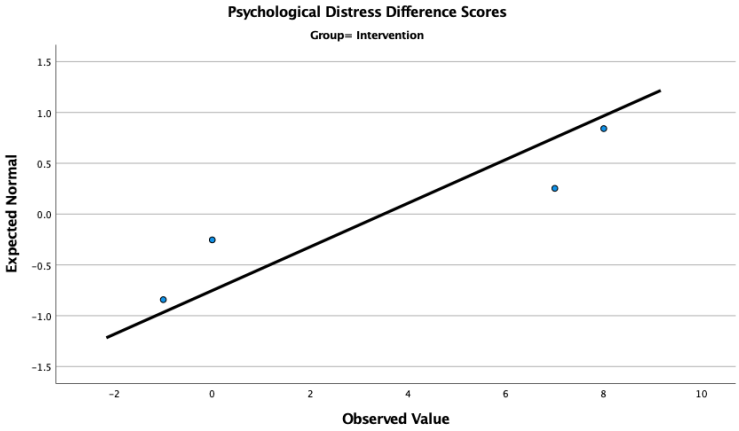


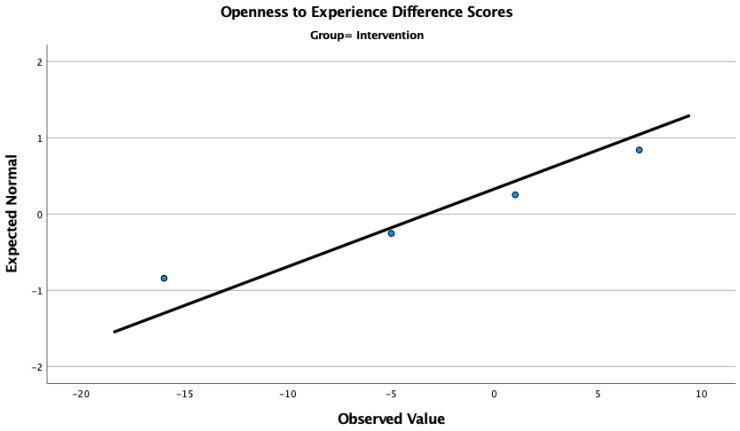


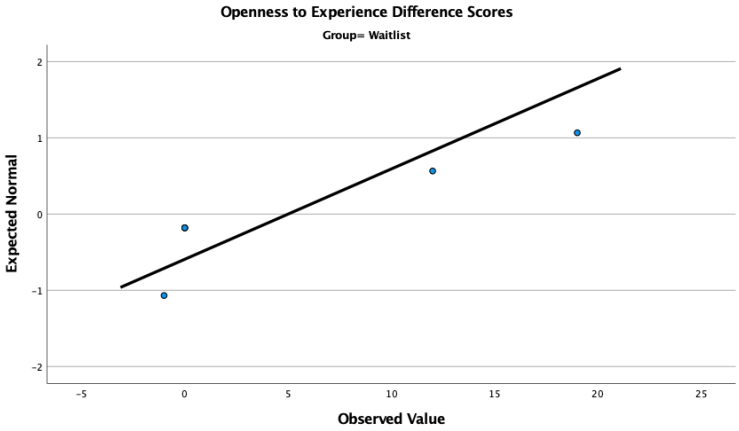

Psychological Inflexibility Difference Scores
Group= Intervention
Expected Normal
Observed Value

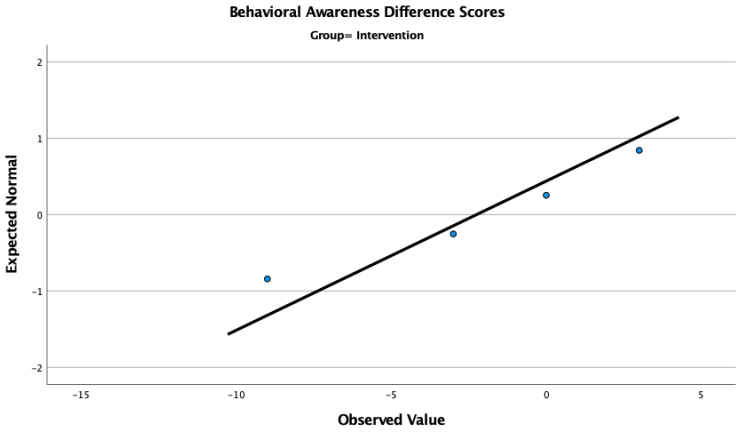

Psychological Inflexibility Difference Scores
Group= Waitlist
Expected Normal
Observed Value

