Mauritius Research Council

INNOVATION FOR TECHNOLOGY

CONDUCTING A RANDOMIZED CONTROLLED TRIAL TO INVESTIGATE THE IMPACT OF MEDITATION ON WORK STRESS

Final Report

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Conducting a Randomized Controlled Trial to investigate the impact of Meditation on Work Stress under the:

MAURITIUS RESEARCH COUNCIL, SMALL SCALE RESEARCH AND INNOVATION GRANT SCHEME

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Submitted by Basantsingh Deerpaul, Project Leader

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Executive Summary

PROJECT SUMMARY

The main objective of this research has been to assess the effect of meditation on work stress in full-time workers. The following steps of the research study had been observed:

- apply Psychological Testing (standardized tests) to measure stress levels
- assess whether regular meditation had an impact on stress levels
- distinguish between the effectiveness of meditation and relaxation as a stress coping tool
- confirm meditation as a stress management tool

BACKGROUND

Meditation is becoming increasingly useful, popular and practical in handling Work stress. Unfortunately, there has been sporadic research on the effectiveness of meditation as part of a well-designed stress management plan. This innovative and pioneering study in Mauritius aimed at bridging this gap. The plan was to recruit some 60 full time workers from key areas who would be assessed on their stress levels using a Standardized Psychological Test before and after the 8 weeks schedule of meditation at the rate of 3 sessions per week.

The participating organizations in this study have been:

- Mauritius Prisons Services (Prison Officers at Beau Bassin)
- Grays Inc. Ltd (Marketing Staff)
- University of Mauritius (Administrative Staff of the Faculty of Engineering)
- Pranalife (a registered association and Middle –Management Corporate Staff)

Acknowledgments

Our sincere gratitude goes to the following:

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- To all the participants and meditation instructors for their time
- To all participating Organizations
- To Mr Sajesh Baboolall who helped in the analysis of data
- To especially the developer of the Twin Hearts Meditation technique: Grand Master Choa Kok Sui

PROCESS

Participants had been divided into two groups:

- a guided meditation group called Twin Hearts Meditation for Peace and
- a relaxation-oriented approach group.

Both groups had been requested to complete a standardized Psychological test to measure their stress levels before and after the meditation experiences.

Conducting an 8-week activity in organizations had been deemed too demanding by the participants and thus had been reduced to 4 weeks of commitment at the rate of 3 days a week sessions at their respective workplace.

FINDINGS AND CONCLUSIONS

The findings indicate that meditation is an effective tool in reducing stress levels which may impact upon wellness, productivity and resilience

RECOMMENDATIONS FOR FURTHER ACTION

Additional study is required to further examine meditation as an effective tool in combatting stress.

GENERAL OBJECTIVE of the research study: To assess the effect of meditation on work stress in full-time workers

SPECIFIC OBJECTIVES:

- To apply Psychological Testing (standardized tests) to measure stress levels
- To distinguish between the effectiveness of meditation and relaxation as a stress coping tool
- To confirm meditation as stress management tool

INTRODUCTION

Health Professionals, consumers and patients are becoming increasingly enthusiastic and aware about meditation and its benefits. A survey of Australian General Practitioners in 2000 found that almost 80% of respondents had recommended meditation to patients at some time in the course of their practice. A nationally representative survey of US households in 1998 indicated that almost 1 in 5 consumers had used some form of 'mind-body therapy' in the past 12 months, of which meditation was the commonest method.

Stress is currently understood in terms of an individual's sense of control over the events and symptoms in one's life. When individuals believe that they can control negative events, they cope better and experience less stress. It is commonly defined as "a particular relationship between the person and environment that is appraised by the person as taxing and exceeding his or her resources and endangering his other wellbeing".

Stress is associated with physiological hyperarousal, negative cognitions and negative mood and has been associated with a wide variety of physical and mental health problems. The relationship between psychosocial stress and cardiovascular disease, for example, is becoming increasingly significant to clinicians. A 2006 insurance survey reported that seven million Britons experiencing stress related symptoms sufficient to compel them to seek medical attention.

Studies estimate that 50-70 % of general practice consultations feature stress related issues.

The Bristol Stress and Health Study assessed 17000 workers and found that approximately 20% of respondents experienced very high or extremely high levels of stress at work and that this stress was associated with negative effects on physiology, mental performance, and risk of work place accidents.

