Utilization of Relaxation Techniques and Increasing Exercise to Reduce Stress in Adults Recovering from Substance Use Disorders.

By
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Dedication

I would like to dedicate this thesis to the individuals that I had the pleasure to work with during my thesis placement. My supervisor Michelle Neljak, staff, and residents pushed me to enhance my clinical skills and knowledge in the field of study. Additionally to my family and friends who have supported me throughout this journey, I could not have done it without your love and support.

& York Young
Abstract

Many individuals experience detrimental barriers in their efforts to create positive change from their misuse of mood altering substances. Sinha (2009), identified stress as a prominent risk factor in the development and maintenance of addiction. The present study attempted to discover if the utilization of stress management techniques would reduce participants stress score on the DASS-21. The study participants included four males ages 26 to 54 ($M = 43.75$ years, $SD = 12.76$), all of whom reported high levels of stress in the past year. The independent variable was composed of two groups: the treatment group, individuals who engaged in progressive muscle relaxation (PMR), mediation, and exercise, and the control group, individuals who did not participate in PMR, meditation, and exercise. An independent measures experimental design was used to analyze the data. The measured effect on stress was significant, with a substantial reduction in the mean stress score of the treatment group, in comparison to the control group. Participants in the treatment group reduced their DASS-21 scores from a rating of “severe” to “normal”, whereas participants in the control group endorsed the same severity rating level. The paired sample $t$ test identified a high significance ($t = 15.00, p < .00005$). Additionally, a large effect size ($d = 6.28$) was shown.


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Chapter I: Introduction

The persistent misuse of psychoactive substances is referred to as addiction, or substance dependency. Pearson, Janz, and Ali (2013) established that alcohol and drug abuse has become more prevalent in Canada; stating that approximately 6 million (21.6%) Canadians meet the criteria for a substance related disorder throughout their lifespan. Males and youth aged 15-24 have an increased susceptibility to substance use in comparison to other populations (Pearson et al., 2013). According to the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5; American Psychiatric Association, 2013), substance dependence is described as a maladaptive pattern of substance use leading to distress or impairment for a period of twelve months. The maladaptive patterns of substance dependence include: increased tolerance, withdrawal symptoms, unsuccessful efforts to control substance use, and continued use of the substance despite the acknowledgement of persistent physical or psychological problems.

Individuals across the globe are subjected to the stressors of daily life. Although the causes of stress may vary from population to population, the problem of stress has become more prevalent and recognized than in previous years. Antai-Otong (2010) confirms that the experience of stress is on the rise, which can result in a detrimental strain on individuals in a given society. Marcus et al., (2009) suggested that individuals with substance use problems are more vulnerable to relapse when experiencing heightened levels of stress. Moreover, Low et al., (2012) emphasized the importance of stress management techniques in individuals with substance use problems, given that they are at increased risk of psychopathological symptoms.

Stress is a prominent risk factor in the development of addiction as well as vulnerability to relapse (Sinha 2009). This is due to the fact that individuals with substance use problems find it difficult to deal with a stressful situation (Larimer et al., 1999). Addictions studies associated with stress over the last decade have attempted to understand the underlying causes of this association. Larimer, Palmer, and Marlatt’s (1999) relapse prevention model suggests two probable outcomes that may be involved when an individual with substance dependence is faced with a stressful situation. Individuals who are able to successfully navigate stressful situations may feel an increase in self-efficacy and a greater sense of accomplishment. From this perspective, stress can be viewed as “good stress”. “Good Stress” is defined as an internal or external situation that is challenging and results in positive cognitive and behavioral responses. However, if effective coping strategies are absent from the individuals repertoire, the stressful situation will lead to a decrease in self-efficacy and an increase in the probability of relapse. Situations such as this rely on the utilization of stress management coping strategies to achieve a positive outcome. Larimer et al., (1999) promotes the use of effective coping strategies such as relaxation training, stress management, and assertiveness training in order to promote positive outcomes during stressful situations.

Addiction research focused on stress management ascertains that progressive muscle relaxation (PMR), meditation, and exercise are able to decrease stress and promote positive outcomes during stressful situations. PMR refers to a relaxation technique, which includes deep breathing, and allows individuals to monitor and control the tension in their body. Exercise is an activity that requires physical effort in attempts to sustain or improve health and fitness levels in individuals. Individuals are asked to preform a set of moderate physical activities that accelerates the heart rate. Meditation is an activity that attempts to relax the mind and body. Individuals are asked to focus on breathing and clearing their mind of all cognitions, while in a calm environment. PMR, meditation, and exercise will be used as the independent variable in
the current study to reduce participants stress score as indicated by the Depression, Anxiety, Stress Scale (DASS-21).

**Objective**

Despite the extensive research surrounding stress management and substance use, there is limited research on the effectiveness of PMR, meditation, and exercise to reduce stress in a long-term addictions treatment facility. Well-established research suggests that PMR, meditation, and exercise have the ability to reduce stress levels in the substance dependent population. Thus, this study will examine the specified stress management techniques ability to reduce the participants stress level, as indicated by the DASS-21. Lovibond and Lovibond (1995) developed the DASS-21 to measure the severity of symptoms associated with stress, depression and anxiety. Using the DASS-21 as a pre and post measure of stress allows for a measure of symptom severity, as well as a measure of each participant's response to the treatment. It is hypothesized that the utilization of stress management techniques will reduce participants stress score on the DASS-21.

Participants for the present study were recruited from a long-term residential addictions treatment centre in Eastern Ontario. The center provides support for a maximum of 18 men who are primarily in the first three stages of the GORSKI-CENAPS clinical model of recovery. Early recovery is associated with emotional instability, specifically heightened levels of stress, anxiety, and depression. Recent findings have identified that heightened levels of stress increase the chances of relapse (Marcus et al., 2009). Sinha (2009) supports this finding by stating that a normal stress response, for a substance dependent individual, is to use a mood altering substance. As a result of the psychoactive substance, the individual escapes the stressful stimulus and is provided with temporary relief from the stressor. The goal of this study is to provide the participants with stress management techniques to reduce stress levels. Additional benefits include: improved physical health, reduction of psychopathological symptoms, and a reduced vulnerability to relapse. The knowledge gained by this study may contribute to future stress management programing in long-term addiction treatment facilities.
Chapter II: Literature Review

Overview

Significant research has been conducted in the areas of addiction and stress management techniques. Despite the extensive research on substance use, and specifically substance dependence, there is limited research focused on the utilization of stress management techniques in long-term addictions treatment facilities. The purpose of this project is to examine the impact of enhancing stress management skills in the participants residing at the addictions treatment facility. The following is a review of literature that aims to assess and critique the complex constructs surrounding stress management techniques in relation to alcohol and drug dependence. These findings will help to maximize the effective use of stress management techniques in early recovery from psychoactive substances.

