The Effect of Deep Breathing on Anxiety, Fatigue and Sleep Quality in Operating Theater Staff

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Received: 2022/04/11 Accepted: 2022/06/19

Abstract

Introduction: Due to the work in emergency situations, having high work technique and large volume of work, the operating room is known as a stressful part. Which can cause problems for the personnel working in it. The aim of this study was to investigate the effect of deep breathing on anxiety, fatigue and sleep quality of operating room personnel.

Materials and Methods: This clinical trial was performed by pre-test-post-test method in 2020 on operating room technologists and anesthesia technicians. Thirty-five people who met the inclusion criteria were randomly selected and performed deep breathing exercises for four weeks. Multidimensional fatigue intensity, Pittsburgh Sleep Quality and Beck Anxiety Questionnaires were completed and compared before, two weeks and four weeks after the intervention.

Results: The mean anxiety score changed from 19.65 ± 9.57 to 14.2 ± 6.34 after two weeks and 10.68 ± 5.67 after four weeks. The mean fatigue scores changed from 64.37 ± 10.07 to 56.79 ± 8.72 and then 52.75 ± 8.76 Which is quite significant in both time effects (P <0.001). The average sleep quality score changed from 9.89 ± 3.41 to 8.92 ± 2.7 and then 7.71 ± 2.7. There was no significant difference in the previous time - 2 weeks later (P = 0.57). However, at 2-4 weeks later, There was significant difference (P = 0.04).

Conclusion: Due to the positive effects of deep breathing on operating room personnel, the use of this non-pharmacological and uncomplicated method is recommended to maintain the mental and physical health of personnel and increase safety and quality of work.

Keywords: Anxiety, Deep Breathing, Fatigue, Sleep quality, Operating room, Operating room technicians

How to cite this article: Nasiri E., Sadati L., Abjar R., Akbari H. The Effect of Deep Breathing on Anxiety, Fatigue and Sleep Quality in Operating Theater Staff, Journal of Sabzevar University of Medical Sciences, 2022; 29(5):719-729.
Introduction

Due to the presence of stressors factors in the hospital environment, especially in critical wards such as, operating room department, medical staff are involved with constant stress and related problems more than other people in the community. On the other hand, the high workload makes Excessive fatigue in health system staffs. Hence, the health and safety of staff and patients are threatened. Sleep as a solution to relieve fatigue, has an important impact on human health, so adequate sleep is an important mechanism to combat pathogens. But variable work shifts in the hospital can also lead to sleep disorders. Because of the high sensitivity of surgical team member’s jobs, it is necessary to paying attention to the mental health of operating room staff. Numerous pharmacological and non-pharmacological methods are suggested to solve these problems, but today non-pharmacological treatments are preferred due to their low side effects and high safety. One of these methods; is Deep breathing exercises. This issue has been studied in several studies on patients’ samples and has shown positive effects on relieving anxiety in women with MS and improving the sleep quality of hemodialysis patients. In the study of Perciavalle et al., The positive effects of deep breathing on improving mood and reducing stress in university students were proven. In another similar study, students were able to reduce their anxiety while taking the OSCE exam with the deep breathing technique. Given that most studies have examined the effect of deep breathing on patients and students; there is still no complete evidence of its effects on reducing work-related fatigue and anxiety and improving sleep quality in operating room personnel. The aim of this study was to investigate the effect of deep breathing on anxiety, fatigue and sleep quality in the operating room staff.

