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Burnout and Work Engagement:  
Occupational Well-being of Service Providers for  
Individuals with Autism Spectrum Disorder

A dissertation submitted in partial satisfaction of the  
requirements for the degree Doctor of Philosophy  
in Education

by

Alison Holbrook

2018

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## ABSTRACT OF THE DISSERTATION

Burnout and Work Engagement:  
Occupational Well-being of Service Providers for  
Individuals with Autism Spectrum Disorder

by

Alison Holbrook

University of California, Los Angeles, 2018

Professor Connie L. Kasari, Chair

Registered Behavior Technicians (RBTs) are one of the largest certified occupational groups providing intervention services to individuals with autism spectrum disorder (ASD). RBTs are classified as human service professionals, who are workers responding to the needs of people. As human service professionals, RBTs face significant occupational stressors that can be emotionally challenging and reduce occupational well-being (Maslach & Jackson, 1981). Occupational well-being is defined as a positive evaluation of various aspects of one's job (Horn, Taris, Schaufeli, & Schreurs, 2004). It is a key construct in organizational psychology because it is related to various individual and organizational outcomes such as health and job performance (e.g., Harter, Schmidt, & Keyes, 2003). This study is the first to apply the job demands-resources (JD-R) model of occupational well-being to identify job characteristics and organizational outcomes related to optimal well-being in RBTs working with individuals with ASD. The first

aim of the study was to explore the relationship between job demands, resources, and occupational well-being (i.e., burnout and work engagement) of RBTs. The second aim of the study was to explore the relationship between occupational well-being and organizational outcomes (i.e., turnover intention, organizational commitment, and in-role job performance). The participants were 311 RBTs with complete responses to the study survey. Approximately 45% of RBTs reported high emotional exhaustion. Job demands (e.g., challenging behaviors) and resources (e.g., training) were significantly related to burnout, while resources (e.g., social resources) were significantly related to work engagement. Both burnout (i.e., emotional exhaustion) and work engagement were significantly related to several organizational outcomes (e.g., turnover intention). Based on the study results, the field may begin to provide better support for RBTs to reduce burnout and improve work engagement. Clinical implications are discussed.

The dissertation of Alison Holbrook is approved.

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2018

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### Presentations

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- Toolan, C., **Holbrook, A.**, Shire, S., Landa, R., Smith, T., Kasari, C. (2018, May). *Challenging behavior in preschoolers with ASD*. Poster presented at the annual meeting of the International Society for Autism Research, Rotterdam, Netherlands.
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- Kang, C., **Holbrook, A.**, Shire S.Y., Smith, T., Landa, R., Kaiser, A., Gulsrud, A., & Kasari., C. (2016, May). *Parent expectancies: A self-fulfilling prophecy?* Poster presented at the annual meeting of the International Meeting for Autism Research, Baltimore, MD.
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## **Introduction**

Autism spectrum disorder (ASD) is a neurodevelopmental disorder characterized by the presence of restricted and repetitive behaviors and social communication impairments (American Psychiatric Association, 2013). Dramatic increases in the prevalence of ASD diagnoses have been reported in recent years. In 2000, the reported prevalence statistic was one in 150 children, while the current prevalence is one in 59 children (Centers for Disease Control and Prevention, 2018). The increase in the prevalence of ASD diagnoses has resulted in a substantial increase in the number of individuals receiving services (California Department of Developmental Services, 2007).

Many of the services provided to individuals with ASD are intervention approaches that target behavior and communication, with the most common intervention approach being Applied Behavior Analysis (ABA; Centers for Disease Control and Prevention, 2015). ABA-based interventions are generally delivered as an intensive, individualized program, in a one-to-one or very small group format by ASD service providers (Foxx, 2008). The increase in ASD prevalence and need for ASD-related services (i.e., ABA-based interventions) has consequently led to an increased demand for ASD service providers (i.e., employees working directly with individuals with ASD).

Registered Behavior Technicians (RBTs) are one of the largest certified occupational groups providing ABA-based intervention services to individuals with ASD (Behavior Analyst Certification Board, n.d.). Certification of this occupation began in 2015, and has rapidly grown since. The growth is evident from the increase of RBTs at the beginning of 2018 (31,521 RBTs in January), to the end of the year (43,595 in December). RBTs, a relatively new but essential occupational group, are classified as human service professionals; this means they are workers

who respond to the needs of people (e.g., doctors, nurses, social workers; Freudenberger, 1974). As human service professionals, RBTs face significant occupational stressors that can be emotionally challenging and reduce occupational well-being (Maslach & Jackson, 1981).

Occupational well-being is defined as a positive evaluation of various aspects of one's job (Horn, Taris, Schaufeli, & Schreurs, 2004). It is a key construct in organizational psychology because it is related to various individual and organizational outcomes such as health and job performance (e.g., Harter, Schmidt, & Keyes, 2003). Two components of occupational well-being are job burnout and work engagement (Schaufeli, Taris, & Van Rhenen, 2008). Despite the importance of occupational well-being, to date, there is very limited literature on burnout in ASD service providers and no literature on work engagement in ASD service providers. Therefore, this study will expand the existing literature on ASD service providers by examining job characteristics (i.e., job resources and demands) related to RBT occupational well-being (i.e., burnout and work engagement). In addition, the proposed study will examine the relationship between occupational well-being and organizational outcomes (e.g., turnover intention).

### **Job Demands-Resources Model**

One prominent model of occupational well-being is the job demands-resources (JD-R) model (Bakker & Demerouti, 2007; Bakker, Demerouti, & Sanz-Vergel, 2014; Bakker, Demerouti, & Verbeke, 2004; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). This model theorizes that all job characteristics (i.e., physical, psychological, social, and organizational aspects of the job) can be categorized as either job demands or job resources (Bakker et al., 2004). According to the JD-R model, job demands and resources initiate two psychological processes (Bakker et al., 2004; Bakker et al., 2014). The first psychological process is the "health impairment process," in which job demands and lack of resources emerge as significant

predictors of exhaustion (Bakker et al., 2014). The second is a “motivational process,” in which job resources are key predictors of work engagement (Bakker et al., 2014). This model has become prominent in the field of occupational well-being because it can be applied to all work environments and occupations (Bakker et al., 2014). Overall, the JD-R model is frequently used to understand, explain, and make predictions about burnout, work engagement, and organizational outcomes (Bakker et al., 2014).

### **Job Burnout**

Professional burnout first arose as a social concern rather than an academic construct, leading it to be of greater interest to practitioners than academic scholars in its early years of conceptual development (Maslach & Schaufeli, 1993). However, since the 1970’s, the phenomenon of burnout has gained acceptance as an important issue for researchers to study (Maslach & Schaufeli, 1993). While the concept of job burnout was introduced by Freudenberger (1974), the burnout literature is dominated by the operational definition from Maslach, Jackson, and Leiter (1996). They define burnout as “a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment that can occur among individuals who work with people in some capacity” (Maslach et al., 1996, p. 4).

Maslach and Jackson’s (1981) multidimensional model of the burnout syndrome includes three domains: emotional exhaustion, depersonalization, and reduced personal accomplishment. Emotional exhaustion is considered the most important component of the burnout syndrome and is one of the most reported and analyzed components of the syndrome (Maslach, 2015; Maslach et al., 1996; Maslach, Jackson, & Leiter, 1997; Maslach, Schaufeli, & Leiter, 2001). Emotional exhaustion is characterized by feelings of being emotionally drained by chronic exposure to occupational stress (Maslach et al., 1996; Maslach et al., 2001). The second domain of burnout is



depersonalization, which is characterized by emotional detachment (Maslach et al., 1996). Emotional detachment occurs when staff put emotional distance between themselves and their clients/students, often as a coping mechanism resulting from emotional exhaustion (Maslach et al., 2001). The negative attitudes that providers hold towards their clients as a result of depersonalization can result in harmful behaviors (e.g., failing to give appropriate care; Maslach, 2015). The third domain of the burnout syndrome is reduced personal accomplishment. This is characterized by negative feelings towards oneself and one's ability to accomplish work (Maslach et al., 1996). Since burnout is considered a multidimensional syndrome, it is important to examine all three domains in order to gain a complete understanding of burnout in ASD service providers.

**Burnout Measurement.** The primary instruments used to measure professional burnout are the three versions of the Maslach Burnout Inventory (MBI): the MBI-Human Services Survey (Maslach & Jackson, 1981), MBI-General Survey (Maslach et al., 1996), and MBI-Educators Survey (Maslach, Jackson, & Schwab, 1986). While the MBI-Human Services Survey is relevant for all human service professionals, the MBI-Educators Survey is tailored specifically for educators or professionals working in a school setting. The MBI-General Survey was developed to measure burnout in occupational groups other than human service professionals (Maslach et al., 1996). All three of the existing versions of the MBI (Human Services, Educators, and General) have been used to measure burnout in ASD service providers. However, the MBI-Human Services Survey and MBI-Educators Survey are both designed specifically for the demands of working with people, and therefore they are the two most commonly used instruments to measure burnout in ASD service providers.

**Burnout in ASD Service Providers.** Levels of burnout are categorized as low, moderate, or high for each subscale of the MBI-Human Services Survey and MBI-Educators Survey (Maslach et al., 1996). To date, seven studies (Broadley, 2012; Deling, 2014; Gibson, Grey, & Hastings, 2009; Griffith, Barbakou, & Hastings, 2014; Harris, Handleman, Gill, & Fonget, 1991; Tagg, 2015; Valenti et al., 2014) have clearly indicated the measurement of burnout in ASD service providers using the MBI-Human Services Survey. Studies using the MBI-Human Services Survey consistently show that ASD service providers report low levels of burnout in the depersonalization domain (Broadley, 2012; Deling, 2014; Gibson et al., 2009; Griffith et al., 2014; Harris et al., 1991; Tagg, 2015; Valenti et al., 2014), and moderate levels of burnout in the emotional exhaustion domain (Deling, 2014; Gibson et al., 2009; Griffith et al., 2014; Harris et al., 1991; Tagg, 2015). Findings are more mixed for the personal accomplishment domain, for which ASD service providers reported both moderate and high levels of personal accomplishment (Broadley, 2012; Deling, 2014; Gibson et al., 2009; Griffith et al., 2014; Tagg, 2015; Valenti et al., 2014). However, even when providers were considered to have moderate levels of personal accomplishment, their scores were often close to the cutoff for high personal accomplishment (Gibson et al., 2009; Tagg, 2015). Given that burnout is characterized by reduced personal accomplishment, these findings suggest that providers in fact have relatively low levels of burnout as measured by this domain.

In the existing literature, seven studies specifically indicate the use of the MBI-Educators Survey to measure burnout in ASD service providers (Boomgard, 2014; Boyd et al., 2018; Chatlos, 2016; Coman et al., 2013; Dykstra, 2012; Jennett, Harris, & Mesibov, 2003; Ouellette et al., 2018). These studies consistently show that ASD service providers report low levels of burnout in both the depersonalization domain (Boyd et al., 2018; Chatlos, 2016; Coman et al.,

2013; Dykstra, 2012; Jennett et al., 2003), and the personal accomplishment domain (Boomgard, 2014; Boyd et al., 2018; Chatlos, 2016; Coman et al., 2013; Dykstra, 2012; Jennett et al., 2003). Moderate levels of burnout are consistently reported in the emotional exhaustion domain (Boomgard, 2014; Boyd et al., 2018; Chatlos, 2016; Coman et al., 2013; Dykstra, 2012; Jennett et al., 2003; Ouellette et al., 2018).

While ASD service providers experience relatively low levels of burnout as measured by depersonalization and reduced personal accomplishment, it appears that they experience moderate levels of burnout consistently in the domain of emotional exhaustion. Various factors may explain differences in burnout across the three subdomains for ASD service providers. For example, ASD service providers may have a high social desirability bias, in which depersonalization is under-reported compared to emotional exhaustion. Since depersonalization is the domain that assesses the views ASD service providers hold towards their students/clients, they may not want to fully express negative feelings they may be harboring. This is supported by a finding in which ASD service providers reported higher levels of depersonalization when completing the MBI online rather than in person (Deling, 2014). Generally, responses to online surveys are less influenced by social desirability than in-person surveys (Heerwegh, 2009). A possible explanation for differences in emotional exhaustion compared to reduced personal accomplishment is that reduced personal accomplishment, or reduced productivity and lowered sense of efficacy, is not a true domain of burnout (Bresó, Salanova, & Schaufeli, 2007; Schaufeli & Salanova, 2007; Schaufeli, Salanova, González-Romá, & Bakker, 2002). The difference in level of burnout across domains is another important reason to examine emotional exhaustion, depersonalization, and reduced personal accomplishment in RBTs.

## **Antecedents of Job Burnout**

The most common model of job burnout, the JD-R model, views burnout as a developmental process in which employees begin to experience burnout over time (Demerouti et al., 2001). This process model of burnout identifies antecedents, or predictors, that lead to job burnout. Antecedents are typically categorized as individual factors (e.g., demographic variables, personality characteristics, and work-related attitudes; Maslach et al., 2001) or situational factors (e.g., job characteristics or working conditions; Demerouti et al., 2001). Situational factors can be further categorized as job demands and resources (Demerouti et al., 2001; Maslach et al., 2001). Job demands are defined as job characteristics that require sustained physical and/or cognitive effort resulting in physiological and/or psychological costs (Bakker et al., 2004), including factors such as role ambiguity, role conflict, the number or hours worked, client behaviors, and number of clients (Maslach et al., 2001). Multiple meta-analyses have found that job demands are the most important factor associated with burnout across human service professions (Alarcon, 2011; Lee & Ashforth, 1996). Additionally, there is longitudinal evidence demonstrating that increases in job demands predict future increases in reported burnout (Schaufeli, Bakker, & Van Rhenen, 2009).

Another situational factor that predicts burnout is the lack of job resources. Job resources are job characteristics that serve one of the three functions: to help achieve work goals; to reduce the physiological and psychological cost associated with job demands; or to promote personal growth, learning, and development (Bakker et al., 2004). Job resources may include job characteristics such as autonomy, control, and social support (Maslach et al., 2001). Ultimately, situational factors (i.e., job demands and lack of resources) are key antecedents of burnout

(Maslach et al., 2001; Schaufeli & Bakker, 2004), and therefore are likely critical to burnout among ASD service providers, in particular RBTs.

