Burnout of Direct Support Workers of Adults with Intellectual and Developmental Disabilities: A Systematic Review

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Abstract

Several work-related, client-related, and personal stressors have shown to increase burnout levels of developmental support workers (DSWs) who support adults with intellectual and developmental disabilities (IDD). These stressors have included work overload, control, client challenging behaviour, job satisfaction, and much more. However, a previous systematic review by Skirrow and Hatton (2007) reported that there remain no conclusive results about which variables trigger the development of burnout in this population and they reported that burnout levels of this population is average and comparable to other human service professions. Following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines and the methods of Skirrow and Hatton (2007), a systematic review of the literature was completed which reports the consistencies and magnitudes of correlations and predictors of burnout in the population of DSWs supporting adults with IDDs. Classical meta-regression analyses and forest plots were also completed and analyzed to compare the difference in burnout levels in the review completed by Skirrow and Hatton (2007) compared to the sample of burnout levels in this review. The results show that there are several variables which were consistently significantly associated with burnout of this population across studies while other variables were inconsistent in their association with burnout across the studies. For burnout levels, it was found that both emotional exhaustion and personal accomplishment scores have significantly worsened since Skirrow and Hatton's (2007) review while depersonalization scores have improved. Overall, this research shows the vast array of variables which can impact the development of burnout, where client and work-related variables appear to have a more significant impact on burnout development than personal characteristics of DSWs.

Key words: Intellectual Developmental Disability, IDD, Burnout, Maslach Burnout Inventory, Developmental Support Worker, DSW, Stressors, Systematic Review

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Work is the highest-ranking cause of stress in Canada, with 62% of people reporting that work is more stressful than other aspects of life (Statistics Canada, 2018). Stress at work can lead to a workplace phenomenon called burnout. Burnout is a stress-related disorder where the affected person has "a loss of interest in or ability to perform one's job due to long term high stress levels" (Chandler & Frey, 2013, p. 3217). In 2019, burnout was declared as an "occupational phenomenon" and is now included in the International Classification of Diseases (ICD) (Ivanova, 2019; World Health Organization, 2019). Though most research on burnout does not rely on clinical diagnosis, the inclusion of burnout in the ICD is further evidence of the impact of burnout on physical and emotional wellbeing and the need for workplaces to make efforts to prevent burnout.

In Ontario, Canada, burnout is considered a sector-wide concern in human services, including services supporting people with intellectual and developmental disabilities (IDD). In services supporting adults with IDD, research has found that almost 50% of direct support workers (DSW) experience emotional exhaustion (Hensel et al., 2012). Burnout is a major concern in human services as it has shown to be associated with employee turnover (Casey, 2011). In developmental service agencies, overall turnover averaged around 12% in 2017, with 22% of those being part-time or casual workers (Hickey, n.d). Burnout and turnover can impact organizations financially. Turnover of an employee in developmental services can cost between $1,690 to $2,350 per employee (Hickey, n.d), but Hickey (n.d) very passionately stated that there is a more serious cost to employee burnout and turnover where "the most significant cost of

turnover results in the degradation of the quality of services and loss of quality of life for the people supported" (p. 40).

Table 1

Terms and Definitions Utilized in This Thesis

Population	Definition
Employee(s)	Used when discussions are regarding the general working population and discussing burnout as it relates to being employed with no specifications about job title, sector, or job roles.
Direct Support Worker (DSW)	Used when discussions are regarding employees of human service organizations of which the employee provides direct supports and services to people with intellectual and/or developmental disabilities. This includes jobs such as residential care, supported independently living, respite, employment services, nurses etc.

Impact of Burnout on Employees and Those They Support

Burnout impacts employees in several different ways. Burnout can affect employees on the individual level, where it may lead to an employee experiencing biological, psychological, and social strains (e.g., Chandler & Frey, 2013; Szymanska, 2008; Sompayrac, 2006; Spector, 2006). But burnout can also go beyond the individual employee(s) and can be spread through a workplace (Bakker & Schaufeli, 2000; Bakker et al., 2003, 2005; Maslach & Leiter, 2016), and it can impact organizations beyond the employee by impacting job performance and service quality

(Chana et al., 2015; Salyers et al., 2015, 2017) which ultimately impacts the people supported by the organization and/or receiving the organizations services.

To start, published studies have reported that moderate-to-high burnout scores were associated with numerous biological, psychological, and behavioural symptoms/outcomes (e.g., Chandler & Frey, 2013; Szymanska, 2008; Sompayrac, 2006; Spector, 2006), which vary in direction depending on the construct studied and/or measure used. Over 100 different symptoms of burnout have been identified (Bakker & Schaufeli, 2000). Some of these common biological symptoms and/or outcomes included headaches (Szymanska, 2008; Sompayrac, 2006; Spector, 2006), rapid/increased heart rate (Chandler & Frey, 2013; Szymanska, 2008; Spector, 2006), high blood pressure (Chandler & Frey, 2013; Sompayrac, 2006), heart diseases, and stroke (Chandler & Frey, 2013; Sompayrac, 2006; Spector, 2006). Some of these examples of psychological outcomes included low job satisfaction (Cooper, Dewe & O'Driscoll, 2001), anxiety (Szymanska, 2008; Spector, 2006), problems with short term memory, rational thinking (Chandler & Frey, 2013), and concentration (Chandler & Frey, 2013; Szymanska, 2008), and increased experience of negative emotions and attitudes (Szymanska, 2008; Spector, 2006). Lastly, the social outcomes included behaviours employees engage in, and some behaviours employees engage in more often when burnt-out include poor job performance (Plantiveau et al., 2018; Sompayrac, 2006; Spector, 2006), absenteeism (Szymanska, 2008; Sompayrac, 2006; Spector, 2006), starting fights/arguments with colleagues and clients (Szymanska, 2008; Sompayrac, 2006; Spector, 2006) and avoidance of clients, colleagues, or trainees (Szymanska, 2008).

It is also important to note that all the impacts listed above do not only affect the employee themselves – they can have impacts on their colleagues and the people they support –

transforming burnout from a personal concern to a social concern. Bakker and colleagues (2003) explained that burnout can spread from one employee to another directly or indirectly. When burnout "spreads" directly, a group of burned-out employees come in direct contact with employees who are not experiencing burnout-related strains. During these interactions they can accidentally model emotional exhaustion and depersonalization symptoms or behaviours and/or feelings of lack of personal accomplishment (e.g., poor performance, avoiding people they support) by expressing their cynicism and other behaviours like reduced empathy (Bakker et al., 2003). Employees not experiencing burnout can then begin experiencing burnout strains after continued contact with these burned-out employees. When burnout "spreads" indirectly, a group of burned-out employees may increase the likelihood colleagues will experience burnout by indirectly impacting the working environment. There may be, for example, reduced group performance on tasks, which subsequently increases the workloads of colleagues who are not experiencing burnout-related strains. These hypotheses have been argued and supported in the literature, suggesting that the low performance of burned-out employees and their attitudes creates a negative environmental change which subsequently makes others working in that environment more likely to develop burnout (Bakker et al., 2003).

Burnout has the capability to spread amongst colleagues, therefore burnout has been conceptualized as "contagious" (Bakker & Shaufeli, 2000; Bakker et al., 2003; 2005; Maslach & Leiter, 2016). Research with insurance company employees shows that group (working team scores) Emotional Exhaustion and Depersonalization are significantly positively correlated with individual levels (separate, individual team member scores) of Emotional Exhaustion and Depersonalization respectively, even after controlling for level of control, demands, and social support (Bakker et al., 2003). This demonstrates that the burnout of a group of employees is

associated with the burnout of each individual team member such that the higher the group scores, the higher the individual scores, thus supporting that burnout can be contagious in the workplace. But unfortunately, with correlational studies, we are unable to determine whether burnout of the group impacts individual employees or if burnout of individual employees impacts the burnout of the group. Moreover, Bakker et al. (2005) found some seemingly dichotomous relationships with perceived burnout. They found that the stronger perception that employees had about their colleagues experiencing burnout, the higher their own scores on Emotional Exhaustion and Depersonalization, but interestingly, perceived burnout of peers was also positively correlated with Personal Accomplishment (feelings of personal accomplishment; Bakker et al., 2005). This may suggest that experiencing emotional exhaustion and depersonalization are contagious but may be less so for reduced feelings of personal accomplishment.

Finally, burnout has shown to impact job performance and service quality in the human service sector (Chana et al., 2015; Salyers et al., 2015, 2017). When using surveys to explore performance, research has found that Emotional Exhaustion is negatively associated with self-reported caring behaviours (Chana et al., 2015; Salyers et al., 2015, 2017). When direct observation was used to explore job performance of DSWs, Lawson and O'Brien (1994) and Rose and colleagues (1998) found that employees who are burned out, on average, interact less with the people they support and within those interactions, the frequency of positive interactions is lower than employees who are not burned out (as cited in Hastings et al., 2004). Research also shows that as burnout scores increase, ratings of service quality by family members of the service recipients decrease (Moliner et al., 2017).

The existing research results support that employee burnout has a socially significant influence on DSWs and the people they support overall. The literature revealed that "Wellbeing is crucial to provide patients with quality care" (Chana et al., 2015, p. 2843) because burnout can cause several strains on employees, and from these strains, it can have detrimental effects on employee job performance and service quality. But employees who are burnt-out are not behaving in a vacuum – thus it was shown that their strains can also have an impact on the working environment and the other people present such as colleagues and the people being supported. As Edelwich and Brodsky (1980) said "if burnout only affected individuals in isolation, it would be far less important and far less devastating in its impact than it is" (as cited in Bakker et al., 2003, p. 13).

Measuring Burnout

Models of Burnout Development

The development of burnout, and the relations between each sub-component of burnout have been conceptualized theoretically into several models. The proponents of these models have hypothesized the causes of burnout, the trajectory of developing burnout, and the ways in which burnout affects particular outcomes (see *impact of burnout on employees and those they support* section). Unfortunately, these hypotheses have rarely been tested using direct measures of study such as experimental manipulation or observation but are mainly studied indirectly by self-report questionnaire and path models. There are three broad groups of models: sequential stages, transactional, and developmental.

Sequential Models. Researchers have hypothesized that there are relations between the three sub-components of burnout (emotional exhaustion, depersonalization, personal

accomplishment) and that they may develop sequentially, also referred to as sequential models of burnout development. There are a few different perspectives in this model, including the phase model and the process model. According Houkes and colleagues (2011) representation of the phase model, burnout begins its development with depersonalization/cynicism. Especially for human service workers, they hypothesized that depersonalization was where burnout starts because there is a level of detachment that is expected of DSWs to maintain professional boundaries with the people they support. Therefore, the detachment required in the job/role initiates the development of burnout in human service populations. It is then thought that this detachment transforms into the depersonalization dimension of burnout, and subsequently leads to decreased feelings of accomplishment from reduced levels of performance on the job (Houkes et al., 2011).

A second sequential model is called the process model. Researchers of this model believe that emotional exhaustion is the first burnout dimension to develop (Houkes et al., 2011; Maslach & Leiter, 2016). They hypothesized that burnout develops from high stress, such as high levels of work and demands. Houkes and colleagues (2011) and Maslach and Leiter (2016) hypothesized that depersonalization develops second as a coping mechanism, subsequently reducing the employee's attachment to the clients or the job. Finally, they further hypothesized that personal accomplishment develops because of the effects that depersonalization has on performance and the employee's ability to achieve work-related goals, thus reducing feelings of personal accomplishment in the workplace (Houkes, 2011; Maslach & Leiter, 2016). Houkes and colleagues also report a variation of the process model where they hypothesized that emotional exhaustion develops first and leads to depersonalization, but personal accomplishment does not develop from depersonalization, and instead from emotional exhaustion (Houkes et al., 2011).

Transactional Model. Maslach and Leiter (2016) describe the transactional model to be a "bridge between" the above sequential models and imbalance theories/models below. Chirico (2016) describes this model further by indicating its focus is on the relationship between the environment and the employee experiencing burnout. There are three stages in this model. The first stage is job stressors, which are an imbalance between job demands and resources. Stage two is individual strain, which are the emotional responses of the employee. Finally, stage three is defensive coping, such as changes in attitude and behaviours (Maslach & Leiter, 2016).

Developmental Models. There are three developmental models in the literature, and all are based on working theories of imbalance. The first is the job demands-resources model, which is based on the hypothesis that employees develop burnout when there are high and frequent job demands and low resources to supply those demands (Lizano & Mor Barak, 2015; Maslach & Leiter, 2016). The demands-resources model theorizes that all aspects of a job can be classified as either a demand or a resource (Lizano & Mor Barak, 2015). Demands are defined as "physical, social, or psychological [job] requirements" (p. 20), and resources as things that either; "a) serve a functional role in meeting work goals, b) reduce the physiological and/or psychological costs of demands, and/or c) promote personal growth and development" (p. 20).

The second model is the conservation of resources model. This model is focused on how availability and threat of resources influences employee burnout (Lizano & Mor Barak, 2015). Researchers of this model theorize that there is a motivation to "obtain and retain valued resources" (Lizano & Mor Barak, 2015, p. 20). Subsequently, they believe burnout develops because there are threats to the resources required to complete the job (Lizano & Mor Barak, 2015; Maslach & Leiter, 2016), which can include losing resources, being unable to obtain resources, and the risk of losing resources. Therefore, it is hypothesized that when resources

needed for the job are not available, lost, or are in danger of being lost, this can impact the development of burnout (Lizano & Mor Barak, 2015; Maslach & Leiter, 2016).

Lastly, the areas of work-life model is hypothesized to focus on six key person-job imbalances: workload, control, reward, community, fairness, and values (Maslach & Leiter, 2016). Researchers on the areas of work-life model theorizes that the greater the imbalance between the person and the key imbalances, the higher the likelihood they will experience burnout. This has been extensively researched in the literature, see subsection *organization/job-related variables* in section *current knowledge of variables associated with DSW burnout* below for a summary including these variables and their associations with burnout development.

Burnout Instruments

Burnout has been labelled as a common phenomenon within the human service sector, including those who work directly with people with IDD. Burnout is mostly measured using self-report questionnaires such as the Maslach Burnout Inventory (MBI; Maslach and Jackson, 1981). In 1998, Schaufeli and Enzmann (1998) noted that the MBI was used in approximately 90% of studies in the world which measured burnout, of which researchers continue to report it being the most widely used burnout instrument for human service populations (Kaschka et al., 2011; Kristensen et al., 2005).

Maslach Burnout Inventory. The Maslach Burnout Inventory- Human Services Survey (MBI-HSS; Maslach & Jackson, 1981) is a 22-item self-report, Likert-scale questionnaire. Each item is rated by frequency of occurrence ranging from “0 = never” to “6 = everyday”. In the original manual for the MBI, Maslach and Jackson (1981) included cut-off scores which indicated high, moderate, and low risk of burnout for each subscale. These cut-off scores have

been removed from the most recent MBI manual (Leiter & Maslach, 2016) because their calculations of high, moderate, and low burnout were arbitrary as they "were calculated by splitting the normative population into thirds – where a person was considered "high" … simply because they scored in the upper third percentile…" (Mind Garden, 2018, p. 1). These scores have since been replaced with what Leiter and Maslach call "latent burnout profiles" (Leiter & Maslach, 2016).

Maslach and colleagues (2001) hypothesized there are three components of burnout: emotional exhaustion, depersonalization/cynicism, and diminished perceptions of personal accomplishment. Emotional exhaustion (EE) has been described as when employees "feel emotionally drained and depleted as a result of excessive psychological demands" (Robinson et al., 2011, p. 178). Depersonalization/cynicism (DP) occurs when people distance themselves from their work/clients and become overly critical about their workplace and job roles and duties (Robinson et al., 2011). Lastly, personal accomplishment (PA) is the diminished thought that someone is successful in their work, or they no longer gain satisfaction for work related accomplishments (Maslach et al., 2001; Robinson et al., 2011). For both EE and DP subscales, higher scores indicate an increased risk of burnout, and lower scores indicate a reduced risk of burnout. Meanwhile, for the PA subscale, high scores indicate a reduced risk of burnout, while low scores indicate an increased risk of burnout. The subscales scores can range between 0 to 54 for EE, 0 to 30 for DP, and 0 to 48 for PA. The scores cannot be added together for an overall burnout score and should be calculated by subscale for individual subscale scores. The scores can be calculated in two ways. First, the subscale sum can be calculated by adding the numbers which correspond to each answer for each subscale separately (between '0 = never' to '6 = everyday'; Maslach et al., 2018). This method would obtain a subscale total. The second option

is to average the subscale scores by adding the numbers that correspond to each answer together then dividing by the total number of questions in that subscale. If using this method, one would need to divide the EE sum by 9, the DP sum by 5, and the PA sum by 8 (Maslach et al., 2018). This method of scoring would provide an average subscale response as opposed to a total subscale score. The former method is reported to be the most widely used method for reporting the MBI-HSS subscale scores (Maslach et al., 2018).

The MBI-HSS has been used extensively to explore burnout of DSWs internationally (e.g., Hastings et al., 2004; Skirrow & Hatton, 2007; Vassos et al., 2013), which includes Canadian samples of DSWs (Hensel et al., 2012; Hickey, 2014; Ko et al., 2012; Lunsky et al., 2014). The MBI has acceptable reliability and validity for DSWs working with adults with IDDs. Using Cronbach's alphas, EE, PA, and DP resulted in acceptable reliability scores of 0.91, 0.76, and 0.62 (Chao et al., 2011) and 0.87, 0.76, and 0.68 (Hastings et al., 2004) respectfully. These scores are consistent with other human service professionals included in Maslach's original sample with EE, PA, and DP scores of 0.90, 0.79, and 0.71 (Maslach et al, 1996). Moreover, validity has also been well established (Chao et al., 2011). Results have indicated that all items in the measure received validity scores above 0.40, ranging from 0.40 (item 11 on EE) to 0.85 (item 8 on EE). Factor validity analyses indicated a goodness-of-fit score of 0.89, a root mean square error of approximation score of 0.10, a Tucker-Lewis index score of 0.79, and a comparative fit index of 0.81 for social rehabilitation workers (Richardsen & Martinussen, 2004).

Despite the widespread use of the MBI, a few drawbacks have been noted across the literature. First, Schutte and colleagues (2000) completed a series of factor model-fit tests and found that the subscale of PA appears to develop separate from the EE and DP subscales. Kristensen and colleagues (2005) also reported that the subscales are measuring different

constructs, of which have also shown to each have their own idiosyncratic correlates and predictors. Second, the DP/cynicism subscale has been identified to have questions which make respondents feel uncomfortable answering. Kristensen and colleagues (2005) indicated that in their preliminary research, they asked participants to write notes beside each question they had difficulty answering. They found that some participants reported anger with questions such as "I don't care what happens to some recipients" (p. 194).

When researchers first started studying burnout, it was hypothesized to only effect employees in human service (Halbesleben & Demerouti, 2005). But it was later determined that all working populations can be as risk of developing burnout, which sparked the development of the MBI – General Survey (MBI-GS; Maslach et al., 1996). Like the limitations outlined regarding the MBI-HSS, the MBI-GS also has been reported to have poor language construction in the questions and it follows the same theoretical construct that there are three factors associated with burnout (EE, DP, and PA) despite research suggesting a 2-factor model of EE and DP as a better fit (Kalliath et al., 2000; Lee & Ashforth, 1996). It has also been criticized for only including questions which are negatively worded in the PA subscale (Demerouti et al., 2000). It is due to the noted limitations of the MBI-HSS and the MBI-GS that researchers have developed other burnout instruments attempting to mitigate their drawbacks. Some of these measures include the Oldenburg Burnout Inventory (Demerouti, 2002) and the Copenhagen Burnout Inventory (Kristensen et al., 2005).

Oldenburg Burnout Inventory. In response to several of these limitations of the MBI-GS, Halbesleben and Demerouti (2005) developed the Oldenburg Burnout Inventory (OBI) with two subscales labelled exhaustion and disengagement and some questions requiring reverse coding for negative language. It was developed for the general working population, which can

include those working in human services. The OBI has been validated in the English language using a large general adult working sample and a sample of fire fighters. Halbesleben and Demerouti's (2005) research in these two samples had good reliability scores. In research exploring burnout, the OBI is mainly used to measure burnout in workers outside human services (Cavallari et al., 2021; Halbesleben & Demerouti, 2005) and in healthcare workers such as doctors or nurses (Peterson et al., 2008; Potter et al., 2021) who do not solely work with people with IDDs.

Copenhagen Burnout Inventory. During the same period as Halbesleben and Demerouti's (2005) development of the OBI, Kristensen and colleagues (2005) developed their own instrument in response to several concerns noted about the MBI instruments, called the Copenhagen Burnout Inventory (CBI; Kristensen et al., 2005). They developed the measure under the hypothesis that EE is the underlying mechanism of burnout. Therefore, they hypothesized that EE is the only component of burnout needed to measure its impact on employees. The CBI measures information about EE by having participants self-report the frequency and degree of fatigue for three different subscales: personal burnout, work-related burnout, and client-related burnout. Therefore, their instrument removes the DP and PA subscales and focuses solely on emotional exhaustion. The personal and work-related subscales were developed to be suitable for any working population, while the client-related subscale was built to focus on jobs which are in the human service sector (Kristensen et al., 2005). The CPI is a 19-item self-report measure, using a Likert-scale with two response sets. Personal burnout is defined as "the degree of physical and psychological fatigue and exhaustion experienced by the person" (Kristensen et al., 2005, p. 197). Work-related burnout is defined as "the degree of physical and psychological fatigue and exhaustion that is perceived by the person as related to

his/her work" (Kristensen et al., 2005, p. 197), while client-related burnout is similar but "is perceived by the person as related to his/her work with clients" (Kristensen et al., 2005, p. 197). Twelve of nineteen items are rated for frequency of occurrence, ranging from "100 = always" to "0 = never". The last six items are rated on a different scale ranging from "100 – a very high degree" to "0 – a very low degree", rated for degree of subjective psychological impact on the employee.

The CBI has been used with DSW populations including residential personal/living assistants (Lin et al., 2015), mixed samples of DSWs (the use of DSWs in different roles such as respite, residential, employment services, day program) (Borritz et al., 2006, 2010; Rugulies et al., 2007), community home DSWs (Brooker et al., 2013; Deveau & McGill, 2019; Harries et al., 2015; Kozak et al., 2013), and community mental health workers (Hippel et al., 2019). The instrument has been reported to have good reliability and validity (Kristensen et al., 2005; Walters et al., 2018). Although the research with DSW populations using the CBI is growing in recent years, the literature is still emerging, and the prevalence of its use has not yet caught up to the MBI.

Overall, the measurement of burnout has not changed considerably over the years as burnout continues to mainly be measured through self-report questionnaires. Despite other reliable and valid measures established and used in the literature with populations of DSWs and despite its limitations, the MBI continues to be known as the most widely used measure in human services (Kaschka et al., 2011; Kristensen et al., 2005). This may be due, in part, to the fact that there are several versions of the survey (general use, medical personnel, educators, and students), and that the MBI-Human Services workers (MBI-HSS; Maslach & Jackson, 1981) version was developed specifically to measure burnout in human service populations, whereas

the OBI and CBI, although built with the MBI's limitations in mind, were developed, mainly, for general working populations, and not specifically tailored to direct-care professionals in human services.