The review of the literature will cover topics including PMR, meditation, and exercise as stress management techniques in relation to stress and drug dependence. The aim of this study is to teach the participants effective stress management techniques to help them reduce their experience of stress, as well as provide them with concrete skills for stress management that generalize into everyday life. Previous research suggests that stress has the potential to increase vulnerability to addiction (Sinha, 2009). This further supports the need for the utilization of stress management techniques for individuals with substance dependence.

What is Stress?

Stress can be any physical, mental, or emotional human response to a specific stimulus that can be categorized as stressors (O’Sullivan, 2010). Examples of stressors include noise, financial strain, change in relationship, disease, and loss of a loved one. When an individual is faced with a stressful situation, the stress response prepares the body to efficiently act upon the incoming stressor (Larimer et al., 1999). If the individual is able to provide an appropriate stress response it can lead to a positive consequence; however, a negative stress response can lead to a negative consequence.

Stress differs based on individual differences and situations. While most stress is short-term, there are circumstances when stress occurs for a prolonged period of time (O’Sullivan, 2010). Stress activates the sympathetic nervous system and prepares the body for the fight-or-flight response. Biologically, humans are unable to remain in this heightened state of physiological arousal for prolonged periods of time and eventually the individual will return to homeostasis shortly after the occurrence of the stress response.

Chronic stress is defined as a response to emotional pressure over prolonged periods of time with the added perception of a loss of control (Low et al., 2012). Examples of chronic stressors include financial, relationship, or academic pressure. Chronic stress can lead to a number of adverse psychological consequences such as anxiety, depression, and insomnia. Acute stress is a psychological condition arising in response to a terrifying or traumatic event (Low et al., 2012). Acute stress can lead to distress or eustress. Distress, known as bad stress, is a negative reaction to a specific stimulus. Distress occurs when an individual is unable to successfully cope with the stressor. On the other hand, Eustress, or “good stress” is defined as an internal or external situation that is challenging and results in cognitive or behavioural responses (Sinha, 2009). These cognitive and behavioral responses have the ability to motivate individuals and produce a feeling of accomplishment upon successful task completion (Sinha 2009).
Situations that provide opportunities for eustress rely on the effective utilization of stress management coping strategies to achieve a positive outcome.

**The Effect of Stress on the General Population**

The prevalence of stress in everyday life continues to increase due to high expectations in regards to education, employment, relationship, and financial stability (Winograd, & Hais, 2011). The authors state that 17% of individuals affected by stress will report it to their primary care provider. Additional findings suggest that individuals feel that it is unimportant to discuss stress with their primary care provider. Populations at high risk for stress include individuals age 18-47, specifically millennials who are subjected to unrealistic expectations during an economic collapse.

The human body is able to produce a stress response, known as fight-or-flight, in order to protect itself from harmful stimuli (Antai-Otong 2010). Negative consequences can occur if the body remains in a heightened state of arousal for prolonged periods of time (Low et al., 2012). Continual exposure to a chronic stressor increases the probability of negative psychopathological symptoms and health problems (Low et al., 2012). Segerstrom, Miller, and Gregory (2004) conducted a meta-analytic review of the effect chronic stressors have on the human body. The review found that chronic stress has the ability to produce various negative physiological and psychological effects such as heart problems, anxiety, depression, weight gain, and poor concentration. The study indicated that the negative side effects associated with chronic stress affected individuals differently.

A study conducted by O’Sullivan (2010) investigated undergraduate students and the relationship between hope, eustress, self-efficacy, and life. Eustress is the result of a positive stress response following the presentation of a stressful stimulus. Eustress is a relatively new phenomenon that has been ignored in previous research due to unsuccessful attempts by researchers to provide a valid and reliable measure for the construct. Previous research by Gmelch (1983) indicated that eustress has the ability to motivate individuals to perform at optimum levels of efficiency. The study showed an increase in performance when participant’s arousal level and perceived difficulty of the task was increased (Gmelch, 1983). O’Sullivan’s (2010) study provided similar findings indicating that the quality of task completion and the ability to complete a task was enhanced as a result of a positive stress response. Gmelch (1983) and O’sullivan (2010) both found a strong correlation between eustress and motivation in regards to the successful completion of tasks. With the prevalence of stress on the rise it is important to utilize effective stress management techniques on a regular basis in order to maintain homeostasis and to reduce the negative side effects of everyday stressors.

**The Effect of Stress on Individuals with Substance Dependence**

Wood et al., (2008) defines stress as a mental pressure, caused by the progression of daily complications, which can lead to anxiety, depression, and anger. Stress is a substantial risk factor in the development of addiction as well as vulnerability to relapse (Sinha, 2009). Larimer et al., (1999) further validates this point by indicating that individuals with substance dependence have difficulties dealing with the presentation of an acute or chronic stressor. Larimer et al., (1999) proposes that individuals with substance dependence struggle with the ability to provide
appropriate stress responses. This finding further supports the need for the attainment and utilization of stress management techniques for individuals with substance dependence.

Generally stressful life events and complications are correlated with mental health symptoms and substance use in individuals with substance dependence (Low et al., 2012). Marcus et al., (2009) suggests that individuals with substance dependence are more vulnerable to relapse, when experiencing heightened levels of stress. Low et al. (2012) suggests that all sources of personal stress are significantly related to depressive symptoms and substance use. Furthermore, the authors emphasize the need for individuals to acquire coping skills to manage mental health symptoms and substance use, which can help reduce emerging psychopathology. The study suggests that males are more problem-focused and use distraction to cope, furthering the importance of the use of mindfulness based stress management approaches.