**Antecedents of Burnout in ASD Service Providers.** Existing literature on burnout in ASD service providers mirrors the general burnout literature in that research has primarily focused on situational factors, or job demands and lack of resources, rather than individual factors (i.e., optimism). In recent years, the number of ASD service providers receiving certification in ABA has increased (Behavior Analyst Certification Board, n.d.). This drastic growth in the occupation, particularly RBTs, raises the importance of preventing and alleviating burnout in this population, as burnout may have negative effects on RBT health, the service companies, as well as the individuals with ASD and their families. Therefore, research needs to determine which situational factors play a key role in leading to burnout in RBTs. Although some evidence suggests that job demands and resources are correlates of burnout in ASD service providers (e.g., Gibson et al., 2009), existing evidence lacks clarity in identifying specific occupational stressors for RBTs (e.g., challenging client behavior).

**Job demands.** Prolonged work stress causes burnout among human service providers (Maslach et al., 1996); therefore, it is no surprise that job stress is significantly related to burnout among ASD service providers (Deling, 2014; Ruble, Toland, Birdwhistell, McGrew, & Usher, 2013). While it is important to know that general levels of job stress are antecedents to burnout, it may be more beneficial to examine discrete occupational stressors, which in fact represent specific job demands. One study examining the relationship between burnout and stress in ASD service providers used the Staff Stressor Questionnaire (SSQ; Hatton et al., 1999) as an indicator of global stress (Deling, 2014). However, the specific domains in the SSQ can be viewed as specific job demands, which include challenging client behavior and low client skill level (e.g.,

communication). By understanding which job demands are salient antecedents of burnout, they can be used as targets to reduce or prevent burnout in RBTs. Therefore, to best understand the key antecedents of burnout in ASD service providers, it may be necessary to look at individual subscales of the SSQ.

*Client challenging behaviors and skill level.* The majority of children with ASD (approximately 94%) display some form of behavior that is considered challenging (Jang, Dixon, Tarbox, & Granpeesheh, 2011). In other related human service professions (e.g., teachers), challenging behaviors have been associated with negative occupational well-being, specifically emotional exhaustion and depersonalization (Chung & Harding, 2009; Hastings & Bham, 2003; Hastings & Brown, 2002; Hensel, Lunskey, & Dewa, 2012; Mills & Rose, 2011; Neben & Chen, 2010; Vassos & Nankervis, 2012). With the high number of challenging behaviors displayed by individuals with ASD and the established relationship between such behaviors and burnout, examining the relationship between stress from challenging client behaviors and burnout in RBTs is a clear next direction.

In addition to displaying challenging behaviors, individuals with ASD may also demonstrate challenges across various domains. For example, individuals with ASD perform low on self-care and daily living skills throughout life (Jasmin et al., 2009; Smith, Maenner, & Seltzer, 2012). Additionally, by definition, individuals with ASD face challenges in social communication. A subgroup of individuals with ASD, approximately 30%, faces extreme difficulty with spoken language and remains minimally verbal after age five (Tager-Flusberg & Kasari, 2013). Low client skills, such as these, are associated with burnout in disability support workers (Dyer & Quine, 1998). Therefore, stress due to skill level is an important job demand to examine in the occupation of RBT.

*Social resources.* Lack of resources is also important factor associated with burnout, based on the JD-R model (Schaufeli & Bakker, 2004). Therefore, it is also important to examine which resources are antecedents of burnout in RBTs. The most commonly examined resource in relation to professional burnout is social support (Maslach et al., 2001). This resource may be especially important because it can serve two of the three functions that define resources (i.e., social support may help employees achieve work goals and/or reduce the psychological cost associated with job demands; Bakker et al., 2004). It may also play a prominent role in the field because social support may come from a variety of sources, such as coworkers, supervisors, or relationships outside the work environment.

*Supervision.* Although findings on the association between coworker support and burnout in ASD service providers is inconsistent (Boujut, Dean, Grouselle, & Cappe, 2016; Zarafshan, Mohammadi, Ahmadi, & Arsalani, 2013), several studies have found that greater supervisor support is associated with lower levels of burnout (Gibson et al., 2009; Hurt, Grist, Malesky, & McCord, 2013; Langeliers, 2013; Zarafshan et al., 2013). In fact, the majority of studies examining the relationship between job resources and burnout in ASD service providers have focused on the relationship with supervisors as a resource. There are likely several reasons supervision is a key resource examined in the occupation of ASD service providers. First, supervision is related to intervention outcomes for children with ASD (Eikeseth, Hayward, Gale, Gitlesen, & Eldevik, 2009). In addition, supervision can help human service professionals (e.g., teachers) cope with challenging client behaviors (Bakker, Hakanen, Demerouti, & Xanthopoulou, 2007). Lastly, quality supervision is significantly related to lower levels of burnout in human service professionals (e.g., Edwards et al., 2006; Hyrkäs, 2005).

*Role clarity.* Another social resource commonly examined in relation to burnout is role clarity, or the opposite of role ambiguity. Role clarity can be defined as “the subjective feeling of having as much or not as much role relevant information as the person would like to have” (Lyons, 1971, p.100). In related fields (i.e., health care workers and employees working with individuals with intellectual and learning disabilities), role clarity is negatively associated with burnout (Aitken & Schloss, 1994; Blumenthal, Lavender, & Hewson, 1998; Dyer & Quine, 1998; Portoghese et al., 2017). To our knowledge, no previous studies have examined role clarity in ASD service providers. Therefore, examining role clarity as a social resource for RBTs and its relation to burnout is an important contribution to the literature.

*Developmental resources.* According to the JD-R model, developmental resources are another key resource domain (Schaufeli, 2017). Developmental resources include resources such as professional feedback, possibilities for learning and development (e.g., training), and career perspective. To date, training has not been examined in relation to RBT burnout. However, previous research on ASD service providers highlights the importance of training resources (Boujut et al., 2016; Corona, Christodulu, & Rinaldi, 2017; Kazemi, Shapiro, & Kavner, 2015; Ouellette et al., 2018; Symes, Remington, Brown, & Hastings, 2006). For example, Symes et al. (2006) found that ABA therapists reported training in instructional techniques, ABA theory, and behavioral management skills influenced their effectiveness of intervention delivery. Furthermore, Boujut et al. (2016) found that teachers in general education classrooms had higher burnout than those in specialized classrooms when teaching children with ASD. Based on their findings they highlight the importance of providing training that is specific to teaching individuals with ASD. Similarly, research on general education teachers indicates that they tend to attribute their burnout to the feeling that their initial training did not professionally equip them



to face the challenges of the job (Friedman, 2000). Training and burnout are also examined in other related fields, finding that perceptions about job training are significantly associated with burnout of human service professionals. For example, burnout among private practice pediatricians is attributed to overtraining in some areas and insufficient training others (Pines, 1981). Furthermore, high burnout in both physicians and nurses is related to their dissatisfaction with their training (Demir, Ulusoy, & Ulusoy, 2003; Msaouel et al., 2010). Yet, more importantly, research has shown that skill-development training predicts a reduction in burnout over time, which indicates that training may be a significant buffer against burnout in human service professionals (e.g., social workers; Cohen & Gaglin, 2005).

Beyond receiving sufficient training to deal with professional challenges and training satisfaction, it is also important that training method matches employees' preferred style of instruction. While research on perceptual learning style preference in education indicates that matching instruction style with learning preference may not actually improve student performance (Kirschner, 2017; Newton, 2015), research on employees' behaviors suggest a different story. Employees who are matched with training strategies congruent with their preference perform better and have better attitudes toward their training (Dunn, Ingham, & Deckinger, 1995; Ingham, 1991). Furthermore, Ingham (1991) found that when employees receive training in their preferred method they learn more and have more positive perceptions about company training programs. Therefore, while no previous research has examined the relationship between burnout and training in RBTs, related literature indicates it may be important to ensure ASD service providers, including RBTs, receive training that-aligns with their preferred method.

## **Consequences of Job Burnout**

Based on the JD-R model of burnout, job burnout causes adverse individual and organizational consequences (Demerouti et al., 2001; Maslach et al., 1996). Employees who experience burnout may have many negative health effects. For example, burnout co-occurs with many mental disorders (i.e., depressive disorders, anxiety disorders, and alcohol dependence; Ahola et al., 2005) and physical illnesses (i.e., musculoskeletal and cardiovascular disorders; Honkonen et al., 2006). Furthermore, burnout predicts future cases of heart disease (Toker, Melamed, Berliner, Zeltser, & Shapira, 2012), the onset of type 2 diabetes (Melamed, Shirom, Toker, Berliner, & Shapira, 2006), new infections (Mohren et al., 2003), and new cases of musculoskeletal pain (Armon, Melamed, Shirom, & Shapira, 2010). Burnout can also cause tension in relationships outside of work, such as fighting, complaining, or more negative feelings towards people (Maslach, 2015). Specifically, in the occupation of teaching, burnout is related to difficulty controlling one's temper and relating to family members (Schwab, Jackson, & Schuler, 1986) and lower marital satisfaction (Burke & Greenglass, 1995).

While there are many negative individual consequences of burnout, the syndrome is also related to different types of negative organizational consequences, or outcomes that impact either the organization or individuals who are provided a service by that organization. For example, burnout is related to absenteeism and intention to leave one's profession (Schwab et al., 1986). While organizational consequences of burnout have been studied and described for many human service professions, very few studies have examined the consequences of burnout specifically for ASD service providers. According to the few studies conducted, ASD service providers who report lower levels of burnout also report higher job satisfaction (Hurt et al., 2013; Langeliers, 2013; Zarafshan et al., 2013). More importantly, levels of burnout in ASD service providers do

not seem to impact service recipients' performances on areas commonly targeted by intervention (Coman, 2014; Dykstra, 2012). However, we also know that RBTs report high rates of turnover intention (Kazemi et al., 2015), yet to our knowledge the relationship between burnout and turnover intention has not been examined in RBTs. Therefore, it may be critical to investigate organizational outcomes such as turnover intention, organizational commitment, and job performance. Focusing on these organizational outcomes may assist companies in preventing turnover and poor job performance in ASD service providers due to burnout.

### **Work Engagement**

While burnout is a well-examined negative indicator of occupational well-being, work engagement has emerged as a positive indicator of occupational well-being. Work engagement is defined as a positive, fulfilling work-related state of mind that is characterized by vigor, dedication, and absorption (Schaufeli, Salanova, Gonzalez-Romá, & Bakker, 2002). Vigor refers to high levels of energy and mental resilience while working. It is also characterized by the willingness to invest effort in one's work and to be persistent in work despite facing difficulties. Dedication is characterized by strong involvement in one's work and experiencing a sense of significance, enthusiasm, inspiration, pride, and challenge. Absorption refers to being completely focused on one's work, which results in the feeling of time passing quickly. Additionally, it refers to the difficulties one faces in detaching oneself from work.

**Work Engagement Measurement.** The most prevalent instrument used to measure work engagement is the Utrecht Work Engagement Scale (UWES; Schaufeli et al., 2002). The UWES is a self-report questionnaire that assesses the three dimensions of work engagement including vigor, dedication, and absorption. A short version of the UWES was created, reducing the

number of items from 17 to 9, allowing researchers to measure the same three dimensions of work engagement with a simplified questionnaire (UWES-9; Schaufeli et al., 2006).

While the UWES is used to measure work engagement across many occupations (e.g., teachers; Hakanen, Bakker, & Schaufeli 2006), it has not yet been used with ASD service providers. Yet, work engagement is likely important to examine in ASD service providers as it is related to positive organizational outcomes such as reduced turnover intention (Schaufeli & Bakker, 2004). Therefore, it is important to describe the level of work engagement in RBTs and identify antecedents and consequences of work engagement for this occupational group.

### **Antecedents of Work Engagement**

As with burnout, work engagement is typically viewed as a process in which certain situational antecedents or factors (i.e., job resources and job demands) predict work engagement (Bakker et al., 2014). While job demands are the key antecedents of burnout, the most important antecedents of work engagement are job resources (Schaufeli & Bakker, 2004). When job resources and demands are included as concurrent predictors of work engagement, job resources exclusively predict work engagement (Schaufeli & Bakker, 2004). Additionally, there is longitudinal evidence that job resources predict future work engagement. For example, job resources predict levels of work engagement two years later in health care professionals (Mauno, Kinnunen, & Ruokolainen, 2007). Moreover, job resources play an essential role in employee engagement and reduce the potentially negative effect of job demands (Hakanen, Bakker, & Demerouti, 2005). By identifying potential risk factors of low work engagement that may be unique to RBTs, organizations may begin to strategically improve employee work engagement by reducing stressful demands and/or providing necessary resources to help protect against the negative effects of demands.

## **Consequences of Work Engagement**

Consequences, or outcomes, are individual or organizational factors that are positively predicted by work engagement (Bakker et al., 2014). Work engagement is both predictive of and associated with a number of consequences. For example, work engagement is predictive of improved life satisfaction and mental health (i.e., reduced depressive symptoms; Hakanen & Schaufeli, 2012). Additionally, high work engagement is associated with positive physical health (i.e., cardiac health; Seppälä et al., 2012).

While individual consequences may be important outcomes of work engagement for employees, the examination of organizational consequences dominates the work engagement literature, in particular job performance. Job performance is frequently categorized as in-role performance or extra-role performance. In-role performance, or task performance, is defined as meeting or exceeding standards of job-specific behaviors required by the organization (Conway, 1999; Motowidlo & Van Scotter, 1994). Theoretically, employers can enhance job performance by fostering work engagement (Gruman & Saks, 2011). In fact, work engagement is positively related to in-role performance (Bakker & Bal, 2010), and work engagement is predictive of future job performance (i.e., self, supervisor, and coworker rated in-role performance; Halbesleben & Wheeler, 2008).

