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Burnout in Applied Behvior Analysis Tutors: The Role of Personality, Stress, and Affectivity

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BURNOUT IN APPLIED BEHAVIOR ANALYSIS TUTORS: THE ROLE OF PERSONALITY, STRESS, AND AFFECTIVITY

by

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Lindsay A. Deling
April 8th, 2014

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ABSTRACT

Using an individual and dispositional approach, the current study examined the relationship between personality (as conceptualized using the Big Five personality variables) and burnout when accounting for stress and affectivity as mediators. Participants included 152 (140 females, 92.1%) Applied Behavior Analysis (ABA) tutors ages 20-63 ($M = 27.84$, $SD = 6.48$) who worked with children and adolescents with Autism Spectrum Disorders and who spent the majority of their work hours each week in a center-based ABA program. Participants across the United States completed the survey online, while one autism center located in the Midwest completed the survey in-person with the principal investigator. Bivariate correlations and the PROCESS macro were conducted to address the central research aims of the study. The current study supports the direct association between personality and burnout, as well as the indirect effect through stress and affectivity. The PROCESS analyses revealed direct effects between the personality variable of Neuroticism and the burnout variables of both Emotional Exhaustion (EE) and Depersonalization (DP). The personality variables of Neuroticism and Extraversion shared an indirect effect with all three burnout variables (EE, DP, and reduced Personal Accomplishment (PerA)). The personality variable of Agreeableness had a significant direct effect with DP. In addition, the personality variables of Agreeableness and Conscientiousness shared an indirect effect with the burnout variables of EE and DP, but not PerA. The current study's findings have important clinical

implications for hiring practices, as well as prevention and intervention efforts to reduce burnout among ABA tutors.

CHAPTER I

INTRODUCTION

Burnout develops over time in reaction to chronic emotional and interpersonal stressors at work and involves the complexities of people's relationship to their work (Maslach, Schaufeli, & Leiter, 2001). Burnout can have far-reaching consequences, influencing not only employees but also the organization as a whole, as well as the consumers or clients. In studies that span a variety of occupational groups, including human service professionals, industrial employees, information technology professionals, dentists, and other undefined occupational groups, researchers have found employees experiencing burnout are at risk for a diminished sense of well-being (Stalker & Harvey, 2002), development of chronic illness (e.g., cardiovascular disease and Type 2 diabetes; Melamed, Shirom, Toker, Berliner, & Shapira, 2006; Melamed, Shirom, Toker, & Shapira, 2006; Toppinen-Tanner, Ahola, Koskinen, & Väänänen, 2009), hospitalization due to mental disorders (Toppinen-Tanner et al., 2009), negative perceptions of job characteristics (Maudgalya, Wallace, Daraiseh, & Salem, 2006), absenteeism (Maslach, Jackson, & Leiter, 1996), turnover (Maslach et al.,1996), insomnia (Maslach et al., 1996), depression (Hakanen, Schaufeli, & Ahola, 2008), alcohol and drug abuse (Maslach et al., 1996), marital and family problems (Maslach et al., 1996), and lower levels of job performance (see Taris, 2006 for a review). Regarding its effects on the organization,

burnout has been found to be associated with lower levels of work morale (Maslach et al., 1996) and decreases in organizational effectiveness (see Taris, 2006 for a review).

In terms of the negative effects of employee burnout on consumers, some research suggests that higher levels of exhaustion among employees can result in lower customer service ratings (see Taris 2006). In addition, helping professionals under high levels of stress and burnout can have a tendency to harbor negative attitudes towards clients (Caton, Grossnickle, Cope, Long, & Mitchell, 1988; Skirrow & Hatton, 2007), reduce their interactions with clients (Rose & Rose, 2005), and provide a lower quality of services to clients (Yadama & Drake, 1995). Overall, burnout has been found to have a negative influence on the individual, organization, and consumers or clients of such services across a variety of occupational groups, including human service professionals (Swider & Zimmerman, 2010).

The current study explored multiple job factors, including personality, demographic variables, pay, stress, and affectivity, and how these factors may have influenced the burnout of Applied Behavior Analysis (ABA) tutors who work in center-based programs. It examined whether personality factors influence burnout through the mediators of stress and affectivity. To expand on this emerging literature, the current study used an individual and dispositional approach to the study of burnout among ABA tutors who work with children with Autism Spectrum Disorders (ASDs). A summary of the research literature on factors contributing to burnout is provided below.

An Individual-Level and Dispositional Approach to Burnout

Research suggests that the antecedents of job burnout are multidimensional and can be found at the organizational, occupational, and individual levels (Swider & Zimmerman, 2010). Organizational and occupational factors can be conceptualized as situational factors, including the psychological environment of the workplace, organizational resources, performance expectations, quantitative job demands, job achievements, working conditions, company policies, workers' autonomy, and employee feedback (Judge, Parker, Colbert, Heller, & Ilies,2002; Swider & Zimmerman, 2010). An individual and dispositional approach to the study of burnout can consider such antecedents as demographic variables and personality.

While many research studies have focused on situational antecedents to burnout, the study of individual or dispositional antecedents (i.e., individual differences) to burnout has been less systematic and largely ignored (Hudek-Knežević, Krapić, & Kardum, 2006; Swider & Zimmerman, 2010). Two recent studies, however, have focused on personality traits as important individual-level dispositional factors predicting burnout (Hudek-Knežević et al., 2006; Swider & Zimmerman, 2010). One of these studies, a meta-analysis that included a variety of occupational groups, found that all five of the Big Five personality traits combined explains a substantial amount of the variance in burnout levels (Swider & Zimmerman, 2010).

Although burnout has been examined in direct care workers and staff working in the field of intellectual disabilities (see Skirrow & Hatton, 2007), there has been little research on staff working with children with ASDs who conduct ABA therapy. One exception is a study conducted by Gibson, Grey, & Hastings (2009), who investigated the

associations among therapeutic self-efficacy, perceived supervisor support, work demands, and burnout among ABA tutors. The study focused on three key dimensions of burnout that are frequently researched in the literature: *Emotional Exhaustion* (EE), feelings of being overextended and experiencing significant emotional and physical stress (Maslach & Jackson, 1984; Maslach et al., 2001); *Depersonalization* (DP), involving feeling negative, insensitive, indifferent, and detached from various aspects of one's job (Maslach & Jackson, 1984; Maslach et al., 2001); and *Personal Accomplishment* (PerA), feelings of competence, achievement, and productivity in one's work (Maslach, 1982; Maslach et al., 2001). The study found that 27% of the tutors scored in the high range for EE, 2.5% in the high range for DP, and 18.5% in the high range for reduced PerA (Gibson et al., 2009).

While this suggests that this sample of ABA tutors was relatively well-adjusted, the authors noted that one of the limitations of the study may be that individuals experiencing higher levels of burnout at work may have declined to participate given that the average response rate across schools was 45%, with a range of 15% to 83% across the individual schools. The study also found that high levels of perceived supervisor support were associated with low levels of EE and DP and high levels of PerA, as well as perceived therapeutic self-efficacy. In addition, supervisor support appeared to protect therapists from reduced PerA when they were faced with high levels of perceived work demands (Gibson et al., 2009). While this study explored mainly situational factors that impact burnout (e.g., supervisory support and work demands), the current study sought to expand on this study by examining additional dispositional factors, including personality,

stress, and affectivity, that impact burnout in ABA tutors who work with children with ASDs.

Personality Characteristics and Burnout

Personality tests are commonly used in the workplace (Beagrie, 2005; Erickson, 2004; Heller, 2005), with personality often conceptualized using the Big Five Model, a model consisting of the following five factors: Neuroticism (Emotional Stability), Extraversion, Openness to Experience, Agreeableness, and Conscientiousness (Marshall, De Fruyt, Rolland, & Bagby, 2005). *Neuroticism* is characterized by a tendency to experience negative, distressing emotions (Costa & McCrae, 1992). *Extraversion* is defined by a tendency to be self-confident, gregarious, assertive, active, excitement-seeking, and warm (Costa & McCrae, 1992). *Openness to Experience* is associated with imagination, curiosity, originality, and broad-mindedness (Costa & McCrae, 1992). *Agreeableness* is characterized by the following traits: courteousness, flexibility, cooperativeness, empathy, altruism, nurturance, and caring (Costa & McCrae, 1992). *Conscientiousness* is distinguished by traits of self-discipline, achievement striving, competence, dutifulness, dependability, perseverance, responsibility, planfulness, and thoroughness (Costa & McCrae, 1992; Costa, McCrae, & Dye, 1991; McCrae & Costa, 1986).

In looking at the influence of personality on burnout across a variety of occupational groups, researchers have found that the Big Five personality traits are robust predictors of burnout, explaining 33% of the variance in EE, 21% of the variance in DP, and 27% of the variance in PerA (Swider & Zimmerman, 2010), with Neuroticism

consistently demonstrating the strongest correlation with all three of the burnout dimensions (Ghorpade, Lackritz, & Singh, 2007; Kokkinos, 2007). A meta-analysis containing employees from a variety of occupations (Alarcon, Eschleman, & Bowling, 2009), as well as studies with child and youth care workers (Barford & Whelton, 2010), staff working with individuals with intellectual disabilities (Chung & Harding, 2009), nursing staff working at geriatric centers (Gandoy-Crego, Clemente, Mayán-Santos, & Espinosa, 2009), and professional counselors (Lent & Schwartz, 2012), have shown links between higher levels of Neuroticism and higher levels of EE, as well as lower feelings of PerA, although at least one study failed to replicate this association (Zellars, Perrewé, & Hochwarter, 2000). Furthermore, mixed findings have been found for the association between Neuroticism and DP, with there being a significant positive association found in child and youth care workers (Barford & Whelton, 2010), professional counselors (Lent & Schwartz, 2012), and a meta-analysis containing employees from a variety of occupations (Alarcon et al., 2009). No significant association was found in staff working with individuals with intellectual disabilities (Chung & Harding, 2009) and in nursing staff working at geriatric centers (Gandoy-Crego et al., 2009).

The remaining Big Five personality traits, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness, have been linked to burnout as well. In a sample of staff working with individuals with intellectual disabilities, high levels of Extraversion were correlated with increased feelings of PerA as well as lower levels of EE (Chung & Harding, 2009), although another study found that higher Extraversion was associated with higher levels of EE (Buhler & Land, 2003). Additionally, but to a lesser extent, higher Extraversion has been associated with lower feelings of DP in a sample of nurses

(Zellars et al., 2000). However, in one study involving three combined samples of managers, workers from a food-processing company, and participants of a seminar on 'positive thinking', Extraversion did not play a significant role in the classification of burnout (Langelaan, Bakker, van Doornen, & Schaufeli, 2006).

Openness to Experience has also been found to be correlated with all three dimensions of burnout, with higher levels of Openness to Experience being associated with higher levels of EE in a sample of full-time faculty members at a major state university (Ghorpade et al., 2007); lower levels of DP in the following samples: volunteer counselors working with terminally ill patients (Bakker, Van Der Zee, Lewig, & Dollard, 2006), primary school teachers (Kokkinos, 2007), and nursing staff (Zellars et al., 2000); and higher levels of PerA in samples of primary school teachers (Kokkinos, 2007) and nursing staff (Zellars et al., 2000). In addition, looking at the trait of Agreeableness, higher levels of Agreeableness have been associated with lower levels of EE in a sample of nursing staff working at geriatric centers (Gandoy-Crego et al., 2009); lower levels of DP in a sample of professional counselors (Lent & Schwartz, 2012) and in samples from a wide range of employment settings (Alarcon et al., 2009); and higher levels of PerA in a sample of volunteer counselors working with terminally ill patients (Bakker et al., 2006) and in a sample of professional counselors (Lent & Schwartz, 2012).

The remaining trait, Conscientiousness, has been found to be associated with the three dimensions of burnout as well, although many of the results have been mixed. Whereas one study found a positive association between Conscientiousness and EE (Kokkinos, 2007), another study found a negative association (Alarcon et al., 2009). Similarly, multiple studies have found that high levels of Conscientiousness are

correlated with high levels of DP (Chung & Harding, 2009; Hochwälder, 2006), and other studies have found that high levels of Conscientiousness are associated with low levels of DP (Kokkinos, 2007; Zellars, Perrewé, Hochwarter, & Anderson, 2006). High levels of Conscientiousness have also frequently been correlated with higher feelings of PerA in the following samples: child and youth care workers (Barford & Whelton, 2010), nursing staff working at geriatric centers (Gandoy-Crego et al., 2009), and primary school teachers (Kokkinos, 2007). At least one sample found that Conscientiousness failed to predict any of the burnout dimensions in a sample of nurses, but the researchers concluded that this may have been due to lack of variance in the sample (Zellars et al., 2000).

Demographic Variables and Burnout

Demographic variables may also be important individual-level antecedents to consider, although research on the associations among burnout, demographic variables, and pay have produced conflicting results. In terms of age, many researchers have found that workers under the age of 30 or 40 years old appear to be most at risk for burnout (Alacacioglu, Yavuzsen, Dirioz, Oztop, & Yilmaz, 2009; Boyas, Wind, & Kang, 2012; Garrosa, Moreno-Jiménez, Liang, & González, 2008; Maslach, 2003; Maslach et al., 2001). Some studies, however, have failed to replicate these findings and have shown that the risk of burnout continues throughout an individual's lifetime (Ahola et al., 2006; Bekker, Croon, & Bressers, 2005). In contrast, two studies, one study of staff working with clients with intellectual disabilities in Australia (Mutkins, Brown, & Thorsteinsson, 2011) and another with school counselors in Turkey (Yildirim, 2008), found that age was uncorrelated with the dimensions of burnout.

Researchers have also examined family characteristics associated with burnout. Regarding marital status, the majority of research suggests that married individuals have lower levels of burnout than single individuals (Ahola et al., 2006; Maslach, 2003), although a few studies have found that marital status is not significantly related to the three burnout dimensions (Woodside, Miller, Floyd, McGowen, & Pfortmiller, 2008; Yildirim, 2008). Research on the association between having children and burnout is also mixed. Overall, studies have found that if an individual has children, they have lower levels of burnout (Bekker et al., 2005; McMurray, Linzer, Konrad, Douglas, Shugerman, & Nelson, 2000). However, having children may be more of a protective factor for females than males, as females with children were found to have lower levels of EE and DP, while males did not have a significant protective effect from parenting (Woodside et al., 2008). In addition, this relationship may also be dependent on having supportive colleagues, a spouse, or a significant other to help with the balance between work and home life (McMurray et al., 2000).

Some studies have shown that higher education levels are related to lower burnout (Ahola et al., 2006; Demir, Ulusoy, & Ulusoy, 2003). In a study of nurses working in a university hospital in Turkey, only PerA was significantly associated with educational background, with higher levels of education being associated with higher levels of PerA (Tekindal, Tekindal, Pinar, Ozturk, & Alan, 2012). Across studies there has been some inconsistency in findings, with other researchers finding that higher education levels are related to higher levels of EE (Acker, 2012; Maslach, 2003).

Burnout has also been found to be associated with tenure, with higher levels of burnout typically seen earlier in one's work experience (Alacacioglu et al., 2009; Garner,

Knight, & Simpson, 2007; Jiang, Yan, & Shuyue, 2004; Lizano & Mor Barak, 2012; Maslach et al., 2001). Nevertheless, some research has suggested that in addition to experiencing elevated levels of burnout during the first few years (i.e., 1-3 years), employees employed 7 to 10 years tend to report higher scores on measures of DP, as well as higher scores on measures of PerA (Yildirim, 2008). Similarly, another study found that women employed over 16 years in the same profession had higher burnout scores (Ahola et al., 2006). These studies collectively suggest a u-shaped association between burnout and job tenure, with the most junior and the most senior employees at heightened risk for burnout. However, in three studies, no significant associations were found between tenure and burnout (Mills & Rose, 2011; Mutkins et al., 2011; Platsidou & Agaliotis, 2008).

Looking at the correlation between burnout and pay, one study of special education teachers found no significant associations between the burnout dimensions and satisfaction with pay (Platsidou & Agaliotis, 2008). In two studies, one consisting of physical therapists and occupational therapists and the other consisting of nurses employed in a state or university hospital in Turkey, a negative association was found between pay and EE as well as pay and DP, suggesting that lower levels of pay are correlated with higher levels of EE and DP, respectively (Balogun, Titiloye, Balogun, Oyeyemi, & Katz, 2002; Demir et al., 2003). In this same study, no significant correlations were observed between pay and PerA (Balogun et al., 2002). Although it appears that controlling for demographic variables may be important in the assessment of burnout, there are inconsistencies across studies regarding the association between many demographic variables and burnout.

Stress and Burnout

In addition to the Big Five personality traits and demographic variables, stress has also been found to influence burnout. Stress can be defined as an interaction between a person and the environment, which is then appraised or evaluated by that person as exceeding his or her personal resources, and therefore disrupting his or her daily routines (Lazarus & Folkman, 1984). This definition of stress, which is considered a transactional model of stress, is closely related to burnout and has the ability to map onto several aspects of occupational stress (Cox, Kuk, & Leiter, 1993). In a research article on job-related stress and personal achievement, Deary and colleagues (1996) discuss the models of stress. In discussing the transactional models of stress, they note that the transactional models of stress tend to have three basic elements: (a) antecedents to stress; (b) mediators of stress; and (c) outcomes of stress. In discussing the antecedents to stress, they note that these tend to be personal and environmental variables, including personality traits. Personality traits are thought to influence a person's perceptions of and reactions to stressful events. Coping mechanisms and stress appraisals tend to be the mediators. Stress outcomes can include burnout, as well as other objective indices of health or physiological status and self-report health measures (Deary et al., 1996). Therefore, this model of stress is appropriate and works well for the current study.

Stress is often a situational factor related to various aspects of the work environment. Work-related stressors have been associated with, among other things, declines in mental health (Achat et al., 1998), increases in physical and emotional exhaustion (Shirom, Westman, Shamai, & Carel, 1997; Tummers, Landeweerd, & van Merode, 2002), physiological changes (Shirom et al., 1997), diminished health status

(Cheng, Kawachi, Coakley, Schwartz, & Colditz, 2000; Gonge, Jensen, & Bonde, 2002), fewer interactions with residents with intellectual disabilities (Rose, Jones, & Fletcher, 1998), and burnout (Gray-Stanley & Muramatsu, 2011; Montgomery & Rupp, 2005). In fact, one study found that job stress was the strongest predictor of burnout (Griffin, Hogan, Lambert, Tucker-Gail, & Baker, 2010).

Even in the recent literature, the differentiation between stress and burnout has been a topic of discussion. In one recent article, the authors examined the difference between stress and burnout in a sample of Israeli police officers during the second Palestinian uprising (Pines & Keinan, 2005). The authors concluded that burnout may be a sub-category of stress, but it has different antecedents, correlates, and consequences. More specifically, using path analysis, the authors found that work stressors were more highly correlated with strain than with burnout, while the work's importance was more highly correlated with burnout than with strain. Burnout was also found to be more highly correlated with variables, such as a lack of job satisfaction, a desire to quit the job, physical and emotional symptoms, and perceived performance level more so than strain (Pines & Keinan, 2005). Thus, the authors provide evidence that stress and burnout are related, but different concepts.

In looking at the influence of stress, between 25% and 32.4% of surveyed staff members working with organizations for intellectual disabilities reported experiencing significant levels of stress (Hatton, Emerson et al., 1999; Robertson et al., 2005). Multiple studies have examined the relationship between stress and burnout in direct care workers and staff in the intellectual disability field. Two studies on direct care workers in the intellectual disability field found that stress was associated with increased burnout,

specifically stress related to work overload, low or no participation in decision-making, client disability, and a lack of support from management (Dyer & Quine, 1998; Gray-Stanley & Muramatsu, 2011).

