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# Effect of Progressive Muscle Relaxation Exercise on Anxiety among Nursing Students before Psychiatric and Mental Clinical Training

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## Abstract

**Introduction:** Psychiatric and mental clinical experiences offer valuable training for nurses. High-quality health care necessitates nurses having the necessary abilities, knowledge, and attitudes to care for people suffering from mental illness or distress. The purpose of this study was to investigate the effect of progressive muscle relaxation exercise on anxiety among nursing students in psychiatric and mental health nursing clinical training.

**Methods:** A controlled -experimental, pre-post study was conducted in the fall semester of 2020 in the Faculty of Nursing, Arab American University in Palestine. The sample of the study consisted of 60 nursing students enrolled in the Psychiatric and mental health nursing course selected through consecutive sampling. This study was conducted on two groups of nursing students; one of them received Jacobson's progressive muscle relaxation exercise for five consecutive days per week for two weeks before entering the clinical environment, whereas the other didn't receive any training. The S-anxiety scale (STAI Form Y-1) was applied to collect data before and after the intervention.

**Results:** The magnitude of anxiety in the intervention group, after the progressive muscle relaxation exercise, greatly decreased when compared to the control group ( $t(58) = 17.26, P < 0.05$ ). There was less anxiety post the program in the intervention group ( $M = 1.1, SD = 0.4$ ) than the control group ( $M = 2.9, SD = 0.4$ ).

**Conclusion:** The study findings indicated that there was a positive influence of progressive muscle relaxation exercise on nursing students' anxiety levels in Psychiatric and mental health clinical settings. As a result, it is recommended that teaching programs using this approach be conducted to train nursing students at nursing schools prior to the commencement of psychiatric and mental clinical practice in order to lessen their anxiety.

**Keywords:** Progressive muscle relaxation, nurses, mental and psychiatric nursing, anxiety.

## Introduction

### Background

Psychiatric and mental clinical experiences offer valuable training for nurses (Hunter et al., 2015). Nurses must have the required talents, knowledge, and attitudes to care for persons suffering from mental illness or distress in order to provide high-quality health care (Happell et al., 2019).

According to World Health Organization (WHO) reports (2016), the necessity to care for and treat mental patients is undeniable. Hunter et al. (2015) recognized that students' perceptions of people with mental health concerns are not particularly positive. Nursing students believe that mentally patients are harmful, aggressive, hostile, and unskilled.

### Problem statement

Many nursing students complain about the anxiety generated by incorrect beliefs, anxieties about violence, worry about the unknown, media experiences, and hearing peers' stories during their psychiatric practicum experience (karimollahi, 2012). Nursing students commonly express concern or fear regarding mentally ill patients. The more effectively nursing students handle their stress and anxiety, the more effective their clinical training will be (Ayed & Amoudi, 2021; Fashafsheh et al., 2022; Ratanasiriponget al., 2012).

In Palestine, a four-year basic nursing program allows students to obtain clinical competence through working in a variety of health care settings, including psychiatric hospitals and clinics. Students study mental health theory in combination with the clinical component.

### Literature review

There are a variety of effective interventions that prepare students for community mental health, hospital mental health, or intellectual disability placement before their placement to reduce students' fear and anxiety about mental health patients who exhibit unusual behaviors due to being out of touch with reality. Students and faculty must collaborate to develop practical solutions to assist student nurses in avoiding, minimizing, or resolving psychological injury (Otim et al., 2021). Relaxation strategies can help students cope with academic stress (Manansingh et al., 2019). Several studies suggest that the PMR exercise be used throughout nursing courses to increase student's satisfaction and positive outlooks (Bostani et al., 2020; Toqan et al., 2022a; Toqan et al., 2022b). Therefore, the study aimed to investigate the effect of progressive muscle relaxation exercise on anxiety among nursing students in psychiatric and mental health nursing clinical training.

### **Hypothesis of the study**

There is a significant difference in the anxiety re-education scores between nursing students at the mental health clinical training who received progressive muscle relaxation exercise and those who didn't receive it at  $p < 0.05$ .

