Good Practice

Referencing the body for mood state regulation: an examination of stress management using Dohsa-hou as a primary prevention program for nurses

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Abstract

Objectives: Stress management for human service professionals remains an international issue. **Methods:** We conducted a primary prevention program using Dohsa-hou designed to provide early-career nurses with an understanding of stress and physical relaxation skills that can be utilized to reduce negative and increase positive mood states. **Results:** A total of 56 nurses working at a general hospital in Japan participated in the program. As a result, negative mood states were significantly reduced at post-test from the intervention. Also, vigor as a positive mood state showed a marginal increase compared to pre-test. These findings were largely consistent with a previous study implementing Dohsa-hou movement tasks in a stress management program. **Conclusions:** Although there were some limitations, this study suggested that the stress management program using Dohsa-hou may be a useful approach for preventing burnout by promoting mood state regulation for nurses.

Keywords: Dohsa-hou, nurse, stress management

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Introduction

Maintaining and promoting the mental health of working people has become a major issue for our society. In particular, it is known that human service professionals, such as nurses, care workers, and teachers, deal with high levels of occupational stress, and efforts to reduce their mental burden and improve their quality of life are internationally recognized. Employees under such conditions tend to experience or exhibit symptoms of burnout, which is a syndrome characterized by physical fatigue and emotional exhaustion from the excessive demands associated with assisting people over a long period of time. Burnout leads to physical and psychological problems, such as psychological distress, anxiety, depression, and reduced self-esteem¹⁾. Therefore, the need for stress management to be provided for human service professionals has been

discussed as a way to contribute to ameliorating or preventing these problems. The purpose of the present study is to implement and examine the effectiveness of a stress management intervention for early-career nurses. Specifically, we examine the utility of a primary prevention program using Dohsa-hou, which is a psychotherapeutic approach that prioritizes awareness and regulation of physical and psychological states of the body through relaxation movement tasks.

Nurses have been shown to work in an environment marked by occupational stressors²⁾. Laal³⁾ examined how nurses cope with daily stress and determined that the percentage of nurses who frequently engaged in positive stress management was low in terms of meeting with friends, listening to music, and playing sports. Also, the study revealed that there were many nurses who frequently opted for negative attempts at stress management in the form of disputing with others, smoking, and over-consuming coffee or alcohol. These findings suggest that nurses need to develop effective stress management strategies in order to reduce stress and psychological burden.

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Viewpoint on improvement

Many studies have been conducted on occupational stress management intervention programs that include cognitive-behavioral, relaxation, organizational, and multimodal strategies⁴⁾. Edwards and Burnard⁵⁾ conducted a systematic review of stress and stress management interventions for mental health nurses. The authors found that relaxation techniques, training in behavioral techniques, stress management workshops, and training in therapeutic skills were effective stress management techniques for mental health nurses. They also suggested that relaxation interventions appeared more often within health care settings than other interventions because of their relative simplicity. Alexander et al.⁶⁾ conducted a yoga-based intervention program for 40 nurses, and nurses who practiced yoga demonstrated a significant decrease in burnout after 8 weeks. Considering these results and the fact that burnout is characterized by extreme physical fatigue and emotional exhaustion, it is possible that physical approaches that can incorporate both physical and emotional aspects might be effective for nurses.

In the field of industrial or organizational psychology, it is not only important to reduce negative mood states, but also to increase positive mood states, such as vigor. Vigor is considered to consist of three factors of physical strength, emotional energy, and cognitive liveliness, and vigor has been shown to contribute to job satisfaction, job performance, and the overall effectiveness of the organization⁷⁾. Although there are few interventions using physical approaches that are effective at increasing vigor, Ki⁸⁾ conducted a stress management application of Self-Active Relaxation Therapy (SART), a subset of Dohsa-hou, that suggested that vigor significantly increased at post-test in a sample of schoolchildren. In Japan, Dohsa-hou has been used as a physical approach for psychotherapy in various developmental and psychological conditions⁹⁾. Dohsa-hou facilitates behavioral change through the execution of body movements and associated changes in feeling states of the body from the experience of relaxation and body-mediated communication with the therapist. Similar to other contemplative and mind-body approaches that aim to enhance awareness about the self, the body, mood states, and decentering, Dohsa-hou increases awareness about the body through attention to bodily sensations and processes thought to confer motor resonance¹⁰⁾. The “Dohsa process” is designed to enhance a sense of agency over the body and is described as a psychological activity that leverages intentional processes to move. Comparably, self-regulation involves the capacity to exercise control, manage health outcomes, and facilitate adaptive behavior. Together, the theory and practice of Dohsa-hou body movements and self-regulation overlap in the domain of motor control over body movements and health-related constructs for managing bodily signals and internal states¹⁰⁾.