In some studies, the presence of challenging behavior by clients is the most frequently reported work stressor among disability support staff (Jenkins, Rose, & Lovell, 1997; Hastings, 2002). In this literature, challenging behavior included: being exposed to physical aggression towards themselves, witnessing aggression towards others, witnessing client self-injurious behavior, and witnessing property aggression (Mills & Rose, 2011; Mitchell & Hastings, 2001; Raczka, 2005; Rose, Horne, Rose, & Hastings, 2004). These studies have suggested that staff who work with individuals with intellectual disabilities and who are exposed to these challenging behaviors are at risk for experiencing negative emotions, which are stressful, and can lead to burnout (Mills & Rose, 2011; Mitchell & Hastings, 2001; Raczka, 2005; Rose et al., 2004). Other studies have suggested more of a direct link between challenging behavior and burnout (Chung & Harding, 2009; Hensel, Lunsky, & Dewa, 2012). However, one study found that challenging client behavior was not related to burnout in a sample of direct support staff and management/administrative personnel working in intellectual disability support organizations in Australia (Mutkins et al., 2011). In fact, in this study psychological stress was not a significant mediator between challenging client behavior and burnout symptoms (Mutkins et al., 2011).

Stress has also been found to be correlated with personality. Examining the influence of personality on stress, overall Neuroticism has been found to be a strong predictor of stress (Conard & Matthews, 2008; Fontana & Abouserie, 1993; Pithers &

Fogarty, 1995), while Extraversion has been found to be a psycho-protective factor of stress (Burgess, Irvine, & Wallymahmed, 2010). In fact, in staff working with people with intellectual disabilities, individuals who reported higher levels of Neuroticism tended to have higher levels of perceived stress, while those who reported higher levels of Extraversion tended to have lower levels of perceived stress (Rose, David, Jones, 2003). In a sample of critical care nurses, individuals who reported higher levels of Extraversion and Openness to Experience tended to report lower levels of stress when dealing with difficult patients and relatives (Burgess et al., 2010). Additionally, in this same study, individuals possessing higher levels of Conscientiousness tended to report lower levels of management stressors, time pressures, and stress perceived from a lack of confidence and competence (Burgess et al., 2010).

While previous research has provided evidence for relationships between personality, stress, and burnout (Chang, Rand, & Strunk, 2000; Deary et al., 1996; Ghorpade, Lackritz, & Singh, 2011; Kelley, Eklund, & Ritter-Taylor, 1999; Mills & Huebner, 1998; Montgomery & Rupp, 2005; Ogińska-Bulik, 2006), one of the aims of the current study was to examine stress as a mediator between personality (as conceptualized using the Big Five dimensions) and burnout. A related aim was to contribute to the literature by using an approach that could identify whether stress and burnout appear to be unique constructs.

Affectivity and Burnout

In addition to personality characteristics, demographic variables, and stress, Negative Affectivity (NA) and Positive Affectivity (PA) have been shown to have a

significant association with burnout. High NA indicates the extent to which a person feels subjective distress and unpleasurable engagement that includes the following aversive mood states: anger, contempt, disgust, guilt, fear, and nervousness (Watson & Clark, 1984; Watson, Clark, & Tellegen, 1988). It reflects negative feelings towards oneself, other people, and the world (Watson & Clark, 1984). In contrast to high levels of NA, low NA ratings among individuals are associated with feelings of calmness and serenity (Watson et al., 1988).

Overall, NA has been investigated more heavily than PA as a predictor of burnout, with NA often being significantly associated with all three dimensions of burnout. More specifically, high NA has been found to have a longitudinal and additive relationship to higher levels of EE, even after controlling for such variables as workload and social support (Houkes, Janssen, de Jonge, & Nijhuis, 2001; Houkes, Janssen, Jonge, & Bakker, 2003). A meta-analysis, compiling data from various fields of employment, identified positive correlations between NA and EE and between NA and DP, respectively, as well as negative correlations between NA and PerA (Thoresen, Kaplan, Barsky, Warren, & de Chermont, 2003). A few studies, however, have suggested that improving or creating more positive conditions in the work environment by providing autonomy and feedback (Hochwarter, Zellars, Perrewé, & Harrison, 1999) and clarifying the duties and roles of employees (Zellars, Perrewé, & Hochwarter, 1999) can have a tendency to reduce the risk of burnout among individuals with high-NA scores.

PA has been defined as the extent to which a person feels enthusiastic, active, joyful, and alert (Watson et al., 1988). Individuals with high levels of PA have high energy, full concentration, and pleasurable engagement, while those low in PA are

defined by sadness and lethargy (Watson et al., 1988). High levels of PA are associated with having a positive outlook, being sociable, having a high level of well-being, and having the tendency to be in a positive mood (Judge, Thoresen, Pucik, & Welbourne, 1999).

In examining the association between PA and burnout, nurses with higher ratings of PA were found to be less likely to experience burnout than nurses with lower ratings of PA (Zellars & Perrewé, 2001). PA has also been shown to be negatively correlated with EE and DP, respectively, and positively correlated with PerA (Thoresen et al., 2003). In addition, high levels of PA combined with high levels of Conscientiousness among nurses appears to reduce the risk of employment-related stress (Zellars et al., 2006). Both NA and PA have been found to explain more unique variance in burnout than emotional social support (Kahn, Schneider, Jenkins-Henkelman, & Moyle, 2006).

The Associations Among Personality Traits and Affectivity

In addition to burnout, NA and PA have been associated with the Big Five personality factors. Links between Neuroticism and NA, as well as between Extraversion and PA have been well-established (Watson, David, & Suls, 1999; Wilson & Gullone, 1999). Some research has equated Neuroticism with NA (Bruk-Lee, Khoury, Nixon, Goh, & Spector, 2009), as well as treating Extraversion as the same construct as PA (Judge, Heller, & Mount, 2002; Tellegen, 1985). However, there is research supporting Neuroticism and NA, as well as Extraversion and PA as distinct constructs. NA and PA have been thought to reflect the affective core of personality (Watson et al., 1999). More specifically, in looking at the constructs of Neuroticism and NA, Neuroticism is

oftentimes thought of as a broader construct than NA (Bruk-Lee et al., 2009). Similarly, Extraversion can be thought of as a much broader construct than PA, which includes not only PA, but also gregariousness and empathy (Hart & Cooper, 2002). Research has shown that PA consistently produces stronger relationships with the three dimensions of burnout than Extraversion, further suggesting that they are related but unique constructs measuring different things (Alarcon et al., 2009).

However, studies using the factor analysis methodology have consistently found a common two-factor structure between personality and affectivity in adults, which consists of (1) Neuroticism-NA and (2) Extraversion-PA (Berry & Hansen, 1996; Meyer & Shack, 1989). While this consistent two-factor structure has been found, there continues to be theoretical debate surrounding the developmental origins and direction of the relationship. Two main, competing theoretical models exist: the trait and emotion perspectives. The main difference between the trait and emotion theoretical models is that the emotion perspective suggests that the relationship between personality and emotion is bidirectional because emotions are both a cause and an effect of personality traits. The trait perspective suggests a direct relationship in that Neuroticism and Extraversion are directly responsible for regulating individual differences in NA and PA. Another suggested pathway for this perspective is that personality traits have an indirect influence on long-term affectivity because they predispose individuals to participate in activities that subsequently induce NA and PA (McCrae & Costa, 1991). Furthermore, a study of undergraduate students in China found that the associations between these personality traits and differences in affectivity are partially mediated by emotion regulation processes (Wang, Shi, & Li, 2009). Thus, each of these theoretical models makes different

predictions regarding the pattern and strength of the relationship between personality and affectivity across development. The current study used the trait perspective to conceptualize the relationship between Neuroticism and NA and between Extraversion and PA, given that Neuroticism and Extraversion are oftentimes thought of as broader constructs than NA and PA, respectively (Bruk-Lee et al., 2009; Hart & Cooper, 2002).

In terms of the other 3 personality traits, multiple studies have found Openness to Experience to be unrelated to NA (Bruck & Allen, 2003; Naquin & Holton, 2002). However, some evidence suggests that there is a positive association between Openness to Experience and PA (Naquin & Holton, 2002). Looking at Agreeableness, multiple studies have found a significant negative correlation between Agreeableness and NA (Bowling & Eschleman, 2010; Bruck & Allen, 2003; Naquin & Holton, 2002), while one study found a significant positive association between Agreeableness and PA (Naquin & Holton, 2002). Considering Conscientiousness, multiple studies have found a significant negative correlation between Conscientiousness and NA (Bowling & Eschleman, 2010; Naquin & Holton, 2002; Côté, Saks, & Zikic, 2006). However, one study found no significant association between Conscientiousness and NA (Bruck & Allen, 2003). Multiple studies have found a significant positive association between Conscientiousness and PA (Naquin & Holton, 2002; Côté et al., 2006).

While previous research has explored the relationships between personality and affectivity (Watson et al., 1999; Wilson & Gullone, 1999), as well as affectivity and burnout (Thoresen et al., 2003), no previous research has explored affectivity as a mediator between personality and burnout. Therefore, another identified aim of the current study was to explore whether affectivity mediated the associations among

personality characteristics and burnout. A related aim was to contribute to the literature on personality and affectivity by measuring the independent contributions of these two constructs on burnout, which may have implications for the debate as to whether personality and affectivity should be considered unique constructs.

Hypotheses

The current study explored how multiple job factors, including personality, demographic variables, pay, stress, and affectivity may influence the burnout of ABA tutors working in center-based programs; specifically the current study addressed whether personality factors influence burnout via the mediators of stress and affectivity. I made the following hypotheses based on the research outlined above: (1) Neuroticism will be positively correlated with measures of EE and DP, and negatively associated with PerA; (2) Extraversion, Agreeableness, and Conscientiousness will be negatively correlated with EE and DP, and positively associated with PerA; (3) Openness to Experience will be positively correlated with EE and PerA, but negatively associated with DP; (4) Stress will partially mediate the associations between the Big Five Personality traits and EE, DP, and PerA; and (5) Similarly, NA and PA will partially mediate the associations between the Big Five Personality traits and EE, DP, and PerA.

The current study used a relatively new and unique methodology, the PROCESS macro (Hayes, 2013), to study the use of stress as a mediator between the Big Five dimensions and burnout. Additionally, this study contributes to the literature by using affectivity as a mediator between personality and burnout. Please see Figure 1 for a path model of the current study's analyses. While previous research has explored the

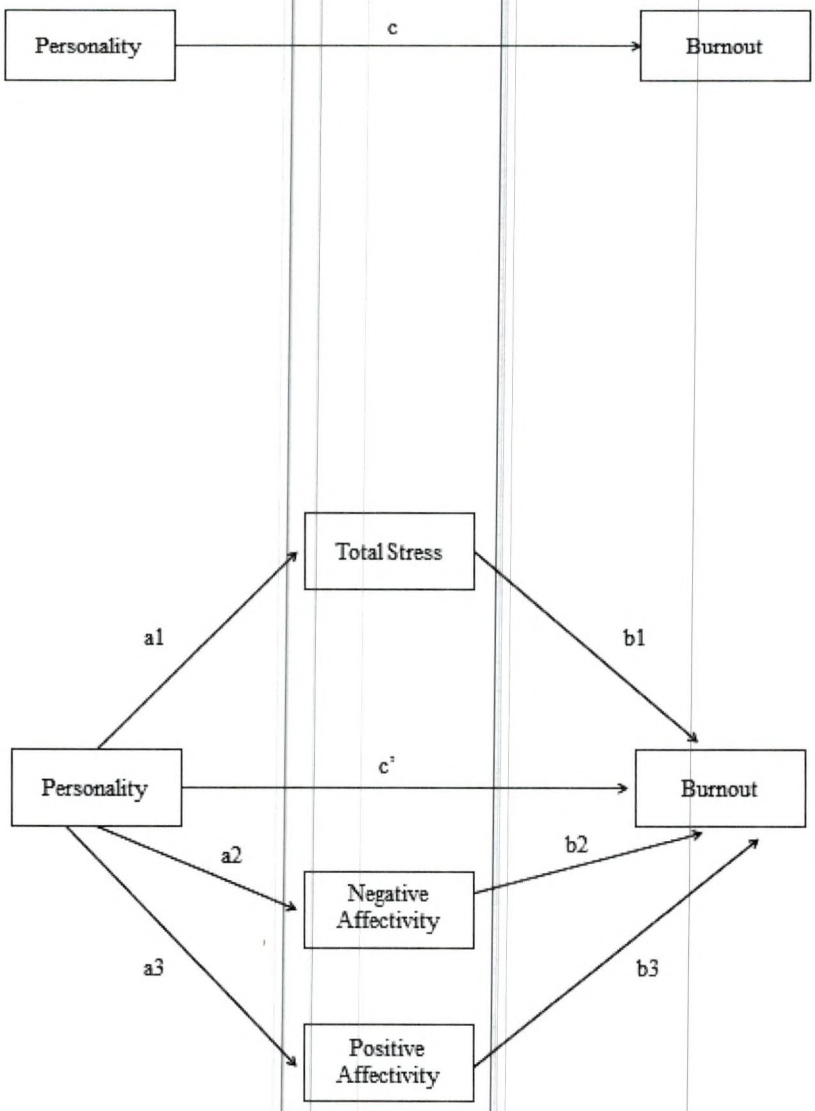

Figure 1. Mutiple Mediation Analysis Model. This represents the path model for the multiple mediation analyses. A separate analysis was conducted for each personality variable and each burnout variable. The c coefficient represents the total relationship between a personality variable and a burnout variable (not controlling for any of the mediator variables). The c' coefficient represents the strength of the association between a personality variable and a burnout variable after controlling for the three mediated paths in this model. The a1 and b1 paths represent the mediated or indirect paths.

relationships between personality and affectivity (Watson et al., 1999; Wilson & Gullone, 1999), as well as affectivity and burnout (Thoresen et al., 2003), no previous research has explored affectivity as a mediator between personality and burnout. Therefore, the current study utilizes a research design aimed at evaluating whether many of the predictors of burnout are mediated by stress and affectivity.

CHAPTER II

METHOD

Participants

Participants included ABA tutors who worked with children and adolescents with ASDs and who spent the majority of their work hours each week in a center-based ABA program. Tutors who had worked the majority of their work hours in a home-based ABA program were excluded from the current study. Tutors were recruited from ABA autism centers within the Midwest, as well as from ABA autism centers throughout the United States. Participants either took an online survey through SONA Systems (SONA Systems), a web-based management software for human subject data, or they took the survey in a group setting in-person with the investigator (84.9% online). Only one autism center participated in the in-person survey, located in a medium-sized city in the Midwest. Participants were compensated for their time by receiving an individual $10 gift card to either Target, Amazon.com, Walmart, or Best Buy.

Participants included 152 center-based ABA tutors (140 females, 92.1%), ages 20-63 ($M = 27.84$, $SD = 6.48$). One participant was identified as an outlier in terms of age, being greater than five standard deviations above the mean for age, and was dropped from subsequent analyses. The majority of the participants were Caucasian (86.1%). The remaining participants classified themselves as follows: Latino/Hispanic (4.6%), Multi-

Ethnic (4.6%), Asian-American (2.6%), and African-American (0.7%), with 1.3% of participants not responding to the question. Most of the participants reported being single (46.4%) or married (39.7%). The remaining participants reported their marital status as cohabitating (9.3%) and divorced (4.0%), with 0.7% of participants not responding to the question. For the purposes of subsequent analyses, marital status was reduced to two groups with single and divorced participants forming one group and married and cohabitating participants forming the other. The majority of the participants did not have any children (78.8%).

In terms of educational background, a Bachelor's Degree was most participants' highest level of education (55%). The remaining participants reported their highest level of education as follows: high school diploma (2%), some college (7.3%), Associate's Degree (0.7%), some graduate school (15.9%), Master's Degree (18.5%), and other (0.7%). In order to make the education variable an ordinal variable with increasing levels of education, the participant who responded 'other' was dropped from subsequent analyses.

Participants reported working an average of 37.53 hours per week ($SD = 7.23$), with a range of 6 to 60 hours per week. When asked about the average number of hours of face-to-face contact with ASD clients per week, participants had a mean of 32.32 hours per week ($SD = 7.61$) of face-to-face contact, with a range of 4 to 50 hours per week. Participants were asked to report on their total length of employment in their current position, and participants had worked an average of 26.24 months ($SD = 24.10$), with a range of 1 to 108 months. Participants were also asked if they had any previous experience working with individuals with ASDs prior to their current position, and 62.7%

reported previous experience, with an average of 34.22 months (*SD* = 38.51, range = 2 to 216 months) of previous experience. When asked about the most common child to staff ratio that was used within their autism center, the majority of participants reported using a 1:1 ratio (83.3%).

Among the sample, hourly wage (17.33%, n=26) and annual gross income (28%, n=42) were not reported by a large percentage of participants. Among the participants that reported hourly wage (82.67%, n=124) and annual gross income (72%, n=108), the average hourly wage was $15.47 (*SD*=4.93), with a range of $8.25 to $32.80 per hour. Looking at annual gross income, the mean annual gross income was $29,195.52 (*SD*=8400.68), with a range of $13,000 to $60,000.

Interventions

Participants reported using a wide variety of ABA interventions within their autism centers. The most common intervention technique was Discrete-Trial Teaching, with 90% of participants utilizing this type of ABA intervention. In addition to Discrete-Trial Teaching, the following percentages of participants utilized these interventions: Social Skills Training (83.3%), Natural Environment Teaching (74.7%), Verbal Behavior Approach (63.3%), Direct Instruction (62%), Positive Behavior Support (56%), Pivotal Response Training/Teaching (20.7%), and other interventions (13.3%).

Procedures

Participants were recruited both online and in-person. The online participants were recruited from across the United States by emailing a structured letter to autism

center directors, supervisors, or administrative assistants with a request that they forward the information to their employees. Autism centers were identified through conducting an internet search. The in-person participants were recruited from one Midwestern autism center by contacting the director and supervisors in order to obtain permission and schedule a date to go to the site. The in-person participants completed the survey in a group setting with the principal investigator in the room, but they were allowed to spread out within the room. The survey required approximately one hour to complete.

Measures

Demographic and Pay Questionnaire

The demographics and pay questionnaire consisted of questions related to the tutors' gender, age, race, ethnicity, marital status, number of children, highest level of education, religious affiliation, average number of hours working in an ABA autism center per week, average number of hours of face-to-face contact with ASD clients per week, length of current employment at an ABA autism center, previous work experience at an ABA autism center, hourly wage, and annual gross income.

Maslach Burnout Inventory (MBI)

The MBI is a 22-item measure that consists of three factors: EE (9 items), DP (5 items), and PerA (8 items) (Maslach et al., 1996). The MBI can be rated in terms of both frequency and intensity. The frequency categories range from "never" to "every day" (on a 7-point Likert scale ranging from "0" to "6"), while the intensity categories range from "never" to "major, very strong" (on an 8-point Likert scale ranging from "0" to "7"; Maslach & Jackson, 1981). The frequency and intensity response formats have been

shown to be highly correlated, and Maslach and Jackson (1986) recommended using only the frequency format. Therefore, the current study only required the participants to respond to the frequency categories. The three factor solution for the MBI is based on a number of factor analytic studies (Worley, Vassar, Wheeler, & Barnes, 2008). For the current study, the internal consistency coefficients were as follows: 0.92 for EE, 0.72 for DP, and 0.79 for PerA, which indicates a fair to good level of reliability (Nunnally, 1978). These are fairly consistent with previous studies, with slightly higher coefficients found in the current study for DP and PerA than the majority of previous studies (Chao, McCallion, & Nickle, 2011; Gibson et al., 2009; Hastings, Horne, & Mitchell, 2004; Maslach & Jackson, 1981).