Current Knowledge of Variables Associated with DSW Burnout

The forementioned consequences of burnout are just one piece of the puzzle when trying to understand the whole picture of burnout in services for adults with IDDs. Another important piece to consider and review is what work, life, and personal contextual variables place employees at higher versus lower risk of developing burnout and its associated outcomes. When exploring the research generally, the literature shows emerging evidence of consistent correlations between burnout of DSWs who work with adults with IDDs and employee demographic variables, job and organizational variables, and client characteristics as well as variables which mitigate or increase the risk of experiencing burnout at work by mediating or moderating relationships. The research includes samples of DSWs who work in many different settings such as mixed samples/settings of DSWs (Borritz et al., 2006), community home DSWs (Deveau & McGill, 2019; Harries et al., 2015; Kozak et al., 2013), summer camp DSWs (Ko et al., 2012), and community mental health workers (Hippel et al., 2019). The variables for review can be separated into four categories: 1) DSW demographics, 2) organizational/job-related variables, 3) client-related variables, and 4) DSW personal characteristics. Demographic variables are the variables researchers commonly use as covariates within a sample such as sex, age, marital status, and socio-economic status. Organizational/job-related variables are work or organizational characteristics that are specific to the role of the employee. Client-related variables are characteristics of the people supported by the DSWs such as the presence/absence of challenging behaviour and level of support required. Lastly, DSW personal characteristics are

variables related to the DSW which are not common covariates which such as their personality, behaviours, and values.

Direct Support Worker Demographics and Personal Characteristics

The research for the DSW populations has focused on evaluating the impact work (e.g., number of hours) and DSW demographic variables (e.g., sex, age) have on an employee's experience of burnout. These demographic variables are often researched using correlational designs (e.g., Harries et al., 2015; Kozak et al., 2013), but sometimes have also been included in regression analyses (Kozak et al., 2013). Specific personal characteristics such as behaviour, values etc. are not reviewed here as research in this area is still limited. Research has found that on-call duties, night shifts, shared shifts (Kozak et al., 2013), number of hours worked (Harries et al., 2015; Kozak et al., 2013), length of employment (Harries et al., 2015), and age (Cheung & Harding, 2009; Harries et al., 2015; Howard et al., 2009; Rose & Rose, 2005; Smyth et al., 2015; Snow et al., 2007) were not significantly associated with burnout. Cheung and Harding (2009) also found that ethnicity, qualifications, and time in their present role were not correlated with burnout.

Although there are many consistencies across correlational studies with regards to significant and not significant demographics and personal characteristics, there are some demographic variables that have been inconsistent across the literature. These variables include sex and the amount of time working in the Developmental Support Sector (DSS). Some research reports that sex was not significantly correlated with burnout (Cheung & Harding, 2009; Mutkins et al., 2011; Kozak et al., 2013), but others found that females report higher scores on measures of burnout than males (Harries et al., 2015). Further review of these articles reveal that this inconsistency may, in part, be due to a larger percentage of male participation (50%) in the study

completed by Harries and colleagues (2015) while the other samples were mostly females, which is more consistent with the demographics in the field (Cheung & Harding, 2009; Mutkins et al., 2011; Kozak et al., 2013). The amount of time working in DSS is also not significantly correlated with burnout (Cheung & Harding, 2009; Rose & Rose, 2005; Smyth et al., 2015; Snow et al., 2007). However, one study found an inconsistent result suggesting the amount of time working in DSS is positively correlated with burnout (Howard et al., 2009). Upon review of the articles, the inconsistency among this research may be due, in part, to the varying settings in which the research took place such as residential homes (Cheung & Harding, 2009; Rose & Rose, 2005; Smyth et al., 2015), in-patient hospitals (Snow et al., 2007), and a mixture of medium secure wards and community settings (Howard et al., 2009).

Predictive Models. Demographic variables are often included in regression models as co-variates and the results for these variables tend to be inconsistent across the burnout research. Some research showed that sex (Kozak et al., 2013; Vassos et al., 2013), age (Smyth et al., 2015), and education level (Smyth et al., 2015) provided significant contributions to model variance, while Lahana and colleagues (2017) reported that sex, age, and education were not significant predictors. It is believed that this inconsistent finding from Lahana and colleagues (2007) may, in part, be due to its sample being nurses and nursing assistants working in settings for adults with IDDs, while the other settings were mixed samples of DSWs (Vassos et al., 2013), welfare services for adults with IDDs (Kozak et al., 2013), and community homes (Smyth et al., 2015). The latter three samples have job characteristics which may more closely resemble each other, while nurses and nursing assistants have additional or other job duties outside those provided by general DSWs. Some isolated research showed that work setting (Hensel et al., 2014), experience (Lahana et al., 2017; Smyth et al., 2015), and marital status (Lahana et al.,

2017) were significant variables to consider as regression co-variates. Others that have not shown to be significant contributors included work hours (Vassos & Nankervis, 2012), education (Lahana et al., 2017; Vassos & Nankervis, 2012), and night shifts (Lahana et al., 2017).

Organization/Job-related Variables

The exploration of contextual variables related to the job/role of being a DSW for adults with IDDs is a large portion of the literature as researchers are often motivated to support with preventing and finding interventions, policies, or practices which can reduce the risk of these variables leading to burnout of employees in the sector (Kozak et al., 2013; Ryan et al., 2021). These explorations often include correlational analyses (e.g., Borritz et al., 2006; Deveau & McGill, 2019; Harries et al., 2015) but also as regression analyses with burnout subscale scores as the outcome variables (e.g., Harries et al., 2015; Kozak et al., 2013).

Correlations. Much of the research reports correlations of burnout and organizational variables of interest, of which some are positively or negatively correlated with burnout, while others have not been correlated with burnout. Variables which have shown to be negatively correlated with burnout included Control at Work (Harries et al., 2015; Vassos et al., 2013; Vassos & Nankervis, 2012), overall Social Support (Borritz et al., 2006; Harries et al., 2015), Possibility for Development, Meaning of Work, Feedback, and a Sense of Community (Borritz et al., 2006; Kozak et al., 2013), Influence at Work (Borritz et al., 2006; Kozak et al., 2013; Vassos et al., 2013; Vassos & Nankervis, 2012), Social Support from Coworkers and Supervisors (Deveau & McGill, 2019; Kozak et al., 2013; Vassos et al., 2013; Vassos & Nankervis, 2012), Quality of Leadership (Borritz et al., 2006; Deveau & McGill, 2019; Kozak et al., 2013), and Workplace Wellbeing (Hippel et al., 2019). Meanwhile, burnout has consistently been positively correlated with Job Demands (Harries et al., 2015), Role Conflict (e.g., Borritz et al., 2006;

Harries et al., 2015; Kozak et al., 2013), Job Insecurity, Quantitative Demands, and Cognitive Stress (Borritz et al., 2006; Kozak et al., 2013), Work-Privacy Conflict (Kozak et al., 2013), Lack of Staff Support, Lack of Resources, Work-Home Conflict, Bureaucracy, and Low Job Status (Vassos et al., 2013; Vassos & Nankervis, 2012). Social Relations have not been significantly correlated with burnout (Kozak et al., 2013). The considerable amount of evidence of consistent findings in the research suggests that the majority of work-related or organizational variables are significant contributors to the development of burnout in DSW populations (Skirrow & Hatton, 2007).

Like the research findings for demographics, some of the research exploring work-related contextual variables have also yielded inconsistent results. These variables included Role Clarity (Borritz et al., 2010; Harries et al., 2015; Hodgkins et al., 2005; Kozak et al., 2013; Mascha, 2007), Satisfaction with Support (Mascha, 2007; Mutkins et al. (2011), Job Feedback (Vassos & Nankervis, 2012; Vassos et al. 2013), and Total Support (Howard et al., 2009; Mutkins et al., 2011; Wright, 2008). Role Clarity was found not to be significantly correlated with burnout by Hodgkins and colleagues (2005), while others found it to be negatively correlated (Borritz et al., 2010; Harries et al., 2015; Kozak et al., 2013; Mascha, 2007). Upon review of these articles, the inconsistency may be due to differences in samples as Hodgkins and colleagues (2005) recruited samples of nurses working with adults with IDDs, while the remaining authors recruit varying samples of DSWs. As stated previously, this difference in sample may contribute to the inconsistency because nurses have different job duties than general DSWs. Satisfaction with Support was found to be negatively correlated with burnout in a study by Mascha (2007), yet Mutkins and colleagues (2011) found it to be not significant. This inconsistency may stem from the use of different measures since Mascha (2007) used the Staff Support Questionnaire (Harris

& Thomson, 1993) while Mutkins and colleagues (2011) used the Survey of Perceived Organizational Support (Eisenberger et al., 1986). Job Feedback was found to be positively correlated with burnout in Vassos and colleagues' (2013) more recent study but was not significant in Vassos and colleagues' (2012) older study. It is believed that this inconsistency may be due to two differences in the studies. First, the sample size from Vassos and colleagues (2012) was less than half (108) the size of the sample from Vassos and colleagues (2013) which included 258 DSWs. Second, both sets of authors recruited mixed samples of DSWs from settings such as respite, employment settings, day programs etcetera., however, each study had different percentages of each of these job types (Vassos et al., 2012; 2013). Lastly, Howard and colleagues (2009) found that Total Support is positively correlated with burnout, while other studies found it is not significant (Mutkins et al., 2011; Wright, 2008). For these findings, all three authors used different instruments to measure support which may contribute to the inconsistency. In conclusion, the research exploring Role Clarity, Job Feedback, Satisfaction with Support, and Total Support are inconsistent and require more exploration to further compare and confirm their impact on DSW burnout.

Predictive Models. Job stressors are often included in multiple regressions to observe their predictive value on burnout scores as a dependent variable. Stressors which have positively predicted burnout include Depression, Workload, Low-Job Status (Vassos et al., 2013; Vassos & Nankervis, 2012), Job Feedback (Vassos et al., 2013), and Job Demands (Harries et al., 2015). Additionally, Organisational Support (Mutkins et al., 2011), Overall Support (Harries et al., 2015), Role Ambiguity (Vassos et al., 2013; Vassos & Nankervis, 2012), and the interactions between Demands and Support, and Conflict and Support (Harries et al., 2012) also significantly contribute to model variance by negatively predicting burnout. Variables which have not

significantly contributed to regression models include Anxiety, Bureaucracy, Job Control, Supervisor Support, and Influence Over Work Decisions (Vassos et al., 2013; Vassos & Nankervis, 2012).

As with demographics and organizational variables, described above, others have shown inconsistent results across studies. Vassos and Nankervis (2012) found that Lack of Support, Work-Home Conflict, and Role Conflict significantly contributed to model variance predicting burnout, while Vassos and colleagues (2013) found these variables to not be significant predictors. Additionally, Vassos and colleagues (2013) found Lack of Resources to be a significant predictor while Vassos and Nankervis (2012) found it to not be significant. It is believed the inconsistencies in results are due to the sample size from Vassos and colleagues (2012) being much smaller (n =108) than the size of the sample from Vassos and colleagues (n = 258; 2013) and the use of mixed types of DSWs in both samples (Vassos et al., 2012; 2013). Stress has been shown to be inconsistent in regressions as well, with some supporting its significance (Smyth et al., 2015) with the use of the Perceived Stress Scale (Cohen et al., 1983), and others not supporting its significance (Mutkins et al., 2011) when using the Depression, Anxiety, and Stress Scales (Lovibond & Lovibond, 1995).

Client-related Variables

Studies have also explored client characteristics such as challenging behaviour, skill level, and verbal communication to determine if specific client demographics had an impact on the level of burnout experienced in the sector. Client-related variables have been studied using correlations and predictive models. Some general client-related variables found to be positively correlated with burnout scores include Client-Related Emotional Demands (Borritz et al., 2006; Kozak et al., 2013) and Poor Client Skills (Vassos et al., 2013; Vassos & Nankervis, 2012).

The most studied variable is challenging behaviour but the way in which it is studied varies widely. Some researchers have collapsed all challenging behaviours into one scale labelled Challenging Behaviour (Deveau & McGill, 2019; Mutkins et al., 2011; Vassos et al., 2013; Vassos & Nankervis, 2012), while others have separated them based on topography (Hensel et al., 2012; Howard et al., 2009; Ko et al., 2012; Snow et al., 2007), frequency (Snow et al., 2007), or severity (Hensel et al., 2014; Smyth et al., 2015). When separated, Self-Injurious Behaviours (Snow et al., 2007), Physical and Verbal Aggression (Hensel et al., 2012; Howard et al., 2009; Ko et al., 2012), the number of clients who engaged in self-injurious behaviours (Snow et al., 2007), and Severity of Aggression (Hensel et al., 2014; Smyth et al., 2015) have been found to be positively correlated with burnout. Threats from clients has not been associated with levels of burnout (Howard et al., 2009). Snow and colleagues (2007) found that the length of time working with adults with IDDs who engage in self-injurious behaviours is also not significantly correlated with burnout. When collapsed into one scale labelled Challenging Behaviour, there were inconsistent results in which it was either positively correlated (Deveau & McGill, 2019; Vassos et al., 2013; Vassos & Nankervis, 2012), or not significantly associated with burnout (Mutkins et al., 2011).

Client-related variables are often included in regression analyses as well. Some variables which have positively predicted burnout included Physical Violence (Howard et al., 2009), Challenging Behaviour (Chung & Harding, 2009; Vassos et al., 2013; Vassos & Nankervis, 2012), and Aggression Severity (Hensel et al., 2014; Smyth et al., 2015). Poor Client Skills have not significantly contributed to regression model variance (Vassos et al., 2013; Vassos & Nankervis, 2012).

As reviewed above, there are several job/organization-related, client-related, and personal demographics that have been researched to explore their relationship with the development of burnout in DSWs supporting adults with IDDs. Although research findings were generally consistent, there remains variability of results as well. These inconsistencies may be partly due to the different DSW populations studied, the use of mixed samples, and the mixture of settings in which DSWs are employed because they have different idiosyncratic job roles, responsibilities, and work expectations. But another reason for these inconsistencies may be due to the different instruments used to measure burnout.

Reviews of Burnout in Populations of DSWs Supporting People with IDDs

There are several known reviews of the literature completed exploring burnout of DSW's who work in the ID sector (Disley, et al., 2009; Ryan, et al., 2021; Skirrow & Hatton, 2007; Thompson & Rose, 2011). To begin, Skirrow and Hatton (2007) completed a systematic review of the literature which aimed to report the levels of burnout, measured by the MBI-HSS, in the population by chronological publication year and to report the variables associated with burnout. They found many demographic, client characteristics, and organizational variables to be significantly associated with burnout – but they also found many inconsistent findings across the literature. Skirrow and Hatton (2007) concluded that more replications are needed and that organizational variables are the most common stressors for the population.

Next, Disley and colleagues (2009) completed a review of the literature with the narrow focus of exploring research on equity theory in relation to the target population. They found six articles that met the eligibility criteria of their review. They found that DSW's in the DSS often reported feeling under-benefitted in their work and this correlated with higher burnout. Disley and colleagues (2009) concluded that the perception of equity in one's work can impact the

wellbeing of DSWs working with adults with IDDs. These results are consistent with the Transactional Models of burnout development described by Chirico (2016) and Maslach and Leiter (2016). Disley and colleagues (2009) did not report on or consider the rates of burnout across publication years.

In 2011, Thompson and Rose extended the review by Skirrow and Hatton (2007) to explore their conclusion that organizational variables are the most common stressors for DSWs. Their aim was to explore the impact of organizational climate on burnout of the population. Reviewing articles between 1990 and 2010, Thompson and Rose (2011) found 21 studies which met their inclusion criteria and concluded that burnout can be mitigated by having a good 'person-environment fit'. This means that the work environment is structured to mitigate the idiosyncratic stressors of the job/role and provides the supports needed to the employees to complete their job effectively (Thompson & Rose, 2011). Thomson and Rose did not further examine the rates of burnout by publication year.

Finally, Ryan and colleagues (2021) recently completed a scoping review of the literature studying burnout of DSWs for adults with IDDs and identified 85 studies. Their aim was to fill the gap of reviews completed thus far by fully synthesizing the burnout literature of DSWs of adults with IDD. They included all studies irrespective of the burnout instrument used and reported the many variables associated with burnout within seven general variable themes: "challenging behaviour, reciprocity, coping and stress, role issues, individual differences, settings, [and] positive aspects of intellectual disability work" (Ryan et al., 2021, p. 1). They found that challenging behaviour, working in residential wards, and DSW personal characteristics are important variables to consider when researching burnout. Though there is

some overlap reviewed by Ryan and colleagues (2021) and the present study, they did not report on or describe the rates of burnout over time and did not complete meta-analytic comparisons.

Among these reviews of burnout in DSW populations working with people with IDDs, the review by Skirrow and Hatton (2007) stands out as being unique in its methods. It aimed to explore and report the burnout levels of the samples of DSWs for people with IDD and observed the trends over chronological publication year in addition to reporting the common variables associated with burnout. It is also unique from the others as it chose one burnout measure to explore – the MBI-HSS. This method for their review has some benefits which set it apart from the rest. Disley and colleagues (2009), Ryan and colleagues (2021), and Thompson and Rose (2011) chose to review the literature without choosing a specific burnout measure(s) used – thus making comparisons across studies and drawing conclusions from literature which measured burnout in many ways. This is a limitation to their designs as it was noted by Skirrow and Hatton (2007) that the use of different measurement tools to explore the same construct may contribute to inconclusive or variable results across studies. It would have been beneficial for these researchers to make comparisons of findings within and between each burnout measure found in the literature to determine if there are differences across study findings that use the same measure and/or differences in findings across studies using different instruments.

The decision to focus on studies which used the MBI-HSS provides an advantage as Skirrow and Hatton (2007) could reliably make comparisons of burnout levels across the studies included in their review. Additionally, when making comparisons across studies, their findings could be considered more reliable than the other reviews. Granted this is also taking into consideration that they reported that individual studies used varying instruments for other constructs like anxiety, depression, and job satisfaction. As such, the methods of Skirrow and

Hatton (2007) will be reviewed in more detail as the methods for the review completed for this thesis are based on their study.

Skirrow and Hatton (2007)

Skirrow and Hatton (2007) completed their search via PsychInfo and PubMed using the Boolean String "burnout and (disab* or retard* or handicap*)" (p. 132). Their inclusion criteria were as follows: 1) peer-reviewed articles, 2) written in English, 3) people supported diagnosed with IDD, 4) people supported were adults, 5) primary research literature, 6) direct assessment of burnout using the MBI-HSS, 7) pure samples of DSWs (not from other fields e.g., mental health), 8) "unqualified" DSWs as study population of interest, and 9) reported the mean MBI-HSS subscale scores. Following their criteria, 20 studies of the original 151 screened were eligible for inclusion. Their results included the mean MBI-HSS subscale scores and visually presented the mean subscale scores for each article chronologically by publication year, and the associations of the studied variables with the burnout scores as well as any intervention results (Skirrow & Hatton, 2007).

Skirrow and Hatton (2007) calculated normative scores to compare to the scores produced by Maslach and Jackson (1981). Normative scores are a calculated data point of a population (such as the total sample from included articles) which then act as a baseline score or data point for that population and construct (REF). Using the equation $X = \sum \frac{x_s * n_s}{N_o}$, they found normative scores of 17.4 (EE), 5.0 (DP) and 33.8 (PA) from the 20 included articles. In comparison, these scores were not significantly different from the normative scores found by the developers of the measure (see Maslach et al., 1996). Visual analysis of their figure (Skirrow & Hatton, 2007, p. 137) shows stable mean MBI scores for PA but decreasing trends for EE and DP

over time. The decreasing trends would indicate lower levels of burnout over chronological publication year.

While completing their search up to May 2004, Skirrow and Hatton (2007) summarized evidence of relationships/associations between burnout and client characteristics, organizational variables, job role/perceived job role, personal and demographic variables, and personal wellbeing and behaviour. Overall, they found that client challenging behaviour, caseload, and relations with supervisors have consistently been reported to not be associated with burnout (Skirrow & Hatton, 2007). As for statistically significant relationships, inequality of relationship between employee and client, having a poor relationship with the client, feeling under-benefited in relations with the organization, lack of/poor manager/supervisor support, negative perception of the organization, little/no DSW qualifications, feeling under-utilized, role boundaries, role conflict, role ambiguity, lack of social support, depression, anxiety, and psychological strain from colleagues were consistently associated with higher levels of burnout (Skirrow & Hatton, 2007). Demographic variables associated with high levels of burnout include being male, more years of experience, and intention to quit. Variables found to be associated with low level of burnout included personal resources such as self-care, feeling as though one is rewarded appropriately, and job satisfaction (Skirrow & Hatton, 2007).

Although Skirrow and Hatton (2007) found many variables to have consistent significant or not significant associations with burnout, they also discovered some inconsistent findings for some variables across studies included in their review. They found that hours of work, Lack of Training, and Feeling Appropriately Rewarded were not consistently associated with burnout across the literature. For example, Lack of Training was found to be not significant in one article while positively associated in another, and number of hours worked was found to not be

significant, be positively associated, and negatively associated across three different studies. From these results, they concluded that the literature needs to include more replication studies and experimental manipulations of variables to observe their effect on burnout. They also stated that studies need to have narrower samples (e.g., only one type of DSW setting). Finally, they concluded that it appeared that the burnout levels in the population were decreasing over chronological year, which they suggested may be attributed to policy changes that occurred during the studied years (Skirrow & Hatton, 2007).

Despite its unique methods compared to other reviews, the review by Skirrow and Hatton (2007) does have some limits. One limitation of their review was the Boolean string used to populate articles to screen for their review. The string was "burnout" and (retard* or handicap* or disab*). In addition to the common use of the terms retard, handicap, and disability prior to 2007, other terminology such as intellectual disability, and/or developmental disability were available. With the limited words in the search string, it is possible they did not locate articles written by researchers who had started to change their terminology and thus they may have missed some valuable articles. Additionally, they published the article before the PRISMA guidelines were released in 2009 (Moher et al., 2009), and thus their search may not have been as inclusive as those that follow these guidelines, and their results may not be reported as vigorously as those who follow the guidelines. This may lend their methods and results to be not as systematic and thus not as reliable as reviews published according to the PRISMA guidelines.

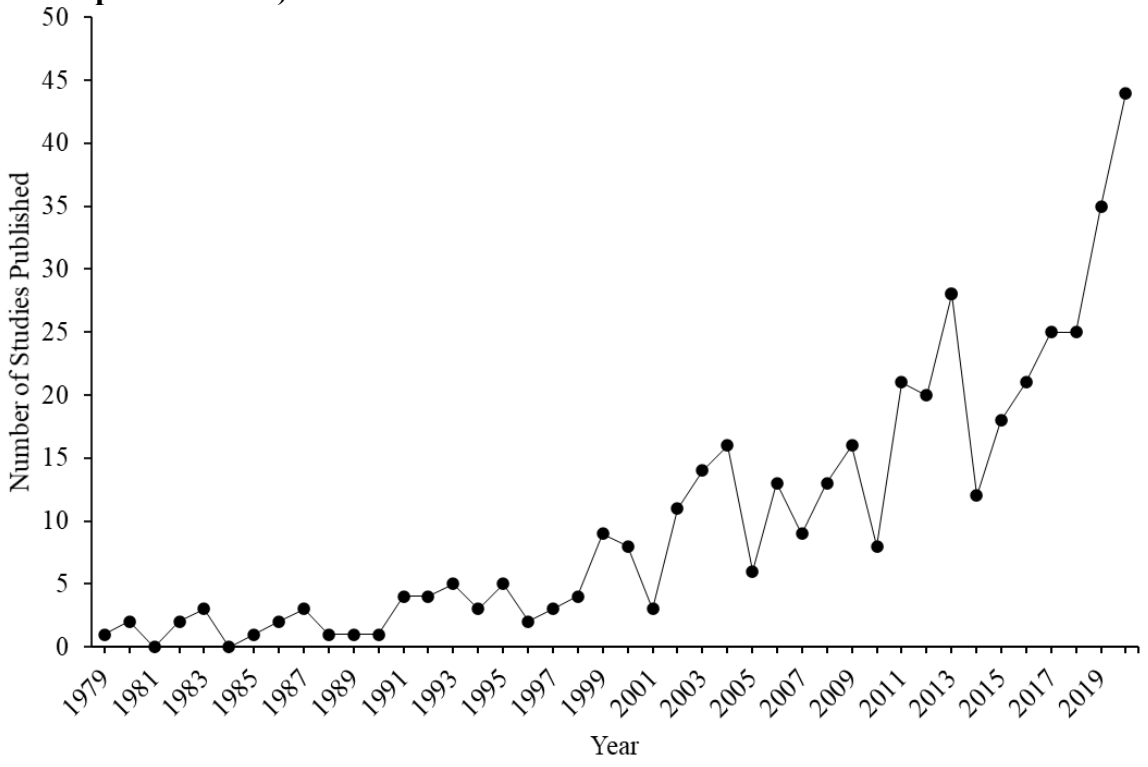
Conclusion

There has been increased research exploring and measuring burnout in DSWs (Thompson & Rose, 2011) which may either indicate increased interest in the topic since the review completed by Skirrow and Hatton (2007) or might reflect the general increase in scientific

research in that time period. Considering its recent inclusion in the International Classification of Diseases (World Health Organization, 2018) and the concern of employee wellbeing and turnover, this growing interest can reasonably be attributed, in part, to growing interest in the field. Other systematic reviews have been completed about burnout and this population of workers exploring the effects of different interventions or psychological constructs (e.g., Thompson & Rose, 2011), but reviews have not reported or updated the burnout levels of DSWs supporting people with IDD since the review completed by Skirrow and Hatton in 2007 and they have not focused on reporting differences in instruments used in the research.

