



# A randomised comparison of two 'Stress Control' programmes: Progressive Muscle Relaxation versus Mindfulness Body Scan

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## ABSTRACT

This research study explores the relationship between treatment outcome and intervention type, by comparing two large group cognitive behavioural therapy based stress management programmes; 'Stress Control with Progressive Muscle Relaxation' versus 'Stress Control with Mindfulness Body Scan'. The experiment was conducted in a rural Irish community setting, inviting participation from the general public ( $n = 86$ ). All participants attended the standard six-week Stress Control intervention. Participants in Group A received Stress Control augmented with a 15-min Progressive Muscle Relaxation audio recording for home use between classes, while participants in Group B received Stress Control augmented with a 15-min Mindfulness Body Scan audio recording for home use between classes. All participants completed the Depression, Anxiety and Stress Questionnaire (DASS 21) at pre-intervention, post-intervention and at three-month follow-up. Participants in both groups were also asked to complete weekly skill practice questionnaires to assess adherence to treatment. Participants in both groups made significant improvement, over time, on measures of psychological well-being, stress and anxiety. Only participants in the 'Stress Control with Mindfulness Body Scan' intervention group demonstrated significant improvement in levels of depression. The data suggests that when treatment approaches are specifically tailored to target specific symptoms, the results lead to a greater degree of intervention effectiveness. Future research implications in view of the findings are considered.

## 1. Introduction

The estimated economic financial cost of mental health care in Ireland has exceeded three billion annually (O'Shea & Kennelly, 2008). The burden of mental health difficulties for individuals limits their relationships, social, occupational and physical functioning which can further lead to isolation and increased severity of illness. The high cost of mental health problems affects the wider circle of communities and societies; including absenteeism from work, challenges maintaining employment or education and an increased cost for health and social services. The challenge of meeting the mental health needs of the population demands a cost-effective, flexible, comprehensive and innovative approach.

A treatment approach often used to manage stress is through psycho-education. The goal of these programmes is to educate people in a variety of stress management and stress reduction techniques to apply to both current stressors, and to assist with preventing future stressors becoming unmanageable, thus maintaining mental health. In a pilot study (White & Keenan, 1990) developed a six session, didactic, large group CBT treatment package (Stress Control) for patients referred to a

primary care service with Generalized Anxiety Disorder. A number of studies have since supported the effectiveness of the Stress Control programme, with positive outcome comparison to other interventions (Kellett, Newman, Matthews, & Swift, 2004; Kellett, Clarke, & Matthews, 2007; Kitchiner et al., 2009; Van Daele, Van Audenhove, Vansteenwegen, Hermans, & Van den Bergh, 2013; Wood, Kitchiner, & Bisson, 2005). The initial finding that this style of treatment delivery may be both clinically and cost effective laid the ground work for future research.

The 'Stress Control' programme (White, 2000) is now a six weekly, 90 min, adult education class which follows a lecture format. Stress Control aims to make cognitive behavioural techniques available to large numbers of the population thus reducing the burden on mental health services. The Stress Control class incorporates a traditional classroom teaching style with a slideshow presentation. Booklets, which are divided into information and treatment sections summarising each session, are provided to accompany the classes. The recommended setting is one not associated with mental health services but rather facilities in the community such as community halls and centres. It is easily accessible and open to the public therefore reducing stigma and

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the need for a referral pathway that may be slow and ineffective.

As previous studies report a wide range of treatment results, new strategies for improving outcomes on measures of anxiety and depression were considered. The present study aimed to offer an enhanced version of the intervention through the addition of Progressive Muscle Relaxation and Mindfulness techniques.

The relaxation response has been reported to be useful therapeutically in treating numerous conditions that are caused by, or exacerbated by, stress. Benson & Klipper (1976) found that the physiological changes elicited by Progressive Muscle Relaxation approximate the changes elicited by the relaxation response. The 'relaxation response' is believed to counteract the 'stress' response of anxiety (Krisanaprakornkit, Sriraj, Piyavhatkul, & Laopaiboon, 2006) and has featured prominently as a component in a variety of psychological interventions. Carr and McNulty (2006) summarise that individual CBT and applied relaxation appear to be the most effective current treatments for generalised anxiety disorder.

Mindfulness Therapy (Segal, Williams, & Teasdale, 2002) is premised on the idea that relapse occurs when minor stresses, that lead to small initial mood changes, are interpreted negatively and result in an avalanche of rumination and catastrophic negative thinking. Strauss, Cavanagh, Oliver, and Pettman (2014) found that mindfulness-based interventions resulted in significantly lower levels of symptom severity for depression. In clinical research, participants who receive mindful training have shown significant decrease in rumination (Deyo, Wilson, Ong, & Koopman, 2009). Previous research also demonstrated a decrease in rumination for individuals practicing mindfulness when compared to controls (Jain et al., 2007). A study by Frewen, Evans, Maraj, Dozois, and Patridge (2008) found mindfulness was predictive of decreased negative automatic thoughts as well as an increase in ability to 'let go' of negative thoughts during a 15 min mindfulness exercise. Desrosiers, Vine, Klemanski, and Nolen-Hoeksema (2013), found that a reduction in rumination, which is found to be associated with mindfulness practice, appeared to be most associated with a decrease in symptoms depression.

