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Efficacy of physiotherapy management on burnout syndrome amongst IT professionals during the COVID-19 pandemic

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Abstract.
BACKGROUND: Burnout is a state of emotional, physical, and mental exhaustion caused by excessive stress. Burnout weakens the energy of an individual which reduces productivity and leaves this individual helpless, hopeless, cynical, and resentful. Thus, an early diagnosis of this syndrome has to be done and ways to prevent the level of progression and complication of burnout syndrome has to be planned.
OBJECTIVE: To determine the efficacy of self-supervised Jacobson's relaxation technique along with Bhastrika Pranayama in reducing the level of burnout among the work-from-home IT professionals during the COVID-19 pandemic.
METHOD: Thirty participants with burnout syndrome were randomly divided into two groups (15 participants in each group) using random allocation. The experimental group received Jacobson's relaxation technique along with Bhastrika Pranayama, whereas the control group received diaphragmatic breathing exercises and chest expansion exercises. Pre-test and post-test values using Maslach Burnout Inventory were used to interpret the results.
RESULTS: Data collected were analyzed statistically by the Wilcoxon Signed Rank Test. It shows that there is a significant reduction in the level of burnout in the experimental group when compared to the control group at a p-value of 0.001.
CONCLUSION: From the results, it is concluded that Jacobson's relaxation technique along with diaphragmatic breathing exercises showed significant improvement in the reduction of burnout levels.

Keywords: COVID-19 pandemic, Maslach Burnout Inventory Scale, diaphragmatic breathing exercises, Jacobson's relaxation technique

1. Introduction

The first case of human infection with the novel coronavirus was noted in Wuhan city, China at the end of 2019. The new infectious COVID-19 disease started spreading globally in March 2020 [1]. Due to the global spread of the disease, it was declared a pandemic [2]. The spread of COVID-19 was very rapid and affected almost 210 countries; with current statistics, it shows that 7.5 million people were infected with more than 423,000 deaths [1].

COVID-19 was declared as an international public health emergency which was unmatched in this modern history and caused various physiological health problems such as lung failure, organ failure, stroke and various psychological problems among the general population such as anxiety, depression, and stress [2]. Studies from China demonstrated a

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significant rise in rates of depression and anxiety during the current pandemic [3]. People not only faced health issues but also the traces of social and economic crisis were observed during the global spread of COVID-19 [4].

To decrease the magnitude and spread of this global threatening virus, most of the governments declared a complete lockdown and many of the working populations were advised to work from home. Employers of the various organizations had a major part to play, especially in the ideas of preparing and giving emergency responses to their employees. The organizations had to consider the government's health contingency plans, International Labor Organization's (ILO) recommendations, and also the WHO guidelines, to achieve a desirable balance between the need to reopen their organizations and limit the infection rate through lockdown, by incorporating awareness among workers and maintaining the health protection plans [5]. Hence it impacted both employers and employees to find an alternative work arrangement. The pandemic situation struck the entire globe and restricted a significant proportion of working population to travel for their work. Therefore the majority of the organization enforced the policy to allow their employees to work from home [6]. Initially, working from home was considered a comfortable and relaxed pattern of working but later, the essence of the work environment was lagging in the thoughts of various professionals [7]. Hence, working from home started causing slight inconvenience among various employees and one of the professions which faced this inconvenience was the IT profession with an increased workload than the normal pattern of working [8]. It was observed that balancing the hectic schedule between both official and household work was difficult. Hence they have to accommodate themselves with the odd routine which led them to feel stressed, fatigued, exhausted, and finally lead to a sense of 'burnout' [7].

Burnout is often felt as emotional fatigue, depersonalization, and a diminished sense of personal achievements [9]. It has been defined as a syndrome that leads to decreased job productivity and a strong sense of fatigue for an extended period and a reduction in the level of job interest as well as lack of motivation. Only a few studies in the literature suggest that job burnout is caused by a highly stressful job and increased workload in the workplace. Job burnout is also associated with quality of the health among IT professionals who are working from home. Thus the IT professionals tend to undergo the symptoms of job burnout such as anxiety, mental depression, and fatigue along with physical exhaustion leading to psychosomatic diseases [10, 11].

The elevated workloads can induce burnout syndrome or pandemic fatigue resulting in both physical and mental stress [12]. In general, the physical and psycho-social factors in the workplace play an important role [13]. According to the literature, it is obvious that burnout is more prevalent among IT professionals with a range of 23–54% affecting almost half of the working population [14, 15]. The best way to assess the burnout syndrome is to make use of the Maslach Burnout Inventory (MBI) a valid and reliable assessment tool to diagnose and understand the level of burnout of an individual [16].

