Spring 5-27-2017

A Web-based Stress Reduction Program for Occupational Health

Michelle N. Kabakibi
Hahn School of Nursing and Health Science: Beyster Institute for Nursing Research, michellenr@sandiego.edu

Karen Macauley
Hahn School of Nursing and Health Science: Beyster Institute for Nursing Research, macauley@sandiego.edu

Follow this and additional works at: https://digital.sandiego.edu/dnp

 Part of the Nursing Commons

A Web-based Stress Reduction Program for Occupational Health

Michelle Kabakibi, RN, BSN, DNP student

Dr. Karen Macauley PhD, DNP, FNP-BC, GNP-BC

Abstract

Purpose: The purpose of this evidenced-based practice project is to implement a sustainable 6-week mindfulness web-based program to reduce stress of call center employees in a corporate setting.

Background/significance: Stress is a major public health issue, calling for a need of better stress management programs to prevent and manage chronic stress. Stress is caused when an individual perceives environmental demands as beyond his/her adaptive capacity. In the workplace, stress leads to emotional exhaustion, job dissatisfaction, lower productivity, and impaired performance (Allexandre et al., 2016). According to The National Institute for Occupational Safety and Health report, 40% of workers reported their job was very or extremely stressful. The Seventh Annual Labor Day Survey results indicate that 80% of workers feel stress on the job, nearly half say they need help in learning how to manage stress, and 42% say their coworkers need such help (The American Institute of Stress (TAIS), 2014). Mindfulness meditation consists of developing focused attention, non-judgmental awareness, openness, curiosity, and acceptance of internal and external present experiences, all of which aim to help individuals act more reflectively rather than impulsively. Internet-based stress management programs, focusing on mindfulness meditation, may provide easy access, minimize stress-related diseases, and improve individual resilience (Morledge et al., 2013). From September 2014 to December 2016, the study site experienced a high number of stress-related clinic visits. 829 employees were seen and completed a health questionnaire. Of these employees, 17.1% were unsatisfied or very unsatisfied with their stress management posing a significant need for a program to reduce stress.

Methods: The employees were informed about the web-based mindfulness stress management program via email and if interested in completing the 6-week course, were encouraged to inquire by responding to the notification. An individual meeting was held prior to the start of the program to introduce and review the details and at the end of the program to debrief. Throughout the duration of the program, participants received emails every week to ensure participation and completion of weekly topics. Two validated scales, The Perceived Stress Scale and the Mindfulness Attention Awareness Scale, were used at two time periods throughout the program: pre-program and post-program.

Outcomes achieved: The results indicated that the mindfulness intervention group had significant decreases in perceived stress as well as increased mindfulness as evidenced by improvement in scores of the perceived stress and mindful attention awareness scales.

Conclusions: This on-line mindfulness intervention seems to be both practical and effective in decreasing employee stress, while improving mindfulness leading to increased work engagement, work productivity and becoming effective at dealing with life's stressful events, thereby enhancing overall employee well-being.

Introduction

Stress has been widely cited as the 20th century epidemic and a worldwide epidemic according to the United Nations in the world health organization (Azagba, & Sharaf, 2011). Stress is caused when an individual perceives environmental demands as beyond his/her adaptive capacity. Severe psychological stress affects approximately 35% of North Americans (Morledge et al., 2013). Highly stressed individuals are at greater risk for multiple health conditions including cardiovascular disease, cancer, diabetes, depression and anxiety, fatigue, obesity, and musculoskeletal pain (Wolever, et al., 2012). These health conditions in turn lead to greater utilization of health care services resulting in high costs for large corporations. Occupational pressure is now recognized as a major source of stress for United States (U.S.) adults, representing a serious hazard to employee health and productivity. According to The National Institute for Occupational Safety and Health report, 40% of workers reported their job was very or extremely stressful. The Seventh Annual Labor Day Survey results indicate that 80% of workers feel stress on the job, nearly half say they need help in learning how to manage stress, and 42% say their coworkers need such help (TAIS, 2014). In the U.S., 70% of employees consider the workplace a significant source of stress and 51% report that job stress reduces their productivity (Azagba, & Sharaf, 2011). The International Labor Organization has estimated that 30% of all work-related disorders are due to stress, and that the loss caused by such stress-induced disorders amounted to EUR 9.2 billion in the EU, EUR 1.1–1.2 billion in the U.K., and USD 6.6 billion in U.S.A." (Wolever et al., 2012). According to Health and Safety Executive statistics done in Great Britain, mental ill health, including stress, anxiety, and depression, gave rise to more working days lost than any other illness complaint, including musculoskeletal disorders, accounting for 9.3 million days lost in 2010 (Aikens et al., 2014). The problem with