Individually oriented interventions for stress such as meditation are simple yet potentially effective health promotional strategies. As a result, they are becoming increasingly popular within organizations; however these interventions have to date not been rigorously evaluated. In fact a small number of Randomized Control Trials (RCT) of meditation for work stress has been reported in the literature and none so far provide convincing evidence for a specific effect.

Meditation is commonly thought to reduce stress by a combination of two pathways. First: by reducing somatic-arousal (physiological effects) thereby reducing reactivity of the individual to environment stressors and second: by altering the individual's cognitive appraisal of and perceived self-efficacy with regard to stressors.

The cognitive –behavioral effects are thought to result from the meditator's increased awareness of how thoughts and emotions arise in response to various environmental events, thereby allowing the meditator to achieve more veridical perception, reduced negative affect and improved vitality and coping.

Is meditation really effective in reducing occupational stress, and if it is, is it more effective than placebo? Do different approaches to meditation have different effects?

These times worldwide different forms or schools of Meditation have sprung similar to Yoga practices. The meditation to be used in this RCT is labeled the Twin Hearts Meditation (THM) technique has been around for the last 40 years and developed by Master Choa Kok Sui, a contemporary spiritual leader.

This RCT is designed to address two interconnected questions: first, and primarily, whether or not meditation is a useful strategy for dealing with work-related stress; second, whether or not, the use of appropriate controls, randomization, blinding and the Twin Hearts meditation technique rather than 'relaxation-'approach to meditation can help answer the question about whether or not meditation might have specific and clinically useful effects.

METHODS AND MATERIALS

Overview

We designed a 4- week 2 arm parallel randomized controlled trial which compared creative visualisation orientated style of meditation called Twin Hearts Meditation for Peace and Illumination to a relaxation oriented meditative control.

Participants

The eligibility criteria for participants were:

- full-time employment (more than 30 hours per week) willing to commit to the instructional program at their workplace or at an appointed site.
- free of psychological /psychiatric/medical morbidity
- not using other stress management programs in the past 12 weeks
- having experienced no recent major life events (such as bereavement/major illness in immediate family, moving house, recent divorce or relationship breakdown, not using recreational drugs
- willing to fill out a questionnaire battery before and after the program.

Interventions

For both active intervention groups the intervention period was 4 weeks involving half hour session thrice weekly. Compliance with this regime had been reinforced at each instructional session. Instructors for both active groups had been professionals who are also experienced and qualified meditation instructors.

The Twin Hearts Meditation group was taught to elicit a state of creative visualisation based on a technique of Pranic Healing®, a non-commercial,

classical understanding of meditation. The main method employs a simple series of silent affirmations based on a traditional understanding of yogic psychophysiology. Subjects were encouraged to meditate while sitting quietly in a chair or in a comfortable position that was supposed to facilitate their meditation experience. The creative visualisation experience is attainable in several ways, all of which converge on the central principle that the attention is focused on blessing the Earth with Peace, Love, Joy, Compassion and Forgiveness. At first this act of blessing is short lived but with practice it can be drawn out into a continuous, enjoyable, experience which meditators consistently describe as peaceful and stress-free.

The meditation techniques taught to participants were simple strategies aimed at facilitating this experience. Affirmations and breathing techniques and attention focusing exercises were taught in a graded fashion with the emphasis placed on achieving and maintaining a sustainable state of inner peace awareness. Each week informal feedback was sought by instructors regarding each participant's progress with regard to this experiential dimension.

The relaxation control group was exposed to a generic meditative technique based on the relaxation response. It was developed by a professional meditation instructor specifically for the study. Subjects were instructed to sit comfortably breathing regularly and commence their meditation by reflecting on progressively releasing any bodily tension.

The instructors sought feedback each week from participants in order to ensure that the meditative style was adhered to.

Randomization and Blinding

A research facilitator located separately from the main instructors randomly allocated each subject from each round of recruitment to one of the two groups using a blindfolded lottery allocation system. Participants and instructors were blinded to the complete hypothesis of the trial and were not informed about what methods were used in the comparison groups and were

instructed not to disclose information about the methods used in their classes to other trial participants or the investigators.

Measures

Psychological assessments were done prior to randomization and at completion upon week 4. All consenting potential participants were invited to an information session where the basic principles of the study were outlined including inclusion and exclusion criteria.