A study conducted by Brady and Sinha (2005) explored the relationship between chronic stress on co-occurring mental health and substance use disorders. The authors state that chronic distress is a determinant of substance use and mental health disorders. Epidemiological studies have reported rates of comorbidity that range from 32% to 70% between depression, post-traumatic stress disorder (PTSD), attention deficit hyperactivity disorder (ADHD), and schizophrenia with dependence on a mood altering substance. The authors state that individuals with mental illnesses are more prone to develop substance use disorders, and individuals who are substance dependent increase their risk for the development of mental illness, in comparison to the general population. This may be due to the fact that changes in the reward pathways, associated with chronic stress, increase an individuals’ vulnerability to mental health issues and substance use.

The Benefits of Stress Management Techniques on Individuals with Substance Dependence

Stress is notorious for its negative mental and physical health consequences. Research indicates that individuals with substance dependence are more vulnerable to relapse when experiencing heightened levels of acute or chronic stress (Marcus et al., 2009). Sinha (2009) states that stress is a dynamic risk factor in the development of addiction as well as vulnerability to relapse. The author states that a common stress response for an individual with substance dependence is to use a mood altering substance to provide temporary relief from the stressful situation. The use of psychoactive substances has become a conditioned response that leads to escape from the stressful stimulus (Sinha, 2009). Larimer et al., (1999) found that this is due to the fact that individuals with substance use problems have difficulties producing an effective stress response when presented with a stressful stimulus. The literature around substance dependence and stress suggests the need for effective stress management techniques to promote both mental and physical health wellness.

Stress management techniques have become increasingly important during treatment, due to research indicates an increased vulnerability to relapse and psychopathological symptoms in times of heightening to perceived stress. Sullivan and Fleming (1997) state that stress management techniques could be used to reduce stress, while also becoming an alternative to the administration of a psychoactive substance, to treat a co-occurring mental illness. This is important, as Brady et al., (2005) addresses the potential for co-occurring mental illnesses to be causally linked to the substance abuse. Research on co-occurring mental health and substance use disorders emphasizes the use of behaviour therapies during stabilization in early recovery and ongoing psychological assessment to reduce medicalized treatments.
Teaching appropriate stress responses, with the use of behavioural strategies, has the ability to promote positive change in the lives of individuals with substance dependence (Rausch, Gramling, & Auerbach 2006). Behavioural therapies encourage desirable behaviours and extinguish undesirable ones (Sullivan et al., 1997). Stress management techniques, that have been empirically validated in previous addictions research, will enable individuals to utilize their newly learned behaviours and will promote generalization of these behaviours into various settings (Sullivan et al., 1997). If individuals with substance dependence are able to learn effective stress management coping strategies, they will maximize the potential benefits associated with a positive response to stressful stimuli. The benefits of effective stress responses include increased self-confidence and self-esteem, while also reducing the risk of relapse.

**Progressive Muscle Relaxation and Meditation**

Rausch et al., (2006) describes PMR as a relaxation method that enables an individual to monitor the tension in his or her body. Such management of bodily tension is found to be an important aspect in reducing stress (Rausch et al., 2006). While the practice of meditation shares many commonalities with PMR, meditation focuses on breathing and comfort in order to relax both, mind and body, and to promote stress level reduction (Coppola & Spector, 2009). During meditation, individuals are asked to sit in a tranquil environment, where they can close their eyes, breathe deeply, and clear their minds of all thoughts (Coppola & Spector, 2009).

Research focused on the efficacy of PMR and meditation has been validated based on findings produced in controlled settings; however, PMR and meditation has been relatively unexplored in other areas of research. Consequently, Rausch et al., (2006) studied the effectiveness of PMR and meditation in a group setting. The study found that stress reduction was casually linked to both PMR and meditation. The research showed that meditation was able to decrease stress, anxiety, and physiological arousal, in addition to promoting empathy and increased duration or return to homeostasis. PMR was shown to increase quality of life, as well as reduce pain and regulate physiological processes. In contrast to PMR, the validity of the efficacy of meditation has been criticized due to poorly controlled studies. Nonetheless, the authors state that both stress management techniques are recommended in the reduction of stress within the substance dependent population.

For more than 5000 years, meditation has been used as a spiritual healing technique. Recent research has prompted western clinical researchers to investigate the effectiveness of various types of meditation. Wootton (2008) studied the effectiveness of behavioural therapies in the treatment of chemical dependency. The author emphasized the importance of behavioural strategies due to unsuccessful attempts to sustain abstinence with the use of psychoactive drugs. Wootton (2008) suggests that the use of psychoactive drugs may be an effective detoxification method to deal with the negative factors associated with substance abuse; however in order to produce a positive change behavioural therapies are imperative in the treatment of chemical dependency. The literature indicates that providing coping strategies that can generalize into various settings, will help to promote and sustain abstinence, and effectively reduce stress in individuals with chemical dependency.

Mindfulness-based treatments continue to generate interest, and research exploring empirical validity is growing in clinical psychology literature. Marcus et al., (2009) researched the effectiveness of stress management techniques on individuals affected by substance use in a therapeutic community treatment center. Results of the study indicated that various groups
showed a decrease in stress over time; however, two subscales showed significant differences in muscle tension and emotional irritability as a result of engaging in mindfulness techniques. The stress-reducing benefits of mindfulness techniques appear to decrease after three months, suggesting the need for continuing engagement in mindfulness or the offering of “booster sessions” throughout the course of treatment. Additionally, research by Grow, Collins, Harrop, and Marlatt (2015) support mindfulness based relapse prevention (MBRP) approaches when providing treatment to individuals with substance use difficulties.

Teaching mindfulness techniques for daily use versus in high-risk situations has the potential to boost the longevity of MBRP treatment effects (Grow et al., 2015). These findings also suggest that MBRP clinicians should target the post-intervention decline in home practice, perhaps with ongoing mindfulness practice groups, to maximize the benefits of mindfulness techniques in decreasing substance use, craving, and stress (Grow et al., 2015). The authors suggest that implementing mindfulness techniques into one's daily life plays a key role in ongoing recovery following MBRP.