workplace stress is that it can lead to emotional exhaustion, job dissatisfaction, lower productivity, and impaired performance (Allexandre et al., 2016). Consequentially, stress also contributes to adverse health habits such as alcoholism, smoking, and obesity (Aikens et al., 2014).

Background

From September 2014 to December 2016, 829 employees were seen in the employee health clinic and were asked to complete a health questionnaire intake form. Of these employees, 17.1% rated themselves either unsatisfied or very unsatisfied with their stress management as evidenced by a self rated score of $</= 2$ on the wellness grid (1 being very unsatisfied, 5 being very satisfied). During this period of time, the percentage of people who were being seen in the clinic for stress continued to rise steadily. The company previously instituted wellness opportunities such as an accessible gym, massage, a smoking cessation program, and healthy food options in their cafeteria, however, it was clear the issue of stress remained a burden. With the increased work demands of the corporate employees, a cost effective, easily accessible and limited time commitment solution was needed. Tackling the problem of employee stress is not only crucial for the health of the employee, but it is also important for large corporations in order to keep health care costs at a minimum. Unfortunately, the costs associated with workplace stress go well beyond higher health care utilization to include inflated expenses due to increased absenteeism and presenteeism, reduced productivity, greater compensation claims, and rising health insurance expenses, making it a priority to find a working solution to the issue of employee stress (Aikens et al., 2014). Because of the prevalence and cost of stress in the U.S., an intervention with the capability to help mitigate employee stress, while simultaneously

leading to the development of emotional and physical well-being, would be beneficial to

employers as well as employees with respect to cost savings and increased work productivity.

Synthesis of the evidence

Many meta-analyses have proven efficacy of mindfulness based stress reduction

programs (MBSR) with results presenting a multitude of physical and emotional benefits. The

construct of mindfulness awareness originated in earliest Buddhist documents but is neither

religious nor esoteric in nature (Grossman, Neimann, Schmidt, & Walach, 2003). MBSR was

initially developed by Jon Kabat-Zinn at the University of Massachusetts medical center in 1979

in an effort to teach patients with chronic medical conditions how to lead fuller and healthier

lives. Mindfulness is defined as "a self-directed practice for relaxing the body and calming the

mind through focusing on present moment awareness. The emphasis of mindfulness is staying in

the present moment, with a non-judging, non-striving attitude of acceptance". Mindfulness is

cultivated through the practice of meditation (Bazarko, Cate, Azocar, & Kreitzer, 2013). The

practice of mindfulness meditation results in a decreased response to stress, and mindfulness-

based interventions have been effective at reducing workplace stress and burnout. The

intervention of a MBSR program, beyond reducing negative manifests such as stress, anxiety and

depression, have also been effective in improving positive emotions such as engagement,

happiness, calmness, energy, and vitality, which is important given its crucial role to job

performance and health according to Allexandre et al., (2016). Results from the study done by