NEO-FFI-3

The NEO-FFI-3 is a 60-item measure of the Big Five personality factors, which include Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness (McCrae & Costa, 2010). It is the short version of the NEO-Personality Inventory-3 (NEO-PI-3). Each of the items are rated on a 5-point Likert scale ranging from "strongly disagree" to "strongly agree." In the current study, the internal consistency coefficients were as follows: 0.86 for Neuroticism, 0.86 for Extraversion, 0.79 for Openness to Experience, 0.77 for Agreeableness, and 0.85 for Conscientiousness, which indicates a fair to good level of reliability (Nunnally, 1978). These are comparable to the coefficients observed in a previous sample (McCrae & Costa, 2010).

Staff Stressor Questionnaire (SSQ)

The SSQ is a 33-item, self-report measure (Hatton, Rivers et al., 1999) that assesses potential stressors found to influence staff stress in previous research on staff working with individuals with intellectual disabilities (Bersani & Heifetz, 1985; Hatton, Brown, Caine, & Emerson, 1995; Rose, 1993). The questionnaire asks respondents to rate on a 5-point Likert scale (i.e., "not at all", "just a little", "moderate amount", "quite a lot", and "a great deal") possible sources of stress in their job. The questionnaire measures a number of different stressors, including having to address challenging behaviors of others, lack of staff support, lack of resources, and work-home conflict. The Total Stress score for the SSQ was found to be 0.80 in the current study, which is in the good range of reliability (Nunnally, 1978) and is consistent with other research (Noone & Hastings, 2009).

Positive Affectivity Negative Affectivity Scale (PANAS)

The PANAS is a 20-item, self-report measure of PA and NA. Respondents rate each emotion word on a 5-point Likert scale ranging from "very slightly" or "not at all" to "extremely." The parameters of the PANAS ratings use a number of temporal prompts, ranging from "right now" to "during the past year", or even "in general, that is, on the average" (Watson et al., 1988). This allows researchers to modify the prompts to focus on a specific context in which participants may experience a given emotion. The temporal prompts of "in general, that is, on the average" and "during the past week" were used in the current study as they provide a trait and a state measure of affectivity, respectively. The temporal prompt of "in general, that is, on the average" was used in the analyses.

This prompt was chosen in an effort to reduce the incidence of single events that occurred during the previous day or week, such as a particularly difficult challenging behavior exhibited by one of the youth with an ASD. A more stable measure of affectivity was desired in order to get at what tutors generally experience from week to week.

In the current study, the internal consistency reliabilities were 0.89 for PA and 0.88 for NA for the trait measure of affectivity, which indicates a good level of reliability (Nunnally, 1978). These are comparable to the values found in previous studies (Molnar, Reker, Culp, Sadava, & DeCourville, 2006; Watson et al., 1988). While previous research has treated Neuroticism as being the same construct as NA, as well as treating Extraversion as the same construct as PA (Judge, Heller et al., 2002; Tellegen, 1985), the current study identifies them as separate constructs.

CHAPTER III

RESULTS

The analyses were divided into three phases in order to address the hypotheses of the current study. The first phase of the analyses focused on examining descriptive statistics, in particular differences between those participants who took the survey online versus those participants who took it in a group setting in-person with the investigator. Chi-square and t-test analyses were used to examine these differences, as previous research has shown that there can be important differences between online and in-person participants (Bonini Campos, Zucoloto, Sampaio Bonafé, Jordani, & Maroco, 2011; Vecchione, Alessandri, & Barbaranelli, 2012; Witt, Donnellan, & Orlando, 2011). In the second phase of the analyses, bivariate correlations between the study variables were conducted as a preliminary step in examining associations among the variables of interest. The final phase of the analyses used a multiple mediation design, with the five personality variables as the antecedents, the total stress score and two affectivity variables as the mediators, and the three burnout variables as the consequents. The second and final phases of the analyses were used to address the central research aims of the current study.

Handling of Missing Data

The current study comes from a larger data set containing additional variables. Prior to conducting missing data analysis, auxiliary variables were identified from this larger data set. Auxiliary variables were defined as variables that were conceptually related to the current study's variables, or that were highly correlated (>0.5) with the current study's variables (Graham, 2012). These variables were part of the larger data set, but they were not included in the main analyses of the current study. They are variables that were used to enhance the imputation process.

The current study's variables as well as the auxiliary variables were included in the missing data analysis. The approach to missing data analysis was the Expectation Maximization (EM) Method within the Missing Value Analysis procedure in SPSS. The EM Method is a method that assumes a distribution for partially missing data and subsequently bases inferences on the likelihood under that distribution. For each iteration, there is an E step and an M step. The E step consists of finding the conditional expectation of the missing data based on the observed values and current estimates of the parameters. These expectations are subsequently inserted into the data set for the missing data. For the M step, the computation of the maximum likelihood estimates of the parameters takes place as though the missing data were filled in. The word "missing" is substituted in quotation marks because the missing values are not directly filled in. Functions of the missing values are used in the log-likelihood instead (IBM Corporation, 2011). For the current study, variables were transformed prior to conducting the EM Method. Please see the next section entitled "Assumption of Normality and Homoscedasticity" for further details. The EM Method was run with a maximum of 200

iterations. Please see Table 1 for the number of participants with missing data and the percent of missing values for each included variable. After EM was conducted, some variable values were rounded to the nearest possible value. Because the EM Method can only be used on quantitative variables with missing values, the mean substitution method rounded to the nearest whole number was used to fill in one missing value for Marital Status.

Assumption of Normality and Homoscedasticity

In order to meet the assumptions of normality and homoscedasticity, transformations were performed on multiple variables. A square root transformation was conducted on the following variables: Total Length of Employment (tenure), Agreeableness, Conscientiousness, DP, Commitment (auxiliary variable), Job Satisfaction Total (auxiliary variable), the Poor User Skills Total Stress subscale, the Work-Home Conflict Total Stress subscale, and Total Stress (computed and conducted after EM was completed). The Poor User Skills Total Stress subscale and the Work-Home Conflict Total Stress subscale were transformed prior to the missing data analyses, and then following the missing data analyses, they were used to help compute the Total Stress score. The Total Stress score was then subsequently transformed. A logarithmic transformation (log10) was conducted on the following variables: Annual Gross Income and NA. A reciprocal transformation was conducted on the following variables: Age and Hourly Wage.

Table 1. Missing Data Analysis

Variable	Number of Participants with Missing Data*	Missing Percent
Current Study Variables		
Survey Location	0	.0
Age	0	.0
Marital Status**	1	.7
Children	0	.0
Education	0	.0
Total Length of Employment (Tenure)	1	.7
Hourly Wage	26	17.3
Annual Gross Income	42	28.0
Neuroticism	0	.0
Extraversion	1	.7
Openness	0	.0
Agreeableness	0	.0
Conscientiousness	0	.0
User Challenging Behavior (Total Stress subscale)	6	4.0
Poor User Skills (Total Stress subscale)	7	4.7
Lack of Staff Support (Total Stress subscale)	0	.0
Lack of Resources (Total Stress subscale)	0	.0
Low-Status Job (Total Stress subscale)	2	1.3
Bureaucracy (Total Stress subscale)	1	.7
Work-Home Conflict (Total Stress subscale)	3	2.0
NA	1	.7
PA	1	.7
EE	1	.7
DP	4	2.7
PerA	5	3.3

*Subscales and Scales missing one or more items

**Filled in using mean substitution method

Chi-Square Analyses

In order to compare individuals who took the survey online versus in-person (Survey Location) on some nominal and ordinal demographic variables (i.e., Marital Status, Children, and Education), chi-square analyses were conducted. One of the assumptions of chi-square analyses is that the expected frequencies should be greater than 5. However, sometimes it is considered acceptable in larger contingency tables to have up to 20% of the expected frequencies below 5, but it does result in a loss of statistical power. In addition, in larger contingency tables, there should be no expected frequencies below 1 (Field, 2009, pp. 692). In order to minimize the number of expected frequencies below 5, participants whose highest level of education was a high school diploma (n=3) or an associate's degree (n=1) were taken out of the chi-square analysis between Survey Location and Education. Despite taking these participants out, the chi-square analysis between Survey Location and Education contained 3 cells (37.5%) that had expected frequencies less than 5 (minimum expected frequency= 1.58). Also, the chi-square analysis between Survey Location and Children contained 1 cell (25.0%) that had an expected frequency less than 5 (expected frequency = 4.69). Therefore, Fisher's exact test is reported for any contingency tables that were greater than 2 x 2 (i.e., Survey Location and Education). This is a chi-square statistic that is accurate when sample sizes are small and when the expected frequencies are below 5 (Field, 2009, pp. 690). There were no significant associations between Survey Location and Marital Status (χ^2 (1) = 1.92, p > .05, Cramer's V = .11, N = 150) and between Survey Location and Education (χ^2 (3) = 5.98, p > .05, Fisher's Exact Test = 5.22, p > .05, Cramer's V = .20, N = 146).

There was a significant association between Survey Location and the dichotomous variable Children (i.e., No children versus one or more children), χ^2 (1) = 5.89, $p < .05$, N = 150. The effect size measure, Cramer's V, was .20, which represents a small to medium effect size (Cohen, 1988). The in-person group was more likely to have one or more children (40.9%, n=22) than the online group (18.0%, n=128).

T-test and Burnout Analyses

Independent samples t-tests were used to determine whether there were significant differences between the online versus in-person participants on some of the major demographic variables, as well as the main study variables. Please see Table 2 for the results. The means and standard deviations presented in the table reflect the untransformed values. Looking at the demographic variables, the in-person participants tended to be older than the online participants. This difference was significant, and it represented a small to medium effect size (Cohen, 1988). Regarding the main study variables, the online participants tended to have higher neuroticism scores than the in-person participants, with this difference being significant and representing a medium effect size (Cohen, 1988). Also, the in-person participants tended to have significantly higher extraversion scores than the online participants, with this difference representing a medium to large effect size (Cohen, 1988). Additionally, the online participants tended to have higher agreeableness scores than the in-person participants. This difference was significant, and it represented a small to medium effect size (Cohen, 1988).

Also, the online participants tended to have higher total stress scores than the in-person participants, with this difference being significant and representing a medium

Table 2. T-Test Analyses Between Online Versus In-Person Participants

Variable	Online		In-person				
	M	*SE of the mean*	*M*	*SE of the mean*	*t*	*p*	Cohen's *d*
Age	27.25	.51	29.64	1.28	2.15	.034	0.49
Total Length of Employment	24.77	2.04	34.09	6.02	-1.79	.076	-0.41
Hourly Wage	15.89	.44	15.11	.50	-.02	.988	0.00
Annual Gross Income	28.60K	743.43	29.78K	1548.32	-.70	.483	-0.16
Neuroticism	50.34	.93	43.68	2.10	2.77	.006	0.65
Extraversion	52.73	1.03	60.68	2.35	-2.97	.003	-0.70
Openness	53.78	.97	57.09	2.10	-1.32	.189	-0.32
Agreeableness	52.11	.95	56.64	1.89	1.99	.049	0.45
Conscientiousness	53.80	.94	54.64	1.78	.22	.823	0.05
Total Stress	50.45	1.81	38.09	4.14	2.86	.005	0.63
Negative Affectivity	17.88	.54	14.41	.87	2.74	.007	0.68
Positive Affectivity	37.97	.56	41.18	1.20	-2.22	.028	-0.53
Emotional Exhaustion	26.19	1.02	20.55	2.70	2.09	.038	0.47
Depersonalization	4.82	.46	2.91	.91	2.18	.031	0.50
Personal Accomplishment	38.48	.58	34.45	1.47	2.64	.009	0.60

effect size (Cohen, 1988). The online participants tended to have significantly higher NA than the in-person participants, with this difference representing a medium to large effect size (Cohen, 1988). The in-person participants tended to have higher PA than the online participants. This difference was significant, and it represented a medium effect size (Cohen, 1988).

Regarding the burnout dimensions, the online participants tended to have higher EE scores than the in-person participants, with this difference being significant and representing a small to medium effect size (Cohen, 1988). The online participants tended to have significantly higher DP scores than the in-person participants, with this difference representing a medium effect size (Cohen, 1988). The online participants tended to have higher PerA scores than the in-person participants. This difference was significant, and it represented a medium effect size (Cohen, 1988).

Because the *Maslach Burnout Inventory* (Maslach et al., 1996) can be interpreted in multiple ways, additional information was analyzed for the three burnout variables using the categorical classification system, which classifies burnout levels as low, moderate, and high. A chi-square test was also used to see if there were significant differences between the online versus in-person participants according to the categorical classification system. The categorical classification system classifies burnout as a continuous variable that ranges from low to moderate to high degrees of burnout. The cut-off points for each of the three burnout variables are as follows: EE (low: ≤ 16, moderate: 17-26, and high: ≥ 27); DP (low: ≤ 6, moderate: 7-12, and high: ≥ 13); and PerA (low: ≥ 39, moderate: 38-32, and high: ≤ 31). Therefore, using this system, a high degree of burnout is defined by scores falling in the high range on EE, DP, and PerA, while a low degree of burnout is defined by scores falling in the low range on EE, DP, and PerA (Maslach et al., 1996).

The chi-square analysis showed that Survey Location and EE Category and DP Category, respectively, were not significant. Therefore, looking at the total group of participants (N=150), 45.3% reported high levels of EE and 32% reported moderate levels of EE; and 9.3% reported high levels of DP and 16% reported moderate levels of DP. There was a significant association between Survey Location and the PerA Category, χ^2 (2) = 10.07, $p < .01$, such that there was a greater percentage of online participants in the low reduced PerA category and a greater percentage of in-person participants in the high reduced PerA category, suggesting that the online participants had better feelings of PerA overall. For the online participants, 13.3% reported high levels of reduced PerA and 27.3% reported moderate levels of reduced PerA. Looking at the in-person participants, 36.4% reported high levels of reduced PerA and 36.4% reported moderate levels of reduced PerA.

Bivariate Correlations

Variable bivariate correlations are presented in Tables 3 and 4. The bivariate correlations were calculated using the transformed variables. A number of different bivariate correlation coefficients where used to address the various levels of measurement among the data collected. The Phi statistic was used for bivariate correlations between two nominal variables with only two categories each, such as the correlation between Survey Location and Marital Status. The Cramer's V statistic was used for bivariate correlations between one nominal and one ordinal variable, such as the correlation between Marital Status and Education. The Eta statistic was used for bivariate correlations between one nominal and one interval variable, such as the correlation between Children and Age. The Kendall's tau correlation was used for bivariate correlations between one ordinal and one interval variable, such as the correlation between Education and

Age. The Pearson's R correlation was used for the bivariate correlations involving two interval variables, such as the correlation between Age and Total Length of Employment.

Table 3 highlights the correlations between the demographic/pay variables and consequent variables. As discussed previously in the T-test analyses in Table 2, Survey Location was significantly correlated with all three burnout outcome measures (i.e., EE, DP, PerA). Total Length of Employment was significantly positively correlated with DP, such that individuals with longer Total Length of Employment values tended to report higher levels of DP.

Table 4 outlines the correlations between the main study variables. Total Stress was significantly positively correlated with Neuroticism and significantly negatively correlated with Extraversion, Agreeableness, and Conscientiousness, such that individuals with higher Total Stress scores tended to rate themselves higher in Neuroticism and lower in Extraversion, Agreeableness, and Conscientiousness. NA was significantly positively correlated with Neuroticism and significantly negatively correlated with Extraversion and Conscientiousness, such that individuals with higher NA scores tended to rate themselves higher in Neuroticism and lower in Extraversion and Conscientiousness. NA was also significantly positively correlated with Total Stress, such that individuals with higher NA scores tended to report themselves higher in Total Stress. PA was significantly negatively correlated with Neuroticism and significantly positively correlated with Extraversion and Conscientiousness, such that individuals with higher PA scores tended to report themselves lower in Neuroticism and higher in Extraversion and Conscientiousness. PA was also significantly negatively correlated with Total Stress and NA, such that individuals with higher PA scores tended to rate themselves lower in Total Stress and NA.

Table 3. Bivariate Correlations Between Demographic Variables/Pay and Consequent Variables

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Survey Location	--										
2. Age	.17*	--									
3. Marital Status	.11	.23**	--								
4. Children	.20*	.51***	.33***	--							
5. Education	-.29*	.22**	.20	-.18	--						
6. Total Length of Employment	.15	.42***	.27**	.35***	.01	--					
7. Hourly Wage	-.00	.30***	.07	.10	.32***	.27**	--				
8. Annual Gross Income	.06	.21*	.08	.07	.25***	.25**	.72***	--			
9. Emotional Exhaustion	-.17*	-.12	-.02	-.14	.00	-.02	-.07	-.01	--		
10. Depersonalization	-.18*	-.01	-.08	-.06	-.02	.17*	-.05	.08	.60***	--	
11. Personal Accomplishment	-.21**	-.11	-.03	-.03	.01	-.04	.07	.03	-.32***	-.39***	--

*p<.05. **p<.01 ***p<.001

Table 4. Bivariate Correlations Between the Antecedent Variables, Mediator Variables, and Consequent Variables

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Neuroticism	--										
2. Extraversion	-.44***	--									
3. Openness	.06	.08	--								
4. Agreeableness	-.12	.19*	.26**	--							
5. Conscientiousness	-.43***	.36***	-.00	.26**	--						
6. Total Stress	.41***	-.25**	-.04	-.23**	-.26**	--					
7. Negative Affectivity	.51***	-.28**	.03	-.08	-.27**	.52***	--				
8. Positive Affectivity	-.49***	.48***	.06	.08	.40***	-.31***	-.43***	--			
9. Emotional Exhaustion	.58***	-.32***	.01	-.21**	-.29***	.63***	.57***	-.43***	--		
10. Depersonalization	.39***	-.29***	-.15	-.30***	-.17*	.48***	.43***	-.30***	.60***	--	
11. Personal Accomplishment	-.31***	.23**	.09	.15	.14	-.24**	-.24**	.41***	-.32***	-.39***	--

*p<.05. **p<.01 ***p<.001

In addition, EE and DP, respectively, were significantly positively correlated with Neuroticism and significantly negatively correlated with Extraversion, Agreeableness, and Conscientiousness, such that individuals with higher EE and DP scores, respectively, tended to rate themselves higher in Neuroticism and lower in Extraversion, Agreeableness, and Conscientiousness. In addition, they were significantly positively correlated with Total Stress and NA and significantly negatively correlated with PA, such that individuals with higher EE and DP scores, respectively, tended to rate themselves higher in Total Stress and NA and lower in PA. PerA was significantly negatively correlated with Neuroticism and significantly positively correlated with Extraversion, such that individuals with higher PerA scores tended to report themselves lower in Neuroticism and higher in Extraversion. PerA was also significantly negatively correlated with Total Stress and NA and significantly positively correlated with PA, such that individuals with higher PerA scores tended to report themselves lower in Total Stress and NA and higher in PA.

PROCESS Macro Analyses

An SPSS macro developed by Hayes (2013) entitled PROCESS was used to estimate the direct and indirect effects of each personality variable on the three burnout variables with Total Stress, NA, and PA as the three multiple mediating variables. This approach has several advantages over other methods of testing mediation. First of all, multiple mediating variables can be calculated simultaneously while controlling for any correlation between the mediators. Second, bootstrapping methods are used to create the confidence intervals for the indirect or mediated effects. Using the proposed associations among Neuroticism, EE, and Total Stress in the current study, an indirect effect would be the effect of Neuroticism on EE that is mediated by Total Stress. Bootstrapping is from a class of procedures known as resampling methods. Within

this method, the original sample of size *n* is used to represent a miniature version of the population from which it was originally sampled. In this sample, observations are then "resampled" with replacement, and a statistic of interest is subsequently calculated within this new sample of size *n* that was created through this resampling process. This process is then repeated over and over again (ideally thousands of times), and a representation of the sampling distribution of the statistic is then constructed empirically. Within mediation analyses, the bootstrapping method is used to create an empirically derived representation of the sampling distribution of the indirect or mediated effect, and this empirical representation is used to construct confidence intervals.