**Exercise**

Exercise can produce positive mental and physical health benefits. Generally speaking, the literature demonstrates that exercise is an effective stress reduction technique (Mooney, London, Chudzynski, & Rawson, 2014). Moderate physical activity such as weight lifting and cardiovascular exercises can regulate weight, increase energy, promote better sleep, and increase dopamine transmission. Furthermore, Mooney et al., (2014) state that a regular exercise schedule can reduce the possibility of emerging psychopathology, as well as decrease depression and anxiety symptoms throughout the day. Cognitive impairments, depression, and anxiety symptoms are common during early recovery from a mood altering substance. Mooney et al., (2014) indicate that exercise improves cognitive functioning and the regulation of mood. The authors suggest that exercise is an appropriate alternative behaviour as it provides a positive non-drug-related activity to compliment other behavioural therapies in the treatment of substance dependence.

Salmon’s (2008) research suggests that adding exercise into one’s routines provides resistance to the many physiological and emotional consequences of psychological stressors, thus sustaining and improving the overall health of individuals. A stress reduction study completed by Blanco and Robinett (2014) provides empirical support for the use of physical exercise to reduce stress, build self-confidence, and create positive peer interaction. The researchers found that clinicians interested in programming for men should consider that participants may find enjoyment in physical activities that do not necessarily require competition (Blanco et al., 2014). Specifically, the researchers propose that although some men may want physicality, they do not always desire activities that require them to engage in competition. In addition, many of the participants were promoters of independent physical activities as a way to ease stress. Providing non-competitive group exercise allows individuals to build self-confidence and to increase participation in physical activity with their peers. Similarly, Salmon (2001) stated that physical exercise has numerous positive properties and advocated that extended exercise training has anti-depressive and anxiolytic effects, while also reducing an individual’s sensitivity to stress.

A meta-analysis by Wang, Wang, Wang, Li, and Zhou (2014) found that there were some contradictory findings in regards to the use of exercise as a treatment of substance dependence. Some research found that exercise had no significant effect on individuals with substance
dependency. However, Wang et al., (2014) state that exercise has become a successful addition to behavioural management of addictions, especially those looking to reduce the use of psychoactive drug therapies. The compilation of research indicated that exercise reduced daily use, cravings, and stress for adults being treated for cannabis addiction (Wang et al., 2014). Additionally, exercise was shown to be a preventative measure of substance use in adolescent individuals. Animal studies have produced reliable data that legitimizes the use of exercise, as it was able to decrease the intake of mood altering substances, including cocaine, morphine, and alcohol. Exercise was shown to produce positive effects in relation to brain function such as a reduction of perceived stress, object recognition memory, and cognitive functioning. The results of the meta-analysis provide convincing evidence for the use of exercise to reduce stress and abstain from psychoactive substances. Exercise not only has the ability to increase abstinence rates, but also appears to decrease symptoms of withdrawal.

Summary

Enhancing stress management skills is essential to regulate the positive and negative consequences that are involved in every day stressors. The consistent utilization of stress management skills is thought to be vital during recovery. Appropriate management of stress is essential as individuals with substance dependence are at an increased vulnerability to stress, which has been linked to an increase in the probability of relapse. Acquiring these stress management skills can help to reduce stress and the chance of drug or alcohol relapse during times of high stress (Gurley & Satcher, 2003). Based on the literature PMR, meditation, and exercise were chosen as the intervention approach for this study as these techniques have been shown to effectively reduce stress and prevent substance use. Additionally, these methods are moderately easy to learn, which is of value given the time constraints associated with the client’s having to partake in their mandatory treatment program at the addictions treatment center.
Chapter III: Methodology

Participants

The study participants included four males ages 26 to 54 (\(M = 43.75\) years, \(SD = 12.76\)), all of whom reported high levels of stress in the past year. Participant selection was designed to include individuals between the ages 18 to 65 who resided at the residential addictions treatment centre during the study. Participants who identified stress as an issue within their recovery and who were a minimum of two weeks abstinent from any mood altering substance met the inclusion criteria for this study. Exclusion criteria included the inability to comply with study procedures, cardiovascular issues, or individuals who were already using exercise to reduce stress. Prior to being recruited, staff at the residential treatment centre were asked to approve the individuals’ participation. Individuals were divided into two groups of two, where one group acted as the treatment group, and the other group acted as the control group.

Informed Consent and Ethical Approval

This research project was approved by the St. Lawrence College Research Ethics Board. Informed consent was discussed with each potential participant prior to asking if they wanted to take part in the research project; if so, participants were requested to sign and date the Informed Consent form (Appendix A). Two copies of the written informed consent were obtained before the study began: one copy was given to the client and the other was provided to the agency. All documents pertaining to the research project were stored in a locked cabinet in the residential addictions treatment centre.

Design

An independent measures experimental design was used to analyze the data. The independent variable was composed of two groups: the treatment group, individuals who engaged in PMR, mediation, and exercise, and the control group, individuals who did not participate in PMR, meditation, and exercise. The dependent variable was the score each participant received on the Depression, Anxiety, Stress Scale (DASS-21) (Appendix B). The research project was implemented for a period of six weeks. Any changes to the scores on the DASS-21 measure the impact of the intervention on the levels of stress. It was expected that the scores from the treatment group would significantly decrease, while the scores in the control group would remain the same.

Definition of Variables

The independent variable was the combination of PMR (Appendix C), meditation (Appendix D), and exercise (Appendix E). An example of the PMR script is, “tightly, but without straining, clench your fists and hold this position until I say stop. Hold for about 5 seconds, and release” (Bourne, 2015). An example of the meditation script is, “Start to disengage the mind from busy thoughts and ideas. Close your eyes softly” (“Mindfulness Relaxation Exercise Script,” n.d.). Lastly, an example of an exercise activity includes ten
bodyweight squats, which is defined as moderate physical activity in the seven-day beginners guide to training (Bornstein, 2012).

The dependent variable was composed of the scores obtained from the DASS-21. Sample questions from the DASS-21 include, ‘I tend to overreact to situations’ and ‘I felt that I was using a lot of nervous energy’. Individuals indicated the presence of a symptom over the course of the treatment, on a scale from 0-3 (0 being no presence of a symptom and 3 being frequent presence of a symptom). The DASS-21, which was developed by Lovibond and Lovibond (1995), is a self-report questionnaire with 21 questions designed to measure the severity of symptoms typically associated with stress, depression and anxiety. Reliability scores for the DASS-21 indicate excellent internal consistency, with $p = .94$. Furthermore, Cronbach’s Alpha reveals high validity, (depression = .90, anxiety = .83, and stress = .86). The DASS-21 shows high convergent validity, as it correlates high with similar constructs and low to unrelated constructs. The use of the DASS-21 as a pre- and post-measure of stress allowed for a measure of symptom severity, as well as a measure of each patient’s response to the treatment.