This research explores the relationship between treatment outcome and intervention type, by comparing 'Stress Control with Progressive Muscle Relaxation' versus 'Stress Control with Mindfulness Body Scan'.

## 2. Method

### 2.1. Participants

The study sample was derived from the general public of Inishowen, County Donegal, Ireland. Ethical approval was obtained from both the NUI Galway Research Ethics Committee, and the HSE North West Ethics Committee. Participants were recruited through the use of a combination of flyers, local print and radio advertising, and postings to on-line community event calendars for a free six week stress management programme. An information night was held following the advertising and a total of 86 adult volunteers initially expressed an interest in participation and this sample completed baseline measures. In order to participate respondents had to be 18 years or over. Proficiency in English was generally required as the programme was delivered in English and all of the materials are in English. Exclusion criteria applied if any of the following was observed: (a) evidence of psychosis, (b) substance dependency, (c) severe physical illness or cognitive impairment. Staff from the mental health centre were available to provide support if needed. All participants received an information pack which included an invitation to take part in the research, a participant information sheet, a consent form, a contact support sheet, a demographic information sheet and the DASS-21. All data collected was numerically coded to ensure anonymity and confidentiality.

A randomised approach was not possible given the fact that participants often come with groups of friends or as couples to offer each other support and reduce stigma. Therefore, a pre-randomised

approach was taken. Information packages were labelled with a coded number, which had been pre-assigned to either Group A (Stress Control with Progressive Muscle Relaxation) or Group B (Stress Control with Mindfulness Body Scan). The information packages also contained either a 15 min Progressive Muscle Relaxation or a 15 min Mindfulness Body Scan CD. The information packs were then randomly handed out, by staff, to participants as they entered the community hall for the information night.

### 2.2. Measures and design

This study employed a questionnaire based, quantitative, within and between groups methodology to assess the effectiveness of a six week Cognitive Behavioural Therapy based (Stress Control) programme on levels of depression, anxiety and stress, for adults in a community setting. A two group, with-in participants (time), and between participant (Stress Control with Progressive Muscle Relaxation versus Stress Control with Mindfulness Body Scan) experimental design was used. By performing a prior power analysis using G\*Power version 3 (Faul, Erdfelder, Lang, & Buchner, 2007) the estimated sample size required for this study was found to be 20 participants for each intervention.

The Depression, Anxiety and Stress Scale (DASS-21) (Lovibond & Lovibond, 1995), is a self report questionnaire. The DASS-21 has good internal consistency with a Cronbach alpha coefficient reported of 0.88 for Depression, 0.82 for Anxiety, and 0.90 for the Stress scale. In this study the Cronbach alpha of 0.897 for Depression was reported, a Cronbach's alpha of 0.910 for Anxiety was reported and a Cronbach's alpha of 0.869 for Stress was reported.

The Adherence to Treatment (Corbett, Pilch, & Egan, 2019) questionnaire asked the responder to answer questions related to their skill practice, i.e., Week Two: 'Please indicate how often you practiced the following Stress Control skills in the past week?', (a) Controlled Breathing, (b) Exercise, or (c) Listen to your Progressive Muscle Relaxation/Body Scan CD. Each item on the measure was rated using a scoring scale ranging from, 'Never = 0', 'Sometimes' (1–2 times/week) = 1, 'Often' (2–3 times/week) = 2 to 'Very Often (more than 3 times/week) = 3'. In the current study the Cronbach's alpha of 0.743 was reported for Intervention Group A and a Cronbach's alpha of 0.875 was reported for Intervention Group B (Table 1).

An independent-samples *t*-test found no significant between groups difference in the scores on any of the scales at baseline. The results are presented in Table 2.

### 2.3. Intervention

The intervention was the six week Stress Control programme (White, 2000) augmented with either Progressive Muscle Relaxation or Mindfulness Body Scan. The presenters were experienced mental health staff comprising of a Senior Clinical Psychologist, a Mental Health Social Worker and a Community Psychiatric Nurse. Depending on their allocation, participants then attended either the Tuesday evening class (Stress Control with Progressive Muscle Relaxation, Group A) or the

**Table 1**  
Means and standard deviations for Group A and Group B.

Variable	Group A M (SD)	Group B M (SD)	P value ( <i>p</i> < 0.05)
<b>Measures</b>			
<b>DASS-21</b>			
Depression	16.8(10.4)	18.4(14.4)	0.677*
Anxiety	15.1(11.2)	17.2(12.9)	0.58*
Stress	22.7(8.7)	21.8(11.9)	0.788*

DASS 21, Depression, Anxiety and Stress Scales.