Figure 1

Number of Publications per Year with Use of Boolean String "burnout and (disab* or handicap* or retard*)"



For comparison of interest in burnout as a research topic in the field over time, when Skirrow and Hatton (2007) completed their search in PsychInfo, their Boolean string (burnout

and disab* or retard* or handicap*) revealed 151 published studies, while today this same Boolean string reveals 577 articles in the same database. Moreover, when searching a Boolean string with terms more representative of terms used in most recent research (e.g., autism, intellectual disability), it reveals 624 articles. Via Medline, we can also view the result per year for any Boolean string entered. Figure 1 shows the results per publication year using the Boolean string provided by Skirrow and Hatton (2007). We see a steady increasing trend following 2002, with a significant increase in publications following 2011. Therefore, with this larger array of research available for review, it was appropriate to update on the level of burnout in DSWs supporting people with IDD and provide an update regarding the predictors of burnout and the limitations and gaps of the current research.

Purpose

Therefore, the purpose of this project was to update and extend the systematic review completed by Skirrow and Hatton (2007). The aim of this project was the same to report the levels of burnout measured by the MBI-HSS in a sample population of DSWs working in the field of IDD and outline the variables which predict burnout development for this population of workers. An additional purpose was to identify any gaps or limitations in the literature to inform future research. To accomplish these aims, the following questions were explored:

1) Is there a difference in burnout scores (for each MBI-HSS subscale) in samples of DSWs working with people with IDDs between the review published by Skirrow and Hatton (2007) and the current review?
2) Which variables are significantly correlated with burnout measured by the MBI-HSS and which are inconsistent across the literature?

3) Which variables significantly predict burnout (regression analyses) measured by the MBI-HSS, and which are inconsistent across the literature?
4) Which variables are significant moderators or mediators of main effect relationships with burnout, and which are inconsistent across the literature?

Methods

Procedure

This systematic review followed the procedures used by Skirrow and Hatton (2007) (see subsection regarding *Reviews of Burnout*) with some minor modifications to search and eligibility criteria and modifications to methods consistent with the PRISMA guidelines (Page et al., 2020). Eligibility criteria for this review included: (1) written in English, (2) published between January 2004 and December 2020, (3) used the MBI-HSS and reported mean scores for one or more subscales, (4) the participant clientele were adults with IDD, (5) participants were pure samples (80% or more) DSWs supporting the adults with IDDs, (6) primary literature, and (7) peer reviewed literature. These criteria were followed to reasonably compare the results of the search with those of Skirrow and Hatton (2007). Specific differences between the eligibility criteria for this review include the specific publication dates which begin after the last search date from Skirrow and Hatton (2007), and the inclusions of both qualified and unqualified (college/university degrees related to the DSS, nursing, and correctional/police qualifications) DSWs.

The MBI-HSS was specifically targeted as the burnout measure used in each study because it is the most widely used burnout measure for human service workers (Kristensen et al., 2005; Skirrow & Hatton, 2007). Further it allowed for reliable comparisons of the burnout level

result from this project to those of Skirrow and Hatton (2007). Other MBI surveys are available (as mentioned and discussed above in *Measuring Burnout*), and if a study used a different version, such as the version made for healthcare professionals, it was excluded. During the screening and full review phases of the systematic search, the student investigator and research assistant looked for mention of the MBI as the burnout survey used, and if the authors of the studies did not specify if it was the human services version, the bibliographic reference to the MBI-HSS version (Maslach, Jackson, & Leiter, 1996) was used to validate the use of this specific version of the survey. For example, some studies reported they used the Maslach Burnout Inventory and cited the manual (which includes all the MBI versions) instead of the citation specific to which version of the MBI used. These instances do not clearly state or provide insight into which version of the instrument was used. Therefore, if the citation was by Maslach and colleagues (1996), this use of reference was considered evidence that the human service version was used because this is the citation specific to this version. Lastly, DSWs were considered employees who work directly with the people with IDD in any setting such as employment services, respite, group homes, and psychiatric wards.

Studies were excluded a) if more than 20% of the participants were managers or other administration staff, b) if the clientele's only disability was physical or psychiatric, c) if the article could not be obtained from the search engine, inter-library loan, or from emailing the authors, d) if MBI-HSS mean subscale scores were not reported, d) or if the article was a narrative, report, or a review/meta-analysis. Studies with large percentages of managers were excluded because it is uncertain how much time they spent providing direct support. People supported who were physically disabled or who had psychiatric conditions in the absences of IDD were excluded because the care needs for these disabilities have the potential to vary

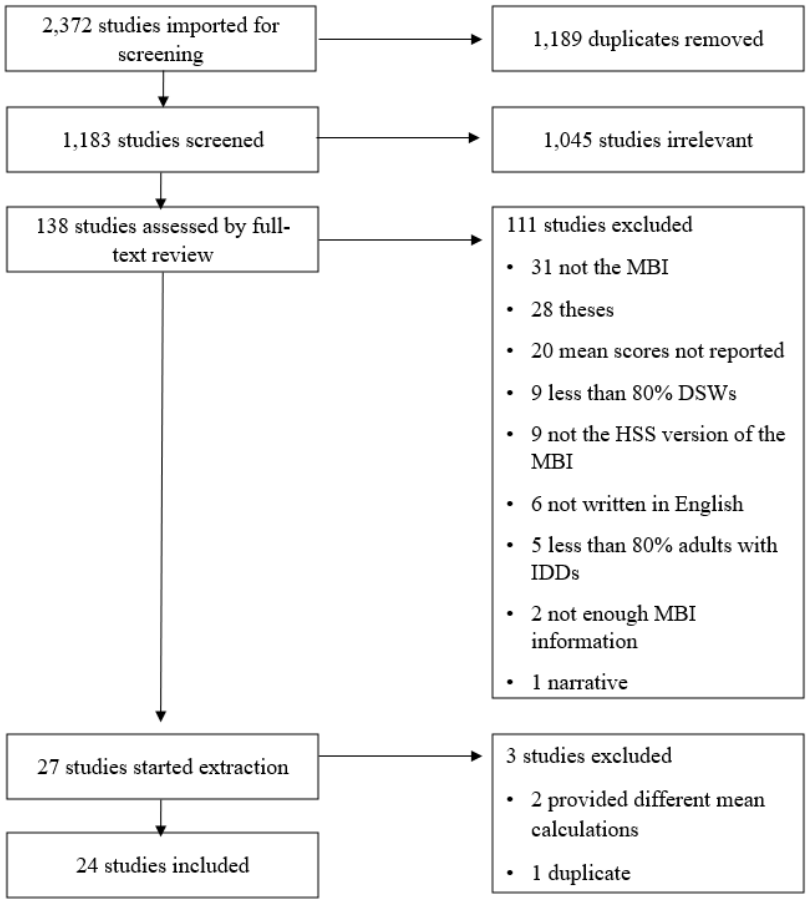
dramatically from those whose primary disability is intellectual and/or developmental. If it was clearly stated that IDD was comorbid with the physical or psychiatric condition, the study would be included. Studies were excluded if they did not provide mean subscale scores because one of the main purposes of the search was to explore levels of burnout in sample populations for each subscale, and this cannot be completed if scores are not reported. Overall burnout scores will not be accepted as eligible for this review as these scores cannot reliably be compared to the previous review by Skirrow and Hatton (2007) and it does not allow for specific results pertaining to the variables associated with each subscale. Lastly, narrative, report, and review articles were excluded because they do not provide detailed reports of levels of burnout– but the systematic reviews were used to identify additional articles to screen for inclusion.

Following the searching methods of Skirrow and Hatton (2007), the Boolean string "burnout" and (disab* or retard* or handicap*), was inputted into the PsychINFO and Medline (via PubMed) databases on March 30, 2021. An additional Boolean string, (burnout OR burn-out OR "burn out") AND (disab* OR retard* OR handicap* OR "intellectual* disab*" OR "learning disab*" OR "learning difficult*" OR "learning disorder" OR "intellectual* development* disorder*" OR "intellectual* impair*" OR "intellectual* handicap*" OR "development* disab*" OR "development* impair*" OR "mental* subnormal*" OR "mental* retar*" OR "mental* deficien*" OR "mental* disab*" OR "mental* handicap*" OR "mental* impair*" OR autis* OR "autism spectrum disorder*" OR asperger* OR ASD OR "high functioning autis*"), was developed to further refine these terms and ensure representation of the new and evolving terminology for burnout and IDD have been accounted for. The string was developed by reviewing some of most recent reviews of IDD literature and collecting the terms used until we had what we believed to be an exhaustive list of terms to describe IDDs. During the searches, no

indexing terms were used. This additional string was inputted into the same two databases on April 2nd, 2021. All searches were completed with no date restrictions or limits in other parts of the search engines. Articles were exported to the online systematic review software Covidence (Covidence Systematic Review Software, N.D; see Figure 2). Any systematic reviews identified from these searches were explored to identify additional articles, of which were inputted into Covidence between July 2nd and 5th, 2021. Articles which could not be transformed into an RIS file to import into Covidence were screened by their title and abstract in an MS Excel file created by the SI (23 excluded; 12 before year 2004, 7 were not about burnout or DSWs, 2 were unpublished, 1 was a presentation abstract, 1 was not primary research). All articles could be located via search engines and no studies were excluded for risk of bias (no risk of bias assessment was completed as this was not the main focus of this project), but results were flagged to be interpreted with caution. All titles and abstracts (1183) were scanned for the eligible target year, population, population clientele, and use of the MBI if available in the abstract or title. The remaining articles were fully reviewed (138) following the eligibility criteria outlined above, of which 28 articles were eligible for data extraction. During the extraction phase, two articles were excluded for providing different forms of means (e.g., mean rank), and one was excluded for being a duplicate. After these exclusions, a total of 24 articles met criteria for inclusion in this project and their data were extracted. Since this review's eligibility criteria is between years 2004 and 2021, no studies from Skirrow and Hatton's (2007) review were compared to studies included in this review.

Figure 2

The PRISMA Diagram Reporting the Number of Studies Imported, Screened, Fully Reviewed, Excluded, and Included in this Systematic Review



During reviews of articles which met eligibility criteria, several pieces of data were extracted:

(1) MBI-HSS subscale scores:

a. if more than one participant group was reported/studied in one article, such as community versus ward DSWs, mean MBI-HSS scores along with sample size were extracted for each, and

b. if pre-intervention and post-intervention samples were present in one article, the MBI-HSS subscales scores and sample sizes were extracted for both samples.

(2) Country in which the research was completed.

(3) Type of DSW(s) and work setting (e.g., residential, respite, employment, nurse).

(4) Publication month and year.

(5) instruments used to measure variables of interest (e.g., the Perceived Stress Scale-10 to measure stress).

(6) statistically significant and not significant correlations with each subscale.

(7) statistically significant and not significant models.

(8) statistically significant and not significant predictors of each subscale.

(9) effective and ineffective treatment strategies to reduce burnout.

(10) significant and not significant moderators and mediators.

All the information listed above was added to the data extraction charts created by the SI in MS Excel. The summary of the extracted data was presented in ten charts (see Tables 1 – 10). These tables were used to summarize the results of the correlations between the MBI-HSS subscales and each variable as well as the magnitudes of these correlations. Results were reported based on consistency of significance across studies and magnitude was reported based on guidelines from Cohen (1988) which states effect sizes of .01 are small, .03 are moderate, and .05 are large.

Next, a graph outlining the MBI-HSS subscale scores of each study population was completed which shows the level of burnout over chronological publication year (Figure 2). For graphing purposes, if studies reported mean scores for more than one sample (e.g., residential versus ward staff), whichever was closest to a community sample was graphed (e.g., no challenging behaviour, community homes versus challenging behaviour or in a hospital or ward) and if studies reported pre/post scores, pre-intervention scores were graphed as this most resembles the 'baseline' level of burnout experienced.

Alongside the visual representation of the burnout levels in the graph, meta-analytic techniques were used to compare the MBI subscale scores extracted for this review with the scores reported by Skirrow and Hatton (2007) to observe the extent to which burnout levels have persisted or changed over time. This analysis was completed through the program JASP (Version 0.14.1.0; JASP Team, 2020). To complete this analysis, mean, standard deviations, population number for each MBI-HSS subscale, correlations among the scales (with population size), country, and year of publication were extracted into an MS Excel file. Additionally, a coding scheme was developed to represent articles from the review by Skirrow and Hatton (2007) versus the articles included in this project. Sample subscale scores for the included studies were calculated with the support of JASP (Version 0.14.1.0; JASP Team, 2020) and the information collected above by reporting the intercept of the forest plots. The intercepts for each subscale were compared to the intercept calculated for Skirrow and Hatton (2007), of which was presented as a bar graph. The intercept was calculated for Skirrow and Hatton's (2007) sample to ensure reliable comparison could be completed due to the different statistical methods used in this project. Lastly, an intercept was calculated for the sample of Canadian studies included and presented alongside the above intercepts to compare the mean burnout levels of samples using Canadian DSWs with the overall burnout levels from this review and that of Skirrow and Hatton (2007).

Research Assistant Training

Testing of the Screening Tool

Before training began, the SI and supervisor developed a screening tool to train the Research Assistant. To test the screening tool, the SI and the supervisor each screened 97 articles, randomly selected from Covidence, and downloaded into a MS Word file. Inter-rater

agreement was calculated by dividing the number of agreements by the numbers of agreements plus disagreements and multiplying by 100. Inter-rater agreement for this step was 86%. A review of the agreements and disagreements revealed some ambiguity in the screening tool, which was subsequently revised (e.g., specifically noting that teachers counted as DSWs). The revised screening tool was used for research assistant training.

Training Procedures

Before each stage of the review process, the SI trained the RA. Training included the following steps: 1) instructions about how to use the screening tools, 2) modeling the use of the screening tool on Covidence, 3) practice using the screening tool, and 4) feedback through reviewing agreements and disagreements. For full training protocol see Appendix A.

Screening Phase. During instructions, the SI reviewed the screening tool that contained several screening questions used to determine eligibility of each study and worked with the RA to further reduce any ambiguity by allowing them to ask questions. Any ambiguity was resolved by adding statements to the screening tool. After an opportunity to ask questions, the SI modelled the use of the tool through the Covidence software. When the RA was comfortable moving into practice, the SI provided the RA with an MS Excel file including the screening questions and an MS Word file which included the same 97 titles and abstracts reviewed previously by the SI and the supervisor. The RA was instructed to review the first 25 titles and abstracts in the document. An inter-rater agreement of 92% was achieved. All disagreements were reviewed, and conflicts were resolved collaboratively.

Full-Text Review Phase. Following the same steps as outlined above, instructions were provided to follow and to adjust the review tool. Modelling the use of the tool was completed on

Covidence. Again, an MS Excel file was developed which included the review tool questions for this phase and an MS Word document with 10 randomly selected article references pulled from the section for full review on Covidence were provided to the RA. The RA and the SI independently completed coding to include or exclude the articles from the review. An inter-rater agreement of 90% was achieved. All disagreements were reviewed, and conflicts were discussed and resolved. Any further ambiguity in the review tool was adjusted.

Data Extraction Phase. Following the same steps as during the screening and review phases, instructions, modeling, practice, and feedback were provided during the data extraction phase. The SI provided instructions using the data extraction tool and reviewed any rules for extraction. Any ambiguity was resolved in collaboration with the RA. Afterwards, the SI modelled data extraction with one article in Covidence, where an article which met criteria for extraction rules was ensured to be modelled. Then, three articles were systematically chosen from the Covidence software and placed into a MSWord file to practice extraction and complete inter-rater agreement. The RA and SI independently completed data extraction for these articles and an inter-rater agreement of 92% was achieved. Disagreements were reviewed by the SI and resolved by cross-referencing each MS Excel document with the article. No further adjustments to the extraction tool or rules were needed.

Inter-rater Reliability

Following guidelines from Polanin and colleagues (2019), the screening, full review, and extraction process was completed by two individual reviewers, first by the SI and second by a RA. Disagreements were resolved through collaboration with the SI and the RA in regular scheduled meetings (range between daily to every three days) via MS Teams during each phase of the review process. An agreement rate was obtained at each meeting by calculating the total

number of articles screened/reviewed/data extracted and dividing the number of agreements by the total number of articles screened. This resulted in a rater agreement of 94% during the screening phase, 90% during the full review phase, and 86% during the data extraction phase. For data extraction, both reviewers completed the data collection independently. Once extraction was complete, the SI cross-referenced the extraction tables for any inconsistencies and inconsistencies were resolved.

Results

Details about the study samples, setting, and instruments used can be found in Table 1 along with the means and standard deviations for the MBI-HSS subscale scores per the PRISMA guidelines. The articles included in this review are also identified by asterisks in the reference list. Results of the magnitude of correlations between the MBI-HSS subscale scores are presented in Tables 2 to 9 and graphs used for visual analysis are presented in Figures 2 and 3.

Visual Analyses

The trends of the MBI-HSS subscale scores across chronological publication date for the studies reviewed by both Skirrow and Hatton (2007) and for the current review are depicted in Figure 3. As a reminder, the EE and DP subscales suggest higher risk of burnout with higher scores, while the PA subscale suggests low risk of burnout with high scores and high risk of burnout with low scores. Trends for the current review show variable, but stable low scores for DP. Meanwhile, the variability within the EE and PA subscales over chronological publication date are much greater. The emotional exhaustion subscale appears to be on a variable, upward trend since 2007 (#1) despite the recent decreases since 2019 (#22). As for PA, the scores appear to be on a variable, increasing trend overall, with similar decreases in scores since 2019 (#22).

Table 2

The Study Characteristics and Burnout Levels for the Studies Included in This Review

AUTHOR (Year)	NUMBER ID	COUNTRY	POPULATION	MEASURES USED	EE Mean (SD)	DP Mean (SD)	PA Mean (SD)
Dennis & Leach (2007)	1	England	10 nursing staff working in a medium secure placement for men	1. Five Minute Speech Sample Interview (Magana et al., 1986) 2. MBI	13.6 (9.1)	11.1 (9.7)	33.3 (6.2)
Lundstrom et al. (2007)	2	Sweden	138 staff working in group homes (client violence: 45; no client violence: 93)	1. Temperament and Character Inventory - Short Version (Cloninger et al., 1994) 2. 10-Item Rosenberg Self-Esteem Scale (Rosenburg 1965) 3. Emotional Reactions in Nursing Care Scale (Hallberg & Norberg, 1993) 4. The Strain in Nursing Care Assessment Scale (Hallber & Norberg, 1993) 5. The Tedium	**no violence:** 12.19 (7.85) **violence:** 14.69 (8.21)	**no violence:** 1.79 (2.56) **violence:** 2.64 (3.38)	**no violence:** 33.04 (10.34) **violence:** 32.56 (8.78)

				Scale (Pines et al., 1981) 6. MBI - HSS			
Snow et al. (2007)	3	UK	41 direct care nurses working in inpatient services	1. MBI-HSS 2. Leeds Attributional Coding System (Stratton et al., 1988)	18.73 (10.63)	6.24 (5.21)	8.17 (5.34)
Langdon et al. (2007)	4	UK	27 nurses working in a medium secure hospital	1. Five Minute Speech Sample Interview (Magana et al., 1986) 2. Attitudes to Treatment Questionnaire (Caine et al., 1982) 3. The Cooper Coping skills Questionnaire (Cooper et al., 1988) 4. The General Health Questionnaire - 28 (Goldberg & Williams, 1988) 5. MBI	16.63 (10.17)	5.37 (4.39)	11.52 (5.12)
Lloyd et al. (2008)	5	UK	20 paraprofessional carers in	1. Caregiver Activity Survey - Intellectual	**non-decline:** 12.36 (6.47)	**non-decline:** 2.82 (2.93)	**non-decline:** 12.73 (8.30)

			residential group homes (dementia decline: 9; non-decline: 11)	Disability (McCaron et al., 2002) 2. Caregiver Difficulty Scale - Intellectual Disability (McCallion et al., 2005) 3. MBI - HSS	**decline:** 24.22 (11.98)	**decline:** 3.56 (3.56)	**decline:** 9.67 (3.96)
Long et al. (2008)	6	England	12 DSWs working in a medium secure ward for women	1. Work Environment Scale (Moos, 1986) 2. Job Description Index (Smith et al., 1969) 3. Disturbed Behaviour List (Trauer, 1983) 4. MBI	**Pre-change:** 3.25 **Post-change:** 12.3	**Pre-change:** 9.3 **Post-change:** 3.6	**Pre-change:** 31 **Post-change:** 37
Wright (2008)	7	Australia	98 disability workers from adult training and support services (58) and community residences (40)	1. Job Content Questionnaire (Karasek, 1985) 2. MBI - HSS	20.99 (9.97)	4.77 (4.32)	35.94 (6.36)

Howard et al. (2009)	8	UK	44 DSWs working in medium secure settings exposed to violence and 38 DSWs in community settings with low violence	1. The Staff Support and Satisfaction Questionnaire (Harris & Rose, 2002) 2. Difficult Behaviour Self-Efficacy Scale (Hastings & Brown, 2002) 3. Fear of Violence Measure (Rose & Cleary, 2007) 4. Actual Level of Violence (Winstanley & Whittington, 2002) 5. Completion of violence Incident Reports 6. MBI	**medium secure:** 21.77 (7.39) **community staff** (n=36)**:** 19.97 (11.52)	**medium secure:** 5.66 (3.69) **community staff** (n=37): 6.19 (5.87)	**medium secure:** 28.16 (4.75) **community staff** (n=38): 26.22 (6.19)
Chung & Harding (2009)	9	UK	103 DSWs working residential community homes	1. Aberrant Behaviour Checklist (Aman et al., 1985) 2. The General Health Questionnaire – 28 (Goldberg & Hillier, 1979) 3. NEO-Five Factor Inventory	20.59 (11.99)	4.85 (5.49)	35.29 (7.79)

				(Costa & McCrae, 1992) 4. MBI-HSS			
Gray-Stanley et al. (2011)	10	USA	323 staff providing residential, vocational, and/or personal care services	1. Work Stress (Hester Adrian Research Centre, 1999) 2. Work Social Support (West & Savage, 1988) 3. Locus of Control (Ross & Mirowsky, 1989) 4. MBI -HSS short version	19.19 (13.34)		
Chao et al. (2011)	11	USA	435 DSWs in out-of-home community placements	1. MBI-HSS	15.3 (10.7)	3.0 (4.1)	38.6 (7.3)
Noone & Hastings (2011)	12	UK	59 support staff working in community residence	1. The Acceptance and Action Questionnaire-II (Bond et al., 2010) 2. Support Staff Values Questionnaire - Intellectual Disability (Noone & Hastings, 2011) 3. MBI-HSS	28.12 (10.47)	9.92 (7.36)	43.73 (8.29)