Methodology

The aim of this clinical trial was to determine the effect of deep breathing on anxiety, fatigue and sleep quality in the operating room technologists and anesthesia technicians working in the operating room of Alborz University of Medical Sciences with ethical code IR.MAZUMS.REC.1398.1242 and code clinical trial IRCT20200305046701N1, was performed between 2020-04-03 to 2020-05-04. First, demographic information questionnaires, Multidimensional Fatigue Inventory, Pittsburgh Sleep Quality Index and Beck Anxiety questionnaires were distributed among operating room staff. Then based on the results of statistical analysis; Thirty-five individuals who met the inclusion criteria were randomly selected. These inclusion criteria include; Having problems; Mild to severe anxiety, moderate to severe fatigue, and poor sleep quality, at least an associate's degree, six months of operating room experience, no lung problems and Not attending yoga classes, no smoking and sedatives, and no pregnancy. Reluctance to continue participating in the study, starting to use sedatives and nerves and a variety of vitamins and the use of extracts and herbal teas to strengthen the nerves during the study were also among the exclusion criteria. Also, people who did not perform interventions more than one day a week were excluded from the study. Then, in coordination with the participants, time was allocated for staff training. At the beginning of the training session, explanations were given about respiratory skills and their effects on physical and mental health. Then, abdominal breathing exercises and full breathing (three parts) were taught with the help of educational videos and booklets. At the end, videos, a training booklet, and a researcher number were provided. The trainings provided to the staff, videos and training booklets have been designed and approved by researchers along with professors specializing in this field. In the first week, abdominal breathing in the supine position, in the second week, abdominal breathing in the sitting position, and in the third and fourth weeks, complete breathing, were considered as interventions. These exercises were performed once a day at the beginning of the day and once at night, 12 times in each turn, and one breath was added to this number every day. At the beginning of the new week, this number started again from 12 breaths in each turn. Then, two weeks later and at the end of the fourth week, the relevant questionnaires were completed again. Finally, the data obtained in SPSS 22 software were entered and analyzed. Data normality was measured by Kolmogorov – Smirnov test. Descriptive data were expressed as mean ± standard deviation and qualitative data as frequency. Paired-samples T-Test, etc. were used to analyze the data.

Result

Out of 35 participants; 29 (82.9%) were male and 6 (17.1%) were female with a mean age of 31.25 ± 5.76. Examination of the average fatigue scores showed that in the studied stages, we see a decrease in the average fatigue scores. Paired t-test showed a significant difference in the mean of fatigue scores during the next week (P <0.001). After 4 weeks, this difference was quite significant (P <0.001). Qualitative classification of fatigue showed that we did not see mild fatigue in the time before the intervention. But after the passage of time and intervention, the number of people with severe fatigue has decreased and the number of people with mild fatigue has increased. The results of Wilcoxon
test also showed that we did not see a significant difference in terms of fatigue quality before and after (P = 0.08), but after 4 weeks, we saw a significant difference between 2 weeks and 4 weeks (P=0.01). Comparing the dimensions of fatigue, The results of the Wilcoxon test show that mental and physical fatigue was the only classification which had a significant difference between before-after in the studied times. The Dimension of activity reduction did not show a significant difference and general fatigue and decrease in motivation showed a significant difference only in the time before and 2 weeks later. The next variable was determining the level of anxiety before and after the intervention. The results of paired t-test showed that there was a significant difference between the time before - 2 weeks later (P <0.001), and the time 2 weeks later - 4 weeks later (P <0.001). And people's anxiety levels have dropped dramatically over time. The results based on the descriptive statistics of anxiety, for the people in 4 groups show that in the past, people without anxiety were not observed. But over time, the number of people without anxiety increased and the number of people with severe anxiety decreased to zero. The results of Wilcoxon test showed that anxiety decreased significantly between before and after in the studied times. Examination of the average scores of sleep quality shows that the average scores have decreased. Paired t-test also showed that there was no significant difference in the time before - 2 weeks later (P = 0.57). However, at 2 weeks - 4 weeks later, we saw a significant difference (P = 0.04). Paired t-test and Wilcoxon showed that in terms of sleep delay, sleep efficiency percentage was significantly different between before - 2 weeks later and 2 weeks - 4 weeks later. In the field of sleep disorders, we have seen a significant difference only between the time before - 2 weeks later. There was a significant difference in real sleep and daily dysfunction only 2 weeks - 4 weeks later. Wilcoxon test showed that the mental quality of sleep before and 2 weeks later was significantly different and a significant difference was observed between the two times (P = 0.02). But at 2 weeks later - 4 weeks later we did not see a significant difference.