\* No significant difference between mean scores for Group A and Group B.

**Table 2**

DASS-21 means and standard deviations for Intervention Group A (Stress Control with PMR) and Intervention Group B (Stress Control with MBS) at Time 1 (pre-intervention), Time 2 (post-intervention), and Time 3 (Three-month follow-up).

Measures	Time 1 Pre-intervention Mean (SD) (Conf. int. 95%)	Time 2 Post-intervention Mean (SD) (Conf. int. 95%)	Time 3 3 Month Follow-Up Mean (SD) (Conf. in. 95%)	F-value
<b>DASS-21</b>				
Group A (PMR) Stress ( <i>N</i> = 20)	22.7 (8.7) (17.93–27.47)	16.0 (9.9) (11.7–20.3)	12.8 (8.74) (8.99–16.6)	7.2**
Group B (MBS) Stress ( <i>N</i> = 23)	21.8(11.9) (17.4–26.3)	12.7 (9.2) (8.7–16.7)	11.04(8.15) (7.5–14.6)	11.2***
Group A (PMR) Anxiety ( <i>N</i> = 20)	15.1 (11.2) (9.6–20.6)	10.6 (10.6) (5.8–15.4)	8.8 (8.6) (4.9–12.7)	7.2**
Group B (MBS) Anxiety ( <i>N</i> = 23)	17.2 (12.9) (12.05–22.3)	7.7 (10.8) (3.24–12.2)	7.65 (8.8) (3.9–11.3)	11.2***
Group A (PMR) Depression ( <i>N</i> = 20)	16.8 (10.4) (11.1–22.5)	13.7 (12.4) (8.7–18.7)	12.7 (10.8) (8.5–16.9)	0.83
Group B (MBS) Depression ( <i>N</i> = 23)	18.4 (14.4) (13.04–23.7)	8.9 (9.9) (4.2–13.6)	8.7 (7.9) (4.8–12.6)	6.05**

Depression, Anxiety and Stress Scales (DASS 21), \* $p < 0.05$ , \*\* $p < 0.01$ ,  $p < 0.001$ \*\*\*.

Wednesday evening class (Stress Control with Mindfulness Body Scan, Group B). Both classes were held in a local community hall. Participants in Intervention Group A were provided with a CD containing a 15 min Progressive Muscle Relaxation audio recording and participants in Intervention Group B were provided with a CD containing a 15-min Mindfulness Body Scan audio recording. Both were recorded, packaged and labelled by the researcher for this specific piece of research. Participants were 'blind' to the experimental condition to which they had been assigned.

Statistical analysis of the data was conducted using SPSS (version 24 for Windows). A mixed between-within analysis of variance was conducted to explore the impact of Group A (Stress Control with Progressive Muscle Relaxation) and Group B (Stress Control with Mindfulness Body Scan) on measures of depression, anxiety, and stress. All of the main measures were analysed over three time point; before the intervention (Time 1), following the intervention (Time 2), and at three month follow up (Time 3). The association between a number of variables including; attendance and adherence to treatment, were examined using regression analysis.

See Fig. 1 for a diagrammatical representation of the data collection procedure at Time 1 (Pre-Intervention), Time 2 (Post-Intervention) and Time 3 (Three Month Follow-Up) for both Group A and Group B.

### 3. Results

#### 3.1. Stress

There was no significant interaction between Intervention and Time for the measure of stress,  $F(2,82) = 0.295$ ,  $p = 0.74$ . The analysis revealed a statistically significant main effect of Time,  $F(2,82) = 22.83$ ,  $p < 0.01$ , partial eta-squared of 0.35. No significant main effect was found for Group,  $F(1,41) = 0.768$ ,  $p = 0.38$ . Simple effects analysis indicated that participants' experience of stress improved significantly in Intervention Group A (PMR) from Time 1 ( $M = 22.7$ ,  $SD = 8.7$ ) to Time 2 ( $M = 16.0$ ,  $SD = 9.9$ ) and from Time 1 to Time 3 ( $M = 12.8$ ,  $SD = 8.74$ ),  $F(1,41) = 7.2$ ,  $p < 0.01$ . A statistically significant improvement on levels of stress was also found in Intervention Group B from Time 1 ( $M = 21.8$ ,  $SD = 11.9$ ) to Time 2 ( $M = 12.7$ ,  $SD = 9.2$ ) and from Time 1 to Time 3 ( $M = 11.04$ ,  $SD = 8.15$ ),  $F(1,41) = 11.2$ ,  $p < 0.01$ . The difference between the measure of Stress at Time 2 and Time 3 was not statistically significant for either group (Fig. 2).