Vassos & Nankervis (2012)	13	Australia	108 DSWs in multiple settings (e.g., day programs, respite)	1. Staff Stressor Questionnaire (Hatton et al., 1997) 2. Job Control (Jackson et al., 1993) 3. Quantitative Workload (Caplan, 1971) 4. Role Ambiguity and Role Conflict Questionnaire (Rizzo et al., 1970) 5. Job feedback, Influence over work decisions, and support from supervisor Questions (Borrill et al., 1996) 6. MBI-HSS	**n = 103:** 19.67 (10.25)	**n = 98:** 3.77 (4.26)	**n = 102:** 38.91 (5.79)
Hensel et al. (2012)	14	Canada	926 community staff	1. Exposure to Aggression (Hastings & Brown, 2002) 2. MBI-HSS	18.7 (11.5)	4.7 (4.9)	36.9 (7.5)

Rose et al. (2013)	15	UK	77 DSWs working in residential homes	1. Fear of Assault (adapted from Leather et al., 1997 by Rose & Cleary, 2007) 2. Checklist of Challenging Behaviours (Harris et al., 1994) 3. Modified Essen Climate Evaluation Schema (Schalast et al., 2008) 4. MBI-HSS	19.86 (11.09)	4.7 (5.4)	36.39 (6.67)
Vassos et al. (2013)	16	Australia	258 DSWs is multiple settings (e.g., supported living, day programs)	1. Utrecht Work Engagement Scale (Schaufeli & Bakker, 2003) 2. Staff Stressor Questionnaire (Hatton et al., 1999) 3. Job feedback, Influence over work decisions, and support from supervisor Questions (Borrill et al., 1996) 4. Job Control (Jackson et al., 1993)	19.98 (13.19)	3.95 (4.47)	35.86 (7.49)

				5. Quantitative Workload (Caplan, 1971) 6. Role Ambiguity and Role Conflict Questionnaire (Rizzo et al., 1970) 7. MBI-HSS			
Hensel et al. (2014)	17	Canada	42 matched-pairs of community residential staff and hospital staff working in units specifically for adults with intellectual disabilities	1. Exposure to Aggression (Nijman et al., 1999; Hastings & Brown, 2002) 2. Difficult Behavior Self-Efficacy Scale (Hastings & Brown, 2002; Howard et al., 2009) 3. MBI-HSS	**Community Staff:** 17.1 (11.5) **Hospital Staff:** 24.6 (12.7)	**Community Staff:** 4.7 (4.9) **Hospital Staff:** 6.4 (6.0)	**Community Staff:** 35.6 (7.3) **Hospital Staff:** 34.7 (8.2)
Hickey (2014)	18	Canada	1570 DSWs in multiple settings and roles	1. The Positive and Negative Affect Schedule (Watson et al., 1988) 2. Occupational Role Questionnaire (Osipow, 1998) 3. MBI-HSS	16.83 (10.27)	3.36 (4.18)	38.77 (6.77)

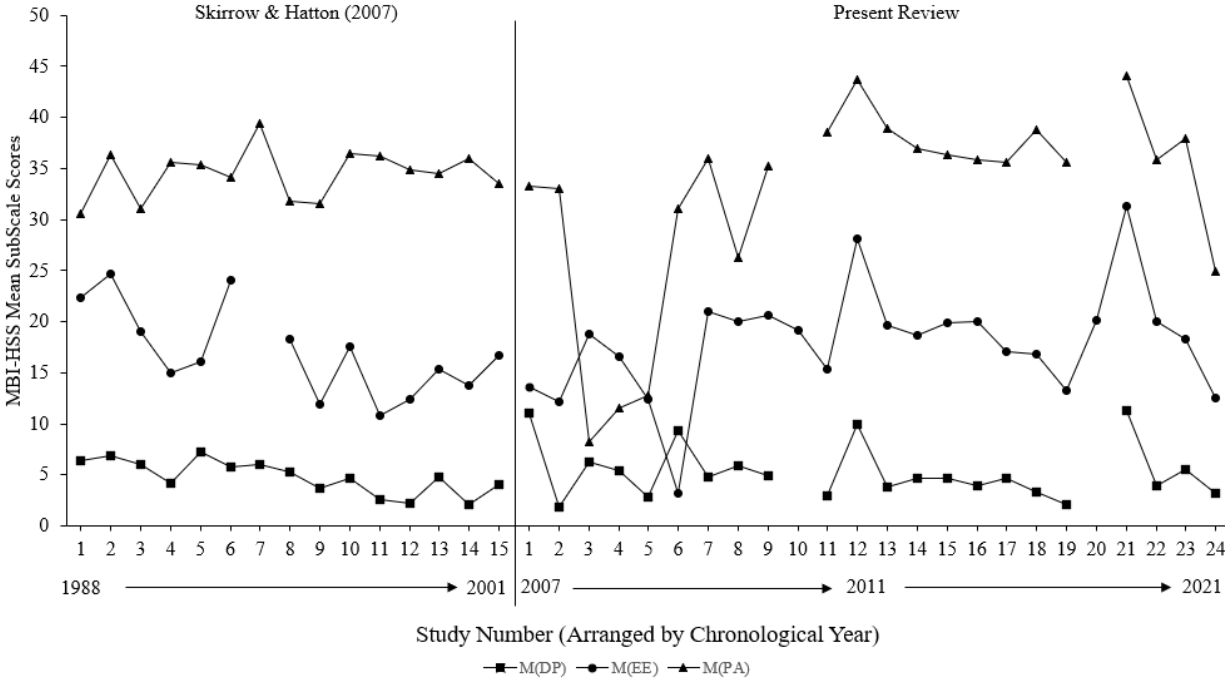
Smyth et al. (2015)	19	UK	138 DSWs working in residential community homes	1. Behaviour Problems Inventory (Rojahn et al., 2001) 2. The Perceived Stress Scale - 10 item (Cohen et al., 1983) 3. The TCM Employee Commitment Survey Revised (Meyer et al., 1993) 4. MBI-HSS	13.20 (10.00)	2.03 (3.01)	35.54 (7.68)
Hensel et al. (2015)	20	Canada	671 DSWs with majority working in residential and respite settings	1. Exposure to Agression (Nijman et al., 1999) 2. Difficult Behavior Self-Efficacy Scale (Hastings & Brown, 2002) 3. Emotional Reactions to Aggressive Behaviour Scale (Mitchell & Hastings, 1998) 4. Staff Positive Contributions Questionnaire	20.1 (12.0)		

				Brief Form (Lunsky et al., 2014) 5. MBI-HSS			
Lahana et al. (2017)	21	Greece	180 nurses working in hospitals	1. MBI - HSS Greek Version	31.36 (11.60)	11.27 (6.05)	44.02 (8.41)
Vassos et al. (2019)	22	Australia	325 DSWs disability support services such as day programs and residences	1. Staff Stressor Questionnaire (Hatton et al., 1997) 2. Utrecht Work Engagement Scale (Shaufeli & Bakker, 2003) 3. MBI-HSS	**n = 233**: 19.98 (13.19)	**n = 236**: 3.95 (4.47)	**n = 227:** 35.85 (7.49)
Nevill & Havercamp (2019)	23	USA	102 DSWs working in residences, day programs, and workshops (64 retained; 33 non-retained)	1. The Kentucky Inventory of Mindfulness Skills (Baer et al., 2004) 2. Brief Coping Orientation to Problems Experienced (Carver, 1997) 3. Brief Resilience Scale (Smith et al., 2008) 4. MBI- HSS	**retained:** 18.27 (12.51) **non-retained:** 20.18 (14.60)	**retained**: 5.53 (6.38) **non-retained:** 5.76 (5.22)	**retained:** 37.91 (8.34) **non-retained:** 35.33 (8.09)

Klaver et al. (2021)	24	Netherlands	127 DSWs working in day and residential services	1. Abberant Behaviour Checklist (Aman et al., 1985) 2. Brief Resilience Scale (Smith et al., 2008) 3. Challenging Behaviour Self-Efficacy Scale (Hastings & Brown, 2002) 4. NEO Five Factor Inventory (Costa & McCrae, 1992) 5. Utrechtse Coping Lijst (Schreurs et al., 1993) 6. Job Content Questionnaire (Karasek et al., 1998) 7. MBI-HSS	**no challenging behaviour:** 12.48 (7.88) **challenging behaviour:** 15.71 (8.84)	**no challenging behaviour:** 3.16 (3.49) **challenging behaviour:** 4.26 (3.67)	**no challenging behaviour:** 24.92 (5.37) **challenging behaviour:** 25.49 (4.79)

Figure 3

Trends of the MBI-HSS Subscale Scores over Chronological Publication Year



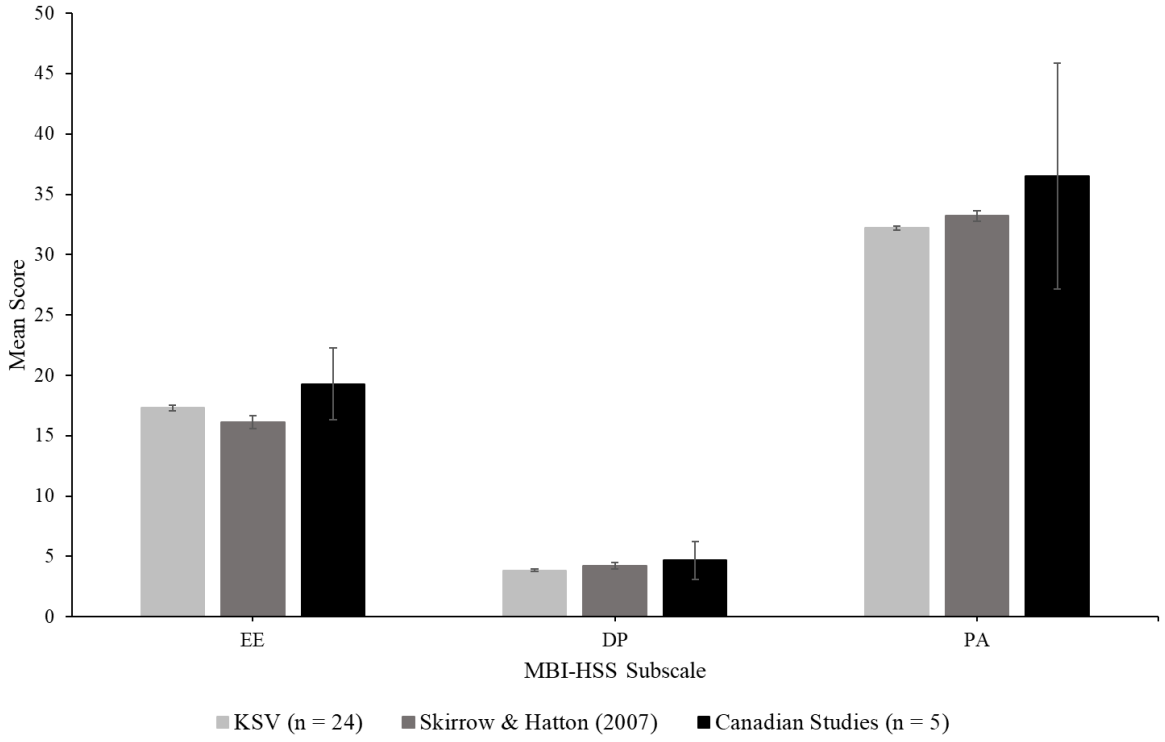
A visual comparison of the trends between Skirrow and Hatton's (2007) results and the current review in Figure 3 showed that DP and EE were on decreasing trends until 2001, but the studies included in the current review for DP appear to be stable (with some variability) and EE appears to be increasing since 2007. For PA, the trend for Skirrow and Hatton's (2007) sample appeared stable, while for the present review it is on a variable increasing trend. Visually, we also see a difference in the variability of the mean scores in each sample. Skirrow and Hatton's (2007) sample shows less variability compared to the variability of scores in the present review sample. Mean scores ranged between 10.8 – 24.66, 2.14 – 7.18, and 30.62 – 39.43 for EE, DP, and PA respectively. For the current sample, EE, DP, and PA ranged between 3.25 - 31.36, 1.79 - 11.01, and 8.17 - 44.02 respectively.

Visual analysis was also completed for the bar graph presented in Figure 4. Visually, there are no large differences in level of burnout when comparing the coefficient estimates

calculated for Skirrow and Hatton's (2007) sample and the present sample. But, when visually analyzing the present study Canadian sample coefficient estimate, it appears higher than the total present sample and Skirrow and Hatton's (2007) sample coefficient estimates for both the EE and PA subscales, remembering that this difference was not statistically evaluated. But the overlapping confidence intervals suggests there is no apparent trend.

Figure 4

Meta-Regression Intercept Estimates for Each MBI-HSS Subscale across the Present Sample, Skirrow and Hatton's (2007) Sample, and the Sample of Canadian Studies from Studies Included in This Review



Note. Error Bars are represented using the 95% confidence intervals.

Statistical Analyses

Several classical meta-analyses were completed via the software JASP (Version 0.14.1.0, JASP Team, 2020) to determine if the difference between scores from the review by Skirrow and Hatton (2007) were significantly different than the scores reported in this review and to observe

the impact of each study for each MBI-HSS subscale score. To start, JASP (Version 0.14.1.0, JASP Team, 2020) was used to calculate the coefficient estimates for the total present sample, the present sample of studies completed in Canada, and Skirrow and Hatton's (2007) total sample. Figure 3 depicts the intercepts of each sample and the forest plots for these analyses are found in Appendices B and C.

Emotional Exhaustion Subscale

The results for the EE subscale show that the coefficient estimates were 17.31 ($p < .001$; 95%CI [17.068, 17.554]) for the current review and 16.13 ($p < .001$; 95%CI [15.572, 16.690]) for Skirrow and Hatton's (2007) sample. The forest plots can be found in Appendices B and C. The difference of mean EE scores between Skirrow and Hatton's (2007) review and the present review was significant. Results show that Skirrow and Hatton's (2007) mean was 1.180 points lower ($p < .001$; 95%CI [-1.790, -.571]) than that of the present sample's mean (see Appendix D). As for the mean for the sample of Canadian articles included in this review, the coefficient estimate for the EE subscale was 19.28 ($p < .001$; 95%CI [16.299, 22.262]).

Depersonalization Subscale

The results for the DP subscale show that the coefficient estimates were 3.86 ($p <.001$; 95%CI [3.757, 3.965]) for the current review and 4.25 ($p < .001$; 95%CI [3.983, 4.526]) for Skirrow and Hatton's (2007) sample. The forest plots can be found in Appendices B and C. The difference of mean DP scores between Skirrow and Hatton's (2007) review and the present review was significant. Results show that Skirrow and Hatton's (2007) mean was 0.394 points higher ($p = .008$; 95% CI [0.103, 0.685]), than that of the present sample's mean (see Appendix

D). As for the mean for the sample of Canadian articles included in this review, the coefficient estimate for the DP subscale was 4.672 ($p < .001$; 95%CI [3.090, 6.254]).

Personal Accomplishment Subscale

The results for the PA subscale show that the coefficient estimates were 32.2 ($p < .001$; 95%CI [32.043, 32.361]) for the current review and 33.2 ($p < .001$; 95%CI [32.784, 33.615]) for Skirrow and Hatton's (2007) sample. The forest plots can be found in Appendices B and C. The difference of mean PA scores between Skirrow and Hatton's (2007) review and the present review was significant. Results show that Skirrow and Hatton's (2007) mean was 0.998 points higher ($p < .001$; 95% CI [0.553, 1.443]), than that of the present sample's mean (see Appendix D). As for the mean for the sample of Canadian articles included in this review, the coefficient estimate for the PA subscale was 36.503 ($p < .001$; 95%CI [27.153, 45.854]).

Correlates of the MBI-HSS Subscales

Demographics

Within the 24 studies included in this review, ten demographic variables were examined further to explore their correlation with the MBI-HSS subscale scores. These variables included age, sex, experience/qualifications, length of time working in DSS, length of time working with people who engage in self-injurious behaviours (SIB), the number of clients who engage in SIB, the length of time working in present role, and ethnicity.

Table 3 reports comparisons of the magnitude of correlations between the MBI-HSS subscales and DSW demographic variables. Two variables had been studied in more than one article allowing for comparisons in this review. These two variables were age and length of time in DSS. Five studies reported the correlation between burnout and DSW's age (Chung &

Harding, 2009; Hensel et al., 2015; Howard et al., 2009; Smyth et al., 2015; Snow et al., 2007). These results were consistent for correlations with EE and PA, showing that DSW's age does not significantly predict burnout (Chung & Harding, 2009; Hensel et al., 2015; Howard et al., 2009; Smyth et al., 2015; Snow et al., 2007). As for DP, the results have been inconsistent. Three studies have shown DSW's age to not significantly predict DP (Chung & Harding, 2009; Howard et al., 2009; Snow et al., 2007), while one study found age to have a weak, negative correlation with the DP subscale (Smyth et al., 2015). Length of time working in the DSS was studied by three authors (Chung & Harding, 2009; Snow et al., 2007; Howard et al., 2009). One author found that length of time working in the DSS had a significant, weak positive correlation with EE (Howard et al., 2009). Meanwhile, this result was inconsistent with Snow and colleagues (2007) and Chung and Harding (2009) who found that the length of time working in the DSS was not significantly correlated with the EE subscale. As for DP and PA, no significant correlations were noted by any of the authors.

Table 3

Comparisons of Correlations between MBI-HSS Subscales and DSW Demographics

Variable of Interest	Author(s)	Sample Size	Subscales and Correlations		
			EE	DP	PA
Age	Snow et al. (2007)	41	-.17	-.25	-.16
	Howard et al. (2009)	82	.181	-.127	
	Chung & Harding (2009)	103	-.013	.029	-.030
	Smyth et al. (2015)	138	-.152	-.186*	.140
	Hensel et al. (2015)	671	-.03		
Time in DSS	Snow et al. (2007)	41	-.16	-.03	-.06
	Howard et al. (2009)	82	.253*	.087	
	Chung & Harding (2009)	103	.087	.076	-.107

*$p < .05$

Table 4 reports the magnitude of correlations between the MBI-HSS subscales and the DSW demographic variables which were reported in only one article in this review, thus precluding comparisons. These eight variables include the correlations between experience (Smyth et al., 2015), length of time working with people who engage in SIB (Snow et al., 2007), the number of clients who engage in SIB (Snow et al., 2007), sex, time in present role, marital status, and ethnicity (Chung & Harding, 2009). Of these eight variables, only the number of clients who engage in SIB was found to have significant correlations. Snow and colleagues (2007) found that number of clients who engage in SIB had moderately strong, significant correlations with the EE and DP subscales. No significant correlations were found between sex, marital status (Chung & Harding, 2009), experience (Smyth et al., 2015), time working with people who engage in SIB (Snow et al., 2007), time in current role, ethnicity, or qualifications (Chung & Harding, 2009) and any of the MBI-HSS subscales, and Snow et al. (2007) found number of clients who engage in SIB to not be a significant correlate with the DP subscale.

Table 4
Correlations Between the MBI-HSS Subscales and DSW Demographics Studied One Time

Variable of Interest	Author(s)	Sample Size	Subscales and Correlations		
			EE	DP	PA
Sex	Chung & Harding (2009)	103	.045	-.041	.146
Marital Status	Chung & Harding (2009)	103	-.001	.024	.009
Experience	Smyth et al. (2015)	138	.153	.037	-.035
Time Working in SIB	Snow et al. (2007)	41	-.09	-.05	-.08
Number of Clients Who Engage in SIB	Snow et al. (2007)	41	.32*	.23	.36*
Time in Current Role	Chung & Harding (2009)	103	.145	.135	-.083

Ethnicity	Chung & Harding (2009)	103	-.040	-.093	.080
Qualifications	Chung & Harding (2009)	103	.129	-.019	-.107

*$p < .05$

Personal Characteristics

The relationships between a wide range of different personal characteristics and burnout have been studied within the 24 articles included in this review. Specifically, the relationships between 52 different personal characteristic variables and burnout were explored in total. Of these 52 variables, eight were studied more than once across articles. Table 5 reports the magnitude of the correlations between the MBI-HSS subscales and DSW personal characteristics which were studied more than once across articles included in this review. These variables included Fear/Anxiety, Self-Efficacy, Expressed Emotion, Acceptance, Vigor, Dedication, Absorption, and Resilience. Vigor and Dedication (Vassos et al., 2013; Vassos et al., 2019) were found to have consistent, moderate to strong positive correlations with each of the MBI-HSS subscales. Absorption was found to consistently have low to moderate significant positive correlations with each of the MBI-HSS subscales (Vassos et al., 2013; Vassos et al., 2019) and Resilience had consistent, weak negative correlations with the EE subscale (Vassos et al., 2013; Vassos et al., 2019).

Fear/Anxiety, Self-Efficacy, Expressed Emotion, and Acceptance were found to have inconsistent results across studies for correlations with the EE subscale (see Table 5). Fear/Anxiety (Hensel et al., 2015) and Expressed Emotions (Klaver et al., 2021) were found to have weak, positive correlations with the EE subscale but they were also found to not significantly correlate with EE (Dennis & Leach, 2007; Hensel et al., 2015). Langdon and

colleagues (2007) also explored Expressed Emotion but did not report correlations between Expressed Emotion and the MBI-HSS subscale scores. Instead, they reported significant t-test scores for group differences between those who had high versus low Expressed Emotion. It was found that there was no significant difference between the high versus low Expressed Emotion groups for the EE subscale, but significant group differences were found for DP and PA (Langdon et al., 2007). Self-Efficacy (Hensel et al., 2015; Klaver et al., 2021) and Acceptance (Noone & Hastings, 2011) were found to have weak to moderate, negative correlations with the EE subscale while Howard and colleagues (2009) and Nevill and Havercamp (2019) found Self-Efficacy and Acceptance, respectfully, to not be significant correlates with the EE subscale. Acceptance also had inconsistent findings for the DP subscale where Nevill and Havercamp (2019) found a weak, significant negative correlation between the variables, while Noone and Hastings (2011) found no significant correlation. Fear/Anxiety (Howard et al., 2009), Expressed Emotion (Dennis & Leach, 2007), Acceptance (Noone & Hastings, 2011; Klaver et al., 2021), and Resilience (Nevill & Havercamp, 2019) were found to not significantly correlate with the PA subscale, and Fear/Anxiety (Howard et al., 2009) and Resilience (Nevill & Havercamp, 2019) were also found to not be significant correlates of the DP subscale.

Table 5
Comparisons of Correlations between MBI-HSS Subscales and DSW Personal Characteristics

Variable of Interest	Author(s)	Sample Size	Subscales and Correlations		
			EE	DP	PA
Fear/Anxiety	Howard et al. (2009)	82	-.176	.035	.075
	Hensel et al. (2015)	671	.25**		
Self-Efficacy	Howard et al. (2009)	82	-.032	-.108	.530***
	Hensel et al. (2015)	671	-.27**		
	Klaver et al. (2021)	127	-.169**		
	Dennis & Leach (2007)	10	.07	.59*	-.24

Expressed Emotion	Klaver et al. (2021)	127	.126**		
Acceptance	Noone & Hastings (2011)	59	-.399**	-.153	.079
	Nevill & Havercamp (2019)	102	-.19	-.25*	.08
Vigor	Vassos et al. (2013)	258	.48*	.29*	.53*
	Vassos et al. (2019)	325	.48*	.29*	.53*
Dedication	Vassos et al. (2013)	258	.41*	.32*	.45*
	Vassos et al. (2019)	325	.41*	.32*	.32*
Absorption	Vassos et al. (2013)	258	.26*	.18*	.37*
	Vassos et al. (2019)	325	.26*	.18*	.18*
Resilience	Nevill & Havercamp (2019)	102	-.24*	-.19	.19
	Klaver et al. (2021)	127	-.215**		

*$p < .05$; **$p < .01$; *** $p < .001$

Table 6 reports the magnitude of correlations between the MBI-HSS subscales and DSW personal characteristics which were studied one time across articles included in this review. It was found that stress measured by Salivary Immunoglobin A, Cortisol Difference, and Cortisol 1 (Wright, 2008), personality traits of Novelty Seeking, Reward Dependence, and Persistence (Lundstrom et al., 2007), Global, Internal, Controllable, External, Personal, Universal, Uncontrollable, Unstable, and Specific Attributions (Snow et al., 2007), the Observe Mindfulness skill (Nevill & Havercamp, 2019), Seeking Social Support and Comforting Thoughts coping strategies, and the Agreeable personality type (Klaver et al., 2021) were not significant correlates with the MBI-HSS subscales.