The bootstrapping method has an advantage over other approaches because any violations to the assumption of normality of scores are less problematic, as the bootstrapping method makes no assumption about the shape of the sampling distribution, and it tends to be more powerful over competing methods, such as the normal theory approach (Hayes, 2013). The normal theory approach is also known as the product of coefficients approach, the delta method, or the Sobel test (Hayes, 2013). The normal theory approach utilizes the ratio of *ab* to its standard error in determining the indirect effect and assumes that the sampling distribution of the indirect effect is normal (Hayes, 2009).

Third, by including multiple mediators in the model versus one mediator, this study will allow a formal comparison of the size of the indirect effects for each of the mediators, and thus, it will provide a determination of which of the indirect effects is the strongest (Hayes, 2013). The current study model was tested using 10,000 bootstrapped bias corrected resamples. This type of method makes no assumptions about the shape of the sampling distribution and tends to be higher in power than the normal theory approach (Hayes, 2013).

The general model for the multiple mediator analyses is pictured in Figure 1 (see page 21). This model represents a parallel multiple mediator model, which means that the antecedent variable (i.e., personality) is modeled as influencing the consequent variable (i.e., burnout) both directly and indirectly through three mediators (i.e., Total Stress, NA, and PA), with the idea that no mediator causally influences another. This method allows for the advantage of being able to compare the sizes of the indirect effects through the three different mediators (Hayes, 2013). In the upper panel, the path coefficient "*c*" represents the total relationship or total effect between a personality characteristic and a burnout variable (not controlling for the mediator variables). The total effect represents the sum of the direct and indirect effects (Hayes, 2013). In the lower panel, the hypothesized causal model is pictured. The hypothesized causal association between a personality characteristic and each mediator is denoted as "*a*." The hypothesized causal association between each mediator and a burnout variable is denoted as "*b*", with this association controlling for the antecedent variable and the other mediator variables.

The "*a*" and "*b*" model coefficients represent the indirect or mediated effects. In this model, only two paths link the antecedent variable to the consequent variable through a specific mediator. The first path is the effect of the antecedent variable on the specific mediator (i.e., "*a*"), and the second path is from the specific mediator to the consequent variable (i.e., "*b*"). The regression coefficients that correspond to these paths can be multiplied together in order to create the specific indirect effect of the antecedent variable on the consequent variable through a specific mediator. For example, "a_1b_1" represents the specific indirect effect of the antecedent variable (i.e., one of the personality factors) on the consequent variable (i.e., one of the burnout dimensions) through the first mediator (i.e., Total Stress). Therefore, a specific indirect effect of the antecedent variable on the consequent variable through, for example, the mediator Total

Stress, is the estimated amount by which two cases that differ by one unit on the antecedent variable are estimated to differ on the consequent variable as a result of the effect of the antecedent variable on Total Stress, which in turn affects the consequent variable, while holding NA and PA, the other two mediators, constant (Hayes, 2013). The path denoted "*c'* " is the direct association between a personality characteristic and a burnout variable when the indirect or mediated paths are statistically controlled. The analysis corresponding to this model was conducted separately for each personality characteristic and each burnout variable combination.

For the multiple mediation analyses, the unstandardized coefficients were used for all paths in the model. Please see Tables 5 through 9 for the unstandardized coefficient values and the standard errors for each of the five personality variables predicting each of the three burnout variables. Due to the lack of correlations between the demographic variables and the burnout measures, most of the demographic variables were dropped from the PROCESS macro analyses. Only two demographic variable covariates were used throughout each of the analyses, Survey Location (i.e., online versus in-person) and Total Length of Employment (tenure). In each of the models that included EE as a consequent, Survey Location and Total Length of Employment, did not have a significant effect. Total Length of Employment was a significant predictor in each of the models that included DP as the consequent; whereas, Survey Location had a significant effect in the models with PerA as the consequent.

Neuroticism Models

In the Neuroticism Emotional Exhaustion multiple mediation model, participants with higher levels of Neuroticism tended to have significantly higher levels of Total Stress (a_1 coefficient), higher levels of NA (a_2 coefficient), and lower levels of PA (a_3 coefficient),

respectively. Participants who had higher Total Stress and higher NA scores, respectively, tended to have significantly higher EE scores (b_1 and b_2 coefficients).

A bias-corrected bootstrap confidence interval for the indirect effects based on 10,000 bootstrap samples was entirely above zero for Total Stress (a_1b_1) and NA (a_2b_2). It was not entirely above or below zero for PA (a_3b_3). This means that there is evidence of an indirect effect, with 95% confidence, for Total Stress and NA (but not PA), suggesting that those individuals who had higher levels of Neuroticism have higher levels of EE as a result of the tendency for those with higher levels of Neuroticism to have higher Total Stress scores. In addition, those individuals who had higher levels of Neuroticism have higher levels of EE as a result of the tendency for those with higher levels of Neuroticism to have higher NA scores. The contrast effect of the difference between the specific indirect effect of Total Stress minus the specific indirect effect of NA has a 95% confidence interval that includes zero (C = -.0669 to .2114), meaning with 95% confidence, these indirect effects are not statistically different from each other. There was evidence that Neuroticism directly influenced EE (c' coefficient) independent of its effect on the mediators.

In the Neuroticism Depersonalization multiple mediation model, participants who had higher Total Stress scores (b_1 coefficient), as well as higher NA scores (b_2 coefficient), respectively, tended to have significantly higher DP scores. There was no significant path between PA and DP (b_3 coefficient). A bias-corrected bootstrap confidence interval for the indirect effects based on 10,000 bootstrap samples was entirely above zero for Total Stress (a_1b_1) and NA (a_2b_2). It was not entirely above or below zero for PA (a_3b_3). This means that there is evidence of an indirect effect, with 95% confidence, for Total Stress and NA (but not PA), suggesting that those individuals who had higher levels of Neuroticism have higher levels of DP

as a result of the tendency for those with higher levels of Neuroticism to have higher Total Stress scores. Also, those individuals with higher levels of Neuroticism have higher levels of DP as a result of the tendency for those with higher levels of Neuroticism to have higher NA scores. The contrast effect of the difference between the specific indirect effect of Total Stress minus NA has a 95% confidence interval that includes zero (C = -.0165 to .0215), and suggests these two indirect effects are not statistically different from each other. There was evidence that Neuroticism directly influenced DP (c' coefficient) independent of its effect on the mediators.

In the Neuroticism Personal Accomplishment multiple mediation model, participants who had higher PA scores (b_3 coefficient) tended to have significantly higher PerA scores. There were no significant paths from Total Stress and NA (b_1 coefficient and b_2 coefficient), respectively, to PerA. A bias-corrected bootstrap confidence interval for the indirect effects based on 10,000 bootstrap samples was entirely below zero for PA (a_3b_3). It was not entirely above or below zero for Total Stress (a_1b_1) and NA (a_2b_2). This means that there is evidence of an indirect effect for PA (but not for Total Stress and NA), suggesting that those individuals who had higher levels of Neuroticism have lower levels of PerA as a result of the tendency for those with higher levels of Neuroticism to have lower PA scores. There was no evidence that Neuroticism directly influenced PerA (c' coefficient) independent of its effect on the mediators.

Extraversion Models

In the Extraversion Emotional Exhaustion multiple mediation model, participants with higher levels of Extraversion tended to have significantly lower levels of Total Stress (a_1 coefficient), lower levels of NA (a_2 coefficient), and higher levels of PA (a_3 coefficient),

Table 5. Neuroticism Predicting EE, DP, and PerA

Path	*Coeff.*	*SE*	*p*	CIs for indirect effect Lower	Upper	R^2
Model 1: Neuroticism Predicting EE						.56
Covariate: Survey Location	1.23	1.94	.526			
Covariate: Total Length of Employment	0.27	0.30	.356			
Neuroticism to Total Stress (a_1 path)	0.06	0.01	.000	0.04	0.08	
Neuroticism to NA (a_2 path)	0.01	0.00	.000	0.00	0.01	
Neuroticism to PA (a_3 path)	-0.29	0.04	.000	-0.38	-0.21	
Total Stress to EE (b_1 path)	2.99	0.51	.000	1.99	4.00	
NA to EE (b_2 path)	16.58	6.19	.008	4.33	28.82	
PA to EE (b_3 path)	-0.18	0.12	.135	-0.42	0.06	
Total Effect Neuroticism on EE (c path)	0.64	0.08	.000	0.49	0.79	
Direct Effect Neuroticism on EE (c' path)	0.32	0.08	.000	0.17	0.47	
Indirect Effect Through Total Stress (a_1b_1)				0.10	0.28	
Indirect Effect Through NA (a_2b_2)				0.03	0.21	
Indirect Effect Through PA (a_3b_3)				-0.01	0.14	
Model 2: Neuroticism Predicting DP						.35
Covariate: Survey Location	-0.20	0.26	.441			
Covariate: Total Length of Employment	0.13	0.04	.001			
Neuroticism to Total Stress (a_1 path)	0.06	0.01	.000	0.04	0.08	
Neuroticism to NA (a_2 path)	0.01	0.00	.000	0.00	0.01	
Neuroticism to PA (a_3 path)	-0.29	0.04	.000	-0.38	-0.21	
Total Stress to DP (b_1 path)	0.24	0.07	.001	0.11	0.37	
NA to DP (b_2 path)	1.65	0.82	.046	0.03	3.26	
PA to DP (b_3 path)	-0.01	0.02	.474	-0.04	0.02	
Total Effect Neuroticism on DP (c path)	0.05	0.01	.000	0.03	0.07	
Direct Effect Neuroticism on DP (c' path)	0.02	0.01	.040	0.00	0.04	
Indirect Effect Through Total Stress (a_1b_1)				0.01	0.03	
Indirect Effect Through NA (a_2b_2)				0.00	0.03	
Indirect Effect Through PA (a_3b_3)				-0.01	0.01	
Model 3: Neuroticism Predicting PerA						.31
Covariate: Survey Location	-6.42	1.39	.000			
Covariate: Total Length of Employment	-0.16	0.21	.466			
Neuroticism to Total Stress (a_1 path)	0.06	0.01	.000	0.04	0.08	
Neuroticism to NA (a_2 path)	0.01	0.00	.000	0.00	0.01	
Neuroticism to PA (a_3 path)	-0.29	0.04	.000	-0.38	-0.21	
Total Stress to PerA (b_1 path)	-0.56	0.36	.124	-1.28	0.16	
NA to PerA (b_2 path)	-1.07	4.44	.810	-9.84	7.70	
PA to PerA (b_3 path)	0.37	0.09	.000	0.20	0.54	
Total Effect Neuroticism on PerA (c path)	-0.24	0.05	.000	-0.34	-0.15	
Direct Effect Neuroticism on PerA (c' path)	-0.10	0.06	.068	-0.21	0.01	
Indirect Effect Through Total Stress (a_1b_1)				-0.09	0.01	
Indirect Effect Through NA (a_2b_2)				-0.08	0.05	
Indirect Effect Through PA (a_3b_3)				-0.17	-0.06	

respectively. Participants who had higher Total Stress (b_1 coefficient), higher NA (b_2 coefficient), and lower PA (b_3 coefficient), respectively, tended to have significantly higher EE scores. A bias-corrected bootstrap confidence interval for the indirect effects based on 10,000 bootstrap samples was entirely below zero for all three mediators (a_1b_1, a_2b_2, and a_3b_3). This means that there is evidence of an indirect effect, with 95% confidence, for Total Stress, NA, and PA, suggesting that those individuals with higher levels of Extraversion have lower levels of EE as a result of the tendency for those with higher levels of Extraversion to have lower Total Stress scores. Also, those individuals with higher levels of Extraversion have lower levels of EE as a result of the tendency for those with higher levels of Extraversion to have lower NA scores. In addition, those individuals with higher levels of Extraversion have lower levels of EE as a result of the tendency for those with higher levels of Extraversion to have higher PA scores.

The contrast effect of the difference between the specific indirect effect of Total Stress minus NA has a 95% confidence interval that includes zero (C = -.1307 to .0562), meaning with 95% confidence, these two indirect effects are not statistically different from each other. The contrast effect of the difference between the specific indirect effect of Total Stress minus PA has a 95% confidence interval that includes zero (C = -.1419 to .0620), which suggests that these two indirect effects are also not statistically different from each other. The contrast effect of the difference between the specific indirect effect of NA minus PA has a 95% confidence interval that includes zero (C = -.0988 to .0791), suggesting that these two indirect effects are not statistically different from each other as well. There was no evidence that Extraversion directly influenced EE (c' coefficient) independent of its effect on the mediators.

Within the Extraversion Depersonalization multiple mediation model, participants who had higher Total Stress and NA scores, respectively, tended to have significantly higher DP

scores (b_1 and b_2 coefficients). There was no significant path from PA to DP (b_3 coefficient). A bias-corrected bootstrap confidence interval for the indirect effects based on 10,000 bootstrap samples was entirely below zero for Total Stress and NA (a_1b_1 and a_2b_2) but not for PA (a_3b_3). This means that there is evidence of an indirect effect, with 95% confidence, for Total Stress and NA (but not PA), suggesting that those individuals who had higher levels of Extraversion have lower levels of DP as a result of the tendency for those with higher levels of Extraversion to have lower Total Stress scores. In addition, those individuals with higher levels of Extraversion have lower levels of DP as a result of the tendency for those with higher levels of Extraversion to have lower NA scores. The contrast effect of the difference between the specific indirect effect of Total Stress minus NA has a 95% confidence interval that includes zero (C = -.0126 to .0090), suggesting that these indirect effects are not statistically different from each other. There was no evidence that Extraversion directly influenced DP (c' coefficient) independent of its effect on the mediators.

In the Extraversion Personal Accomplishment multiple mediation model, participants with higher PA scores tended to have significantly higher PerA scores (b_3 coefficient). There were no significant paths from Total Stress and NA, respectively, to PerA (b_1 and b_2 coefficients). A bias-corrected bootstrap confidence interval for the indirect effects based on 10,000 bootstrap samples was entirely above zero for PA (a_3b_3). It was not entirely above or below zero for Total Stress (a_1b_1) and NA (a_2b_2). This means that there is evidence of an indirect effect, with 95% confidence, for PA (but not Total Stress and NA), suggesting that those individuals who had higher levels of Extraversion have higher levels of PerA as a result of the tendency for those with higher levels of Extraversion to have higher PA scores. There was no

Table 6. Extraversion Predicting EE, DP, and PerA

Path	*Coeff.*	*SE*	*p*	CIs for indirect effect Lower	Upper	R^2
Model 1: Extraversion Predicting EE						.51
Covariate: Survey Location	0.99	2.06	.632			
Covariate: Total Length of Employment	0.16	0.31	.599			
Extraversion to Total Stress (a_1 path)	-0.03	0.01	.002	-0.05	-0.01	
Extraversion to NA (a_2 path)	-0.00	0.00	.001	-0.00	-0.00	
Extraversion to PA (a_3 path)	0.26	0.04	.000	0.18	0.33	
Total Stress to EE (b_1 path)	3.28	0.53	.000	2.23	4.33	
NA to EE (b_2 path)	23.48	6.27	.000	11.09	35.86	
PA to EE (b_3 path)	-0.29	0.13	.032	-0.55	-0.03	
Total Effect Extraversion on EE (c path)	-0.30	0.08	.000	-0.45	-0.14	
Direct Effect Extraversion on EE (c' path)	-0.07	0.07	.287	-0.21	0.06	
Indirect Effect Through Total Stress (a_1b_1)				-0.20	-0.04	
Indirect Effect Through NA (a_2b_2)				-0.15	-0.03	
Indirect Effect Through PA (a_3b_3)				-0.15	-0.01	
Model 2: Extraversion Predicting DP						.34
Covariate: Survey Location	-0.17	0.26	.512			
Covariate: Total Length of Employment	0.12	0.04	.002			
Extraversion to Total Stress (a_1 path)	-0.03	0.01	.002	-0.05	-0.01	
Extraversion to NA (a_2 path)	-0.00	0.00	.001	-0.01	-0.00	
Extraversion to PA (a_3 path)	0.26	0.04	.000	0.18	0.33	
Total Stress to DP (b_1 path)	0.25	0.07	.000	0.12	0.38	
NA to DP (b_2 path)	2.08	0.79	.009	0.52	3.64	
PA to DP (b_3 path)	-0.01	0.02	.513	-0.04	0.02	
Total Effect Extraversion on DP (c path)	-0.03	0.01	.001	-0.05	-0.01	
Direct Effect Extraversion on DP (c' path)	-0.01	0.01	.094	-0.03	0.00	
Indirect Effect Through Total Stress (a_1b_1)				-0.02	-0.00	
Indirect Effect Through NA (a_2b_2)				-0.02	-0.00	
Indirect Effect Through PA (a_3b_3)				-0.01	0.01	
Model 3: Extraversion Predicting PerA						.30
Covariate: Survey Location	-6.46	1.41	.000			
Covariate: Total Length of Employment	-0.12	0.21	.561			
Extraversion to Total Stress (a_1 path)	-0.03	0.01	.002	-0.05	-0.01	
Extraversion to NA (a_2 path)	-0.00	0.00	.001	-0.01	-0.00	
Extraversion to PA (a_3 path)	0.26	0.04	.000	0.18	0.33	
Total Stress to PerA (b_1 path)	-0.64	0.36	.080	-1.36	0.08	
NA to PerA (b_2 path)	-3.22	4.30	.455	-11.72	5.27	
PA to PerA ($b3$ path)	0.38	0.09	.000	0.20	0.56	
Total Effect Extraversion on PerA (c path)	0.17	0.05	.000	0.08	0.26	
Direct Effect Extraversion on PerA (c' path)	0.05	0.05	.293	-0.04	0.14	
Indirect Effect Through Total Stress (a_1b_1)				-0.00	0.06	
Indirect Effect Through NA (a_2b_2)				-0.01	0.04	
Indirect Effect Through PA (a_3b_3)				0.06	0.16	

evidence that Extraversion directly influenced PerA (*c'* coefficient) independent of its effect on the mediators.

Openness to Experience Models

Within the Openness to Experience Models, there were no statistically significant paths from Openness to Experience to any of the three mediator variables (a_1, a_2, and a_3 coefficients). For each of the three Openness to Experience Models, there was no evidence that Openness to Experience had a significant total (*c* coefficient) or direct effect (*c'* coefficient) on EE, DP, or PerA.

Agreeableness Models

In the Agreeableness Emotional Exhaustion multiple mediation model, participants with higher levels of Agreeableness tended to have significantly lower levels of Total Stress (a_1 coefficient). There were no significant paths between Agreeableness and NA or PA (a_2 and a_3 coefficients). Participants who had higher Total Stress and NA scores, as well as lower PA scores, respectively, tended to have significantly higher EE scores (b_1, b_2, and b_3 coefficients). A bias-corrected bootstrap confidence interval for the indirect effects based on 10,000 bootstrap samples was entirely above zero only for Total Stress (a_1b_1) and not for NA (a_2b_2) and PA (a_3b_3). This means that there is evidence of an indirect effect, with 95% confidence, for Total Stress (but not for NA or PA), suggesting that those individuals with higher levels of Agreeableness have lower levels of EE as a result of the tendency for those with higher levels of Agreeableness to have lower Total Stress scores. There was no evidence that Agreeableness directly influenced EE (*c'* coefficient) independent of its effect on the mediators.

