

Healthcare Leadership Interventions to Reduce Workplace Burnout

By
Michael J. Foote

A Thesis Submitted to
Saint Mary's University, Halifax, Nova Scotia
in Partial Fulfillment of the Requirements for
the Degree of Master of Science in Applied Psychology.

August, 2023, Halifax, Nova Scotia

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Date: August 28, 2023

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Abstract

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A common occurrence among healthcare professionals is a condition known as burnout which significantly impairs both the mental and physical health of individuals over time. To reduce burnout this study utilized a Train the Trainer model to decrease intervention costs and support healthcare professions with six weeks of workshops and one-on-one coaching. The workshops focused on psychological flexibility, work stress recovery, and supportive leadership. The results of the study show by the end of the intervention, participants had reduced burnout, sleep impairment, relationship conflict, and improved psychological detachment. Participants' supportive leadership was not found to change. During the intervention resting heart rate was measured as a physiological indicator of burnout. The participants' average resting heart rates showed a downward trend suggesting burnout was reduced. Overall, the results of the intervention suggest that the Train the Trainer model was effective in reducing participant burnout along with reducing intervention costs.

Keywords: burnout recovery, Train the Trainer model, work stress recovery, psychological flexibility, supportive leadership, resting heart rate, growth curve analysis

Date: August 28, 2023

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Healthcare Leadership Interventions to Reduce Workplace Burnout

Stress is a common factor for most working individuals, but healthcare practitioners are shown to experience higher stress than average due to their work (Aziz, 2004). To understand why their work may lead to higher stress than average we can consider their workplace environment.

Taking direct responsibility for the life and death of others creates significant stress on healthcare professionals' mental health because they are dealing with decisions about human lives regularly (Rees, 1995). A cross-sectional and longitudinal study found that the level of stress doctors experience is significantly higher compared to the general working population (Firth-Cozens, 2003; Shanafelt et al., 2015). As we continue through the COVID pandemic, stress is one of the factors that is continuing to psychologically impact individuals across many professions.

However, healthcare front-line workers have not been given any chance to rest or recover. Data collected one year into the COVID pandemic showed that healthcare professionals self-reported that 30% of them had high levels of stress, 24% had high levels of anxiety, and 14% had depression (Zhu et al., 2020). To help support individuals who are facing burnout, interventions can be used. Interventions focusing on the working environment can examine factors such as the work tasks, the workload, or the schedules of employees (Marine et al., 2006). While other interventions to reduce burnout in the healthcare industry have examined the effectiveness of mindfulness and self-management interventions for healthcare workers (Sultana et al., 2020). The interventions improved healthcare professionals' emotional exhaustion, depersonalization, and improved personal accomplishment (Suleiman-Martos et al., 2020). One challenge is to consider how to reach the largest number of people with an intervention. Leaders of teams are a common choice.

Leadership Interventions

Focusing an intervention on a leader of a healthcare team ensures the interventions have the best chance to reach many individuals impacting the organization. Studies have shown that supervisor leadership can play a significant role in determining employee burnout (Dyrbye et al., 2020; Mo & Shi 2017). One study demonstrated that leaders who fake being nice to employees lose the trust of their employees, reducing open communication (Mo & Shi 2017). This caused employees to lose trust in their leader, causing negative emotions and behaviours in the workplace. However, when the leader improved ethical and open communication in the workplace, the employees trust the leader more (Mo & Shi 2017). Other research found that higher levels of leadership are related to improvements in both employee satisfaction and the reduction of burnout (Dyrbye et al., 2020). Leaders play an important central role in the workplace and can impact many others such as their staff, for better or worse. Focusing on reducing leaders' burnout while giving them tools to improve their leadership skills, is likely to impact their staff as well (Dyrbye et al., 2020). Therefore, this study conducted workshop interventions and coaching with healthcare leaders to support the leaders and the workplace by improving the participant's leadership skills. To understand why an intervention may reduce burnout, it is important to understand workplace stress and why it is it can cause burnout.

Workplace Stress

Workplace stress in the context of this paper is defined as the change in one's physical or mental state due to challenges within or related to the workplace that makes the individual feel challenged or threatened (Colligan & Higgins, 2005). There are many work-related factors which can impact an individual leading to stress. Some of these factors may include types of hours worked, role ambiguity, lack of autonomy, toxic work environment, career development barriers,

difficult relationships with administrators and/ or coworkers, bullying, harassment, and organizational climate (Colligan & Higgins, 2005). While each of these factors could create stress, everyone is unique in how they get stressed or recover from it. To better understand why the above factors can cause stress it is important to examine workplace stress theories.

Several workplace stress theories aim to explain how stress occurs for individuals in the workplace. The Job Demands-Resources (JD-R) model suggests that when examining workplace stress there are two main factors: job demands and job resources (Bakker & Demerouti, 2007; Demerouti, et al., 2001). Job demands are requirements of the worker in the workplace which could be time pressure, workload, and physical environment. Accomplishing these job demands normally requires the employees' psychological and physiological energy, which, when depleted, can increase the employee's stress (Bakker & Demerouti, 2007; Demerouti, et al., 2001). Job resources are the elements that can support an employee in achieving their job demands. Examples of job resources are work autonomy, supervision, and feedback on performance (Bakker & Demerouti, 2007; Demerouti, et al., 2001). The JD-R model suggests that, if the job demands are higher than the job resources, employees will accumulate stress. The JD-R model is one of the workplace stress models, which could help explain why individuals can accumulate stress from the workplace, leading to burnout. However, the JD-R model does not consider an employee's characteristics or why future challenges can lead to stress in the present.

The Conservation of Resources (COR) theory expands upon resources and demands along with predicting why employees may become stressed due to future challenges. The COR theory is based on the pioneering work of Lazarus and Folkman (1984) which suggests that stress occurs when an individual is anticipating harm or loss that may occur in the future. This theory predicts that individuals regularly anticipate future events to prepare ahead of time to

handle them. However, if individuals expect that future events may not go well due to a lack of resources, they experience stress (Hobfoll, 2011). The current paper is examining how to reduce burnout among healthcare professionals. Therefore, by understanding how COR theory predicts employee stress we can better understand how to utilize an intervention to reduce current and future stressful factors for employees. The COR theory suggests that, whether employees are in a stressful environment, or not, they regularly seek to gain resources and protect their current resources to handle challenging situations (Hobfoll, 2011). These resources could be objects, personal characteristics, time, energy, or even other people they feel are helpful to handle future challenges. When these resources are reduced or taken away, individuals are impacted by psychological stress (Chen et al., 2009). The anticipation of losing those resources may cause individuals to experience stress while maintaining or gaining resources can help reduce overall stress (Chen et al., 2009; Hobfoll, 1989). Based on the theory, individuals are continuously trying to keep their current resources and to seek new resources whether they are in a stressful situation or not. The JD-R model and COR models suggest employees need enough resources to handle job demands. Therefore, the current study focuses on an intervention that will give individuals more resources and methods to handle difficult situations reducing their stress to help lower burnout (Hobfoll, 1989). While there are many factors which can cause stress, research shows that individuals react differently to stress making it hard to predict outcomes (Sonnentag & Frese, 2012).

Unique Response to Stress

The stress response focuses on individuals' specific reaction patterns which indicate they are stressed regardless of what factors are causing it. There are considered to be four general stress concepts: the stimulus concept, the response concept, the transactional concept, and the

discrepancy concept. The stimulus concept suggests that specifically, situations or events cause individuals to become stressed. For example, workplace conflicts and incidents will cause stress. This concept is problematic though because not all individuals react to an incident in a uniform manner. Although stress response to a difficult situation or event is not uniform, many researchers still agree most individuals are stressed from the challenging situation or event regardless of their stress response (Brief & George, 1995; Kahn & Byosiere, 1992). The response concept suggests that if the individual shows a reaction pattern, regardless of the situation or events around them they are considered impacted by stress (Selye, 1956). This concept does not account for how different situations and events can create the same stress response. The other two concepts focus on the interaction between the individual situational environment and their stress response. The transactional concept developed by Lazarus (1966) suggests that stress is a result of their current situation not meeting their desired perceptions, expectations, and interpretations of the situation. Operationalizing this concept often relies on self-reports or physiological measurements from individuals to understand their stress situation (Sonnetag & Frese, 2012). The discrepancy concept suggests that stress is caused by the incongruence between individuals' current environment and what they desire (Edwards, 1992).

There are many methods to examine stress, but the stress caused by a specific situation does not create a uniform stress response across multiple individuals, meaning each individual's reaction to a specific event is unique. For example, stress from long work hours might cause one individual to exhibit a stress response but another person may not (Sonnetag & Frese, 2012). Individuals can be impacted by an event at the physical, affective, or behavioural level. The individual could exhibit stress reactions immediately after the stressor or it could take longer to

develop. Without a consistent response across individuals to a stressor, it can be hard to solve (Sonnentag & Frese, 2012).

Burnout

If the stress occurs for too long, it can become chronic and lead to burnout. Burnout is a psychological and often physical condition that often occurs over time due to chronic stress (Maslach et al., 2001). According to Maslach and colleagues (2001), burnout is comprised of three domains: emotional exhaustion, cynicism, and professional efficacy. Emotional exhaustion is the depletion of emotional and physical resources, often exhibited as fatigue (Maslach et al., 2001). Emotionally exhausted individuals have run out of energy and are seemingly unable to regain their energy resources. Cynicism, also known as depersonalization, is when individuals feel detached from their work or personal life and lose interest (Maslach et al., 2001). Loss of professional efficacy also known as loss of professional efficacy refers to a reduced sense of competency when working, which reduces the individual's productivity and accomplishment in the workplace (Maslach & Jackson, 1981). These three factors define burnout and are important to measure, allowing researchers to understand what level of burnout an individual may have (Maslach et al., 2001).

How Chronic Stress Leads to Burnout

Chronic stress generally emerges over time due to a stressful environment that is not changing, which left unchecked can lead to burnout (Leiter & Maslach, 2005). The COR model and JD-R theory both state that not having enough resources to perform the required job demands can create stress (Bakker & Demerouti, 2007; Hobfoll, 1989). If the stress is not reduced it can lead to chronic stress, which has been associated with burnout (Maslach & Leiter, 2016). For example, chronic stress may emerge if employees feel a lack of control over their job,

due to micromanaging from supervisors, and accountability for actions without power or resources to make the correct choices (Leiter & Maslach, 2005). Stress and possibly burnout can occur from social factors as well, such as an unsupportive work environment, poor workplace communication, conflict, discrimination in the workplace, lack of supportive empathy between colleagues, or lack of appreciation or acknowledgment for workplace effort (Leiter & Maslach, 2005; Maslach et al., 1996). Once chronic stress has impacted individuals for long enough, they can develop burnout symptoms which can vary depending on the individual and level of burnout (Leiter & Maslach, 2005).

Consequences of Burnout

Burnout can cause both physical and psychological consequences which can be harmful (Salvagioni et al., 2017). Sleep impairment is one condition that is highly correlated with burnout (Vela-Bueno et al., 2008; Ekstedt et al., 2006; Melamed et al., 1999; Pagnin et al., 2014; Grossi et al., 2003, 2005). Along with sleep impairment, burnout is correlated with anxiety and depression, which can exacerbate sleep impairment, creating an increasingly difficult cycle (Koutsimani et al., 2019; Morse et al., 2012; Ahola et al., 2005). While there are many symptoms which can be associated with burnout, it can be difficult to know how each individual may react. High resting heart rate is a common symptom of burnout and can cause blood pressure issues (Benschop et al., 1994; De Vente et al., 2003; Evans & Steptoe, 2001; Goldstein et al., 1999). Observation research examining burnout patients and healthy controls found that burnout patients showed higher resting heart rates compared to the controls (De Vente et al., 2003). The research suggests that the elevated heart rate may be caused by sustained activation from stress over time. Because a high resting heart rate is a physiological indicator, this makes it a measurable symptom of burnout that is not self-report aiding in burnout research. Along with

current symptoms, burnout can be dangerous to future health conditions, such as coronary heart disease, type 2 diabetes, and respiratory and gastrointestinal problems (Kim & Kao, 2011; Melamed et al., 2006; Toker et al., 2012). All of these issues can be devastating to the individual depending on how they react to burnout along with how long it continues for them. While burnout is heavily impacting the individual, it can also impact the workplace by putting additional pressure on fellow employees.

Workplace Burnout Impacts

The impact of burnout on the workplace can be severe. Burnout significantly impacts employees' sleep, depression and anxiety, which can impact the workplace leading to more work being placed on existing employees. The added work without support can lead to increased absenteeism, early retirement, and possibly job turnover (Ahola et al., 2005; Dewa et al., 2014; Koutsimani et al., 2019; Morse et al., 2012; Shanafelt et al., 2016; Swider et al., 2010). One study, examining an economic model using data from 2007 – 2008, found that physician burnout caused an estimated \$213 million loss in Canada (Dewa et al., 2014). This cost was related to physicians' early retirement and reduced clinical hours. Without the resources to replace these physicians, organizations are losing millions due to burnout. With the health system struggling, physicians continue to face overwhelming work without the resources or staff to support them (Dewa et al., 2014). While many employees may continue working unaware of the impact burnout is causing, their performance at work can be significantly reduced (Taris, 2006). Research on physicians showed that serious burnout is associated with an increase in medical mistakes (Wen et al., 2016). Reducing burnout is in the best interests of both the individuals and the organizations that employ them.

Burnout Intervention Approaches

With burnout having such severe impacts on both the individual and the organization, methods to reduce burnout are necessary. When examining burnout interventions there are different approaches, such as focusing on improving the workers' skills themselves or improving the working environment. Research suggests that there are three common burnout intervention possibilities: to focus on the organization through working environment changes or policy changes, the individuals through work-stress education, or lastly, a combination of both (Westermann et al., 2014). To better understand the pros and cons of each, first, we will consider changes in the organization's policies and working environment.