The EE subscale had weak to moderate, significant positive correlations with Continuance Commitment (Smyth et al., 2015), Harm Avoidance, Self-Esteem (Lundstrom et al., 2007), Fear of Assault (Rose et al., 2013), and Avoidance Focused, Emotion Focused, and Maladaptive coping (Nevill & Havercamp, 2019) and strong positive correlations with

Depression/Anger (Hensel et al. 2015) and Perceived Stress (Smyth et al., 2015). Weak to moderate significant negative correlations were found between the EE subscale and Positive Work Motivation, General Positive Contributions (Hensel et al., 2015), Normative and Affective Commitment (Smyth et al., 2015), Self-Directedness (Lundstrom et al., 2007), Stable Attributions (Snow et al., 2007), Describe and Act Mindfulness Skills (Nevill & Havercamp, 2019), Active Coping, and Extraverted and Conscientious personalities (Klaver et al., 2021).

Weak to moderate positive correlations were found between the DP subscale and Perceived Stress, Continuance Commitment (Smyth et al., 2015), Harm Avoidance (Lundstrom et al., 2007), and Avoidance-Focused, Emotion-Focused, and Maladaptive Coping (Nevill & Havercamp, 2019). The DP subscale had low to moderate significant negative correlations with Self-Directedness (Lundstrom et al., 2007), Staff Values (Noone & Hastings, 2011), Fear of Assault (Rose et al., 2013), and the Describe and Act Mindfulness skills (Nevill & Havercamp, 2019). No strong positive or negative correlations were found between the DP subscale and any of the personal characteristic variables.

The PA subscale was low to moderate significantly positively correlated with Affective and Normative Commitment (Smyth et al., 2015), Cooperativeness, Self-Transcendence personality traits (Lundstrom et al., 2007), Staff Values (Noone & Hastings, 2011), Describe and Act mindfulness skills, and Problem-Focused Coping (Nevill et al., 2019) and a significant strong positive correlation was found between the PA subscale and Fear of Assault (Rose et al., 2013). Two variables were found to have low to moderate significant negative correlations with PA, which were Self-Esteem (Lundstrom et al., 2007) and Maladaptive Coping (Nevill & Havercamp, 2019). No variables had strong negative correlations with the PA subscale.

Table 6
Correlations Between the MBI-HSS Subscales and DSW Personal Characteristics Studied One Time

Variable of Interest	Author(s)	Sample Size	Subscales and Correlations		
			EE	DP	PA
Depression/Anger	Hensel et al. (2015)	671	.49**		
Positive Work Motivation	Hensel et al. (2015)	671	-.24**		
General Positive Contributions	Hensel et al. (2015)	671	-.17**		
Perceived Stress	Smyth et al. (2015)	138	.530**	.274**	-.135
Salivary Immunoglobin A	Wright (2008)	98	-0.10	-.00	.17
Cortisol Difference	Wright (2008)	98	-.09	.04	-.12
Cortisol 1	Wright (2008)	98	-.02	-.19	.12
Affective Commitment	Smyth et al. (2015)	138	-.408**	-.075	.231**
Normative Commitment	Smyth et al. (2015)	138	-.253**	-.033	.308**
Continuance Commitment	Smyth et al. (2015)	138	.366**	.194**	-.080
Harm Avoidance	Lundstrom et al. (2007)	138	.28***	.17*	.02
Novelty Seeking	Lundstrom et al. (2007)	138	.05	.01	-.05
Reward Dependence	Lundstrom et al. (2007)	138	-.16	-.14	.03
Persistence	Lundstrom et al. (2007)	138	.00	-.02	-.16
Self-Directedness	Lundstrom et al. (2007)	138	-.26**	-.27**	.14
Cooperativeness	Lundstrom et al. (2007)	138	-.09	-.13	.30***
Self-Transcendence	Lundstrom et al. (2007)	138	-.01	.08	.20*
Self-Esteem	Lundstrom et al. (2007)	138	.23**	.15	-.20*
Global Attributions	Snow et al. (2007)	41	-.22	.15	.01
Internal Attributions	Snow et al. (2007)	41	-.07	.02	-.11

Controllable Attributions	Snow et al. (2007)	41	.21	.08	.10
Stable Attributions	Snow et al. (2007)	41	-.30*	-.04	.02
External Attributions	Snow et al. (2007)	41	.03	-.03	-.10
Personal Attributions	Snow et al. (2007)	41	-.16	.14	-.10
Universal Attributions	Snow et al. (2007)	41	.15	-.11	.12
Uncontrollable Attributions	Snow et al. (2007)	41	-.19	-.09	-.12
Unstable Attributions	Snow et al. (2007)	41	.06	-.02	-.01
Specific Attributions	Snow et al. (2007)	41	.15	-.14	.02
Staff Values	Noone & Hastings (2011)	59	-.053	-.333**	.446***
Fear of Assault	Rose et al. (2013)	77	.465**	-.275**	.560**
Observe Mindfulness Skill	Nevill & Havercamp (2019)	102	-.05	-.03	.17
Describe Mindfulness Skill	Nevill & Havercamp (2019)	102	-.24*	-.41**	.35**
Act Mindfulness Skill	Nevill & Havercamp (2019)	102	-.26*	-.25*	.34*
Problem-Focused Coping	Nevill & Havercamp (2019)	102	.22	.07	.27*
Avoidance-Focused Coping	Nevill & Havercamp (2019)	102	.23*	.43**	.02
Emotion-Focused Coping	Nevill & Havercamp (2019)	102	.42**	.36**	-.05
Maladaptive Coping	Nevill & Havercamp (2019)	102	.46**	.34**	-.26*
Active Coping	Klaver et al. (2021)	127	-.143**		
Seeking Social Support Coping	Klaver et al. (2021)	127	-.052		

Comforting Thoughts	Klaver et al. (2021)	127	-.001
Extraversion	Klaver et al. (2021)	127	-.198**
Conscientiousness	Klaver et al. (2021)	127	-.22**
Agreeableness	Klaver et al. (2021)	127	-.044

*$p < .05$; **$p < .01$; *** $p < .001$

Client Characteristics

Challenging behaviour is one of the most studied client characteristics relating to DSW burnout. In the studies reviewed, seven out of eight client characteristics explored were related to challenging behaviour that was measured in different ways and with different instruments. Challenging behaviour could be separated into Aggression (Hensel et al., 2015; Klaver et al., 2021; Rose et al., 2013), Aggression/Destruction Frequency, Aggression/Destruction Severity (Hensel et al., 2012; Smyth et al., 2015), total/overall Challenging Behaviour (Rose et al., 2013; Vassos & Nankervis, 2012; Vassos et al., 2013), Physical Aggression, Threats, and Verbal Aggression (Howard et al., 2009). Tables 7 and 8 outline the magnitude of correlations between Client Characteristics and the MBI-HSS subscales.

Table 7

Comparisons of Correlations between MBI-HSS Subscales and Client-related Variables

Variable of Interest	Author(s)	Sample Size	Subscales and Correlations		
			EE	DP	PA
Aggression	Howard et al. (2009)	82	.258*	.034	.178
	Rose et al. (2013)	77	.329**	.410**	-.184
	Hensel et al. (2015)	671	.16**		
	Klaver et al. (2021)	127	.229**		
Aggressive/Destructive Frequency	Hensel et al. (2012)	926	.247**	.165**	.037
	Smyth et al. (2015)	138	.130	-.066	.161

Aggressive/Destructive Severity	Hensel et al. (2012)	926	.322**	.216**	.041
	Smyth et al. (2015)	138	.202*	.036	.096
Challenging Behaviour	Vassos & Nankervis (2012)	108	.52**	.35**	-.23*
	Rose et al. (2013)	77	-.339**	-.219	.343**
	Vassos et al. (2013)	258	.56*	.45*	.19*
Poor Client Skills	Vassos & Nankervis (2012)	108	.36**	.33**	-.11
	Vassos et al. (2013)	258	.40*	.30*	.25*

*$p < .05$; **$p < .01$

When aggression was the focus, six studies reported results for aggression. Results were consistent across studies suggesting that EE was significantly positively correlated with Aggression (Hensel et al., 2015; Howard et al., 2009; Klaver et al., 2021; Rose et al., 2013) and Aggressive/Destructive Severity (Hensel et al., 2012; Smyth et al., 2015), all of which were low to moderate strength. One inconsistency was found where Aggressive/Destruction Frequency was found to be a weak significant positive correlation by Hensel and colleagues (2012) but reported as not significant by Smyth and colleagues (2015). Results were inconsistent for the DP subscale and aggression variables. Aggression/Destruction Frequency and Severity were found to have weak positive correlations with DP by Hensel and colleagues (2012) and not significant with DP by Smyth and colleagues (2015). As for Aggression, it was found to have a significant, moderate positive correlation with DP in one study (Rose et al., 2013) but not significant in another (Howard et al., 2009). As for burnout measured by the PA subscale, it was consistently found to not be significantly correlated with the Aggression, Frequency of Aggressive/Destructive behaviour, and Aggression/Destructive Severity (Hensel et al., 2012; Howard et al., 2009; Rose et al., 2013; Smyth et al., 2015). When studied as overall Challenging Behaviour, two out of three authors found significant correlations, with strengths ranging from low to strong, with the MBI-HSS subscales where Rose and colleagues (2013) found no

significant correlation with the DP subscale. Additional inconsistencies were also found. For the EE subscale, strong positive correlations were found by Vassos and Nankervis (2012) and Vassos and colleagues (2013), while Rose and colleagues (2013) found a moderate, negative correlation with EE. Similarly, for the PA subscale, a significant weak negative correlation was found with Challenging Behaviour (Vassos & Nankervis, 2012), but others found weak to moderate positive correlations (Rose et al., 2013; Vassos et al., 2013).

The remaining client characteristic examined in more than one articles reviewed was Poor Client Skills. This client-related variable was explored as a correlate by two authors (Vassos & Nankervis, 2012; Vassos et al., 2013). The results are consistent across the studies for the EE and DP subscales, suggesting that they are both significant moderate positive correlates with Poor Client Skills. Meanwhile, Vassos and Nankervis (2012) found that PA was not significant with Poor Client Skills, but Vassos and colleagues (2013) found that it was a significant weak positive correlate.

Finally, Table 8 reports the magnitudes of correlations between MBI-HSS subscale scores and client characteristics which were studied one time across articles. The two variables studied were Threats and Verbal Aggression. It was found that Threats were not significantly associated with any MBI-HSS subscale (Howard et al., 2009). Verbal Aggression was found to not significantly correlate with the DP subscale, but have weak, significant positive correlations with the EE and PA subscales.

Table 8
Correlations Between the MBI-HSS Subscales and Client Characteristics Studied One Time

Variable of Interest	Author(s)	Sample Size	Subscales and Correlations		
			EE	DP	PA

Threats	Howard et al. (2009)	82	.070	.060	.191
Verbal Aggression	Howard et al. (2009)	82	.269*	.170	.290***

*$p < .05$; ***$p < .001$

Organizational Characteristics

Within the studies reviewed, there were 19 organizational variables which were explored as correlates of the MBI-HSS subscales. Of these, 13 of them were reported in more than one article allowing for comparisons in this review (see Table 9).

When reviewing the results for variables found to be significant correlates of the EE subscale, ten variables were found to have consistent results across studies. The authors found moderate to strong significant positive correlations between EE and Role Overload/Workload (Vassos et al., 2013; Vassos & Nankervis, 2012; Hickey, 2014; Vassos et al., 2019) Role Boundary/Conflict (Vassos et al., 2013; Vassos & Nankervis, 2012; Hickey, 2014), Lack of Staff Support (Howard et al., 2009; Vassos et al., 2013; Vassos & Nankervis, 2012), Lack of Resources, Work-Home Conflict, Bureaucracy, and Low Job Status (Vassos et al., 2013; Vassos & Nankervis, 2012). Consistent low to moderate significant negative correlations were also found between EE and Control (Vassos et al., 2013; Vassos et al., 2019; Vassos & Nankervis, 2012), Supervisor Support (Klaver et al., 2021; Vassos et al., 2013; Vassos et al., 2019; Vassos & Nankervis, 2012), and Colleague Support (Klaver et al., 2021; Vassos et al., 2019). Meanwhile, three variables were found to have inconsistent results across studies. Job Feedback (Vassos et al., 2013; Vassos & Nankervis, 2012), Decision Latitude (Vassos et al., 2013; Vassos & Nankervis, 2012; Wright, 2008), and Role Ambiguity (Hickey, 2014; Vassos et al., 2013; Vassos & Nankervis, 2012). See Table 9 for comparisons and details of these inconsistent results.

For the DP subscale, four variables had consistent findings across studies. Authors found weak to moderate positive correlations with Role Overload/Workload (Vassos et al., 2013; Vassos & Nankervis, 2012; Hickey, 2014; Vassos et al., 2019), Work-Home Conflict, and Low Job Status (Vassos et al., 2013; Vassos & Nankervis, 2012) and weak to moderate significant negative correlations with Supervisor Support (Klaver et al., 2021; Vassos et al., 2013; Vassos et al., 2019; Vassos & Nankervis, 2012). It was also consistently found that Control (Vassos et al., 2013; Vassos et al., 2019; Vassos & Nankervis, 2012) and Decision Latitude (Vassos et al., 2013; Vassos & Nankervis, 2012; Wright, 2008) do not significantly correlate with the DP subscale. The remaining six variables, Role Ambiguity (Hickey, 2014; Vassos et al., 2013; Vassos & Nankervis, 2012), Role Boundary/Conflict (Vassos et al., 2013; Vassos & Nankervis, 2012; Hickey, 2014), Lack of Staff Support (Howard et al., 2009; Vassos et al., 2013; Vassos & Nankervis, 2012), Lack of Resources, Job Feedback, and Bureaucracy (Vassos et al., 2013; Vassos & Nankervis, 2012), were found to have inconsistent results across the literature. See Table 9 for comparisons and details of these inconsistent findings.

As for the PA subscale, only one variable was consistently significantly correlated with PA. This variable was Job Feedback (Vassos et al., 2013; Vassos & Nankervis, 2012) and it was found to have a low strength significant positive correlation with PA. Meanwhile, Role Overload/Workload (Vassos et al., 2013; Vassos & Nankervis, 2012; Hickey, 2014; Vassos et al., 2019) and Supervisor Support (Klaver et al., 2021; Vassos et al., 2013; Vassos et al., 2019; Vassos & Nankervis, 2012), were consistently found to not significantly correlate with the PA subscale. The remaining eight variables were inconsistent across the literature with some authors finding significant correlations and others not. The variables which were inconsistent across the literature included Role Ambiguity (Hickey, 2014; Vassos et al., 2013; Vassos & Nankervis,

2012), Role Boundary/Conflict (Vassos et al., 2013; Vassos & Nankervis, 2012; Hickey, 2014), Lack of Staff Support (Howard et al., 2009; Vassos et al., 2013; Vassos & Nankervis, 2012), Lack of Resources, Work-Home Conflict, Bureaucracy, Low Job Status (Vassos et al., 2013; Vassos & Nankervis, 2012), and Decision Latitude (Wright, 2008; Vassos et al., 2013; Vassos & Nankervis, 2012). See Table 9 for details.

Table 9
Comparisons of Correlations between MBI-HSS Subscales and Organizational/Job-related Variables

Variable of Interest	Author(s)	Sample Size	Subscales and Correlations		
			EE	DP	PA
Role Overload / Workload	Vassos & Nankervis (2012)	108	.54**	.27**	-.15
	Vassos et al. (2013)	258	.60*	.37*	.11
	Hickey (2014)	1,570	.483****	.255****	-.026
	Vassos et al. (2019)	325	.60*	.35*	.11
Role Ambiguity	Vassos & Nankervis (2012)	108	-.47**	-.30**	.31**
	Vassos et al. (2013)	258	-.41*	-.32*	-.27*
	Hickey (2014)	1,570	.347****	.260****	-.380****
Role Boundary / Conflict	Vassos & Nankervis (2012)	108	.39**	.14	-.11
	Vassos et al. (2013)	258	.50*	.37*	.19*
	Hickey (2014)	1,570	.469****	.380****	-.288****
Control	Vassos & Nankervis (2012)	108	-.21*	-.12	.21*
	Vassos et al. (2013)	258	-.31*	-.095	-.22*
	Vassos et al. (2019)	325	-.31*	-.10	-.22*
Lack of Staff Support	Howard et al. (2009)	82	.349***	.139	-.159
	Vassos & Nankervis (2012)	108	.46**	.23**	-.16
	Vassos et al. (2013)	258	.49*	.29*	.17*
Lack of Resources	Vassos & Nankervis (2012)	108	.49**	.11	-.035
	Vassos et al. (2013)	258	.56*	.34*	.20*
Work-Home Conflict	Vassos & Nankervis (2012)	108	.45**	.30**	-.12

	Vassos et al. (2013)	258	.52*	.36*	.27*
Job Feedback	Vassos & Nankervis (2012)	108	.081	.024	.21*
	Vassos et al. (2013)	258	.46*	.30*	.25*
Supervisor Support	Vassos & Nankervis (2012)	108	-.26**	-.29**	.028
	Vassos et al. (2013)	258	-.33*	-.14*	-.098
	Vassos et al. (2019)	325	-.33*	-.14*	-.10
	Klaver et al. (2021)	127	-.340**		
Colleague Support	Vassos et al. (2019)	325	-.20*	-.09	.14*
	Klaver et al. (2021)	127	-.107**		
Bureaucracy	Vassos & Nankervis (2012)	108	.51**	.15	-.15
	Vassos et al. (2013)	258	.48*	.33*	.21*
Low Job Status	Vassos & Nankervis (2012)	108	.51**	.27*	-.19
	Vassos et al. (2013)	258	.56*	.38*	.21*
Decision Latitude / Influence Over Work Decisions	Wright (2008)	98	-.17	.03	.28**
	Vassos & Nankervis (2012)	108	-.21*	-.055	.182
	Vassos et al. (2013)	258	-.31*	-.11	-.20*

*$p < .05$; **$p < .01$; *** $p < .001$; **** $p < .0001$

Lastly, a few organizational variables were only studied one time in the articles included in this review (see Table 10). Those that were significantly positively correlated with the EE subscale included Psychological Demands (Wright, 2008) and Role Insufficiency (Hickey, 2014), while Patient Cohesion (Rose et al., 2013) and Prosocial Motivation (Hickey, 2014) were significantly negatively correlated and Experienced Safety (Rose et al., 2013) was not significantly correlated with EE. Variables which were not significant correlates for the DP subscale included Psychological Demands (Wright, 2008), Patient Cohesion, and Experienced Safety (Rose et al., 2013). Role Insufficiency was significantly positively correlated with the DP subscale while Prosocial Motivation was significantly negatively correlated (Hickey, 2014). Finally, Psychological Demands (Wright, 2008) and Patient Cohesion (Rose et al., 2013) were

not significantly correlated with PA, while Experienced Safety (Rose et al., 2013) and Role Insufficiency (Hickey, 2014) were significant negative correlates and Prosocial Motivation (Hickey, 2014) was significantly positively correlated with PA. For information about individual magnitude of these correlations, see Table 10.

Table 10

Correlations Between the MBI-HSS Subscales and Organization/Job-Related Variables Studied One Time

Variable of Interest	Author(s)	Sample Size	Subscales and Correlations		
			EE	DP	PA
Psychological Demands	Wright (2008)	98	.42**	.06	.08
Total Support	Wright (2008)	98	-.03	-.06	.32**
Role Insufficiency	Hickey (2014)	1,570	.389****	.263****	-.404****
Prosocial Motivation	Hickey (2014)	1,570	-.154****	-.225****	.426****
Patient Cohesion	Rose et al. (2013)	77	-.266*	-.218	.213
Experiences Safety	Rose et al. (2013)	77	-.095	-.185	.352**

*$p < .05$; **$p < .01$; **** $p < .0001$

Predictors of the MBI-HSS Subscales

Regression models with one or more MBI-HSS subscale scores as outcome variables were explored within the 24 articles reviewed in this project (e.g., Hensel et al., 2015; Grey-Stanley et al., 2011; Hickey 2014). Within these, 96 different variables were tested as predictors of burnout. Each variable was allocated to one of the following categories: demographics, personal characteristics, organizational/job-role, or client-related.

Predictors of the Emotional Exhaustion Subscale

Demographics. Demographic variables which have been a significant, positive predictor of the EE subscale as an outcome include work experience (Hensel et al., 2015; Lahana et al., 2017; Smyth et al., 2015), being divorced/separated/widowed (Hensel et al., 2015), hourly pay (Hickey, 2014), and setting (Hensel et al., 2013). Lahana and colleagues (2017) also reported a significant standardized beta for the demographic variable daily routine when predicting EE. Those which have not contributed as significant predictors of EE included male gender, being single, education level, working in two or more settings (Hensel et al., 2015), finishing secondary, vocational, or tertiary education (Vassos et al., 2013), number of children (Lahana et al., 2017), identifying as aboriginal, disabled, visible minority, or having immigration status, working in multiple agencies (Hickey, 2014), marital status, higher education, specialty, reason for working as a nurse, and night shifts (Lahana et al., 2017).

Moreover, variables such as sex, age, and hours worked have shown inconsistent results across literature. Hickey (2014) and Lahana (2017) sex to not be a significant predictor of EE but Vassos and colleagues (2013; 2019) sex to be a significant negative predictor, indicating those reporting a female gender were more likely to experience EE. Lahana and colleagues (2017) found that age was not a significant predictor of EE while two other studies have results that indicate age as a significant negative predictor (Hensel et al., 2015; Smyth et al., 2015). Lastly, hours worked has shown to not be a significant predictor (Hensel et al., 2015) and both a positive (Hickey, 2014) and negative predictor (Vassos and Nankervis, 2012).

Personal Characteristics. Several personal characteristics have been included in regression models to test if they predict burnout. Negative Affect (Hickey, 2014), Perceived Stress (Smyth et al., 2015), Depression/Anger, Positive Work Motivation (Hensel et al., 2015), Fear of Assault (Rose et al., 2013), Emotion Focused and Maladaptive Coping (Nevill et al.,

2019), Expressed Emotion (Klaver et al., 2021), and Neurotic and Agreeable personalities (Chung & Harding, 2009) are important variables to consider as they have shown to be significant, positive predictors of EE. On the other hand, Positive Affect (Hickey, 2014), Affective Commitment (Smyth et al., 2015), Active Approach (Klaver et al., 2021), and Extraverted personality (Chung & Harding, 2009; Klaver et al., 2021) were found to be negative predictors of EE. Additionally, some variables have been found to be not significant predictors of EE and these include Fear/Anxiety, General Positive Contributions (Hensel et al., 2015), Normative Commitment, Continuance Commitment (Smyth et al., 2015), Describe and Act mindfulness strategies, Avoidance Focused Coping (Nevill et al., 2019), Conscientious personality (Chung & Harding, 2009; Klaver et al., 2021) and Open personality (Chung & Harding, 2009). Lahana et al. (2017) also found Organizational Satisfaction to have a significant standardized beta score. Two variables were found to have inconsistencies across the literature – Self-Efficacy and Resilience. Self-Efficacy has been inconsistent across the literature. It was found to be a significant positive predictor (Hensel et al., 2015), and a significant negative predictor (Klaver et al. 2021). A further inconsistency is that Howard and colleagues (2009) also found Self-Efficacy to not significantly predict EE. For Resilience, despite the use of the same measure and similar DSW samples, it was found to be a significant negative predictor by Klaver and colleagues (2021) and not a significant predictor by Nevill et al., (2019).