Although awareness of the physical sense and the physical control experience are effective for stress management, interventions utilizing Dohsa-hou require further investigation for clarification of its therapeutic or programmatic effects. As the previous stress management application for mood states by Ki⁸⁾ was conducted with schoolchildren, verification across other samples is also necessary. Early-career nurses represent another salient community context, in which stress management applications proximally offer relaxation strategies and ultimately contribute to primary prevention for burnout. Therefore, this study carried out an intervention using Dohsa-hou for nurses and examined the magnitude and direction of its effects in terms of mood state regulation.

The hypothesis of this study expects that the intervention using Dohsa-hou will reduce negative and increase positive mood states reported by nurses at post-test as compared to pre-test for the intervention.

Subjects and Methods

Study design and participants

Fifty-six full-time nurses participated in the intervention program as part of a supplemental training workshop for third-year nurses working at a general hospital in Japan. We targeted nurses who have entered their third year because nurses onsite at the hospital were reportedly quitting their jobs during their third year. They participated in the stress management education program incorporating Dohsa-hou as a seminar to learn about, notice, and find ways to cope with stress. The effect indicator was measured before and after the intervention in a pre-post design. Due to some limitations related to the time constraints for the seminar and the terms for collecting data in an occupational setting as part of the training, personal information on the demographic representation of the sample (e.g., gender and age) were not obtained. All participants took part in the intervention. The main points explaining the purpose of the research and request for informed consent were distributed in a single questionnaire packet, and written informed consent was obtained. The research protocol was approved by the Hiroshima University Graduate School of Education ethics committee.

The protocol of the stress management education program

The intervention using Dohsa-hou as a part of stress management education developed by Yamanaka and Tominaga¹¹⁾ was performed as depicted in Table 1. The stress management education component accounted for approximately 2 hours of the total program.

In step 1, we provided psychoeducation in a lecture format covering stress, stress reactions, and how to deal with stress reactions. This step provided participants with

Table 1. Program of stress management education

Step 1	Learning about the phenomenon of stress and ways of coping <ul style="list-style-type: none"> • Learning about stress and various coping strategies for stress • Listing and recognizing one's own stress reactions and coping strategies • Sharing stress reactions and coping strategies
Step 2 (Pre)	Becoming aware of one's current state <ul style="list-style-type: none"> • Checking one's posture and center-of-gravity (confirming the state of one's physical condition) • Evaluating mood state via self-report (as the psychological condition)
Step 3 (Intervention)	Learning about a new stress management method <ul style="list-style-type: none"> • Experiencing the following relaxation movement tasks using Dohsa-hou (Conducted mainly in a seated posture): <ul style="list-style-type: none"> - Shoulder raising and lowering, opening and closing the shoulder and the chest - Raising the arms (one arm at a time) - Trunk twist while maintaining an upright body axis; releasing tension in the waist and upper body
Step 4 (Post)	Becoming aware of one's current state <ul style="list-style-type: none"> • Checking one's posture and center-of-gravity (confirming the state of one's physical condition) • Evaluating mood state via self-report (as the psychological condition)
Step 5	Utilizing stress management in daily life <ul style="list-style-type: none"> • Discuss the stress management method that suits oneself • Choosing a method that one can practice upon returning home • Living with awareness of the mind-body connection and how to leverage that awareness in adaptive ways