There is no adequate evidence on how to cope with burnout syndrome. At the same time, there are also a few techniques, by which one can recover from burnout [17]. One of the best treatment methods for burnout syndrome is the progressive muscle relaxation technique (PMR) also known as Jacobson's relaxation technique. It is very easy to learn, inexpensive, and can be done as a self-supervised therapy. PMR relaxes the mind along with the body [18].

Similarly, there are also various traditional therapies such as yoga which has the same concept of uniting both the body and mind to achieve a state of peace and good health. Yoga has been used as a treatment for various conditions such as drug addictions, mental peace and relaxation. Regular yoga exercises were believed to create intellectual readability and calmness, increase body awareness, relieves persistent stress patterns, relaxes the mind, centers attention, and sharpens attention [19, 20].

Among the various forms of yoga which promote good health, Pranayama has the most beneficial effects and some literature supports that Pranayama has a positive effect on reducing stress, anxiety, and fatigue [21]. One of the most effective types of Pranayama is Bhastrika Pranayama, which decreases the level of anxiety and negativity. Literature supports that, yoga has shown many beneficial results to increase the pulmonary ventilation in various pulmonary conditions [22]. Thus, practicing such kind of Pranayama improves cardio-respiratory function and promotes sympatho-vagal balance [23, 24].

Various breathing exercises were being practiced as a therapeutic intervention for many conditions. As mentioned earlier, breathing exercises like Pranayama have the same stress reduction approach [25]. Hence, the objective of the study was to examine

the efficacy of self-supervised Jacobson's relaxation technique along with Bhastrika Pranayama in reducing the level of burnout among the work-from-home IT professionals during the COVID-19 pandemic.

2. Materials and method

The study was approved by Institutional Scientific Review Board before the beginning of participant recruitment (05/04/2021/ISRB/FR/SCPT). All participants were explained about the study procedure in detail and voluntarily agreed to participate. Written informed consent was obtained from all participants. The study was carried out for a period of 2 months from April to May 2021.

Participants who resided in Chennai and were working in software firms were invited to this study via email and through social media requests. A total number of 64 participants showed interest in this study. Pre-test MBI Scale was sent to all 64 participants via email and the data were collected. According to the inclusion criteria, IT professionals who were in work from home, aged between 26- and 32 years, and who have been identified to have burnout syndrome using Maslach Burnout Inventory (MBI) Scale were involved in the study. Among those 64 participants with no symptoms of burnout syndrome, any previous histories of psychiatric illness or individuals who were not interested to take part in this study were excluded. Hence a total of 30 participants were recruited for this study. The 30 participants were randomly divided into two groups (experimental and control groups) with 15 participants in each group by the closed envelope method.

The MBI Scale which was used to assess the burnout level consisted of 22 questions that were divided into three sections to analyze the Emotional Exhaustion, Personnel Accomplishment, and Depersonalization of an individual. Thus an individual who gets a high score in the first and third section along with a low score in the second section is suspected to have burnout syndrome. MBI Scale was used to assess the level of burnout in both groups before and after the intervention.

The control group received diaphragmatic breathing exercises and chest expansion exercises for a period of 4 weeks, each week consisted of 7 sessions and each session was about 30 minutes. For performing the diaphragmatic breathing exercise, the participants were asked to sit in a comfortable position or lie flat on the floor, or any other comfortable, flat surface. Then they were asked to relax their shoulders and put one hand on their chest and another hand on their stomach. Now they had been suggested to breathe in through the nose for about two seconds. They were asked to note the air moving inside the nostrils and into the abdomen, making the belly expand. Then they were asked to keep their lips in purse shape (such as drinking via a straw), press gently on their stomach, and exhale slowly for about two seconds. Repeat these steps for about 15 minutes. For the next 15 minutes, the participants were asked to perform chest expansion exercises by raising both their arms upwards (5 mins) and sideward (5 mins) while breathing in through their nostrils and lowering their arms while breathing out through their mouth. Last 5 minutes, they were asked to do the trunk bending activities along with breathing out and back to erect standing while breathing in. All were advised to repeat this step for 15 minutes.