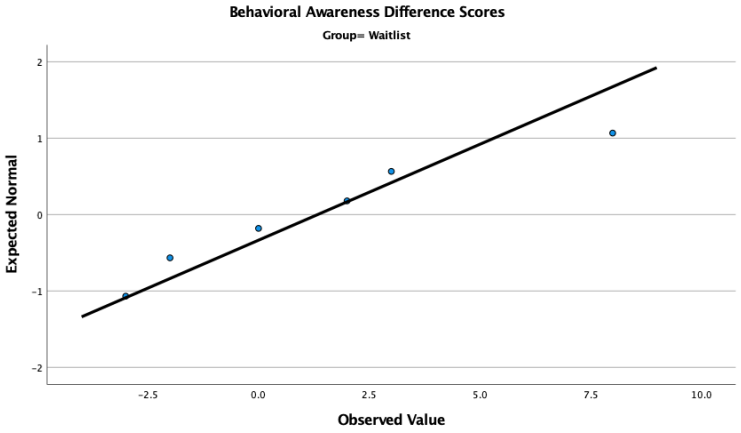

Psychological Distress Difference Scores
Group= Waitlist
Expected Normal
Observed Value

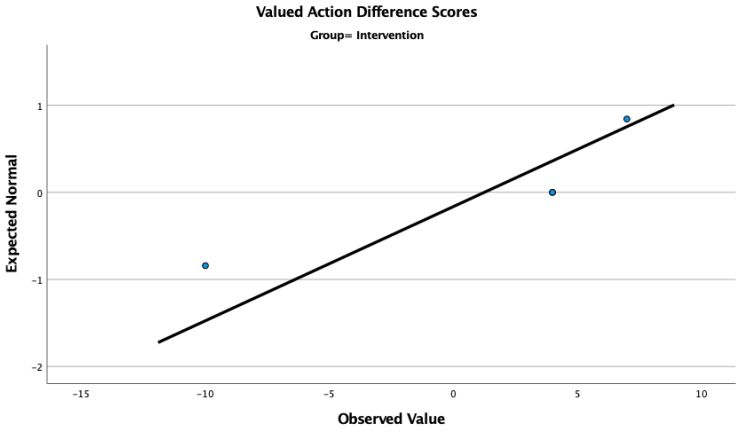

Psychological Distress Difference Scores
Group= Intervention
Expected Normal
Observed Value

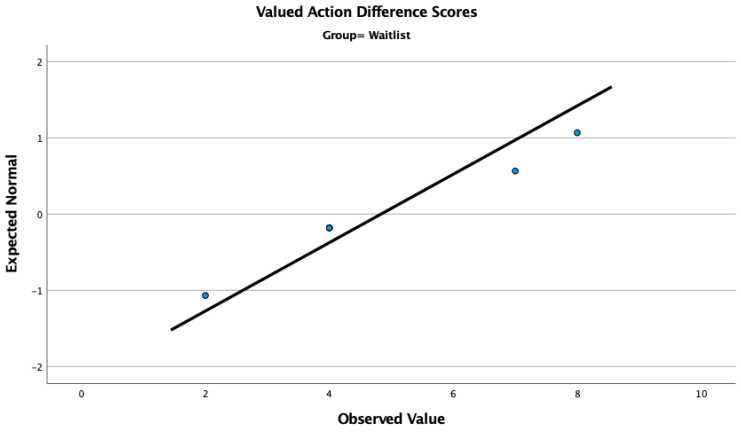

Openness to Experience Difference Scores
Group= Intervention
Expected Normal
Observed Value

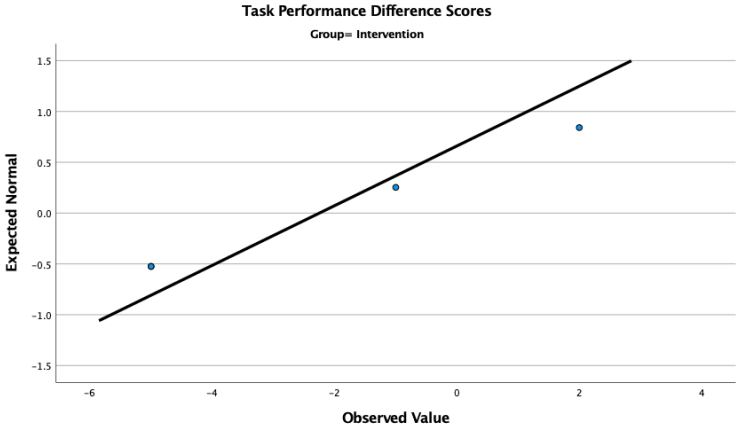

Openness to Experience Difference Scores
Group= Waitlist
Expected Normal
Observed Value