Setting and Materials

The present study was conducted at a residential addictions treatment centre and at the local Young Men’s Christian Association (YMCA). The YMCA granted the student researcher permission to use their facilities four times a week. The student researcher facilitated four weekly sessions at the YMCA; during these times, the participants engaged in PMR, meditation, and exercise. The room provided by the YMCA allowed for the mitigation of sound and light during PMR and meditation sessions. Additionally, the room temperature was kept at 20 degrees Celsius to minimize treatment effects due to environmental stimuli. Each participant completed a baseline assessment of the DASS-21 prior to the commencement of the study, and completed the questionnaire after the treatment phase had concluded. Participants were provided with a writing utensil and a copy of the DASS-21 questionnaire itself. During PMR and meditation sessions, participants received a yoga mat. The YMCA provided workout equipment for exercise sessions.

Procedure

Participants in the treatment group engaged in PMR, meditation, and exercise around their mandatory schedule, provided by the residential addictions treatment centre. The study was implemented over a period of six weeks. Participants in the treatment group took part in four weekly sessions that were held for one hour in the afternoon on Monday, Tuesday, Thursday, and Friday at the YMCA. Participants engaged in PMR on Mondays and Fridays; meditation on Tuesdays and Thursdays; and exercise activities on Mondays and Tuesdays. Each session was conducted for thirty minutes. The sessions were run by the student researcher and were monitored by a licenced mental health worker, from the residential addictions treatment centre. Participants in the treatment and control group completed the DASS-21 following the intervention phase of the research project. Each participant was provided with a safe and secure office space, and a writing utensil to complete the DASS-21. Completed copies of the DASS-21 were returned to the student researcher, who stored the test in a locked cabinet within the residential addictions treatment centre to ensure confidentiality.
Data Analysis

An independent measures experimental design was used to analyze the data in the present study. Statistical analysis of the dependent variable included a t-test, in order to determine if the treatment group scores were significantly different from the scores of the control group. Results were considered significant if $P < 0.05$. Descriptive statistics were used to display central tendency, variance, and standard deviation (SD) of the DASS-21 scores. Each participant’s DASS-21 score was analyzed and displayed in a bar graph.
Chapter IV: Results

The measured effect on stress was significant, with a substantial reduction in the mean stress score of the treatment group, in comparison to the control group (results are summarized in Table 1). Participants in the treatment group reduced their DASS-21 scores from a rating of “severe” to “normal”, whereas participants in the control group endorsed the same severity rating level. Participant A’s pre-treatment score of 14 (severe) was reduced to 6 (normal) after treatment. Participant B’s pre-treatment score of 13 (severe) was reduced to 6 (normal) after treatment. Participant C’s pre-treatment score of 19 (extremely severe) was reduced to 18 (extremely severe) following post treatment assessment. Participant D’s pre treatment score of 11 (moderate) was increased to 12 (moderate) following post-treatment assessment.

Table 1
Pre and Post Assessment Scores on the DASS-21 (N=4)

<table>
<thead>
<tr>
<th></th>
<th>Pre-Treatment</th>
<th>Post-treatment</th>
<th>Percentage of Change</th>
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<tbody>
<tr>
<td>Treatment Group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participant A:</td>
<td>14 (Severe)</td>
<td>6 (Normal)</td>
<td>-57%</td>
</tr>
<tr>
<td>Participant B:</td>
<td>13 (Severe)</td>
<td>6 (Normal)</td>
<td>-53%</td>
</tr>
<tr>
<td>Mean: 13.5</td>
<td>Mean: 6.0</td>
<td>Mean Difference: -7.50</td>
<td></td>
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<tr>
<td>SD: 0.71</td>
<td>SD: 0.0</td>
<td></td>
<td></td>
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<tr>
<td>Control Group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participant C:</td>
<td>19 (Extremely Severe)</td>
<td>18 (Extremely Severe)</td>
<td>-5%</td>
</tr>
<tr>
<td>Participant D:</td>
<td>11 (Moderate)</td>
<td>12 (Moderate)</td>
<td>+9%</td>
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<tr>
<td>Mean: 15.0</td>
<td>Mean: 15.0</td>
<td>Mean Difference: 0.0</td>
<td></td>
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<tr>
<td>SD: 5.66</td>
<td>SD: 4.24</td>
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</tbody>
</table>

Pre-treatment means on the DASS-21 for the treatment group was 13.50 (SD= 0.71). Following the six-week project, the mean DASS-21 score for the treatment group was 6.0 (SD= 0.0), resulting in a mean difference of -7.50. The mean pre-treatment DASS-21 score for the control group was 15.0 (SD= 5.66). The mean post-treatment DASS-21 score for the control group was 15.0 (SD= 4.24), indicating a mean difference of 0.0. The paired sample t test identified a high significance ($t = 15.00, p < .00005$). Additionally, a large effect size ($d= 6.28$) was shown.
Figure 1. Participant, pre-test and post-test scores on the DASS-21 scale.
Chapter V: Discussion

The present study attempted to discover the effectiveness of stress management techniques in a long-term addictions treatment facility. The results indicate that the six-week intervention can have significant short-term effects by reducing perceived stress in the substance dependent population. Those who received PMR, meditation, and exercise indicated significant decreases in overall stress levels following treatment. Additionally, participants in the treatment group remained abstinent from all psychoactive substances, whereas both participants in the control group relapsed shortly after the post-intervention DASS-21 assessment. The deviation in stress scores between groups, while statistically significant, demonstrated trends towards clinically significant changes. However, in order to validate the independent variables as a reliable treatment of stress in the substance dependent population researchers should aim to increase the size of the participant population.

Statistical analysis of the treatment indicates that PMR, meditation, and exercise have the ability to effectively reduce stress levels in the substance dependence population. Previous meta-analysis completed by Segerstrom et al., (2004) indicated that PMR, meditation, and exercise have been identified as useful techniques in the reduction of stress in various settings and populations. However, the present findings indicate that the use of PMR, meditation, and exercise to enhance stress reactions may have greater therapeutic value than previously identified. Similar to the findings of Rausch et al., (2006); and Salmon (2001), participants noted the immediate effectiveness of PMR and exercise, whereas the effectiveness of meditation was noted after several sessions.