Consenting participants were assessed on several valid measures of the Occupational Stress Inventory (OSI) which is a standardized instrument to gauge stress levels along the:

1. Occupational Role Questionnaire (ORQ)

- Role Overload (RO)
- Role Insufficiency (RI)
- Role Ambiguity (RA)
- Role Boundary (RB)
- Responsibility (R)
- Physical Environment (PE)

2. Personal Strain Questionnaire (PSQ)

- Vocational Stress (VS)
- Psychological Strain (PSY)
- Interpersonal Strain (IS)
- Physical Strain (PHS)

3. Personal Resources Questionnaire (PRQ)

- Recreation (RE)
- Self-Care (SC)
- Social Support (SS)
- Rational/Cognitive Coping (RC)

Data Analysis

The scales described in each report should be used only by a qualified professional trained in the use and interpretation of psychological tests. Users

of this report should have (a) a thorough knowledge of the OSI-R™ manual, including proper administration and interpretation of the OSI-R™, as well as an understanding of norms and their limitations; (b) a thorough knowledge of test theory and principles of interpretation; (c) a complete understanding of the stress, strain and coping model on which the OSI-R™ is based; and (d) an understanding of appropriate test use (i.e. the identification of occupationally induced stress for the benefit of an individual voluntarily taking the test).

OSI-R™ Profile Description

The charts of each participant list the individual's raw scores for each of the OSI-R™ scales, followed by standardized T scores that first compare this individual's scores to those of the males in the main OSI-R™ normative sample, then the females in the normative sample, and finally to the entire combined normative sample. The combined T scores are also graphed. T scores are linear transformations of raw scores, derived to have a mean of 50 and a standard deviation of 10.

Interpretation of T scores

For the **ORQ** and **PSQ** scales, high scores suggest significant levels of occupational stress and psychological strain, respectively. T scores at or above 70 indicate a strong probability of maladaptive stress, debilitating strain, or both. Scores in the range of 60-69 suggest mild levels of maladaptive stress and strain. Scores in the range of 40-59 are within one standard deviation of the mean and should be interpreted as being within normal range. Scores below 40 indicate a relative absence of occupational stress or psychological strain. For the **PRQ** scales, high scores indicate highly developed coping resources. For these scales, T scores below 30 indicate a significant lack of coping resources. Scores in the range of 30-39 suggest mild deficits in coping skills. Scores in the range of 40-49 indicate average coping resources, whereas higher scores indicate increasingly strong coping resources.

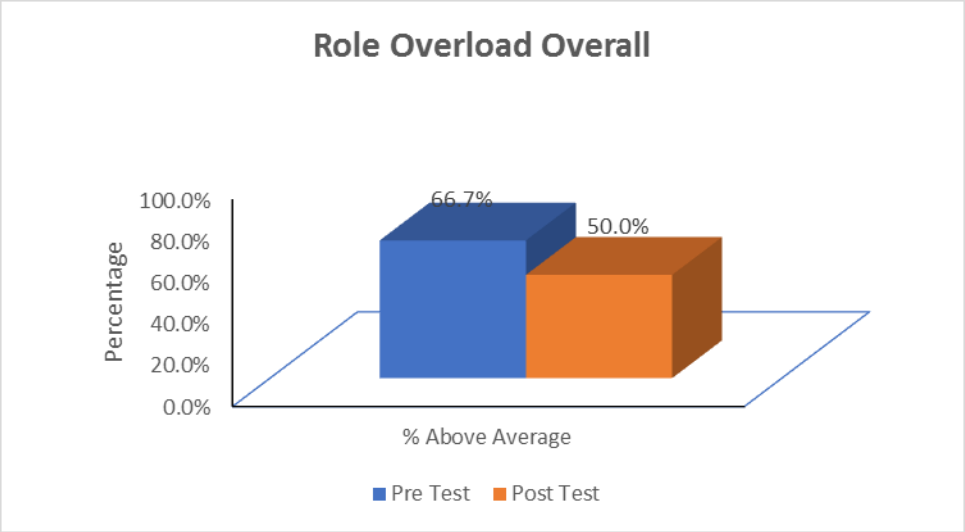
Results

Sample: In total, some 50 full-time employees expressed an interest to participate in the research study. Of these, 43 participants joined in by filling the pre-test questionnaires. Eventually only 19 participants completed the whole project by filling in the post-test questionnaire. The drop-out rate is high and yet does not seemingly affect the study’s motive and inquest which is interesting from a research perspective and will be addressed at the discussion section.