Client-related Variables. Within the studies reviewed, fewer client-related variables have been explored as predictors of burnout. Variables which have found to be significant positive predictors include Aggression (Hensel et al., 2013; Hensel et al., 2015; Rose et al., 2013), Physical Violence (Howard et al., 2009), Client Disability (Grey-Stanley et al., 2011), Aggressive/Destructive Behaviour Severity (Smyth et al., 2015), and Challenging Behaviour

(Chung & Harding, 2009; Klaver et al., 2021; Rose et al., 2013; Vassos & Nankervis, 2012; Vassos et al., 2013). No variables were found to be negative predictors, but Poor Client Skills (Vassos & Nankervis, 2012; Vassos et al., 2013) and Aggressive/Destructive Behaviour Frequency (Smyth et al., 2015) were found to not be significant predictors of EE.

Organization/Job-related Variables. Organization and job-related variables are the most studied category of variable in the articles reviewed. Variables which have found to be significant negative predictors of EE include Affective Organizational Commitment, Communication, Job Satisfaction (Hickey, 2014), Work Social Support, Locus of Control (Grey-Stanley et al., 2011), Safety (Rose et al., 2013), and Satisfaction with Pay (Hickey, 2014). On the opposite side, Work Overload/Workload (Grey-Stanley et al., 2011; Hickey, 2014; Vassos and Nankervis, 2012; Vassos et al., 2013; Vassos et al., 2019), Work Stress and participation in Decision Making (Grey-Stanley et al., 2011), Satisfaction with Benefits and Prosocial Motivation (Hickey, 2014), Job Feedback (Vassos et al., 2013), and Low Job Status (Vassos and Nankervis, 2012; Vassos et al., 2013) have found to be significant positive predictors of EE. Lahana and colleagues (2017) additionally found Relationship with Colleagues to be a significant predictor reported as a standardized beta. Next, variables which have been identified as not being significant predictors included Satisfaction with the Nature of the Work, Relations with Coworkers, Advancement Opportunities, and Training, Role Insufficiency, Role Boundary (Hickey, 2014), Bureaucracy, and Influence Over Work Decisions (Vassos & Nankervis, 2012; Vassos et al., 2013).

Finally, there are also variables which have inconsistently been found to predict burnout across studies. Supervisor Support (Grey-Stanley, 2011; Vassos & Nankervis, 2012; Vassos et al., 2013) was found to not be a significant predictor in three studies, while one found it to be a

negative predictor (Klaver et al., 2021). Others inconsistent findings included Co-Worker Support, Role Conflict, and Job Control (Grey-Stanley et al., 2011; Klaver et al., 2021; Vassos et al., 2013; Vassos & Nankervis, 2012), where some find Co-Worker Support (Grey-Stanley et al., 2011; Klaver et al., 2021), Role Conflict (Grey-Stanley, 2011; Vassos et al., 2013) and Job Control (Vassos & Nankervis, 2012; Vassos et al., 2013) to not be significant predictors. Meanwhile, Vassos and colleagues (2019) found Co-Worker Support and Role Conflict to be significant negative predictors and Vassos and Nankervis (2012) found Job Control to be a significant positive predictor. Lack of Staff Support, Work-Home Conflict (Vassos & Nankervis, 2012) and Lack of Resources (Vassos et al., 2013) were found to be positive predictors in some research, while also found to not be significant predictors of EE (Vassos & Nankervis, 2012; Vassos et al., 2013). Role Ambiguity has also found to be not significant by Grey-Stanley and colleagues (2011) while other authors found it to be a significant negative predictor (Hickey, 2014; Vassos & Nankervis, 2012; Vassos et al., 2013).

Predictors of the Depersonalization Subscale

Demographics. Variables which were not significant predictors of DP included finishing secondary, vocational, or tertiary education (Vassos et al., 2013), number of children, specialty, daily routine, night shifts (Lahana et al., 2017), identifying as disabled, having immigration status, hourly pay (Hickey, 2014), and marital status (Lahana et al., 2017). The only variable to be a negative predictor was identifying as a visible minority (Hickey, 2014). Demographic variables which have been a significant, positive predictor of the DP subscale as an outcome include identifying as aboriginal, working in multiple agencies (Hickey, 2014), and sex (Hickey, 2014; Vassos & Nankervis, 2012). Lahana and colleagues (2017) also reported significant

standardized beta's when predicting DP with reasons for working as a nurse, sex, and higher education.

Meanwhile, some research report inconsistent findings for which variables are significant predictors of DP. Experience was found to be a significant predictor in one study (via standardized beta; Lahana et al., 2017) while Smyth and colleagues (2015) found experience to not be a significant predictor. For age, Lahana and colleagues (2017) found it not to be significant, while Smyth and colleagues (2015) found age to be a significant negative predictor of DP. Another inconsistent variable includes the number of hours worked. Hickey (2014) found that hours worked was not a significant predictor of DP, but Vassos and Nankervis (2012) found it to be a significant negative predictor.

Personal Characteristics. The personal characteristics which have found to be significant, positive predictors of DP include Negative Affect (Hickey, 2014), Perceived Stress (Smyth et al., 2015), Avoidance Focused Coping, Maladaptive Coping (Nevill et al., 2019), Conscientious and Agreeable personalities (Chung & Harding, 2009). Meanwhile, variables such as Affective, Normative, and Continuance Commitment (Smyth et al., 2015), Emotion Focused Coping (Nevill et al., 2019), and Extraverted, Neurotic, and Open personalities (Chung & Harding, 2009) have shown to not be significant predictors of DP. Finally, Positive Affect (Hickey, 2014) and the Describe mindfulness strategy (Nevill et al., 2019) were found to significantly predict DP negatively. Lahana and colleagues (2017) also found Organizational Satisfaction to have a significant standardized beta when predicting DP.

Client-related Variables. For the DP subscale, only four client-related variables were studied. Challenging Behaviour was studied by three authors and the results were inconsistent. Vassos and Nankervis (2012) and Vassos and colleagues (2013) found Challenging Behaviour to

be a significant positive predictor for burnout measured by the DP subscale. But Chung and Harding (2009) found Challenging Behaviour to not significantly predict DP. Aggressive/Destructive Behaviour Severity and Frequency were also studied, with Smyth and colleagues (2015) finding them to be significant positive and negative predictors respectfully. The final client-related variable studied was Poor Client Skills, and it was consistent that Poor Client Skills was not a significant predictor of DP (Vassos & Nankervis, 2012; Vassos et al., 2013).

Organization/Job-related Variables. Many organizational variables were explored for their predictive value of the DP subscale. Beginning with those that were not significant predictors of DP, these variables included Affective Organizational Commitment, Communication, Relations with Co-workers, Satisfaction with Pay and Benefits, and Role Insufficiency (Hickey, 2014), Work Overload/Workload (Hickey, 2014; Vassos and Nankervis, 2012; Vassos et al., 2013), Lack of Staff Support (Vassos & Nankervis, 2012; Vassos et al., 2013), Income Satisfaction, Bureaucracy, Influence Over Work Decisions, and Role Conflict (Vassos et al., 2013). Meanwhile, variables which were significant, positive predictors of DP included Relationships with Leaders/Supervisors, Advancement Opportunities, Role Boundaries, Job Satisfaction (Hickey, 2014), Lack of Resources, and Job Feedback (Vassos et al., 2013). Lastly, variables which were negative predictors of DP include Satisfaction with Nature of Work, Satisfaction with Training, and Prosocial Motivation (Hickey, 2014; Vassos and Nankervis, 2012; Vassos et al., 2013). Lahana and colleagues (2017) additionally found Relationship with Colleagues to be a significant predictor of DP when reported as a standardized beta.

As with demographics, personal, and client-related variables, some studies find inconsistent results. First, Hickey (2014) found that Relationship with Leaders/Supervisors was a significant positive predictor, while Lahana (2017) found it not to be significant. Hickey (2014) also found Role Ambiguity to not be a significant predictor of DP, but Vassos and Nankervis (2012) and Vassos and colleagues (2013) found Role Ambiguity to be a significant negative predictor. Additionally, Work-Home Conflict and Low Job Status (Vassos & Nankervis, 2012) were shown to be significant negative predictors of DP, while Vassos and colleagues (2013) found them to be not significant predictors.

Predictors of the Personal Accomplishment Subscale

Demographics. Variables which have shown to be a significant positive predictor of PA as an outcome include Identifying as a visible minority, hours worked (Hickey, 2014), and age (Smyth et al., 2015). But age is inconsistent across the literature as Lahana and colleagues (2017) found it to not be a significant predictor. Variables which were not significant predictors of PA included experience (Lahana et al., 2017; Smyth et al., 2015), number of children, specialty, night shifts (Lahana et al., 2017), identifying as aboriginal or disabled, hourly pay, sex, working in multiple agencies (Hickey, 2014), and having higher education (Lahana et al., 2017). Meanwhile identifying as having immigration status (Hickey, 2014) and location of work (Vassos et al., 2013) have shown to be significant negative predictors of PA. Lahana and colleagues (2017) also reported significant standardized betas for reasons for working as a nurse, daily routine, sex, and marital status.

Personal Characteristics. Personal accomplishment has been significantly positively predicted by Positive Affect (Hickey, 2014), Normative Commitment (Smyth et al., 2015), the Describe mindfulness technique, Problem Focused Coping (Nevill et al., 2019) and Extraverted

personality (Chung & Harding, 2009). On the other hand, Negative Affect (Hickey, 2014), Maladaptive Coping (Nevill et al., 2019), and Neurotic personality (Chung & Harding, 2009) have shown to be significant negative predictors of PA. Personal characteristics that did not significantly predict the PA subscale include Conscientious, Open, and Agreeable personalities (Chung & Harding, 2009), the Act mindfulness technique (Nevill et al., 2019), Affective and Continuance Commitment (Smyth et al., 2015), Organizational Satisfaction (Lahana et al., 2017) and Perceived Stress (Smyth et al., 2015).

Client-related Variables. Two client-related variables were studied as predictors of PA – Challenging Behaviour and Poor Client Skills. To start, Poor Client Skills was studied only by Vassos and colleagues (2013) who found that poor skills was a significant positive predictor of PA. Meanwhile, Challenging Behaviour was studied by three authors and the results were inconsistent. Vassos and Nankervis (2012) and Chung and Harding (2009) found that Challenging Behaviour was a significant negative predictor of PA, while Vassos and colleagues (2013) found Challenging Behaviour to not be a significant predictor. Challenging Behaviour was also studied as Aggressive/Destructive Behaviour Severity and Frequency, which were both found to not be significant predictors of PA (Hensel et al, 2012; Smyth et al., 2015).

Organization/Job-related Variables. Lastly, organizational variables are seldom studied to explore their prediction of PA. But the review did find that Affective Organizational Commitment, Satisfaction with Nature of Work, Prosocial Motivation (Hickey, 2014), and Job Feedback (Vassos and Nankervis, 2012; Vassos et al., 2013) were significant positive predictors of PA. Variables found to negatively predict PA include Co-worker Support (Vassos et al., 2019), and Relationship with Leaders/Supervisors (Hickey, 2014). Lahana and colleagues (2017) additionally found Relationships with Colleagues to be a significant predictor reported as a

standardized beta. Of those reviewed, Satisfaction with Relations with Co-workers, Pay, Benefits, Advancement Opportunities, and Training, Role Insufficiency, Boundaries, Job Satisfaction (Hickey, 2014), Lack of Staff Support, Lack of Resources, Work-Home Conflict, Bureaucracy, Low Job Status, Role Conflict, and Influence Over Work Decisions (Vassos et al., 2013) were found not to significantly predict PA.

Like demographic, client, and personal variables, some authors find different results. Role Ambiguity has found to be a significant negative (Hickey, 2014; Vassos et al., 2013) and a significant positive (Vassos & Nankervis, 2012) predictor of PA. Workload/Overload was also inconsistent, with Hickey (2014) finding it to be a significant positive predictor, while Vassos and colleagues (2019) found it was not significant. Lastly, despite the use of the same instrument and similar mixed samples, Job Control was found to not significantly predict PA (Vassos & Nankervis, 2012; Vassos et al., 2013), but Vassos and colleagues (2019) found it to negatively predict PA.

Interaction Terms with the MBI-HSS Subscales

Interaction terms are often studied in the literature reviewed, with 32 being studied in total within this sample. Variables which have been studied as interaction terms include Aggression, Work Overload/Workload, Co-worker Support, Prosocial Motivation, Fear of Assault, Severity of Aggression, Self-Efficacy, and Challenging Behaviour. Some variables were studied between multiple different main effect relationships with the burnout subscales, while others were studied with a few or only one main effect relationship.

Aggression has been studied as an interaction variable with two main effect relationships with the EE subscale of the MBI-HSS (Hensel et al., 2015). It was found that Aggression was not

a significant interaction variable with Self-Efficacy, and it was a significant positive interaction term with Positive Work Motivation (Hensel et al., 2015). When studied as Severity of Aggression by Hensel and colleagues (2013), they found it to be a significant positive interaction term between the main effect of Work Setting and EE. Despite these being two different ways of measuring Aggression, the results are consistent that Aggression is an appropriate interaction term when studying EE.

Work Overload/Workload has been studied as an interaction term between six different main effect relationships (Grey-Stanley et al., 2011; Vassos et al., 2019). Workload has found to be a significant, negative interaction variable between main effects of Work Social Support, Supervisor Support, and Co-Worker Support (Grey-Stanley et al., 2011) and the EE subscale and a significant positive interaction variable between Locus of Control and the EE subscale. Meanwhile, between the main effect relationship of Control and both the EE and PA subscales, Workload has found to be not a significant interaction term (Vassos et al., 2019).

Support from co-workers has also been studied. Co-worker Support was found to not be a significant interaction term between the main effects of Control for both EE and PA subscales (Vassos et al., 2019). A similar result was found for the main effect relationships between Workload and both EE and PA subscales (Vassos et al., 2019). When studied as a three-term interaction (Control, Workload, and Co-Worker Support), Co-Worker Support along with the other variables were found to be a significant, negative interaction term for the EE and PA subscales (Vassos et al., 2019).

Hickey (2014) studied Prosocial Motivation as an interaction variable. Prosocial Motivation was found to not be a significant interaction term between main effects for Overload and Role Insufficiency and any of the MBI-HSS subscales. Prosocial Motivation was found to

significantly and positively interact with the main effect between Role Ambiguity and PA and not significantly interact for the EE and DP subscales (Hickey, 2014). It also significantly negatively interacted with the main effect of Role Boundary and DP (Hickey, 2014) but not with the EE and PA subscales. Hickey (2014) also studied main effects between the MBI-HSS subscales. He found that Prosocial Motivation negatively interacted between the main effects for the MBI-HSS subscales EE and DP, as well between the MBI-HSS subscales EE and PA (Hickey, 2014). No other MBI-HSS subscale combinations found significant interaction terms between their main effects (EE and PA, EE and DP, and DP and PA).

Fear of Assault was studied as an interaction term between three main effects (Rose et al., 2013). First, Fear of Assault was a significant, negative interaction between the main effect between Experienced Safety and EE (Rose et al., 2013). When studied between Client Behaviour and EE we see the opposite interaction. Fear of Assault was found to significantly interact positively between the main effects of Challenging Behaviour and EE, and Aggression and EE (Rose et al., 2013). Fear of Assault was not studied as an interaction term between other variables and the DP and PA MBI-HSS subscales.

Lastly, Challenging Behaviour (as a total, overall label for behaviour) has been studied as an interaction variable as well. Klaver and colleagues (2021) studied Challenging Behaviour as an interaction between five different variables and the EE subscale. Challenging Behaviour was found to not significantly interact between the variables of Supervisor Social Support, Self-Efficacy, Resilience, Expressed Emotion, and Extraversion and the EE subscale (Klaver et al., 2021). A non-significant interaction of Challenging Behaviour between the main effect of Extraversion and EE was found by Chung and Harding (2009). Chung and Harding (2009) studied the interaction between Challenging Behaviour and burnout with the five personality

traits (extraversion, neuroticism, openness, agreeableness, and conscientiousness). No significant interactions were found for any of the main effects of the personality traits with the DP subscale of the MBI-HSS and the interactions between Conscientiousness and Challenging Behaviour and Openness and Challenging Behaviour were not significant for any of the MBI-HSS subscales (Chung & Harding, 2009). Additional interactions that were not significant included Challenging Behaviour and Neuroticism on the EE subscale, and Challenging Behaviour and Agreeableness on the PA subscale. As for significant interactions, the main effects between Agreeableness and EE, and Neuroticism and PA had significant negative interactions with Challenging Behaviour while Challenging Behaviour was a significant positive interaction term for the main effect of Extraversion and PA (Chung & Harding, 2009).

Interventions Explored to Reduce Burnout

Only one study, completed by Long and colleagues (2008), studied an intervention and reported the impact the intervention had on burnout scores. Long and colleagues (2008) used the 'Behavioural Analysis, Intervention, Training, and Supports" approach (BAITS; Milne et al., 2003) to create one systematic approach "to address problems, areas of training, attitude change, and support" (p. 5). Specifically, staff were trained to use the Reinforce Appropriate, Implode Destructive approach to responding to challenging behaviour and implementation of a token system to increase participation of clients in their programed activities (Long et al., 2008). In addition, a week of training was provided regarding any new policy changes in the organization, staff were expected to join meetings to discuss treatment programs for the people they supported, and mutual support was encouraged through group meetings and discussions of progress in care meetings. Baseline MBI-HSS scores were obtained before the change in procedures at the organization and post-scores were obtained 6 months after introducing the change. Long and

colleagues (2008) found that there was a significant reduction in burnout in all three subscales following the change in procedures. They also found a significant reduction in challenging behaviour exhibited by the people supported on the ward.

Discussion

Burnout in DSWs working with adults with IDDs has shown to be detrimental to the employee, the organization they work for, and the people they support. A few systematic reviews had been completed previously (Disley, et al., 2009; Ryan, et al., 2021; Thompson & Rose, 2011) reporting different variables of interest and their connections with burnout for this population. But, besides Skirrow and Hatton (2007), none of these additional reviews reported the burnout levels of the samples of DSWs. Additionally, the variables which consistently correlate and/or predict burnout had yet to been concluded in previous reviews. Therefore, after 13 years, it was warranted to update this information, review the trends of burnout levels in this population, and further explore consistencies and inconsistencies of variables across the research. This information can better prepare researchers, policy makers, and applied scientists to mitigate the development and maintenance of burnout in DSWs working with adults with IDDs.

Levels of Burnout

This systematic review of the research literature reported the burnout scores (measured by the MBI-HSS) of DSWs working with adults with IDDs by following the systematic review procedures outlined by Skirrow and Hatton (2007), answering the question: ‘have burnout scores in samples of DSWs working with people with IDDs changed since the review published by Skirrow and Hatton (2007)?’ It was found that there was a significant difference in burnout scores for this population since the review completed by Skirrow and Hatton (2007) where EE

and lack of PA are slightly higher, but DP is slightly lower in the present sample than Skirrow and Hatton's (2007) sample. Additionally, through visual analysis, the burnout levels presented by Skirrow and Hatton (2007) found that DP and EE were on decreasing trends and PA was stable based on chronological publication date, while these burnout levels are on increasing trends in the current review. These results suggest that the sample of research reviewed here is significantly higher than, what some researchers have called, the normative burnout scores for the DSW population (e.g., Skirrow & Hatton, 2007; Vassos et al., 2013). Skirrow and Hatton's (2007) sample has been considered the norm for this population because the normative scores reported by Maslach and colleagues (1996) included a sample of several different types of human service providers while Skirrow and Hatton's (2007) was only DSWs working with adults with IDDs. In Canada, the Ministry of Children, Community, and Social Services (MCCSS; 2007; 2010; 2018) has made many changes in policies regarding allocation of funds, the development of task forces, new quality assurance measures, and the implementation of new sections of the *Services and Supports to Promote the Social Inclusion of Persons with Developmental Disabilities Act, 2008*, This is not an exhaustive list, but merely a glimpse at the numerous policy changes between 2007 and 2021 in Ontario, Canada. Similar changes may be occurring in other countries to better support people with IDDs. These changes in policies may account for some changes in burnout levels over chronological year. In addition to this, turnover and low wages in the field continue to be major concerns (Casey, 2011; University of Minnesota, 2021). The inability to schedule an adequate number of DSWs due to staff shortages subsequently is increasing workload and working hours for this population (Connelley, 2021). Recently in Ontario there was a temporary wage increase due to the Coronavirus Pandemic. But even with this increase DSWs continue to be underpaid compared to other similar human service

providers (Canadian Union of Public Service Employees, 2015). As the cost of living continues to rise (Villani, 2021) with little/no wage increases and turnover levels remain high, it may be expected we continue to see a rise in burnout levels in this population.

Skirrow and Hatton (2007) also reported that the burnout levels found in their sample were very consistent and stable over chronological publication date as they were within one standard deviation from the norms presented by Maslach and colleagues (1996). This is not the case for the current sample because there are several outliers that have been identified which warrant further review. The studies completed by Snow and colleagues (2007), Langdon and colleagues (2007), Lloyd and colleagues (2008), and Long and colleagues (2008) (Studies 3-6), visually, have much lower PA scores (more burnout) than the remainder of the sample reviewed. This large difference in scores may be due to significantly small sample sizes (range between 20-41) and the use of different correlational tests (Snow et al., 2007 used Spearman's rank correlations as opposed to Pearson correlations). These studies also have unique sample characteristics. These studies recruited nurses working on inpatient hospital units for adults with IDDs (Langdon et al., 2007; Snow et al., 2007) and paraprofessionals (including nurses) who worked in homes for people with Downs Syndrome. Next, Long and colleagues (2008) (Study 6) reported lower EE scores and Noone and Hastings (2011) and Lahana and colleagues (2017) (Studies 12 & 21) reported higher EE scores than the remainder of the sample. For study number 21, Lahana and colleagues (2017) used the Greek version of the MBI-HSS. This language translation may account for the high EE score and may account for the higher PA and DP scores as levels visually appear elevated in these subscales as well. Study 6, completed by Long and colleagues (2008), has some unique demographics, such as small sample sizes and unique setting, which may account for the difference across all three subscales as well. Long and

colleagues (2008) had a very small sample size (12 DSWs) and this sample worked specifically in a single, medium secure ward for women with IDDs. This IDD clientele sample is different from the others as it specifically targeted women. Additionally, the study by Long and colleagues (2008) was unclear about which MBI version they used. Considering the other details of the study as possible, the RA and SI decided to include it in the review – but if this study did use a different version of the MBI survey, this may account for this difference. Finally, while visually reviewing the DP subscale, studies 1, 6, 12, and 21 have higher DP scores than the remainder of the sample. Studies 6, 12, and 21 were discussed above, but study number 1, completed by Dennis and Leach (2007), should be reviewed here to identify its differences. They recruited a very small sample (10 nurses) compared to some of the other studies and they also were not specific about the version of the MBI used. The study by Dennis and Leach (2007) was completed in England, where the only other study completed in England happens to be study number 6 – by Long and colleagues (2008). Therefore, small sample size and the unknown version of the MBI may contribute to this higher DP score for Dennis and Leach (2007) and the studies being completed in England may contribute to differences in studies as well (Dennis & Leach, 2007; Long et al., 2008).

Finally, an interesting finding was the decrease in scores reported by Klaver and colleagues (2021). Visually, this finding was interesting given the current context of Covid-19, where research has found that 69% of a sample of DSWs reported increased stress at work (Bobbette et al., 2020), which is much higher than reported (29-35%) by frontline healthcare workers during the SARS outbreak (Maunder, 2004). Further investigation of the study by Klaver and colleagues (2021) found that the data was collected in 2018, before the Covid-19 pandemic. It is common for research to be published several years after data is collected, and it is

important to acknowledge that the data from each of the studies included in this review may not have been collected in the years they were published.