Morledge et al., (2013) suggested the degree of improvement in outcome measures of the online

internet stress management (ISM) program was comparable to traditional face-to-face

mindfulness programs. This, along with the study done by Bazarko et al., (2013), demonstrated

that an entirely web-based mindfulness program verses in class mindfulness programs did not

show a statistically significant difference in participation whether the program was taken completely online or in person. One well known mindfulness interventions is Jon Kabat-Zinn's 8 week MBSR meditation workshop, however, this along with many other programs require a skilled facilitator, may not work with many schedules and may not be cost effective (Morledge et al., 2013). Online stress management programs are a fraction of the cost with comparable results. The ability to work completely online at the patient's own pace is a suitable fit for this population. With MBSR programs, there have been significant reductions in stress as well as sustainability in stress reduction scores anywhere from 12 weeks to one year. These added benefits could have particular relevance to a worksite setting because of their potential impact on productivity (Wolever et al., 2012). The results disseminated by Aikens et al. (2014), suggested that mindfulness training is more than just an effective stress management solution but an efficacious intervention for the development of positive organizational behavior, which can be used throughout the employee base.

Purpose

The purpose of this project was to implement a sustainable 6-week mindfulness web based program to reduce the stress of employees in a corporate setting.

Practice Change

In 2010, Cleveland Clinic did a study that further lead to the creation of an online stress management program named *Stress Free Now* showing effectiveness in reducing stress by 40%. *Stress Free Now* is a 6-week web based program that introduces participants to a new meditation theme each week. The themes and related guided meditation have been inspired from mindfulness traditions or other mindfulness programs and were chosen to develop mindfulness skills or attitudes and traits that support mindfulness and well-being. This program also improves

mindfulness and improves emotional and psychological well-being. This stress management program showed feasibility of being widely accessible, cost effective, completely automated, online and designed for a population that has very high work and personal demands seeming to be very fitting for the population at the study site (Morledge et al., 2013).

Methods/Outcome Measures

Of the 829 employees seen in the employee clinic and who completed a health questionnaire intake form, 149 of them or 17.1% rated themselves as either unsatisfied or very unsatisfied with their stress management. About 15 of the 149 employees had previously been enrolled in a different type of stress management study the year before, therefore in order to prevent having these same patients being asked to participate again it was decided not to email all 149 employees about the stress management program. If a person had a score of ≤ 2 on the wellness grid and had not been previously enrolled in a stress management program, the Nurse Practitioner (NP) informed these employees about the program through casual conversation during their encounter which turned out to be about 15 people. In addition, the NP chose to emailed the rest of the employees (about 65 people) that had not been seen in the clinic, but that had previously scored a ≤ 2 on the wellness grid from past visits. If interested in completing the 6-week course, they were encouraged to inquire by responding to the notification. Ultimately, twelve participants were enrolled in the program. Not having the time was the biggest hurdle that was encountered in recruiting for this program. Time to get away from their desks; time outside of work to devote energy to something else, and time to take on yet one more commitment was scarce. Interestingly, the past 9 months for the study site has been marked by major restructuring/reorganization of the company and relocation of many people to a new location in another state. About 200-300 employees have either been let go or relocated since summer

2016. This active shift had a lot of people worried about their job security. This shift also resulted in a lot of people being reorganized within San Diego, so their positions are new to them and they needed to spend any extra time learning their new jobs. This shift will continue through late 2017/early 2018.

Individual meetings were held prior to the beginning to review the details of the program. This meeting included completing two pre tests, the Perceived stress scale (PSS) and the mindfulness attention awareness scale (MAAS). Another meeting was held at the end of the 6 weeks in order to debrief experiences. This included completing two post tests, the PSS and the MAAS as well as answer 5 questions (table 4). Throughout the duration of the program, participants received emails every week to ensure participation and completion of weekly topics. The PSS and the MAAS are two validated scales that were also used in the original study done by the Cleveland clinic in order to measure perceived stress and mindfulness (Morledge et al., 2013). The PSS was used to assess participants' levels of psychological stress. The PSS-10 is a well-validated stress measurement tool whose items are designed to assess how unpredictable, uncontrollable, and overloaded individuals find their lives resulting in a total score of 0 (best) to 40 (worst) where higher scores reflect higher levels of stress (Cohen, Kamarck, & Mermelstein, 1983). The MAAS-15 was used to assess participants' levels of mindfulness. The MAAS-15 is a well-validated tool asking about the frequency of various mindfulness states in daily life, resulting in a total score of 1 (least mindful) to 6 (most mindful). Higher scores reflect higher levels of mindfulness (Brown & Ryan, 2003).