#### 3.2. Anxiety

There was no significant interaction between Intervention and Time for the measure of anxiety,  $F(2,82) = 0.295$ ,  $p = 0.74$ . The analysis

revealed a statistically significant main effect of Time,  $F(2,82) = 22.83$ ,  $p < 0.01$ , partial eta-squared of 0.35. No significant main effect was found for Group,  $F(1,41) = 0.768$ ,  $p = 0.38$ . Simple effects analysis indicated that participant's levels of anxiety improved significantly in Intervention Group A (PMR) from Time 1 ( $M = 15.1$ ,  $SD = 11.2$ ) to Time 2 ( $M = 10.6$ ,  $SD = 10.6$ ) and from Time 1 to Time 3 ( $M = 8.8$ ,  $SD = 8.6$ ),  $F(1,41) = 7.2$ ,  $p < 0.01$ . A statistically significant improvement on anxiety was also found in Intervention Group B from Time 1 ( $M = 17.2$ ,  $SD = 12.9$ ) to Time 2 ( $M = 7.7$ ,  $SD = 10.8$ ) and from Time 1 to Time 3 ( $M = 7.65$ ,  $SD = 8.8$ ),  $F(1,41) = 11.2$ ,  $p < 0.01$ . The difference between the measure of anxiety at Time 2 and Time 3 was not statistically significant for either group (Fig. 3).

#### 3.3. Depression

No significant interaction between Intervention and Time for the measure of depression was found,  $F(2,82) = 1.46$ ,  $p = 0.23$ . The analysis revealed a statistically significant main effect of Time,  $F(2,82) = 6.98$ ,  $p < 0.01$ , partial eta-squared of 0.14. No significant main effect was found for Group,  $F(1,41) = 0.965$ ,  $p = 0.38$ . Simple effects analysis indicated that no statistically significant improvement in scores on the measure of depression was found in Intervention Group A (PMR) from Time 1 ( $M = 16.8$ ,  $SD = 10.4$ ) to Time 2 ( $M = 13.7$ ,  $SD = 12.4$ ) or from Time 1 to Time 3 ( $M = 12.7$ ,  $SD = 10.8$ ),  $F(1,41) = 0.83$ ,  $p = 0.44$ . A statistically significant improvement was found on the measure of depression in Intervention Group B from Time 1 ( $M = 18.4$ ,  $SD = 14.4$ ) to Time 2 ( $M = 8.9$ ,  $SD = 9.9$ ) and from Time 1 to Time 3 ( $M = 8.7$ ,  $SD = 7.9$ ),  $F(1,41) = 6.05$ ,  $p < 0.01$ . The difference on the measure of depression between Time 2 and Time 3 was not statistically significant for either group.

In contrast to the reported results for measures of stress and anxiety, the results obtained on the measure of depression show that only participants in Intervention Group B (Stress Control with MBS) demonstrated a significant decrease in the self-reported symptoms of Depression from Time 1 (pre-intervention) to Time 2 (post-intervention) and that this effect was maintained at Time 3 (three-month follow-up) (Fig. 4).

Furthermore, post hoc analysis using a paired sample  $t$ -test was performed to evaluate the impact of Intervention Group B (Stress Control with MBS) for participant's scores on the measure of depression. There was a statistically significant decrease in levels of depression for participants in Intervention Group B from Time 1 ( $M = 18.4$ ,  $SD = 14.4$ ) to Time 2 ( $M = 8.9$ ,  $SD = 9.9$ ),  $t(22) = 3.20$ ,  $p < 0.01$ , with an eta squared statistic of 0.31.