Correlates and Predictors of Burnout

The remaining questions answered by this review were:

1) 'Which variables are significantly correlated with burnout measured by the MBI-HSS and which are inconsistent across the literature?
2) Which variables significantly predict burnout (regression analyses) measured by the MBI-HSS, and which are inconsistent across the literature?
3) Which variables are significant moderators or mediators of main effect relationships with burnout, and which are inconsistent across the literature?

It was found that, across each burnout subscale, there are several variables which have shown consistent results across the research. Although the literature reviewed continues to require further studies completed for each variable, we see some consistencies across the literature which allow for some preliminary conclusions to be drawn. For purposes of discussion, the results with the EE subscale are discussed. There were no (0%) demographic variables, three (60%) client-related variables (Aggression, Aggressive/Destructive Severity, Poor Client Skills), ten (76%) workplace/work-related variables (Role Overload, Role Boundary, Control, Lack of Staff Support, Lack of Resources, Work-Home Conflict, Supervisor Support, Colleague Support, Bureaucracy, Low Job Status), and four (50%) personal characteristics (Vigor, Dedication, Absorption, Resilience) which showed consistent significant results across studies. These percentages were obtained by calculating the sum of the number of variables with consistent significant results with the EE subscale across studies divided by the total number of variables

studied in the respective category (see Tables 3, 5, 7, and 9). This finding expands the results of the review completed by Skirrow and Hatton (2007) as they did not draw conclusions regarding which variables were most consistent. But, as mentioned, there were still many inconsistent results across all variables studied in this review, but the greater number of consistencies in the more recent literature is promising. Therefore, this review supports that the above listed variables are reliable triggers of burnout in DSWs, respecting that there remain significant limitations within and across studies included in this review, and therefore these results are taken with caution.

As for which variables are most reliable, Skirrow and Hatton (2007) concluded that work-related variables were the most "reliable" at predicting burnout. This conclusion remains true. This review found that organizational variables were the most replicated variables across studies (13 variables examined in more than one article) and had more variables (76%) which significantly correlated or predicted burnout. In addition to this, more of the significant correlations are moderate to strong effect sizes as opposed to weak effect sizes. Meanwhile demographics and personal characteristics were the least reliable variables to correlate or predict burnout in DSWs as many of these variables were shown to not be significant in the research or found inconsistent results. However, this review had two sets of studies which were completed by the same/similar authors, in the same countries, same instruments, and with similar mixed samples (Hensel et al., 2012, 2014, 2015; Vassos et al., 2012, 2013, 2019). Unfortunately, across these 'replications', there were still significant amounts of inconsistent results regarding which variables were significant correlates of burnout. Upon close inspection, the main difference across these studies is the year published. These inconsistent results across similar sample demographics may suggests that burnout of DSWs is not consistent over time and the variables

which impact burnout at any time may be different. Other research which may support this thought is research studying interventions (E.g., Long et al., 2008) or longitudinal studies that monitor burnout over time during certain stressful events or during interventions. For example, Harvey and Burns (1994) reported changes in burnout scores approaching and during their roles of moving a person being supported and returning to their original levels within 6-months following the move. If this hypothesis is true, research may need to shift its focus away from replication of results to replication of longitudinal burnout levels across idiosyncratic stressors and/or interventions.

A specific consistency regarding which variables reliably predict burnout found between this review and the previous is with respect for Challenging Behaviour. Skirrow and Hatton (2007) reported that their review did not support that Challenging Behaviour was a reliable predictor of DSW burnout. This conclusion is consistent with the findings in this review, as it was noted there to be inconsistent findings regarding the direction of the correlation, with some finding strong positive correlations (Vassos et al., 2013; Vassos & Nankervis, 2012) and others found a significant, negative correlation (Rose et al., 2013). However, when separated into different types of challenging behaviour such as Aggression and Aggression/Destruction Severity, results have been found to be consistent, significant positive predictors of the emotional exhaustion subscale (Chung & Harding, 2009; Hensel et al., 2013; Hensel et al., 2015; Howard et al., 2009; Klaver et al., 2021; Rose et al., 2013; Smyth et al., 2015; Vassos & Nankervis, 2012; Vassos et al., 2013), with some also reporting significant predictions with the depersonalization and personal accomplishment subscales as well. This suggests that the use of an overall label may be inappropriate when studying variables associated with burnout as it leaves room for

subjectivity when responding to questions and it appears that certain topographies have different impacts on burnout levels.

Skirrow and Hatton (2007) Recommendations

Skirrow and Hatton (2007) made several recommendations about the directions in which future research in the field should go, but little to no research has been completed (that met criteria for this review) to fill the gaps and limitations or that met the recommendations they made. One recommendation was to narrow the DSW samples to one type and setting to better capture the organizational and job-related variables. This review found that just over half (13 studies) clearly indicated their sample was of one type of DSW or setting, while the remaining used broad sample descriptions or clearly indicated the DSWs had different roles or worked in different settings. Additionally, they recommended more studies manipulate variables of interest to observe their effects on burnout and to also complete studies which observe staff behaviours rather than or in addition to using only self-report measures. In this review, only one study manipulated variables to observe their effects on self-reported burnout scores (Long et al., 2008), and no studies implemented methodologies that observed staff behaviour.

Limitations

There are some limitations to the current study that must be acknowledged. First, the included studies are graphed and analyzed in order by publication year. It is important to note that this may not reflect the chronological order of when data were collected as many studies publish several years following data collection. The studies used for comparison were completed in different countries, thus the policies and procedures of each country's human services sector may influence their burnout levels, and with each country mixed into Figure 2, the trends may be

representing the differences across countries as well. It may be beneficial to develop trend graphs for each country individually to view their trends separately when more data are available. This was not possible with the small number of studies that met inclusion criteria for this systematic review.

Second, in this sample, studies that were reviewed were completed in eight different countries, recruited a wide range of DSW types (e.g., nurses, hospital/secure ward staff, day program staff, residential staff, respite workers) and sample sizes (*range* = 10 – 1,570), used different instruments to measure constructs (e.g., challenging behaviour was measured by the Staff Stressor Questionnaire, the Disturbed Behaviour List, the Aberrant Behaviour Checklist, Checklist of Challenging Behaviours) and were completed over 13 years. All these differences across each individual study make drawing conclusions about the correlates and predictors of burnout difficult even when results are consistent. Each country and time period has their own policies governing human service organizations and each type of DSW and setting in which they work have idiosyncratic environmental conditions that differ significantly from the other DSW types/settings (e.g., residential care may have more personal care and custodial duties than a respite or day program worker). More so, although all the instruments used were valid and reliable, the way they present their questions and/or the content of the questions may differ significantly which in turn changes how a participant might respond to those questions. Therefore, the comparisons and conclusions drawn from these studies may not be reliable or accurate due to large differences in study and participant demographics and the instruments used each in study.

Third, there is risk of publication, volunteer, and social desirability bias for each of the studies in the review. Publication bias is when stronger results are published more quickly –

which may place these articles out of chronological order. More so, publication bias may also lead to several articles not reaching publication due to insignificant results. Additionally, the research chosen to review systematically was research that implemented surveys about employee wellbeing and some also included questions about employee organizations. These types of questionnaires have potential risk of volunteer bias and social desirability bias. It is possible that the samples of DSWs who volunteered to participate are significantly different than those who chose not to participate due to volunteer bias. If employees were concerned their answers would be shared with their managers, they may be less likely to volunteer to participate and/or those with higher or no burnout might be more likely to volunteer to have their opinions heard versus those who are neutral. As for social desirability bias, it is known the depersonalization subscale makes people uncomfortable (Kristensen et al., 2005) thus participants may not answer these types of questions truthfully, and they may also not answer questions regarding their commitment or satisfaction with their employer or organization truthfully either to avoid repercussions for providing poor reviews. These biases may be present in any one of the articles reviewed and may contribute to the findings by skewing the results concluded in this review.

A final limitation of this research was the inconsistent use of the Covidence software to manage the systematic review articles and data extraction. Covidence was expected to be used through the entire project. But technical difficulties with the type of data being extracted limited the use of Covidence to the screening and full review portions. The extraction was completed via MS Excel and therefore, reliable computer generated IOA, and conflict resolution could not take place as it had in previous steps of the review. Therefore, despite cross referencing the MS Excel files completed by the SI and the RA, there is a slight chance that human errors may have occurred.

Future Research on Predictors and Correlates of Burnout

Limitations of the current burnout research for DSWs working with adults with IDDs include the small sample sizes and the use of mixed samples of DSW type and/or work setting. As for gaps in the literature, these include lack of replication studies, the need for more longitudinal studies intervention and/or studies which manipulate variables, more studies researching moderation and mediation interactions with burnout levels, and the inclusion of client outcome variables. Also, due to most of the research occurring outside of Canada, results about predictors of burnout from this systematic review cannot be reasonably generalized to Canadian samples and suggests the need for future Canadian research.

Considering the limitations of the current research reviewed, future research regarding the correlations and predictors of DSW burnout should: 1) narrow their samples to one type or setting rather than using samples of mixed DSWs, 2) observe the impact of interventions on burnout levels, 3) complete replications of studies previously completed, 4) complete longitudinal studies reporting the patterns of burnout levels and stressors over time, and 5) include variables which measure outcomes of the people supported to observe the impact of DSW wellbeing on the wellbeing, behaviour, and quality of life of the people supported. Researching these and finding consistent results may allow behaviour analysts, psychologists, and/or career management specialists to provide interventions to DSWs and/or organizations and aid with improving service quality and client behavioural outcomes. Research over the past 13 years continues to show some considerable inconsistencies across time regarding reliable correlates and predictors of burnout and filling these gaps may be able to identify how time and the change of environmental stressors in the workplace impact burnout (e.g., person support illnesses, periods of increased challenging behaviour) by exploring whether burnout is stable

overtime or if it fluctuates in the same sample of DSWs, similar to the study by Harvey and Burns (1994).

Implications for Practice

With the growing interest in burnout research since 2011, this study can provide insight into the development and maintenance of burnout in the human service sector in more recent years. With more research, it allows for more analysis and observation of result patterns. Researchers can use the results of this systematic review and recommendations for future research to shape ongoing study in this area. Unfortunately, inconsistency across study replications persist in the literature. The hypothesis that burnout may fluctuate over time may indicate that burnout changes regularly over time as a function of the events occurring in one's job or working environment or home life. Researchers should use this information to, in addition to replicating previous research findings, bring their attention from replication of the same result over time (e.g., finding that aggression is correlated positively with the EE subscale) to identifying which stressors are static/continuous (e.g., challenging behaviour, heavy custodial workload) and which are discontinuous (e.g., support person illness, short staffing around holidays) and how these changes and combinations of stressors at any time-period can impact burnout levels. It may also be of interest to investigate the changes in magnitude or intensity of these stressors over time and report the magnitude in which increases in burnout levels begin and at which magnitudes burnout levels remain low.

As for policy makers and applied organizations, it can be difficult to use this information to build policies or to support their employees as it has been indicated that the variables that predict burnout are still inconsistent and because more research is still needed before definitive conclusions can be made. With inconsistent results, policies and protocols built to support

employee wellbeing are difficult to develop since, at any given time, what is impacting employee wellbeing may be different. But, knowing burnout might change regularly within a time-period can better equip organizations to identify idiosyncratic patterns of burnout overtime, and seek support to implement individualized preventative strategies or policies for the common predictors of burnout in their organization. As mentioned by Casey (2011), employers are one avenue in which common workplace stressors can be mitigated. Therefore, to mitigate the impact of stressors on the wellbeing of their employees, organizations/employers can use this research to identify which variables to consider (the variables supported by this review as being reliable correlates) when exploring burnout of their employees and monitor the impact of more individualized policies and protocols rather than use policies or procedures that are 'one-size-fits-all'.

Conclusion

Burnout is a sector wide concern in Canadian human services and this concern is warranted given the impact it can have on the employee, the organization, and the people in which employees interact with. What triggers and maintains burnout of employees continues to be a major topic of research discussion. It was found that burnout levels of DSWs working with adults with IDDs has increased since 2004 as the mean scores in the current sample are higher than in previous normative samples for this population. A significant contribution of this increase over time appears to be due to organizational and job/role related stressors that are inherent to human services and working with adults with IDDs because these variables were found to have more significant and stronger correlations with burnout than client-related, demographic, and personal characteristics. Although the causes of burnout in this population continue to require further research due to limitations and gaps in study designs and inconsistent findings across

studies available for comparisons, this does not suggest that it is still unknown what factors influence the development of burnout as there are a multitude of variables which have shown to be important to consider when researching and targeting burnout of DSWs supporting adults with IDDs.

To effectively capture the development and maintenance of burnout and the fluctuation of the working environment, the research needs to shift to more applied research than statistical and quantitative methods. Statistical and quantitative methods often strictly use self-report measures, are completed at one time point, and are limited to mainly correlational and regression analyses. Applied research may provide the current literature with more longitudinal studies as well as studies which manipulate the variables found in statistical/quantitative research. These types of studies may aid with observing the impact that changing the magnitude/intensity of certain workplace and client-related variables has on burnout levels of DSWs. Once this occurs, fields of psychology, management, and behaviour analysis may be in a better place to identify and stabilize idiosyncratic stressors that contribute to the development or support in maintaining burnout of DSWs working with adults with IDDs. Then, this research has the potential to reverse long-term concerns in the field, improve the workplace wellbeing of DSWs and subsequently improve the quality of services provided to adults with IDDs.

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Appendix A

Article Screening, Full Review, and Extraction Volunteer Training Protocol

DEVELOP A SERIES OF SCREENING TOOL QUESTIONS FOR REVIEWERS TO USE

Screening Tool Questions/Exclusion Criteria

1. Is the article published in 2004 or later?
2. Is the article written/available in English?
3. Is it about burnout overall (instead of e.g., burn patients)?
4. Is it primary literature (direct research)? (Not a letter to the editor, book chapter, or a systematic review or meta-analysis).
5. Does it mention the use of the Maslach Burnout Inventory (MBI)?
6. Are the research participants direct care professionals (e.g., teachers, residential staff, respite workers, vocational support, nurses, ward staff etc.)?
7. Are the direct care professionals supporting/working directly with adults with intellectual/developmental disabilities?

ABSTRACT SCREENING TRAINING

The primary student investigator will meet with the research assistant/volunteer and review several items:

1) The screening tool/questions
2) The content of the questions and ensuring they are objective/clear
3) Why the questions are being asked.

After the screening tool is reviewed and all ambiguity has been resolved, the primary student investigator will model the use of the screener questions and the tools on Covidence for 10 abstracts.

Following the model, the primary student investigator and the research assistant will independently screen 97 identical abstracts from the study (outside of Covidence; the student investigator will hand pick several abstracts testing different decision-making components of the exclusion criteria and place them in a separate document to be reviewed by both independently and compared for disagreements. This is to ensure including those that are clearly eligible and clearly irrelevant, as well as those that are uncertain).

After each has been reviewed, comparisons will be made to look for disagreements. All disagreements will be discussed. If less than 80% agreement, edits will be made to the screening tool and the above training steps will occur again and repeat until 80% or higher agreement is achieved.

DURING ABSTRACT SCREENING

The student investigator will meet with the research assistant on a weekly basis. The assistant will be encouraged to write down questions about specific abstracts they found difficult that week and bring it to the meeting.

During these meetings, if disagreements were found during that week of screening, they will be reviewed and resolved during the meeting with the student investigator and the assistant. If an agreement cannot be made, the primary investigator will be contacted to make the final decision.

FULL TEXT REVIEW TRAINING

Once all studies have been screened, training for the next phase will begin. Using the screening tool below the student investigator will train how to complete a full text review.

1. Does the article use the MBI-**HS**?
2. Does it report the study sample mean MBI scores for at least 1 subscale?
3. Are the research participants direct care professionals (e.g., teachers, residential staff, respite workers, vocational support, nurses, ward staff etc.)?
    a. Is the sample 80% or more direct care professionals (20% or less are managers, administration staff, or other indirect professionals [e.g., BCBAs, psychotherapists, psychologists, counsellors etc.]) **OR**
    b. Does the study report MBI subscales scores for each population separately such that the direct care staff score can be extracted individually?
4. Are the direct care professionals supporting/working directly with adults with intellectual/developmental disabilities?
    a. Is the clientele of the sample 80% or more adults with IDD **OR**
    b. Does the study report information for children/youth and adult clientele populations separately such that information of staff supporting adults can be extracted separately?

After the screening tool is reviewed and all ambiguity has been resolved, the primary student investigator will model the use of the screener questions and the tools on Covidence for 5 full text article reviews.

Following the model, the primary student investigator and the research assistant will independently review 5-10% (20 maximum) of identical full texts from the study (outside of Covidence; the student investigator will hand pick several articles for testing different decision-making components of the exclusion criteria and place them in a separate document to be reviewed by both independently and compared for disagreements. This is to ensure including those that are clearly eligible and clearly irrelevant, as well as those that are uncertain).

After each has been reviewed, comparisons will be made to look for disagreements. All disagreements will be discussed. If less than 80% agreement, edits will be made to the screening

tool and the above training steps will occur again and repeat until 80% or higher agreement is achieved.

DURING FULL TEXT REVIEW

The student investigator will meet with the research assistant on a weekly basis. The assistant will be encouraged to write down questions about specific articles they found difficult that week and bring it to the meeting.

During these meetings, if disagreements were found during that week of screening through full-text review, they will be reviewed and resolved during the meeting with the student investigator and the assistant. If an agreement cannot be made, the primary investigator will be contacted to make the final decision.

DATA EXTRATION TRAINING

The data extraction excel document will be provided to the research assistant prior to meeting for training. In training, the primary student investigator and the assistant will review the excel document together for the information being sought for extraction. During training, the following guidelines for choosing between several samples will be reviewed:

The primary student investigator will model data extraction for 10% of the articles which were eligible for data extraction. Following the model, the two will independently extract information from 3 articles and compare for disagreements.

Following this, any disagreements in the data extracted will be reviewed and resolved during the meeting. This will occur by reviewing the article and looking for the extracted information in the article to confirm the information.

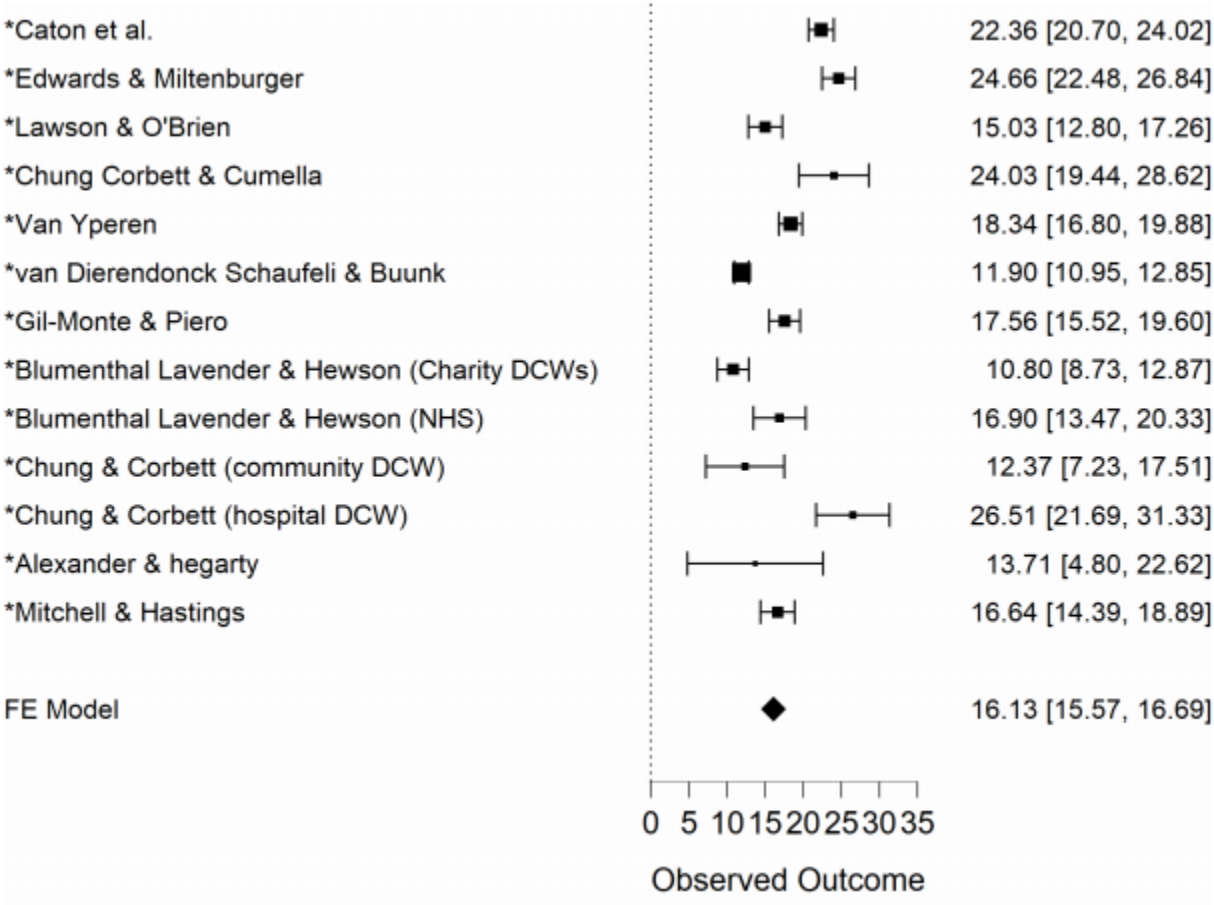
DURING RESULTS/INFORMATION EXTRACTION

The student investigator will meet with the research assistant on a weekly basis. The assistant will be encouraged to write down questions about specific articles they found difficult that week and bring it to the meeting.

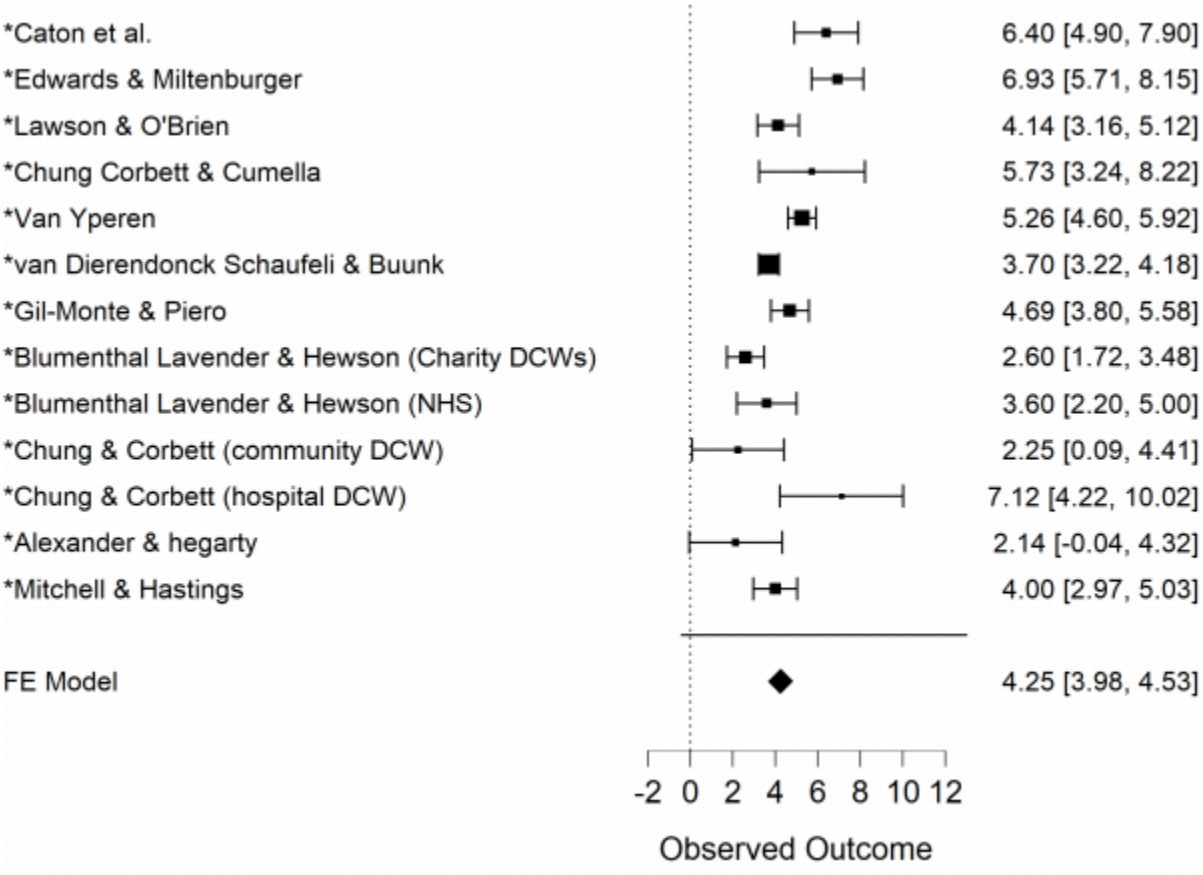
During these meetings, if disagreements were found during that week of data extraction, they will be reviewed and resolved during the meeting with the student investigator and the assistant. If an agreement cannot be made, the primary investigator will be contacted to make the final decision.