Table 7. Openness Predicting EE, DP, and PerA

Path	*Coeff.*	*SE*	*p*	CIs for indirect effect		R^2
				Lower	Upper	
Model 1: Openness Predicting EE						.51
Covariate: Survey Location	0.54	2.06	.794			
Covariate: Total Length of Employment	0.16	0.31	.600			
Openness to Total Stress (a_1 path)	-0.01	0.01	.601	-0.03	0.02	
Openness to NA (a_2 path)	0.00	0.00	.696	-0.00	0.00	
Openness to PA (a_3 path)	0.03	0.05	.476	-0.06	0.13	
Total Stress to EE (b_1 path)	3.33	0.53	.000	2.28	4.38	
NA to EE (b_2 path)	23.35	6.31	.000	10.88	35.82	
PA to EE (b_3 path)	-0.35	0.12	.005	-0.59	-0.11	
Total Effect Openness on EE (c path)	0.03	0.09	.720	-0.14	0.21	
Direct Effect Openness on EE (c' path)	0.03	0.06	.596	-0.09	0.16	
Indirect Effect Through Total Stress (a_1b_1)				-0.11	0.06	
Indirect Effect Through NA (a_2b_2)				-0.04	0.07	
Indirect Effect Through PA (a_3b_3)				-0.07	0.02	
Model 2: Openness Predicting DP						.35
Covariate: Survey Location	-0.18	0.26	.480			
Covariate: Total Length of Employment	0.12	0.04	.004			
Openness to Total Stress (a_1 path)	-0.01	0.01	.601	-0.03	0.02	
Openness to NA (a_2 path)	0.00	0.00	.696	-0.00	0.00	
Openness to PA (a_3 path)	0.03	0.05	.476	-0.06	0.13	
Total Stress to DP (b_1 path)	0.26	0.07	.000	0.12	0.39	
NA to DP (b_2 path)	2.24	0.79	.005	0.68	3.81	
PA to DP (b_3 path)	-0.02	0.02	.186	-0.05	0.01	
Total Effect Openness on DP (c path)	-0.01	0.01	.129	-0.03	0.00	
Direct Effect Openness on DP (c' path)	-0.01	0.01	.071	-0.03	0.00	
Indirect Effect Through Total Stress (a_1b_1)				-0.01	0.00	
Indirect Effect Through NA (a_2b_2)				-0.00	0.01	
Indirect Effect Through PA (a_3b_3)				-0.01	0.00	
Model 3: Openness Predicting PerA						.30
Covariate: Survey Location	-6.45	1.40	.000			
Covariate: Total Length of Employment	-0.09	0.21	.659			
Openness to Total Stress (a_1 path)	-0.01	0.01	.601	-0.03	0.02	
Openness to NA (a_2 path)	0.00	0.00	.696	-0.00	0.00	
Openness to PA (a_3 path)	0.03	0.05	.476	-0.06	0.13	
Total Stress to PerA (b_1 path)	-0.65	0.36	.076	-1.36	0.07	
NA to PerA (b_2 path)	-3.85	4.30	.372	-12.36	4.65	
PA to PerA (b_3 path)	0.42	0.08	.000	0.25	0.58	
Total Effect Openness on PerA (c path)	0.07	0.05	.169	-0.03	0.17	
Direct Effect Openness on PerA (c' path)	0.06	0.04	.180	-0.03	0.15	
Indirect Effect Through Total Stress (a_1b_1)				-0.01	0.03	
Indirect Effect Through NA (a_2b_2)				-0.03	0.01	
Indirect Effect Through PA (a_3b_3)				-0.03	0.06	

Within the Agreeableness Depersonalization multiple mediation model, participants with higher Total Stress and NA scores, respectively, tended to have significantly higher DP scores (b_1 and b_2 coefficients). There was no significant path from PA to DP (b_3 coefficient). A bias-corrected bootstrap confidence interval for the indirect effects based on 10,000 bootstrap samples was entirely above zero for Total Stress only (a_1b_1) and not for NA (a_2b_2) or PA (a_3b_3). This means that there is evidence of an indirect effect, with 95% confidence, for Total Stress (but not for NA and PA), suggesting that those individuals who had higher levels of Agreeableness have lower DP as a result of the tendency for those with higher levels of Agreeableness to have lower Total Stress scores. There was evidence that Agreeableness directly influenced DP (c' coefficient) independent of its effect on the mediators.

In the Agreeableness Personal Accomplishment multiple mediation model, participants with higher PA scores tended to have significantly higher PerA scores (b_3 coefficient). There were no significant paths from Total Stress and NA (b_1 and b_2 coefficients), respectively, to PerA. A bias-corrected bootstrap confidence interval for the indirect effects based on 10,000 bootstrap samples was not entirely above or below zero for any of the three mediators (a_1b_1, a_2b_2, and a_3b_3). This means that there was no evidence of an indirect effect, with 95% confidence, for Total Stress, NA, and PA. There was also no evidence that Agreeableness directly influenced PerA (c' coefficient) independent of its effect on the mediators.

Conscientiousness Models

Within the Conscientiousness Emotional Exhaustion multiple mediation model, participants with higher levels of Conscientiousness tended to have significantly lower levels of

Table 8. Agreeableness Predicting EE, DP, and PerA

Path	*Coeff.*	*SE*	*p*	CIs for indirect effects		R^2
				Lower	Upper	
Model 1: Agreeableness Predicting EE						.52
Covariate: Survey Location	1.04	2.05	.612			
Covariate: Total Length of Employment	0.10	0.31	.755			
Agreeableness to Total Stress (a_1 path)	0.32	0.11	.004	0.10	0.53	
Agreeableness to NA (a_2 path)	0.01	0.01	.364	-0.01	0.03	
Agreeableness to PA (a_3 path)	-0.42	0.46	.363	-1.32	0.48	
Total Stress to EE (b_1 path)	3.17	0.54	.000	2.10	4.23	
NA to EE (b_2 path)	24.19	6.26	.000	11.81	36.57	
PA to EE (b_3 path)	-0.34	0.12	.006	-0.58	-0.10	
Total Effect Agreeableness on EE (c path)	1.98	0.85	.021	0.31	3.65	
Direct Effect Agreeableness on EE (c' path)	0.86	0.63	.174	-0.38	2.10	
Indirect Effect Through Total Stress (a_1b_1)				0.12	2.10	
Indirect Effect Through NA (a_2b_2)				-0.34	0.88	
Indirect Effect Through PA (a_3b_3)				-0.19	0.63	
Model 2: Agreeableness Predicting DP						.36
Covariate: Survey Location	-0.15	0.26	.571			
Covariate: Total Length of Employment	0.11	0.04	.006			
Agreeableness to Total Stress (a_1 path)	0.32	0.11	.004	0.10	0.53	
Agreeableness to NA (a_2 path)	0.01	0.01	.364	-0.01	0.03	
Agreeableness to PA (a_3 path)	-0.42	0.46	.363	-1.32	0.48	
Total Stress to DP (b_1 path)	0.23	0.07	.001	0.09	0.36	
NA to DP (b_2 path)	2.25	0.78	.005	0.70	3.79	
PA to DP (b_3 path)	-0.02	0.02	.157	-0.05	0.01	
Total Effect Agreeableness on DP (c path)	0.28	0.09	.002	0.11	0.46	
Direct Effect Agreeableness on DP (c' path)	0.20	0.08	.011	0.05	0.36	
Indirect Effect Through Total Stress (a_1b_1)				0.01	0.18	
Indirect Effect Through NA (a_2b_2)				-0.02	0.10	
Indirect Effect Through PA (a_3b_3)				-0.01	0.06	
Model 3: Agreeableness Predicting PerA						.31
Covariate: Survey Location	-6.61	1.40	.000			
Covariate: Total Length of Employment	-0.06	0.21	.768			
Agreeableness to Total Stress (a_1 path)	0.32	0.11	.004	0.10	0.53	
Agreeableness to NA (a_2 path)	0.01	0.01	.364	-0.01	0.03	
Agreeableness to PA (a_3 path)	-0.42	0.46	.363	-1.32	0.48	
Total Stress to PerA (b_1 path)	-0.52	0.37	.157	-1.25	0.20	
NA to PerA (b_2 path)	-3.87	4.26	.365	-12.30	4.55	
PA to PerA (b_3 path)	0.42	0.08	.000	0.26	0.58	
Total Effect Agreeableness on PerA (c path)	-1.14	0.48	.018	-2.09	-0.20	
Direct Effect Agreeableness on PerA (c' path)	-0.84	0.43	.051	-1.69	0.00	
Indirect Effect Through Total Stress (a_1b_1)				-0.65	0.06	
Indirect Effect Through NA (a_2b_2)				-0.33	0.05	
Indirect Effect Through PA (a_3b_3)				-0.68	0.27	

Total Stress (a_1 coefficient) and NA (a_2 coefficient) and significantly higher levels of PA (a_3 coefficient), respectively. Participants who had higher Total Stress and NA scores, respectively, as well as lower PA scores, tended to have significantly higher EE scores (b_1, b_2, and b_3 coefficients). A bias-corrected bootstrap confidence interval for the indirect effects based on 10,000 bootstrap samples was entirely above zero for all three mediators (a_1b_1, a_2b_2, and a_3b_3). This means that there is evidence of an indirect effect, with 95% confidence, for Total Stress, NA, and PA, suggesting that those individuals with higher levels of Conscientiousness have lower levels of EE as a result of the tendency for those with higher levels of Conscientiousness to have lower Total Stress scores. Also, those individuals with higher levels of Conscientiousness have lower levels of EE as a result of the tendency for those with higher levels of Conscientiousness to have lower NA scores. In addition, those individuals with higher levels of Conscientiousness have lower levels of EE as a result of the tendency for those with higher levels of Conscientiousness to have higher PA scores.

The contrast effect of the difference between the specific indirect effect of Total Stress minus NA has a 95% confidence interval that includes zero (C = -.4454 to 1.2923), which suggests that these two indirect effects are not statistically different from each other. The contrast effect of the difference between the specific indirect effect of Total Stress minus PA has a 95% confidence interval that includes zero (C = -.4652 to 1.3775), suggesting these indirect effects are not statistically different from each other. The contrast effect of the difference between the specific indirect effect of NA minus PA has a 95% confidence interval that includes zero (C = -.7098 to .8867), and therefore this also suggests that these indirect effects are not statistically different from each other. There was no evidence that Conscientiousness directly influenced EE (c' coefficient) independent of its effect on the mediators.

Within the Conscientiousness Depersonalization multiple mediation model, participants with higher Total Stress and NA scores, respectively, had significantly higher DP scores (b_1 and b_2 coefficients). There was no significant path from PA to DP (b_3 coefficient). A bias-corrected bootstrap confidence interval for the indirect effects based on 10,000 bootstrap samples was entirely above zero for Total Stress (a_1b_1) and NA (a_2b_2) but not for PA (a_3b_3). This means that there is evidence of an indirect effect, with 95% confidence, for Total Stress and NA (but not PA), suggesting that those individuals who had higher levels of Conscientiousness have lower levels of DP as a result of the tendency for those with higher levels of Conscientiousness to have lower Total Stress scores. In addition, those individuals who had higher levels of Conscientiousness have lower levels of DP as a result of the tendency for those with higher levels of Conscientiousness to have lower NA scores. The contrast effect of the difference between the specific indirect effect of Total Stress minus NA has a 95% confidence interval that includes zero (C = -.0779 to .1284), suggesting these indirect effects are not statistically different from each other. There was no evidence that Conscientiousness directly influenced DP (c' coefficient) independent of its effect on the mediators.

In the Conscientiousness Personal Accomplishment multiple mediator model, participants with higher PA scores (b_3 coefficient) tended to have significantly higher PerA scores. There were no significant paths from Total Stress and NA (b_1 and b_2 coefficients), respectively, to PerA. A bias-corrected bootstrap confidence interval for the indirect effects based on 10,000 bootstrap samples was entirely below zero for Total Stress (a_1b_1) and PA (a_3b_3). It was not entirely above or below zero for NA (a_2b_2). This means that there is evidence of an indirect effect, with 95% confidence, for Total Stress and PA (but not NA), suggesting that those individuals who had higher levels of Conscientiousness have higher levels of PerA as a result of

Table 9. Conscientiousness Predicting EE, DP, and PerA

Path	*Coeff.*	*SE*	*p*	CIs for indirect effect		R^2
				Lower	Upper	
Model 1: Conscientiousness Predicting EE						.51
Covariate: Survey Location	0.57	2.05	.780			
Covariate: Total Length of Employment	0.15	0.31	.639			
Conscientiousness to Total Stress (a_1 path)	0.32	0.10	.002	0.12	0.51	
Conscientiousness to NA (a_2 path)	0.03	0.01	.001	0.01	0.05	
Conscientiousness to PA (a_3 path)	-2.05	0.38	.000	-2.81	-1.29	
Total Stress to EE (b_1 path)	3.29	0.53	.000	2.23	4.34	
NA to EE (b_2 path)	23.44	6.30	.000	10.98	35.89	
PA to EE (b_3 path)	-0.32	0.13	.013	-0.58	-0.07	
Total Effect Conscientiousness on EE (c path)	2.67	0.74	.000	1.21	4.13	
Direct Effect Conscientiousness on EE (c' path)	0.29	0.62	.643	-0.93	1.50	
Indirect Effect Through Total Stress (a_1b_1)				0.40	1.96	
Indirect Effect Through NA (a_2b_2)				0.23	1.42	
Indirect Effect Through PA (a_3b_3)				0.14	1.35	
Model 2: Conscientiousness Predicting DP						.33
Covariate: Survey Location	-0.23	0.26	.384			
Covariate: Total Length of Employment	0.12	0.04	.003			
Conscientiousness to Total Stress (a_1 path)	0.32	0.10	.002	0.12	0.51	
Conscientiousness to NA (a_2 path)	0.03	0.01	.001	0.01	0.05	
Conscientiousness to PA (a_3 path)	-2.05	0.38	.000	-2.81	-1.29	
Total Stress to DP (b_1 path)	0.26	0.07	.000	0.13	0.40	
NA to DP (b_2 path)	2.14	0.80	.008	0.56	3.71	
PA to DP (b_3 path)	-0.02	0.02	.140	-0.06	0.01	
Total Effect Conscientiousness on DP (c path)	0.17	0.08	.041	0.01	0.33	
Direct Effect Conscientiousness on DP (c' path)	-0.03	0.08	.711	-0.18	0.13	
Indirect Effect Through Total Stress (a_1b_1)				0.03	0.18	
Indirect Effect Through NA (a_2b_2)				0.01	0.15	
Indirect Effect Through PA (a_3b_3)				-0.01	0.13	
Model 3: Conscientiousness Predicting PerA						.30
Covariate: Survey Location	-6.38	1.40	.000			
Covariate: Total Length of Employment	-0.12	0.21	.559			
Conscientiousness to Total Stress (a_1 path)	0.32	0.10	.002	0.12	0.51	
Conscientiousness to NA (a_2 path)	0.03	0.01	.001	0.01	0.05	
Conscientiousness to PA (a_3 path)	-2.05	0.38	.000	-2.81	-1.29	
Total Stress to PerA (b_1 path)	-0.72	0.36	.052	-1.44	0.00	
NA to PerA (b_2 path)	-3.69	4.30	.392	-12.20	4.81	
PA to PerA (b_3 path)	0.46	0.09	.000	0.28	0.63	
Total Effect Conscientiousness on PerA (c path)	-0.78	0.43	.073	-1.63	0.07	
Direct Effect Conscientiousness on PerA (c'	0.48	0.42	.253	-0.35	1.32	
Indirect Effect Through Total Stress (a_1b_1)				-0.60	-0.01	
Indirect Effect Through NA (a_2b_2)				-0.45	0.12	
Indirect Effect Through PA (a_3b_3)				-1.54	-0.51	

the tendency for those with higher levels of Conscientiousness to have lower Total Stress scores. In addition, those individuals who had higher levels of Conscientiousness have higher levels of PerA as a result of the tendency for those with higher levels of Conscientiousness to have higher PA scores. The contrast effect of the difference between the specific indirect effect of Total Stress minus PA has a 95% confidence interval not including zero (C = .1979 to 1.3531), suggesting these indirect effects are statistically different from each other, with the indirect effect of PA (-.9341) being larger than Total Stress (-.2280) in an absolute sense. There was no evidence that Conscientiousness had a significant total (c coefficient) or direct effect (c' coefficient) with PerA.

CHAPTER IV

DISCUSSION

The present study used descriptive statistics, bivariate correlations, and the PROCESS macro (Hayes, 2013) to evaluate correlates of burnout among ABA tutors. Many of the participants reported moderate to high levels of burnout, with 77.3% and 25.3% reporting moderate to high levels of EE and DP, respectively. Using the percentage of participants in the burnout categorical classification system, when compared to therapists working in ABA schools or community staff supporting adults with intellectual disabilities (Gibson et al., 2009; Hensel et al., 2012), participants in the current study showed a higher percentage of individuals with high EE scores and a higher percentage of individuals with low PerA scores, and a comparable (Hensel et al., 2012) or higher (Gibson et al., 2009) percentage of individuals with high DP scores. In addition, when compared to data collected from staff working with individuals with intellectual disabilities in out-of-home community placements (Chao et al., 2011; Chung & Harding, 2009; Hensel et al., 2012; Mutkins et al., 2011), in ABA schools (Gibson et al., 2009), and in the community (Maslach et al., 1996), mean levels of burnout in the current study were as high or slightly higher (especially for the online participants) for levels of EE; as low or slightly lower (especially for the in-person participants) for levels of DP; and comparable for PerA.

The current study may have shown a higher percentage and a higher mean level of burnout for a variety of reasons. In two of the comparison studies, the researchers reported low to moderate response rates, which could have affected the generalizability of their findings and also may suggest that those with higher levels of burnout declined to participate (Gibson et al., 2009; Mutkins et al., 2011). In addition, in one comparison study some participants turned in their hard-copy surveys to their work managers, which may have contributed to disclosure fears and subsequently may have impacted their reported levels of burnout through the endorsement of lower levels of burnout (Mutkins et al., 2011). Most of the comparison studies took place in countries outside of the United States, including Ireland (Gibson et al., 2009), Canada (Hensel et al., 2012), the United Kingdom (Chung & Harding, 2009), and Australia (Mutkins et al., 2011), or were from one state within the United States (i.e., New York) (Chao et al., 2011), and therefore the results from these studies may not be generalizable to the current study given potential differences in work culture across countries and regions of the United States.

Additionally, given that Gibson and colleagues' (2009) study provided evidence for the importance of supervisor support for ABA tutors, it is possible that the current study's sample overall felt less supported by their supervisors than in previous samples. Given that previous research has shown that recipients' challenging behavior can contribute to increased levels of burnout (Chung & Harding, 2009; Hensel et al., 2012; Mills & Rose, 2011; Mitchell & Hastings, 2001; Raczka, 2005; Rose et al., 2004), the ABA tutors in the current study may have experienced higher levels of challenging behavior in working with youth with ASDs. It is also important to note that in most of the comparison studies, the samples were staff who worked with adults with intellectual

disabilities (Chung & Harding, 2009; Hensel et al., 2012; Mutkins et al., 2011), or in one study with individuals with intellectual disabilities or dementia (Chao et al., 2011) versus ABA tutors who worked with youth with ASDs as in the current study. This may have impacted the levels of reported burnout. In addition, the age of the ABA tutors in the current study was overall younger than that found in many of the comparison studies (Chao et al., 2011; Chung & Harding, 2009; Hensel et al., 2012; Mutkins et al., 2011), and given that workers under the age of 30 or 40 years old appear to be most at risk for burnout (Alacacioglu et al., 2009; Boyas et al., 2012; Garrosa et al., 2008; Maslach, 2003; Maslach et al., 2001), this could provide another rationale for why the current study's participants reported higher percentages and mean levels of burnout.