Strengths

One strength of this study was that the sample population represented individuals from a diverse age, socioeconomic background, co-morbid mental illness, and substance of choice. Additionally, Rausch et al., (2006), found that environmental factors mitigated the success of relaxation techniques. Therefore, participants in the current study were placed in environments that promoted successful relaxation. The current study used the DASS-21 to measure participant stress levels. Previous research indicates that the DASS-21 is an effective measurement of stress as it shows high convergent validity, and correlates high with similar constructs and low to unrelated constructs (Lovibond et al., 1995). The DASS-21 allows for a measure of symptom severity, as well as participants response to treatment.

Limitations

Several limitations must be acknowledged. First, although diverse, the relatively small sample size (4 participants), prohibited valid and reliable findings based on statistical analysis of the present study. Additionally, the small population makes it difficult to generalize results to the broader population. Furthermore, all participants were male, limiting the possibility of generalization of the findings to the male gender only. Previous research by Segerstrom et al., (2004) challenges the validity and reliability of self-report measures. Although the DASS-21 has high construct validity Segerstrom et al., (2004) state that the possibility of a habitual response, lack of clarification of test questions, and the possibility of a participant lie decrease the reliability of the measure.
Recommendations for further research

Although significant short-term treatment effects were found in the present study, three and six-month follow-ups should be conducted to identify long-term effectiveness of the intervention. According to the American Psychological Association well-established treatments require a minimum of two randomized controlled studies, or a series of single subject designs indicating superiority over a placebo or are effective in comparison to other well-established treatments. Therefore, future research should aim to establish the validity and reliability of the treatment by increasing the population size, and comparing the current treatment to that of other well-established treatments.

Multilevel Challenges to Service Implementation

Client level issues

Individuals in early recovery from psychoactive substances face many challenges. Post-Acute- Withdrawal Syndrome (PAWS) is a set of impairments that occur after withdrawal from psychoactive substances. The duration of PAWS symptoms are dependent upon the type of substance, duration of use, and the amount of use. Symptoms of PAWS include: mood swings, anxiety, fatigue, low enthusiasm, poor concentration, and disturbed sleep.

Clients will often have co-occurring mental illness or addictive disorders such as depression, anxiety, gambling, and various types of sexual addictions. Client will often have psychosocial difficulties such as: interpersonal difficulties with family members, difficulties in sustaining long-term relationships, emotional and psychological problems and disorders, difficulty managing anger and stress, lack of education and vocational skills, and problems maintaining employment. Common themes in individuals recovering from substance dependence include low self-esteem, low self-confidence, and financial difficulties (debts to: dealers, family, gambling).

Program level issues

Program issues included limited access to the client, extensive duration of time to build a trusting relationship, and self-report data recording. Participation in the research project revolved around clients mandatory scheduling at the residential treatment facility. Participants were required to go to three AA meetings, four hours of in home programming each day, and volunteering. This limited access to the participants of the research project. A large portion of the clients at the residential treatment centre had traumatic experiences previous to or during active use of psychoactive substances. Traumatic experiences such as sexual abuse, physical abuse, and emotional trauma highlight some of the difficulties involved in building a trusting therapeutic relationship with clients. Lastly, self-report data was recorded to indicate the effectiveness of treatment. This type of data can be unreliable due to participant honesty, understanding of the question, introspective ability, and response bias.
Organizational issues

Organizational issues were concentrated around the residential treatment centre amalgamating with various other addiction and mental health services. During this time casual staff from other agencies were scheduled at the residential treatment centre. The new casual staff did not agree with the abstinence based approach at the residential treatment centre. Residents were uncomfortable with the “revolving door” of new staff. Key individuals at the residential treatment centre were struggling with their new roles in the agency. There was a direct loss of control felt by staff within the residential treatment centre, as well as job duties and titles becoming unclear.

Societal level issues

Addiction is defined in many different ways. Most definitions of addiction revolve around being a chronic disease of brain reward, motivation, and related circuitry. So, the question is why do we still associate addiction as a moral failing? Communities and family members despise people with addictions. The government says they view addiction as a disease, however, they purport the “war on drugs”, treating most drug users as criminals. In my time at the treatment centre I have witnessed staff consciously and unconsciously use stigmatization in their decision-making.

Summary

Committing to a long-term residential addictions treatment is a big step. Individuals are faced with PAWS, withdrawal symptoms, stigmatization, being removed from direct contact with family, and are unable to use psychoactive substances to cope or escape from situations. Positive future change could occur if individuals become educated about addictions, which may result in a decrease in stigmatization.
References


Appendix A: Informed Consent

Project title: Utilization of Relaxation Techniques and Increasing Exercise to Reduce Stress in Adults Recovering from Substance Use Disorders.
Principal Investigator: Brenden Pinkney
Name of supervisor: Michelle Neljak, Psy.D
Name of Institution: St. Lawrence College
Name of institution/agency: Brock Cottage

Invitation
You are being invited to take part in a research study. I am a student in my 4th year of the Behavioural Psychology program at St. Lawrence College. I am currently on placement at the Brock Cottage addictions treatment centre. As a part of this placement, I am completing a research project (called an applied thesis). I would like to ask you for your help to complete this project. The information in this form will help you understand my project. Please read the information carefully and ask all the questions you might have before you decide if you want to take part.

Why is this research study being done?
My project is being done to determine if strengthening stress management techniques will help to reduce the stress felt by participants on a regular basis. I will be using the depression, anxiety, stress scale (DASS-21) to measure your stress levels before and after the project has been completed. The results of this project will help to improve future residents programs at Brock Cottage. After the project is complete I would like to ask your opinions and thoughts about how to improve the program to benefit future residents.

What will you need to do if you take part?
If you choose to take part in the study you will take part in 4 weekly sessions. The sessions will be held for 1 hour in the afternoon on Monday, Tuesday, Thursday, and Friday at the Young Men’s Christian Association (YMCA). You will be asked to participate in exercise activities on Mondays and Tuesdays, progressive muscle relaxation (PMR) on Mondays and Fridays, and meditation on Tuesdays and Thursdays. Each activity will take half an hour to complete. The session will be run by myself and will be monitored by John Vogelzang from Brock Cottage. Before the first session you be asked to fill out the DASS-21, which will take about 20 minutes to complete. At the end of the program, you will be asked to fill out the same questionnaire, which will take you the same time to complete.