Discussion

According to the findings, there is a significant difference between anxiety before and after deep breathing; So that the average anxiety scores decreased significantly over time. According to a study by De Couck et al., The vagal breathing pattern reduces stress and improves work decisions. This issue is especially important in the treatment staff. In the study of Ma X et al., The effect of diaphragmatic breathing on concentration, attention and stress in healthy adults was measured. The cortisol level of the intervention group decreased significantly after breathing exercises. Despite the differences in the measurement of anxiety, the results of these studies are consistent with the present study. Breathing exercises have also had positive effects in different patients, so that these exercises have been effective in reducing anxiety in patients with bipolar disorder. In a similar study, its positive effect on reducing anxiety and postoperative pain was proven. It also increases SpO2 levels and quality of life in patients with COVID-19 and helps reduce shortness of breath and anxiety levels. In some cases, deep diaphragmatic breathing for 4 weeks reduced systolic and diastolic blood pressure, decreased heart rate, had a calming effect, and reduced anxiety in people with hypertension or hypertension. In children, it also reduces anxiety in test-like situations and improves performance by improving mental state. In this regard, according to the results of the present study; Reducing breathing before performing deep breathing exercises also helps operating room staff can help them make the right decisions and improve their performance in emergency and critical situations in the operating room. The next goal of the study was to determine the degree of fatigue before and after deep breathing in operating room personnel. According to the results, the amount of fatigue has been significantly reduced over time. The findings of Hayama et al."s study suggest that performing deep breathing intervention before and after chemotherapy on the second, fourth, and sixth days of chemotherapy for approximately 10 minutes at a time reduces "stress-anxiety" and "fatigue" in Patients with gynecological cancer undergo chemotherapy. Therefore, proper breathing training is essential for both patients and for reducing work-related anxiety and fatigue in healthy individuals. After the intervention, the number of people with good sleep also increased. In one study, the effect of deep breathing exercises on the duration and quality of sleep in 64 patients undergoing coronary artery bypass grafting was measured. Consistent with the present study; The results showed that deep breathing exercises had a significant effect on the sleep quality score of the intervention group compared to the control group and helped to improve the sleep quality of these patients. Pranayama exercises and deep breathing were also effective in reducing fatigue and insomnia in patients undergoing radiotherapy for breast cancer. Laborde et al. State that slow breathing is a promising cost-effective way to improve the quality of mental sleep and cardiovascular function during sleep in healthy young people. The study of Lui et al. was conducted to evaluate the effectiveness of breathing training in improving the quality of sleep of nursing staff during the outbreak of Covid-19. The use of hypnotics and depression was not observed. While in the present study; Despite the positive effect of time on the improvement of actual sleep and

Discussion

According to the findings, there is a significant difference between anxiety before and after deep breathing; So that the average anxiety scores decreased significantly over time. According to a study by De Couck et al., The vagal breathing pattern reduces stress and improves work decisions. This issue is especially important in the treatment staff. In the study of Ma X et al., The effect of diaphragmatic breathing on concentration, attention and stress in healthy adults was measured. The cortisol level of
daily dysfunction, this difference became significant after four weeks. On the other hand, in our study, the lack of sedatives, hypnotics and nerves were the inclusion criteria, so the cause of hypnotics was not measured. Due to the different effects of deep breathing at different times, it is better to measure the effect of these exercises at different times and in the long run. On the other hand, due to the limitations of this study, only two samples of breathing exercises were performed as an intervention, which suggests that more studies be performed with complete breathing exercises from basic to advance in different groups with longer duration. Also, due to the effects of sleeping pills, sedatives and nerves on the variables of anxiety and fatigue, the cause of sleeping pills was not assessed in the Pittsburgh questionnaire; Therefore, it is suggested that the effect of deep breathing on this factor be measured in future research.

**Conclusions**

Based on the results of the study and the effects of deep breathing on reducing anxiety, severe fatigue and improving sleep quality, training of this non-drug and uncomplicated method is recommended to operating room staff to reduce problems and maintain their mental and physical health. In this way, we can help improve the quality of work and maintain the safety of patients and staff.

**Acknowledgment**

This article is the result of a part of the approved master's thesis in Mazandaran University of Medical Sciences. The authors of the article consider it necessary to appreciate the officials and research assistants of Mazandaran and Alborz Universities of Medical Sciences in terms of spiritual and scientific support. We also thank all the staff of the operating room of Alborz province who cooperated with the researchers in conducting this research.