For the experimental group, participants were made to sit in vajrasana or sukhasana also known as the cross-legged position to perform Bhastrika Pranayama. They were asked to adapt to this position because Pranayama can be more effective in vajrasana as the spine is erect and the diaphragmatic movement is better. Then they were asked to make a fist and fold their arms, place it near their shoulders and inhale deeply, followed by raising their hands straight up and opening fists. Then they were instructed to exhale slightly forcefully, bring their arms down next to their shoulders, and close their fists. The participants continued it for 20 breaths and then they were asked to relax with palms on their thighs. Take a few normal breaths and asked to continue this procedure for 15 minutes.

For the next 15 minutes, the experimental group received Jacobson's relaxation technique. The participants were asked to lie down and completely relax their minds, close their eyes and follow the instructions given to them. First distal joints and muscles were targeted and finally progressed to proximal joints and muscles. They were asked to contract the muscles without straining them and were asked to notice the tension created, hold for 2-3 seconds, and then relax it. During this, their breathing should be normal. This should be continued for all joints. All participants in the experimental group received treatment for a period of 4 weeks. Each week consisted of 7 sessions and each session consisted of 30 minutes, in which Bhastrika Pranayama was given for 15 minutes which, was followed by Jacobson's relaxation technique for the remaining 15 minutes.

Both the control and experimental groups received their therapy sessions via telemedicine (Google Meet) and were supervised by two therapists who were blinded from the results. Post-treatment MBI Scale was sent to the participants by email and the data were collected. The data collected as pre-test and post-test values were tabulated and statistically analyzed.

3. Results

Data collected were analyzed statistically by the Wilcoxon Signed Rank Test between pre- and post-test values for both the experimental and control groups. The median value of Emotional Exhaustion for the experimental group pre-test was 29.0, 25% of value 28.0 and 75% of value 32.0, for post-test it was 22.0, 25% of value 19.0 and 75% of value 25.0. The median value of Emotional Exhaustion for the control group, the pre-test median was 30.0, 25% of value 29.0 and 75% of value 32.0, for post-test it was 12.0, 25% of value 11.0 and 75% of value 14.0.

The median value of Personnel Accomplishment for the experimental group pre-test was 19.0, 25% of value 16.0 and 75% value 20.0, for post-test median it was 26.0, 25% of value 22.0 and 75% of value 28.0. The median value of Personnel Accomplishment for the control group, pre-test median was 18.0, 25% of value 15.0 and 75% of value 20.0, post-test median was 17.0, 25% of value 15.0 and 75% of value 18.0.

The median value of Depersonalization for the experimental group, pre-test was 18.0, 25% of value 16.0 and 75% of value 19.0, post-test median was 14.0, 25% of value 12.0 and 75% of value 15.0. The median value of Depersonalization for the control group the pretest value was 18.0, 25% of value 16.0 and 75% of value 19.0, post-test median was 9.0, 25% of value 7.0 and 75% of value 9.0.

The Mann-Whitney Rank Sum Test was used to analyze the post-test values between experimental and control groups. The median value of Emotional Exhaustion for the experimental group was 22.0, 25% of value 19.0, and 75% of value 25.0, and the median value of Emotional Exhaustion for the control group was 12.0, 25% of value 11.0, and 75% of value 14.0. The difference in the median values between the two groups is greater than expected by chance there is a statistically significant difference ($P = <0.001$).

The median value of Personnel Accomplishment for the experimental group was 26.0, 25% of value 22.0, and 75% of value 28.0, and the median value of Personnel Accomplishment for the control group was 17.0, 25% of value 15.0, and 75% of value 18.0. The difference in the median values between the two groups is greater than expected by chance, there is a statistically significant difference ($P = <0.001$).

The median value of Depersonalization for the experimental group was 14.0, 25% of value 12.0 and 75% of value was 15.0 and the median value of Depersonalization for the control group was 9.0, 25% of value 7.0, and 75% of value 9.0. The difference in the median values between the two groups is greater than expected by chance, there is a statistically significant difference ($P = <0.001$).

Statistically, a significant difference was noted in the experimental group's post-test value when compared with the control group, post-test value in all three sections of the Maslach Burnout Inventory Scale where the P-value is < 0.001.

4. Discussion

The current research work was aimed to identify the unnoticed burnout syndrome at an early stage among the IT professionals in work-from-home during the COVID-19 lockdown period. The study also aimed to evaluate the efficacy of physiotherapy intervention for burnout syndrome in the same population.

Few research articles suggested that in the modern technological era the burnout syndrome is most prevalent among the IT professionals and their associated professions. Huarng found that IT professionals had a significant reduction in the Personnel Accomplishment section of the Maslach Burnout Inventory Scale, which suggests that burnout syndrome is prevalent among IT professions [6]. Hence there is an urge to identify the burnout syndrome at its early stage among these professionals and exclusive treatment methods should be formulated to help these professionals to recover from the burnout. There are various treatments to reduce burnout levels, such as deep breathing exercise and mindfulness training, to reduce emotional glitches and the burnout level among health care workers [26].