Beyond job performance, employee work engagement is positively related to many other organizational outcomes including productivity (Harter, Schmidt, & Hayes, 2002), daily financial return (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009), profitability (Harter et al., 2002), service climate (Salanova, Agut, & Peiró, 2005), customer satisfaction and loyalty (Harter et al., 2002), organizational commitment (Hakanen, Bakker, & Schaufeli, 2006), and lower turnover intention (Schaufeli & Bakker, 2004). Among the many organizational outcomes

related to work engagement, organizational commitment and turnover intention are potentially the most important for RBTs, intervention companies, and clients. The intention to leave one's occupation is particularly high among RBTs. Specifically, 41.6% of RBTs reported they were highly or somewhat likely to leave the occupation (Kazemi et al., 2015), whereas the national yearly average for employee turnover across industries is only 17.9% (Boushey & Glynn, 2012). Although the relationship between antecedents (i.e., job demands and resources) and organizational outcomes (e.g., turnover intention) has been established among ASD service providers (Kazemi et al., 2015), existing empirical research has failed to examine the role of work engagement. Work engagement mediates the relationship between many antecedents and consequences (Hakanen et al., 2006; Schaufeli & Bakker, 2004) in various occupations (e.g., teachers). Therefore, it is essential to examine work engagement in relation to organizational outcomes that may be particularly relevant to ASD service agencies including turnover, organizational commitment, and job performance.

### **Current Study**

Burnout and work engagement are related to factors such as client care, job performance, and turnover as outlined above. Consequently, it is important to understand burnout and work engagement in ASD service providers – especially RBTs, since they are the clinicians who provide direct implementation of behavioral interventions to individuals with ASD on a daily basis. By identifying the antecedents and consequences of burnout and work engagement in the RBT population, the field can move toward preventing and alleviating burnout while improving work engagement. Ideally, this will help ensure that individual with ASD are receiving high quality services with limited disruption in services due to turnover. Therefore, this study, using the JD-R framework, aimed to identify job characteristics and organizational outcomes related to

optimal organizational well-being in RBTs employed by private service agencies working with individuals with ASD, specifically:

**Aim 1:** Explore the relationship between job demands (i.e., client challenging behaviors, client skill level), resources (i.e., training satisfaction, supervision, role clarity), and occupational well-being in RBTs.

1(a) Determine which job demands and resources are significant concurrent predictors of job burnout category in RBTs after controlling for demographic variables.

1(b) Determine whether job demands and resources uniquely contribute to concurrent work engagement after controlling for demographic variables.

**Aim 2:** Explore the relationship between occupational well-being (i.e., burnout or work engagement) and organizational outcomes.

2(a) Determine whether work engagement and burnout uniquely contribute to concurrent turnover intention in RBTs after controlling for demographic variables.

2(b) Determine whether work engagement and burnout uniquely contribute to concurrent organizational commitment in RBTs after controlling for demographic variables.

2(c) Determine whether work engagement and burnout uniquely contribute to concurrent job performance in RBTs after controlling for demographic variables.

## **Methods**

### **Participants**

Participants were RBTs certified by the Behavior Analyst Certification Board (BACB). All RBTs were working with individuals with ASD in California at the time of participation in the study. The RBTs were between the ages of 19 and 66 years.

The participants were recruited through the BACB. In May 2018, the BACB had 8,183 RBTs in California. On May 8, 2018, an email was sent to 3,197 RBTs through the BACB mass email service. As part of registration with the BACB, RBTs may self-select to be contacted via email for academic research purposes through the BACB. Therefore, the number of RBTs emailed is smaller than the total number of RBTs in California. The email included information about the study and a link to participate in the online survey. A follow up email was sent on May 16, 2018. Ultimately, 311 RBTs completed the survey.

The survey was administered online to participants via Qualtrics. The 50th, 150th, and 250th participants received a \$50 Amazon gift card for their participation. When the RBTs clicked on the link to the online survey, they were directed to the online consent form.

## **Measures**

All the constructs of interest, variables, and sources of survey items can be found in Table 1.

**Control variables.** Demographic information was collected at the beginning of the survey. This included questions on age, gender, racial/ethnic background, and highest level of education. In addition to basic demographic information, we collected information regarding basic job characteristics, such as contractual status (i.e., full-time vs. part-time), the age range of their typical client, the setting in which they most commonly worked, the number of years they have worked in the ASD intervention field, and the number of years worked at their current company.

### **Job demands.**

**Client challenging behavior.** The Staff Stressor Questionnaire (SSQ; Hatton et al., 1999) has seven subscales in total. For this study, the challenging behavior subscale of the SSQ was



used to assess RBT stress as an emotional reaction to client challenging behaviors. The challenging behavior subscale consists of nine items in which RBTs rate how stressful they find each item. One sample item states, “How stressful do you find client stereotyped behaviors?” Response options range from 1 (‘not at all’) to 5 (‘a great deal’). From each individual’s subscale sum score, we calculated percent of maximum possible (POMP; Cohen, Cohen, Aiken, & West, 1999) scores with 0 as the minimum score and 100 as the maximum score. Higher scores indicate challenging client behaviors are more stressful for RBTs than lower scores. In this study, the measure reflected high internal consistency, with Cronbach’s alpha of .81.

***Client skill level.*** The user skill level subscale of the SSQ (Hatton et al., 1999) was used to measure RBT stress as an emotional reaction to working with clients with limited skills. The skill level subscale consists of seven items assessing perceived stress from low skill levels of clients with ASD, which may increase the need for support. Specifically, the skill level subscale assesses RBTs’ emotional reactions to clients’ skills in the areas of self-care, domestic, and communication skills. One sample item asks, “How stressful do you find low levels of client self-care skills?” Response options range from 1 (‘not at all’) to 5 (‘a great deal’). POMP scores were calculated, with higher score indicating client skill level is a more stressful job demand for RBTs than a lower score. Good internal consistency was demonstrated in our sample with Cronbach’s alpha of .80.

**Social job resources.** Social support is one of the key resources examined in relation to occupation well-being of ASD service providers (e.g., Gibson et al., 2009). Therefore, we created a combined social job resource variable from two separate resources, role clarity and supervisor coaching, both of which are well-established social job resources from the JD-R model (Schaufeli, 2017; Schaufeli & Bakker, 2004). While several studies have examined

supervision in ASD service providers (e.g., Gibson et al., 2009), work role clarity is a new social job resource to be examined in this population. Since supervisor support and role clarity are highly correlated (e.g., Whitaker, Dahling, & Levy, 2007), these two resources were combined to create an overall social job resource score. POMP scores were calculated for both measures, and then averaged to calculate an overall social job resource POMP score for each participant.

***Work role clarity.*** The Job and Criterion Questionnaire contains eight subscales (Locke, Fitzpatrick, & White, 1983). The work role clarity subscale, consisting of five items, was used to measure work role clarity. Sample items include: 1) “It is clear what is expected of me,” and 2) “Different people’s expectations are consistent.” Response options range from 1 (‘strongly disagree’) to 5 (‘strongly agree’). Negatively worded items were reverse coded. POMP scores were calculated, with high scores indicating that RBTs view their work role as more clear than low scores. The work role clarity subscale demonstrated good internal consistency in our sample with a Cronbach’s alpha of .79.

***Supervision.*** Perceptions about supervisor coaching behavior was measured using questions from the Employee Perceptions of Supervisor Coaching Behavior Measure (Ellinger, Ellinger, & Keller, 2003). For the current study we used five of the original eight questions. Sample items include: 1) “My supervisor uses analogies, scenarios, and examples to help me learn,” and 2) “My supervisor provides me with constructive feedback.” The response options range from 1 (‘almost never’) to 7 (‘almost always’). POMP scores were calculated, with low scores indicating RBTs believe their supervisors are performing poorly in regard to coaching behavior and high scores indicating RBTs perceive their supervisors are performing coaching behaviors well. The measure demonstrated high internal consistency within our sample with a Cronbach’s alpha of .91.

### **Developmental resources.**

***Training satisfaction.*** The Training and Job Satisfaction Survey includes 11 subscales (Schmidt, 2004). The employee satisfaction with training subscale was used to assess RBTs job training satisfaction. Job training satisfaction is defined as how people feel about aspects of the job training they receive (Schmidt, 2007). The subscale consists of four items which include: 1) “Overall, the on-the-job training I receive is applicable to my job,” 2) “Overall, the training I receive on the job meets my needs,” 3) “Overall, I am satisfied with the amount of training I receive on the job,” and 4) “I am generally able to use what I learn in on-the-job training in my job.” RBTs indicated their satisfaction on a six-point scale ranging from 1 (‘disagree very much’) to 6 (‘agree very much’). POMP scores were calculated, with low scores indicating low levels of job training satisfaction and high scores indicating high levels of job training satisfaction. The subscale demonstrated high internal consistency in our sample indicated by an overall Cronbach’s alpha of .88.

***Training methods.*** Training methods of interest included classroom training, one-on-one training with a supervisor, on-line or computer-based training, and observing experienced employees. RBTs ranked the four types of training from most common method of training received to least common method of training. They also indicated which of the four methods they believe is the most effective in helping them learn for their job. We then determined whether or not a participant’s training “matched” his/her training method preference.

### **Occupational well-being.**

***Maslach Burnout Inventory-Human Service Survey.*** The MBI-Human Service Survey (Maslach et al., 1996) consists of 22 items, each of which is a statement that measures respondents’ feelings or attitudes. The emotional exhaustion domain consists of nine items, the

depersonalization domain consists of five items, and the personal accomplishment domain consists of eight items. Response options range from 0 ('never') to 6 ('every day'); each number has a corresponding response anchor. Based on the MBI Manual, we assigned categories of burnout level (i.e., high, moderate, or low) for each domain (i.e., emotional exhaustion, depersonalization, personal accomplishment). A classification of high on the emotional exhaustion and depersonalization domains indicated greater levels of experienced burnout. In contrast a classification of low, or reduced personal accomplishment, indicated greater levels of professional burnout. The internal consistency, as measured by Cronbach's alpha, was as follows for each burnout domain in our sample: .93 for emotional exhaustion, .61 for depersonalization, and .75 for personal accomplishment. The lower internal consistency for depersonalization may be due to the subscale only containing five items, which is fewer than the other two subscales of the measure (Cronbach, 1951). This scale was still examined in this study because it is a well-established scale and items with lower intercorrelations may still make up an interpretable scale (Cronbach, 1951).

***Utrecht Work Engagement Scale.*** The Utrecht Work Engagement Scale (UWES-9; Schaufeli, Bakker, & Salanova, 2006) is a shortened version of the original 17 item UWES (Schaufeli, Salanova, Gonzalez-Romá, & Bakker, 2002). The vigor, dedication, and absorption domains each contain three items. Sample items of the vigor, dedication, and absorption scales are "At my work, I feel bursting with energy," "I am enthusiastic about my job," and "I am immersed in my work," respectively. The response options range from 0 ('never') to 6 ('every day'). POMP scores were calculated, with higher scores indicating greater levels of work engagement and lower scores indicating lower levels of work engagement. The creators of the UWES-9 suggest that researchers use a total score as an indicator of work engagement rather

than computing three scores for the subscales because a one factor model fits well and prevents problems with multicollinearity in analyses (Schaufeli et al., 2006). The overall internal consistency in our sample was high, as indicated by Cronbach's alpha of .88.

### **Organizational outcomes.**

***Job Turnover Intention Scale.*** The Turnover Intention Scale (TSI-6; Bothma & Roodt, 2013) is a survey measuring employees' turnover intentions. Turnover intention is defined as "the conscious and deliberate willfulness to leave the organization" (Tett & Meyer, 1993, p. 262). The scale is a six item shortened version of the original 15 item scale (Roodt, 2004). Sample items include: 1) "How often have you considered leaving your job?" and 2) "How often do you look forward to another day at work?" Each item was rated on a scale of 1 to 5, with negatively worded items reverse coded. POMP scores were calculated, with higher scores indicating greater levels of RBTs' willfulness to leave their job. The measure demonstrated high internal consistency within our sample with a Cronbach's alpha of .82.

***Autism turnover intention.*** Three questions were adapted from the TSI-6 (Bothma & Roodt, 2013) to measure RBTs' intentions to leave the field of autism intervention. The items were: 1) "How often have you considered leaving the field of autism specialized intervention?" 2) "How satisfied are you working in the field of autism specialized intervention?" and 3) "How often do you look forward to another day working in the field of autism specialized intervention?" Each item was rated on a scale of 1 to 5, with negatively worded item reverse coded. POMP scores were calculated, with high scores indicating greater levels of RBTs' willfulness to leave the field. The measure demonstrated high internal consistency within our sample with a Cronbach's alpha of .82.

***Organizational Commitment Scale.*** The Organizational Commitment Scale (Meyer, Allen, & Smith, 1993) includes six self-report items to assess employees' affective commitment to the organization for which they work. The response options range from 1 ('strongly disagree') to 7 ('strongly agree'). The items are: (1) "I would be very happy to spend the rest of my career with this organization," (2) "I really feel as if this organization's problems are my own," (3) "I do not feel a strong sense of 'belonging' to my organization," (4) "I do not feel 'emotionally attached' to this organization," (5) "I do not feel like 'part of the family' at my organization," and (6) "This organization has a great deal of personal meaning for me." Negatively worded items were reverse coded. POMP scores were calculated, with high scores indicating higher levels of organizational commitment and low scores indicating lower levels of commitment. In the current study, the measure demonstrated good internal consistency, as indicated by Cronbach's alpha of .88.

***Self-rated job performance.*** In-role job performance, or task performance, was measured by the RBT Competency Assessment (Behavior Analyst Certification Board, 2013). The measure was initially developed to be rated by supervisors (e.g., board certified behavior analysts (BCBAs), but in the current study the items were adapted to reflect individual RBTs' self-rated performance of specific tasks. The measure includes 22 items to assess RBTs ability to perform job-specific tasks. Sample items of RBT specific job tasks include: 1) "Use contingencies of reinforcement (e.g., conditioned/unconditioned reinforcement, continuous/intermittent schedules)" and 2) "Conduct preference assessments." Response options range from 1 ('very poor') to 6 ('excellent'). RBT's were also able to indicate they do not perform the role as part of their job or that they do not know what the task means. Response scores were added up and divided by the total number of tasks rated, which produced an average performance rating.

