Modification of deep breathing relaxation techniques on the osce participants' anxiety level: *a randomized control trial*

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Abstract

Background: The final semester exam for students is a stressor that causes anxiety. The semester's final exam can be theoretical and practice exams. The practice exam is an evaluation to know nursing students' skills before practicing in healthcare facilities. The method to evaluate students' skills is Objective Structured Clinical Examination (OSCE)
Purpose: To determine the effect of modified deep breathing relaxation techniques on the anxiety levels of (OSCE) participants through a randomized controlled trial design.
Method: A randomized control trial of the parallel groups. The number of samples was 36 respondents. Data analysis using shapiro wilk, Levene test, paired t-test, independent t-test, and Cohen's d.
Results: the mean of anxiety decreased from 66.72 (3.2) to 53.72 (5.8) in the experimental group with a p-value is 0.000. On the other hand, the mean of anxiety increased from 43.17 (7.5) to 48.39 (9.3) in the control group with a p-value of 0.017. Additional data showed that the p-value of experimental vs control is 0.000, meaning there is a difference in score anxiety between the experimental and control group with an effect size is 0.5 (medium).
Conclusion: A significant effect of modification of deep breathing relaxation on the anxiety level of students facing the OSCE exam.

Keywords: Anxiety; Deep Breathing Relaxation Technique; Dzikr; OSCE.

INTRODUCTION

Education in nursing is a planned effort to develop self-potential through nursing knowledge so that it can be applied in professional services in the form of bio-psycho-socio-spiritual, aimed at individuals, families, groups, and society, both healthy and sick, which covers the entire process human life with the aim of to change through various assessment methods (Suratmi, Abdullah, & Taufik, 2017). There are various kinds of evaluation methods, which are intended to evaluate the teaching and learning process according to competence. Competencies that need to be possessed are cognitive, holistic, and skills (Huda, 2022). Laboratory practicum provides an understanding of skills procedures and mentoring processes is a significant step in assessing skills. Objective Structured Clinical Examination (OSCE) and Objective Structural Clinical Assessment (OSCA) are appropriate learning evaluation methods in student clinical assessment. Most widely used evaluation method is the OSCE method (Abbasi, Mirzakhany, Angooti Oshnari, Irani, Hosseinzadeh, Tabatabaei, & Haghighat, 2018). This OSCE has received much attention because of its high effectiveness, credibility, objectivity, relevance of skills acquired, fairness, motivation to learn, and satisfaction of lecturers and students. However, on the strength side, OSCE also has weaknesses, namely 70% of students experience anxiety, significantly affecting student achievement (Budi, Wardaningsih, & Afandi, 2016). Nursing students feel anxious because there is much pressure from the surrounding environment, limited time given by ringing the bell. The emergence of feelings of anxiety and tension caused by strict regulations (Silvitasari & Hermawati, 2018).

Academic anxiety is a type of anxiety that is often experienced, especially by students (Kusumadewi & Wahyuningsih, 2020). Academic anxiety is a feeling of danger, fear and tension obtained because of the pressure in a person's place of education. Anxiety is very worrying for students, some students with academic anxiety have committed suicide. The anxiety rate in Indonesia was 11.6% and it was estimated that 8-22% were teenagers or college students (Budiarto, Nugrahayu, & Riastiti, 2021). Students who experienced anxiety (17.9%), mild anxiety (21.6%),

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moderate anxiety (21.6%), severe anxiety (3.6%). Feelings of anxiety become a complication because it will have an essential role in the level of self-confidence and assessment of student competence (Irdan & Herman, 2020). Students of semester 2 with a percentage of 47% affective response, and 44% percentage of somatic symptoms while semester 4 students with a rate of 47% affective response and 40% percentage of somatic symptoms. The somatic symptoms of students include feeling hot in the face, often feeling dizzy, back or neck pain, abdominal pain, tingling, palpitations, feeling of always wanting to urinate, and loss of appetite. The above has the impact of anxiety for students who face OSCE so that it ends in exam results that are not optimal or remedial occurs due to lessons that were previously unable to recall. Anxiety in students can affect student competence, even though this anxiety is only temporary, considering that the assessment of student competence is determined in the OSCE process. There are several ways to reduce anxiety: pharmacological therapy (using drugs) and non-pharmacological therapy (without drugs). Various non-pharmacological treatments to reduce anxiety levels have emerged, such as; aromatherapy, relaxation techniques, music therapy and much more. All non-pharmacological therapies (listening to Al-Quran reading, mindfulness-based stress reduction (MBSR), peppermint aromatherapy, relaxation techniques and music) can reduce anxiety in college students. Among these therapies, the therapy that is easy to do is breathing relaxation techniques (Hamidah, Fauziah, & Novryanthi, 2022).