### **Methods**

#### ***Study Design, Site, and Participants***

The study was a controlled experimental design which was done in the fall semester of 2020 in the Faculty of Nursing, Arab American University in Palestine. The study involved 60 nursing students enrolled in a bachelor's degree program. The participants participated in a two-part psychiatric mental health nursing course: theoretical and clinical. This course is part of the nursing program's fourth year with 60 enrolled students provided that they are nursing students participating in a psychiatric mental health nursing course. A history of psychiatric problems, missing more than two intervention meetings, taking sedatives, and being exposed to stressful events in the previous three months were all excluded factors.

#### **Jacobson's PMR**

Some research have used Jacobson's PMR exercise (Bostani et al., 2020; Jacobson, 1987). This exercise was carried out for 30 participants in five-person groups during five consecutive 45-minute sessions each week for two weeks. At the outset of the first session, the researcher reminded the students that the objective of the exercise was to help them reduce muscle tension. He also instructed them not to skip any meetings and should attend all of them. The researchers used the PMR exercise in other sessions. "Hand and forearm, upper arm, forehead, eyes and cheeks, mouth and jaw, neck, shoulders, shoulder blades, chest and stomach, hips and buttocks, upper leg, lower leg, and foot are the muscle groups included in this exercise. These muscles should be contracted and relaxed in the stated order (Table 1)" (Ramasamy et al., 2018).

**Table 1: Progressive muscle relaxation (PMR) exercise (Ramasamy et al., 2018)**

Part of body	Exercise
-“Hand & forearm”	“Clench your hand into a fist”
-“Upper arm”	“Raise your right forearm and flex your bicep - make a muscle”
-“Forehead”	“Raise your eyebrows as much as you can, as if you were startled or shocked”
-“Eyes and cheeks”	“Close your eyes very tightly”
-“Mouth and jaw”	“Open your mouth, as wide as you comfortably can”
-“Neck”	“Remain cautious when you flex the muscle. Stand straight and keep your eyes facing forward and then slowly bend your neck backwards (look up at the ceiling)”
-“Shoulders”	“Tense your shoulder muscles while you raise them, as if to shrug them”
-“Shoulder blades”	“Pull back your shoulders as much as possible so that your chest sticks out”
-“Chest and stomach”	“Take a breath, deep enough to fill your lungs”
-“Hips and buttocks”	“Tense your buttock muscles”
-“Upper leg”	“Flex both your thighs”
-“Lower leg”	“To prevent cramps, do this gently and be careful. To stretch your calf muscles, draw your toes towards yourself”
-“Foot”	“Bend down your toes”

The students relaxed on the ground as the researcher used this practice. Students had been advised ahead of time to dress comfortably in order to prevent anxiety. In addition, students were told to perform each training session at home for 10-15 minutes every day. At the end of each session, students were encouraged to continue practicing relaxing activities at home.

## Instrument

### Socio-demographic information

Demographic characteristics of the participants included age and gender

### State-trait anxiety inventory (STAI)

The self-evaluation STAI questionnaire, developed by Spielberger et al. (1983) and which involved split scales for assessing “state (S-scale) and trait (T-scale) anxiety” was used. In the current study, only the “S-anxiety scale (STAI Form Y-1)” was used. “The questionnaire consisted of 20 items that evaluated how the participants felt at the time of responding to each item.

Note that 10 items were associated with the anxiety-present (items 3, 4, 6, 7, 9, 12, 13, 14, 17, 18) and the remaining items were associated with the anxiety-absent (items 1, 2, 5, 8, 10, 11, 15, 16, 19, 20). The intensity of the participants' feelings was rated on a 4-point Likert scale: (I) not at all, (II) somewhat, (III) moderately so, and (IV) very much so. The anxiety present items were scaled from 1 to 4 such that higher scores indicated the presence of a high level of anxiety" (Spielberger et al., 1983). However, "the anxiety-absent items were scaled in reverse order from 4 to 1. The total score for the STAI Form Y-1 ranged from a minimum of 20 to a maximum of 80".