An intervention focused on changing the organization's working environment may examine current work tasks, the workload or schedules of employees, improving teamwork, and improving the working environment (DeChant et al., 2019; Marine et al., 2006). This intervention approach, if done properly, can have long-lasting effects as it is aimed at changing working policies. One study worked with an organization to change schedules and workplace procedures (Westermann et al., 2014). They added activity programs, group discussions, and regular supervision meetings to examine the impact on systematic pain (Westermann et al., 2014). An intervention that focuses on changing the organization may have a longer-term impact than focusing on teaching employee skills because it can change long-term policies and procedures in the workplace, depending on the approach and effectiveness of the intervention (Awa et al., 2010; Westermann et al., 2014; Zhang et al., 2020).

Another approach is focusing the intervention on the employees to give them skills for improving their stress and burnout (Ahola et al., 2017; Awa et al., 2010; Zhang et al., 2020). This intervention approach does not focus on changing the workplace environment or policies as

much as giving employees skills to support themselves. This approach requires employees to dedicate some of their time and resources to the intervention and does not require the organization itself to change, making it easier to implement (Ahola et al., 2017; Awa et al., 2010; Zhang et al., 2020). This intervention approach often relies on workshops, group sessions, professional coaching, and or counselling therapy to improve skills (Zhang et al., 2020). Research suggests that nurses and physicians when faced with burnout, benefit from interventions that help them develop coping strategies (Stwert et al., 2019). Situational awareness is another important skill in healthcare which impacts decision-making (Kozasa et al., 2010). A situational awareness intervention demonstrated success in supporting healthcare professionals' perceived stress, self-compassion, and psychiatric symptoms (Kozasa et al., 2010). Another study using a situational awareness intervention has shown success in the past with healthcare professionals to improve psychological resilience (Schreiber et al., 2015). One study found that relaxation techniques and improving role-related skills were the most valuable skills in reducing burnout (Maricuțoiu et al., 2016). Many studies used common stress reduction tools and strategies that were successful in reducing participants' stress and exhaustion, but not necessarily their burnout (Maricuțoiu et al., 2016). With burnout being such a unique challenge, one intervention approach may not be effective for everyone. One study provided a dementia training program and peer support program to nurses who managed dementia patients (Davidson et al., 2007). While the dementia training program and peer support program improved the nurse's self-efficacy, the program did not significantly improve their burnout. The lack of improvement in burnout was attributed to the five-session intervention being too short for it to impact the nurses' burnout (Davidson et al., 2007). The evidence suggests that even with skills to handle stress in the workplace if the workplace environment does not improve, employees will

still become overwhelmed and possibly develop burnout. Therefore, applying a mix of changing workplace conditions and employee skill-building interventions may be the best approach for some organizations.

Combining the two types could be the ideal intervention if the organization can support that type of burnout intervention. The combination approach includes improving employee skills through workshops, or other training while examining the work environment, improving teamwork, workload, and or schedules to reduce workplace burnout (DeChant et al., 2019; De Simone et al., 2021; Westermann et al., 2014; Patel et al., 2019; Zhang et al., 2020). The combination approach can be more intensive and would be expected to be more effective than the other two approaches. One study showed a reduction in burnout scores and reduced sick leave percentage using the combined approach with healthcare workers (Grossi, & Santell, 2009). Their intervention focused on using rehabilitation meetings with supervisors and direct rehabilitation programs for the staff (Grossi, & Santell, 2009). Their intervention was able to directly support staff with rehabilitation and improve teamwork in the organization through meetings with supervisors. Another study used a combination of cognitive behaviour therapy for individual-focused support and meetings with labour experts to improve organizational change that supported the healthcare workers (Blonk et al., 2006). The intervention was able to support the healthcare workers and reduce the time it took for them to return to work (Blonk et al., 2006). Depending on the intervention, organization, and participant population, different approaches may work well for some groups, but not in other environments. For example, the current study examined healthcare leaders. This study focused on burnout reduction intervention components which improve supportive leadership skills (DeChant et al., 2019; Ma et al., 2021 Simone et al., 2019), psychological flexibility through the ACT matrix (Barett & Stewart 2020), and work

recovery skills (Sonnentag et al., 2013). By incorporating individual-focused skills with leadership skills to improve teamwork and support staff in the organization, this combined intervention approach will support both the leaders and their staff in the workplace. The current study is based on a recent successful combined approach burnout intervention which focused on homecare agency nurse leaders (Gilin et al., 2021). This original study conducted in 2021 using a higher-resource approach will be compared to the current study. Throughout this paper, the original burnout intervention conducted in 2021 will be named Burnout Recovery 1 Original Study Comparison Group (BR1 Comparison Group). The current study conducted in 2022 uses a model to reduce the intervention cost called Train the Trainer (TTT). Therefore, the current study is named Burnout Recovery 2 Train the Trainer Group (BR2 TTT Group).

Burnout Recovery 1 Original Study Comparison Group

The original study conducted in 2021 was a successful burnout reduction intervention which was a high-resource intervention utilizing a waitlist control approach occurring across 14 weeks in May and June 2021. To measure the success of the original study, the intervention group was compared to a waitlist control group (Gilin et al., 2021). Both groups performed the pre-test and post-test in the first six weeks of the 14-week intervention at the end of May 2021. Examining the pre-test to post-test results, the intervention group showed some reduction in burnout while the waitlist control group without the workshop support showed an increase in burnout due to wave three of COVID at that time point in 2021. The intervention group had significantly lower burnout compared to the waitlist control group after the six-week period (Gilin et al., 2021).

This BR1 Comparison Group was used as a comparison group for the current study to examine measures that are used in both studies. To ensure power as a comparison group, the

BR1 Comparison Group dataset contains both intervention and waitlist control group participants combined. The BR1 Comparison Group dataset contains each group's intervention period pre-test to post-test (weeks one to six for the intervention group), (weeks seven to thirteen for the waitlist control group). This ensures both groups' data was during the time they received the workshop intervention.

The BR1 Comparison Group utilized the subject matter experts of the burnout intervention material to facilitate and coach the participants through the intervention. By combining weekly workshops with one-on-one coaching, the participants learned tools to reduce their burnout, along with tools to support their staff. The initial burnout intervention study used a waitlist control design. Half of the participants were randomly assigned to the intervention group and participated in the intervention for six weeks first, while the other half were waitlisted and had no intervention, acting as a control. After the six weeks, the waitlist group then participated in a six-week intervention. This approach ensured all participants received an intervention and that there was a control group that followed the first half of the participants during their intervention. Both groups participated in comprehensive surveys to examine burnout, self-care, recovery experiences, and (Acceptance and Commitment Therapy) ACT processes. These comprehensive surveys were completed at three time points. The first was done by both groups at the beginning of the first intervention group, the second was completed by both groups after the six-week intervention, and the third was completed by only the waitlist control group after their intervention. Participants wore Fitbits one week before and after the intervention period to track their resting heart rate, steps, and sleep to achieve a baseline before and after the study. The resting heart rate pattern results of the original burnout recovery study were promising with a steady downward trend in the intervention group compared to the waitlist control group (Gilin et

al., 2021). Resting heart rate was measured because a high resting heart rate is a physiological indicator that has been associated with burnout (De Vente, et al., 2003). The resting heart rate tracked is the average of the participant's heart rate during each sleep period.

While the initial burnout recovery intervention was successful, it was highly resource and time intensive. The initial burnout recovery intervention required participation over 14 weeks. The intervention also included coaching for participants from clinical Ph.D. candidates with a moderately high hourly wage. Along with the coaching, the intervention facilitation was performed by the burnout intervention subject matter experts who are experts in their field and have a high cost for their hourly work across the 12 weeks of workshop interventions.

Unique Study Contributions

My unique contribution was identifying key changes to the intervention approach. With a need to reduce the cost of the intervention due to funding limitations, I was able to identify methods to achieve this. By utilizing the TTT model we were able to significantly reduce the time needed from the subject matter experts allowing them to train lower-cost but capable individuals such as myself and fellow graduate students to handle more of the intervention. To be able to use the TTT model using pre-recorded workshop videos developed by the subject matter experts for BR1 Comparison Group would allow less experienced individuals on the subject such as myself to facilitate workshops. The TTT model requires that the subject matter experts supervise the trainers such as myself and other coaches on how to conduct the ACT Matrix during coaching and how to facilitate the workshops. After working on the research team supporting the BR1 Comparison Group intervention in 2021, I was able to identify that most participants only used three out of the six available coaching sessions. Therefore, to reduce the resource cost for BR2 TTT Group, we only included three coaching sessions which worked well.

To ensure the intervention was lower cost the participant's organization (Victoria Order of Nurses) VON, was required to cover the cost of the Fitbit devices for their employees. With myself as a point of contact for the intervention team, participants, and the organization, our team effort can further reduce the time the subject matter experts need to commit to the intervention. Running two groups simultaneously with a control group can significantly reduce the strain on the organization, intervention staff and participants compared to the waitlist control approach.

By following these key changes to the intervention, this study was able to run similarly to the BR1 Comparison Group intervention but at a reduced time and cost. This approach is important because of the impact burnout has on the healthcare industry. One report surveyed N=4467 nurses and found that 45% reported severe burnout and over half reported considering leaving their job (Duong & Vogel, 2023). Considering these large numbers and many more that never completed surveys, methods such as the TTT model to reach more individuals and reduce their burnout are necessary.

Train The Trainer Approach

Using the TTT model allows the intervention to reach a larger population at a reduced cost. The TTT model has also been named pyramidal training, triadic training and helper model training, because it focuses on one professional individual training other trainers (Suhrheinrich, 2011). This approach allows the training skills of one professional to be taught to many others who can apply them to a large population. For example, a national HIV/AIDS strategy was put in place using the TTT model to train 91 individuals over one year (Tobias et al., 2012). The program was successful in providing the skills to 91 individuals who then held 26 local training sessions with peers reaching 272 individuals (Tobias et al., 2012). Other work using the TTT

model supported direct-care staff in reducing inappropriate behaviours in their clients with mental disabilities (Shore et al., 1995). The training gave the direct-care staff skills which changed their behaviour around the clients and helped reduce client inappropriate behaviours (Shore et al., 1995). The TTT model can support learning skills to help others and has demonstrated success in residential centers (Page, et al., 1982; Parsons & Reid, 1995; Shore et al., 1995), hospitals for the mentally disabled (Whalen & Henker, 1971), and schools (Jones et al., 1977). Utilizing this approach could make burnout interventions more scalable and affordable to support the healthcare industry as a recent survey showed that nearly half of N=4467 Canadian nurses report severe burnout (Duong & Vogel, 2023).

Healthcare Intervention Components

The target population of this study was healthcare leaders. Due to their area of work, occupational stress is a common challenge, with COVID only increasing stress and causing burnout to be more prevalent (Aziz, 2004; Firth-Cozens, 2003; Rees, 1995). Specifically, the target population is home care nurses who experience a lot of stress related to their working environment changes, isolation, ethical challenges, and decision-making (Higuchi, Christensen, & Terpstra, 2002). The leaders support their staff as they attend to clients in their homes, the staff are always changing their working environment and must adapt to each home. During the care for clients, nurses are faced with the ethical dilemma of supporting clients to “live at risk” in their own homes. The leaders must support their staff through difficult decisions that balance the client’s autonomy, with the nurse being accountable for providing safe competent care to the client (Higuchi et al., 2002). The decision-making pressure is a significant stress upon healthcare professionals to handle all the factors and be accountable for the clients.

This study utilized a combined intervention approach focusing on individual skills along with supportive leadership skills to improve system-level changes in the organization as well. Focusing on improving the leaders' burnout and their supportive leadership skills will likely have a supportive impact on the staff and organization (DeChant et al., 2019). By incorporating individual-focused skills with leadership skills to improve teamwork in the organization, this combined intervention approach will support the healthcare professionals and their organization. The ACT matrix tool was used throughout the intervention to support motivational and behaviour change (Hayes et al., 2011).

Improving Psychological Flexibility Using Acceptance Commitment Therapy (ACT)

The ACT matrix is a tool to help individuals accept both negative and positive thoughts and feelings to improve psychological flexibility (Barett & Stewart 2020). By not suppressing challenging internal thoughts and feelings but accepting and understanding them, individuals can combat their own challenge avoidance habits and solve their issues, reducing stress. The ACT matrix tool uses acceptance, mindfulness, and behaviour techniques to improve psychological flexibility (Barett & Stewart 2020). Psychological flexibility is the ability to be fully aware of the present moment, so they can react and behave in line with their personal values (Kashdan & Rottenberg, 2010). The ACT matrix tool was used to support behaviour and motivation change in the healthcare leaders as they progressed through the intervention. By utilizing the ACT matrix, healthcare leaders examined challenging situations from a different perspective and were able to work through their issues alone or with their team to find solutions (Polk & Schoendorff, 2014). The ACT matrix is an evidence-based tool that supported the healthcare leader's behaviour change for how they can tackle challenges causing burnout and improve their

leadership skills. This tool was used in conjunction with the workshop material to support learning and utilizing the workshop material.