**Conflict of Interest**: The authors declare that there are no conflict of interest regarding the publication of this manuscript.
بررسی تأثیر تنفس عمیق بر اضطراب خستگی و کیفیت خواب پرسنل اتاق عمل

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ناوگرفان: 

چکیده

به دلیل کمی در شرایط اورژانسی، دارای بودن کمکی کاری از جانب زبان، اتاق عمل، به انتخاب و هدف بررسی تأثیر تنفس عمیق بر اضطراب خستگی و کیفیت خواب پرسنل اتاق عمل انجام شد.

مواد و روش‌ها: این کار از پژوهش‌هایی با روی کنون به دسته معیارهایی اضافاتی برای تعیین اصول بر خور با همین اولویت ویرانی مطابق با روش‌هایی اضافاتی می‌باشد. از طریق معرفی و یافتن اتاق عمل، کاهش‌های اضافاتی و ادم فعالیت و کیفیت خواب، از طریق امکانات و تجربیات به دست آمده، کاهش‌های اضافاتی و ادم فعالیت و کیفیت خواب افزایش یافته است.

تاریخ دریافت: ۱۴۰۰/۰۷/۰۱

نواحی موضوعی

بررسی تأثیر تنفس عمیق بر اضطراب خستگی و کیفیت خواب پرسنل اتاق عمل

1. مقدمه

اصلی و اضطراب از عواملی هستند که به افراد در طول زندگی‌شان تجربه کرده‌اند. از مهم‌ترین منابع ابزاری که آن‌ها موجب شده شغلی هستند می‌تواند در کشتی‌های فلئی نشانه‌های فلئی‌های فلئی و اسکی‌های طرفیند که در این مورد به توصیه‌های کاهش‌های اضافاتی و ادم فعالیت و کیفیت خواب افزایش یافته است.

روان پرسنل می‌تواند با کاهش خستگی انجام که با توجه به فشار کاری،

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امروزه کادر درمان مسئولیت بایاپی از خستگی‌ها را تجربه می‌کند. خستگی‌ها می‌توانند سلامت و ایمنی کارکنان و بیماران را به خطر خیاط خطر بخشنده‌ای باشند. خواب به عنوان یک راه‌حل برای بین بردن خستگی، تأثیر مثبت بر سلامت انسان دارد. به طوری که خواب کافی و مناسب، مکانیسم مهمی برای مبارزه با عوامل بیماری‌زا می‌باشد و نظام در حفظ سلامت جسمی و روحی، عملکرد شناختی و روابط اجتماعی فرد دارد.

[۷] در مطالعه استریت بازار ارزی، به یکی از این اشکال ایجاد شده است. در این مطالعه، افراد به بررسی نشسته و در پرس و پاسو و روابط اجتماعی خود به ابمامات صاحب‌دست به دسته‌بندی و بررسی شدند. در این مطالعه، بر اساس تحقیقات مختلف، تأثیرات سیستمی و همگانی بر سلامت جسمی و روحی و عملکرد مربوط به صحتی از مطالعات مختلف بوده است. 

[۸] تأثیرات مثبت تغییر عضق به بهره‌برداری و خوک و کاهش استرس در ارائه‌نامه‌های بی‌سی‌بی‌سی در کشورهای مختلف می‌باشد. در این ارائه‌نامه‌ها، مطالعات مختلفی در این اثر را دیده‌اند. در یک مطالعه، تأثیرات مثبت تغییر عضق به بهره‌برداری و خوک و کاهش استرس در ارائه‌نامه‌های بی‌سی‌بی‌سی در کشورهای مختلف می‌باشد. در این ارائه‌نامه‌ها، مطالعات مختلفی در این اثر را دیده‌اند. در یک مطالعه، تأثیرات مثبت تغییر عضق به بهره‌برداری و خوک و کاهش استرس در ارائه‌نامه‌های بی‌سی‌بی‌سی در کشورهای مختلف می‌باشد. در این ارائه‌نامه‌ها، مطالعات مختلفی در این اثر را دیده‌اند.