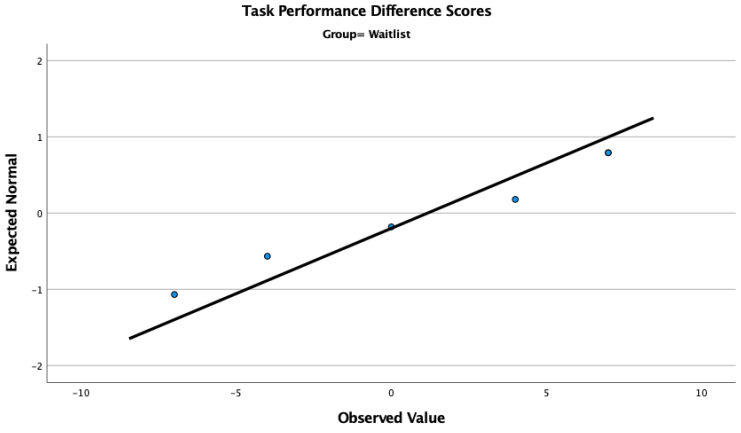

Behavioral Awareness Difference Scores
Group= Intervention
Expected Normal
Observed Value

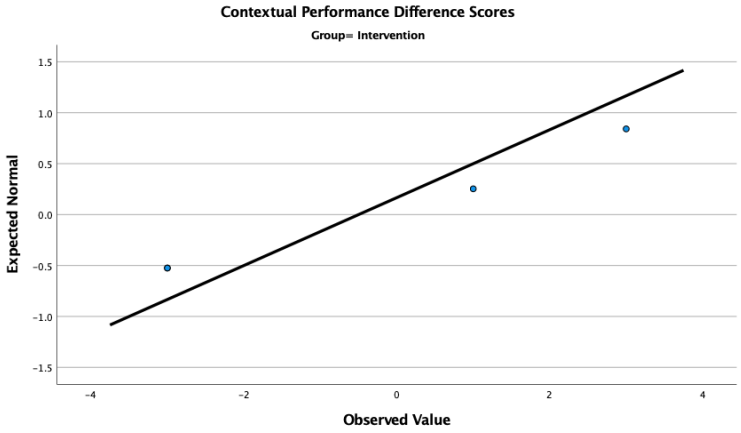

Behavioral Awareness Difference Scores
Group= Waitlist
Expected Normal
Observed Value

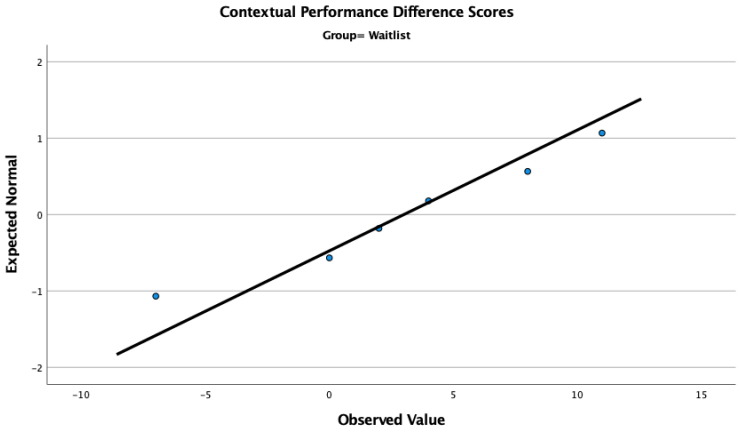

Valued Action Difference Scores
Group= Intervention
Expected Normal
Observed Value


Valued Action Difference Scores
Group= Waitlist
Expected Normal
Observed Value

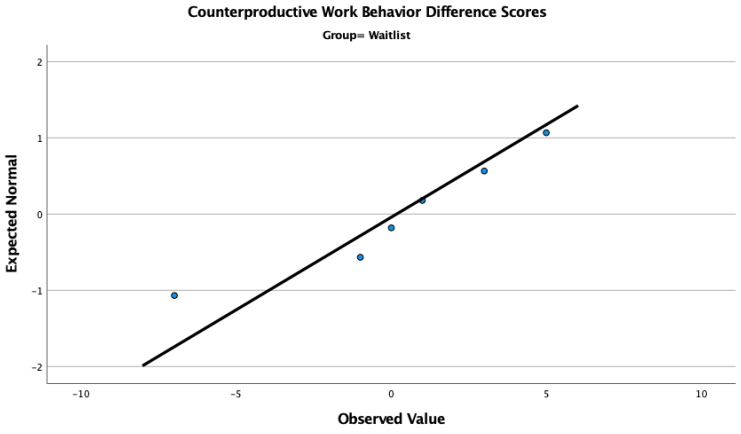

Task Performance Difference Scores
Group= Intervention
Expected Normal
Observed Value