In looking at the bivariate correlation analyses, Neuroticism was found to be significantly positively correlated with Total Stress, NA, EE, and DP. It was significantly negatively correlated with PA and PerA. These correlational analyses were consistent with the hypotheses of the current study. In looking at the bivariate correlations for Extraversion, Agreeableness, and Conscientiousness, these variables were significantly negatively correlated with Total Stress, EE, and DP. Extraversion and Conscientiousness were significantly negatively correlated with NA and positively correlated with PA. Extraversion was also significantly positively correlated with PerA. Overall, these correlational analyses are consistent with the current study's hypotheses, as Extraversion, Agreeableness, and Conscientiousness were all significantly negatively correlated with EE and DP. However, only Extraversion (and not Agreeableness or Conscientiousness) was significantly positively correlated with PerA.

The PROCESS analyses, which allowed the principal investigator to test these correlations when accounting for mediation variables, revealed that the personality variables of Neuroticism and Extraversion shared an indirect effect with EE, DP, and PerA, respectively. The direct effects between Neuroticism and both EE and DP were statistically significant. The direct effect between Neuroticism and PerA was not statistically significant. The direct effects between Extraversion and these three outcome variables were not statistically significant when accounting for mediator variables included in the study.

The Agreeableness PROCESS model analyses revealed Agreeableness shared an indirect effect with EE and DP, but not PerA. Agreeableness also shared a direct effect with DP when accounting for these variables; however, direct effects between Agreeableness and the other two outcome variables were not statistically significant. Similarly, there was no evidence that Conscientiousness had a significant total or direct effect on PerA. From the PROCESS analyses concerning the personality variable of Conscientiousness, although there was evidence of indirect effects between Conscientiousness and EE and DP, respectively, direct effects between Conscientiousness and these two outcome variables were not statistically significant when accounting for mediators included in the study.

Total Stress, NA, and PA mediated the associations between a Big Five personality trait and at least one of the three burnout variables, a finding that is largely consistent with the current study's hypotheses. However, there were no significant associations between Openness to Experience and the three burnout variables. In addition, not all three mediators mediated all of the associations between the remaining

four personality traits and the burnout variables. Total Stress mediated the PROCESS models for each of the four remaining personality variables with EE and DP, respectively. NA mediated the PROCESS models for Neuroticism, Extraversion, and Conscientiousness with EE and DP, respectively. PA was a significant mediator between Extraversion and EE, as well as between Conscientiousness and EE. Only Neuroticism and Extraversion had significant mediated effects with the burnout variable of PerA, and in both cases PA was the only significant mediator. These results are largely consistent with the current study's hypotheses.

The findings of the current study are similar to those found in a meta-analysis examining the relationships between personality variables as well as affectivity and burnout across a variety of occupational settings (Alarcon et al., 2009). Within this meta-analysis, the authors found emotional stability (i.e., neuroticism's counterpart) to be negatively associated with EE and DP, as well as positively associated with PerA. Extraversion, Agreeableness, and Conscientiousness were negatively associated with EE and DP and positively associated with PerA.

The current study does, however, have some inconsistencies with the Alarcon et al. (2009) meta-analysis, as only Extraversion had a significant positive correlation with PerA, while Agreeableness and Conscientiousness did not. Within the meta-analysis, Openness to Experience was not associated with EE nor DP. This is consistent with the current study's findings. In the meta-analysis, Openness to Experience was positively associated with PerA, which is not consistent with the current study's findings. In the meta-analysis, PA was negatively associated with EE and DP, and was positively

associated with PerA. NA was positively associated with EE and DP, and was negatively associated with PerA. This is consistent with the current study's findings.

The inconsistencies between the Alarcon and colleagues (2009) meta-analysis and the current study may be due to participants in the meta-analysis being from a variety of occupational groups, whereas the current study used only one unique occupational group. It is also important to note that in the meta-analysis, some of the variables yielded stronger relationships with burnout than did others, including emotional stability (i.e., neuroticism's counterpart), PA, and NA having stronger relationships with EE and DP, respectively, than other variables. Similar results can be seen in the current study. Alarcon and colleagues (2009) reasoned that the aforementioned three variables have a strong relationship with EE because they can all be considered affective-oriented variables. This is based on the idea that affective-oriented variables will have strong relationships with other affective-oriented variables than with non-affective variables. In addition, in the meta-analysis the authors found a relatively strong relationship between Agreeableness and DP, which they reasoned was because these variables share an interpersonal focus (Alarcon et al., 2009). A similarly strong relationship was found between Agreeableness and DP in the current study. Therefore, the current study found similar findings for the stronger relationships noted in the Alarcon and colleagues (2009) meta-analysis, and the inconsistencies between the current study and the meta-analysis may be due to differences between the two samples.

The current study's results are consistent with research showing significant positive associations between Neuroticism and NA, as well as Extraversion and PA (Watson et al., 1999; Wilson & Gullone, 1999). In addition, consistent with other

research, Conscientiousness had a significant negative association with NA and a significant positive association with PA in the current study (Bowling & Eschleman, 2010; Côté et al., 2006; Naquin & Holton, 2002). Also, Openness to Experience was not significantly associated with NA, which is consistent with other research (Bruck & Allen, 2003; Naquin & Holton, 2002). However, inconsistent with other research, no significant association between Openness to Experience and PA, as well as Agreeableness and NA and PA, respectively, was found in the current study (Bowling & Eschleman, 2010; Naquin & Holton, 2002). These inconsistencies may be due to previous research studies using employees from a diverse set of occupations (Bowling & Eschleman, 2010) or employees from a nonrandom sample of individuals working for a single private-sector health insurance organization (Naquin & Holton, 2002), older participants (Bowling & Eschleman, 2010; Naquin & Holton, 2002), fewer female participants (Bowling & Eschleman, 2010; Naquin & Holton, 2002), and more ethnically/racially diverse participants (Bowling & Eschleman, 2010) than in the current study.

The current study's results are similar to other studies' findings that have found a significant association between work-related stress and burnout (Gray-Stanley & Muramatsu, 2011; Griffin et al., 2010; Montgomery & Rupp, 2005). In addition, the current study found significant associations between Neuroticism, Extraversion, Agreeableness, and Conscientiousness with Total Stress, which is similar to the results of previous studies (Burgess et al., 2010; Conard & Matthews, 2008; Rose et al., 2003). However, the Burgess and colleagues (2010) study did find a significant negative relationship between Openness to Experience and stress, which was not consistent with the current study's findings. This inconsistency with the current study's results may be

due to the Burgess and colleagues (2010) study using a convenience sample of a small number of participants from a single organization, having fewer female participants, older participants, and participants who had worked in their positions longer than the participants in the current study. In addition, the Burgess and colleagues (2010) study used a sample of critical care nurses from England, whereas the current study used a sample of ABA tutors from across the United States. Therefore, the inconsistency in findings could be due to differences in occupations and work cultures across England and the United States.

The present study offers a unique contribution to the literature in that it provides an individual and dispositional approach to the study of burnout among ABA tutors who work with youth with ASDs. In addition, it examines the relationship between personality (as conceptualized using the Big Five dimensions) and burnout using stress and affectivity as mediating variables, and no previous research has examined the use of stress and affectivity as mediating variables between personality and burnout. It also uses the PROCESS macro (Hayes, 2013), as one of the main analyses. This represents a unique method in that the PROCESS macro allows for multiple mediating variables to be computed simultaneously while controlling for any correlation between the mediators.

When comparing online versus in-person participants, in-person participants were more likely to have one or more children, were significantly older, had significantly higher Extraversion scores, and significantly higher PA scores. In contrast, the online participants had significantly higher Neuroticism scores, significantly higher Agreeableness scores, significantly higher Total Stress scores, significantly higher NA

scores, significantly higher EE scores, significantly higher DP scores, and significantly higher PerA scores.

Similar to a study that used a Big Five measure of personality, the Big Five Questionnaire-2 (BFQ-2), the current study did not find significant differences for Conscientiousness across the online and in-person groups, while it found significantly higher Agreeableness scores in the online group versus the in-person group (Vecchione et al., 2012). However, the current study contrasted with this previous study in that Extraversion (which is similar to Energy on the BFQ-2) scores were significantly higher in the in-person group; Neuroticism scores (opposite of Emotional Stability) were significantly higher in the online group; and the Openness to Experience scores were comparable across the two groups. In a different study on a college student population, the in-person participants were found to be more extraverted than those who chose to participate online (Witt et al., 2011), which is consistent with the findings in the current study.

It is difficult to interpret the online versus in-person group differences, given that the in-person data was collected from a single site. One possible explanation of the difference in burnout scores might be that the in-person facility provides a work environment where burnout and stress are lower than the national average. Another explanation may be that these differences might reflect differences in participants who elect to complete online surveys. Researchers reported that some of the differences between internet administration versus paper-and-pencil administration are: higher perception of anonymity, absence of interviewer supervision, lower social interactions with interviewers and other respondents, lower social desirability pressure, and larger

environmental variability while answering the questionnaires (Bonini Campos et al., 2011). In looking at the results of the current study, the online participants did report higher levels of Neuroticism, Total Stress, NA, EE, and DP. However, they also reported higher levels of Agreeableness and PerA as well. It is possible that they may have been more likely to report higher levels of Neuroticism, Total Stress, NA, EE, and DP due to the aforementioned reasons of higher perceptions of anonymity, absence of interviewer supervision, lower social interactions with interviewers and other respondents, and lower social desirability pressure. It is also important to note that the in-person participants were more likely to be older and more likely to have children, which may be a reason as to why the in-person group has lower reported levels of these variables. Collectively, these discrepancies across the two groups highlight the importance of accounting for data collection procedures in research studying personality differences and burnout in the workplace.

The current findings also have implications for research studying the associations between personality traits and affectivity, more specifically, the associations between Neuroticism and NA and Extraversion and PA. Some research has considered them to be independent and distinct constructs (Alarcon et al., 2009; Bruk-Lee et al., 2009; Hart & Cooper, 2002), while other research has considered these constructs to be the same (Judge, Heller et al., 2002; Tellegen, 1985). The current study provides support for Neuroticism and NA being distinct constructs, as there was a significant direct effect between Neuroticism and DP. The current study did not, however, provide support for Extraversion and PA being distinct constructs, as there were no significant direct effects between Extraversion and any of the three burnout variables. In addition, through many

of the direct and indirect effects, the current study provides evidence that stress and burnout are two separate and unique constructs. For example, the direct effect of Extraversion on EE was not significant, while the indirect effect through Total Stress was significant.

The results from the current study have a number of clinical implications as well. In addition to linking personality to burnout, previous research has shown that the Five Factors are valid predictors of job performance (Barrick & Mount, 1991; Hurtz & Donovan, 2000; Tett, Jackson, & Rothstein, 1991). Therefore, the current study's findings have important implications for hiring practices within ABA center-based programs. Given that personality factors played a significant role in burnout, which in turn can negatively impact the quality of care given to consumers, it is recommended that owners, supervisors, and human resource managers consider including a Big Five personality measure within their personnel selection process. This would provide a means for identifying potential employees with lower Neuroticism and higher Agreeableness and Conscientiousness that would decrease their risk of burnout and increase the likelihood of positive job performance (Alarcon et al., 2009; Barrick & Mount, 1991; Barrick, Mount, & Judge, 2001; Barrick & Zimmerman, 2009).

The current study also points to the important role stress and affectivity have on mediating the associations among personality and burnout. This finding suggests that owners, supervisors, and human resource managers may help to reduce burnout among ABA tutors by introducing prevention and intervention efforts to alleviate stress and improve negative affectivity. This might include cognitive restructuring, progressive muscle relaxation, meditation, mindfulness skills, skills to improve social support, and

increased supervision (Awa, Plaumann, & Walter, 2010; Morse, Salyers, Rollins, Monroe-DeVita, & Pfahler, 2012).

Limitations and Future Directions

As with any research study, the current research study has limitations. The current study utilized the trait perspective to explain the relationship between personality and affectivity. However, another perspective on the relationship between personality and affectivity, the emotion perspective, has gained support in one study (Wilson & Gullone, 1999). These two perspectives diverge on the relationship between personality and affectivity across the lifespan. In the trait perspective, one can assume that emotion is inherently related to personality given that it is a direct outcome of it. Therefore, in the trait perspective, the relationship between personality and affectivity would be of a similar magnitude across the lifespan. On the other hand, the emotion perspective would suggest that while affect is present across the lifespan, the relationship between affectivity and personality will become stronger over time as the individual develops a more stable personality (Wilson & Gullone, 1999).

In a recent study, the researchers compared the pattern and strength of the relationship between personality and affectivity in three different age groups: children and early adolescents (ages 8 to 15), late adolescents and young adults (ages 16-29), and adults (ages 30 and over). The results of this study suggest that in late adolescence and young adulthood, the relationship between personality and affectivity becomes significantly stronger and possibly more bi-directional before leveling off in adulthood. Therefore, because the current study only used a select age range of participants (i.e.,

young adults and adults) and did not use children or early adolescents, the trait perspective versus the emotion perspective could be a viable theory for the current study given the greater stability of personality within the current study's age group. However, given the cross-sectional nature of this study, as well as the fact that there has not been much research in general on this topic, the findings of the current study cannot provide direct or conclusive support for the trait or the emotion perspective (Wilson & Gullone, 1999).

Because of the cross-sectional nature of this study, it is also possible that there are other explanations for the associations among variables. For example, significant correlations and path coefficients between Total Stress and EE and DP, respectively, does not necessarily mean that Total Stress causes burnout. In addition, there could be other variables that predict or influence personality, affectivity, and stress. Future research should use a longitudinal design versus a cross-sectional one in order to provide stronger evidence for causal inferences regarding mediation.

Another limitation of the current study involves inadequate sample size to allow for the examination of the burnout variables simultaneously, within the same model. Future studies should collect larger data sets. Although a number of causal models have been proposed to explain the interplay between the three dimensions of burnout (see Golembiewski, Munzenrider, & Stevenson,1986; Lee & Ashforth, 1993; Leiter & Maslach, 1988), recent research conducted by Taris and colleagues (2005) suggests that higher levels of EE lead to higher levels of DP. In addition, higher levels of DP were found to be associated with EE and PerA over time, which emphasizes the reciprocal interactions among these responses (Taris, Le Blanc, Schaufeli, & Schreurs, 2005). The

current study design does not allow examination of these reciprocal interactions among the three burnout dimensions.

Because it was not central to the aims of the current research study, outside of bivariate correlations, the current study did not examine the direct relationship between stress and affectivity. Previous research has shown at least five theoretically viable models, which have been proposed and tested, relating NA to the stressor → strain relationship. These models include the following: (1) the regression model, that states that NA and stressors will have an independent, direct relationship with strains; (2) the common cause model, that posits that NA underlies responses to stressors and strains, which creates spurious or inflated correlations between the latter two; (3) the full mediation model, that states that NA is associated with perceptions of and exposures to stressors, which in turn are related to strains; (4) the partial mediation model, which posits that NA has both a direct relationship with strains and a mediated effect through perceived stressors; and (5) the exacerbation model, in which NA moderates the relationship between stressors and strains (Barsky, Thoresen, Warren, & Kaplan, 2004). As one can see, there are many possible relationships between NA and stress, leaving many avenues for future research.

Previous research has found that PA interacts with stress and moderates its negative impact on health, such that the impact of stress on health is reduced when an individual has high PA (Davis, Nolen-Hoeksema, & Larson, 1998; Faulk, Gloria, Cance, & Steinhardt, 2012; Ong, Bergeman, Bisconti, & Wallace, 2006). In a study that examined adaptation to work stress among public school teachers, PA was found to completely mediate the relationship between work stress and resilience, suggesting that

teachers' resilience is not directly determined by work stress but indirectly through PA (Gloria, Faulk, & Steinhardt, 2013). This demonstrates that previous research has shown a relationship between PA and stress. The findings from this previous research are similar to the current study's findings in that the current study found evidence that PA helps to lower burnout.

In future research, it may be beneficial to collect an adequate sample size for structural equation modeling or other similar techniques that are able to examine the concurrent associations between mediator variables, as well as the reciprocal associations between EE, DP, and PerA within a single model. Another potential technique would be to use the Serial Multiple Mediator Model discussed in Hayes (2013). In this model, the goal is to investigate the direct and indirect effects of the antecedent variable on the consequent variable while modeling a process in which the antecedent variable causes the first mediator, which in turn causes the second mediator, and so on, ending with the consequent variable.

Additionally, future research should seek to obtain in-person surveys from multiple regions throughout the United States. While the current study received online surveys from individuals across the United States, it only conducted in-person surveys at one autism center location in the Midwest. Therefore, this may limit the generalizability of the in-person survey results. Future research should also seek to include both individual/dispositional and situational (i.e., occupational/organizational) or interactive (i.e., combining both individual/dispositional and situational factors) perspectives within one research study on a similar sample of participants. Some future occupational or organizational factors that may be helpful to include are: role conflict, role ambiguity, job

strain, workload/work overload, lack of performance feedback, social and organizational support, organizational commitment, and supervisory support. One study has already provided evidence that high levels of perceived supervisor support are associated with low levels of EE and DP and high levels of PerA, as well as perceived therapeutic self-efficacy in ABA tutors. In addition, the study provided evidence that supervisor support seems to protect tutors from reduced PerA when they were faced with high levels of perceived work demands (Gibson et al., 2009). Given that this study only focused on perceived supervisor support, future research should explore different supervision models and the impact that they have on burnout.

Another limitation of the current study is that only self-report data was used. Additional, more objective data should be gathered in future research, such as cognitive ability, job performance, peer ratings of personality, absenteeism, and turnover. In previous research, the criterion-related validity of cognitive ability for job performance has been found to be .51, which justifies its use for personnel hiring and selection purposes (Schmidt & Hunter, 1998). Furthermore, combining interviews with cognitive ability has been shown to explain an additional 10% of variance in job performance (Roth & Campion, 1992). Also, previous research has found an association between job performance and burnout. More specifically, a review of 16 studies found significant correlations between the burnout variable of EE and the objective performance measures of in-role behavior, organizational citizenship behavior, and customer satisfaction. The evidence for the relationships between DP and PerA with performance was found to be inconclusive (Taris, 2006). Additionally, peer ratings of personality have been found to have higher criterion-related validity than self-ratings (Bratko, Chamorro-Premuzic, &

Saks, 2006; Morgeson et al., 2007; Ones, Dilchert, Viswesvaran, & Judge, 2007). Finally, previous research has found that individuals experiencing burnout have an increased rate of absenteeism (Maslach et al., 1996) and turnover (Maslach et al., 1996).

Based on the current research findings, future research should explore burnout prevention and intervention for ABA tutors. Previous research has found that burnout intervention strategies fall into three broad categories: person-directed interventions, organization-directed interventions, or a combination of both person- and organization-directed interventions (Awa et al., 2010). The person-directed interventions within the literature generally fall into the broad category of cognitive-behavioral interventions, which include providing educational information, cognitive restructuring, progressive muscle relaxation, social skills training, communication skills training, and skills to improve social support. In addition to these methods, an emerging set of strategies, which falls within the category of "third generation cognitive-behavioral" interventions, involves the teaching of meditation and mindfulness skills. Organization-directed intervention studies are very few in number (Morse et al., 2012). These intervention strategies usually consist of changes in work procedures, such as task restructuring, work evaluation, and supervision that aim to decrease job demands and increase job control or the level of participation each employee has in decision-making. A combination of person- and organization-directed interventions combines the elements of the aforementioned intervention strategies (Awa et al., 2010).