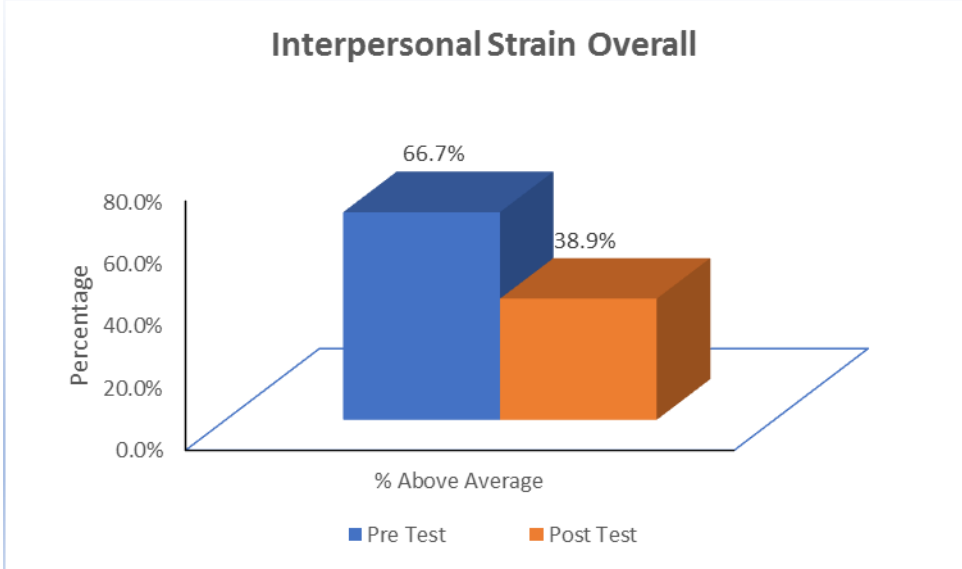
Outcomes on Stress:

After analysis of different components of the larger Occupational Stress Inventory (OSI), the salient features of the Occupational Stress Questionnaire (OSQ), Personal Strain Questionnaire (PSQ) and Personal Resources Questionnaire (PRQ) components were focused on.

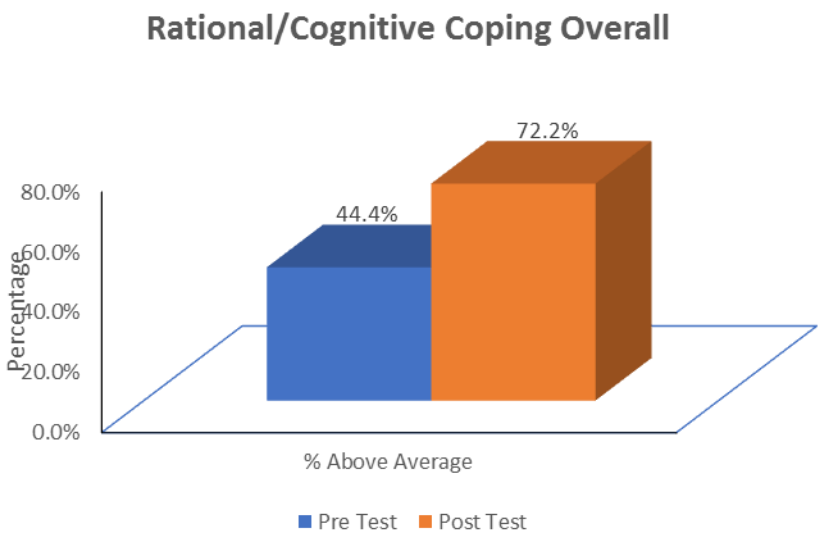
For the OSQ, for all participants and across Relaxation and Meditation, the Role Overload score diminished from 66.7% to 50 % as seen in below chart.



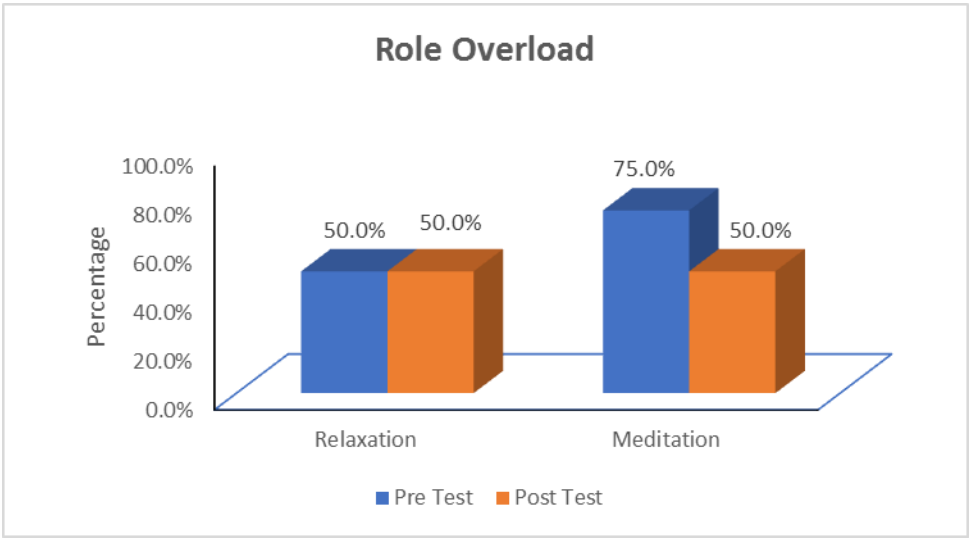
For the PSQ, for all participants and across Relaxation and Meditation, the Interpersonal Strain score diminished from 66.7% to 38.9 % as seen in below chart.