Work Stress Recovery

Throughout the workshops, the ACT matrix was used to help healthcare professionals learn their personal stressors and methods to recover from work stress. To support healthcare professionals, recovery skills need to be covered. Recovery is considered when an individual's functional systems return to their normal state as they were before being stressed (Meijman & Mulder, 1998). Considering stress and recovery models such as JD-R, COR, and Effort-Recovery Model, it is important to consider how to recover from stress. The Effort-Recovery Model suggests that stress at work, loads the individual's functional system, causing fatigue or physiological activation (Meijman & Mulder, 1998). The model suggests that after work stress, the functional system returns to normal, and recovery occurs (Meijman & Mulder, 1998). Considering the JD-R, COR, and Effort-Recovery Model models, individuals who are impacted by stress from work need to recover after work to return to normal. As individuals can become stressed from different scenarios, it is important to learn each individual's unique stress triggers (Sonnetag & Frese, 2012). During the intervention, participants were guided through workshops which include tools for measuring their level of stress and burnout. Throughout the workshops, the participants learned how to understand their own energy and resources for handling job demands. If the participant's energy is too low the JD-R theory would suggest they will experience increased stress which can lead to burnout. By utilizing the ACT matrix, the participants covered a list of common job stress triggers to design a personalized recovery plan. These personalized plans helped the participants identify key job stress triggers and build strategies to reduce the job demands as suggested by the JD-R, helping to reduce burnout and

support recovery. To help measure recovery, validated relaxation and psychological detachment self-report survey items were used (Sonnentag, & Fritz, 2007). Psychological detachment is one way to reduce occupational stress, it refers to the off-job experience of “switching off” mentally (Sonnentag et al., 2013). Not being exposed to workplace demands, the Effort-Recovery model suggests that individuals can recover (Meijman & Mulder, 1998). Having higher psychological detachment has been shown to reduce the negative impact of relationship conflict (Sonnentag et al., 2013) and improve sleep quality (Hülshager et al., 2014). While relaxation is considered a low-activation mental state with a higher positive affect (Stone et al., 1995). Research has suggested that relaxation can help reduce stress-related complaints, in the short and long term (Stone et al., 1995). Research has also shown that relaxation techniques were valuable skills in reducing burnout (Maricuțoiu et al., 2016). To help measure the effectiveness of the workshops both relaxation and psychological detachment were measured. Along with their own recovery, participants learned leadership skills to support their staff.

Supportive Leadership

The workshop material included tools and training on supportive leadership skills to help the leaders create a working environment conducive to burnout recovery for their staff. The ACT matrix was used to support the participants in modifying their behaviours to improve their leadership, conflict handling, and psychological safety skills. Supportive leadership is an important area to support the healthcare workplace environment as it has been shown that improving leadership and teamwork can reduce staff burnout (DeChant et al., 2019; Shanafelt et al., 2015). During the pre-test survey participants completed the Interpersonal Reactivity Index (IRI) measure and the Dutch conflict handling measure. The IRI measure was used to determine the participant’s empathy style (Davis, 1980). The Dutch conflict-handling style determines how

the participant manages conflict in the workplace (De Dreu, et al., 2001). These two measures are important as research has shown that using specific empathy styles that match with specific conflict situations can help resolve the conflict peacefully (Gilin et al, 2013). By learning conflict styles and empathy styles leaders can better utilize their strengths in challenging situations and improve upon their weaker styles. Research has shown that while job stressors are correlated with burnout, supportive leaders negatively correlate with burnout (Chen & Chen, 2018). Using the IRI and Dutch measures to map each participant's personal characteristics, the workshops applied the ACT matrix to help the participants improve their supportive leadership skills. By developing supportive leadership and psychological safety skills, the leaders can increase their staff's psychological safety which has been shown to reduce burnout (Ma et al., 2021). To measure the success of the workshops, team conflict and supportive leadership measures were in the surveys.

Throughout the intervention, participants were able to sign up for coaching sessions to help them learn the workshop materials and apply the tools to their professional life. Coaching sessions for the participants provide them with the time, mental space, support, and guidance to better understand information related to the challenges they face and explore approaches to solving their challenges (Day, 2000). By applying these elements, the participants of this study learned intervention material through weekly sessions along with one-on-one coaching to support the learning.

Research Questions:

1. Can incorporating a Train the Trainer model using graduate students to coach and facilitate supportive leadership-based workshops significantly lower healthcare

leader burnout measured via resting heart rate, work stress recovery, self-report burnout, and supportive leadership measures?

2. Will the Train the Trainer model using graduate student coaches that facilitate the burnout intervention using pre-recorded workshop videos be as effective as the higher-resource longitudinal waitlist-control design intervention in reducing burnout measured via shared measures between studies, self-report burnout and work stress recovery measures?

Methods

Burnout Recovery 2 TTT Group Participant Recruitment

The participants for BR2 TTT Group were working professionals from the home care/ home nursing organization VON (Victoria Order of Nurses) on teams primarily in Ontario, Canada with some operating in Nova Scotia, Canada. Participants were a mix of male and female participants who are leaders of the teams of home care / home nursing staff. The plan was to have two groups of 25 for a total of $n=50$ participants in the workshop intervention groups, along with $n=38$ participants in a control group. This would have given a total of $N=88$ participants for this study. Due to a lack of interest in the control group and some participants unable to complete the intervention, there was no useable control group and $n=47$ intervention participants. The recruitment was done in partnership with VON. VON sent a poster which summarized the intervention to employees they feel fit our criteria the closest. The “ideal participants” were working home care nurse leaders who support a team of home care nurses. VON asked their employees to email our research team with their interest to participate. After participants showed an interest in participating, they were randomly assigned to group one or group two. Any

participants who felt the intervention is too big a commitment, were offered to participate in the control group, which was a lower commitment option.

Burnout Recovery 2 TTT Control Group

This control group was not useable in analysis due to low participation but here is the approach taken. Participants for the control group were invited during the same time period as the intervention group, in early to mid-February. These participants were instructed to take the pre-survey and they received their initial burnout score in the same week as the intervention groups. During the intervention period, the control group did not receive Fitbits, workshop material, or coaching. At the end of the study, the participants in the control group would take the post-survey in the same week as the intervention groups. After the study is complete, these control group participants were given access to all the workshop materials for their benefit to reduce their burnout in their own time. This approach was used to allow for more participants to receive the burnout intervention material while being very cost-effective on the resources from the research team or organization as the intervention material was digital and self-taught. While this approach could have supported more individuals in a cost-effective approach, in the end, participation was too low to use as a control group in the analysis.

Participant Demographics

Burnout Recovery 2 TTT Group Participant Demographics

The main participants of BR2 TTT Group dataset started with 49 healthcare leaders. However, two participants did not complete the full pre-test and post-test and were removed from the analysis. The final dataset for analysis contains $N = 47$ healthcare leaders predominately female at ($n = 45$) (96%) with an average age of 46 ($SD = 8.47$). The majority of participants were Caucasian ($n = 46$) (98%) and married ($n = 27$) (57%) with an average of 1.19 ($SD = 1.17$)

dependents. Due to an issue with the BR2 TTT Study's control group, participant data from the previous burnout intervention is being used as a comparison group.

Burnout Recovery 1 Comparison Group Participant Demographics

These participants are from a previous study and not this current study. They are being included due to issues with this study's comparison group. The previous study BR1 Comparison Group dataset started with 49 healthcare leaders. However, two participants did not complete the full pre-test and post-test and were removed from the analysis. The final dataset for burnout recovery analysis contains $N = 47$ healthcare leaders predominately female at ($n = 45$) (96%) with an average age of 46 ($SD = 9.21$). The majority of participants were Caucasian ($n = 46$) (98%) and married ($n = 31$) (66%). Participants of BR1 Comparison Group were separated into Wave 1 ($n = 29$) (62%) and Wave 2 ($n = 18$) (38%) which was the waitlist control group. Whenever possible the participants were randomly assigned, when not possible matching participants working conditions in rural/urban was used to maintain similar participant groups.

Coaching

The study included three private 20-minute coaching sessions for each participant throughout the 6-weeks of workshop interventions. Each participant was assigned a coach they worked with throughout the three coaching sessions. These coaching sessions were run by two Masters and two Ph.D. Industrial Organizational Psychology graduate students under the supervision of Dayna Lee-Baggley, Ph.D., a registered psychologist, Certified Matrix facilitator, and expert in ACT.

Intervention Workshop Modules

The study had six 75-minute workshops in which both intervention groups participated. Both intervention groups received all of the workshops across the six weeks on the Friday of

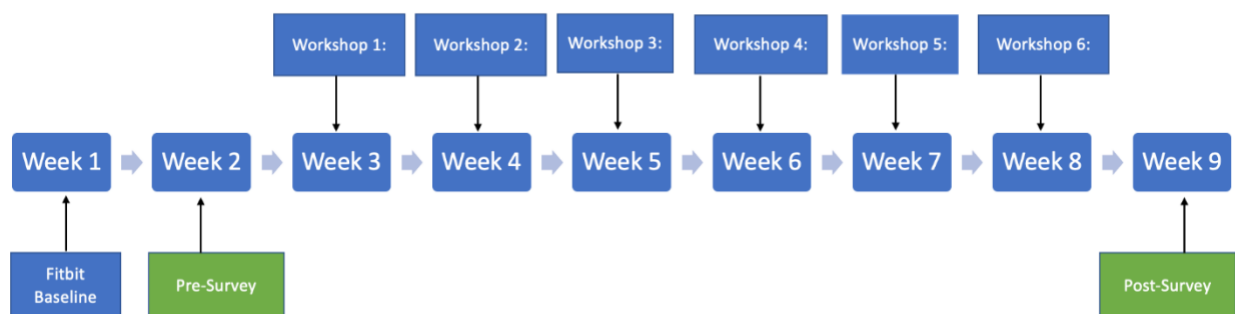
each week. The intervention participants were separated into two groups to improve participation. Facilitation of the workshops was performed by myself and a Ph.D. graduate student with the support of assistant Masters students. The workshop modules in order from one to six are as follows: Introduction to the Model, Charging Your Batteries as a Leader, Managing Work Stressors that Drain Your Batteries, Your Empathy Styles and Work Relationships, Handling Conflict at Work, and Building a Village.

Study Timeline

See Figure 1 for a visual representation of the timeline. The study occurred over 9 weeks, with the first week planned to be for Fitbit baseline measurement. The intervention groups and control group participated in the first pre-survey in week two. Starting in week three the intervention groups participated in the weekly workshops. Week nine was the final post-survey for both the intervention groups and the control group.

Figure 1

Study Timeline



Note. Green-coloured boxes represent survey measurement points that the control and intervention group participates in. Blue-coloured boxes represent the intervention group only. Black arrows indicate which week the condition occurs.

Measures

Supportive Leadership

The supportive leadership measure has been modified from staff reporting on their leader to a leader self-report measure (Shanafelt et al., 2015). Participants are asked to self-report each item using a 5-point Likert scale ranging from one (strongly disagree) to five (strongly agree). The lead-in for the measure is “To what extent do you agree or disagree with each of the following statements about yourself as a leader over the past month?”. There are ten items in the measure (e.g. “I inspire my team members to do their best.”). The full measure was completed by participants in the pre-test and post-test.

Team Conflict Scale

Relationship conflict measure is included because when examining team conflict, research has shown that relationship conflict has a strong negative correlation to team performance and team member satisfaction (De Dreu & Weingart, 2003). The relationship conflict measure used has three items (e.g. “How much relationship tension is there in your work group?”) (Jehn, 1995). The measure lead-in is “Please tell us about how it is going on your leadership team these days, using the rating scale below”, participants answer the items using a 5-point Likert scale ranging from one (none at all) to five (a lot). The full measure was completed by participants in the pre-test and post-test.

Maslach Burnout Measure

The Maslach burnout measure was developed as a self-report measure of job burnout, comprised of three sub-scales: emotional exhaustion, cynicism, and loss of personal accomplishment (Maslach et al., 1997). The lead-in for items is “Please read each statement

carefully and decide if you ever feel this way about your job". Each of the items are answered by participants using a 7-point Likert scale ranging from 0 (*never*) to 6 (*every day*). The measure is a 16-item scale with subscales: emotional exhaustion (e.g. "I feel emotionally drained from my work.") with 5 items scored from 0 to 30, cynicism (e.g. "I doubt the significance of my work.") with 5 items scored from 0 to 30, and professional efficacy (e.g. "in my opinion, I am good at my job.") with 6 items scored from 0 to 36 (Rothe et al., 2020; Schaufeli et al., 1996). The full measure was completed by participants in the pre-test and post-test.

One-Item Burnout Measure

The single-item burnout measure was most correlated with the emotional exhaustion subscale of the Maslach burnout measure at $r = 0.64$ ($p < 0.0001$) (Rohland et al., 2004). This separate measure was included as it targets the participants' self-assessment of the severity of burnout whereas the Maslach item anchors gauge objective frequency (one could have an experience of low professional efficacy very often, yet still not feel 'burned out'). The lead-in for the measure is "Using your own definition of 'burnout' please select one of the answers below" (Rohland et al., 2004). The participants select one of the following options to indicate their burnout: ("I enjoy my work. I have no symptoms of burnout."), ("I am under stress, and don't always have as much energy as I did, but I don't feel burned out."), ("I am definitely burning out and have one or more symptoms of burnout, e.g. emotional exhaustion."), ("The symptoms of burnout that I'm experiencing won't go away. I think about work frustrations a lot."), ("I feel completely burned out. I am at the point where I may need to seek help."). The measure was completed in the pre-survey and post-survey by participants.

Sleep Impairment

Sleep impairment is included in this study because it is highly correlated with burnout (Vela-Bueno et al., 2008; Ekstedt et al., 2006; Melamed et al., 1999; Pagnin et al., 2014; Grossi et al., 2003, 2005). The sleep impairment measure for this study is derived from a validation study list of items related to sleep (Buysse et al., 2010). The measure for this study was a set of five items selected by subject matter experts that are most relevant to burnout recovery. The participants' sleep impairment was examined using a five-item self-report measure (“I had problems during the day because of poor sleep.”), (“I had a hard time concentrating because of poor sleep.”), (“My daytime activities were disturbed by poor sleep.”), (“I felt irritable because of poor sleep.”), (“I had a hard time controlling my emotions because of poor sleep.”). The lead-in for the measure is “Over the past week, how often did you have the following experiences”. The participants then answered each of the items on a 5-point Likert scale ranging from one (never) to five (always). This measure was used in the pre-survey and post-survey.

Recovery Experiences Questionnaire

The recovery experiences questionnaire (REQ) was used to understand if the participants are recovering from burnout during the intervention and improving. The lead-in for the REQ measure is “Please tell us about your free evenings when you are not working. How much do you agree with each statement below”. The REQ has three subscales, psychological detachment, relaxation, and mastery. Mastery is not included in this study as it is not as relevant to the topic. Psychological detachment has four items (e.g. “I forget about work.”), and relaxation has four items (e.g. “I kick back and relax.”) (Sonnentag & Fritz, 2007). Participants answer each of the items on a 5-point Likert scale ranging from one (strongly disagree) to five (strongly agree). Participants completed the measure in the pre-survey and post-survey.