Deep breathing relaxation technique is a form of nursing care, where the nurse will provide guidance and training to the client to perform effective deep breathing so that the pulmonary ventilation capacity increases (Apriady, Yanis, & Yulistini, 2016). Deep breathing relaxation techniques can relax muscle spasms caused by an increase in prostaglandin reactions, can stimulate the body to release endogenous opioids, namely enkephalin and endogen, stabilize breathing, blood pressure and pulse, decrease oxygen consumption and increase alertness (Tsitsi, Charalambous, Papastavrou, & Raftopoulos, 2017). They are relaxed, awake and peaceful. The effect deep breathing relaxation will be more effective if it is modified by remembering Allah (dhikr). Modification of deep breathing relaxation can reduce anxiety, Islamic psychotherapy interventions (including dhikr) can reduce symptoms of General Anxiety Disorder (GAD) in his students (Mawardika, Rahmawati, & Kurniawati, 2020).

RESEARCH METHOD

This research was a randomized clinical trial of parallel groups to determine the effects of modification of deep breathing relaxation technique on the OSCE participants' anxiety level at Sukabumi Muhammadiyah University, following the Consolidated Standard of Reporting Trials (CONSORT) criteria. This study was previously approved by the Ethic Committee of Sukabumi Muhammadiyah University (472/F0/A/2022). This study was carried out from November 1, 2022 to November 15, 2023 at the laboratory of Sukabumi Muhammadiyah University. Thirty-six students were eligible for OSCE at Sukabumi Muhammadiyah University. The inclusion criteria were students who were registered as OSCE participants, willing to be respondents, muslim students, nursing students in semester VI. Exclusion criteria were students absent due to illness, permission or alpha, nursing students who do not fill out the google form (questionnaire).

Simple random sampling using an automatic method (Microsoft office excel) was used to assign students to the control or experimental group simultaneously. This assignment to each group was exclusively carried out by a nursing staff member who was not involved in the study (including treatment and follow-up of students). Finally, A total sample of 36 students was recruited and divided into experimental (n=18 students receiving deep breathing relaxation technique combined by dhikr before OSCE at room B5) and control (n=18 students without receiving intervention before OSCE at room F4) groups.

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RESEACH RESULTS

Table 1. Characteristics of Respndent (N=36)

Variabel	Results	
	Experimental (n=18)	Control (n=18)
Age (Mean±SD)(Range)(Year)	(19.17±1.34)(12-21)	(20.0±0.0)(12-21)
12-15	0/0.0	0/0.0
16-18	5/27.8	0/0.0
19-21	13/72.2	18/100.0
Gender		
Male	6/33.3	6/33.3
Female	12/66.7	12/66.7

Table 1 showed that based on gender, the respondents were dominated by 12 female students (33.3%) and 6 male students (66.7) in both the intervention and control groups. Based on age, most respondents aged 19-21 were 12 students (33.3%) in the intervention group. In the control group the majority were 16-18 years as many as 18 students (100.0%).

Table 2 Score of Anxiety

	Experimental (n=18)		Control (n=18)		Experimental vs control (p-value)	Effect size
	Mean	SD	Mean	SD		
Pre-test	66.72	3.214	43.17	7.595		
Post-test	53.72	5.879	48.39	9.369	0.049	0.682
Pretest vs posttest (p-value)	0.000		0.017			

Table 2 showed that the mean of anxiety decreased from 66.72 (3.214) to 53.72 (5.879) in the experimental group with p-value is 0.000. On the other hand, mean of anxiety increased from 43.17 (7.595) to 48.39 (9.369) in the control group with a p-value of 0.017. Additional data showed that the p-value of experimental vs control is 0.049, meaning there was a difference in score anxiety between experimental and control group with effect size is 0.682 (moderate).

DISCUSSION

The results of this study indicate that the sex of the respondents is dominated by female. Female are more susceptible to anxiety and stress, because these conditions are controlled by hormones, namely oxytocin and estrogen hormones (Selim & Dawood, 2015). Gender is one of the variables that can make a difference in the incidence of male and female, the incidence of women's anxiety levels is two times more vulnerable than male, because female are more anxious about their inability and are more sensitive.