One of the best treatments to reduce the level of depression is Jacobson's PMR, performed previously on diabetes patients for a period of 8 weeks with good results [24]. This was further supported by Gangadharan et al. [25] who found that PMR seems to be an effective intervention in reducing anxiety, depression and stress among the nursing population.

Table 1
MBI Scale values of the control group which received diaphragmatic breathing exercises and chest expansion exercises

Outcome measures	Parameters	Median	25%	75%	W - Value	Z - Value	*P* – Value
Emotional exhaustion	Pre-test	29.000	28.0	32.0	–120.0	–3.426	<0.001
	Post-test	22.000	19.0	25.0			
Personnel accomplishment	Pre-test	19.000	16.0	20.0	120.0	3.413	<0.001
	Post-test	26.000	22.0	28.0			
Depersonalization	Pre-test	18.000	16.0	19.0	–120.0	–3.427	<0.001
	Post-test	14.000	12.0	15.0			

Table 2
MBI Scale values of the experimental group which received Bhastrika Pranayama and Jacobson's relaxation technique

Outcome measures	Parameters	Median	25%	75%	W - Value	Z - Value	*P* – Value
Emotional exhaustion	Pre-test	30.0	29.0	32.0	–120.0	–3.424	<0.001
	Post-test	12.0	11.0	14.0			
Personnel accomplishment	Pre-test	18.0	15.0	20.0	–24.0	–0.944	0.380
	Post-test	17.0	15.0	18.0			
Depersonalization	Pre-test	18.0	16.0	19.0	–120.0	–3.422	<0.001
	Post-test	9.0	7.0	9.0			

The literature also supports the efficacy of Jacobson's relaxation technique which serves as a strong base for the current study to incorporate Jacobson's relaxation technique among the burnout syndrome subjects to get relieved from the stress during the COVID-19 pandemic.

Invariably, there are also various studies from other streams which also provide to be effective treatment techniques for reducing stress and improving behavioral patterns. One of the techniques is yoga. Alagesan et al. [18] and Anand et al. [19] have implemented this yoga in the rehabilitation of drug addicts, improving behavioral patterns and reducing mood changes. Yoga has a more beneficial effect on both mental and physical health. There are various forms of yoga and various techniques of yoga used worldwide in keeping both mental and physical health in a balanced state. Among these techniques, Pranayama is a simple, efficient technique that can be used to treat various kinds of health issues. Pranayama is further classified into many types and one among them is Bhastrika Pranayama. This type was found to be very effective in reducing the levels of anxiety and negative effect by creating an impact on the brain over emotion, attention, and awareness [20].

Srinivasan et al. [21] also added the benefit of Bhastrika Pranayama for post-COVID-19 patients to improve their respiratory capacity. With the literature support, the current study was attempted to find the combined effect of Jacobson's PMR along with Bhastrika Pranayama for a better recovery from the burnout syndrome during the COVID-19 pandemic.

The statistical analysis of the current study reveals that combining Jacobson's relaxation technique and Bhastrika Pranayama showed an excellent recovery among the burnout syndrome subjects. The strength of the current study is to deliver cost-effective and self-directed treatment with/without physiotherapist supervision. Hence the participants did not miss even a single session and did these two exercises actively. At the same time, the study had a certain limitation of recruiting only the IT professionals for this study due to the pandemic situation. Thus we would suggest that identifying the burnout syndrome in all professions in its early stages and treating it with a cost-effective, self-directed method could facilitate eliminating the symptoms of burnout and promote enthusiasm to work, and thus will enhance the increase in the productivity of work.

This study is not without limitations. We only included IT professionals in a work-from-home setting and not any other profession. As the study focused to find the efficacy of Jacobson relaxation along with Bhastrika Pranayama, it lacks in differentiating the effects of both treatments separately. To identify the improvement of MBI scores, no other outcome measures were used. Even though there are a few studies which involved many other advanced testing and treatment tools for relaxation, this study focused on using simple, easy, free, approachable and effective self-monitoring exercises.

5. Conclusion

The combination of Jacobson's relaxation technique with Bhastrika Pranayama proved to be an

effective and safe intervention for a better and quick recovery from burnout syndrome among IT professionals in work-from-home during the COVID-19 pandemic.

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Conflict of interest

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