Resting Heart Rate

Resting heart rate was measured through the intervention by Fitbit Inspire 2 devices. The Fitbit devices were being used in this study because burnout is associated with a high resting heart rate (De Vente, et al., 2003). The plan was for participants to start wearing the Fitbit devices one week before intervention workshops to get a baseline for the resting heart rate. However, with the participant's organization in charge of Fitbit device delivery, there were unexpected delays. With the delays, data collection started part way into the first week of workshops. Participants continued to wear Fitbit devices after the intervention to monitor the effects of the intervention after workshops were completed.

Analytic Overview

This study is a replication study of the successful BR1 Comparison Group with a few differences. This study had many of the same measures (MBI exhaustion, MBI cynicism, MBI professional efficacy, relationship conflict, REQ psychological detachment, and REQ relaxation) as the first study with a few removed and a few added (one-item burnout measure, sleep impairment, and supportive leadership). A unique change to this study is the use of the TTT model to significantly reduce the cost of the intervention and increase scalability. There was a control group planned for this study, but due to low participation, the control group is not included in the analysis. Without a control group, measures done in the previous study BR1 Comparison Group are compared to this group to help understand the effectiveness of this intervention.

To examine the impact of BR2 TTT Group compared to BR1 Comparison Group, the two datasets from two different studies were pooled together. The combined data from the current

study's intervention group with the BR1 Comparison Group was used to examine if there are significant differences.

During the intervention, BR2 TTT Group the participants wore Fitbit devices to monitor their resting heart rate. The resting heart rate data were analyzed using (Hierarchical Linear Modeling) HLM growth curve analysis to examine if the resting heart rate changed significantly during the study intervention.

Data Analysis

For this study, the data analysis was conducted from two datasets. One dataset is BR1 Comparison Group and BR2 TTT Group combined which is named BR1&2 Combined Dataset. This BR1&2 Combined Dataset is needed to examine the measures shared in both studies. The shared measures are (MBI exhaustion, MBI cynicism, MBI professional efficacy, REQ psychological detachment, REQ relaxation, and relationship conflict). The pooled BR1&2 Combined Dataset is created by only keeping identifying and grouping variables along with the shared measures to compare the two datasets. By pooling the participants, a 2x2 mixed ANOVA was conducted to examine the overall time, study, and interaction effects to understand if there are significant rates of change for the two groups. When there is a (time * group) interaction effect, a simple analysis of time was performed on both BR1 Comparison Group and BR2 TTT Group using paired samples t-test. This is completed to show how the groups differed in their change from pre-test to post-test. The other dataset used in the analysis is specifically the participants of this study the BR2 TTT Group. The dataset does not have a control group and will be examined using paired-sample t-tests to understand pre-test to post-test changes. The measures examined are new to the BR2 TTT Group and were not used in the BR1 Comparison

Group. These measures are (one-item burnout measure, sleep impairment, and supportive leadership).

The BR2 TTT Group wore Fitbit devices to collect resting heart rate data. This data was collected and exported to SPSS 28 and then organized to conform to HLM restrictions for growth curve analysis. The resting heart rate data collected from BR2 TTT Group participants ($n = 47$) only has ($n = 37$) participants due to some participants not using the devices properly or other issues with data collection. Because of trouble setting up the devices, data collection started on March 10, 2022, one day before workshop two (March 11, 2022). Due to this, there is no baseline data before the intervention workshops started. The dataset was cut off on April 16, 2022, one week and one day after the final workshop number six (April 8, 2022). The dataset was cut off on April 16, 2022, because less than 70% of participants were logging data after that date. This gives five weeks (38 days) of resting heart rate data. The heart rate dataset contains 1406 daily resting heart rate data points (37 participants x 38 days) but only 1312 have valid data giving 94 missing data points.

Prior to analysis, data screening was performed on all datasets to identify any missing values and univariate/multivariate outliers. Participant missing values in datasets were found to be random and not consistent so the data was kept for analysis.

Results

The results are separately reported in subsections by measure. For any measures which are shared between the BR1 Comparison Group and the BR2 TTT Group, their section will start with ANOVA results run on the BR1&2 Combined Dataset showing any interactions.

Descriptive and Correlation Analysis

The study's descriptive, intercorrelations, and Cronbach's alpha for all BR2 TTT Group variables are presented in Table 1.

Table 1

BR2 TTT Group *Descriptive, Intercorrelations, Cronbach's Alphas*

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
<i>M</i>	-	45.98	-	-	4.23	2.48	2.55	3.44	3.00	4.28	2.39	4.90	2.09	69.01
<i>SD</i>	-	8.47	-	-	.39	.98	.79	.85	.72	1.37	1.41	.83	.93	.57
1. Gender	-													
2. Age	.09	-												
3. Marital Status	-.12	.11	-											
4. Dependents	.03	-.18	.16	-										
4. Supportive leadership	.04	.10	.14	-.04	(.80)									
6. Relationship Conflict	.14	-.06	.07	.23	.07	(.86)								
7. REQ Detachment	-.29*	-.24	-.01	.04	-.15	-.26	(.80)							
8. REQ Relaxation	-.20	-.26	.14	.11	.25	-.10	.40**	(.90)						
9. Sleep Impairment	-.09	-.15	.15	.10	-.23	.42**	-.05	-.23	(.89)					
10. MBI Exhaustion	.20	-.01	.08	.15	.23	.51**	-.27	-.21	.59**	(.90)				
11. MBI Cynicism	-.02	.10	-.08	.12	-.02	.23	-.10	-.29*	.47**	.59**	(.84)			
12. MBI Professional Efficacy	.18	.16	-.38*	-.16	.28	.14	-.14	-.12	-.25	-.02	-.29*	(.90)		
13. One Item Burnout	.25	.19	.03	.02	.25	.36*	-.27	-.10	.34*	.68**	.39*	.05	-	
14. Average Resting Heart Rate	.34*	.22	.48**	.06	.46**	-.04	-.22	.16	.06	.18	-.03	-.08	.19	-

Note. * = $p < .05$, ** = $p < .01$. Comparisons in table were done pairwise with ($n = 37$ to 47)

Examining Burnout Recovery 1 Comparison Group Compared to Burnout

Recovery 2 TTT Group ANOVA.

The design is a 2x2 Time (Pre vs Post) by Study group (BR1 Comparison Group vs BR2 TTT Group) mixed (within * between) factorial ANOVA. Analysis of variance was conducted to examine the main effects and interactions. See Table 2 for ANOVA results.

Table 2

Table is of a 2 x 2 Mixed ANOVA, Within: Time (Pre vs Post) by Between: Study group (BR1 Comparison Group vs BR2 TTT Group)

Measure		<i>df</i>	Mean Squares	F	Sig. <i>p</i> =	Effect Size η_p^2
Relationship Conflict	Time	1	1.22	3.84	.054	.046
	Study	1	.00	.00	.99	.000
	Time* Study	1	.64	2.02	.16	.025
REQ Detachment	Time	1	.90	4.60	.035*	.054
	Study	1	1.22	.99	.32	.012
	Time* Study	1	.49	2.50	.12	.030
REQ Relaxation	Time	1	.21	.83	.36	.010
	Study	1	.001	.001	.97	.000
	Time* Study	1	.50	1.98	.16	.024
MBI Exhaustion	Time	1	2.44	3.87	.052	.045
	Study	1	31.59	8.77	.004**	.097
	Time* Study	1	3.99	6.34	.014*	.072
MBI Cynicism	Time	1	2.53	2.82	.097	.034
	Study	1	.079	.024	.88	.000
	Time* Study	1	.48	.54	.47	.007
MBI Professional Efficacy	Time	1	.45	1.85	.177	.022
	Study	1	1.01	.66	.42	.008
	Time* Study	1	.28	1.17	.28	.014

Note. * = $p < .05$, ** = $p < .01$.

Relationship Conflict Measure

Relationship conflict was examined using a 2x2 mixed ANOVA on the BR1&2 Combined Dataset. The main effect of time was examined to understand if pooled study group

means changed significantly from pre-test to post-test. The main effect of time was not found to be significant but approaching significance ($p = .054$) with an effect size of ($\eta_p^2 = .046$). This suggests that pooled study group means changed from pre-test to post-test but not significantly. The main effect of the study group was examined to understand if each of the studies' pooled pre-test and post-test means were different. The main effect of the study group was not found to be significant. The interaction effect was examined to understand if the change in relationship conflict means from pre-test to post-test differed between study groups. The interaction effect was found not to be significant. This suggests that each study group had similar changes from pre-test to post-test after the intervention. See Table 2 for 2x2 mixed ANOVA results.

Focusing on BR2 TTT Group data alone to understand if there was a significant difference from the pre-test to the post-test in the BR2 TTT Group study, a paired samples t-test was performed. Relationship conflict means from the pre-test ($M = 2.51, SD = 1.04$) to the post-test ($M = 2.21, SD = 1.00$) in BR2 TTT Group decreased significantly, $t(38) = 2.21, p = .033$ with a Cohen's $d = .354$ (small to medium effect size). This suggests that relationship conflict decreased after the intervention for BR2 TTT Group participants.

REQ Psychological Detachment and Relaxation Measures

REQ psychological detachment and REQ relaxation were examined using a 2x2 mixed ANOVA on the BR1&2 Combined Dataset. The main effect of time was examined to understand if pooled study group means changed significantly from pre-test to post-test. The main effect of time was not found to be significant for REQ relaxation but had a significant increase for REQ psychological detachment pre-test ($M = 2.76, SD = .82$) and post-test ($M = 2.91, SD = .87$). This suggests that pooled together the participants from BR1 Comparison Group and BR2 TTT Group did not significantly change their REQ relaxation means after the intervention. However, for

REQ psychological detachment there was a significant increase from pre-test to post-test pooling both study groups.

The main effect of the study group was examined to understand if each of the studies' pooled pre-test and post-test means were different. The main effect of the study group was not found to be significant.

The interaction effect was examined to understand if the change in REQ relaxation and REQ psychological detachment means from pre-test to post-test differed between study groups. The interaction effect was found not to be significant for either measure. This suggests that each study group had similar changes from pre-test to post-test after the intervention. See Table 2 for 2x2 mixed ANOVA results.

Focusing on the simple time effect of BR2 TTT Group data alone, a paired samples t-test was performed. REQ psychological detachment means from the pre-test ($M = 2.62, SD = .76$) to the post-test ($M = 2.87, SD = .89$) in BR2 TTT Group increased significantly, $t(39) = -2.47, p = .018$ with a Cohen's $d = .390$ (small to medium effect size). REQ relaxation means from the pre-test ($M = 3.54, SD = .80$) to the post-test ($M = 3.72, SD = .68$) in BR2 TTT Group had no significant change $t(39) = -1.54, p = .131$ with a Cohen's $d = -.244$ effect size.

MBI Exhaustion Measure

MBI exhaustion was examined using a 2x2 mixed ANOVA on the BR1&2 Combined Dataset. The main effect of time was examined to understand if pooled study group means changed significantly from pre-test to post-test. The main effect of time was not found to be significant but approaching significance ($p = .052$) with an effect size of ($\eta_p^2 = .045$). This suggests that pooled study group means changed from pre-test to post-test but not significantly. The main effect of the study group was examined to understand if each of the studies' pooled

pre-test and post-test means were different. The main effect of the study group was found to be significant with BR1 Comparison Group ($M = 3.10$, $SD = 1.49$) significantly lower than the BR2 TTT Group ($M = 3.97$, $SD = 1.41$). This shows that the intervention studies' means were significantly different while ignoring time. The interaction effect was examined to understand if the change in MBI exhaustion means from pre-test to post-test differed between study groups. The interaction effect was found to be significant. This suggests that each study group did not have similar changes from the pre-test to post-test after the intervention. Examining the simple effect of time within the BR1 Comparison Group study only, MBI exhaustion pre-test ($M = 3.07$, $SD = 1.41$) and post-test ($M = 3.13$, $SD = 1.56$) shows no significant change in MBI exhaustion, $t(43) = -.47$, $p = .64$ with a Cohen's $d = -.071$ effect size. Burnout Recovery paired samples t-test results below. See Table 2 for 2x2 mixed ANOVA results.

Focusing on the simple time effect of BR2 TTT Group data alone, a paired samples t-test was performed. MBI exhaustion means from the pre-test ($M = 4.24$, $SD = 1.34$) to the post-test ($M = 3.69$, $SD = 1.49$) in BR2 TTT Group decreased significantly, $t(39) = 2.69$, $p = .011$ with a Cohen's $d = .425$ (small to medium effect size). This suggests that MBI exhaustion decreased after the intervention for BR2 TTT Group participants.

MBI Cynicism Measure

MBI cynicism was examined using a 2x2 mixed ANOVA on the BR1&2 Combined Dataset. The main effect of time was examined to understand if pooled study group means changed significantly from pre-test to post-test. The main effect of time was not found to be significant. This suggests that both intervention studies had similar means. The main effect of the study group was examined to understand if each of the studies' pooled pre-test and post-test means were different. The main effect of the study group was not found to be significant. This

suggests that pooled together the participants did not significantly change their means after the intervention. The interaction effect was examined to understand if the MBI cynicism means from pre-test to post-test differed between study groups. The interaction effect was found not to be significant. This suggests that each study group had similar changes from pre-test to post-test after the intervention. See Table 2 for 2x2 mixed ANOVA results.

Focusing on the simple time effect of BR2 TTT Group data alone, a paired samples t-test was performed. MBI cynicism means from the pre-test ($M = 2.35$, $SD = 1.23$) to the post-test ($M = 2.70$, $SD = 1.43$) had no significant change, $t(39) = -1.42$, $p = .16$ with a Cohen's $d = -.225$ effect size.