knowledge about psychological states and their interactions with the body and also featured a section guiding participants to imagine ways that those interactions manifest in effects from stress on the body. In step 2, the state of the participants' posture and center-of-gravity were confirmed to encourage awareness of their physical condition, and self-evaluation of their mood states was taken to encourage awareness of their psychological condition. In step 3, the movement method as a new stress management method based on Dohsa-hou was introduced and subsequently experienced both individually and in pairs (see Yamanaka & Tominaga¹¹⁾ for detailed descriptions). The movement tasks (movement tasks in sitting position in a chair: shoulder lifting, body twisting, and neck stretching) were performed in a single step. This intervention step took about 30 minutes. By executing and controlling gross movements in this step, participants were given the opportunity to notice and experience changes in affective states mediated by the body and couple this experience with a sense of agentic control. In step 4, participants again checked their physical condition and answered the mood condition scale as confirmation of their mental condition. In step 5, they discussed stress management strategies that could be practiced in daily life and stress management strategies that they deemed appropriate for themselves. The psychoeducational lecture and teaching of the movement tasks were conducted by a qualified supervisor of the Japan Rehabilitation Psychology Association, and graduate and undergraduate students majoring in psychology who were trained in the approaches supported participants as needed.

Overall, our stress management education program

contains three key features. First, the lecture component in step 1 provides the benefit of education on the relationships between stress and psychological states and their connections to body. As reported in numerous studies, psychoeducation derives effectiveness from integrating knowledge and know-how related to the management of stress that can be sustained in the absence of mental health professionals, especially in workplaces that lack access to these specialists¹²⁾. Second, in the step 3 movement task phase, participants were given the chance to physically experience the body awareness and mood regulatory effects from relaxation as a means to attenuate self-control as an advantage. Third, the procedural fidelity and long-term applicability of the movement tasks used in this stress management education program were established in a sample of hospital nurses who were not specialized in mental health care but were able to gain demonstrable skills in the domain over a short period under the guidance of mental health care specialist and qualified supervisor of the technique¹³⁾. In this manner, this program has offered indications of feasibility and effectiveness motivating implementation.

The intervention using Dohsa-hou

In step 3, participants experienced relaxation using the movement tasks. Under the support of the graduate students and while seated, participants raised and lowered their arms, performed neck and shoulder flexion and extension, and stretched across their body with a twist of the trunk. Finally, they did a center-of-gravity postural check in the standing position and walked as a group. Graduate students supported those walking by asking

them to describe the feeling of the body and the quality of their movements, such as where they felt firmly aligned with the ground when they walked and whether they were relaxed.

Measures

Before and after the implementation of the intervention using Dohsa-hou (step 2 and step 4), participants were asked to respond about their mood states using the Japanese version of the Profile of Mood States (POMS) short version¹⁴⁾. The POMS short version consists of six factors: Tension-Anxiety, Depression-Dejection, Anger-Hostility, Vigor, Fatigue, and Confusion, each consisting of 5 items (total 30 items). Responses to this scale are made on a 5-point scale ranging from 0 (*not at all*) to 4 (*extremely often*). POMS is considered to be sufficient to represent typical and sustained mood states in everyday life situations, reflect short-term effects, and to show change sensitivity for the period of time in which moods are assessed in an instructional setting. Usually, the interpretation of POMS is performed with T scores, but as the present study was not a training concerned with the need to determine healthy groups or medical examinations, T scores were not calculated and changes in raw scores were used as effect indicators.

Statistical analysis

With the measurement time of effect index (pre-intervention and post-intervention) as the independent variable, paired sample *t*-tests were performed with the score of each POMS subscale set as the dependent variable. In addition, adjustment of the *p*-value based on Bonferroni's

method was performed in order to avoid the type I error associated with repeating the comparison several times within the same sample.

