Stress Management and Health Promotion: Recent Evidence Based Practices

Willam Einthaven*

Department of Health and communication, Zeeland University of Professional Education, Netherlands

*Corresponding author:
Willam Einthaven

✉ Willam_E@gmail.com

Department of Health and communication, Zeeland University of Professional Education, Netherlands

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Background

The quality of a person's life is a reflection of their complex, dynamic homeostasis, which is continually threatened by internal or external stressors, which can be either emotional or physical in character. Stress is characterized as a situation in which homeostasis is threatened or perceived to be threatened by the individual, and it is restored by a diverse range of behavioural and physiological adaptive responses.

In addition to coordinating fundamental and threatened homeostasis, neuroendocrine hormones also have a significant role in the aetiology of dyshomeostatic or cacostatic illness conditions. By inducing a complex behavioural and physiological adaptive response, the stress response system, which is present in both the central and peripheral nervous system is generally activated once a stressor's threshold is surpassed thus playing a key coordinating role in the restoration of homeostasis. This reaction is known as the stress syndrome, and it is the expression of an organism's intrinsic, comparatively stereotypical programme that has developed to regulate homeostasis and safeguard the individual under stress. The World Health Organization claims that stress is a major issue in contemporary society and that it has an impact on people's physical and mental health and productivity. A circumstance where the organism's homeostasis is at risk or when the organism feels a threat to its homeostasis is referred to as a stressful condition. Cognitive, behavioural, and psychological techniques for coping with stress are discussed in the study. Progressive muscle relaxation, autogenic training, relaxation response, biofeedback, emotional freedom technique, guided imagery, diaphragmatic breathing, transcendental meditation, cognitive behavioural therapy, mindfulness-based stress reduction, and emotional freedom technique were identified by this study after a thorough literature review covering major databases of MEDLINE, Scopus and Science Direct. These are all approaches that have been shown effective, are simple to learn and use, and produce positive effects among both healthy and individuals with disease [1].

Methods to improve wellbeing, particularly at work, are in greater demand. Interventions focused on mindfulness have the potential to improve the psychological health of working nurses. A study was recently carried out to determine the effects of mindfulness-based therapies, outcome measures, and to assess the impact on nurses' psychological wellbeing. Covering over a ten-year period, a systematic review was conducted using the PRISMA technique including a search of four electronic databases. The study consisted of around 11 randomized control studies and quasi-experimental trials. Stress, depression, anxiety, burnout, resiliency, quality of life, self-compassion, happiness, and mindfulness level were the outcome measures.

Out of the published literature ten studies showed the beneficial effects of a mindfulness-based intervention on the psychological health of nurses. To evaluate the efficacy of mindfulness programs, randomized control trials with strict designs, constant end measures, and larger sample sizes were needed. According to the derived results, therapies focused on mindfulness may improve nurses' wellbeing substantially. This study on mindfulness has demonstrated that the technique benefits both clinical and nonclinical groups in terms of cognitive and psychological functioning [2]. No adverse effects were noted in any of the studies that were considered, however, it is possible that individuals may develop more symptoms as a result of the awareness training. The study emphasized that further research should look into the mindfulness practices quantity, structure, and dose-response effects. The cost-effectiveness of such studies, the sustainability of mindfulness practice over time, and the possibility of cascading effects on other well-being-related activities all require long-term research. For getting robust and reliable results, additional studies using robust designs such as randomized controlled trials, constant outcome measures, and larger sample sizes are also regarded as necessary.

The extensive data on meditation that mobile health apps often collect allows for the investigation of the factors for recurrent

usage. In a recent study, data from a commercial meditation app used by thousands of users were reviewed to evaluate the accuracy of the recommendation offered for habit development to meditate at the same time every day, ideally in the morning. The entropy of the timing of app usage sessions was used to calculate the temporal consistency of daily meditation behaviour. Short-term engagement was determined by the number of meditation sessions finished within the sixth and seventh months of a user's account, and long-term use was determined by the days until a user's next meditation session. Linear regression was used to assess the impact of time of day preference and temporal consistency on these two metrics.

Over the period of first 180 days, there were significant drops in the likelihood of meditating at any time of day, but the impact on morning meditation sessions was the least. Additionally, there was a strong correlation between more morning meditation and improved short- and long-term involvement. The results of late night-time meditation sessions were contrary. When looking at long-term use, no significant associations were discovered for noon or evening sessions. Additionally, improved short-term involvement was linked to temporal regularity in the way morning meditation sessions were conducted.

In conclusion, morning meditation was linked to increased likelihood of continuing to use the app for meditation. This supports previous research that suggested that the robustness of current morning routines and circadian rhythms may make the morning an opportune time to form new habits. These results advance our knowledge of how to encourage long-term healthy lifestyles and can guide the development of mobile health interventions for sustaining behaviour changes. The study's innovative analytical methods were utilised to show that persistence in the use of a meditation app is most effective when meditation is done predominantly in the morning and when users are not extremely rigid to the point where no meditation happens at other times of the day [3].

One of the recent studies has emphasized that employees who experience work-related stress suffer gravely unfavorable health and social impacts. For effective stress management, early detection of stress levels is crucial. A study that was undertaken in this context suggests a deep learning strategy that accurately identifies work-related stress by utilizing multimodal data. For the experiments, a methodology was created that simulates stressful scenarios among volunteers. Data on the electrocardiogram, respiration, and videos were gathered. The datasets were pre-processed, and a series of facial characteristics and electrocardiogram and respiratory signals were loaded into the deep neural network. A pre-trained network based on facial expression recognition was used to extract the coordinates of face landmarks and facial textures. Each branch of the network processed each signal independently.