There is some research to suggest that a combined approach that contains organizational and personal elements, as well as those targeting the relationship between the organization and the employee may work best (Awa et al., 2010; Vlădut & Kállay,

2010). Also, there is some research to suggest that an intervention approach should be multidirectional (i.e., target both burnout and job-engagement) in nature (Vlădut & Kállay, 2010). In addition to the empirical literature on burnout prevention and intervention, many practical strategies for decreasing burnout have been mentioned within the literature and include the following: (1) competitive salaries; (2) financial and non-financial incentives to improve staff motivation and morale; (3) opportunities for promotion and career advancement; (4) funding for increased staffing levels; (5) training staff on self-care strategies; (6) additional clinical supervision and mentoring; (7) clear job descriptions and expectations; (8) regular assessment of burnout; (9) flexible work schedules; (10) social events and informal supports; (11) in service training; and (12) open-door policies with management (Paris & Hoge, 2010).

In summary, the current study's findings support significant associations between personality and burnout. The current study also supports the important role of stress and affectivity as mediators between personality and burnout. Given the importance of employee burnout, it is recommended that individual/dispositional factors, such as personality, affectivity, and stress be included in future research on burnout. In addition, it would be helpful to explore situational factors as well in future research.

REFERENCES

Achat, H., Kawachi, I., Levine, S., Berkey, C., Coakley, E., & Colditz, G. (1998). Social networks, stress and health-related quality of life. *Quality of Life Research: An International Journal of Quality of Life Aspects of Treatment, Care & Rehabilitation, 7*(8), 735-750. doi:10.1023/A:1008837002431

Acker, G. M. (2012). Burnout among mental health care providers. *Journal Of Social Work, 12*(5), 475-490. doi:10.1177/1468017310392418

Ahola, K., Honkonen, T., Isometsä, E., Kalimo, R., Nykyri, E., Koskinen, S., & ... Lönnqvist, J. (2006). Burnout in the general population: Results from the Finnish Health 2000 Study. *Social Psychiatry And Psychiatric Epidemiology, 41*(1), 11-17. doi:10.1007/s00127-005-0011-5

Alacacioglu, A., Yavuzsen, T., Dirioz, M., Oztop, I., & Yilmaz, U. (2009). Burnout in nurses and physicians working at an oncology department. *Psycho-Oncology, 18*(5), 543-548. doi:10.1002/pon.1432

Alarcon, G., Eschleman, K.J., & Bowling, N.A. (2009). Relationships between personality variables and burnout: A meta-analysis. *Work & Stress, 23*(3), 244-263. doi: 10.1080/02678370903282600

Awa, W. L., Plaumann, M., & Walter, U. (2010). Burnout prevention: A review of intervention programs. *Patient Education And Counseling, 78*(2), 184-190. doi:10.1016/j.pec.2009.04.008

Bakker, A.B., Van Der Zee, K.I., Lewig, K.A., & Dollard, M.F. (2006). The relationship between the big five personality factors and burnout: A study among volunteer counselors. *The Journal of Social Psychology*, *146(1)*, 31-50. doi: 10.3200/SOCP.146.1.31-50

Balogun, J. A., Titiloye, V., Balogun, A., Oyeyemi, A., & Katz, J. (2002). Prevalence and determinants of burnout among physical and occupational therapists. *Journal Of Allied Health*, *31*(3), 131-139.

Barford, S.W., & Whelton, W.J. (2010). Understanding burnout in child and youth care workers. *Child & Youth Care Forum*, *39*(4), 271-287. doi: 10.1007/s10566-010-9104-8

Barrick, M. R., & Mount, M. K. (1991). The Big Five personality dimensions and job performance: A meta-analysis. *Personnel Psychology*, *44*(1), 1-26. doi:10.1111/j.1744-6570.1991.tb00688.x

Barrick, M. R., Mount, M. K., & Judge, T. A. (2001). Personality and performance at the beginning of the new millennium: What do we know and where do we go next?. *International Journal Of Selection And Assessment*, *9*(1-2), 9-30. doi:10.1111/1468-2389.00160

Barrick, M. R., & Zimmerman, R. D. (2009). Hiring for retention and performance. *Human Resource Management*, *48*(2), 183-206. doi:10.1002/hrm.20275

Barsky, A., Thoresen, C. J., Warren, C. R., & Kaplan, S. A. (2004). Modeling negative affectivity and job stress: A contingency-based approach. *Journal of Organizational Behavior, 25*(8), 915-936. doi:10.1002/job.285

Bekker, M. J., Croon, M. A., & Bressers, B. (2005). Childcare involvement, job characteristics, gender and work attitudes as predictors of emotional exhaustion and sickness absence. *Work & Stress, 19*(3), 221-237. doi:10.1080/02678370500286095

Berry, D. S., & Hansen, J. (1996). Positive affect, negative affect, and social interaction. *Journal Of Personality And Social Psychology, 71*(4), 796-809. doi:10.1037/0022-3514.71.4.796

Bersani, H. A., & Heifetz, L. J. (1985). Perceived stress and satisfaction of direct-care staff members in community residences for mentally retarded adults. *American Journal of Mental Deficiency, 90*(3), 289-295.

Beagrie, S. (2005). How to...excel at psychometric assessments. *Personnel Today*, 25.

Bonini Campos, J., Zucoloto, M., Sampaio Bonafé, F., Jordani, P., & Maroco, J. (2011). Reliability and validity of self-reported burnout in college students: A cross randomized comparison of paper-and-pencil vs. online administration. *Computers In Human Behavior, 27*(5), 1875-1883. doi:10.1016/j.chb.2011.04.011

Bowling, N. A., & Eschleman, K. J. (2010). Employee personality as a moderator of the relationships between work stressors and counterproductive work behavior. *Journal Of Occupational Health Psychology, 15*(1), 91-103. doi:10.1037/a0017326

Boyas, J., Wind, L. H., & Kang, S. (2012). Exploring the relationship between employment-based social capital, job stress, burnout, and intent to leave among child protection workers: An age-based path analysis model. *Children And Youth Services Review, 34*(1), 50-62. doi:10.1016/j.childyouth.2011.08.033

Bratko, D., Chamorro-Premuzic, T., & Saks, Z. (2006). Personality and school performance: Incremental validity of self- and peer-ratings over intelligence. *Personality And Individual Differences*, *41*(1), 131-142. doi:10.1016/j.paid.2005.12.015

Bruck, C. S., & Allen, T. D. (2003). The relationship between big five personality traits, negative affectivity, type A behavior, and work-family conflict. *Journal Of Vocational Behavior*, *63*(3), 457-472. doi:10.1016/S0001-8791(02)00040-4

Bruk-Lee, V., Khoury, H. A., Nixon, A. E., Goh, A., & Spector, P. E. (2009). Replicating and extending past personality/job satisfaction meta-analyses. *Human Performance*, *22*(2), 156-189. doi:10.1080/08959280902743709

Buhler, K.E., & Land, T. (2003). Burnout and personality in intensive care: An empirical study. *Hospital Topics: Research and Perspectives on Health Care*, *81*, 5-12.

Burgess, L., Irvine, F., & Wallymahmed, A. (2010). Personality, stress and coping in intensive care nurses: A descriptive exploratory study. *Nursing in Critical Care, 15*(3), 129-140. doi:10.1111/j.1478-5153.2009.00384.x

Caton, D. J., Grossnickle, W. F., Cope, J. G., Long, T. E., & Mitchell, C. C. (1988). Burnout and stress among employees at a state institution for mentally retarded persons. *American Journal On Mental Retardation*, *93*(3), 300-304.

Chang, E. C., Rand, K. L., & Strunk, D. R. (2000). Optimism and risk for job burnout among working college students: Stress as a mediator. *Personality And Individual Differences*, *29*(2), 255-263. doi:10.1016/S0191-8869(99)00191-9

Chao, S. F., McCallion, P. P., & Nickle, T. T. (2011). Factorial validity and consistency of the Maslach Burnout Inventory among staff working with persons with intellectual disability and dementia. *Journal Of Intellectual Disability Research*, *55*(5), 529-536. doi:10.1111/j.1365-2788.2011.01413.x

Cheng, Y., Kawachi, I., Coakley, E.H., Schwartz, J., & Colditz, G. (2000). Association between psychosocial work characteristics and health functioning in American women: Prospective study. *British Medical Journal*, *320*(7247), 1432-1436.

Chung, M.C., & Harding, C. (2009). Investigating burnout and psychological well-being of staff working with people with intellectual disabilities and challenging behaviour: The role of personality. *Journal of Applied Research in Intellectual Disabilities*, *22*(6), 549-560. doi: 10.1111/j.1468-3148.2009.00507.x

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Conard, M. A., & Matthews, R. A. (2008). Modeling the stress process: Personality eclipses dysfunctional cognitions and workload in predicting stress. *Personality And Individual Differences*, *44*(1), 171-181. doi:10.1016/j.paid.2007.07.023

Costa, P.T., Jr., & McCrae, R.R. (1992). *Revised NEO Personality Inventory (NEO PI-R™) and NEO Five-Factor Inventory (NEO-FFI) professional manual*. Odessa, FL: Psychological Assessment Resources.

Costa, P.T., McCrae, R.R., & Dye, D.A. (1991). Facet scales for agreeableness and conscientiousness: A revision of the NEO Personality Inventory. *Personality and Individual Differences*, *12*(9), 887-898. doi: 10.1016/0191-8869(91)90177-D

Côté, S., Saks, A. M., & Zikic, J. (2006). Trait affect and job search outcomes. *Journal Of Vocational Behavior*, *68*(2), 233-252. doi:10.1016/j.jvb.2005.08.001

Cox, T., Kuk, G., & Leiter, M. P. (1993). Burnout, health, work stress, and organizational healthiness. In W. B. Schaufeli, C. Maslach, T. Marek (Eds.), *Professional burnout: Recent developments in theory and research* (pp. 177-193). Philadelphia, PA US: Taylor & Francis.

Davis, C. G., Nolen-Hoeksema, S., & Larson, J. (1998). Making sense of loss and benefiting from the experience: Two construals of meaning. *Journal Of Personality And Social Psychology*, *75*(2), 561-574. doi:10.1037/0022-3514.75.2.561

Deary, I. J., Blenkin, H., Agius, R. M., Endler, N. S., Zealley, H., & Wood, R. (1996). Models of job-related stress and personal achievement among consultant doctors. *British Journal Of Psychology*, *87*(1), 3-29. doi:10.1111/j.2044-8295.1996.tb02574.x

Demir, A. A., Ulusoy, M. M., & Ulusoy, M. F. (2003). Investigation of factors influencing burnout levels in the professional and private lives of nurses. *International Journal Of Nursing Studies*, *40*(8), 807-827. doi:10.1016/S0020-7489(03)00077-4

Dyer, S., & Quine, L. (1998). Predictors of job satisfaction and burnout among the direct care staff of a community learning disability service. *Journal Of Applied Research In Intellectual Disabilities*, *11*(4), 320-332. doi:10.1111/j.1468-3148.1998.tb00040.x

Erickson, P.B. (2004, May 16). Employer hiring tests grow sophisticated in quest for insight about applicants. *Knight Ridder Tribune Business News*, 1.

Faulk, K.E., Gloria, C.T., Cance, J.D., & Steinhardt, M.A. (2012). Depressive symptoms among U.S. military spouses during deployment: The protective effect of positive emotions. *Armed Forces & Society*, *38*(3), 373-390. DOI: 10.1177/0095327X11428785.

Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). Thousand Oaks, CA: SAGE Publications Inc.

Fontana, D., & Abouserie, R. (1993). Stress levels, gender and personality factors in teachers. *British Journal of Educational Psychology, 63*(2), 261-270.

Gandoy-Crego, M., Clemente, M., Mayán-Santos, J.M., & Espinosa, P. (2009). Personal determinants of burnout in nursing staff at geriatric centers. *Archives of Gerontology and Geriatrics*, *48*(2), 246-249. doi: 10.1016/j.archger.2008.01.016

Garner, B. R., Knight, K., & Simpson, D. (2007). Burnout among corrections-based drug treatment staff: Impact of individual and organizational factors. *International Journal Of Offender Therapy And Comparative Criminology*, *51*(5), 510-522. doi:10.1177/0306624X06298708

Garrosa, E., Moreno-Jiménez, B., Liang, Y., & González, J. L. (2008). The relationship between socio-demographic variables, job stressors, burnout, and hardy personality in nurses: An exploratory study. *International Journal of Nursing Studies, 45*(3), 418-427. doi:10.1016/j.ijnurstu.2006.09.003

Ghorpade, J., Lackritz, J., & Singh, G. (2007). Burnout and personality: Evidence from academia. *Journal of Career Assessment*, *15*(2), 240-256. doi: 10.1177/1069072706298156

Ghorpade, J., Lackritz, J., & Singh, G. (2011). Personality as a moderator of the relationship between role conflict, role ambiguity, and burnout. *Journal Of Applied Social Psychology*, *41*(6), 1275-1298. doi:10.1111/j.1559-1816.2011.00763.x

Gibson, J. A., Grey, I. M., & Hastings, R. P. (2009). Supervisor support as a predictor of burnout and therapeutic self-efficacy in therapists working in ABA schools. *Journal Of Autism And Developmental Disorders*, *39*(7), 1024-1030. doi:10.1007/s10803-009-0709-4

Gloria, C. T., Faulk, K. E., & Steinhardt, M. A. (2013). Positive affectivity predicts successful and unsuccessful adaptation to stress. *Motivation And Emotion*, *37*(1), 185-193. doi:10.1007/s11031-012-9291-8

Golembiewski, R.T., Munzenrider, R.F., & Stevenson, J.G. (1986). *Phases of burnout: Developments in concepts and applications*. New York: Praeger.

Gonge, H., Jensen, L. D., & Bonde, J. P. (2002). Are psychosocial factors associated with low-back pain among nursing personnel? *Work & Stress, 16*(1), 79-87. doi:10.1080/02678370110111985

Graham, J.W. (2012). *Missing data: Analysis and design*. New York: Springer.

Gray-Stanley, J., & Muramatsu, N. (2011). Work stress, burnout, and social and personal resources among direct care workers. *Research in Developmental Disabilities, 32*(3), 1065-1074. doi:10.1016/j.ridd.2011.01.025

Griffin, M. L., Hogan, N. L., Lambert, E. G., Tucker-Gail, K. A., & Baker, D. N. (2010). Job involvement, job stress, job satisfaction, and organizational commitment and the burnout of correctional staff. *Criminal Justice And Behavior*, *37*(2), 239-255. doi:10.1177/0093854809351682

Hakanen, J. J., Schaufeli, W. B., & Ahola, K. (2008). The Job Demands-Resources model: A three-year cross-lagged study of burnout, depression, commitment, and work engagement. *Work & Stress*, *22*(3), 224-241. doi:10.1080/02678370802379432

Hart, P.M., & Cooper, C.L. (2002). Occupational stress: Toward a more integrated framework. In N. Anderson, D.S. Ones, H. Sinangil, C. Viswesvaran (Eds.), *Handbook of industrial, work and organizational psychology, Volume 2: Organizational psychology* (pp. 93-114). Thousand Oaks, CA US: Sage Publications, Inc.

Hastings, R. P. (2002). Do challenging behaviors affect staff psychological well-being? Issues of causality and mechanism. *American Journal On Mental Retardation*, *107*(6), 455-467. doi:10.1352/0895-8017(2002)107<0455:DCBASP>2.0.CO;2

Hastings, R. P., Horne, S., & Mitchell, G. (2004). Burnout in direct care staff in intellectual disability services: A factor analytic study of the Maslach Burnout Inventory. *Journal of Intellectual Disability Research, 48*(3), 268-273. doi:10.1111/j.1365-2788.2003.00523.x

Hatton, C., Brown, R., Caine, A., & Emerson, E. (1995). Stressors, coping strategies and stress-related outcomes among direct care staff in staffed houses for people with learning disabilities. *Mental Handicap Research, 8*(4), 252-271. doi:10.1111/j.1468-3148.1995.tb00161.x

Hatton, C., Emerson, E., Rivers, M., Mason, H., Mason, L., Swarbrick, R., & . . . Alborz, A. (1999). Factors associated with staff stress and work satisfaction in services for people with intellectual disability. *Journal of Intellectual Disability Research, 43*(4), 253-267. doi: 10.1046/j.1365-2788.1999.00208.x

Hatton, C., Rivers, M., Mason, H., Mason, L., Kiernan, C., Emerson, E., & . . . Reeves, D. (1999). Staff stressors and staff outcomes in services for adults with intellectual disabilities: The Staff Stressor Questionnaire. *Research in Developmental Disabilities*, 20(4), 269-285. doi: 10.1016/S0891-4222(99)00009-8

Hayes, A.F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the new millennium. *Communication Monographs, 76*(4), 408-420. doi: 10.1080/03637750903310360

Hayes, A.F. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York, NY: The Guilford Press.

Heller, M. (2005). Court ruling that employer's integrity test violated ADA could open door to litigation. *Workforce Management, 84*(9), 74-77.

Hensel, J. M., Lunsky, Y. Y., & Dewa, C. S. (2012). Exposure to client aggression and burnout among community staff who support adults with intellectual disabilities in Ontario, Canada. *Journal Of Intellectual Disability Research*, *56*(9), 910-915. doi:10.1111/j.1365-2788.2011.01493.x

Hochwälder, J. (2006). An empirical exploration of the effect of personality on general and job-related mental ill health. *Social Behavior and Personality*, *34*(9), 1051-1070. doi: 10.2224/sbp.2006.34.9.1051

Hochwarter, W. A., Zellars, K. L., Perrewé, P. L., & Harrison, A. W. (1999). The interactive role of negative affectivity and job characteristics: Are high-NA employees destined to be unhappy at work? *Journal of Applied Social Psychology, 29*(10), 2203-2218. doi:10.1111/j.1559-1816.1999.tb02302.x

Houkes, I., Janssen, P. P. M., de Jonge, J., & Nijhuis, F. J. N. (2001). Work and individual determinants of intrinsic work motivation, emotional exhaustion, and turnover intention: A multi-sample analysis. *International Journal of Stress Management, 8*(4), 257-283. doi:10.1023/A:1017561531748

Houkes, I., Janssen, P. P. M., Jonge, J., & Bakker, A. B. (2003). Specific determinants of intrinsic work motivation, emotional exhaustion and turnover intention: A multisample longitudinal study. *Journal of Occupational and Organizational Psychology, 76*(4), 427-450. doi:10.1348/096317903322591578

Hudek-Knežević, J., Krapić, N., & Kardum, I. (2006). Burnout in dispositional context: The role of personality traits, social support and coping style. *Review Of Psychology*, *13*(2), 65-73.

Hurtz, G. M., & Donovan, J. J. (2000). Personality and job performance: The Big Five revisited. *Journal Of Applied Psychology*, *85*(6), 869-879. doi:10.1037/0021-9010.85.6.869

IBM Corporation. (2011). IBM SPSS Missing Values 20.

Jenkins, R. R., Rose, J. J., & Lovell, C. C. (1997). Psychological well-being of staff working with people who have challenging behaviour. *Journal Of Intellectual Disability Research*, *41*(6), 502-511. doi:10.1111/j.1365-2788.1997.tb00743.x

Jiang, J., Yan, X., & Shuyue, Z. (2004). Job burnout of psychological counselors. *Chinese Mental Health Journal*, *18*(12), 854-856.

Judge, T. A., Heller, D., & Mount, M. K. (2002). Five-factor model of personality and job satisfaction: A meta-analysis. *Journal Of Applied Psychology*, *87*(3), 530-541. doi:10.1037/0021-9010.87.3.530

Judge, T. A., Parker, S. K., Colbert, A. E., Heller, D., & Ilies, R. (2002). Job satisfaction: A cross-cultural review. In N. Anderson, D. S. Ones, H. Sinangil, C. Viswesvaran (Eds.) , *Handbook of industrial, work and organizational psychology, Volume 2: Organizational psychology* (pp. 25-52). Thousand Oaks, CA US: Sage Publications, Inc.