MBI Professional Efficacy Measure

MBI professional efficacy was examined using a 2x2 mixed ANOVA on the BR1&2 Combined Dataset. The main effect of time was examined to understand if pooled study group means changed significantly from pre-test to post-test. The main effect of time was not found to be significant. This suggests that both intervention studies had similar means. The main effect of the study group was examined to understand if each of the studies' pooled pre-test and post-test means were different. The main effect of the study group was not found to be significant. This suggests that pooled together the participants did not significantly change their means after the intervention. The interaction effect was examined to understand if the change in MBI professional efficacy means from pre-test to post-test differed between study groups. The interaction effect was found not to be significant. This suggests that each study group had similar changes from pre-test to post-test after the intervention. See Table 2 for 2x2 mixed ANOVA results.

Focusing on the simple time effect of BR2 TTT Group data alone, a paired samples t-test was performed. MBI professional efficacy means from the pre-test ($M = 4.93$, $SD = .82$) to the post-test ($M = 4.95$, $SD = .97$) had no significant change, $t(39) = -.20$, $p = .84$ with a Cohen's $d = -.032$ effect size.

Burnout Recovery 2 TTT Group Pre-test to Post-test Results

The next set of results on measures is only from the BR2 TTT Group. These results do not have another study to compare with and are therefore only examined pre-test to post-test on the intervention group.

Sleep Impairment Measure

To understand if there was a significant difference from the pre-test to the post-test in BR2 TTT Group study, a paired samples t-test was performed. Sleep impairment measure means from the pre-test ($M = 2.96$, $SD = .38$) to the post-test ($M = 2.70$, $SD = .86$) decreased significantly, $t(39) = 2.54$, $p = .015$ with a Cohen's $d = .402$ (small to medium effect size). This suggests that sleep impairment reduced after the intervention.

One Item Burnout Measure

To understand if there was a significant difference from pre-test to post-test in the BR2 TTT Group study, a paired samples t-test was performed. One-item burnout measure means from the pre-test ($M = 2.10$, $SD = .90$) to the post-test ($M = 1.83$, $SD = .84$) decreased significantly, $t(39) = 2.13$, $p = .039$ with a Cohen's $d = .337$ (small to medium effect size). This suggests that burnout reduced after the intervention.

Supportive Leadership Measure

To understand if there was a significant difference from pre-test to post-test in BR2 TTT Group study, a paired samples t-test was performed. To understand if the intervention was able to

improve supportive leadership we ran paired samples t-tests on the supportive leadership measure. Supportive leadership measure means from the pre-test ($M = 4.23$, $SD = .38$) to the post-test ($M = 4.20$, $SD = .56$) had no significant change, $t(36) = .47$, $p = .64$ with a Cohen's $d = .077$ effect size.

Burnout Recovery 2 TTT Group Resting Heart Rate HLM Growth Curve Analysis.

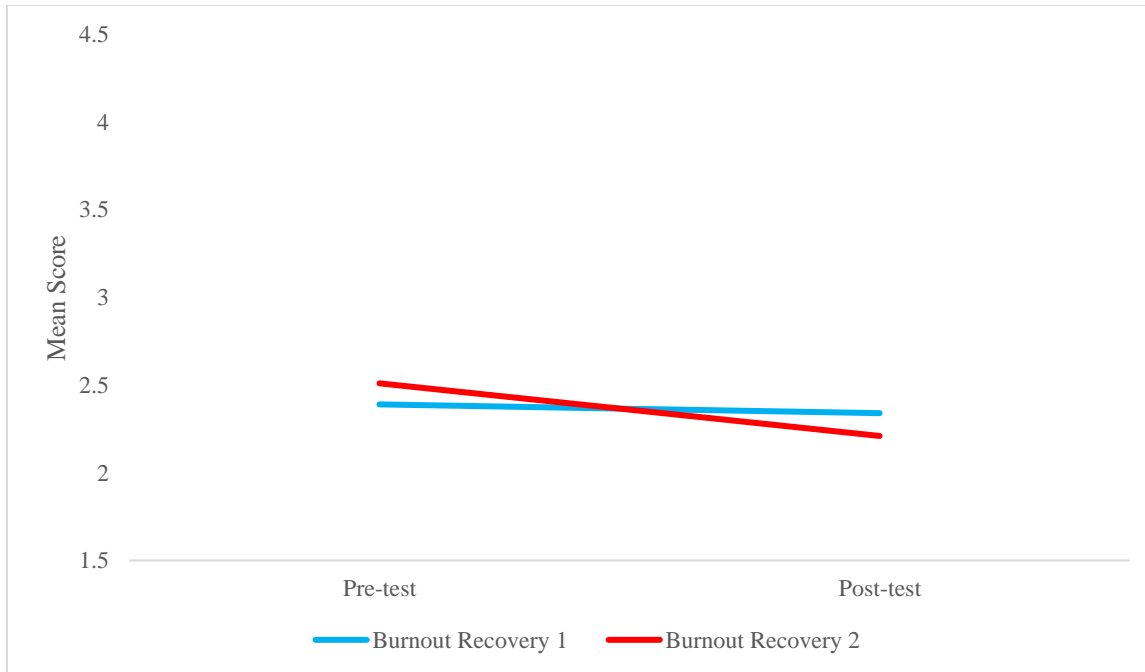
To understand if the participants' ($n = 37$) resting heart rates changed throughout the BR2 TTT Group intervention, the resting heart rate data was analyzed using HLM. The rate change used a two-level HLM analysis to examine if the resting heart rate changed across the measurement time points (day 1 to day 38). Through the measurement time points, there are 1406 daily resting heart rate data points but only 1312 have valid data giving 94 missing data. The measurement points are Level 1, focusing on growth modelling, and Level 2 to examine between participants whether there is not too much significant difference impacting the growth curve.

Initially, a null or baseline model was run to examine total resting heart rate variance which resulted in (7.801) with the interclass correlation coefficient (ICC) being (.53%). The ICC indicates how much of the total variance is from between participants' variance. This suggests that (99.47%) of the variance was from within participants throughout the measurement time points. Running an unconditional growth model, the overall trend of participant resting heart rate of linear change was significant $B = -.029$, $SE = .0071$, $t = -4.14$, $p < .001$. This suggests that across the 38 time points the participants on average reduced their resting heart rate per minute by $(.029 * 38 = 1.10$ beats per minute). The *pseudo* R^2 for the linear trend in resting heart rate was 1.001 which suggests the intervention accounted for 1% of the variance in resting heart rate. The relationship between resting heart rate and time is linear because adding squared time did

not significantly impact the model $B = .000034$, $SE = .00072$, $t = .047$, $p = .96$. The results suggest that participants resting heart rate on average significantly decreased by the end of the intervention.

Figure 2

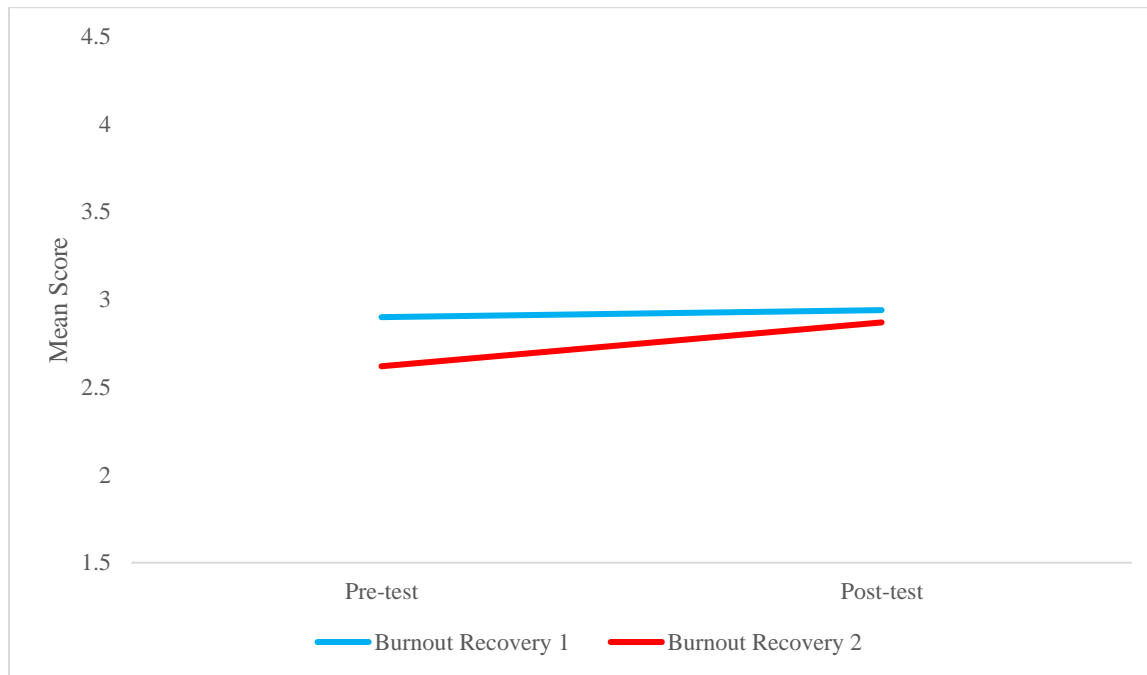
Relationship Conflict BR1 Comparison Group vs BR2 TTT Group Pre-test to Post-test



Note. BR1 Comparison Group has no significant change, BR2 TTT Group had a significant decrease in relationship conflict.

Figure 3

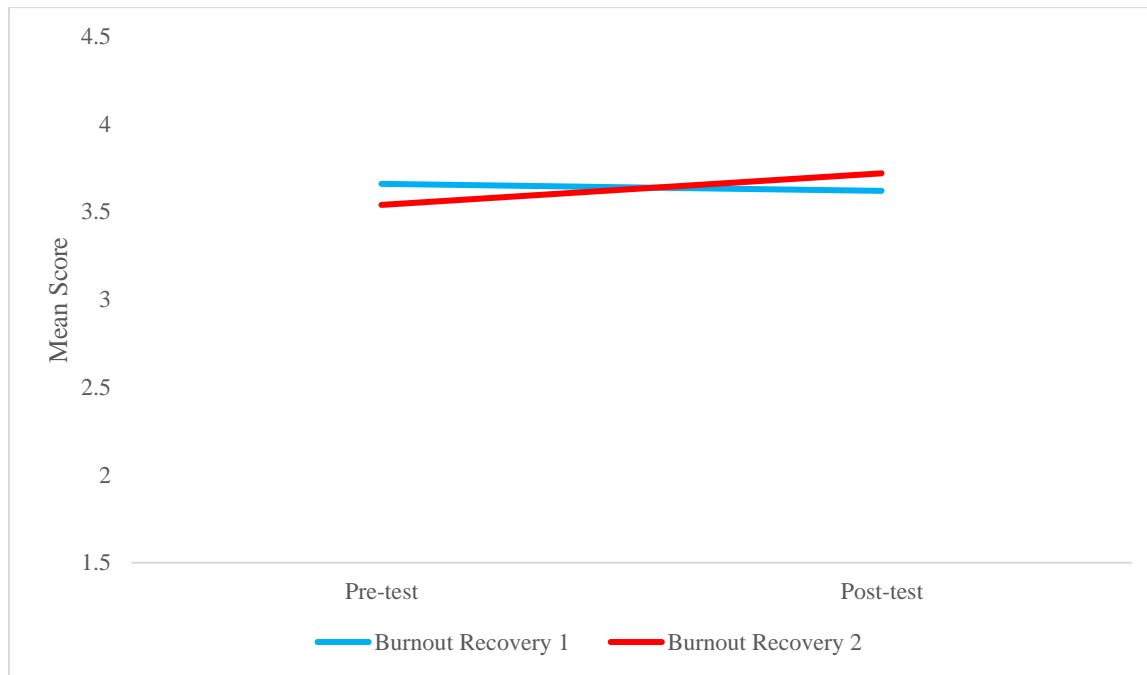
REQ Psychological Detachment BR1 Comparison Group vs BR2 TTT Group Pre-test to Post-test



Note. BR1 Comparison Group has no significant change, BR2 TTT Group had a significant increase in REQ psychological detachment.

Figure 4

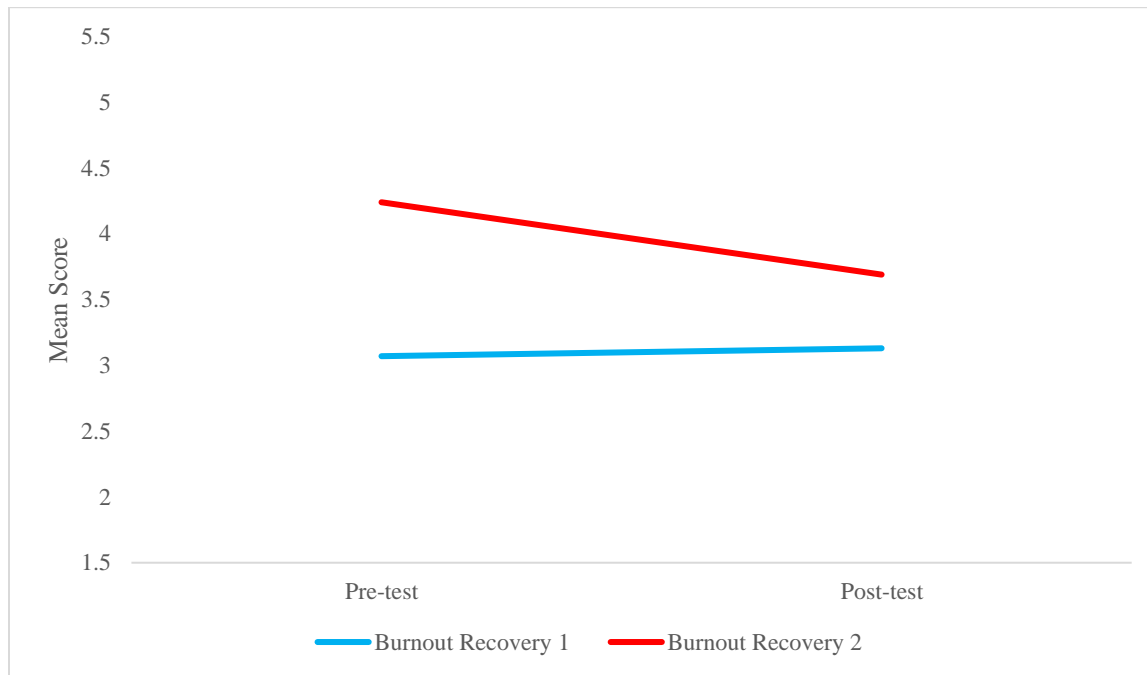
REQ Relaxation BR1 Comparison Group vs BR2 TTT Group Pre-test to Post-test



Note. BR1 Comparison Group has no significant change, BR2 TTT Group had no significant change in REQ relaxation.

