The effect of mindfulness therapy through an android application on nurses' work stress: A literature review

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ABSTRACT

Introduction: Several studies have shown that nurses have high levels of work stress. Work stress can be overcome with therapy, especially mindfulness therapy. The purpose of this literature review is to synthesize the literature on mindfulness therapy to reduce work stress for nurses.

Objectives: The formulation of the problem in this study is how to influence mindfulness therapy through an android application on work stress on work nurses in Emergency Room.

Methods: Literature search was carried out using several databases, including PubMed and Scient Direct. The keywords used were different in each database. For PubMed, use "mindfulness" and "online" or "workload" or "work stress" or "occupational stress" or "nurse", while for direct knowledge use "mindfulness" and "online" or "app" and "beban kerja" or "stres kerja" or "RCT".

Results: Results of the search of various literature obtained 360 articles, then through a series of selection, 67 are in accordance with the criteria. Article-articles were published from 2018 to 2023. Only 7 articles were reviewed and were in accordance with the research topic, 2 articles are not available, 1 article in another language. There are 4 articles selected for further review..

Conclusions: Nurses have high levels of stress related to workload that is large. Stress that is not managed properly can cause social dysfunction and somatic disturbances. Terapi pengurangan stress berbasis mindfulness diketahui sangat efektif dalam menurunkan tingkat kecemasan, kelelahan kerja, and stress kerja pada perawat. Aplikasi langsung yang dilakukan kepada perawat atau melalui aplikasi online aman untuk diberikan, karena tidak memiliki perbedaan efektivitas yang signifikan.

KATA KUNCI: mindfulness; online; beban kerja; stres kerja; stres pekerjaan; perawat; aplikasi.
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**Results:** The search results from various literature obtained 360 articles, then through a series of selections, 67 match the criteria. These articles are publications from 2018 – 2023. but only 7 articles that are reviewed and in accordance with the research topic and 2 articles not available cannot be accessed, 1 article another language. There were 4 selected articles left for review.

**Conclusions:** Nurses work have a high level of stress associated with a large workload. Work stress that is not handled properly can lead to social dysfunction and somatic disorders. Mindfulness-based stress reduction therapy is known effective in reducing the level of nurses anxiety, work fatigue, and work stress. Direct application or online is safe to give, because it does not have significant difference in effectiveness.

**KEYWORD :** mindfulness; online; workload; work stress; occupational stress; nurse; app

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**INTRODUCTION**

Stress is a condition in which a person is under pressure beyond his ability to adapt to it. This condition causes physiological changes such as disruption of the body's homeostatic system (1). Prolonged stress will affect health, well-being, and daily activities (2). One of the activities of nurses is providing nursing care to patients. High work stress causes nurses to be tired and lacking in providing services to patients (3). Lack of service to patients, rude attitude, and ignoring the needs of patients are included in a negative attitude or depersonalization in the aspect of work fatigue dimensions.

There are three dimensions of job burnout, namely emotional exhaustion, depersonalization, and personal accomplishment. Personal accomplishment is a negative evaluation of oneself. The inability to positively assess the surrounding conditions can increase emotional exhaustion which leads to the emergence of negative attitudes such as speaking in high intonation, demeaning patients, and ignoring the patient's needs (4). Therefore it is important to overcome work stress on nurses, because research shows that good service to patients affects patient satisfaction and compliance in treatment (5).

Work stress handling can be done in various ways according to the triggering factor. Several studies have shown the effect of coping with stress on the ability to control work stress in nurses (6,7,8,9,10). Good stress coping can be trained with a psychological approach, one of which is using mindfulness techniques (11,12).

Mindfulness is a therapy that continues to be developed among medical personnel in the United States. Mindfulness helps individuals...
self-reflect and think calmly about situations and feelings. Previous research has shown that mindfulness is effective in reducing burnout caused by work stress seen from the dimensions of emotional exhaustion and depersonalization, but there is no increase in personal accomplishment (13). This is different from the research by Adinda & Bintari (2020) which states that there is an increase in personal accomplishment. The existence of a gap in previous studies made researchers interested in re-examining the role of mindfulness on the work stress of nurses, especially those who work in the emergency room.

The workload of nurses is heavy because they must be careful, fast and precise in providing services to patients. The large number of work demands and immediate services can make nurses vulnerable to work stress. Work stress can be treated with mindfulness therapy, but there are gaps in previous research. Based on the background above, the formulation of the problem is how the role of mindfulness on the work stress of nurses.
MATERIALS AND METHODS

Search in the form of literature was carried out using several databases, including PubMed, and Scientdirect. The keywords used are different in each database. For PubMed use "mindfulness" and "online" and "workload" or "work stress" or "occupational stress" and "nurse", meanwhile for scient direct use "mindfulness" and "online" or "app" and "workload" or "work stress" or "occupational stress" and "RCT". The search results obtained articles with details, PubMed (n=80), and Scient Direct (n=280).