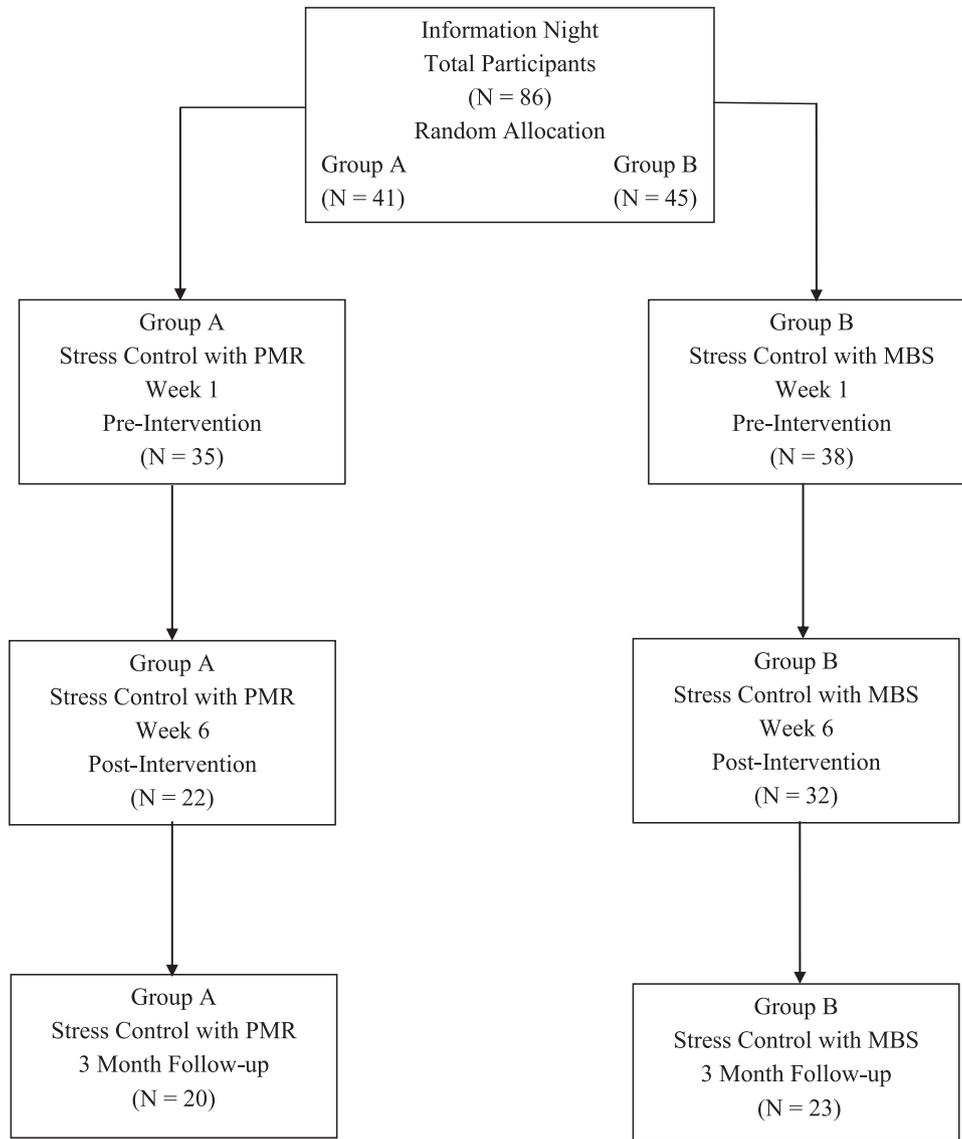


Fig. 1. Flow Chart of data collection procedure for Group A and Group B.

3.4. Adherence to treatment (homework) and treatment outcome

A simple linear regression was also calculated to examine the relationship between self-reported adherence to treatment (homework) and treatment outcomes (depression, anxiety, and stress). Non-significant regression equations were found for adherence to treatment

and outcome on the main measures of depression,  $F(1,41) = 0.67, p = 0.42, R^2 = 0.02$ , anxiety  $F(1,41) = 1.64, p = 0.2, R^2 = 0.04$ , and stress,  $F(1,41) = 0.02, p = 0.89, R^2 = 0.00$ . These results suggest that adherence to treatment (skill practice) is not a significant predictor of treatment outcome.

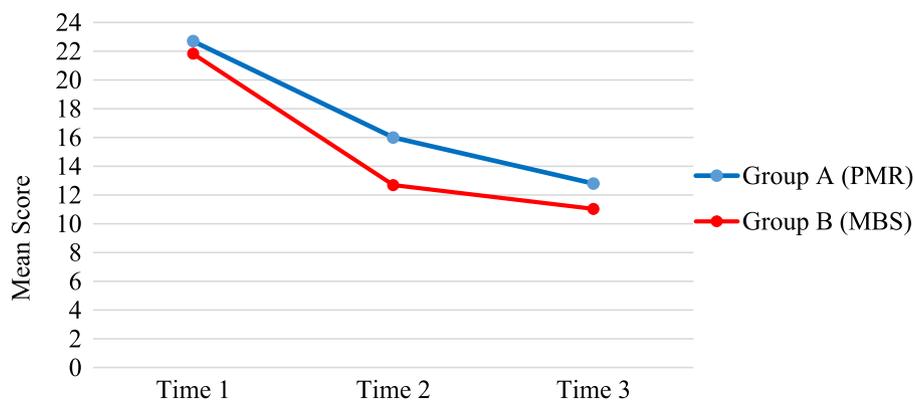


Fig. 2. Mean scores on Stress for Group A (PMR) and Group B (MBS) at pre (Time 1), post (Time 2) and three month follow-up (Time 3).