Judge, T.A., Thoresen, C.J., Pucik, V., Welbourne, T.M. (1999). Managerial coping with organizational change: A dispositional perspective. *Journal of Applied Psychology*, *84*(1), 107-122. doi: 10.1037/0021-9010.84.1.107

Kahn, J. H., Schneider, K. T., Jenkins-Henkelman, T., & Moyle, L. L. (2006). Emotional social support and job burnout among high-school teachers: Is it all due to dispositional affectivity? *Journal of Organizational Behavior, 27*(6), 793-807. doi:10.1002/job.397

Kelley, B. C., Eklund, R. C., & Ritter-Taylor, M. (1999). Stress and burnout among collegiate tennis coaches. *Journal Of Sport & Exercise Psychology*, *21*(2), 113-130.

Kokkinos, C.M. (2007). Job stressors, personality and burnout in primary school teachers. *British Journal of Educational Psychology*, *77*(1), 229-243. doi: 10.1348/000709905X90344

Langelaan, S., Bakker, A.B., van Doornen, L.J.P., & Schaufeli, W.B. (2006). Burnout and work engagement: Do individual differences make a difference? *Personality and Individual Differences*, *40*(3), 521-532. doi: 10.1016/j.paid.2005.07.009

Lazarus, R.S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.

Lee, R.T., & Ashforth, B.E. (1993). A longitudinal study of burnout among supervisors and managers: Comparisons between the Leiter and Maslach (1988) and Golembiewski et al. (1986) models. *Organizational Behavior and Human Decision Processes*, *54*, 369-398. doi: 10.1006/obhd.1993.1016

Leiter, M.P., & Maslach, C. (1988). The impact of interpersonal environment on burnout and organizational commitment. *Journal of Organizational Behavior*, *9*(4), 297-308. doi: 10.1002/job.4030090402

Lent, J., & Schwartz, R. C. (2012). The impact of work setting, demographic characteristics, and personality factors related to burnout among professional counselors. *Journal Of Mental Health Counseling*, *34*(4), 355-372.

Lizano, E., & Mor Barak, M. E. (2012). Workplace demands and resources as antecedents of job burnout among public child welfare workers: A longitudinal study. *Children And Youth Services Review*, *34*(9), 1769-1776. doi:10.1016/j.childyouth.2012.02.006

Marshall, M.B., De Fruyt, F., Rolland, J-P, & Bagby, R.M., (2005). Socially desirable responding and the factorial stability of the NEO PI-R. *Psychological Assessment*, *17*(3), 379-384. doi: 10.1037/1040-3590.17.3.379

Maslach, C. (1982). *Burnout: The cost of caring*. Englewood Cliffs, NJ: Prentice-Hall.

Maslach, C. (2003). *Burnout: Cost of caring*. Cambridge: Malor Books.

Maslach, C., & Jackson, S.E. (1981). The measurement of experience burnout. *Journal of Occupational and Behavioral Science*, *2*, 99-113.

Maslach, C., & Jackson, S.E. (1984). Burnout in organizational settings. *Applied Social Psychology Annual*, *5*, 133-153.

Maslach, C. & Jackson, S. E. (1986). *Manual Maslach Burnout Inventory,* 2nd ed. Palo Alto, CA: Consulting Psychologists Press.

Maslach, C., Jackson, S.E., & Leiter, M.P. (1996). *Maslach Burnout Inventory Manual*, 3rd ed. Menlo Park, CA: Mind Garden.

Maslach, C., Schaufeli, W.B., & Leiter, M.P. (2001). Job burnout. *Annual Review of Psychology*, *52*, 397-422. doi: 10.1146/annurev.psych.52.1.397

Maudgalya, T., Wallace, S., Daraiseh, N., & Salem, S. (2006). Workplace stress factors and 'burnout' among information technology professionals: A systematic review. *Theoretical Issues In Ergonomics Science*, *7*(3), 285-297. doi:10.1080/14639220500090638

McCrae, R.R., & Costa, P.T. (1986). Personality, coping, and coping effectiveness in an adult sample. *Journal of Personality*, *54*(2), 385-405. doi: 10.1111/j.1467-6494.1986.tb00401.x

McCrae, R. R., & Costa, P. T. (1991). Adding Liebe und Arbeit: The full five-factor model and well-being. *Personality And Social Psychology Bulletin*, *17*(2), 227-232. doi:10.1177/0146167291017002l7

McCrae, R.R., & Costa, P.T. Jr. (2010). *NEO inventories for the NEO Personality Inventory-3 (NEO-PI-3), NEO Five Factor Inventory-3 (NEO-FFI-3), NEO Personality Inventory-Revised (NEO PI-R): Professional manual*. Lutz, FL: PAR, Inc.

McMurray, J.E., Linzer, M., Konrad, T.R., Douglas, J., Shugerman, R., & Nelson, K. for The SGIM Career Satisfaction Study Group. (2000). The work lives of women physicians : Results from the Physician Work Life Study. *Journal of General Internal Medicine, 15(6)*, 372-380. doi: 10.1111/j.1525-1497.2000.im9908009.x

Melamed, S., Shirom, A., Toker, S., Berliner, S., & Shapira, I. (2006). Burnout and risk of cardiovascular disease: Evidence, possible causal paths, and promising research directions. *Psychological Bulletin*, *132*(3), 327-353. doi:10.1037/0033-2909.132.3.327

Melamed, S., Shirom, A., Toker, S., & Shapira, I. (2006). Burnout and risk of Type 2 Diabetes: A prospective study of apparently healthy employed persons. *Psychosomatic Medicine*, *68*(6), 863-869. doi:10.1097/01.psy.0000242860.24009.f0

Meyer, G. J., & Shack, J. R. (1989). Structural convergence of mood and personality: Evidence for old and new directions. *Journal Of Personality And Social Psychology*, *57*(4), 691-706. doi:10.1037/0022-3514.57.4.691

Mills, L. B., & Huebner, E. (1998). A prospective study of personality characteristics, occupational stressors, and burnout among school psychology practitioners. *Journal Of School Psychology*, *36*(1), 103-120. doi:10.1016/S0022-4405(97)00053-8

Mills, S. S., & Rose, J. J. (2011). The relationship between challenging behaviour, burnout and cognitive variables in staff working with people who have intellectual disabilities. *Journal Of Intellectual Disability Research*, *55*(9), 844-857. doi:10.1111/j.1365-2788.2011.01438.x

Mitchell, G., & Hastings, R. P. (2001). Coping, burnout, and emotion in staff working in community services for people with challenging behaviors. *American Journal On Mental Retardation*, *106*(5), 448-459. doi:10.1352/0895-8017(2001)106<0448:CBAEIS>2.0.CO;2

Molnar, D. S., Reker, D. L., Culp, N. A., Sadava, S. W., & DeCourville, N. H. (2006). A mediated model of perfectionism, affect, and physical health. *Journal Of Research In-personality*, *40*(5), 482-500. doi:10.1016/j.jrp.2005.04.002

Montgomery, C., & Rupp, A. A. (2005). A meta-analysis for exploring the diverse causes and effects of stress in teachers. *Canadian Journal of Education, 28*(3), 458-486. doi:10.2307/4126479

Morgeson, F. P., Campion, M. A., Dipboye, R. L., Hollenbeck, J. R., Murphy, K., & Schmitt, N. (2007). Reconsidering the use of personality tests in personnel selection contexts. *Personnel Psychology, 60*(3), 683-729. doi:10.1111/j.1744-6570.2007.00089.x

Morse, G., Salyers, M. P., Rollins, A. L., Monroe-DeVita, M., & Pfahler, C. (2012). Burnout in mental health services: A review of the problem and its remediation. *Administration And Policy In Mental Health And Mental Health Services Research, 39*(5), 341-352. doi:10.1007/s10488-011-0352-1

Mutkins, E. E., Brown, R. F., & Thorsteinsson, E. B. (2011). Stress, depression, workplace and social supports and burnout in intellectual disability support staff. *Journal Of Intellectual Disability Research, 55*(5), 500-510. doi:10.1111/j.1365-2788.2011.01406.x

Naquin, S. S., & Holton, E. (2002). The effects of personality, affectivity, and work commitment on motivation to improve work through learning. *Human Resource Development Quarterly, 13*(4), 357-376. doi:10.1002/hrdq.1038

Noone, S. J., & Hastings, R. P. (2009). Building psychological resilience in support staff caring for people with intellectual disabilities: Pilot evaluation of an acceptance-based intervention. *Journal Of Intellectual Disabilities, 13*(1), 43-53. doi:10.1177/1744629509103519

Nunnally, J.C. (1978). *Psychometric theory* (2nd ed.). New York: McGraw-Hill.

Ogińska-Bulik, N. (2006). Occupational stress and its consequences in healthcare professionals: The role of Type D personality. *International Journal Of Occupational Medicine And Environmental Health*, *19*(2), 113-122. doi:10.2478/v10001-006-0016-7

Ones, D. S., Dilchert, S., Viswesvaran, C., & Judge, T. A. (2007). In support of personality assessment in organizational settings. *Personnel Psychology*, *60*(4), 995-1027. doi:10.1111/j.1744-6570.2007.00099.x

Ong, A. D., Bergeman, C. S., Bisconti, T. L., & Wallace, K. A. (2006). Psychological resilience, positive emotions, and successful adaptation to stress in later life. *Journal Of Personality And Social Psychology*, *91*(4), 730-749. doi:10.1037/0022-3514.91.4.730

Paris, M.R., & Hoge, M.A. (2010). Burnout in the mental health workforce: A review. *The Journal Of Behavioral Health Services & Research*, *37*(4), 519-528. doi:10.1007/s11414-009-9202-2

Pines, A., & Keinan, G. (2005). Stress and burnout: The significant difference. *Personality And Individual Differences*, *39*(3), 625-635. doi:10.1016/j.paid.2005.02.009

Pithers, R. T., & Fogarty, G. J. (1995). Occupational stress among vocational teachers. *British Journal of Educational Psychology*, *65*(1), 3-14. doi: 10.1111/j.2044-8279.1995.tb01127.x

Platsidou, M., & Agaliotis, I. (2008). Burnout, job satisfaction and instructional assignment-related sources of stress in Greek special education teachers. *International Journal of Disability, Development and Education, 55*(1), 61-76. doi:10.1080/10349120701654613

Raczka, R. (2005). A focus group enquiry into stress experienced by staff working with people with challenging behaviours. *Journal Of Intellectual Disabilities*, *9*(2), 167-177. doi:10.1177/1744629505054271

Robertson, J., Hatton, C., Felce, D., Meek, A., Carr, D., Knapp, M., . . . Lowe, K. (2005). Staff stress and morale in community-based settings for people with intellectual disabilities and challenging behaviour: A brief report. *Journal of Applied Research in Intellectual Disabilities, 18*(3), 271-277. doi:10.1111/j.1468-3148.2005.00233.x

Rose, J. (1993). Stress and staff in residential settings: The move from hospital to the community. *Mental Handicap Research*, 6(4), 312-332. doi: 10.1111/j.1468-3148.1993.tb00062.x

Rose, J., David, G., & Jones, C. (2003). Staff who work with people who have intellectual disabilities: The importance of personality. *Journal Of Applied Research In Intellectual Disabilities*, *16*(4), 267-277. doi:10.1046/j.1468-3148.2003.00168.x

Rose, D., Horne, S., Rose, J. L., & Hastings, R. P. (2004). Negative emotional reactions to challenging behaviour and staff burnout: Two replication studies. *Journal Of Applied Research In Intellectual Disabilities*, *17*(3), 219-223. doi:10.1111/j.1468-3148.2004.00194.x

Rose, J., Jones, F. F., & Fletcher, B. B. (1998). Investigating the relationship between stress and worker behaviour. *Journal Of Intellectual Disability Research*, *42*(2), 163-172. doi:10.1046/j.1365-2788.1998.00115.x

Rose, D. D., & Rose, J. J. (2005). Staff in services for people with intellectual disabilities: The impact of stress on attributions of challenging behaviour. *Journal Of Intellectual Disability Research*, *49*(11), 827-838. doi:10.1111/j.1365-2788.2005.00758.x

Roth, P. L., & Campion, J. E. (1992). An analysis of the predictive power of the panel interview and pre-employment tests. *Journal Of Occupational And Organizational Psychology*, *65*(1), 51-60. doi:10.1111/j.2044-8325.1992.tb00483.x

Schmidt, F. L., & Hunter, J. E. (1998). The validity and utility of selection methods in personnel psychology: Practical and theoretical implications of 85 years of research findings. *Psychological Bulletin*, *124*(2), 262-274. doi:10.1037/0033-2909.124.2.262

Shirom, A., Westman, M., Shamai, O., & Carel, R. S. (1997). Effects of work overload and burnout on cholesterol and triglycerides levels: The moderating effects of emotional reactivity among male and female employees. *Journal of Occupational Health Psychology, 2*(4), 275-288. doi:10.1037/1076-8998.2.4.275

Skirrow, P., & Hatton, C. (2007). 'Burnout' amongst direct care workers in services for adults with intellectual disabilities: A systematic review of research findings and initial normative data. *Journal Of Applied Research In Intellectual Disabilities*, *20*(2), 131-144. doi:10.1111/j.1468-3148.2006.00311.x

SONA Systems [Online Website]. Bethesda, MD. Retrieved from http://www.sona-systems.com/

Stalker, C., & Harvey, C. (2002). *Professional burnout: A review of theory, research, and prevention Partnerships for Children and Families Project*. Waterloo: Wilfrid Laurier University.

Swider, B.W., & Zimmerman, R.D. (2010). Born to burnout: A meta-analytic path model of personality, job burnout, and work outcomes. *Journal of Vocational Behavior*, *76*(3), 487-506. doi: 10.1016/j.jvb.2010.01.003

Taris, T. W. (2006). Is there a relationship between burnout and objective performance? A critical review of 16 studies. *Work & Stress*, *20*(4), 316-334. doi:10.1080/02678370601065893

Taris, T.W., Le Blanc, P.M., Schaufeli, W.B., & Schreurs, P.J.G. (2005). Are there causal relationships between the dimensions of the Maslach Burnout Inventory? A review and two longitudinal tests. *Work & Stress*, 19(3), 238-255. doi: 10.1080/02678370500270453

Tekindal, B., Tekindal, M., Pinar, G., Ozturk, F., & Alan, S. (2012). Nurses' burnout and unmet nursing care needs of patients' relatives in a Turkish State Hospital. *International Journal Of Nursing Practice*, *18*(1), 68-76. doi:10.1111/j.1440-172X.2011.01989.x

Tellegen, A. (1985). Structures of mood and personality and their relevance to assessing anxiety, with an emphasis on self-report. In A.H. Tuma, & J.D. Maser (Eds.), *Anxiety and the anxiety disorders* (pp. 681-706). Hillsdale, NJ: Erlbaum.

Tett, R. P., Jackson, D. N., & Rothstein, M. (1991). Personality measures as predictors of job performance: A meta-analytic review. *Personnel Psychology, 44*(4), 703-742. doi:10.1111/j.1744-6570.1991.tb00696.x

Thoresen, C. J., Kaplan, S. A., Barsky, A. P., Warren, C. R., & de Chermont, K. (2003). The affective underpinnings of job perceptions and attitudes: A meta-analytic review and integration. *Psychological Bulletin, 129*(6), 914-945. doi:10.1037/0033-2909.129.6.914

Toppinen-Tanner, S., Ahola, K., Koskinen, A., & Väänänen, A. (2009). Burnout predicts hospitalization for mental and cardiovascular disorders: 10-year prospective results from industrial sector. *Stress And Health: Journal Of The International Society For The Investigation Of Stress, 25*(4), 287-296. doi:10.1002/smi.1282

Tummers, G. E. R., Landeweerd, J. A., & van Merode, G. G. (2002). Work organization, work characteristics, and their psychological effects on nurses in the Netherlands. *International Journal of Stress Management, 9*(3), 183-206. doi:10.1023/A:1015519815319

Vecchione, M., Alessandri, G., & Barbaranelli, C. (2012). Paper-and-pencil and web-based testing: The measurement invariance of the Big Five personality tests in applied settings. *Assessment, 19*(2), 243-246. doi:10.1177/1073191111419091

Vlăduţ, C., & Kállay, É. (2010). Work stress, personal life, and burnout. Causes, consequences, possible remedies—A theoretical review. *Cognition, Brain, Behavior: An Interdisciplinary Journal, 14*(3), 261-280.

Wang, L., Shi, Z., & Li, H. (2009). Neuroticism, extraversion, emotion regulation, negative affect and positive affect: The mediating roles of reappraisal and suppression. *Social Behavior And Personality*, *37*(2), 193-194. doi:10.2224/sbp.2009.37.2.193

Watson, D., & Clark, L.A. (1984). Negative affectivity: The disposition to experience aversive emotional states. *Psychological Bulletin*, *96*(3), 465-490. doi: 10.1037/0033-2909.96.3.465

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, *54*(6), 1063-1070. doi:10.1037/0022-3514.54.6.1063

Watson, D., David, J.P., & Suls, J. (1999). Personality, affectivity and coping. In C.R. Snyder (Ed.). *Coping: The psychology of what works*. New York: Oxford University Press.

Wilson, K., & Gullone, E. (1999). The relationship between personality and affect over the lifespan. *Personality And Individual Differences*, *27*(6), 1141-1156. doi:10.1016/S0191-8869(99)00058-6

Witt, E. A., Donnellan, M., & Orlando, M. J. (2011). Timing and selection effects within a psychology subject pool: Personality and sex matter. *Personality And Individual Differences*, *50*(3), 355-359. doi:10.1016/j.paid.2010.10.019

Woodside, J., Miller, M., Floyd, M. R., McGowen, K., & Pfortmiller, D. T. (2008). Observations on burnout in family medicine and psychiatry residents. *Academic Psychiatry*, *32*(1), 13-19. doi:10.1176/appi.ap.32.1.13

Worley, J. A., Vassar, M., Wheeler, D. L., & Barnes, L. L. B. (2008). Factor structure of scores from the Maslach Burnout Inventory: A review and meta-analysis of 45 exploratory and confirmatory factor-analytic studies. *Educational and Psychological Measurement, 68*(5), 797-823. doi:10.1177/0013164408315268

Yadama, G.N., & Drake, B. (1995). Confirmatory factor analysis of the Maslach Burnout Inventory. *Social Work Research, 19(3)*, 184-192.

Yildirim, İ. (2008). Relationships between burnout, sources of social support and sociodemographic variables. *Social Behavior and Personality, 36*(5), 603-616. doi:10.2224/sbp.2008.36.5.603

Zellars, K.L., & Perrewé, P.L. (2001). Affective personality and the content of emotional social support: Coping in organizations. *Journal of Applied Psychology*, *86*(3), 459-467. doi: 10.1037/0021-9010.86.3.459

Zellars, K. L., Perrewé, P. L., & Hochwarter, W. A. (1999). Mitigating burnout among high-NA employees in health care: What can organizations do?. *Journal Of Applied Social Psychology*, *29*(11), 2250-2271. doi:10.1111/j.1559-1816.1999.tb00109.x

Zellars, K.L., Perrewé, P.L., & Hochwarter, W.A. (2000). Burnout in health care: The role of the five factors of personality. *Journal of Applied Social Psychology*, *30*(8), 1570-1598. doi: 10.1111/j.1559-1816.2000.tb02456.x

Zellars, K.L., Perrewé, P.L., Hochwarter, W.A., & Anderson, K.S. (2006). The interactive effects of positive affect and conscientiousness on strain. *Journal of Occupational Health Psychology*, *11*(3), 281-289. doi: 10.1037/1076-8998.11.3.281