Articles were analyzed using the PICO framework (P: Work stress, I: Mindfulness App, C: -, O: Reduction of stress levels and work fatigue). Inclusion criteria for this study were technology, app, online, nursing area, RCT, and research articles with research time span 2018 to 2023 and in English. The exclusion criteria were articles that were not accessible and full text was not available.

After finding various articles, 360 articles were screened for eligibility 67 articles, but only 7 articles that are reviewed and in accordance with the research topic and 1 article not available cannot be accessed. There were 4 selected articles left for review (Figure 1).

RESULTS AND DISCUSSION

RESULTS

The search results from various literatures obtained a total of 360 articles, then through a series of selections, 4 articles were obtained that match the criteria. These articles are publications from 2018 – 2023. The following is a summary listed in Table 1.

DISCUSSION

Stress is an acute condition of a person experiencing pressure that exceeds his ability to cope with the pressure. Prolonged conditions of work stress will increase fatigue and decline in health. Work stress is experienced by many individuals who work in health services with high demands and responsibilities and busy working hours. One of them is for nurses working in the emergency room (18,19,20).

The results of the article review showed that 18 out of 24 articles stated that the level of work stress in emergency room nurses was at the middle to upper level. A total of 16 articles stated high levels of work stress and 2 other articles stated moderate work stress. Two articles did not measure the level of job stress, and the other two articles stated that low job stress was associated with good stress coping by nurses. Work stress that is not handled properly can cause social dysfunction and somatic disorders (8). Social dysfunction is shown by the attitude of nurses who ignore the patient's needs, speak curtly, or despise the patient (21). While somatic disorders are associated with a sense of satisfaction, perceived well-being, and decreased health. In fatal conditions, work stress can lead to suicide in nurses (22,23).

In an effort to prevent work stress, it is necessary to know the factors that influence work stress first. Measurement of work stress has various instruments. Based on an analysis of 24 articles, the research instrument that is widely used to measure the level of work stress and work fatigue is the Maschals Burnout Inventory (MBI). MBI is a measuring tool that describes work fatigue in three dimensions, namely emotional exhaustion, depersonalization, and personal accomplishment. Recent research shows the
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<th>Article title (author, year)</th>
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<td>Mindfulness on-the-go: Effects of a mindfulness meditation app on work stress and well-being [14]</td>
<td>Participant were 238 healthy employees from two large UK companies, RCT, mindfulness meditation practice app or a wait-list control condition. The app offered 45 prerecorded 10- to 20-min guided audio meditation</td>
<td>The intervention group reported significant improvement in well-being, distress, job strain, and perceptions of workplace social support compared to the control group. In addition, the intervention group had a marginally significant decrease in self-measured workday systolic blood pressure from pre-to post-intervention. Sustained positive effects in the intervention group were found for well-being and job strain at the 16-week follow-up assessment.</td>
<td>The main limitations of the trial are the lack of an active control condition, the short-term follow-up, and the reliance on self-administered blood pressure readings. A second limitation is that participants were not tracked beyond several weeks postintervention</td>
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<td>The Effect of Mindfulness-Based Breathing and Music Therapy Practice on Nurses’ Stress, Work-Related Strain, and Psychological Well-being During the COVID-19 Pandemic: A Randomized Controlled Trial [15]</td>
<td>This randomized controlled trial was conducted in a COVID-19 department at a university hospital in Turkey. Nurses who care for patients infected with COVID-19 were randomly divided into an intervention group (n = 52) and a no-treatment control group (n = 52). The intervention group received mindfulness-based breathing and music therapy</td>
<td>The data from the study showed that mindfulness-based breathing and music therapy decreased stress and work-related strain (P &lt; .05) and increased psychological well-being (P &lt; .05). The control group showed no statistically significant changes on these measures (P &gt; .05). The mindfulness-based breathing and music therapy practice reduced nurses’ stress and work-related strain and increased psychological well-being during the COVID-19 pandemic.</td>
<td>The limitation of the study is that the long-term effects of mindfulness-based breathing and music therapy were not evaluated and the therapy was applied in a single session</td>
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<td>Mindfulness and music interventions in the workplace: assessment of sustained attention and working memory using a crowdsourcing approach [16]</td>
<td>A total of 623 healthy volunteers from Danish companies participated in the study and were randomized into three groups, which consisted of a 30-day intervention of either mindfulness or music, or a non-intervention group.</td>
<td>Participants in the mindfulness group showed a significant improvement in the coefficient of sustained attention, working memory capacity and perceived stress (p&lt;001). The music group showed a 38% decrease of self-perceived stress. The control group showed no difference from pre to post in the survey or cognitive outcome measures. Furthermore, there was a significant correlation between usage of the mindfulness and music app and elevated score on both the cognitive games and the perceived stress scale.</td>
<td>Size in each of the 3 groups was not entirely balanced. One criticism might be that participants in the mindfulness training condition simply experiencing a placebo effect because they knew they were in a mindfulness group and because of the general belief that mindfulness is beneficial.</td>
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need for an approach to using item response theory (IRT) in interpreting the MBI measurement subscale (24).