Higher ratings indicate better levels of RBT performance, while lower ratings indicate lower levels of self-rated performance. The measure demonstrated high internal consistency within our sample with a Cronbach's alpha of .95.

### **Evaluating Survey Questions**

All measures used were pre-existing instruments. However, to ensure the survey was appropriate for the research questions, we had eight subject matter experts review the full survey. The experts assessed the content standards, cognitive standards, and usability standards (Groves et al., 2009) of the items. All eight experts have previously worked for various companies that provide services for individuals with ASD. In addition to being experts on the concepts measured by the questions, the experts were all researchers with survey data experience. Additionally, we had five individuals from the ASD intervention field (three of which also served as subject matter experts) pretest the survey in Qualtrics, followed by a debriefing with the primary investigator.

## **Results**

### **Preliminary Analyses**

Analyses were conducted using SPSS Version 24. First, we examined whether RBTs with complete data differed significantly from those with partial data. We found there were no statistically significant differences in demographics, job aspects, predictor variables or outcome variables. Therefore, we decided to only include participants with complete data in the final analyses.

### **Participant Characteristics**

The recruitment email was sent to 3,197 RBTs, and 429 RBTs began the survey. Two RBTs did not consent, and 116 RBTs did not fully complete the survey. Thus, the sample

includes 311 RBTs (response rate=9.73%,  $M_{\text{age}} = 27.71$  years,  $SD=7.29$ ) with diverse ethnic/racial backgrounds, with over half of the sample self-reporting as Hispanic. Participants were primarily female ( $n= 262$ ) and slightly over 75% held a college degree or higher. Detailed demographic information is presented in Table 2.

Roughly half of the RBTs were full-time employees. The majority of participants primarily worked in a home setting with children. For more detailed information about job aspects, please see Tables 3 and 4.

### **Descriptive Statistics**

Mean, median, standard deviation, minimum, and maximum, were calculated for all continuous variables. Information regarding job demands and resources (i.e., client challenging behaviors, client skills, role clarity, training satisfaction, number of training days, supervision) is presented in Table 5. Information on occupational well-being (i.e., burnout and work engagement) is presented in Table 6. The descriptive data on organizational outcomes (i.e., organizational commitment, job performance, and turnover intention) is presented in Table 7. Descriptive statistics, including percentages and frequency counts were calculated for all categorical variables. Categorical job demands and resources (i.e., contractual status and mismatch of training) are presented in Table 8. Categorical indication of occupational well-being (i.e., job burnout classification) is presented in Table 9. Pearson's correlations were examined between all continuous variables of interest and the results are displayed in Table 10. Chi-squared tests were used to measures of association between categorical variables of interest and the results are displayed in Table 11. Analysis of variance was used to measure the association between continuous and categorical variables of interest. The results are displayed in Table 12.



In order to examine assumptions of normality, homogeneity of variance, linearity, and multicollinearity, graphs were visually inspected for each outcome variable.

### **Job Burnout**

Nearly 45% of RBTs reported levels of emotional exhaustion that identified them as employees with high burnout (see Table 9). Multiple ordinal regressions were conducted to examine the relationship between job characteristics and burnout domains (i.e., emotional exhaustion, depersonalization, and personal accomplishment). Each burnout domain was entered as the dependent variable in three separate analyses. We entered the following control variables: race/ethnic background, education, years worked with individuals with ASD, years worked at company, age, and gender. The following job demands and resources were entered as concurrent predictors of job burnout: challenging client behavior, client skills, contractual status (i.e., full-time vs. part-time), social job resources, job training satisfaction, number of days of training per month, and match/mismatch of training method. The test of parallel lines was not significant for emotional exhaustion ( $p = 0.273$ ), depersonalization ( $p = 0.561$ ), and personal accomplishment ( $p = 0.125$ ), which indicated that the slope coefficients were the same across burnout response categories in each of the burnout domains.

**Emotional exhaustion.** Results indicated that significant concurrent predictors of emotional exhaustion response category included the job demands of stress from challenging client behavior and contractual status (i.e., full-time employment) in addition to the job resources of social support and matched training. Increases in stress from challenging behaviors resulted in greater odds of high emotional exhaustion versus combined low and moderate emotional exhaustion,  $OR=1.04$ , 95% CI [1.03-1.06],  $p<.001$ . Furthermore, RBTs that were full-time had higher odds of high emotional exhaustion versus combined low and moderate emotional

exhaustion,  $OR=2.90$ , 95% CI [1.75 - 4.81],  $p<.001$ , compared to RBTs that work part-time. Conversely, increases in social support resulted in lower odds of high emotional exhaustion versus combined low and moderate emotional exhaustion,  $OR=.98$ , 95% CI [.96-.99],  $p=.001$ . Additionally, RBTs with matched training method had lower odds of high emotional exhaustion versus combined low and moderate emotional exhaustion decreases,  $OR=.525$ , 95% CI [.32-.87],  $p=.012$ , compared to those with mismatched training method. The results from the full model are displayed in Table 13.

**Depersonalization.** Results indicated that the job demand of stress from challenging client behavior and the job resource of matched training were significant predictors of depersonalization response category. Specifically, increases in stress from challenging behaviors resulted in greater odds of high depersonalization versus combined low and moderate depersonalization,  $OR=1.04$ , 95% CI [1.02-1.05],  $p<.001$ . Furthermore, if RBTs received matched training, then their odds of being categorized at high depersonalization versus combined low and moderate depersonalization decreased,  $OR=.50$ , 95% CI [.28-.92],  $p=.027$ , compared to RBTs who received mismatched training. The results from the full model are displayed in Table 14.

**Personal accomplishment.** We did not find any significant predictors of personal accomplishment response category. The results from the full model are displayed in Table 15.

### **Work Engagement**

Overall, RBT engagement was reasonably high ( $M=73.92$ ,  $SD= 18.50$ ). To examine the relationship between job characteristics and work engagement, multiple linear regression analysis was conducted. Work engagement was entered as the dependent variable. In the first model we entered the following control variables: race/ethnic background, education, years

worked with individuals with ASD, years worked at company, contractual status (i.e., full-time vs. part-time), age, and gender. In the second model we entered the following resource variables as concurrent predictors of work engagement: social job resources, job training satisfaction, number of days of training per month, and match/mismatch of training method. In the third model we added the following demand variables as concurrent predictors: challenging client behavior and client skill level. The results indicated that adding job resources significantly improved the model,  $\Delta R^2=.17$ ,  $\Delta F=16.05$ ,  $p<.001$ , whereas adding job demands did not significantly improve the model with resources already entered,  $\Delta R^2=.003$ ,  $\Delta F=.40$ ,  $p=.756$ .

Next, we examined the individual resource variables for their unique contribution to the model. We found that social job resources and training satisfaction were both significant positive concurrent predictors of work engagement. That is, increases in social job resources ( $b=.18$ ,  $p=.001$ ) and training satisfaction ( $b=.20$ ,  $p=.001$ ) scores were associated with increases in work engagement scores. Additionally, social job resources and training satisfaction uniquely contributed to 2.75% and 2.77% of the variance, respectively, after controlling for the effect of the other independent variables on work engagement. See Tables 16-18 for complete model results.

### **Organizational Outcomes**

To explore the relationship between occupational well-being and organizational outcomes (i.e., turnover intention, organizational commitment, and job performance), multiple linear regressions were conducted. Turnover intention, organizational commitment, and job performance were entered as dependent variables in separate analyses. The following control variables were entered for all organizational outcome analyses: race/ethnic background, education, years worked with individuals with ASD, years worked at company, age, and gender.

Work engagement and job burnout (i.e., emotional exhaustion, depersonalization and personal accomplishment) were entered as concurrent predictors for all organizational outcomes.

**Job turnover intention.** The model with burnout domains and work engagement explained significantly more variance than with the control variables alone,  $\Delta R^2=.31$ ,  $\Delta F=19.94$ ,  $p<.001$ . From the final model, we found that emotional exhaustion and work engagement were both significant concurrent predictors of RBT job turnover intention. Emotional exhaustion response category had a significant effect on job turnover intention scores. Specifically, job turnover intention scores were significantly lower for RBTs with low emotional exhaustion compared to RBTs with high emotional exhaustion ( $b=-18.84$ ,  $p<.001$ ). Furthermore, job turnover intention scores were significantly lower for RBTs with moderate emotional exhaustion compared to RBTs with high emotional exhaustion ( $b=-8.66$ ,  $p=.004$ ). Engagement was negatively related to job turnover intention – that is, as work engagement decreased we observed increases in job turnover intention ( $b=-.43$ ,  $p<.001$ ). Additionally, we found that emotional exhaustion and work engagement uniquely contributed 11.34% and 6.46% of the variance, respectively, after controlling for the effect of the other independent variables on job turnover intention. The results from the first and second model are found in Tables 19 and 20.

**Autism intervention turnover intention.** The model with burnout domains and work engagement explained significantly more variance than the model with control variables alone,  $\Delta R^2=.48$ ,  $\Delta F=41.34$ ,  $p<.001$ . Emotional exhaustion and work engagement were all significant concurrent predictors of autism intervention turnover intention. Autism intervention turnover intention scores were significantly lower for RBTs with low emotional exhaustion compared to RBTs with high emotional exhaustion ( $b=-11.75$ ,  $p<.001$ ). Additionally, autism intervention turnover intention scores were significantly lower for RBTs with moderate emotional exhaustion

compared to RBTs with high emotional exhaustion ( $b=-7.54, p=.001$ ). With decreases in work engagement we observed increases in autism intervention turnover intention ( $b=-.52, p<.001$ ). Emotional exhaustion and work engagement uniquely contributed 6.19% and 11.21% of the variance, respectively, after controlling for the effect of the other independent variables on autism intervention turnover intention. The results from the first and second model are found in Tables 21 and 22.

**Organizational commitment.** The model with burnout domains and work engagement explained significantly more variance than with the control variables alone,  $\Delta R^2=.22, \Delta F=11.93, p<.001$ . From the final model, we found that emotional exhaustion and work engagement were both concurrent predictors of organizational commitment. Specifically, organizational commitment was significantly higher for RBTs with low emotional exhaustion compared to RBTs with high emotional exhaustion ( $b=13.33, p<.001$ ). However, there were no significant differences in organizational commitment between RBTs with moderate emotional exhaustion and RBTs with high emotional exhaustion ( $b=6.51, p=.078$ ). As work engagement increased we observed increases in organizational commitment ( $b=.48, p<.001$ ). Additionally, emotional exhaustion and work engagement uniquely contributed to 4.52% and 6.24% of the variance, respectively, after controlling for the effect of the other independent variables on organizational commitment. The results from the first and second model are found in Tables 23 and 24.

**Self-rated in-role job performance.** The model with burnout domains and work engagement explained significantly more variance than with the control variables alone,  $\Delta R^2=.12, F=5.84, p<.001$ . From the final model, we found that personal accomplishment was a concurrent predictor of in-role job performance. Self-rated in-role job performance was significantly higher for RBTs with higher personal accomplishment (i.e., low burnout) compared

to RBTs with low personal accomplishment (i.e., high burnout;  $b=0.54, p<.001$ ). Additionally, self-rated in-role job performance was significantly higher for RBTs with moderate personal accomplishment compared to RBTs with low personal accomplishment (i.e., high burnout;  $b=0.34, p=.006$ ). Personal accomplishment uniquely contributed to 6.43% of the variance after controlling for the effect of the other independent variables on job performance. The results from the first and second model are found in Tables 25 and 26.

## **Discussion**

This study examined two primary research questions: 1) What is the relationship between job characteristics (i.e., job demands and resources) and occupational well-being (i.e., burnout and engagement) of RBTs; and 2) What is the relationship between RBT occupational well-being and organizational outcomes (e.g., turnover intention)? To our knowledge, this study was the first to examine work engagement and the associations between all the components of the JD-R model of occupational well-being (i.e., demands, resources, engagement, burnout, and organizational outcomes) in RBTs. The demands, resources, and organizational outcomes selected for this study were based on the JD-R model as well as previous research focusing on ASD service providers and related human service professionals. Moreover, the study findings support applying the JD-R model to gain a more thorough understanding of RBT occupational well-being.

### **Job Burnout**

Based on the JD-R model of occupational well-being, we found the expected association between job demands, resources, and burnout in RBTs. More importantly, we identified specific demands (e.g., challenging client behaviors) and resources (e.g., social: supervision and role clarity) that were significant concurrent predictors of RBT burnout. Furthermore, we found

important associations between RBT burnout and several organizational outcomes (e.g., turnover intention).

**Emotional exhaustion and depersonalization.**

*Job demands.* Many individuals with ASD display challenging behaviors (Jang et al., 2011; Matson, Wilkins, & Macken, 2008), which suggests that many RBTs regularly face the job demand of working with clients who exhibit challenging behaviors. Children with ASD reportedly exhibit high rates of the following types of challenging behaviors: self-injurious behavior (27.4%), aggression (38.1%), destruction of property (27.4%), and inappropriate sexual behavior (22.6%; Jang et al., 2011). As expected, results from the current study indicated that the job demand of stress from challenging client behavior was strongly associated with job burnout (emotional exhaustion and depersonalization) in this population. Specifically, RBTs who reported higher levels of perceived stress from challenging behaviors were at higher risk of emotional exhaustion and depersonalization. While other studies have included stress from challenging behaviors in an overall stress measure in ASD service providers (Deling, 2014), to our knowledge this is the first study to report stress specifically from client challenging behaviors as a job demand associated with RBT burnout.

Moving forward it will be necessary to determine the best ways to support RBTs at risk of burnout. More importantly, it will be crucial to implement such supports to RBTs experiencing high stress from exposure to client challenging behaviors. One potential support for RBTs may be to receive training specifically for handling challenging behaviors (Allen & Tynan, 2000). With specialized training, Allen and Tynan (2000) found that service providers felt more confident working with individuals displaying aggressive behavior and they reported improvement in their knowledge of how to manage challenging behaviors. Therefore, the

findings from previous research in conjunction with the results from the current study suggest that RBTs' stress and occupational well-being may improve after receiving training specialized for managing challenging behaviors in clients with ASD.