Results

Of the twelve participants, ten of them completed the program. Results were determined by reviewing the PSS and the MAAS. The PSS included age and gender on the questionnaire.

There were 10 females: 2 males between the ages of 32-64 enrolled in the 6-week program. Perceived stress declined by 43% from baseline values (Table 4). Baseline stress measured by the PSS (23.33 ± 9) points (Table 4) was much higher than the US norm (13.7 ± 6.6) for females; (12.1 ± 5.9) for males (Morledge et al., 2013). Anything above 20 is considered extreme stress (Cohen et al., 1983). The web based program participation brought the stress levels to a mean average of (13.2 ± 8) points (Table 4) with the exception of one participant whose stress score did not change from 30 and was not included in the post mean average. This reduction in mean score is similar to observed changes with more intensive in person mindfulness programs.

Mindfulness increased by 41% from baseline values (Table 4). Baseline mindfulness measured by the MAAS (3.1 ± 2.56) points (Table 4) was much lower than the national average of 4.20, where the higher the number the more "mindful" a person has become (Brown & Ryan, 2003). The web based program participation brought the level of mindfulness to a mean average of (4.38 ± 1.38) points, which is similar to other studies suggesting an increase following the intervention (Table 4). These scores reflect the theory that as mindfulness goes up, stress goes down. Post information is based off of 10 employees, two of which could not be contacted for the posttest. Additionally, in reference to the post questions that were sent to the 12 employees, only 6 responded with answers (Table 1). When asked what technique they liked best, one patient reported, "I think the breathing technique was the best. I noticed I would take in too much air when I was anxious and this helped me to control it better". Another patient with similar interest mentioned:

> From the first lesson about meditation the recording talked about paying attention to how breathing feels, how the air felt in my nose as I inhaled. That was the first time I have heard something like that in meditation and it really made a difference in being able to do

the meditation. That is something I do now sometimes when I am feeling very stressed as

a quick exercise to relax and refocus. Just take a couple of deep breaths and paying

attention to how the breathing feels works wonders!

All 6 of the employees collectively responded that they would recommend this program to

others. In regards to work productivity, a patient eagerly mentioned:

I am seeing some improvement in my productivity at work in being able to focus a little

better. The biggest difference is that I have been more aware of when I am feeling

stressed and I am able to adjust and be mindful of my tone of voice and my responses to

co-workers and clients.

One patient's perception of the program included him saying:

I feel good, I liked the program and it came at perfect time. I had taken a stress class a

year before and liked this one better because I could do it at my leisure. I also liked the

content better.

Another patient overall felt that "It helped me realize things I hadn't previously. After completing

the program I feel more in control and relaxed". Patients over all mentioned some weeks were

harder than others due to the fact that they either had a few sick days, were on vacation or the

demand at home was too much for them that week. One person stated, "I am glad I did it. I'm

really happy to have techniques to manage stress that work for me. It wasn't easy, but it was

worth it". The program helped one patient by helping her feel empowered that she now has tools

to relax her mind and rethink through a situation and she mentioned she is very excited to share

the techniques with her family.