Task Performance Difference Scores
Group= Waitlist
Expected Normal
Observed Value


Contextual Performance Difference Scores
Group= Intervention
Expected Normal
Observed Value

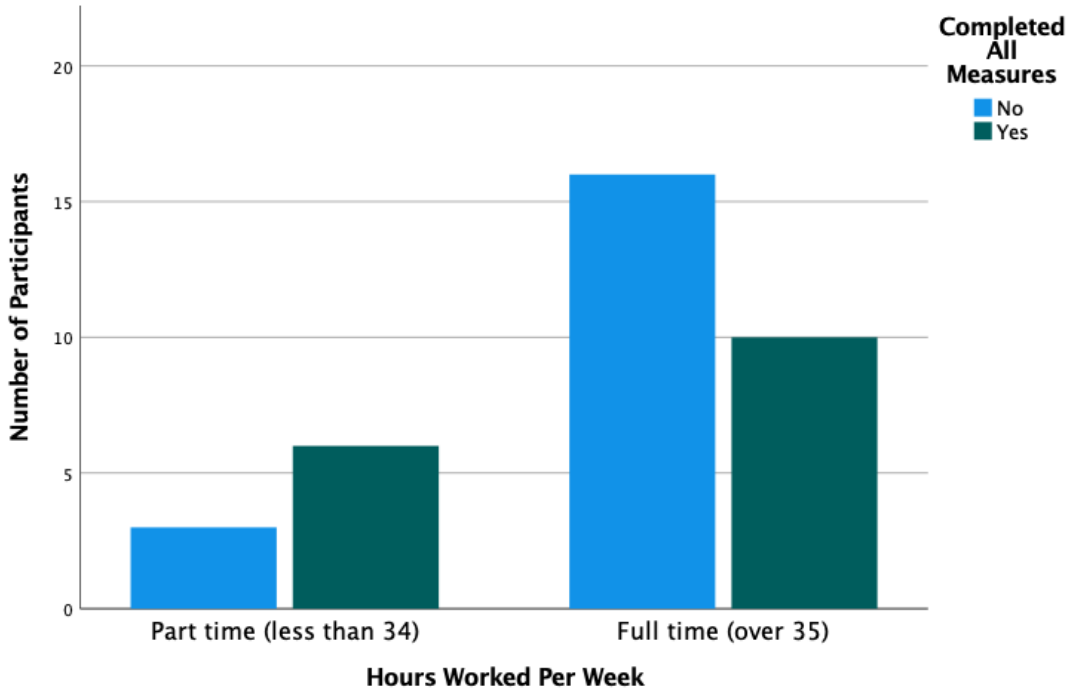

Contextual Performance Difference Scores
Group= Waitlist
Expected Normal
Observed Value


Counterproductive Work Behavior Difference Scores
Group= Intervention
Expected Normal
Observed Value


Counterproductive Work Behavior Difference Scores
Group= Waitlist
Expected Normal
Observed Value

Appendix L

Bar graphs depicting proportions of full-participants and non-participants who worked part-time vs. full-time



Appendix M

Western Research Ethics Board Approval

Western Research

Date: 1 November 2021

To: Professor Albert Malkin

Project ID: 118599

Study Title: Reducing Burnout, Increasing Psychological Flexibility, and Improving Work Performance in Intellectual and Developmental Disability Support Staff: An Application of Brief Online Self-Guided ACT.

Short Title: Online ACT for Burnout in Support Staff

Application Type: NMREB Initial Application

Review Type: Delegated

Meeting Date: 03/Sep/2021 12:30

Date Approval Issued: 01/Nov/2021 13:16

REB Approval Expiry Date: 01/Nov/2022

Dear Professor Albert Malkin

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the WREM application form for the above mentioned study, as of the date noted above. NMREB approval for this study remains valid until the expiry date noted above, conditional to timely submission and acceptance of NMREB Continuing Ethics Review.