Beyond providing specialized training, it may be important to directly target clients' challenging behaviors as part of their respective intervention programs. Previous research has shown that ABA is an effective intervention approach used to improve challenging behaviors in individuals with ASD (e.g., aggression & self-injury; Fitzpatrick, Srivorakiat, Wink, Pedapati, & Erickson, 2016; Matson & Jang, 2014; Matson & LoVullo, 2008). Thus, by using ABA to directly target challenging behaviors during intervention, RBTs may observe decreases in client challenging behaviors. Decreases in client challenging behaviors may then result in reduced RBT stress from exposure to such behaviors. Moreover, formal interventions (i.e., documented treatment protocols) targeting challenging behaviors are associated with more training for service providers and ongoing supervision (Feldman, Atkinson, Foti-Gervais, & Condillac, 2004). This suggests that targeting challenging behaviors during intervention programs may lead to more training, more supervision, and less stress for RBTs. Overall, targeting client challenging behaviors will likely provide beneficial treatment outcomes for clients, and it may also improve the well-being of RBTs and lower the risk of burnout.

Another possible option to support RBTs experiencing stress related to client challenging behaviors is to assign them a caseload that includes some clients who do not exhibit challenging behaviors. This may be a difficult support to implement since research shows that most children with ASD exhibit some behavior that is characterized as challenging (Jang et al., 2011). Therefore, it may be important for future studies on occupational well-being in RBTs to examine which challenging behaviors in particular contribute the most to job burnout. If specific



challenging behaviors (e.g., aggression) are identified as more important antecedents of burnout than others, then it may be possible to limit RBTs' exposure to the particularly stressful challenging behaviors. Furthermore, it may also be possible to provide tailored support to RBTs working with clients who display the most stressful challenging behaviors. For example, if aggression is identified as one of the most stressful challenging behaviors, RBTs working with aggressive clients may benefit from extra supervision sessions or training specific to aggressive behaviors. Therefore, it will be important for future research to determine which challenging behaviors are especially predictive of burnout in order to provide the best possible support to RBTs.

In addition to qualitative job demands, we looked at the quantitative job demand of workload, which is measured in a variety of different ways in the field of ASD service provider occupational well-being (e.g., length of instruction day and number of hours worked; Coman et al., 2013; Gibson et al., 2009; Harris et al., 1991). For the purpose of this study, workload was measured by contractual status (i.e., part-time or full-time). Results from this study indicated a strong association between contractual status and RBT burnout, such that full-time employees were at increased risk of high emotional exhaustion. Our finding was consistent with related fields that show full-time physicians, nurses, and teachers reported higher levels of burnout than part-time physicians, nurses, and teachers (Bauer et al., 2006; Burke & Greenglass, 2000; Kirwan & Armstrong, 1995; Mechaber et al., 2008).

While identifying the significant relationship between contractual status and burnout may be important theoretically, it may have few practical and clinical implications. Workload might be a job demand that is especially difficult for employers and employees to address because non-organizational factors may contribute to whether or not RBTs work full-time. For example,

contractual status might be determined out of financial necessity to work a full-time job, while part-time employment may be a voluntary choice to meet familial needs (Burke & Greenglass, 2000). If part-time employment is not voluntary and RBTs report not getting enough work hours, they are at higher risk of turnover (Kazemi et al., 2015). Therefore, working full-time puts RBTs at risk of burnout, but working part-time with the desire to work more also puts them at risk of negative outcomes as well. It may not be possible to intervene by way of contractual status; therefore, it may be important for companies to find supports to lower burnout risk for full-time employees in order to keep a happy and healthy workforce of RBTs.

Even though contractual status may be fixed, it may be important to examine differences between part and full-time RBTs. Previous research on burnout in the nursing field indicates that significant demographic differences exist between part and full-time employees, such as differences in the number of children (Burke & Greenglass, 2000). Therefore, future research on RBTs should examine differences in those working part and full-time to determine if such differences between the two groups impacts their risk burnout.

***Job resources.*** Job demands and lack of resources are both theoretically important antecedents of burnout (Schaufeli & Bakker, 2004). Job demands that RBTs face may be difficult to change. For example, RBTs will likely continue to experience stress because many individuals with ASD display challenging behaviors. However, companies providing ABA-based intervention services do have the ability to change resources provided to RBTs. By providing more and/or better resources to RBTs, companies may reduce the job demands of RBTs and improve occupational well-being. As expected, our findings show that job resources have an inverse association with emotional exhaustion and depersonalization in RBTs.

One highly studied job resource in organizational psychology is social support. Several previous studies have examined supervisor support as one form of social support and found that better supervisor support is related to lower burnout in ASD service providers (Gibson et al., 2009; Hurt et al., 2013; Langeliers, 2013; Zarafshan et al., 2013). The findings from this study support previous research in which social job resources had a strong negative association with burnout in ASD service providers. That is, lower levels of perceived social job resources were associated with higher risk of RBT burnout. Rather than examining general supervisor support, the current study examined social resources as a combination of two types of job resources: supervisor coaching behaviors and role clarity. Supervisory coaching is an important job resource commonly examined in the context of the JD-R model (Bakker & Bal, 2010; Bakker, Van Emmerik, & Van Riet, 2008; Salanova, Bakker, & Llorens, 2006; Schaufeli & Bakker, 2004; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007). Despite the importance of supervisory coaching in ASD intervention and in the organizational psychology literature, the current study was the first to examine this resource in RBTs. Additionally, this study is the first in the field to examine the important social resource of role clarity (Schaufeli, 2017). Overall, the findings suggested that companies may find monitoring and improving social support (e.g., supervisor coaching and role clarity) beneficial in the effort to help prevent and alleviate burnout in RBTs. Since social resources were important for burnout, but were also found to be one of the most important factors associated with work engagement, a more detailed discussion of the importance of social resources on occupational well-being and ways to improve them are found below in the discussion of work engagement.

Training was also identified as a key resource related to job burnout. Specifically, RBTs receiving training in the method that they believe is the most useful for them (i.e., matched

training) was associated with a lower risk of job burnout (emotional exhaustion and depersonalization). The majority of RBTs preferred one-on-one training with their supervisor. Interestingly, this was also the most common type of training delivered to RBTs. However, nearly half of all RBTs reported receiving mismatched training, suggesting there is great potential to improve training perceptions for a large proportion of RBTs. To help prevent and alleviate burnout, companies should assess how RBTs prefer to be trained and move to a training model that provides training options to ensure more RBTs receive a matched training experience. For example, RBTs who receive most of their training in the form of shadowing, but prefer direct training with their supervisor, may benefit from additional sessions with a supervisor. In the short term, this may cost companies more, but research indicates that burnout is associated with negative financial outcomes (Hayes et al., 2006). Therefore, it would be beneficial for both companies and employees to provide RBTs with individualized (e.g., matched) training methods as a potential way to reduce the risk of burnout.

**Personal accomplishment.** None of the assessed job demands or resources were associated with personal accomplishment. This finding may have occurred for several different reasons. One possible explanation for the result is that personal accomplishment, called professional efficacy when measured in non-human service professionals, is not a factor of burnout (Bresó, Salanova, & Schaufeli, 2007; Schaufeli et al., 2002; Schaufeli & Salanova, 2007). Therefore, the hypothesis based on the JD-R model which suggests that job demands and resources are theoretically associated with burnout may no longer appropriately apply to the prediction of personal accomplishment. However, it has been suggested that professional efficacy is more likely an indicator of work engagement (Schaufeli et al., 2006). Job resources, a primary predictor of work engagement (Schaufeli & Bakker, 2004), is also thought of as one of

the main factors impacting personal accomplishment (Leiter, 1993). Yet, in this study none of the resources expected to be related to work engagement were associated with personal accomplishment. Therefore, future research may need to look into whether personal accomplishment is actually a component of occupational well-being (i.e., burnout or work engagement) at all.

Another potential explanation for the null finding is that there are different job demands and resources associated with personal accomplishment. Within the JD-R model of occupational well-being, there are many demands and resources that were not assessed in this study that research shows are associated with personal accomplishment. For example, skill utilization is a job enhancement resource that is strongly associated with personal accomplishment, but not emotional exhaustion or depersonalization (Lee & Ashforth, 1996). Thus, future research should explore other possible demands and resources in order to determine if there are specific antecedents to personal accomplishment.

**Organizational outcomes.** Previous research has examined organizational outcomes (e.g., turnover intention) in ASD service providers, but in relation to job characteristics (e.g., training satisfaction) instead of burnout (Kazemi et al., 2015). However, other research has shown that burnout mediates the relationship between job characteristics and organizational outcomes (Schaufeli et al., 2009). Therefore, not only was it necessary to understand possible antecedents of burnout to help improve occupational well-being, it was also necessary to examine potential consequences, or organizational outcomes, of poor occupational well-being of RBTs.

As expected, findings from this study indicate that emotional exhaustion was strongly associated with commitment as assessed by RBT job turnover intention, ASD turnover intention,

and organizational commitment. Specifically, higher burnout was related to poor commitment. Moving forward, this information should be used to address high levels of turnover and low organizational commitment by providing support to RBTs to alleviate emotional exhaustion. Organizations may not want to take the time and effort required to help improve employee occupational well-being, but informing companies that burnout is strongly related to turnover intention can potentially push them into action. Turnover reduces productivity and is a financial burden on employers (Waldman, Kelly, Aurora, & Smith, 2004). The cost of turnover may be as much as five percent of an annual budget (Waldman et al., 2004). Therefore, if companies that provide ABA-based intervention services to individuals with ASD choose not to support RBTs in order to improve employee well-being, they may be incentivized to do so in order to reduce financial loss.

In this study, we also looked at performance as an organizational outcome. On average, RBTs self-reported rather exceptional in-role job performance. Interestingly, personal accomplishment was the only domain of burnout associated with RBT in-role job performance. However, previous research suggests that emotional exhaustion is associated with job performance (Bakker et al., 2004; Cropanzano, Rupp, & Byrne, 2003; Wright & Cropanzano, 1998). Research on the relationship between in-role job performance and occupational well-being typically uses either a less job specific in-role measure or supervisor rated performance (e.g., Parker & Kulik, 1995). This is the first study to use this measure of self-rated in-role job performance. While the reliability of the measure was high as indicated by Cronbach's alpha, there may be other measurement issues. Job performance was significantly correlated with personal accomplishment, but the correlation was low enough to indicate these two measures were assessing different constructs. However, it may be that the measure of self-rated job

performance was not actually measuring in-role job performance in the sample. While the items were taken from an established measure of job performance, this is the first in which RBTs were asked to rate themselves on the tasks. If this job performance measure is to be used in RBTs again, then it should be compared to existing in-role performance measures with good psychometric properties. Overall, this finding suggests the full relationship between occupational well-being (i.e., burnout and engagement) and job performance may not be measurable when RBT job performance is self-rated with this measure. Thus, future studies on RBT job performance may need to use a different measure of self-rated in-role job performance or use a supervisor rating to find results more in line with the JD-R model.

### **Work Engagement**

In the field of organizational psychology, job burnout is a well-studied negative indicator of occupational well-being. This is the most commonly examined indicator of occupational well-being in ASD service providers. However, there are also positive indicators of occupational well-being, such as work engagement (Schaufeli, Salanova, Gonzalez-Romá, & Bakker, 2002). While demands and lack of resources are the main predictors of burnout, research indicates that resources are the primary predictors of work engagement (Schaufeli & Bakker, 2004). Additionally, longitudinal research shows that job resources predict future work engagement (Mauno et al., 2007). Therefore, it is essential that the field measures work engagement as an indicator of well-being in this population and focuses on resources that can be provided to improve RBT occupational well-being.

Based on the findings from the current study, RBTs reported relatively high work engagement, but there is still room for improvement. This study examined both social and developmental resources in relation to engagement. To assess social resources we measured

satisfaction with supervisory coaching behaviors and role clarity. Important developmental resources were overall satisfaction with training and whether RBTs received training in their preferred method. As hypothesized based on the JD-R model of occupational well-being, the findings of this study demonstrated that job resources were the primary job characteristics associated with RBT engagement. Specifically, RBTs with better social resources and higher training satisfaction reported greater work engagement. Adding job demands as predictors did not significantly improve the model, which was consistent with findings that indicated that the relationship between resources and work engagement was stronger than the relationship with demands (Schaufeli & Bakker, 2004). Therefore, when stakeholders are considering the work engagement of RBTs they should focus on providing key resources.

Findings from the current study are consistent with previous results that examine the relationship between resources and work engagement. That is, social job resources, including supervisory coaching and supervisor support, were positively related to work engagement (Hakanen et al., 2006; Schaufeli & Bakker, 2004). Additionally, developmental resources, such as training, were positively related to work engagement (Memon, Salleh, & Baharom, 2016; Salanova et al., 2005). Therefore, companies providing ABA-based intervention services for individuals with ASD should aim to improve social resources and training in order to increase RBT work engagement and decrease burnout.

**Social job resources.** Knowing that role clarity is an important component of social resources for RBTs allows companies to support RBTs by improving this resource. Specifically, to improve role clarity, companies employing RBTs should make sure RBTs know what is expected of them. RBTs regularly provide ABA-based interventions to individuals with ASD in homes. Due to the nature and location of the job, they may not be able to ask a supervisor or co-



worker for clarification in the moment; whereas in other jobs, employees are often surrounded by coworkers and in close proximity to supervisors. If they have a question about expectations, it may be much easier to access an immediate answer compared individuals working as RBTs. Therefore, it may be especially important for this occupational group to have clear role expectations before being sent to homes without someone to give feedback about expectations. Furthermore, RBTs may have multiple direct supervisors for different clinical cases. To improve role clarity, it may be important for their supervisors to communicate and ensure expectations are consistent across supervisors. By improving role clarity, companies will likely see improvement in RBTs' perception of social resources, which in turn increase work engagement.