Tables

Table 1

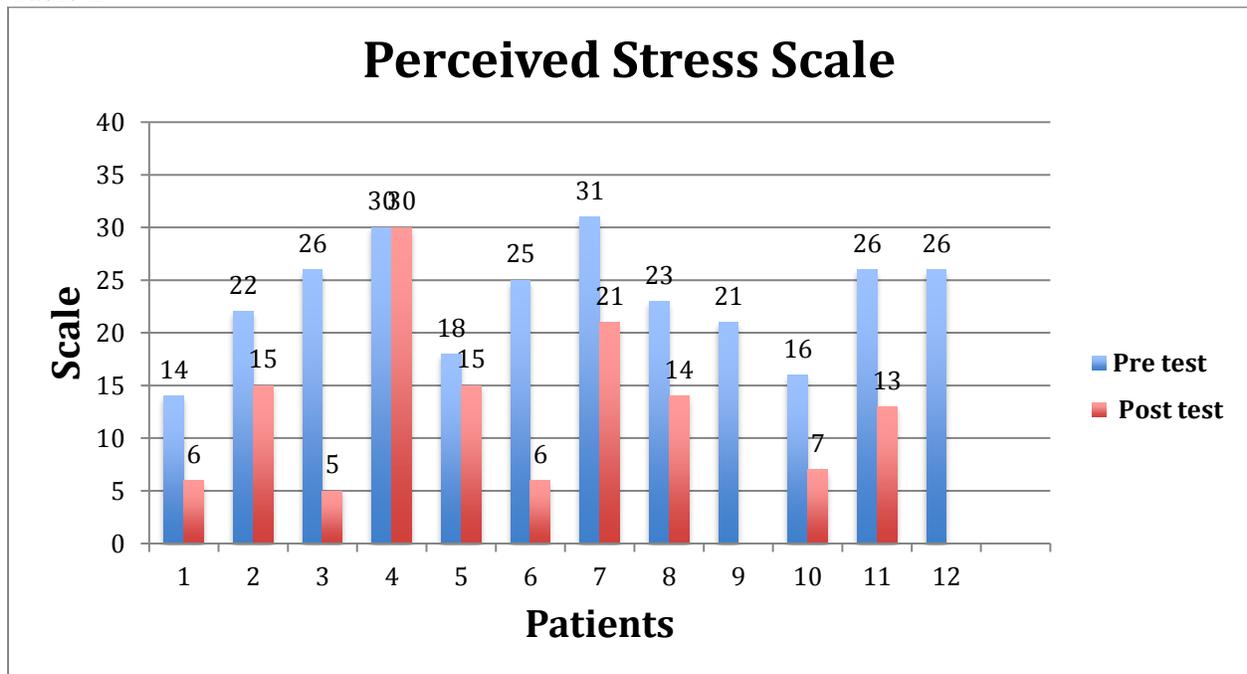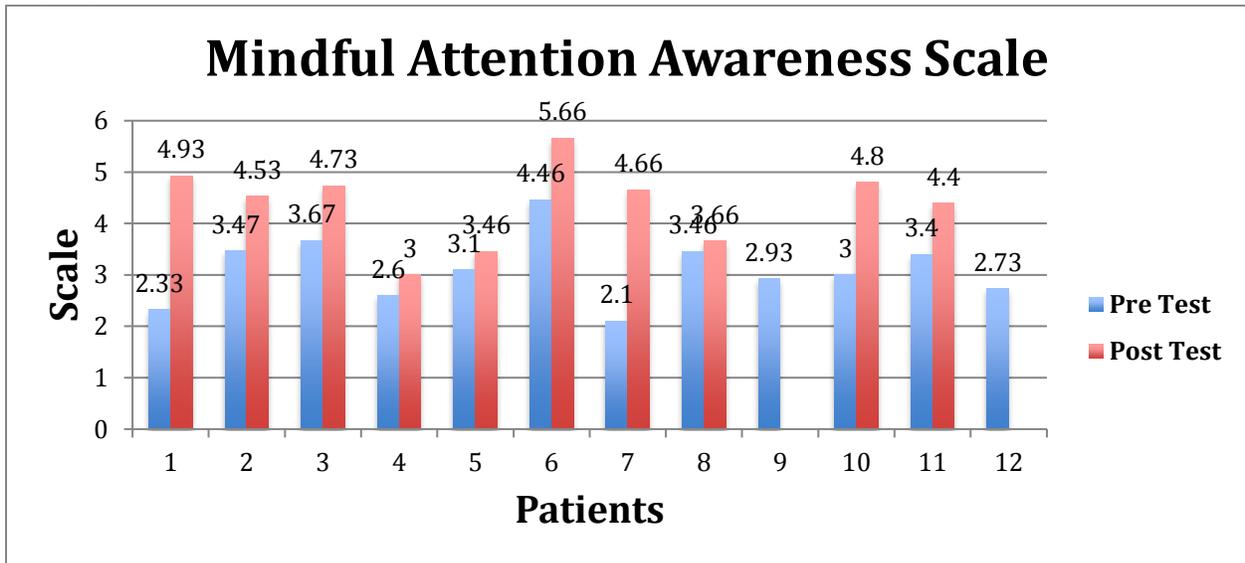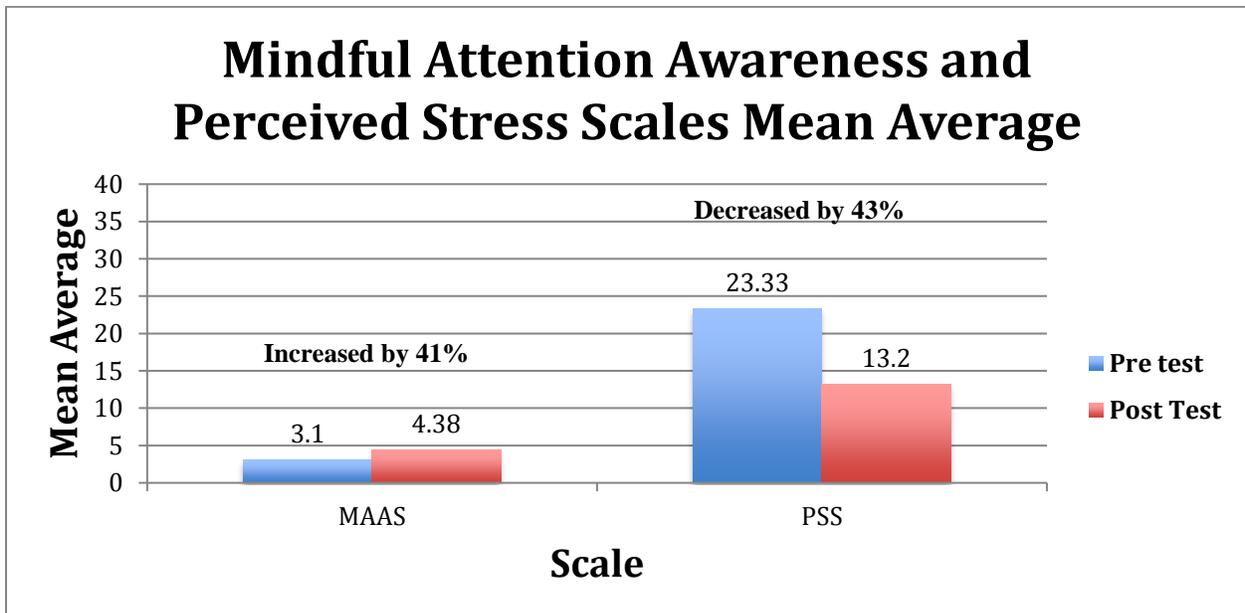|	Qualitative questions
1.	What technique you like best?
2.	Would you recommend this to others?
3.	Do you feel this has helped your productivity at work?
4.	What was your perception of the program and how do you feel overall after completing the program?
5.	Were some weeks more challenging then others?