The feature-level fusion that used electrocardiogram, respiratory outcomes, and the coordinates of face landmarks demonstrated average accuracy in the two-level stress classification and average accuracy in the three-level stress classification. The decision-level fusion's weights analysis revealed that each information item's significance varied depending on the stress categorization problem. It was discovered when comparing the t-stochastic neighbor embedding findings that samples from distinct classes that overlapped led to performance decrease in both classifications. The results of the study indicate that the deep learning method that fuses multimodal and heterogeneous inputs can improve stress detection among subjects [4].

Recent research in the field of environmental psychology suggests that dappled light, such as sunlight shining through a tree canopy, may have positive health benefits. In an actual indoor setting, the impact of projected dappled light patterns on stress relief was examined in one recent study [5]. Based on subjective and skin conductance measurements, the study examined the impact of dappled light patterns on associations with nature and stress reduction in an office setting. Three conditions were used in this between-subjects study: a control condition with evenly dispersed light, a static dappled light condition, and a dynamic dappled light condition.

These circumstances made it possible for the researchers to investigate the impact of temporal variability, or the pattern's movement through time. To determine whether there were any differences in the recovery from stress between the circumstances, stress was created using a Sing-a-Song Stress Test. According to the findings, uniformly dispersed light had only a weak relationship with nature, whereas the dynamic dappled light pattern had a stronger relationship with nature than the static dappled light pattern.

These findings imply that the dynamic dappled light pattern is subject to temporal fluctuation. Additionally, compared to evenly distribute light and dynamic dappled light, subjective measurements demonstrated considerably higher stress restoration for static dappled light, whereas skin conductance measurements did not show any differences between the control and static condition. The stressor task was shown to be least successful in the dynamic dappled light condition, indicating a potential restorative impact, according to the study, which revealed a considerably lower skin conductance level during the stressor task compared to the other conditions [5].

Long-term health impacts of psychological stress exposure include memory loss, sadness, aches, pains, eating disorders, and alcohol or drug misuse. As a result, there is a need to create simple to learn and use efficient stress management techniques. In order to teach subjects precise breathing techniques for relaxation, respiratory biofeedback uses information about breathing to reduce stress. It has been claimed that combining biofeedback training with virtual reality could increase its efficacy as a stress-reduction therapy.

In one recent study, healthy participants participated in a brief virtual reality-based respiratory biofeedback session with the goal of examining the dynamics of various stress indicators before, during, and during the session. Before and after the session, participants appraised their mood status, level of weariness, and degree of strain using saliva samples. Throughout the session, measurements of the subjects' heart and respiratory rates, heart rate variability, and galvanic skin reaction were taken.

The findings demonstrated a significant reduction in skin

conductance values, heart and respiratory rates, and salivary cortisol levels following a single 12-minute relaxing session. Stress, level of weariness, and emotional status as reported by the individual have dramatically improved. As even one session had positive effects on the subjects' autonomic nervous system and hypothalamic-pituitary-adrenal axis activity, as well as self-reported fatigue, strain level, and mood status, respiratory-biofeedback-assisted relaxation sessions may be a useful stress management technique [6].

One of the most recent research studies focused on the fact that many kids who qualify for special education services for learning difficulties and emotional and behavioral disorders exhibit traits that hinder their ability to learn. Students with these difficulties may benefit from the mindfulness practice of mindful breathing to better control their attention, thoughts, and emotions during academic instruction. The study [7] provided details on the benefits of mindful breathing technique, three illustrations of mindful breathing techniques, and recommendations for using mindful breathing in the classroom.

With the intention of examining the existing body of knowledge in the area of stress management and offering guidelines for future study, a thorough assessment of the literature on the benefits of yoga in treating the effects of work stress was conducted [8]. Following the PRISMA recommendations, a thorough literature search of 14 databases was conducted using 12 different search phrase combinations in the domain of "yoga and work stress.

The study's parameters focused on the effects of work stress, which included behavioural, physical, and psychological aspects. They also considered various yoga styles, including Hatha yoga, Vini yoga, Dru yoga, Integrated yoga, Kundalini yoga, Kripalu yoga, Iyengar yoga, Ashtanga yoga, Power yoga, and general yoga, as well as different schools of thought in yoga for managing work stress.

The study offered a thorough analysis of yoga and its role in managing the consequences of work stress and brought together disparate knowledge in this field by highlighting the various understudied standalone and combined effects of work stress as well as the less studied schools of thought in yoga and yoga practises used to manage these effects [8].

Conclusion

Various stress factors including socio-economic affects the central and peripheral nervous system of the human body. This consequently results in the psychological and physiological abnormalities which in turn could lead to several chronic disease forms. If the threshold of stress increases then the person can retort to substance abuse and alcoholism. Therefore there is a need to determine the level of stress among individuals to accurately quantity and provide adequate treatment and rehabilitation. Clinically speaking there are several stress detection and measurements available. In order to alleviate the stress several methods have been proposed. This review has focused on the studies that have quantified the stress and provided an evidence based outcomes for alleviation of stress level among both healthy and individuals affected by disease. Proper breathing technique, muscle relaxation, biofeedback and meditation under proper conditions were among the prominent stress buster techniques. Using these tested methods can substantially improve the quality of life among those affected by high levels of stress.

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