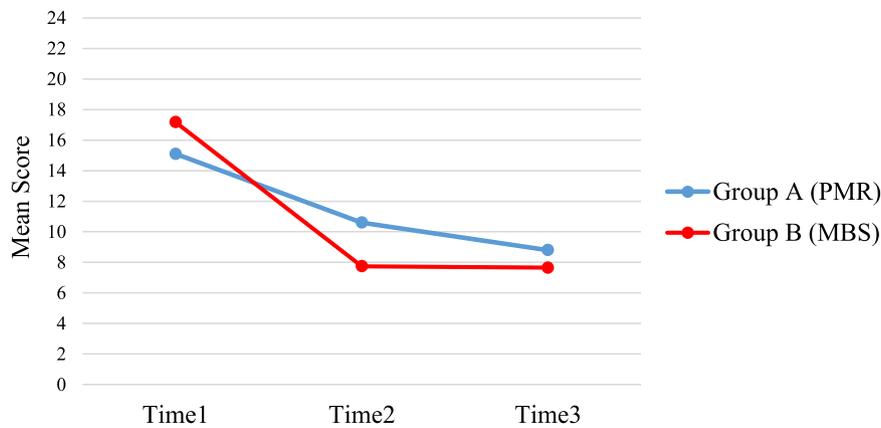


Fig. 3. Mean scores on Anxiety for Group A (PMR) and Group B (MBS) at pre (Time 1), post (Time 2) and three month follow-up (Time 3).

### 3.5. Homework practice

A descriptive analysis of the frequency to which each skill was reportedly practiced by participants in both Intervention Group A and Intervention Group B was conducted. Fig. 5 presents data obtained for each of the stress management skills practiced in Intervention Group A post-intervention. In this group the skill practiced most frequently was ‘Exercise’, with 60% of participants reporting using ‘Exercise’ ‘very often’(more than 3 times per week) at post-intervention. ‘Controlled Breathing’ was the second most frequent skill practiced, with 40% of participants reporting they practiced this skill ‘very often’ (more than 3 times weekly), at both post-intervention.

Participants in Intervention Group B also reported ‘Exercise’ as their most frequently practiced homework skill, with 48% of participants reporting they exercised ‘very often’ (more than 3 times weekly) at post-intervention. Again, ‘Controlled Breathing’ was the second most frequently practiced skill, with 44% of participants in Intervention Group B reporting they used this skill ‘very often’ at post-intervention. Fig. 6 presents data obtained for each of the stress management skills practiced in Intervention Group B at post-intervention.

## 4. Discussion

This study aimed to investigate whether there is a difference in effectiveness of Stress Control with Progressive Muscle Relaxation (PMR) versus Stress Control with Mindfulness Body Scan (MBS) in improving treatment outcome.

A statistically significant decrease in participants’ levels of stress and anxiety was found for both Intervention Group A and Intervention Group B from pre-intervention to post-intervention and from pre-intervention to three-month follow-up. A statistically significant

improvement in participants’ levels of depression was only found for Intervention Group B (Stress Control with Mindfulness Body-Scan) from pre-intervention to post intervention, and from pre-intervention to three-month follow-up, highlighting an important signal in the data. The statistically significant reduction in levels of depression found in this group indicates that the Stress Control programme augmented with a Mindfulness Body Scan intervention resulted in a greater reduction of depressive symptoms.

While the variability across the findings of the research into the effectiveness of Stress Control for the treatment of depression is well documented, it is worth outlining the positive clinically significant effects found in the general public. Wood et al. (2005) found significant improvement in psychological well-being and in depression, with 44% of participants moving from ‘moderately’ or ‘severely’ depressed to ‘mildly’ or ‘not clinically depressed’ at six-month follow-up. They suggest screening for severe depression should be carried out. Kitchiner et al. (2009) found no difference between the Stress Control and Anxiety Management interventions, but they did find that initial presence of depression was predictive of poorer outcome. However, the results of this particular study found a 10% reduction in the number of participants in the ‘moderate to extremely severe’ range for Intervention Group A (Stress Control with PMR) at three-month follow-up, and an 18% reduction in the number of participants in the ‘moderate to extremely severe’ range over the same period for Intervention Group B (Stress Control with MBS). The fact that some people, who recorded pre-intervention high scores on depression did well, may suggest that severity of symptoms should not be exclusion criteria.

Mindfulness has long been regarded as effective against the common symptoms of depression such as rumination and worry. Mindfulness is to teach practitioners to decentre from their thoughts and emotions, to become aware of them, and to let them go. Decentring

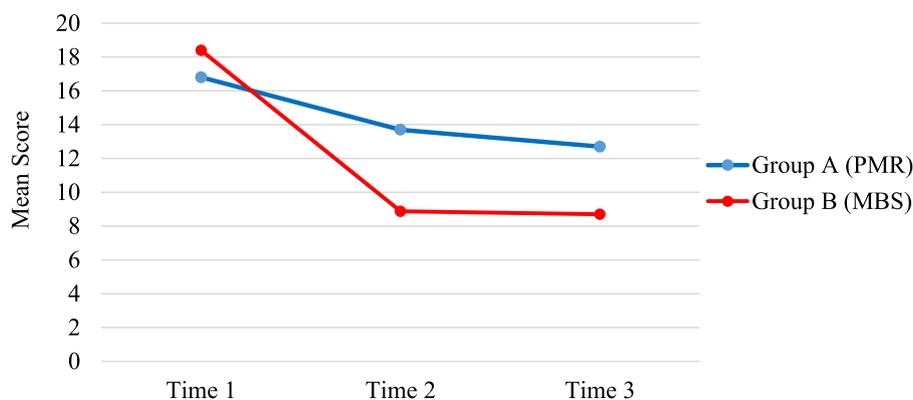


Fig. 4. Mean scores on Depression for Group A (PMR) and Group B (MBS) at pre (Time 1), post (Time 2) and three month follow-up (Time 3).