Most of the research on supervision and burnout is cross-sectional, finding there is a strong negative relationship between the two constructs. Therefore, it is important to ensure that RBTs are receiving quality supervision. At this time, individuals seeking to supervise ABA-based intervention services need to have a credential, pass eight hours of training, and obtain three hours of continuing education related to supervision during each certification cycle (Behavior Analyst Certification Board, n.d.). While this is a first step to ensuring proper supervision, it may not be enough to ensure quality RBT supervision. The measure of supervisor coaching behaviors used in this study may be a starting point for companies to improve social resources provided to RBTs. The measure consists of behaviors considered to be important for good supervisory coaching. Furthermore, the BACB (2012) provides a Supervisor Training Curriculum Outline. The document highlights important knowledge and skills necessary for effective ABA supervision. While the BACB attempts to regulate supervision, it may be necessary for companies providing ABA-based services to further ensure their supervisors are providing effective coaching to RBTs.

In recent years there has been an increase in the literature focusing on recommendations for supervision, specifically related to the BACB and ASD service providers (Garza, McGee, Schenk, & Wiskirchen, 2018; Hartley, Courtney, Rosswurm, & LaMarca, 2016; Sellers, Alai-Rosales, & MacDonald, 2016; Sellers, LeBlanc, & Valentino, 2016; Sellers, Valentino, & LeBlanc, 2016; Turner, Fischer, & Luiselli, 2016; Valentino, LeBlanc, & Sellers, 2016). There are many different recommendations to improve supervision of RBTs. First, Valentino et al. (2016) propose that group supervision provides important opportunities otherwise unavailable during supervision. The opportunities include, but are not limited to peer feedback, networking, and productive discussion (Valentino et al., 2016). Hartley et al. (2016) suggest an apprentice method with the goal of cost-effective high-quality supervision. Sellers et al. (2016) identify and address barriers to successful supervision, including a damaged supervisory relationship. Turner et al. (2016) discuss a competency-based supervision model that focuses on a bi-directional feedback and collaboration between supervisor and trainee. They also provide an evaluation form to assess supervisory behaviors. Most recently, Garza et al. (2018) outline a systematic approach for ABA supervision and provide tools to ensure supervisors are engaging in evidence-based supervision. A few of the areas discussed are establishing a supervisory relationship, goal setting, training, and performance modeling. Furthermore, Howard (2008) discusses a framework of clinical supervision that focuses on a positive approach to trainee well-being, including engagement. Overall, there is a lot of information that companies providing ABA-based intervention could use to improve supervision for RBTs, which consequently may help increase work engagement and decrease burnout.

**Developmental job resources.** At this time, RBTs must complete 40 hours of training to receive their certification. However, the certifying agency, BACB, does not develop or provide

the RBT training. Instead, BACB certificants develop and conduct the training with RBT applicants. The training may be didactic or experiential in nature and may be delivered in person or online. With such flexible guidelines for training, it is not surprising that RBTs report varying degrees of training satisfaction. The current study has identified training satisfaction as a resource that was strongly associated with RBT work engagement. Previous research on ASD service providers also identified training as an important developmental resource (Corona et al., 2017; Deling 2014; Ouellette et al., 2018). For example, training satisfaction accounted for 8.8% of the variance in behavior technician turnover intention (Deling, 2014). This is also consistent with other human service professions (e.g., nurses) that report an association with high burnout and training dissatisfaction (Demir et al., 2003; Msaouel et al., 2010). Furthermore, research has shown that skill-development training predicts occupational well-being overtime (Cohen & Gagin, 2005), which indicates training may be a significant resource to target in order to improve RBT occupational well-being.

In order to improve work engagement, companies providing ABA-based intervention services should support RBTs by providing satisfactory training. That is, RBT training should meet the needs of employees and be applicable to their job. To date there have been several studies examining the impact of training ASD service providers in ABA-based interventions (Nigro-Bruzzi & Sturmey, 2010; Parsons, Rollyson, & Reid, 2012; Roscoe & Fisher, 2008; Sarokoff & Sturmey, 2004). For example, findings suggest that training consisting of instructions, feedback, rehearsal, and modeling produced improvements in the performance of ABA-based intervention (i.e., discrete trial teaching) by ASD service providers (i.e., special education teachers; Sarokoff & Sturmey, 2004). Furthermore, findings suggest that there is high staff acceptance for evidence-based behavioral skills staff training, which consists of

instructions, feedback, rehearsal, and modeling (Parsons et al., 2012). Therefore, if companies providing ABA-based intervention services to individuals with ASD can improve training and training satisfaction among RBTs, there may be a positive impact on work engagement.

**Organizational outcomes.** While understanding antecedents of work engagement will provide valuable information on how companies can aim to improve RBT occupational well-being, it is also necessary to illustrate the importance of positive occupational well-being on organizational outcomes. Outcomes from the current study showed that work engagement was associated with three areas of commitment: job turnover intention, ASD intervention turnover intention, and organizational commitment. That is, RBTs with high work engagement were more likely to have low job turnover intention, low ASD turnover intention, and high organizational commitment. These findings were consistent with those in organizational psychology, such that work engagement is positively associated with organizational commitment and negatively with turnover intention (Hakanen et al., 2006; Halbesleben & Wheeler, 2008; Schaufeli & Bakker, 2004; Schaufeli et al., 2008).

Turnover should be of considerable concern to companies providing ABA-based intervention services to individuals with ASD, because the turnover literature suggests that turnover is negatively associated with proximal organization performance outcomes such as productivity, customer service quality, and customer satisfaction (Park & Shaw, 2013; Shaw, 2011). Additionally, turnover is negatively associated with distal organization performance outcomes such as financial performance (Park & Shaw, 2013). It is suggested that a 10% increase of turnover would decrease productivity by 40% (Park & Shaw, 2013). This finding, which underscores the importance and cost of turnover, should be of serious concern for companies providing ABA-based intervention services to individuals with ASD. Thus,

intervention companies should take action to improve RBTs' work engagement in order to improve commitment, reduce turnover, and ultimately improve a range of other organizational outcomes.

### **Limitations**

While this study significantly adds to the field, there are several limitations. First, although the JD-R model suggests a longitudinal relationship between demands, resources, burnout, work engagement, and organizational outcomes over time (Bakker & Demerouti, 2007), in this study, all components of the JD-R model were assessed at one time point. Therefore, no conclusions can be made about the directionality of the relationships examined. As such, future research should examine key resources (i.e., social support) and demands (i.e., challenging behaviors), occupational well-being, and organizational outcomes over time to determine if the proposed direction of the relationships, based on the JD-R, holds in this population.

Another potential limitation of the current study was the use of an online survey for data collection. Online data collection may lead to biased estimates due to under-coverage and self-selection (Bethlehem, 2010). All of the RBTs in this study decided to participate in this study; therefore, we had extremely limited control over the selection process. However, using an online survey may have also been a strength. This method allowed for fast, efficient, and free data collection of a large number of RBTs, one of the largest sample sizes for research focused on ASD service providers. Additionally, collecting data online for this study may have been beneficial because responses to online surveys are less influenced by social desirability than in-person surveys (Heerwegh, 2009), a trend that has been replicated in ASD service providers' reports of burnout (Deling, 2014). Specifically, RBTs may have been more open about their feelings of burnout and other negative aspects about their job. Overall, there are important

benefits and concerns to collecting the data online that were weighed in the development of this study.

Lastly, the study is limited in scope by state and region. All participants were RBTs working in California, primarily larger counties (e.g., Los Angeles County). Therefore, the factors identified in this study that impact RBT occupational well-being may be specific to RBTs working in more metropolitan areas of California. Future studies should examine if the findings hold for RBTs in other regions.

### **Future directions**

The results from this study are only the beginning of a more complete understanding of RBT occupational well-being. Schaufeli (2017), a prominent researcher in the field of occupational well-being, developed a specific measure to assess a large number of demands, resources, burnout, work engagement, and various organizational outcomes that were not assessed in the current study (e.g., bureaucracy, availability of tools, and sickness absence frequency). The use of this measure in future research on this population may help address areas of concern in terms of occupational well-being in RBTs. First, it may help assess the interaction effect of job demands and resources on burnout and work engagement. Second, it may allow for longitudinal mediation analyses.

The JD-R model proposes that job demands and resources predict two relatively independent psychological processes (i.e., a health impairment process and a motivational process; Bakker et al., 2014), which were the main investigation of this study. However, the JD-R model also proposes that job demands and resources interact in two ways to predict occupational well-being (Bakker et al., 2004; Bakker et al., 2014). First, job resources buffer the impact of job demands on burnout. Second, job demands increase the influence of job resources

on work engagement (i.e., job resources are of particular importance for work engagement when job demands are high). Therefore, future research should use Schaufeli's comprehensive measure to create latent variables, job demands and resources, in order to examine the effect of the interaction of these variables on burnout and work engagement in RBTs.

Previous longitudinal research on burnout and work engagement indicates that burnout and work engagement mediate the relationship between job demands and resources and organizational outcomes over time (Bakker & Bal, 2010; Hakanen, Schaufeli, & Ahola, 2008). Therefore, an essential next step in the research of RBT occupational well-being will be to conduct mediation analyses to determine if burnout and work engagement mediate the relationship between demands and resources and future organizational outcomes.

While the current study examined several organizational outcomes (e.g., turnover intention), a potentially far more negative organizational consequence in human service industries (e.g., nursing, teaching) is poorer quality care for service recipients (e.g., patients, students). Findings from related research indicate that burnout is associated with employee behaviors (i.e., less effort and lower quality care) that may have negative impact on clients (Kanai-Pak, Aiken, Sloane, & Poghosyan, 2008; McHugh, Kutney-Lee, Cimiotti, Sloane, & Aiken, 2011; Nantsupawat, Srisuphan, Kunaviktikul, Wichaikhum, Aunguroch, & Aiken, 2011; Poghosyan, Clarke, Finlayson, & Aiken, 2010; Schwab et al., 1986). Therefore, it is crucial that future research examines the effect of RBT burnout and work engagement on the most important stakeholders—the clients with ASD.

## **Conclusions**

The existing literature on occupational well-being has established a clear relationship between job demands, resources, burnout, work engagement, and organizational outcomes. That

is, burnout is negatively related to organizational consequences such as turnover intention (e.g., Hakanen et al., 2006; Schwab et al., 1986), whereas work engagement is positively related to organizational commitment (e.g., Hakanen et al., 2006). These providers are an occupational group that report moderate levels of emotional exhaustion (Deling, 2014; Gibson et al., 2009; Griffith et al., 2014; Harris et al., 1991; Tagg, 2015). This study found that most RBTs actually report high levels of emotional exhaustion. Furthermore, these providers report particularly high levels of turnover intentions (Kazemi et al., 2015). Therefore, occupational well-being is an especially important issue for ASD service providers, in particular RBTs.

By using the JD-R framework, this study significantly informed our understanding of occupational well-being in ASD service providers by examining burnout and work engagement in RBTs. Our findings illustrate that social resources and developmental resources are central factors associated with both positive and negative indicators of occupational well-being.

Additionally, the findings have strong implications for how the field can move toward preventing and alleviating burnout while improving work engagement. Specifically, companies providing services for individuals with ASD may only need to focus on resources in order to have a positive impact on several areas of RBT work-life. By providing more social and developmental resources, these companies may reduce the negative impact of job demands. Additionally, these changes can improve occupational well-being by preventing and alleviating burnout and increasing work engagement in RBTs. This is especially important because the prevalence of children diagnosed with ASD has increased considerably, which resulted in more individuals receiving services, and an increased demand for ASD service providers, specifically RBTs.

Therefore, by improving our understanding of occupational well-being in RBTs, we can aim to



support RBTs, decrease RBT turnover, which may help ensure that individuals with ASD consistently receive the services they need.

## Appendix

Table 1

*Constructs of Interest, Variables, and Sources of Survey Items*

Construct	Variable	Source
Job demand	Stress from challenging client behaviors	Staff Stressor Questionnaire (Hatton et al., 1999)
Job demand	Stress from low client skill level	Staff Stressor Questionnaire (Hatton et al., 1999)
Job demand	Contractual status (full-time vs. part-time)	Single item
Job resource	Role clarity	Job and Criterion Questionnaire (Locke et al., 1983)
Job resource	Supervisor coaching behavior	Employee Perceptions of Supervisor Coaching Behavior Measure (Ellinger, Ellinger, & Keller, 2003)
Job resource	Training satisfaction	Training and Job Satisfaction Survey (Schmidt, 2004)
Job resource	Days of job training per month	Single item
Job resource	Training style (matched vs mismatched)	Calculated from most the common type of training received and the style employees perceived as most effective for themselves
Occupational well-being	Burnout	Maslach Burnout Inventory-Human Service Survey (MBI-HSS; Maslach et al., 1996)
Occupational well-being	Work engagement	Utrecht Work Engagement Scale Short Questionnaire (UWES-9; Schaufeli et al., 2006)
Organizational outcome	Job turnover intention	Turnover Intention Scale (TSI-6; Bothma & Roodt, 2013)
Organizational outcome	Autism intervention turnover intention	Adapted from the TSI-6 (Bothma & Roodt, 2013)
Organizational outcome	In-role job performance	Self-report measure adapted from the Registered Behavior Technician Competency Assessment (Behavior Analyst Certification Board, 2013)
Organizational outcome	Organizational Commitment	Organizational Commitment Scale (Meyer et al., 1993)

Table 2

*Demographic Characteristics of Participants*

	Frequency	Percent
<u>Ethnic/racial background</u>		
African American/Black	13	4.2
Asian	38	12.2
White	118	37.9
Other/Multiracial	15	4.8
Hispanic	127	40.8
Total	311	100
<u>Highest level of education</u>		
High School Graduate	72	23.2
Bachelor's Degree	179	57.6
Graduate Degree	60	19.3
Total	311	100
<u>Gender</u>		
Male	49	15.8
Female	262	84.2
Total	311	100

Table 3

*Categorical Job Characteristics of Participants*

	Frequency	Percent
<u>Client age</u>		
Children (0 to 9 years)	260	83.6
Adolescents (10 to 19 years)	46	14.8
Adults (20+ years)	5	1.6
Total	311	100
<u>Most common work setting</u>		
Client's home	191	61.4
Client's school	77	24.8
Clinic	43	13.8
Total	311	100

Table 4

*Continuous Job Characteristics of Participants*

	<i>N</i>	Mean	Median	<i>SD</i>	Minimum	Maximum
Years worked with individuals with ASD	311	2.86	2	2.78	0	10
Years worked at current company	311	1.68	1	2.04	0	10