What are the potential benefits of taking part?
The potential benefits of participating in this project may include learning or increasing stress management techniques. Additional benefits may include a reduction of stress,
increased self-confidence, and management of bodily tension.

**What are the potential benefits of this research study to others?**
Information from this project may also be used to help improve future residents programs at Brock Cottage.

**What are the potential disadvantages or risks of taking part?**
The risks of participating in this project are minimal. Some of the questions may make you feel sad or anxious.

**What happens if something goes wrong?**
Everyone is different and if you do have any strong reactions to the program or questionnaires, you may talk to John Vogelzang or me at any time.

**Will my information you collect from me in this project be kept private?**
We will make every attempt to keep any information that identifies you strictly confidential unless required by law. You will be assigned a code number to enter on the questionnaires. The consent forms and completed DASS-21 questionnaires will be kept in a locked filing cabinet at the Brock Cottage. The computer files with the study data will be kept in a password protected file on a secure, password protected computer. All study documents and results will be kept securely for 7 years at Brock Cottage and St. Lawrence College after which they will be destroyed. Your name or other identifiers will not be used any reports, publications, or presentations resulting from this project.

**Do you have to take part?**
Taking part is voluntary. It is up to you to decide whether or not to take part in this research project. If you do decide to take part, you will be asked to sign this consent form. If you do decide to take part in this research project, you are still free to stop at any time, without giving any reason, and without experiencing any penalty, or negative effects. If you decide to stop, please speak to John Vogelzang or me. If you choose not to take part in this study, you can still continue to use the services at Brock Cottage. If you choose to withdraw from the study, you can ask that your data not be used if you wish.

**Contact for further information**
This project has been reviewed by the Research Ethics Board at St. Lawrence College. The project will be developed under the supervision of Michelle Neljak, my supervisor from St. Lawrence College. I appreciate your cooperation and if you have any additional questions or concerns, feel free to ask me (bpinkney12@sl.on.ca). You can also contact my College Supervisor Michelle Neljak (mneljak@sl.on.ca). If you have questions about your rights as a research participant you may contact the St. Lawrence College Research Ethics Board at reb@sl.on.ca.

**Consent**
If you agree to take part in this research project, please complete the following form and return it to me as soon as possible. A copy of this signed document will be given to you.
for your own records. An additional copy of your consent will be retained at the agency and in a secure location at St. Lawrence College.

By signing this form, I agree that:

✔ The study has been explained to me.
✔ All my questions were answered.
✔ Possible harm and discomforts and possible benefits (if any) of this study have been explained to me.
✔ I understand that I have the right not to participate and the right to stop at any time.
✔ I am free now, and in the future, to ask any questions I have about the study.
✔ I have been told that my personal information will be kept confidential.
✔ I understand that no information that would identify me will be released or printed without asking me first.
✔ I understand that I will receive a signed copy of this consent form.
✔ I understand that the data from this study will be presented at the St. Lawrence College Behavioural Psychology Poster Gala, and may be reported at other conferences or published in a scientific journal. No identifying information will be included in these reports.

I hereby consent to take part.

<table>
<thead>
<tr>
<th>Participant Name</th>
<th>Signature of Participant</th>
<th>Date</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Student Printed Name</th>
<th>Signature of Student</th>
<th>Date</th>
</tr>
</thead>
</table>
Appendix B: Depression, Anxiety, Stress Scale

**DASS-21**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Rating Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I found it hard to wind down.</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>2. I was aware of dryness of my mouth.</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>3. I couldn’t seem to experience any positive feeling at all.</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>4. I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion).</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>5. I found it difficult to work up the initiative to do things.</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>6. I tended to over-react to situations.</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>7. I experienced trembling (eg, in the hands).</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>8. I felt that I was using a lot of nervous energy.</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>9. I was worried about situations in which I might panic and make a fool of myself.</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>10. I felt that I had nothing to look forward to.</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td>11. I found myself getting agitated.</td>
<td>0 1 2 3</td>
</tr>
<tr>
<td></td>
<td>0</td>
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<td>---</td>
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</tr>
<tr>
<td>12. I found it difficult to relax.</td>
<td></td>
</tr>
<tr>
<td>13. I felt down-hearted and blue.</td>
<td></td>
</tr>
<tr>
<td>14. I was intolerant of anything that kept me from getting on with what I was doing.</td>
<td></td>
</tr>
<tr>
<td>15. I felt I was close to panic.</td>
<td></td>
</tr>
<tr>
<td>16. I was unable to become enthusiastic about anything.</td>
<td></td>
</tr>
<tr>
<td>17. I felt I wasn’t worth much as a person.</td>
<td></td>
</tr>
<tr>
<td>18. I felt that I was rather touchy.</td>
<td></td>
</tr>
<tr>
<td>19. I was aware of the action of my heart in the absence of physical exertion (e.g., sense of heart rate increase, heart missing a beat).</td>
<td></td>
</tr>
<tr>
<td>20. I felt scared without any good reason.</td>
<td></td>
</tr>
<tr>
<td>21. I felt that life was meaningless.</td>
<td></td>
</tr>
</tbody>
</table>
Appendix C: Progressive Muscle Relaxation Script

Progressive Muscle Relaxation

Progressive muscle relaxation is an exercise that relaxes your mind and body by progressively tensing and relaxation muscle groups throughout your entire body. You will tense each muscle group vigorously, but without straining, and then suddenly release the tension and feel the muscle relax. You will tense each muscle for about 5 seconds. If you have any pain or discomfort at any of the targeted muscle groups feel free to omit that step. Throughout this exercise you may visualize the muscles tensing and a wave of relaxation flowing over them as you release that tension. It is important that you keep breathing throughout the exercise. Now let’s begin.

+ Begin by finding a comfortable position either sitting or lying down in a location where you will not be interrupted.

+ Allow your attention to focus only on your body. If you begin to notice your mind wandering, bring it back to the muscle you are working on.