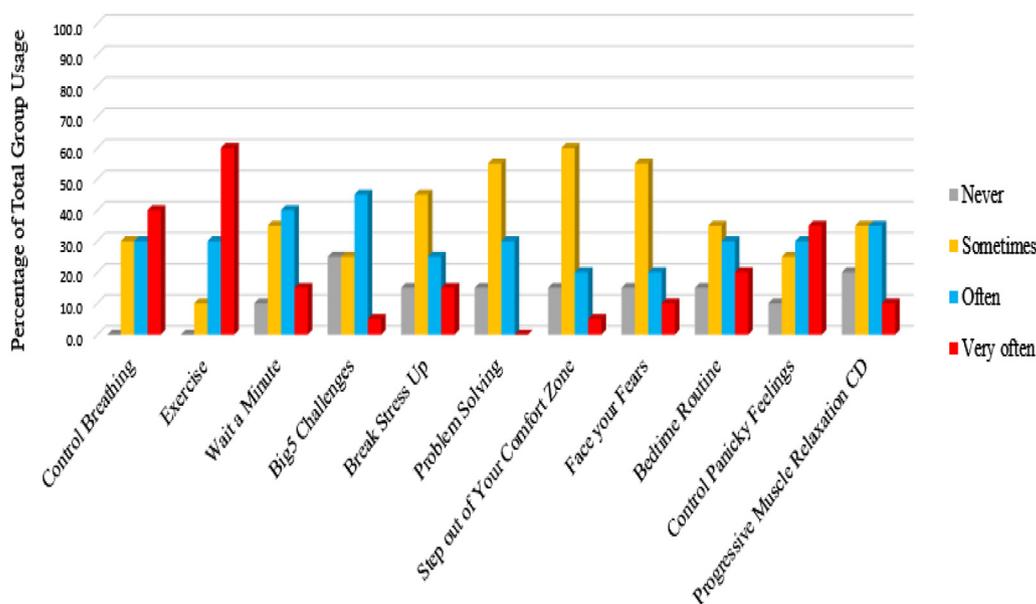


Fig. 5. Bar chart of homework practice post-intervention, Intervention Group A.

is a mechanism of mindfulness based cognitive therapy for depression (Segal et al., 2002) in which patients learn to view thoughts as separate events in the mind rather than reflections of reality or accurate self-view. Fresco, Segal, Buis, and Kennedy (2007) found that patients treated with CBT versus anti-depressant medication showed greater gains in decentering. They also found that high levels of decentering combined with low levels of cognitive reactivity were associated with lower rates of relapse for depression in an 18 month follow-up. Feldman, Greeson, and Senville (2010) aimed to investigate ‘decentering’ as a potential mechanism of mindfulness-based interventions. They suggest that mindfulness may help to reduce reactivity to repetitive thoughts and that ‘decentering’ may be viewed as a potential mechanism that differentiates mindfulness from other stress management interventions. The practice of Mindfulness Body Scan aims to provide an alternative to rumination for those who experience persistent negative thinking associated with depressive episodes; the results appear to suggest the addition of this practice to the Stress Control programme may enhance its effectiveness for participants experiencing

symptoms of depression.

As anxiety and depression are shown in considerable research to have a high co-morbidity it might be expected that what works for one will work for the other. Van Daele, Hermans, Van Audenhove, & Van den Bergh, 2012 conducted a meta-analytic review focused on psycho-educational interventions for the reduction of stress in the general population. They looked at both overall effects and specific predictors of effects which included variables such as gender, age, intervention techniques (i.e., relaxation), homework and design features such as randomisation. They hypothesized that interventions that had a relaxation component would be more effective. However, as with the current study, the hypothesis was not supported by the findings.

When investigating a possible relationship between adherence to treatment and outcome it is worth taking into account the fact that the study did not provide any specific training or psycho-education regarding the rationale for providing either the Mindfulness Body Scan CD or the Progressive Muscle Relaxation CD to participants. If there had been a component providing some education regarding the benefits of