تغییرات منفی عضق در بهبود بیماران می‌باشد. در این مطالعه، افراد به بررسی نشسته و در پرس و پاسو و روابط اجتماعی خود به ابمامات صاحب‌دست به دسته‌بندی و بررسی شدند. در این مطالعه، بر اساس تحقیقات مختلف، تأثیرات سیستمی و همگانی بر سلامت جسمی و روحی و عملکرد مربوط به صحتی از مطالعات مختلف بوده است. 

[۹] بر اساس بررسی‌های مختلف، تأثیرات سیستمی و همگانی بر سلامت جسمی و روحی و عملکرد مربوط به صحتی از مطالعات مختلف بوده است. در این مطالعه، بر اساس بررسی‌های مختلف، تأثیرات سیستمی و همگانی بر سلامت جسمی و روحی و عملکرد مربوط به صحتی از مطالعات مختلف بوده است. در این مطالعه، بر اساس بررسی‌های مختلف، تأثیرات سیستمی و همگانی بر سلامت جسمی و روحی و عملکرد مربوط به صحتی از مطالعات مختلف بوده است. در این مطالعه، بر اساس بررسی‌های مختلف، تأثیرات سیستمی و همگانی بر سلامت جسمی و روحی و عملکرد مربوط به صحتی از مطالعات مختلف بوده است.
بعد اخذ اختلاف معنی‌دار دارد (P<0.001). پس از گذشت 4 هفته نیز بررسی می‌گنجاید نماینده نشان داد که در مراحل مورد بررسی، شاهد کاهش میانگین نمرات خصوصی گسترش (جدول ۲). از نمرات زوج نشان داد میانگین نمرات خصوصی در زمان هفته آخر نیز کاهش خصوصی گسترش

<table>
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<th>جدول ۱: اطلاعات دموگرافیک افراد شرکت‌کننده در مطالعه</th>
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۷۲۵
داسته است. بعد کاهش فعالیت اختلال معنی‌داری نشان داده است و خستگی عمومی و کاهش انگیزه نیز تنها در زمان قبل و هفته بعد اختلال معنی‌داری در نشان داده است. 

نتایج براساس طبقه‌بندی کیفی اضطراب به ۴ گروه نشان می‌دهد که میانگین نمرات کاهش پایه است (جدول ۴). آزمون تی زوج نیز نشان داد که در زمان قبل و هفته بعد اختلال معنی‌داری وجود ندارد (۲ هفته بعد اختلال معنی‌دار، داد که بضد کاهش اضطراب در محدوده زمانی ۲ هفته بعد اختلال معنی‌دار بوده است که در زمان‌های مورد بررسی به قابلیت در افزناه‌ای که در زمان قبل از مداتله در ایتالون نشان داد که در زمان قبل از مداتله در ساعت کاسته شده و روزانه نشان داد که در زمان قبل و هفته بعد اختلال معنی‌داری در نشان داده است.

جدول ۳. مقایسه میانگین نمرات حیطه اضطراب در فاصله زمانی یک ماه

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جدول ۴. مقایسه میانگین نمرات حیطه کیفیت خواب در فاصله زمانی یک ماه

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طبقه‌بندی کیفیت خواب در دانشگاه علوم پزشکی سبزوار، آذر و دی ۱۳۹۲، دورة ۲۳، شماره ۴
خستگی‌ها در بیماران با استرس زندگی‌زدایانی مطرح‌شده‌اند. 

۲. هفته بعد توانایی کاهش قدرت و اندازه‌های صورتی است. 

منبع‌های معنی‌داری می‌تواند با توجه به بررسی‌های انجام شده در زمینه‌های مختلف، به هیچ‌نموداری از توجه به بهبود شرایط حین ستایش کاهش قدرت و اندازه‌های صورتی 

۳. هفته بعد شاهد افزایش عنصر نیتروژنیم.
دانشگاه علوم پزشکی مشهد، بهمن ماه، سال 1400

ارتباط کیفیت کار و حفظ ایمنی بیماران و کارکنان کمک کردن

تشکر و قدردانی

این مقاله حاصل یکی از پایان‌نامه‌های کارشناسی ارشد مصوب در

References