Table 2

Perceived Stress Scale

Table 3

Mindful Attention Awareness Scale

Table 4

Mindful Attention Awareness and Perceived Stress Scales Mean Average

Discussion

Although stress is a major health issue in the corporate setting, MBSR programs can help

prevent and manage chronic stress. The patients included in the study reported a common theme

of enjoying the breathing techniques the best for relaxation. All of the patients reported that they

would they recommend this program to others. As a whole the patients perception of the program

followed a common theme that the program came at the right time, they felt the content was

easily reproducible and realistic to practice, felt more in control and relaxed, and the more they

practiced the less stress they felt. In reference to work productivity, patients conveyed over all

that they have seen some improvement in productivity at work and their ability to focus better.

Despite high demands at home, work and life in general, patients were still able to complete the

home meditation practices, and many mentioned they would continue to practice mindfulness

skills long after the treatment program has ended, proving to be a realistic and sustainable

approach to reducing stress. The ability to practice during work hours in addition to practicing at

home or on the go, was important not only for program engagement but also for maintaining

relaxation. This suggests that stress management programs that have limited requirements for

formal or home practice with complete accessibility at any time and anywhere and may be

realistic for employee populations, especially those that face a demanding and busy schedule.

Since the program does not require on-site instructional support, offering programs similar to

Stress Free Now for $50 per person might further reduce healthcare costs, compared with

facilitator-led workshops, which range between $400–600 per person. Thus, online therapeutic

interventions have the potential to reach under-served populations in a cost-effective manner

(Morledge et al., 2013). Emerging evidence also suggests that mindfulness programs may

demonstrate cost savings through decreased medical utilization. The study "Mindfulness Goes to

Work: Impact of an Online Workplace Intervention*"* showed a significant decline in self-reported burnout in both the intervention and wait-list groups, which decreased by one full day per week at postintervention. This decrease in self-reported burnout represents a significant (20%) potential increase in worker productivity. Because the current average yearly wage for Dow reported in December 2012 was $112,900, a 20% increase in worker productivity could represent an employer savings of up to $22,580 per employee year, if the improvements in burnout are sustained over time. This savings is due to potential declines in absenteeism and presenteeism, perhaps associated with a decreased employee burnout rate (Aikens et al., 2014). This is particularly important for large corporations who rely attendance and work productivity of their employees.

Cost Benefit

The online *Stress Free Now* program was $50 per person and a free benefit for the employees.

Limitations

There were few limitations that presented themselves during the program implementation. The main limitation was that the sample size was quite small. Of 149 patients, only 80 were either spoken to in person during a patient encounter or emailed the opportunity to participate in the Stress free now program and only 12 participants were willing and agreeable. Additionally, participants indicated they were very busy and did not respond to weekly emails in a timely manner. Often it took two plus emails to get a response from them. The main reason this happened was because people would go out of town or have sick days and could not be reached on their email. Another limitation that may have played a part in stress reduction was participants fell behind in weekly program teachings and would have to catch up during other weeks. This may have interfered with the consistency of learning stress relieving techniques or the practice of

these techniques and strategies resulting in decreased continuity and may have hindered potential stress reduction.

Implications for Nursing Practice

The online program is reproducible in other corporate settings. It provides mental health awareness and stress reduction techniques that are realistic and useful to employees in the corporate setting. Program sustainability may lead to increased productivity and performance, decreased sick days and employee burn out.

Conclusions

This on-line mindfulness intervention seems to be both practical and effective in decreasing employee stress while improving mindfulness leading to increased work engagement and productivity, and becoming effective at dealing with life's stressful events, thereby enhancing overall employee well-being. The results indicated that the mindfulness intervention group had significant decreases in perceived stress as well as increased mindfulness as evidenced by improvement in scores of the PSS and MAAS scales. This is particularly important because improved mindfulness can contribute to enhance coping mechanisms of the patients emotionally demanding work setting. Regular practice of meditation lead to cultivating mindfulness skills in every day life, which in turn lead to improved psychological functioning as a result of decreased stress. Lastly, an increase in mindfulness was shown to completely facilitate the relationships between meditation practice and perceived stress, suggesting that the improvements in mindfulness that resulted from regular practice of stress reduction techniques is related to the significant reduction in perceived stress.