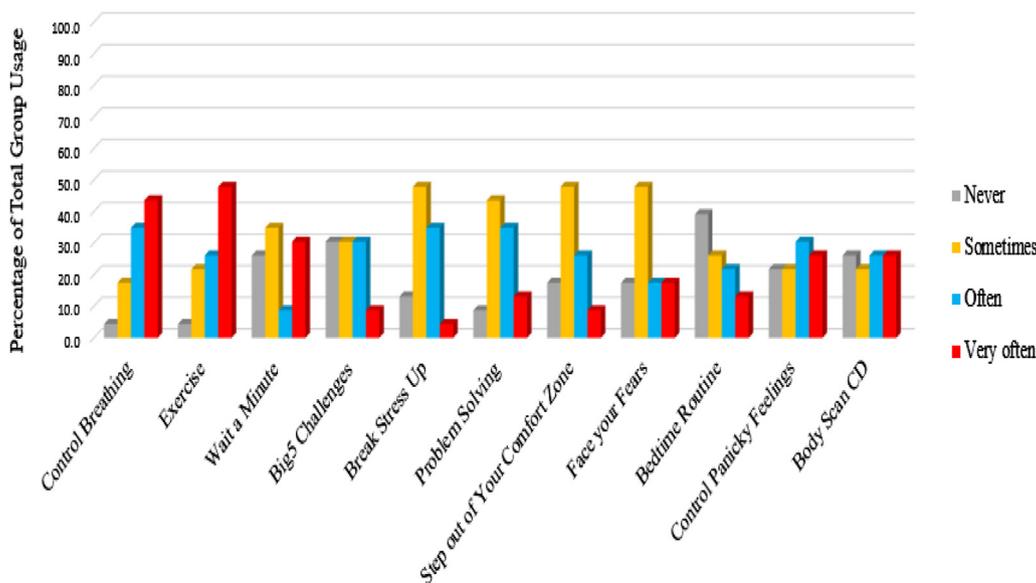


Fig. 6. Bar chart of homework practice post-intervention, Intervention Group B.

either approach in treating anxiety or depression, participants experiencing more symptoms of either one of these conditions may have 'bought into' a specific approach, which may have led to greater adherence.

It may be that generalised homework assignments are less effective than individually prescribed homework assignments that are tailored to individuals' needs, situations, and problems. There is also considerably inconsistency with the way in which homework practice is measured and the level of instruction given in any one approach. The use of homework practice is usually also seen as a secondary rather than primary focus of research (as in this study). It may be beneficial for future research using experimental approaches to examine in detail the effect of specific homework assignments on specific symptoms.

#### 4.1. Limitations

A randomised control trial (RCT) would certainly have been the preferred design to explore the effectiveness of the Stress Control programme on common mental health problems in the community. However, as the programme is run regularly as part of the local mental health service provision, an RCT would have meant withholding access to the programme for individuals allocated to the 'control' and to that would not have been ethically justified. When deliberating the 'pros and cons' of clinical experiments in psychology the needs and welfare of the participants should always be at the forefront of the investigators mind.

Due to the open invitation nature of the Stress Control programme, no information on participants' participation in other types of mental health or therapeutic services was gathered. Participants may have been receiving psychiatric care, medication or other mental health supports alongside their involvement in this study. The study did not incorporate the collection of data from individuals who 'dropped-out' either following the information night and before the first class or at any time between the first and last session. Therefore, no exit interviews were held and no information on participants who may find it unsuitable or unhelpful to their needs was obtained and no data was gathered on those who may have required further individual intervention.

#### 4.2. Conclusions

This study focused on the effectiveness of the six week Stress Control programme for treating common mental health problems. It also compared the programmes' effectiveness of Stress Control when augmented with Progressive Muscle Relaxation or Mindfulness Body Scan practice.

While a range of future research suggestions emerge from the findings, this study will reflect on key themes. Future research into the effectiveness of large group treatment programmes such as Stress Control would benefit from robust and rigorous randomised control trials. A positive comparison of clinical outcomes between an intervention group and a control group would further strengthen the evidence base for the Stress Control programme as a fundamental component in the design of community mental health services. The relationship between attendance, homework practice, dosage effect, and outcome needs to be clarified. More stringent prescription and measure of each homework task separately would expand our understanding of how each relates to the overall effectiveness of the programme as well as how each skill individually impacts on specific mental health symptoms.

As a result of this study, a re-assessment of the structure and content of the Stress Control programme would be worthwhile. Future clinical psychological research in this area should try to identify which tasks are rated as highly acceptable and the benefits gained from these practices, they could then move to the foreground of the programme with particular emphasis for treating specific symptoms, while others might retreat into the background. An examination of an individualised

approach, within a group setting would be beneficial as it would facilitate greater individual choice of specific treatment tasks. Arming participants with current research findings may serve to increase personal investment, and possibly improve outcome for individual clinical change and overall mental health.

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#### Conflict of interests

Dr Christina Corbett has no conflict of interest to disclose. Dr Jonathan Egan has no conflict of interest to disclose. Ms Monika Pilch has no conflict of interest to disclose. No author has received any remuneration of specific financial support for this research or the preparation of this review.

#### Ethical standards

The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and international committee on human experimentation with the Helsinki Declaration of 1075, as revised in 2008. The study protocol was approved by the Ethics Research Committee, NUI Galway and Letterkenny University Hospital Research Ethics Committee. Written informed consent was obtained from all participants.

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