Figure 5

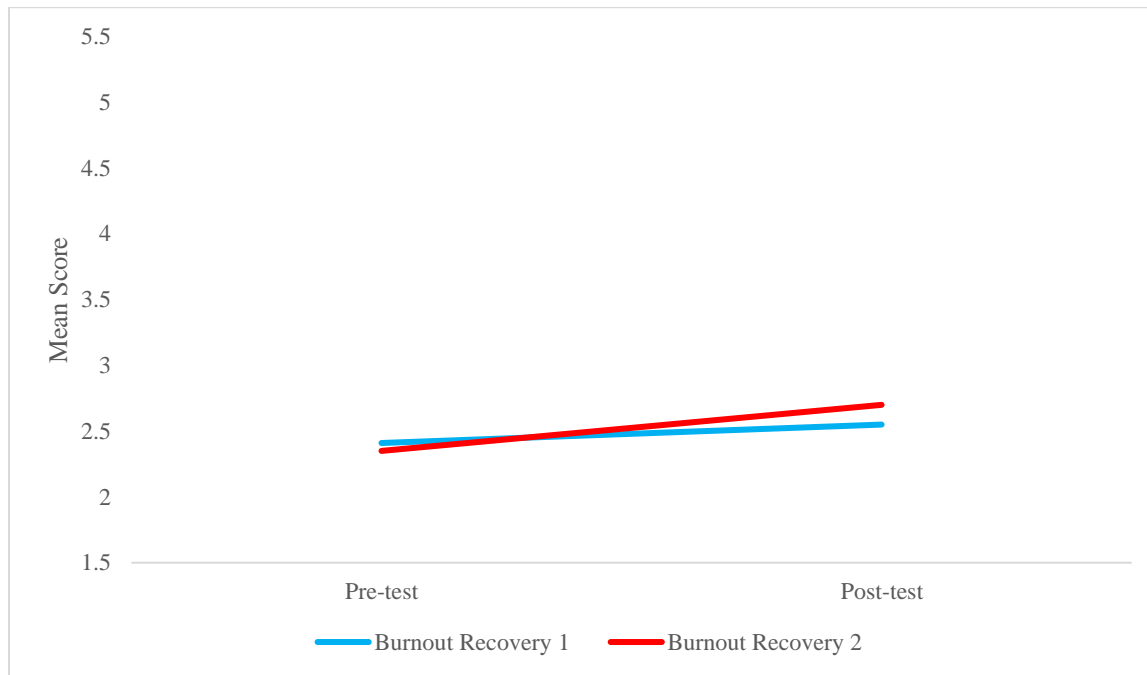
MBI Exhaustion BR1 Comparison Group vs BR2 TTT Group Pre-test to Post-test



Note. BR1 Comparison Group has no significant change, BR2 TTT Group had a significant reduction in MBI exhaustion.

Figure 6

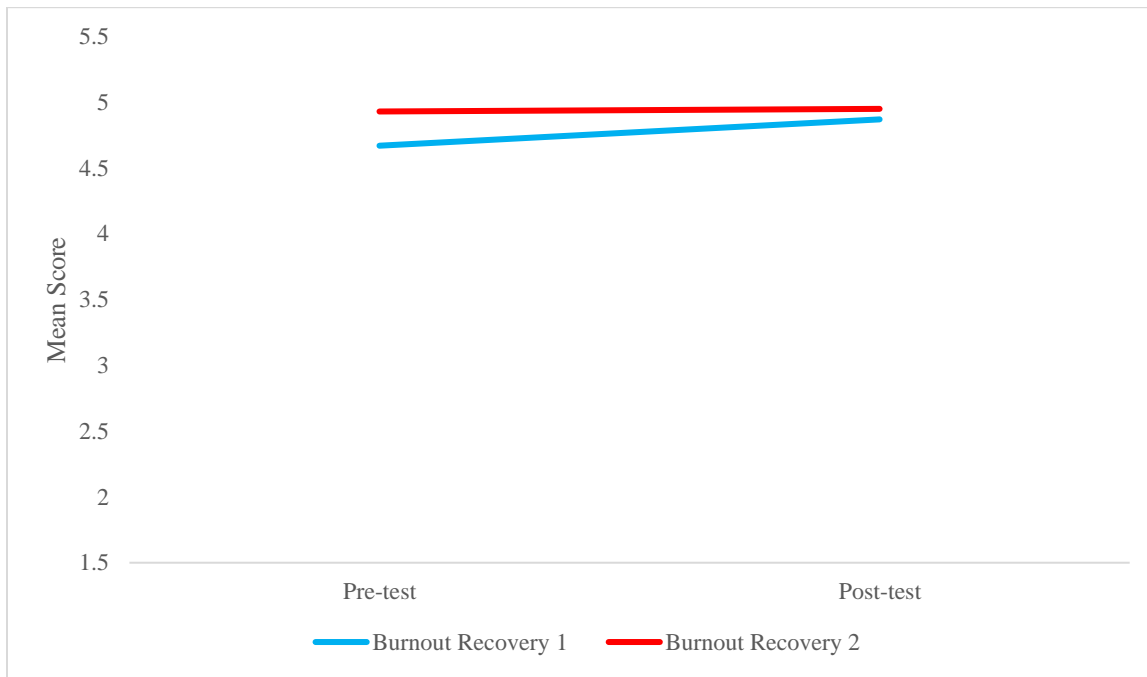
MBI Cynicism BR1 Comparison Group vs BR2 TTT Group Pre-test to Post-test



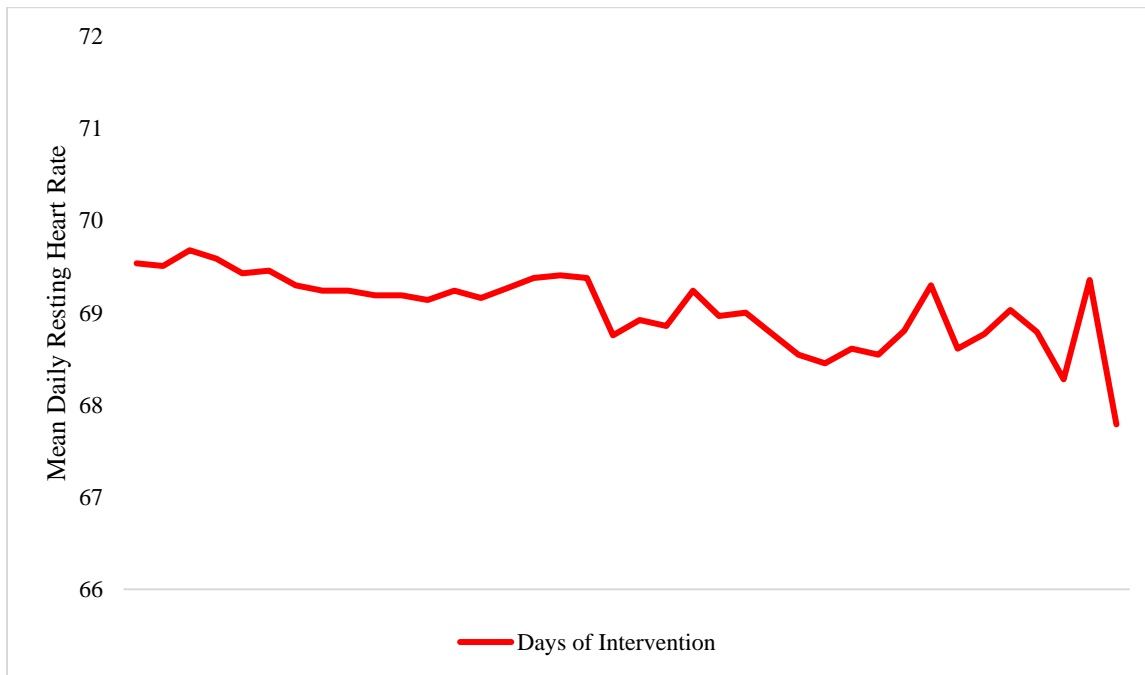
Note. BR1 Comparison Group has no significant change, BR2 TTT Group had no significant change in MBI cynicism.

Figure 7

MBI Professional Efficacy BR1 Comparison Group vs BR2 TTT Group Pre-test to Post-test



Note. BR1 Comparison Group has no significant change, BR2 TTT Group had no significant change in MBI professional efficacy.

Figure 8*BR2 TTT Group Participant Resting Heart Rate*

Note. BR2 TTT Group resting heart rate had a significant negative linear trend.

Discussion

There is an ever-growing need for burnout reduction interventions due to so many healthcare professionals being overworked and reporting burnout (Dewa et al., 2014; Wen et al., 2016; Shanafelt et al., 2015). With such a high demand and low resources to support these professionals, lower-cost solutions that work are needed. The Original Study completed in 2021 utilized a waitlist control burnout recovery intervention across 14 weeks with subject matter experts facilitating the workshops. While this intervention was successful, the subject matter experts have a high hourly cost making this a highly resource-intensive intervention. The current study employed a Train the Trainer model for a burnout recovery intervention to reduce the time needed from the subject matter experts, therefore, reducing the needed resources. Using many

materials and methods of the previously successful Original Study, this study aimed to reduce the resources needed while still providing an effective intervention to support healthcare professionals' burnout. The research questions for this study are whether the Train the Trainer model can reduce burnout in healthcare leaders and whether the Train the Trainer model is as effective as the original higher-cost intervention. To answer these questions the following sections break up the results of the study.

Effectiveness of Burnout Recovery 2 Train the Trainer Group Compared to Burnout Recovery 1 Comparison Group

To understand if the Train the Trainer model was as effective as the original higher-cost study we first examined how the Original Study was successful and how it is compared to the Train the Trainer Group. The Original Study utilized a waitlist control approach to support healthcare professionals across a 14-week period. This approach meant that the intervention group received workshop and coaching support from (week one to week six), during this time the second group acted as a control conducting surveys without intervention support. When comparing the two groups in the first six weeks, the intervention group had less burnout while the waitlist control group's burnout worsened over that period (Gilin et al., 2021). While this was a successful intervention in reducing burnout, it was resource-intensive.

To understand if the lower resource model using Train the Trainer is as effective as the Original Study, they were compared in this study. The Comparison Group participant data was combined with the Train the Trainer Group to compare their effectiveness as burnout recovery interventions. From comparing the two studies, the Train the Trainer model did not have any significant decrement in efficacy on any of the shared measures compared to the higher-resource Original Study. This shows that the Train the Trainer model likely had similar efficacy compared

to the Original Study in supporting healthcare leaders and reducing their burnout. There were some unique findings which are covered below.

With both studies' participants pooled, their relationship conflict trended towards improvement. This decrease in participants' relationship conflict suggests that the burnout recovery studies are helping the participants handle workplace conflicts more effectively or they are impacted less by the relationship conflict. Related to relationship conflict the participants pooled from both studies reported improvements in psychological detachment. The improved psychological detachment helps these participants "switch off" mentally after work improving their ability to cope with occupational stress (Sonnentag et al., 2013). Previous research has shown that individuals with higher psychological detachment are better able to handle relationship conflict which could be why we saw the decrease in relationship conflict as well (Sonntag et al., 2013). It is likely the burnout recovery interventions were able to support the participants in improving their psychological detachment which along with other skills helped to reduce their relationship conflicts in the workplace.

A unique difference between the Train the Trainer participants and the Original Study participants was their reported MBI exhaustion measure. The pooled participants reported a trending decrease in exhaustion suggesting that the burnout recovery interventions helped reduce burnout. However, the exhaustion was reported to be higher in the Train the Trainer participants and changed differently across the six weeks of the intervention compared to the Original Study participants. This shows the Train the Trainer participants had higher exhaustion burnout starting the six-week intervention but were able to decrease their burnout more than the Original Study by the end of the intervention. One possibility is due to a higher burnout the participants of the Train the Trainer model were more receptive to the burnout recovery course material and

benefited more from it. Previous research examining burnout recovery trajectories found that a higher starting exhaustion burnout group did benefit more than a low starting exhaustion burnout group from the intervention (Hätinen et al., 2009). Their research also found that a high-starting exhaustion burnout group with high cynicism and low professional efficacy did not benefit from the intervention as much as a high-starting exhaustion burnout group with lower cynicism and higher professional efficacy. Their research suggests that if individuals have high cynicism and low professional efficacy burnout recovery intervention may not be as successful for these individuals (Hätinen et al., 2009). Therefore, consistent with previous research, the Train the Trainer Group had high-starting exhaustion with lower cynicism and higher professional efficacy following the trend in previous research (Hätinen et al., 2009) they benefited from the burnout recovery intervention.

These findings suggest that the 2021 Original Study and Train the Trainer Study healthcare professionals' burnout was getting worse over time as we see with the higher reported burnout from the Train the Trainer participants. It is possible that the Train the Trainer participants had higher burnout as research has shown that work-related stress is increasing (Abramson, 2022). As time continues the COVID pandemic is still impacting healthcare professionals. Increasing work hours and demanding work have healthcare professionals reporting increasing levels of emotional exhaustion, physical fatigue, and cognitive weariness (Abramson, 2022). The results suggest that the Train the Trainer model was as effective as the Original Study. While it is great the Train the Trainer model shows similar efficacy as the Original Study, a concern is the lack of a control group.