### **Validity and reliability of the instrument**

The State-Trait Anxiety Inventory (STAI) is a generally used measure of trait and state anxiety (Spielberger et al., 1983). It can be used in clinical training to diagnose anxiety and to differentiate it from depressive syndromes (Greene et al., 2017; Spielberger et al., 1983; Ugalde et al., 2014). The reliability of the questionnaire ranged between 0.86–0.95 (Spielberger et al., 1983).

### **Pilot study**

The study was conducted on 10 nursing students, who were excluded from the actual study, to assess the feasibility of the study. Consequently, some modifications were made.

### **Data collection**

The researcher visited the Faculty of Nursing and met with the dean, who was briefed about objectives of the study, and asked for a list of the names of students. Then, the researcher shared the objectives with the students who agreed to participate, signed the consent form, and then completed the English version of the paper-format. Then, the researcher randomly allocated them to either the intervention group or the control group (n=30 per group). Before clinical training began, all participants filled out the pre-test questionnaire at the start of the new academic year. Jacobson's PMR exercise was conducted at the Faculty of Nursing for five consecutive days per week for two weeks in the intervention group. The control group received no training. On the day they entered the clinical environment, both groups completed the STAI questionnaire for the second time, as seen in figure 1.

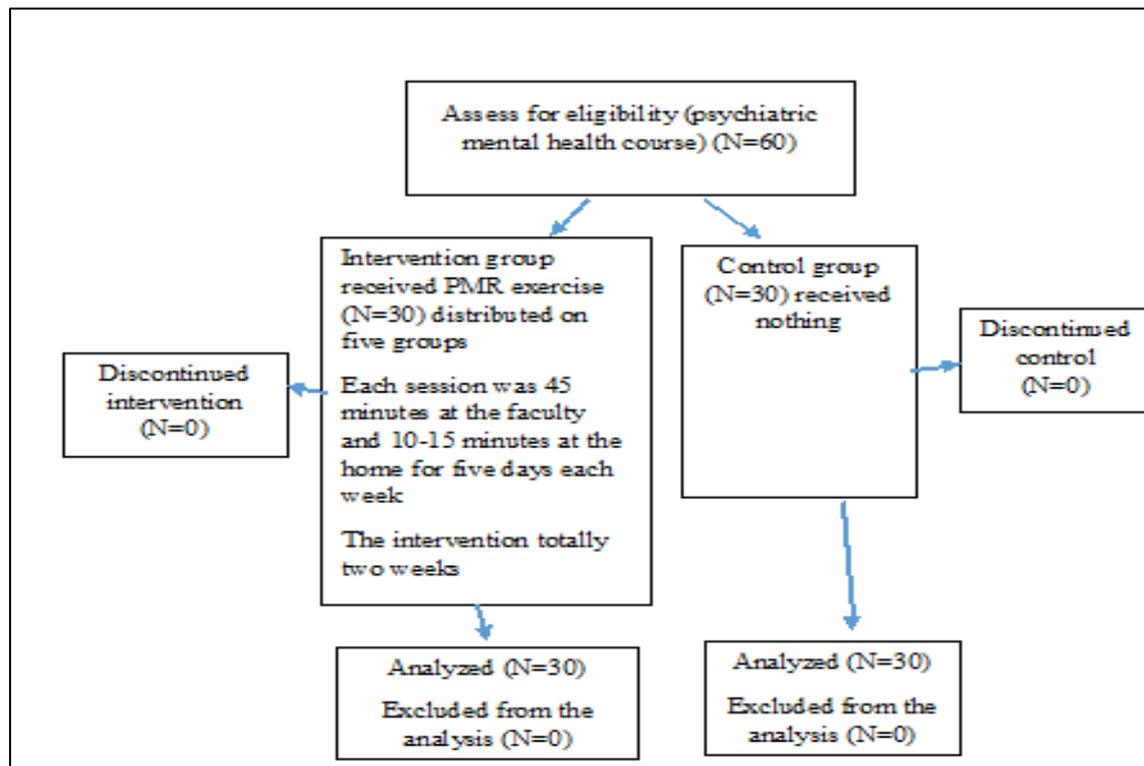


Figure 1: Flow diagram of the study

### Ethical consideration

A consent form was provided for every participant prior to the study. Voluntary participation was explained. No names were mentioned or any personal information about the participants. All data was kept confidential and was used for study purposes only. There were no harm consequences due to the participation's refusal, such as care quality or privileges. A clear explanation was given to each participant about the study objectives and tool, and enough time was given for answering the questions.