This research study is to be conducted by the investigator noted above. **All other required institutional approvals and mandated training must also be obtained prior to the conduct of the study.**

Documents Approved:

Document Name	Document Type	Document Date	Document Version
OnlineACTStudy_PreModuleSurveysControlGroup_QualtricsToWord	Online Survey	08/Oct/2021	
OnlineACTStudy_LetterofInformation+Consent_QualtricsToWord_OctoberRevision	Online Survey	28/Oct/2021	3
OnlineACTStudy_Module1_QualtricsToWord_OctoberRevision	Online Survey	28/Oct/2021	2
OnlineACTStudy_Module2_QualtricsToWord_OctoberRevision	Online Survey	28/Oct/2021	2
OnlineACTStudy_Module3_QualtricsToWord_OctoberRevision	Online Survey	28/Oct/2021	2
OnlineACTStudy_Demographics_QualtricsToWord_OctoberRevision	Online Survey	28/Oct/2021	3
OnlineACTStudy_4WeekFollowUp_QualtricsToWord_OctoberRevision	Online Survey	28/Oct/2021	3
REB Form_Emails_Revised_October	Recruitment Materials	28/Oct/2021	3
REB Form_LOI+Consent_Revised_October	Implied Consent/Assent	28/Oct/2021	3

Documents Acknowledged:

Document Name	Document Type	Document Date	Document Version
REB Form_SupportServices	Other Materials		
REB Form_Supplementary_Table1_Procedure_Revised	Supplementary Tables/Figures	08/Oct/2021	
Online Acceptance and Commitment Training for Support Staff_Poster_REB	Supplementary Tables/Figures	08/Oct/2021	
OnlineACTStudy_ScreeningQuestionnaire_QualtricsToWord	Screening Form/Questionnaire	08/Oct/2021	

No deviations from, or changes to the protocol should be initiated without prior written approval from the NMREB, except when necessary to eliminate immediate hazard(s) to study participants or when the change(s) involves only administrative or logistical aspects of the trial.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario. Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB. The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

Please do not hesitate to contact us if you have any questions.

Sincerely,

Ms. Katelyn Harris , Research Ethics Officer on behalf of Dr. Riley Hinson, NMREB Vice-Chair

Note: This correspondence includes an electronic signature (validation and approval via an online system that is compliant with all regulations).

Curriculum Vitae

Name:	Kristina Axenova
Post-secondary Education and Degrees:	Master of Arts in Counselling Psychology September 2020 – Present, Graduating June 2022 Western University, London Honors Bachelor of Arts, Psychology September 2013 – April 2017 University of Guelph
Honours and Awards:	Social Science and Humanities Research Council, Canadian Graduate Scholarship – Master's (SSHRC CGS-M) 2021-2022 Graduate Student Internal Conference & Travel Awards, 2020-2022, Western University Applied Psychology Research Cluster – Graduate Studies Entrance Scholarship, Western University
Professional Experience:	Counselling Internship September 2021 – Present Fanshawe Counselling & Accessibility Services, London, ON Direct Support Professional April 2019 – April 2020 Community Living Guelph Wellington, Guelph ON Psychiatric Process Group Co-Facilitator September 2017 – March 2020 Adult Inpatient Mental Health Until St. Joseph's Health Centre, Toronto, ON
Research Experience:	Graduate Research Consultant/Fellow Advisors: Dr. Kim Solga & Dr. Sandra Smeltzer August, 2021 - Present Western University, London, ON Graduate Student Assistant, Advisor: Albert Malkin

October, 2020 – Present
Western University, London, ON

Research Assistant, Advisor: Dr. Heidi Bailey
September 2019 – February 2020
Guelph, ON

Research Assistant, Advisor: Dr. Margaret Lumley
February 2017 – May 2019
Resilient Youth Research Group, Guelph, ON

Research Assistant, Advisor: Dr. Karl Hennig
February 2016 – December 2019
Aggression Lab, Guelph, ON

Research Assistant
September 2018 – April 2019
Borderline Personality Disorder (BPD) Clinic
Centre for Addiction and Mental Health (CAMH), Toronto, ON

Research Assistant, Advisor: Dr. Janice Kuo
July 2018 – April 2019
Borderline Personality Disorder and Emotional Processing Lab
Toronto, ON

Research Assistant, Advisor: Dr. Nicholas Rule
September 2017 – April 2019
Social Perception and Cognition Lab, Toronto, ON

Senior Psychology Research Assistant
Advisors: Dr. Melissa Lieberman & Dr. Margus Heinmaa
Eating Disorder Unit, SickKids Hospital, Toronto, ON