Burnout Recovery 2 Train the Trainer Group Standalone Results

The second research question seeks to understand if the Train the Trainer model can reduce burnout. Without a useable control group, the Original Study was compared to the Train the Trainer Group (see Table 2), these results suggest the Train the Trainer model was successful in reducing burnout. However, without the control group, these changes may not be due to the intervention alone.

One possibility is these changes could be due to “regression towards the mean” (Barnett, et al., 2005). This can occur when one sample taken from a group could be an extreme score and the next time the sample is taken the score is more normal or closer to the mean. While this is possible, it is unlikely. When examining the resting heart rate data from the Train the Trainer participants, they started with a higher resting heart rate then had a downward trend ending with a lower resting heart rate after the intervention. While the change may appear small, research has shown even small changes in resting heart rate make significant changes to health (Eriksson et al., 2016). Because a high resting heart rate is associated with burnout (De Vente, et al., 2003), the Train the Trainer Group started higher and ended lower after the intervention making the regression towards the mean scenario unlikely. Another possibility for their reported reduction in burnout could be situational factors outside of the intervention. These factors could be a change in the workplace, workplace policy changes, a reduction in workload, or even personal life factors. This is possible and could reduce the participants' burnout. However, again it is unlikely because the reported improvements are average across all the participants who live and work in different locations around Nova Scotia and Ontario and work in different leadership roles. With participants working in different locations and different in different positions most situational factors which could impact some individuals in Ontario are unlikely to impact those working in

Nova Scotia. Overall, it is impossible to truly credit the cause of the success to the Train the Trainer intervention. Despite that, many of the results compared to the Original Study are promising along with some of the new measures (supportive leadership, one-item burnout, and Sleep Impairment) which can only be examined from Train the Trainer's participants reported changes across the intervention.

When examining participant's reported supportive leadership there was not found to be any change across the intervention. The lack of change in this measure may be due to the measure being changed from staff reporting on their leaders to a self-report measure. Research supporting this has shown that leadership effectiveness is more closely related to staff descriptions than leader self-reported behaviour (Kim & Yukl, 1995). Future studies should ideally use the original version so that staff report on their leaders.

With burnout as a primary interest for this study, the one-item burnout measure was added to the study. The one-item burnout measure was included because it examines the participant's self-assessment of the severity of burnout rather than an objective frequency as the MBI measures do. The Train the Trainer participants reported a decrease in their burnout across the intervention. This is likely true because when comparing both studies the Train the Trainer Group reported a larger decrease in MBI exhaustion compared with the Original Study Group. With previous research showing that the one-item burnout measure is highly correlated with MBI exhaustion (Rohland et al., 2004), the findings suggest that in particular the Train the Trainer model was effective in reducing exhaustion burnout. Previous research shows individuals with high exhaustion and low cynicism and high professional efficacy are likely to reduce their exhaustion burnout (Hätinen et al., 2009). Both the Original Study and Train and Trainer participants follow this pattern of low cynicism (see Figure 6) and high professional efficacy (see

Figure 7). Therefore, it is possible that this healthcare leader population when they have high exhaustion the Train the Trainer model may be an effective approach to reducing their burnout.

For the Sleep Impairment results, the Train the Trainer participants reported a decrease in their sleep impairment across the intervention. Previous research has shown that sleep impairment is highly correlated with burnout (Vela-Bueno et al., 2008; Ekstedt et al., 2006; Melamed et al., 1999; Pagnin et al., 2014; Grossi et al., 2003, 2005). Because of the reduction in sleep impairment, the Train the Trainer participants likely reduced their burnout across the intervention.

During the intervention, participants wore Fitbit devices to track their resting heart rate because high resting heart rate has been associated with burnout (De Vente, et al., 2003). The combined data for Train the Trainer participants' resting heart rates shows a downward trend across the intervention see Figure 8. While the decrease in resting heart rate in this study may appear small, other research showed that high job strain jobs can significantly impact individuals as measured by an increased 1-beat-per-minute change (Eriksson et al., 2016). This suggests that even a small increase or decrease in heart rate significantly impacts health. While the lack of a control group does not allow unambiguous conclusions that the Train the Trainer model was successful in reducing burnout, it is likely given the findings.

Why was the Train the Trainer Model Effective

While not concrete, the findings of this study provide support that the Train the Trainer model can work effectively as a burnout reduction intervention. Other research has also shown that the Train the Trainer model can work. Research using the Train the Trainer model gave training to community-based organization staff to support clients with intellectual disabilities (Marks et al., 2013). This Train the Trainer program was able to improve the client's health

status, knowledge, self-efficacy, and fitness compared to a control group. Other research using the Train the Trainer model trained staff to initiate a national HIV/AIDS strategy supporting 272 individuals (Tobias et al., 2012). The Train the Trainer model is continuing to show success in research and maybe a key approach to supporting burnout or mental health-related interventions in the future.

Part of the success of this study's Train the Trainer model is likely due to the support and training from the subject matter experts. During the intervention period, the subject matter experts themselves coached and gave support and feedback throughout the intervention. This did not require too much time from the subject matter experts which maintained the low resource of the study but allowed the facilitators and coaches to get direct and regular feedback. With issues or concerns occurring through the intervention, the subject matter experts conducted weekly support meetings to give instructions to ensure the success of the intervention.

Another important aspect of the Train the Trainer model this study employed was the workshop material for the intervention. The Original Study recorded videos to support participants in learning the material. This Train the Trainer Study was able to utilize these video recordings for the workshops. By utilizing video recordings created by the subject matter experts themselves the workshop material presented was of high quality. This allowed the Train the Trainer facilitators and coaches to clear up any confusion and run activities throughout the intervention to engage the participants in the material making it more relevant. This approach increases the validity of the subject matter to the participants.

This study provides further evidence that the Train the Trainer model can be an effective method to reduce the resources needed to reach a larger population. In particular, this study compares a higher-resource intervention to this lower-resource intervention approach using the

Train the Trainer model. The findings suggest that the Train the Trainer model had similar success to the higher-resource model. This provides further support for the Train the Trainer model in the healthcare industry when applied well to a burnout recovery intervention.

Mental Health of Healthcare Professionals

During the intervention, Train the Trainer facilitators and coaches learned of the challenging work the healthcare professionals are facing. As COVID has continued staffing has become a challenge as more healthcare professionals are suffering from workplace stress and burnout. The participants of this study are under heavy strain in their workplace impacting their own health as can be seen in the results of the measures. Other research has shown how overwhelming work is impacting the healthcare system (Dewa et al., 2014). This decrease in healthcare professional health may impact the safety of their staff and patients. This has been shown with burnout negatively impacting work performance (Taris, 2006), and increasing medical mistakes (Wen et al., 2016).

From communicating with the participants we learned that due to low resources and staffing challenges, these participants have more work than ever before. However, these healthcare professionals continue to accomplish their assigned work, sometimes at the cost of extra effort, extra hours and their own health. This increase in work being accomplished does not signal the need for changes to be made, causing the system to rely upon overloading healthcare professionals. The professional efficacy and cynicism reported by participants in the Original Study were not different than what was reported by the Train the Trainer Group. However, the reported exhaustion increased for the Train the Trainer Group. This suggests that healthcare professionals have high work efficacy and keep working despite the workload causing increased exhaustion over time. Overall, burnout interventions are important to support these healthcare

professionals and methods such as the Train the Trainer model may be useful to reach more individuals.

Implications

This study provides further evidence that a Train the Trainer model can be an effective approach to reducing the cost of interventions and supporting a large number of individuals. In particular, this Train the Trainer model was compared to a higher-resource burnout reduction intervention. The findings suggest that by utilizing subject matter expert's material, training, and support, burnout recovery interventions can be run using the Train the Trainer model to reach more individuals.

The findings of this study provide more evidence that resting heart rate is a useful physiological health and burnout indicator that can be used to track mental health for individuals over time. This could be a cost-effective and simple indicator of burnout or general job strain for professionals in the workplace.

This study suggests that over time, burnout and workplace stress recovery for healthcare professionals are worsening. The results suggest that the Train the Trainer model, despite the lower-resource approach was effective in supporting these individuals. This research highlights the need for more interventions to support the healthcare professionals who play a vital role in the healthcare industry.

Limitations and Future Research

Despite our best efforts, there are some limitations in this study that could be improved upon in future research.

Despite a planned control group, the participation in the control was too low to be used in the analysis. Learning from this limitation, control group participants need different motivations

to influence them to be active as a control group. In this study, the control group was given their current burnout score and promised burnout recovery learning material after completing pre-test and post-test over an 8-week period. Future studies would need to use a separate motivation method to increase participation.

The supportive leadership measure for this study was not found to change significantly from the pre-test to the post-test. The lack of change in the measure is expected to be due to a ceiling effect from the leaders self-reporting their own supportive leadership. Future studies would need to avoid the self-report format for this measure or find a different self-report measure which measures supportive leadership.

While not tested in this study, focusing on improving the leaders' burnout and their supportive leadership skills will likely have a supportive impact on their staff as well from the downstream effect (DeChant et al., 2019). The downstream effect is when leaders or supervisors impact the well-being of those below them. Research examining the burnout of physicians showed that the composite leadership score of their supervisor was significantly correlated to the physicians' burnout and work satisfaction (Shanafelt et al., 2015). By utilizing a Train the Trainer model on leaders, an intervention program may support more leaders and possibly support their staff as well. This would be good future research to examine the downstream impact.

Conclusion

Healthcare professionals are a vital link in the success of the healthcare system. Therefore, ensuring their own health is important to ensure the healthcare system is successful. This intervention provides evidence that the Train the Trainer model can work as an effective intervention while reducing the cost of the intervention and reaching more individuals. This

study also provides further evidence that resting heart rate may be a good physiological indicator over time of health and burnout. This study also suggests that over time the impact on the healthcare professionals themselves may be continuing to deteriorate. This suggests that interventions to support these professionals are needed even more. These findings highlight the need for future burnout recovery interventions, along with the efficacy of using a Train the Trainer model to reach more individuals.

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Appendix

Informed Consent

INFORMED CONSENT FORM

SMU REB #21-033

Principal Investigator: Dr. Debra Gilin
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Welcome to the Burnout Recovery study!

What is this research about?

You are invited to take part in our research study on the wellbeing of health care leaders during COVID in Canada.

Who is eligible to take part in this survey?

Individuals who are 18 years of age or older and who work with VON as leaders or management and receive an invitation are eligible to participate.

What will I have to do?

Leaders who choose to participate in Burnout Recovery will:

1. Receive (via mail) a Fitbit smartwatch along with the online video of how to set up the Fitbit. There will be an onboarding zoom call for training on Fitbit use, introductions to the research study team, how-to workshops will be run, and how the coaching will be conducted. You are requested to wear the Fitbit for the 9-week study period (2 survey weeks, 6 intervention course weeks) to gather stress data on sleep patterns, heart rate, and steps.

2. Complete a pretest 20-minute online survey, and one follow-up 20-minute online survey after your intervention course. You will receive a summary of your burnout level at each of these two survey points.
3. Complete a 6-week Burnout Recovery intervention course through Saint Mary's University (non-university-credit). This will involve:
 - A weekly 75-minutes workshop session over Zoom, during a workday.
 - Built into each session is a 5-minute online pulse survey to check your wellness.
 - If you miss a Zoom workshop, you can complete a pre-recorded version of the workshop to replace it.
 - Three 20-minute coaching sessions during the 6-week intervention weeks with your Burnout Recovery leader coach (phone or Zoom).

The study uses will have two groups participating in the same workshops but in a different order from February - April. Your organization will randomly assign to one of the two groups to receive the Burnout Recovery training.

Participation is completely voluntary. Your answers to surveys and interactions in Zoom or phone meetings will be kept strictly confidential by the research team. Moreover, your Fitbit data tracking sleep, heart rate, and steps will be archived by the research team (via research registered emails) during the 8-week study (both active intervention and waiting period, for comparison).

All Fitbit data will be kept strictly confidential by the research team, and you will also have access to it for your own records. Both survey and Fitbit data will be compiled and reported only for broad group themes—individual data patterns will never be reported in publications or summaries of findings.

We will strip all personally identifying information from our research dataset before we begin data analysis in May 2022.

What are the potential benefits of this research?

Participation in this study is a time and energy commitment and in return we provide leaders:

1. A Fitbit smartwatch which is doubling as a measuring tool and a gift.
2. The 6-week Burnout Intervention course with a weekly workshop and 3 coaching check-ins (20 minutes).
3. Personal burnout summaries at the pretest and follow-up survey points.

We expect the Burnout Recovery course can help leaders prevent and manage their own and their staff's burnout, and that this can in turn preserve engagement and wellbeing.

What are the potential risks for participants?

There are three risks possible from participation in this study.

1. The study's surveys and intervention sessions will ask participants about their work experiences, behaviours and attitudes. It is possible that some participants may experience emotional or psychological discomfort if they have had difficult or upsetting recent work experiences. If you have had traumatic work experiences in the past, for example, related to COVID, it is possible that thinking about your job could trigger these memories.
2. Participating will add additional tasks to participants' lives and take them extra time.
While there are anticipated gains from these efforts, they may add short-term stress.
3. Participants should be aware of social risks inherent in the group and workplace nature of the study. Participating in Zoom online workshops with members of your team and teams from other agencies, it is possible that participants may disclose information that others

could pass on. While the research team will open each session with a confidentiality comment asking participants to share only what they feel safe to do and keep others' comments in confidence, intense work environments it is possible your job could be negatively impacted.

Participants may miss sessions as needed and continue the course. Participants may decline to respond to any question on the surveys. Participants are free to discontinue the study at any time. Leaders are issued a Fitbit which they may keep even if they exit the study or choose to stop wearing it for recording study data.