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The presence of the hormone estrogen makes female prone to experiencing anxiety criteria including eating disorders, sleep disturbances, feelings of guilt, and an increase or even a decrease in appetite. The results of this study also reported that the majority of respondents involved in the study were aged 19-21 years where these respondents belonged to late adolescents. Adolescence is a transitional period when you start to think critically, but are still influenced by emotional conditions that are still unstable (Ghorbani, Watson, Tahbaz, & Chen, 2017).

Adolescence also often experiences anxiety, physical and mental health and disruption of interpersonal relationships (Handoyo, Hartati, & Widayanti, 2020). Adolescence is at the transitional limit of an adult child's life, the body looks mature, but if it is treated like an adult, it fails to show its maturity. There are not many experiences about adulthood because it is often seen in adolescents that there is anxiety, conflict, confusion, and conflict within themselves as well as how adolescents perceive the events they experience will determine their behavior in dealing with events (Mantika, Rochdiat, Syafitri, & Yogyakarta, 2019).

The results of this study indicate that the pre-test data on all respondents in the intervention group had severe anxiety. Then, the pre-post-test different test in the intervention group showed that anxiety was significantly reduced when given an intervention with deep breathing relaxation modifications to mild anxiety (11.1%), moderate anxiety (83.3%) and severe anxiety to (5, 6%). So it can be concluded that modifying breathing relaxation reduces anxiety by a p-value of 0.000 ($p < 0.05$). The occurrence of a decrease in anxiety explains that there is an improvement from the previous condition, where the lower the anxiety, the better the state of the respondent. The higher the level of student anxiety, the lower the level of student achievement, conversely the lower the level of student anxiety, the better the condition of the respondents which ultimately has an impact on the level of achievement (Kusumastuti, 2020). Using deep breathing relaxation modifications proved effective in reducing and controlling the respondent's anxiety. Previous researchers also said that deep breathing relaxation and remembrance can reduce exam students' anxiety levels, create a calm, non-threatening atmosphere, decrease adrenaline and cortisol hormones, and increase endorphins and serotonin hormones, creating pleasure and calm (Annisa & Ifdil, 2016). Breathing relaxation therapy accompanied by dhikr (based on Islam) could help reduce student anxiety with $p = 0.019$ ($p < 0.05$) (Syifa, 2019).

The results of this study showed that the pretest of all students in the control group had mild and moderate anxiety. Then, the pre-post-test different test in the control group showed increased anxiety without intervention. No significant change or decrease in the group was not given the intervention (Amira, Sriati, Hendrawati, & Chaerani, 2021). Emotional conditions, both positive and negative, cause activation of the HPA (Hypothalamic Pituitary Adrenal) axis which stimulates the hypothalamus to increase the production of the hormone corticotrophin releasing factor (CRF) and then affect the pituitary to release adrenocorticotropic hormone (ACTH). Its effect on the body depends on the stimulation that drives the process. Anxiety and relaxation are the triggers for this process, so that patients who are anxious without deep breathing relaxation will find it difficult to be free from anxiety. The benefits of relaxation can reduce anxiety while the benefits of using belief include increasing faith. If the physical condition is relaxed, the psychological state is also calm. The stronger a person's belief is combined with the relaxation response, the greater the relaxation effect will be (Sundram, Dahlui, & Chinna, 2016).

Furthermore, the posttest difference test between groups showed that the deep breathing relaxation intervention significantly affected changes in anxiety. Using modified breath relaxation as a non-pharmacological therapy has proven effective in reducing and controlling student anxiety. Respondents need approaches such as relaxation techniques and spiritual care to reduce anxiety. Individuals who have

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faith can get up even in problems that cause unpleasant feelings, but still overcome their discomfort by performing rituals of worship (Gerliandi, Pratiwi, & Agustina, 2021). The sample size in this study is sufficient to answer the researcher's objectives, this is because the researcher refers to previous research as the basis for calculations. Apart from the sampling technique in this study using simple random sampling where the advantage of this method is that it facilitates the achievement of research objectives because it is based on the required criteria (Uliyah & Alimul, 2020). The difference between this study and other studies lies in the number of samples and research design. Using a sample without a control group for 4 days with the intervention of reading letters Al-Fatihah, Al-Ikhlas, An-Nas, Al-falaq, Taha verses 25-28 while in this study using 36 samples with the control group, as for the intervention of reciting remembrance its *lahaula wala quwwata illa billah* (Setyowati, Chung, & Yusuf, 2019).

CONCLUSION

Deep breathing techniques as non-pharmacological therapy combined with dhikr as a spiritual approach have been proven effective in reducing anxiety in OSCE participants. On the other hand, OSCE participants who did not receive intervention experienced increased anxiety.

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