Table 5

*Continuous Job Demands and Resources*

	<i>N</i>	Mean	Median	<i>SD</i>	Minimum	Maximum
<u>Job Demands</u>						
Stress from Client Challenging Behaviors	311	38.79	37.50	19.70	3.13	100
Stress from Client Skills	311	33.25	30.00	21.46	0	100
<u>Job Resources</u>						
Day Training per Month	311	6.96	4.00	7.48	0	31
Training Satisfaction	311	76.86	80.00	20.92	0	100
Role Clarity	311	70.93	75.00	22.02	0	100
Supervisory Coaching	311	65.18	68.00	26.79	0	100
Social Resources	311	68.06	71.50	22.45	0	100

Table 6

*Continuous Indicators of Occupational Well-being*

	<i>N</i>	Mean	Median	<i>SD</i>	Minimum	Maximum
Emotional Exhaustion	311	24.38	24.00	13.12	0	54
Depersonalization	311	4.64	3.00	4.89	0	30
Personal Accomplishment	311	38.65	40.00	6.41	13	48
Work Engagement	311	73.92	77.78	18.50	3.70	100

Table 7

*Continuous Organizational Outcomes*

	<i>N</i>	Mean	Median	<i>SD</i>	Minimum	Maximum
Job Turnover	311	42.55	41.67	21.76	0	100
ASD Turnover	311	30.98	33.33	20.04	0	100
Organizational Commitment	311	52.54	55.56	25.02	0	100
In-Role Job Performance	311	5.23	5.37	0.65	3	6



Table 8

*Categorical Job Demands and Resources*

	Frequency	Percent
<u>Contractual status</u>		
Full time	162	52.1
Part time	149	47.9
Total	311	100
<u>Most frequent method of training received</u>		
Supervisor-led classroom training	42	13.5
One-on-one training with Supervisor	165	53.1
Online or computer	62	19.9
Shadowing	42	13.5
Total	311	100
<u>Preferred training method</u>		
Supervisor-led classroom training	9	2.9
One-on-one training with Supervisor	215	69.1
Online or computer	2	0.6
Shadowing	85	27.3
Total	311	100
<u>Matched training</u>		
Mismatched Training	150	48.2
Matched Training	161	51.8
Total	311	100

Table 9

*Categorical Indicators of Occupational Well-being*

	Frequency	Percent
<u>Emotional Exhaustion</u>		
Low	99	31.8
Moderate	71	22.8
High	141	45.3
<u>Depersonalization</u>		
Low	231	74.3
Moderate	56	18.0
High	24	7.7
<u>Personal Accomplishment</u>		
Low	178	57.2
Moderate	91	29.3
High	42	13.5

Table 10

*Pearson Correlations Between Continuous Variables of Interest*

	1	2	3	4	5	6	7	8	8	10	11
1. Stress from challenging behaviors	1										
2. Stress from low client skills	.518**	1									
3. Training satisfaction	-.264**	-.205**	1								
4. Supervisory coaching behaviors	-.147**	-.118*	.548**	1							
5. Role clarity	-.225**	-.178**	.610**	.689**	1						
6. Social Resources	-.198**	-.157**	.626**	.935**	.902**	1					
7. Engagement	-.167**	-0.105	.336**	.279**	.348**	.337**	1				
8. Job turnover intention	.312**	.212**	-.519**	-.457**	-.626**	-.579**	-.436**	1			
9. ASD turnover intention	.271**	.164**	-.307**	-.240**	-.340**	-.310**	-.641**	.573**	1		
10. Organizational commitment	-.231**	-0.105	.462**	.473**	.522**	.538**	.406**	-.687**	-.466**	1	
11. In-role job performance	-.177**	-0.039	.160**	.187**	.156**	.188**	.254**	-.123*	-.207**	.134*	1

\* $p < 0.05$ , two-tailed. \*\* $p < 0.01$ , two-tailed.

Table 11

*Chi-Square Tests for Association Between Categorical Variables of Interest*

	Full-time vs. Part-time	Training Match vs. Mismatch	EE Category	DP Category
Training Matched vs. Mismatched	3.41			
EE Category	13.30**	8.60*		
DP Category	2.41	8.00*	55.45**	
PA Category	0.12	10.47**	33.22**	15.53**

*Note.* EE = emotional exhaustion; DP = depersonalization; PA = personal accomplishment.

\* $p < 0.05$ . \*\* $p < 0.01$ .

Table 12

*One-way ANOVA Tests for Associations Between Categorical and Continuous Variables of Interest*

	Full-time vs. Part-time	Training Match vs. Mismatch	EE Category	DP Category	PA Category
Stress from challenging behaviors	0.04	0.40	3.42**	3.17**	1.20
Stress from low client skills	1.22	0.05	1.85**	2.05**	1.09
Training satisfaction	0.22	27.62**	1.25	1.09	2.19**
Social Resources	1.85	25.82**	2.02**	2.02**	2.42**
Engagement	0.14	4.15*	2.33**	2.93**	11.88**
Job turnover intention	0.00	9.11**	3.43**	2.76**	1.93*
ASD turnover intention	0.01	5.75*	4.09**	3.28**	5.70**
Organizational commitment	5.22*	11.70**	2.02**	1.56	2.08**
In-role job performance	2.12	2.80	0.72	2.66**	2.63**

*Note.* *F* statistics are reported. EE = emotional exhaustion; DP = depersonalization; PA = personal accomplishment.

\**p* < 0.05. \*\**p* < 0.01 level.

Table 13

*Ordinal Regression Analysis: Predicting Emotional Exhaustion Burnout Category*

	Estimate	SE	OR	Wald	p	95% CI OR
<b>Demand Variables</b>						
Challenging Behaviors	0.04	0.01	1.04	25.73	<0.001	1.03 - 1.06
Client Skill Level	0.01	0.01	1.01	0.94	0.332	0.99 - 1.02
Full time vs. Part time	1.06	0.26	2.90	16.93	0.000	1.75 - 4.81
<b>Resource Variables</b>						
Social Support	-0.02	0.01	0.98	10.39	0.001	0.96 - 0.99
Training Satisfaction	-0.01	0.01	0.99	0.49	0.483	0.98 - 1.01
Matched vs. Mismatched Training	-0.65	0.26	0.52	6.27	0.012	0.32 - 0.87
Training Days per Month	-0.01	0.02	0.99	0.43	0.513	0.96 - 1.02
<b>Control Variables</b>						
Age	-0.03	0.02	0.97	2.44	0.118	0.93 - 1.01
Years Worked with Individuals with ASD	-0.04	0.06	0.96	0.43	0.514	0.85 - 1.09
Years Worked at Current Company	-0.04	0.08	0.96	0.29	0.590	0.82 - 1.12
Male vs Female	-0.01	0.34	0.99	0.00	0.970	0.5 - 1.93
<b>Race/Ethnic Background</b>						
African America vs. Hispanic	0.96	0.64	2.61	2.25	0.134	0.75 - 9.13
Asian vs. Hispanic	0.53	0.41	1.69	1.63	0.202	0.76 - 3.79
White vs. Hispanic	-0.04	0.28	0.96	0.02	0.889	0.56 - 1.66
Other/Mixed vs. Hispanic	-1.09	0.58	0.34	3.52	0.061	0.11 - 1.05
<b>Highest Level of Education</b>						
High School vs. Graduate degree	-0.48	0.39	0.62	1.51	0.220	0.29 - 1.33
Bachelor's degree vs. Graduate degree	0.36	0.33	1.43	1.19	0.276	0.75 - 2.72
<b>Threshold</b>						
Low EE	-2.09	0.98	0.12	4.55	0.033	0.02 - 0.84
Moderate EE	-0.73	0.97	0.48	0.56	0.454	0.07 - 3.25

*Note.* OR = odds ratio; CI = confidence interval; EE = emotional exhaustion.

Table 14

*Ordinal Regression Analysis: Predicting Depersonalization Burnout Category*

	Estimate	SE	OR	Wald	p	95% CI OR
<b>Demand Variables</b>						
Challenging Behaviors	0.04	0.01	1.04	14.92	<0.001	1.02-1.05
Client Skill Level	0.01	0.01	1.01	3.66	0.056	1-1.03
Full time vs. Part time	0.30	0.30	1.34	0.98	0.322	0.75-2.41
<b>Resource Variables</b>						
Social Support	-0.01	0.01	0.99	2.93	0.087	0.97-1
Training Satisfaction	0.00	0.01	1.00	0.01	0.906	0.98-1.02
Matched vs. Mismatched Training	-0.68	0.31	0.50	4.91	0.027	0.28-0.92
Training Days per Month	0.03	0.02	1.03	2.55	0.110	0.99-1.07
<b>Control Variables</b>						
Age	-0.07	0.03	0.93	5.33	0.021	0.88-0.99
Years Worked with Individuals with ASD	0.04	0.08	1.05	0.33	0.564	0.9-1.22
Years Worked at Current Company	-0.07	0.10	0.94	0.41	0.521	0.76-1.15
Male vs Female	1.09	0.39	2.98	7.92	0.005	1.39-6.37
<b>Race/Ethnic Background</b>						
African America vs. Hispanic	-0.12	0.92	0.88	0.02	0.893	0.15-5.36
Asian vs. Hispanic	0.41	0.44	1.51	0.88	0.347	0.64-3.59
White vs. Hispanic	0.53	0.34	1.70	2.43	0.119	0.87-3.29
Other/Mixed vs. Hispanic	-0.13	0.66	0.88	0.04	0.841	0.24-3.19
<b>Highest Level of Education</b>						
High School vs. Graduate degree	-0.85	0.50	0.43	2.90	0.089	0.16-1.14
Bachelor's degree vs. Graduate degree	-0.54	0.38	0.58	2.05	0.153	0.28-1.22
<b>Threshold</b>						
Low DP	0.18	1.18	1.19	0.02	0.880	0.12-12
Moderate DP	1.86	1.19	6.44	2.46	0.117	0.63-66.08

*Note.* SE = standard error; OR = odds ratio; CI = confidence interval; DP = depersonalization.

Table 15

*Ordinal Regression Analysis: Predicting Personal Accomplishment Burnout Category*

	Estimate	SE	OR	Wald	p	95% CI OR
<b>Demand Variables</b>						
Challenging Behaviors	0.00	0.01	1.00	0.05	0.816	0.99-1.02
Client Skill Level	-0.01	0.01	0.99	2.46	0.117	0.98-1
Full time vs. Part time	0.11	0.24	1.11	0.19	0.659	0.69-1.79
<b>Resource Variables</b>						
Social Support	0.01	0.01	1.01	2.33	0.127	1-1.02
Training Satisfaction	0.01	0.01	1.01	3.61	0.057	1-1.03
Matched vs. Mismatched Training	0.40	0.25	1.50	2.64	0.104	0.92-2.44
Training Days per Month	0.01	0.02	1.01	0.42	0.518	0.98-1.04
<b>Control Variables</b>						
Age	0.01	0.02	1.01	0.33	0.566	0.97-1.05
Years Worked with Individuals with ASD	0.11	0.06	1.12	3.08	0.079	0.99-1.27
Years Worked at Current Company	-0.04	0.08	0.96	0.24	0.622	0.82-1.12
Male vs Female	-0.18	0.33	0.83	0.30	0.582	0.44-1.59
<b>Race/Ethnic Background</b>						
African America vs. Hispanic	0.83	0.70	2.30	1.43	0.232	0.59-9
Asian vs. Hispanic	0.11	0.38	1.12	0.08	0.772	0.53-2.34
White vs. Hispanic	-0.04	0.27	0.96	0.02	0.883	0.57-1.63
Other/Mixed vs. Hispanic	-0.06	0.54	0.94	0.01	0.916	0.33-2.72
<b>Highest Level of Education</b>						
High School vs. Graduate degree	0.26	0.40	1.29	0.40	0.525	0.59-2.84
Bachelor's degree vs. Graduate degree	-0.20	0.32	0.82	0.37	0.541	0.44-1.54
<b>Threshold</b>						
Low PA	0.34	0.92	1.40	0.13	0.714	0.23-8.49
Moderate PA	2.06	0.93	7.88	4.97	0.026	1.28-48.34

*Note.* SE = standard error; OR = odds ratio; CI = confidence interval; PA = personal accomplishment.



Table 16

*Multiple Linear Regression Analysis: Predicting Work Engagement, Final Model*

Model 2	B	SE	<i>t</i>	<i>p</i>	SSCC
Constant	34.85	6.76	5.16	<0.001	
Control Variables					
Age	0.41	0.16	2.57	0.011	1.75
Years Worked with Individuals with ASD	0.69	0.49	1.41	0.160	0.52
Years Worked at Current Company	-0.37	0.62	-0.59	0.558	0.09
Male vs. Female	-5.92	2.69	-2.20	0.029	1.28
Race/Ethnic Background					
African America vs. Hispanic	8.07	4.94	1.63	0.103	0.71
Asian vs. Hispanic	3.58	3.13	1.14	0.254	0.35
White vs. Hispanic	-1.09	2.23	-0.49	0.626	0.06
Other/Mixed vs. Hispanic	3.91	4.69	0.83	0.406	0.18
Highest Level of Education					
High School vs. Graduate degree	-1.87	3.20	-0.58	0.560	0.09
Bachelor's degree vs. Graduate degree	-3.08	2.64	-1.17	0.244	0.36
Resource Variables					
Social Support	0.18	0.06	3.22	0.001	2.74
Training Satisfaction	0.20	0.06	3.23	0.001	2.77
Training Days per Month	0.17	0.13	1.31	0.190	0.46
Matched vs. Mismatched Training	-0.46	2.04	-0.22	0.823	0.01

*Note.* SE = standard error; SSCC = squared semi-partial correlation coefficient.