+ Take a deep breath through your abdomen, hold for a few second, and exhale slowly. Again, as you breathe notice your stomach rising and your lungs filling with air. As you exhale, imagine the tension in your body being released and flowing out of your body. And again inhale.....and exhale. Feel your body already relaxing.

+ As you go through each step, remember to keep breathing .

+ Now let’s begin. Tighten the muscles in your forehead by raising your eyebrows as high as you can. Hold for about five seconds. And abruptly release feeling that tension fall away. Pause for about 10 seconds.

+ Now smile widely, feeling your mouth and cheeks tense. Hold for about 5 seconds, and release, appreciating the softness in your face. Pause for about 10 seconds.

+ Next, tighten your eye muscles by squinting your eyelids tightly shut. Hold for about 5 seconds, and release. Pause for about 10 seconds.

+ Gently pull your head back as if to look at the ceiling. Hold for about 5 seconds, and release, feeling the tension melting away. Pause for about 10 seconds. Now feel the weight of your relaxed head and neck sink.

+ Breath in...and out. In...and out. Let go of all the stress In...and out.

+ Now, tightly, but without straining, clench your fists and hold this position until I say stop. Hold for about 5 seconds, and release. Pause for about 10 seconds.
Now, flex your biceps. Feel that buildup of tension. You may even visualize that muscle tightening. Hold for about 5 seconds, and release, enjoying that feeling of limpness. Breathe in...and out.

Now tighten your triceps by extending your arms out and locking your elbows. Hold for about 5 seconds, and release. Pause for about 10 seconds.

Now lift your shoulders up as if they could touch your ears. Hold for about 5 seconds, and quickly release, feeling their heaviness. Pause for about 10 seconds.

Tense your upper back by pulling your shoulders back trying to make your shoulder blades touch. Hold for about 5 seconds, and release. Pause for about 10 seconds.

Tighten your chest by taking a deep breath in, hold for about 5 seconds, and exhale, blowing out all the tension.

Now tighten the muscles in your stomach by sucking in. Hold for about 5 seconds, and release. Pause for about 10 seconds.

Gently arch your lower back. Hold for about 5 seconds, relax. Pause for about 10 seconds. Feel the limpness in your upper body letting go of the tension and stress, hold for about 5 seconds, and relax.

Tighten your buttocks. Hold for about 5 seconds..., release, imagine your hips falling loose. Pause for about 10 seconds.

Tighten your thighs by pressing your knees together, as if you were holding a penny between them. Hold for about 5 seconds...and release. Pause for about 10 seconds.

Now flex your feet, pulling your toes towards you and feeling the tension in your calves. Hold for about 5 seconds, and relax, feel the weight of your legs sinking down. Pause for about 10 seconds.

Curl your toes under tensing your feet. Hold for about 5 seconds, release. Pause for about 10 seconds.

Now imagine a wave of relaxation slowly spreading through your body beginning at your head and going all the way down to your feet. Feel the weight of your relaxed body. Breathe in...and out...in...out....in...out.
Appendix D: Meditation Script

**Meditation Exercise Script**

+ We begin by settling into a comfortable posture.
+ Start to disengage the mind from busy thoughts and ideas. Close your eyes softly.
+ Gently gather all your attention into the centre of your body.
+ Try to reel in all thoughts that take you to the outside world.
+ Allow the outside world to gradually melt away and dissolve into empty space.
+ Begin by bringing your attention to the area around the crown of your head and gradually work down through your body to the tips of your toes.
+ Focus on the area around the crown of your head. Gradually focusing on this area imagine that all the tension in the muscles gradually dissolves away.
+ Then focus on the temples and forehead, imagining any tension headache or pain dissolves away, disappearing as you place your mind on this part of the body.
+ Imagine the tension draining down through your body into the ground.
+ All the tension in your head drains down through your body into the ground.
+ Then imagine the tension in your jaw and ears gradually melts away, as you place your mind on this area, imagine any tension draining down through your body into the ground...
+ Pause for a short while and then think to yourself my head is now comfortable and relaxed.
+ We gently work our way down the body relaxing each part and letting the tension drain away.
+ Focus on the area of tension around your neck and shoulders.
+ Try to relax the shoulders...lift them up gently and as they drop, imagine all the tension dissolving down into the ground, do this several times. As you do this try to feel that any tension or weight that you are carrying in your shoulders melts away...feel as though you are really letting go of all the tension that is being held in your shoulders.
+ Think to yourself... my neck and shoulders are now comfortable and relaxed.
+ Relax your arms and hands imagining all the tension in these areas drains out of your fingertips and far into the distance.
Focus on the back and bring your mind to the top of the spine focus on any area of tension that may have built up around the spine. Place your mind on these areas of tension and allow the knots to unravel as you focus on them and the tension dissolves down your spine out through the soles of your feet, into the ground.

Mentally work your way down the spine, slowly relaxing and unraveling all the knots of tension and stress that may have built up. As your attention reaches the base of the spine, think to yourself now my back is comfortable and relaxed.

Bring your attention to the front of your body, focus on the chest area and stomach.

Try to identify any areas of stress or tension in this part of your body. Imagine that all the tension drains away disappearing as you focus on it. Imagine any fear, tension or stress that have built up within the stomach disappears...

Then think to yourself, now my chest and stomach are comfortable and relaxed.

Then we focus then on our legs and feet, imagining any tension in these areas drains away, disappearing out of the soles of the feet. Leaving you feeling comfortable and relaxed.

Gradually scan down from the crown of your head to the tips of your feet, checking to see if there is any tension left in your body. If you locate any, then engage in the simple exercise presented above, again on that particular part of the body.

We imagine all the tension drains out of our body and we enjoy this experience of relaxation for a short time.

We can think to our self. My entire body is comfortable and relaxed.

Gradually bring your relaxation to a close, by becoming aware of your body, position in the room. Gently open your eyes.
Appendix E: Exercise Script

Exercise (Moderate Physical Activity)

<table>
<thead>
<tr>
<th>Exercise</th>
<th>Repetitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bodyweight Squat</td>
<td>8</td>
</tr>
<tr>
<td>Inverted Row</td>
<td>8</td>
</tr>
<tr>
<td>Pushup</td>
<td>8</td>
</tr>
<tr>
<td>Dumbbell Lunges</td>
<td>8</td>
</tr>
</tbody>
</table>