Appendix B

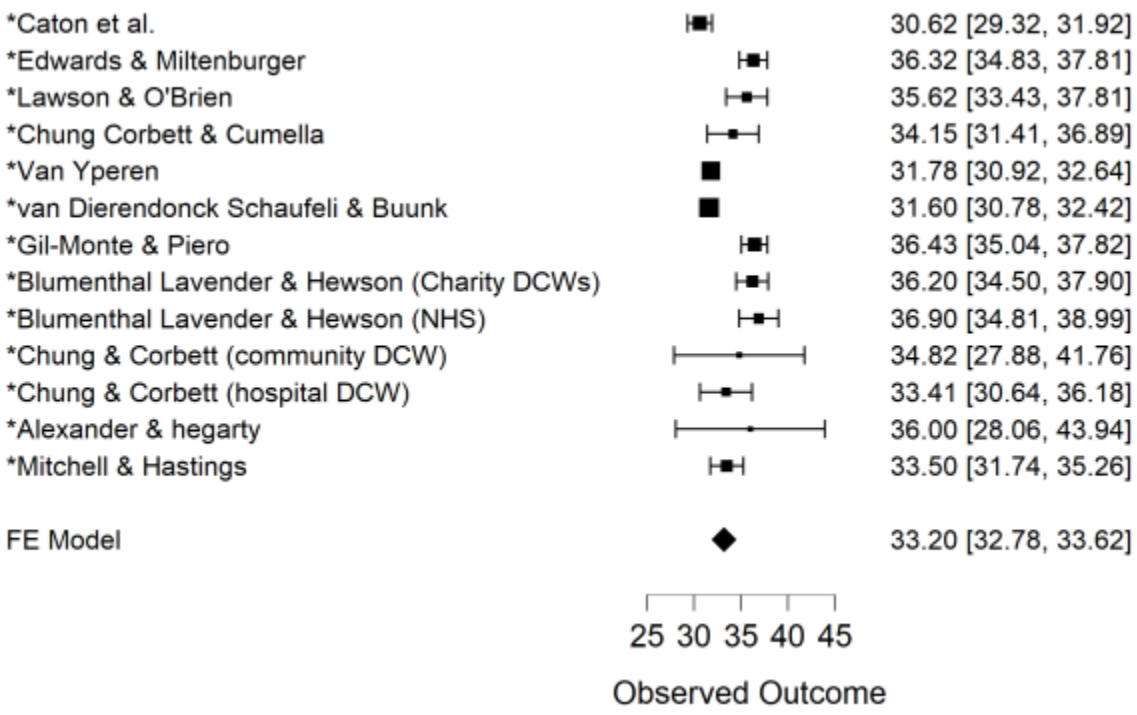
Classical Meta-Regression Analysis Forest-Plot for the Emotional Exhaustion Subscale (Based on Skirrow and Hatton's (2007) Sample)



Classical Meta-Regression Analysis Forest-Plot for the Depersonalization Subscale (Based on Skirrow and Hatton's (2007) Sample)

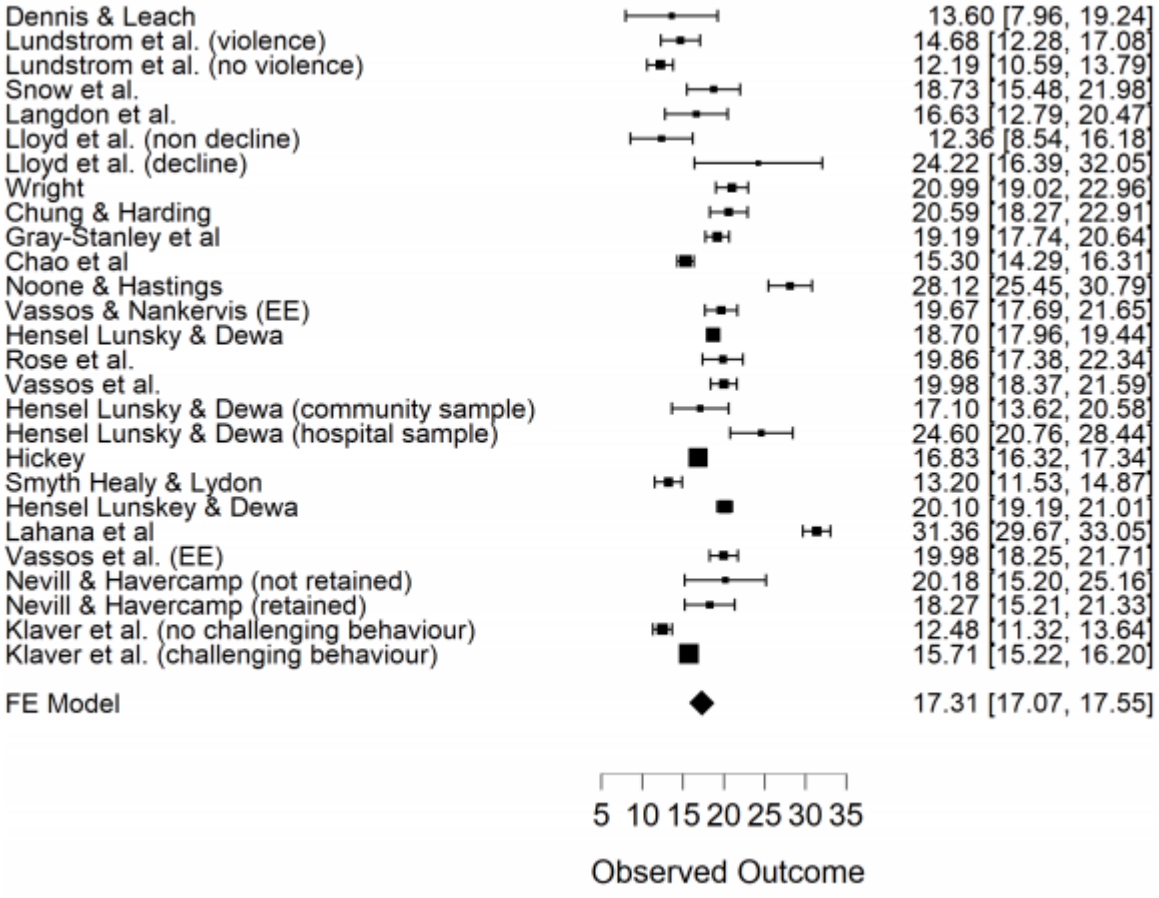


Classical Meta-Regression Analysis Forest-Plot for the Personal Accomplishment Subscale (Based on Skirrow and Hatton's (2007) Sample

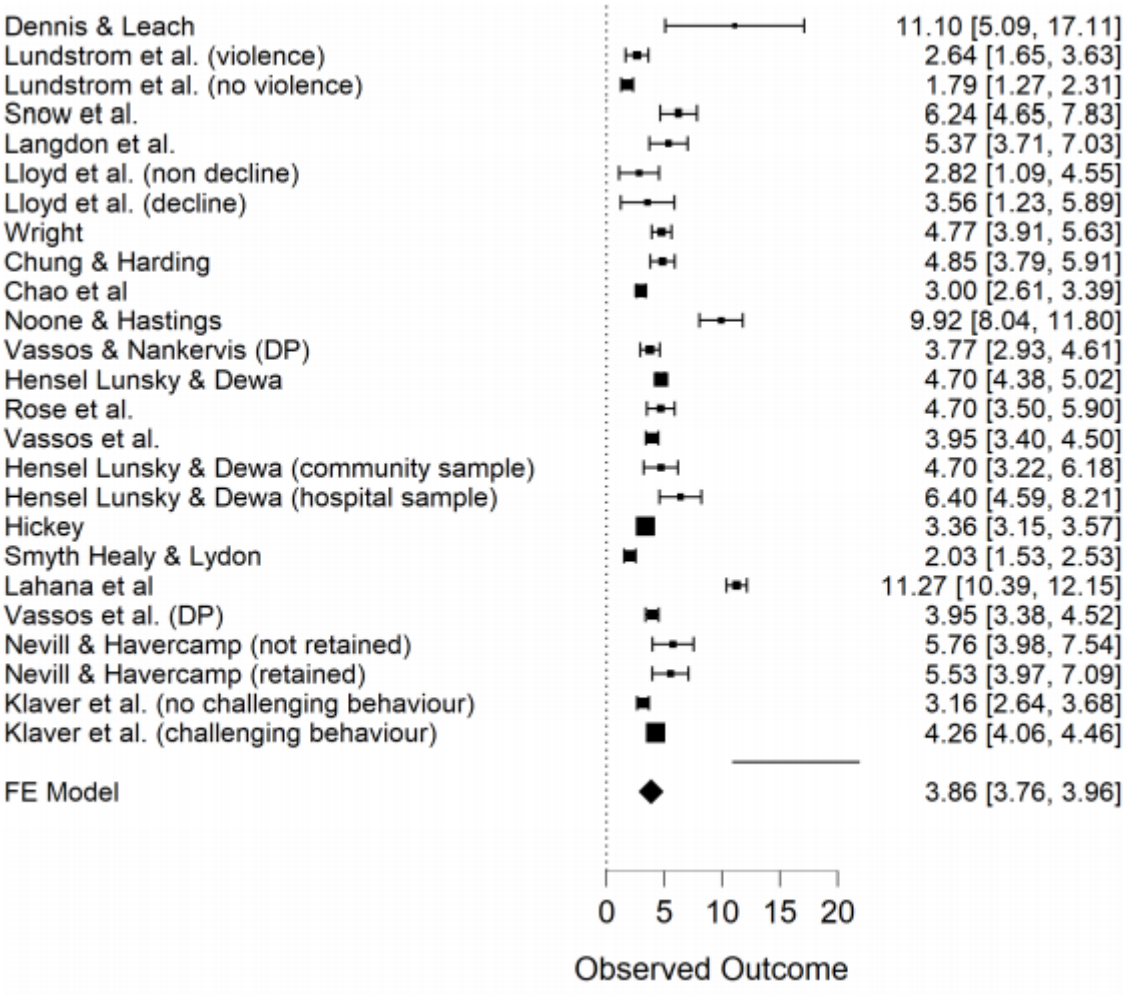


Appendix C

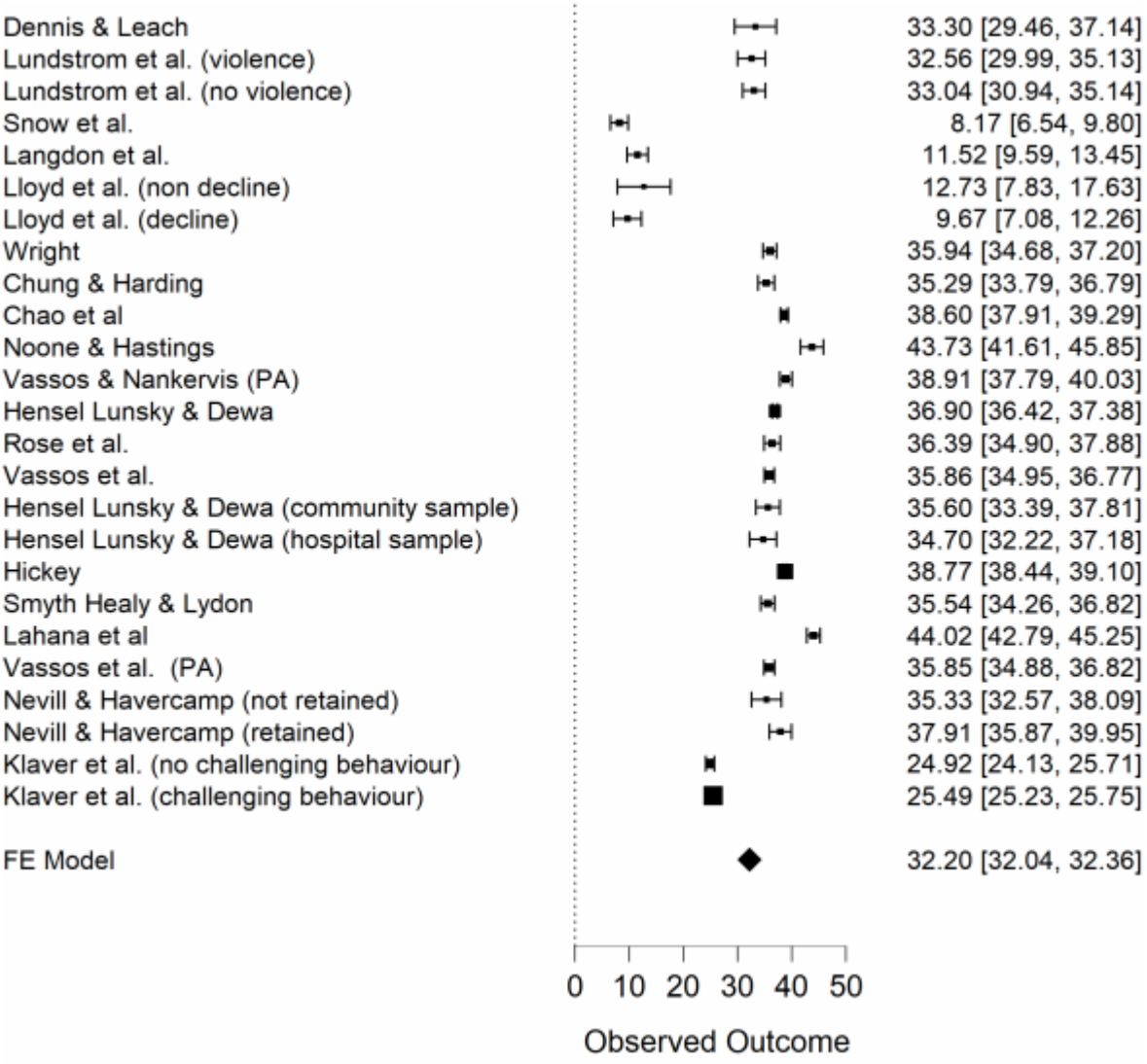
Classical Meta-Regression Analysis Forest-Plot for the Emotional Exhaustion Subscale (From the Current Review Sample)



Classical Meta-Regression Analysis Forest-Plot for the Depersonalization Subscale (From the Current Review Sample)

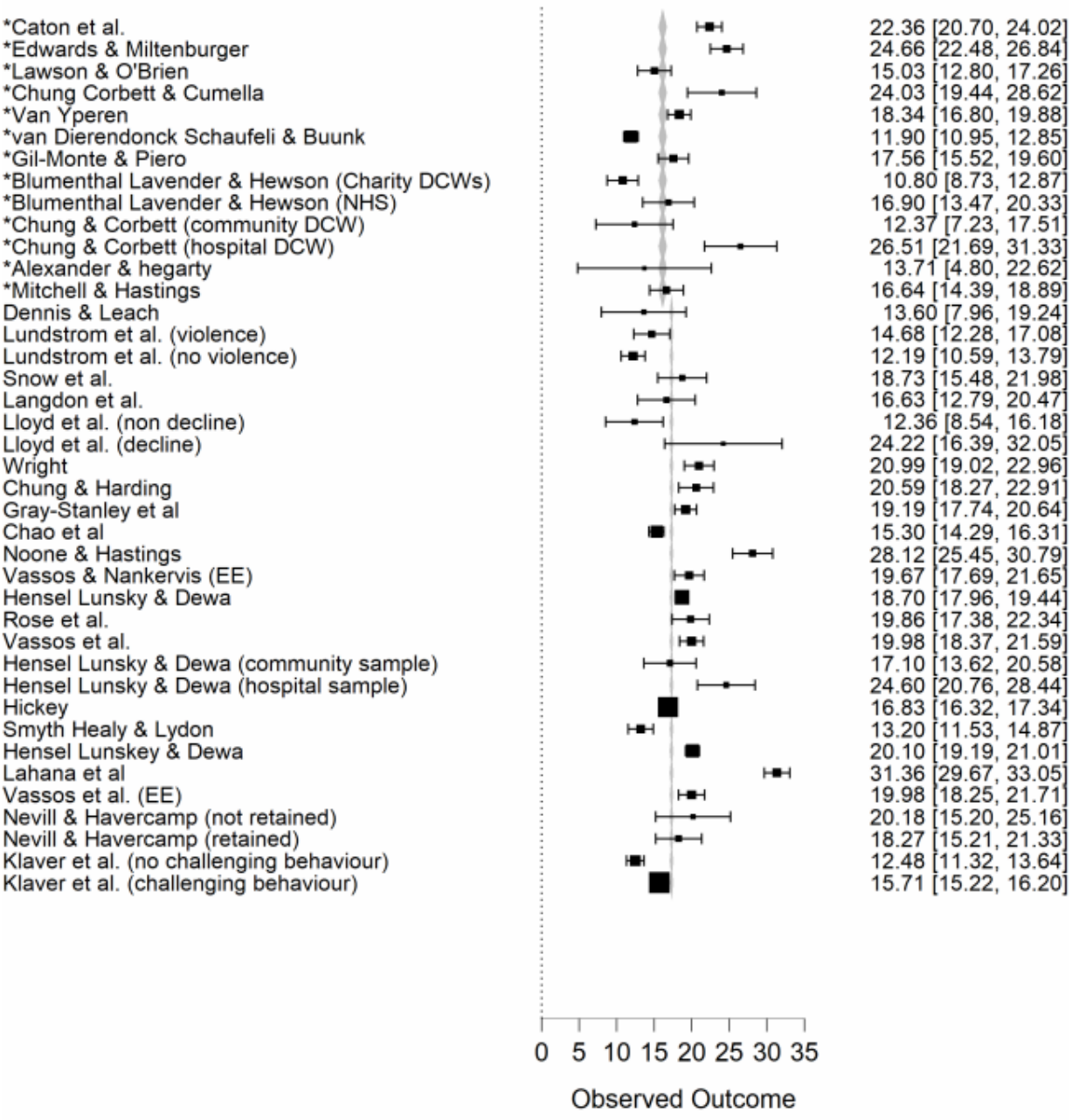


Classical Meta-Regression Analysis Forest-Plot for the Personal Accomplishment Subscale (From the Current Review Sample)

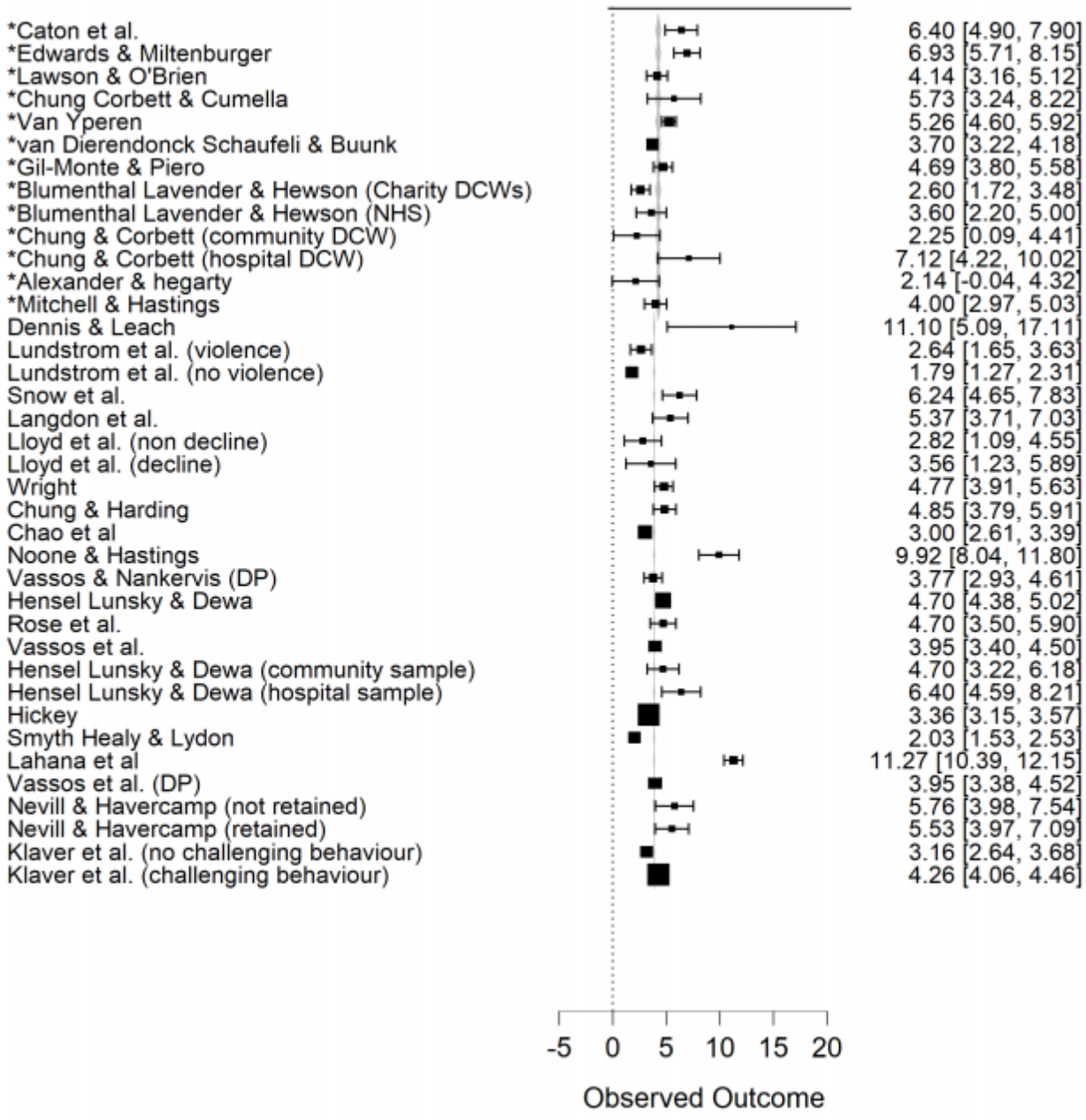


Appendix D

Classical Meta-Regression Analysis Forest-Plot for the Difference in Emotional Exhaustion between Skirrow and Hatton (2007) and the Current Review



Classical Meta-Regression Analysis Forest-Plot for the Difference in Depersonalization between Skirrow and Hatton (2007) and the Current Review



Classical Meta-Regression Analysis Forest-Plot for the Difference in Personal Accomplishment between Skirrow and Hatton (2007) and the Current Review