In addition to the type of measuring instrument, researchers found various factors that cause work stress. The results of the article review that the author did showed there were 26 factors that caused work stress, 7 main factors that caused stress, namely workload (discussed in 11 articles), gender (9 articles discussed), social support in the work environment (7 articles discussed), work fatigue (discussed in 9 articles), discussed 5 articles), anxiety due to fear of being exposed to covid-19 (discussed in 9 articles), job satisfaction (5 articles discussed), and coping with stress (4 articles discussed). The workload includes stressful working conditions, lack of human resources, lack of adequate facilities such as the availability of personal protective equipment during the Covid-19 handling period and the availability of beds <20 while the number of patients exceeds the availability of beds (25).

The conditions above can be treated with psychological therapy by increasing self-awareness and ability to see positive things from the surrounding environment. The treatment can use mindfulness therapy. Mindfulness is an activity of self-reflection and thinking about the meaning of life that is being lived. Focus on calm and understand self-concept. This therapy has been widely developed in an effort to reduce work stress on medical personnel, especially in the United States (26,27). Research by Setyawati & Ratnasari (2020) showed a decrease in the level of emotional exhaustion and depersonalization after mindfulness therapy was carried out. In line with Adinda & Bintari's (2020) research, there was an increase in personal accomplishment after the application of mindfulness therapy.

Researchers also conducted a review of articles on the effect of mindfulness interventions on stress in nurses to see their effectiveness. The selected articles are articles with randomized control trial technique. Based on the search, it was found that seven articles matched the keywords, but only four matched the criteria and were selected to be discussed in this literature review, because they are related to technology and applications. The results of the study show that mindfulness therapy is effective in reducing the level of work stress in nurses and the stress symptoms that trigger it. In addition, there appears to be a decrease in the level of anxiety and work fatigue, as well as an increase in welfare and perceptions of social support from the work environment. The results of blood pressure measurements also showed a decrease in blood pressure before and after implementing the intervention (16,14,28).

Mindfulness therapy has the concept of feeling the experience over time, awareness, acceptance, attention, and the process of change. This ability can reduce stress levels because it helps individuals focus on reflecting on their moments and experiences without subjective judgment (27). This statement is in line with research by Setyawati & Ratnasari (2020) which states that one of the dimensions of work stress, namely personal accomplishment, is an individual's internal condition that assesses the achievements he feels, repeated bad evaluations of himself will increase stress.

Therefore the Mindfulness-Based Stress...
Reduction (MBSR) technique emphasizes the intrapersonal evaluation of each individual. The stages of the MBSR implementation consist of 11 sessions conducted for 4 meetings by applying five meditation techniques. The meditations used are breathing, body scanning, sitting, walking, and eating. Activities such as meditation skills training, discussion, and sharing. During the MBSR training, individuals were given an Exercise book to record the self-assessment, the activities carried out, as well as the processes and experiences they felt (29).

Effective results from applying mindfulness therapy were obtained after intervention for more than a month. Several mindfulness intervention articles show differences in intervention time, namely 16 weeks to three months with a range of follow-up evaluations in the fourth month. Based on the limitations of the research, it is necessary to pay attention to individual perceptions about the benefits of mindfulness therapy and the accuracy of the therapy.

CONCLUSION AND RECOMMENDATION

Nurses work have a high level of stress associated with a large workload. Work stress that is not handled properly can lead to social dysfunction and somatic disorders. These disturbances can affect the performance of nurses, especially in providing comprehensive services to patients. Mindfulness-based stress reduction therapy is known to be effective in reducing the level of anxiety, work fatigue, and work stress in nurses. Direct application or online is safe to give, because it does not have a heavy difference in effectiveness.

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