If you choose to exit the study and do not wish the research team to contact you with further session and survey notifications, you can email the main investigator (Debra Gilin at AdminBurnoutRecovery@smu.ca) and state that you wish to withdraw from the study. You may ask for us to remove your data from our files as well up to May 10, 2022. After this time, we will not be able to identify your responses to remove them from the analysis.

Our feedback form at the end of each survey also tells participants how to contact the research team and/or REB should any adverse effects be experienced through the study process.

What will be done with my information?

Data will be reported in academic and practitioner conferences and publications in anonymous, grouped form only (that is, no individual or identifiable responses will be shown). Managers will not receive any information about which staff participate.

How can I get more information about this research?

If you are interested to get more information about this study or would like to be added to our email list for a summary of final results (around July 2022), you can e-mail the research team at the information provided above.

Certification:

The Saint Mary's University Research Ethics Board has reviewed this research. If you have any questions or concerns about ethical matters or would like to discuss your rights as a research participant, you may contact the Chair of the Research Ethics Board at ethics@smu.ca or +1 902-420-5728.

Signature of agreement:

I understand what this study is about, appreciate the risks and benefits, and that by consenting I agree to take part in this research study and do not waive any rights to legal recourse in the event of research-related harm. I understand that my participation is voluntary and that I can end my participation at any time.

I agree to participate

I do not agree to participate

Please keep one copy of this form for your own records.

We appreciate your open and honest feedback so that we can make meaningful and impactful adjustments as the situation evolves.

Feedback Form**FEEDBACK LETTER****SMU REB #21-033**

Principal Investigator: Dr. Debra Gilin
 Department of Psychology, Saint Mary's University, 923 Robie Street, Halifax, NS B3H
 3C3

Research administrative team: AdminBurnoutRecovery@smu.ca

Dr. Debra Gilin, debra.gilin@smu.ca
 Michael Foote, Michael.foote@smu.ca
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Dear Burnout Recovery participant,

Thank you for participating in the pretest survey. Your response has been recorded.

As a reminder, the purpose of this study is to develop and test a short-term intervention course to support front-line healthcare leaders and their staff who are at risk of impending burnout during COVID.

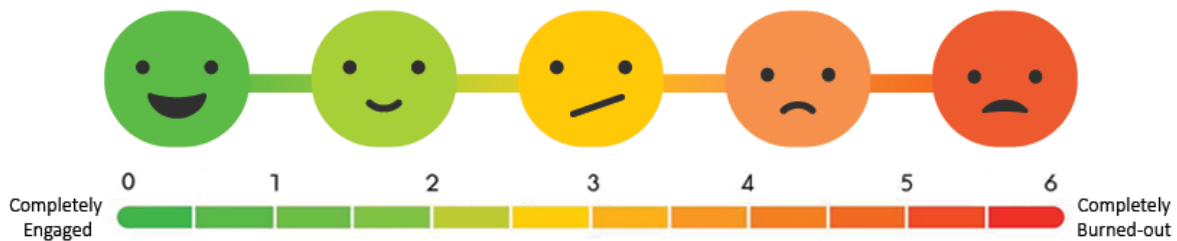
We will make sure that your responses are completely confidential and will be analyzed only by the research team. Your data will not be shared with your manager or employers under any circumstances.

The below feedback is made possible by a grant to the research team from the Nova Scotia COVID-19 Health Research Coalition. If you already entered your email address in the last question, this feedback form is sent to your email address automatically. If you did not enter your email address, but now you want to have a copy of this feedback, please click on the following link to download the feedback letter (Your score is not reported in this document): [LINK](#)

What is my score on burnout?

Based on your assessment, your current burnout score is: ____ out of 6

You can interpret your score yourself simply by positioning your score on the below Emoji Bar.



What does this score mean?

This assessment's focus was on your current level of job burnout. Job burnout is usually caused by excessive and prolonged job stress. Based on our previous research during the COVID pandemic, this feeling may be exacerbated by the level of uncertainty that we all have experienced in our jobs, or the personal risk that you have taken to continue providing service to our community.

Feeling burnout is associated with feeling emotionally exhausted or feeling your energy is depleted when you are at work. It may also be associated with a feeling of being irritable because of becoming cynical about your job recently. In addition, when you feel burned-out, you may feel that your contribution to your organization is insignificant or ineffective.

Where can I reach out for support?

The best support would be within VON's employee assistance resources by reaching out to ComPsych at www.guidanceresources.com or 855-816-9307. Individuals in Ontario can also reach out to Mindbeacon via <https://info.mindbeacon.com/btn542>.

If these options are not a fit for your needs, you can also contact the research team at the email addresses above. We can help you find the support you need.

What is the next step?

If you have any questions regarding your burnout score or this feedback form, please email us at AdminBurnoutRecover@smu.ca.

We will be assigning your home care organization to begin the Burnout Recovery course in February 2022. Our team will contact you to schedule your course very soon, please watch for our communication via email.

As with all Saint Mary's University projects involving human participants, this project was reviewed by the Saint Mary's University Research Ethics Board. Should you have any comments or concerns about ethical matters or would like to discuss your rights as a research participant, please contact the Chair of the Research Ethics Board at 902-420-5728 or ethics@smu.ca.

Once again, we, as a research team, appreciate all you have done for our community.

Debra Gilin and the Burnout Recovery Research Team

Full Set of Survey Measures**Demographic Questions**

This section of the survey asks about your background and only occurs this first time.

- What is your current job?
 - _____
- Are you regularly scheduled on shiftwork?
 - Yes, but without night shift
 - Yes, with night shift
 - No
- For how many years have you worked in your current occupation?
 - _____ Years
- How many hours did you work last week?
 - _____ Hours
- For how many years have you worked in your current organization?
 - _____ Years
- Are you a member of a union? IF so, which one?
 - _____
- What is your gender?
 - Male
 - Female
 - Other: _____
- What is your age? Please enter whole numbers (e.g., 35).
 - _____ years
- What is your ethnicity? (Note: you may check all that apply)

- Caucasian
 - Black
 - Hispanic/Latino
 - Asian
 - Middle Eastern
 - Native/Aboriginal/Indigenous
 - Mixed race
 - Other _____
 - Prefer not to say
- What is your current marital status?
 - Single
 - Married
 - Common-law
 - Separated
 - Divorced
 - Widowed
 - Prefer not to answer
 - How many dependents do you currently have? (Dependents are the children under 22 age years old or adults who are financially and physically dependent upon you).
 - Number of dependents: _____

Interpersonal Reactivity Index (IRI)

Includes 4 facets, 7 items each: Perspective-taking, Empathetic concern, Personal distress, and Fantasizing

The following statements inquire about your thoughts and feelings in a variety of situations. For each item, indicate how well it describes you by choosing the appropriate option on the scale provided. Read each item carefully before responding and answer as honestly as you can.

1	2	3	4	5
Does not describe me well at all.		Neutral		Describes me very well.

- I daydream and fantasize, with some regularity, about things that might happen to me.
- I often have tender, concerned feelings for people less fortunate than me.
- I sometimes find it difficult to see things from the “other guy’s” point of view.
- Sometimes I don’t feel very sorry for other people when they are having problems.
- I really get involved with the feelings of the characters in a novel.
- In emergency situations, I feel apprehensive and ill-at-ease.
- I am usually objective when I watch a movie or play, and I don’t often get completely caught up in it.
- I try to look at everybody’s side of a disagreement before I make a decision.
- When I see someone being taken advantage of, I feel kind of protective towards them.
- I sometimes feel helpless when I am in the middle of a very emotional situation.
- I sometimes try to understand my friends better by imagining how things look from their perspective.
- Becoming extremely involved in a good book or movie is somewhat rare for me.
- When I see someone get hurt, I tend to remain calm.
- Other people’s misfortunes do not usually disturb me a great deal.
- If I’m sure I’m right about something, I don’t waste much time listening to other people’s arguments.
- After seeing a play or movie, I have felt as though I were one of the characters.
- Being in a tense emotional situation scares me.
- When I see someone being treated unfairly, I sometimes don’t feel very much pity for them.
- I am usually pretty effective in dealing with emergencies.
- I am often quite touched by things that I see happen.
- I believe that there are two sides to every question and try to look at them both.
- I would describe myself as a pretty soft-hearted person.
- When I watch a good movie, I can very easily put myself in the place of a leading character.
- I tend to lose control during emergencies.
- When I’m upset at someone, I usually try to “put myself in his shoes” for a while.
- When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me.
- When I see someone who badly needs help in an emergency, I go to pieces.
- Before criticizing somebody, I try to imagine how I would feel if I were in their place.

DUTCH Test of Conflict Handling (De Dreu, et al., 2001)

Please respond to the following questions regarding how you manage conflict at work.
 Indicate your responses by circling the number for each question that best corresponds to your rating, from (1) never to (5) always.

1	2	3	4	5
Never	Rarely	Sometimes	Often	Always

When I have a conflict at work, I:

Accommodating

- I give in to the wishes of the other party.
- I concur with the other party.
- I try to accommodate the other party.
- I adapt to the other parties' goals and interests.

Dominating

- I push my own point of view.
- I search for gains.
- I fight for a good outcome for myself.
- I do everything to win.

Integrating

- I examine issues until I find a solution that really satisfies me and the other party.
- I stand for my own and the other's goals and interests.
- I examine ideas from both sides to find a mutually optimal solution.
- I work out a solution that serves my own as well the other's interests as well as possible.

Avoiding

- I avoid a confrontation about our differences.
- I avoid differences of opinion as much as possible.
- I try to make differences look less severe.
- I try to avoid a confrontation with the other party.

Impact of COVID-19

This section of the survey asks about how COVID-19 is currently affecting your work life.

-
- How many patients/clients are infected with COVID-19 (suspected/presumed and/or confirmed) in your location?
 - none
 - only one
 - 2-5
 - 6-10
 - 11-20
 - 20-50
 - more than 50
 - I don't know

 - How many workers have been infected with COVID-19 (suspected/presumed and/or confirmed) in your location?
 - none
 - only one
 - 2-5
 - 6-10

- 11-20
- 20-50
- more than 50
- don't know

- Have you experienced any of the following (check all that apply):
 - told you had contact with a COVID-19 patient at work
 - told you had contact with a COVID-19 patient outside of work
 - told to work despite exposure
 - experienced symptoms similar to COVID-19
 - told to work despite symptoms
 - told to self-isolate
 - tested for COVID-19
 - tested positive for COVID-19
 - submitted forms for workers' compensation for contracting COVID-19 at work
 - Other (please specify)
 - _____

You and Your Work

This section of the survey asks important questions about how you are feeling and how your work is going. We will be checking up on these questions with you at future surveys to track how you are doing. At the end of the survey today, you will see a brief report on your total self-rated burnout compared to others.

Maslach Burnout Inventory (MBI)- General (Schaufeli et al. 1996)

Please read each statement carefully and decide if you ever feel this way about your job.

1	2	3	4	5	6	7
Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day

*NOTE for REB: This scale is proprietary and we have purchased online licenses. It is comprised of 16 items but the publisher only allows one sample item from each subscale to be listed for review purposes.

Emotional Exhaustion

- I feel emotionally drained from my work

Professional Efficacy

- In my opinion, I am good at my job.

Cynicism/ Depersonalization

- I doubt the significance of my work.

One-item summative burnout score

(Rohland, Kruse, & Rohrer, 2004)

Using your own definition of 'burnout' please select one of the answers below:

1. I enjoy my work. I have no symptoms of burnout.
2. I am under stress, and don't always have as much energy as I did, but I don't feel burned out.
3. I am definitely burning out and have one or more symptoms of burnout, e.g. emotional exhaustion.
4. The symptoms of burnout that I'm experiencing won't go away. I think about work frustrations a lot.
5. I feel completely burned out. I am at the point where I may need to seek help.

Self-reported Sleep Impairment

(Buysse et al., 2010)

Over the past month, how often did you have the following experiences? (1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Always)

- I had problems during the day because of poor sleep.
- I had a hard time concentrating because of poor sleep.

- My daytime activities were disturbed by poor sleep.
- I felt irritable because of poor sleep.
- I had a hard time controlling my emotions because of poor sleep.

Recovery Experiences Questionnaire (Sonnetag & Fritz, 2007, first two subscales only)

Please tell us about your free evenings when you are not working. How much do you agree with each statement below:

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

Psychological detachment

- I Forget about work.
- I don't think about work at all.
- I distance myself from work.
- I get a break from the demands of work.

Relaxation

- I kick back and relax.
- I do relaxing things.
- I use the time to relax.
- I take time for leisure.

Team Conflict Scale (Jehn, 1995)

Please tell us about how it is going on your leadership team these days, using the rating scale below:

None at all		Somewhat		A lot
1	2	3	4	5

Relationship Conflict

- How much relationship tension is there in your work group?
- How often do people get angry while working in your group?
- How much emotional conflict is there in your work group?

Task Conflict

- How much conflict of ideas is there in your work group?
- How frequently do you have disagreements within your work group about the job or tasks you perform?
- How often do people in your work group have conflicting opinions about the job or tasks you are working on?

Process Conflict

- How often are there disagreements about who should do what in your work group?
- How much conflict is there in your group about roles and responsibilities?
- How often do you disagree about resource allocation in your work group?

Supportive Leadership

(Leadership Qualities, modified for self report, Shanafelt et al., 2015)

Published original other-report response scale 5=strongly agree, 4- agree, 3=neither agree nor disagree, 2=disagree, 1=strongly disagree, NA = do not know/ not applicable

Revised instructions:

To what extent do you agree or disagree with each of the following statements about yourself as a leader over the past month?

- I hold career development conversations with my team members.

- I inspire my team members to do their best.
- I empower my team members to do their job.
- I am interested in my team's opinions.
- I encourage my team to suggest ideas for improvement.
- I treat my team with respect and dignity.
- I provide helpful feedback and coaching on their performance to my team members.
- I recognize team members for a job well done.
- I keep my team informed about changes taking place at work.
- I encourage my team members to develop their talents and skills.