References

Aikens, K. A., Astin, J., Pelletier, K. R., Levanovich, K., Baase, C., Park, Y. Y., and Bodnar, C.
M. (2014). Mindfulness goes to work: Impact of an online workplace intervention.
Journal of Occupational and Environmental Medicine, 56(7), 721-31. DOI
10.1097/JOM. 0000000000000209

Allexandre, D., Bernstein, A. M., Walker, E., Hunter, J., Roizen, M. F., and Moeledge, T. J.
(2016). A web-based mindfulness stress management program in a corporate call center.
Journal of Occupational and Environmental Medicine, 58(3), 254-264.
DOI:10.1097/JOM.0000000000000680

Azagba, S., and Sharaf, M. F. (2011). Psychosocial working conditions and the utilization of
health care services. *BMC Public Health Journal*, 11, 642. DOI 10.1186/1471-2458-11-
642

Bazarko, D., Cate, R. A., Azocar, F., and Kreitzer, M. J. (2013). The Impact of innovative
mindfulness-based stress reduction program on the health and well-being of nurses
employed in a corporate setting. *Journal of Workplace Behavioral Health,* 28(2), 107-
133. DOI 10.1080/15555240.2013.779518

Brown, K. W. and Ryan, R.M (2003). The benefits of being present: Mindfulness and its role in
psychological well-being. *Journal of Personality and Social Psychology, 84, 822-848.*

Cohen, S., Kamarck, T., and Mermelstein, R. (1983). A global measure of perceived stress.
Journal of Health and Social Behavior, 24, 385-396.

Grossman, P., Neimann, L., Schmidt, S., and Walach, H. (2003). Mindfulness-based stress
reduction and health benefits: A meta-analysis. *Journal of Psychosomatic Research,* 57,
35-43.

Morledge, T. J., Allexandre, D., Fox, E., Fu, A. Z., Higashi, M. K., Kruzikas, D. T., … Reese, P. R. (2013) Feasibility of an online mindfulness program for stress management- A randomized, control trial. *Annals of Behavioral Medicine.* 46, 137–148. DOI 10.1007/s12160-013-9490-x

The American Institute of Stress (2014). *Workplace stress.* Retrieved from http://WWW.stress.org/workplace-stress/

Wolever, R. Q., McCabe, K., Fekete, E., Bobinet, K. J., Mackenzie, E. R., Kusnick, C. A., and Baime, M. (2012). Effective and viable mind-body stress reduction in the workplace: A randomized control trial. *Journal of Occupational Health Psychology*, 17(2), 246-258. DOI 10.1037/a0027278

University
of San Diego

5998 Alcalá Park
San Diego, California 92110-2492

Institutional Review Board
Project Action Summary

Action Date: September 16, 2016   *Note: Approval expires one year after this date.*

Type: __New Full Review ___New Expedited Review ___Continuation Review _X__Exempt Review

                ___Modification

Action: _X__Approved   ___Approved Pending Modification   ___Not Approved

Project Number: 2016-09-019
Researcher(s): Michelle Kabakibi DNP student SON
                Dr. Karen Macauley Fac SON
Project Title: Web-based Stress Reduction for Occupational Health

Note: We send IRB correspondence regarding student research to the faculty advisor, who bears the ultimate responsibility for the conduct of the research. We request that the faculty advisor share this correspondence with the student researcher.

Modifications Required or Reasons for Non-Approval
None

The next deadline for submitting project proposals to the Provost's Office for full review is N/A. You may submit a project proposal for expedited review at any time.

_____

Dr. Thomas R. Herrinton
Administrator, Institutional Review Board
University of San Diego
herrinton@sandiego.edu