For the PRQ, for all participants and across Relaxation and Meditation, the score increased from 44.4% to 72.2 % as seen in below chart which indicates better mental coping resources in the face of a stressor.



For the OSQ, comparing participants of Relaxation and Meditation groups, the Role Overload score diminished more significantly from 75% to 50 % as seen in below chart for the Meditation group.



Discussion

This research study though having arguably a low participation asserts some progress in the field of applied meditation research. First the use of a rigorous methodology, secondly in comparing two different conceptual understandings of meditation and third, this study provides evidence that creative visualization definition of meditation is more likely to yield a specific benefit.

The drop-out phenomenon can be ascribed to participants realizing that initially, meditation requires some personal effort and commitment. We also found that Management commitment is crucial to enforce and sustain a certain rigour and follow up which did not occur in 2 participating organizations.

The results may always be analysed organization-wise at a later stage. What is prominent is that the collective scores of participants somehow validate the hypotheses set.

Conventionally, the stress reducing effects of meditation have been ascribed to meditation's ability to reduce physiological arousal. Following this line of thinking, the effects observed in this study may have occurred because mental silence-orientated forms of meditation simply reduce physiological arousal more effectively than relaxation-orientated approaches to meditation. Alternatively, current theories of stress might explain the observed changes as arising from the possibility that mental silence may more effectively facilitate greater awareness by reducing distracting and unnecessary mental activity thereby facilitating better veridical perception, reduced negative affect, and improved vitality. This contrasts with methods of meditation that emphasize relaxation, or other models of meditation that do not involve creative visualization or mental silence.

There is some experimental data suggesting that mental silence-orientated approaches to meditation might act via pathways that are different to simple relaxation. For example, neurophysiological trials have been conducted of the same mental silence-orientated meditation, assessing EEG changes in advanced meditators. The research revealed that the practice was associated with reproducible brain electrical changes, and that these patterns correlated strongly with the specifically defined, self-reported experience.

Until 2006, the U.S. National Center for Complementary and Alternative Medicine (NCCAM) defined meditation as “a conscious mental process that induces a set of integrated physiological changes termed the relaxation response”.

Remarkably, however, in 2006 the NCCAM reviewed its definition of meditation, describing a new central feature: “In meditation, a person learns to focus his attention and suspend the stream of thoughts that normally occupy the mind.”

The fundamental change in emphasis from the physiology of rest (a Westernized understanding of meditation) to the experience of “suspension of thought activity” (a more classical eastern idea of meditation) raises an important question about whether or not this shift in conceptualization has practical and clinical significance.

This study throws some important empirical light on these theoretical and philosophical shifts. On a more theoretical level, meditation is popularly perceived as having specific effects. In fact historical tradition, especially Eastern tradition, asserts that meditation has a unique effect and yet the scientific evidence, based mainly on studies of Westernized models of meditation, does not agree with these perceptions. The outcomes of this trial suggest that one way to resolve this conundrum may be to propose a definition of meditation based on the “experience of creative visualization or mental silence”.

We do acknowledge limitations to this study. First is the sample size and target population which could not cover stress-prone occupations as planned and for cumbersome administrative reasons. Secondly, the use of the OSI scale which may contain inherent limitations. Third, is the number of drop-outs as it seemed to the participants that meditation is a passive process (which yields immediate relief) but in fact an internally very active one, thereby making the approach initially demanding but fruitful in the long term.

Conclusion

This study provides preliminary evidence to support the use of both meditation and relaxation as a stress management tool. However meditation (creative visualization or mental silence) has better benefits as compared to relaxation.