Table 17

*Multiple Linear Regression Analysis: Predicting Work Engagement, Model 1*

Model 1	B	SE	t	p	SSCC
Constant	66.32	5.55	11.96	<0.001	
Control Variables					
Age	0.33	0.17	1.88	0.061	1.13
Years Worked with Individuals with ASD	0.14	0.53	0.27	0.788	0.02
Years Worked at Current Company	-0.16	0.68	-0.23	0.819	0.02
Male vs. Female	-5.22	2.92	-1.79	0.075	1.02
Race/Ethnic Background					
African America vs. Hispanic	8.52	5.40	1.58	0.115	0.79
Asian vs. Hispanic	4.37	3.42	1.28	0.202	0.52
White vs. Hispanic	-0.31	2.41	-0.13	0.899	0.01
Other/Mixed vs. Hispanic	0.94	5.07	0.18	0.854	0.01
Highest Level of Education					
High School vs. Graduate degree	0.27	3.48	0.08	0.937	0.00
Bachelor's degree vs. Graduate degree	-2.96	2.87	-1.03	0.304	0.34

*Note.* SE = standard error; SSCC = squared semi-partial correlation coefficient.

Table 18

*Multiple Linear Regression Analysis: Predicting Work Engagement, Model 3*

Model 3	B	SE	t	p	SSCC
Constant	37.33	7.87	4.74	<0.001	
Control Variables					
Age	0.40	0.16	2.52	0.012	1.69
Years Worked with Individuals with ASD	0.64	0.50	1.28	0.202	0.44
Years Worked at Current Company	-0.40	0.63	-0.63	0.531	0.10
Male vs. Female	-6.40	2.75	-2.33	0.020	1.45
Race/Ethnic Background					
African America vs. Hispanic	7.66	5.01	1.53	0.128	0.62
Asian vs. Hispanic	3.80	3.15	1.21	0.229	0.39
White vs. Hispanic	-1.22	2.25	-0.54	0.586	0.08
Other/Mixed vs. Hispanic	3.82	4.71	0.81	0.418	0.18
Highest Level of Education					
High School vs. Graduate degree	-1.60	3.25	-0.49	0.624	0.06
Bachelor's degree vs. Graduate degree	-2.84	2.66	-1.07	0.287	0.30
Resource Variables					
Social Support	0.18	0.06	3.14	0.002	2.63
Training Satisfaction	0.19	0.06	3.02	0.003	2.44
Training Days per Month	0.17	0.13	1.25	0.213	0.42
Matched vs. Mismatched Training	-0.34	2.07	-0.16	0.869	0.01
Demand Variables					
Challenging Behaviors	-0.05	0.06	-0.85	0.397	0.19
Client Skill Level	0.00	0.05	0.07	0.942	0.00
Full-time vs. Part-time	1.08	2.02	0.54	0.592	0.08

*Note.* SE = standard error; SSCC = squared semi-partial correlation coefficient.

Table 19

*Multiple Linear Regression Analysis: Predicting Job Turnover Intention, Model 1*

Model 1	B	SE	t	p	SSCC
Constant	54.24	6.52	8.32	<0.001	
Control Variables					
Age	-0.38	0.20	-1.86	0.063	1.11
Years Worked with Individuals with ASD	1.07	0.63	1.70	0.090	0.92
Years Worked at Current Company	-0.81	0.80	-1.01	0.312	0.33
Male vs Female	1.46	3.43	0.42	0.671	0.06
Race/Ethnic Background					
African America vs. Hispanic	1.78	6.35	0.28	0.779	0.03
Asian vs. Hispanic	-1.12	4.02	-0.28	0.781	0.02
White vs. Hispanic	-2.49	2.83	-0.88	0.379	0.25
Other/Mixed vs. Hispanic	0.24	5.96	0.04	0.968	0.00
Highest Level of Education					
High school vs. Graduate degree	-9.21	4.09	-2.25	0.025	1.61
Bachelor's degree vs. Graduate degree	0.17	3.37	0.05	0.960	0.00

*Note.* SE = standard error; SSCC = squared semi-partial correlation coefficient.

Table 20

*Multiple Linear Regression Analysis: Predicting Job Turnover Intention, Final Model*

Model 2	B	SE	t	p	SSCC
Constant	85.40	7.44	11.48	<0.001	
Control Variables					
Age	-0.13	0.17	-0.73	0.468	0.12
Years Worked with Individuals with ASD	1.05	0.53	1.97	0.050	0.85
Years Worked at Current Company	-0.77	0.67	-1.15	0.251	0.29
Male vs Female	0.16	2.93	0.05	0.957	0.00
Race/Ethnic Background					
African America vs. Hispanic	4.59	5.34	0.86	0.390	0.16
Asian vs. Hispanic	-1.07	3.39	-0.31	0.753	0.02
White vs. Hispanic	-2.10	2.38	-0.88	0.378	0.17
Other/Mixed vs. Hispanic	2.20	5.02	0.44	0.661	0.04
Highest Level of Education					
High school vs. Graduate degree	-5.31	3.47	-1.53	0.127	0.52
Bachelor's degree vs. Graduate degree	-2.03	2.86	-0.71	0.479	0.11
Burnout					
Low EE vs. High EE	-18.48	2.82	-6.54	0.000	9.44
Moderate EE vs. High EE	-8.66	2.95	-2.93	0.004	1.89
Low DP vs. High DP	-3.01	4.19	-0.72	0.474	0.11
Moderate DP vs. High DP	-2.12	4.53	-0.47	0.639	0.05
High PA vs. Low PA	5.02	4.11	1.22	0.223	0.33
Moderate PA vs. Low PA	3.63	3.71	0.98	0.329	0.21
Engagement	-0.43	0.08	-5.41	0.000	6.46

*Note.* SE = standard error; SSCC = squared semi-partial correlation coefficient; EE = emotional exhaustion; DP = depersonalization; PA = personal accomplishment

Table 21

*Multiple Linear Regression Analysis: Predicting ASD Turnover Intention, Model 1*

Model 1	B	SE	t	p	SSCC
Constant	35.92	6.01	5.98	<0.001	
Control Variables					
Age	-0.21	0.19	-1.12	0.263	0.40
Years Worked with Individuals with ASD	0.63	0.58	1.09	0.275	0.38
Years Worked at Current Company	-0.96	0.73	-1.31	0.190	0.55
Male vs Female	1.61	3.16	0.51	0.610	0.08
Race/Ethnic Background					
African America vs. Hispanic	-2.41	5.85	-0.41	0.681	0.05
Asian vs. Hispanic	-1.66	3.70	-0.45	0.654	0.06
White vs. Hispanic	-4.49	2.61	-1.72	0.086	0.94
Other/Mixed vs. Hispanic	3.77	5.49	0.69	0.493	0.15
Highest Level of Education					
High school vs. Graduate degree	-1.75	3.77	-0.47	0.642	0.07
Bachelor's degree vs. Graduate degree	4.68	3.11	1.51	0.133	0.72

*Note.* SE = standard error; SSCC = squared semi-partial correlation coefficient.

Table 22

*Multiple Linear Regression Analysis: Predicting ASD Turnover Intention, Final Model*

Model 2	B	SE	t	p	SSCC
Constant	82.90	5.90	14.04	<0.001	0.00
Control Variables					
Age	0.05	0.14	0.39	0.694	0.03
Years Worked with Individuals with ASD	0.74	0.42	1.76	0.079	0.51
Years Worked at Current Company	-0.97	0.53	-1.84	0.067	0.55
Male vs Female	-0.78	2.32	-0.33	0.739	0.02
Race/Ethnic Background					
African America vs. Hispanic	2.91	4.24	0.69	0.493	0.08
Asian vs. Hispanic	0.13	2.69	0.05	0.961	0.00
White vs. Hispanic	-4.26	1.89	-2.26	0.025	0.83
Other/Mixed vs. Hispanic	5.20	3.99	1.31	0.193	0.28
Highest Level of Education					
High school vs. Graduate degree	1.23	2.76	0.45	0.654	0.03
Bachelor's degree vs. Graduate degree	1.83	2.27	0.81	0.421	0.11
Burnout					
Low EE vs. High EE	-11.75	2.24	-5.24	<0.001	4.50
Moderate EE vs. High EE	-7.54	2.34	-3.21	0.001	1.69
Low DP vs. High DP	-5.82	3.33	-1.75	0.081	0.50
Moderate DP vs. High DP	-5.89	3.59	-1.64	0.102	0.44
High PA vs. Low PA	-6.30	3.26	-1.93	0.054	0.61
Moderate PA vs. Low PA	-4.30	2.94	-1.46	0.146	0.35
Engagement	-0.52	0.06	-8.27	0.000	11.21

*Note.* SE = standard error; SSCC = squared semi-partial correlation coefficient; EE = emotional exhaustion; DP = depersonalization; PA = personal accomplishment.

Table 23

*Multiple Linear Regression Analysis: Predicting Organizational Commitment, Model 1*

Model 1	B	SE	t	p	SSCC
Constant	53.90	7.57	7.12	<0.001	
Control Variables					
Age	-0.20	0.24	-0.83	0.406	0.22
Years Worked with Individuals with ASD	0.19	0.73	0.27	0.789	0.02
Years Worked at Current Company	1.78	0.93	1.92	0.056	1.19
Male vs Female	-2.27	3.98	-0.57	0.569	0.11
Race/Ethnic Background					
African America vs. Hispanic	-5.56	7.36	-0.76	0.451	0.18
Asian vs. Hispanic	1.52	4.66	0.33	0.744	0.03
White vs. Hispanic	0.84	3.28	0.26	0.797	0.02
Other/Mixed vs. Hispanic	-4.96	6.92	-0.72	0.474	0.17
Highest Level of Education					
High school vs. Graduate degree	3.44	4.74	0.72	0.469	0.17
Bachelor's degree vs. Graduate degree	0.20	3.92	0.05	0.960	0.00

*Note.* SE = standard error; SSCC = squared semi-partial correlation coefficient.



Table 24

*Multiple Linear Regression Analysis: Predicting Organizational Commitment, Final Model*

Model 2	B	SE	t	p	SSCC
Constant	18.73	9.25	2.02	0.044	
Control Variables					
Age	-0.42	0.22	-1.96	0.051	0.99
Years Worked with Individuals with ASD	0.17	0.66	0.25	0.800	0.02
Years Worked at Current Company	1.77	0.83	2.13	0.034	1.17
Male vs Female	-0.41	3.64	-0.11	0.911	0.00
Race/Ethnic Background					
African America vs. Hispanic	-9.44	6.64	-1.42	0.156	0.52
Asian vs. Hispanic	0.50	4.21	0.12	0.905	0.00
White vs. Hispanic	0.47	2.96	0.16	0.873	0.01
Other/Mixed vs. Hispanic	-6.66	6.24	-1.07	0.287	0.29
Highest Level of Education					
High school vs. Graduate degree	0.70	4.32	0.16	0.872	0.01
Bachelor's degree vs. Graduate degree	2.64	3.56	0.74	0.459	0.14
Burnout					
Low EE vs. High EE	13.33	3.51	3.79	<0.001	3.71
Moderate EE vs. High EE	6.50	3.67	1.77	0.078	0.81
Low DP vs. High DP	1.42	5.21	0.27	0.785	0.02
Moderate DP vs. High DP	2.71	5.63	0.48	0.630	0.06
High PA vs. Low PA	-1.85	5.11	-0.36	0.718	0.03
Moderate PA vs. Low PA	-2.77	4.61	-0.60	0.549	0.09
Engagement	0.48	0.10	4.92	0.000	6.24

*Note.* SE = standard error; SSCC = squared semi-partial correlation coefficient; EE = emotional exhaustion; DP = depersonalization; PA = personal accomplishment.

Table 25

*Multiple Linear Regression Analysis: Predicting Job Performance, Model 1*

Model 1	B	SE	t	p	SSCC
Constant	5.17	0.19	26.80	<0.001	
Control Variables					
Age	-0.01	0.01	-0.95	0.342	0.28
Years Worked with Individuals with ASD	0.06	0.02	3.29	0.001	3.39
Years Worked at Current Company	-0.01	0.02	-0.30	0.762	0.03
Male vs Female	-0.10	0.10	-0.96	0.340	0.29
Race/Ethnic Background					
African America vs. Hispanic	-0.01	0.19	-0.05	0.960	0.00
Asian vs. Hispanic	0.07	0.12	0.56	0.578	0.10
White vs. Hispanic	0.10	0.08	1.17	0.242	0.43
Other/Mixed vs. Hispanic	-0.08	0.18	-0.48	0.633	0.07
Highest Level of Education					
High school vs. Graduate degree	0.12	0.12	1.00	0.318	0.31
Bachelor's degree vs. Graduate degree	0.02	0.10	0.20	0.842	0.01

*Note.* SE = standard error; SSCC = squared semi-partial correlation coefficient.

Table 26

*Multiple Linear Regression Analysis: Predicting Job Performance, Final Model*

Model 2	B	SE	t	p	SSCC
Constant	4.62	0.25	18.44	<0.001	
Control Variables					
Age	-0.01	0.01	-1.41	0.160	0.56
Years Worked with Individuals with ASD	0.06	0.02	3.29	0.001	3.04
Years Worked at Current Company	-0.01	0.02	-0.38	0.707	0.04
Male vs Female	-0.08	0.10	-0.77	0.442	0.17
Race/Ethnic Background					
African America vs. Hispanic	-0.08	0.18	-0.43	0.666	0.05
Asian vs. Hispanic	0.05	0.11	0.47	0.642	0.06
White vs. Hispanic	0.11	0.08	1.42	0.156	0.57
Other/Mixed vs. Hispanic	-0.02	0.17	-0.13	0.896	0.00
Highest Level of Education					
High school vs. Graduate degree	0.07	0.12	0.58	0.560	0.10
Bachelor's degree vs. Graduate degree	0.02	0.10	0.24	0.810	0.02
Burnout					
Low EE vs. High EE	-0.03	0.10	-0.29	0.769	0.02
Moderate EE vs. High EE	-0.09	0.10	-0.87	0.387	0.21
Low DP vs. High DP	0.16	0.14	1.12	0.265	0.35
Moderate DP vs. High DP	0.01	0.15	0.03	0.972	0.00
High PA vs. Low PA	0.54	0.14	3.91	0.000	4.30
Moderate PA vs. Low PA	0.34	0.12	2.75	0.006	2.13
Engagement	0.00	0.00	0.68	0.500	0.13

*Note.* SE = standard error; SSCC = squared semi-partial correlation coefficient; EE = emotional exhaustion; DP = depersonalization; PA = personal accomplishment.

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