Results

Descriptive statistics for each POMS subscale score were calculated. The mean and standard deviation of each subscale before the implementation of the stress management education program were as follows: Tension-Anxiety, $M=8.14$, $SD=4.76$; Depression-Dejection, $M=5.02$, $SD=4.01$; Anger-Hostility, $M=4.05$, $SD=3.22$; Fatigue, $M=10.26$, $SD=4.25$; Confusion, $M=7.00$, $SD=3.37$; and Vigor, $M=5.23$, $SD=3.46$. Also, acceptable reliabilities were obtained for almost all subscales: Tension-Anxiety, pre $\alpha=0.88$, post $\alpha=0.90$; Depression-Dejection, pre $\alpha=0.85$, post $\alpha=0.90$; Anger-Hostility, pre $\alpha=0.77$, post $\alpha=0.77$; Fatigue, pre $\alpha=0.85$, post $\alpha=0.91$; Vigor, pre $\alpha=0.83$, post $\alpha=0.83$. However, the score of Confusion subscale was excluded from analysis because it demonstrated lower internal consistency (pre $\alpha=0.61$, post $\alpha=0.51$).

To test hypotheses, paired sample *t*-tests were performed by comparing each POMS subscale score before and after the intervention. Since *t*-test was performed for each of the five subscales (excluding Confusion), the significance level $\alpha=0.05$ was divided by the number of times that the tests would be performed (5 times). Thus, a *p*-value of less than 0.01 was set as the criterion of statistical significance.

As shown in Figure 1, negative mood states were significantly reduced after the intervention using Dohsa-hou

Fig. 1. Changes in POMS subscale scores before and after the intervention using Dohsa-hou

compared to before the intervention, and all of the effect sizes were large: Tension-Anxiety, $t=8.554$, $df=56$, $p<0.001$, $Cohen's\ d=1.321$; Depression-Dejection: $t=8.160$, $df=56$, $p<0.001$, $Cohen's\ d=1.081$; Anger-Hostility: $t=7.322$, $df=56$, $p<0.001$, $Cohen's\ d=1.359$; Fatigue: $t=10.115$, $df=56$, $p<0.001$, $Cohen's\ d=1.578$.

On the other hand, for the score of Vigor as a positive mood state, only a marginally level of significant change was observed, and the effect size was small ($t=-2.125$, $df=56$, $p=0.038$, $Cohen's\ d=-0.290$).

Discussion

The purpose of present study was to examine the mood state effects of a stress management education program using Dohsa-hou for nurses. In support of the outlined hypotheses, the implementation of the program significantly reduced negative mood states and marginally increased the positive mood state of Vigor in a sample of early-career hospital nurses.

With regard to reduction in negative mood states, Tension-Anxiety, Depression-Dejection, Anger-Hostility, and Fatigue were all significantly reduced after the intervention. Psychological interventions using physical approaches, such as reduced burnout, have been shown to be effective in relieving and reducing stress^{6,11}, and the present study also supports these previous findings. In particular, for nurses who work in a very stressful environment and do not have enough time, it is useful to conduct the management strategy using Dohsa-hou with an immediate stress relief effect.

Moreover, a marginal increase was found for Vigor, although its effect size was small. It may be important that the intervention using Dohsa-hou not only reduced the negative moods but also improved the Vigor as a positive mood of nurses. It will be necessary to improve the intervention program to better increase the Vigor of nurses.

Despite these effects, design limitations must be noted. This study design was a simple pre-post AB design. In order to examine the effects of the intervention program more precisely, it will be necessary to conduct more sophisticated designs, such as an ABA or ABAB design, and compare the findings against groups or phases that implement other intervention programs.

Also, this study did not consider the impact of other factors that affect stress management among nurses, such as social support and personal characteristics. Previous studies have shown that nurses' stress management is influenced by variables such as support from friends and personality¹⁵. In the future, it will also be necessary to examine the effects of stress management intervention by taking these other factors into consideration.

Overall, this study observed mood state changes from participating in a Dohsa-hou-based stress management

program in a sample of adult early-career nurses. This is consistent with the findings of Ki⁸, who performed a similar application in schoolchildren. While further research is necessary, this study suggested that a program using Dohsa-hou might be a useful means of primary prevention for burnout among nurses by providing relaxation movement tasks as a stress management technique that promotes mood state regulation.

Conflict of interest

The authors declare no conflicts of interest associated with this manuscript.

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