### Data analysis

Statistical analysis was performed using the Statistical Package for Social Sciences (SPSS) version 23. Frequencies, percentages, means, and standard deviations were used to present descriptive statistics. The differences between variables were examined using the t-test. The statistical significance of this study was set at  $p < 0.05$ .

## Results and discussion

### Sample Description

A total of 60 participants completed the study. The mean age of the students was  $21.2 \pm 1.8$  years old. Most of the participants were female, 48 (80%). The mean anxiety of the students was 2.9(0.4). In addition, the analysis revealed that both groups were similar regarding age and gender ( $p > 0.05$ ), as seen in (Table 2).

**Table 2: Demographic characteristics of the participants (N=60)**

Demographic characteristics		Total	“Intervention group (n=30)”	“Control group (n=30)”	P. value
		“M(SD)”	“M(SD)”	“M(SD)”	
Age (years)		21.2(1.8)	21.2(1.7)	21.2 (2.0)	0.944
		N (%)	N (%)	N (%)	
Gender	Male	12(20.0)	5(16.7%)	7 (23.3%)	0.519
	Female	48(80.0)	25 (83.3%)	23 (76.7%)	

\* Significant at  $p < 0.05$

The analysis revealed that anxiety in both groups were similar ( $P > 0.05$ ) at pretest. However, both groups differed significantly at posttest ( $P < 0.05$ ). The mean anxiety score ( $M = 1.1$ ,  $SD = 0.4$ ) of the intervention group was lower than the mean anxiety score ( $M = 2.9$ ,  $SD = 0.4$ ) of the control group at posttest, as seen in (Table 3).

**Table 3: Differences between anxiety in both groups (N=60)**

Variable	“Intervention group (n=30)”	“Control group (n=30)”	t test	P. value
	“M(SD)”	“M(SD)”		
Pre-test	2.9(0.4)	2.8 (0.3)	0.663	0.510
Post-test	1.1 (0.4)	2.9 (0.4)	17.26	0.001*

\* Significant at  $p < 0.05$

The study aimed to investigate the effect of progressive muscle relaxation exercise on anxiety among nursing students in psychiatric mental health nursing clinical training. The anxiety score was compared between the intervention and the control groups. The results showed a significantly decreased anxiety score among the nursing students in the intervention group. It also became evident that there are several stress-reduction techniques, one of which

is PMR. The PMR program had a favorable influence on the average anxiety score of nursing students in psychiatric mental health clinical training.

Despite the fact that there were just a few studies in the literature that used PMR as an intervention to reduce stress in nursing students, their findings were congruent with ours. In one of these studies, Pelit-Aksu et al. (2021) found that clinical stress decreased in students who completed PMR exercise for three weeks. Toqan et al. (2022a) instructed nursing students to undertake PMR for two weeks before pediatric clinical practice and showed that PMR was useful in lowering clinical anxiety symptoms. Also, in another study, Toqan et al. (2022b) found that PMRE decreased scores of anxiety significantly prior to the initial clinical training for nursing students. In addition, Gangadharan and Madani (2018) found that PMRE was significantly helpful and most of the participants stated that their negative emotions were reduced and their emotional state turned back to normal. Alhawtmeh and Ross (2017) found that conducting PMR twice a week for three weeks decreased stress for Jordanian nursing students.

According to Veiga et al. (2019), a relaxation program lowered the psychological and physiological stress indicators of nurses. Another study on nurses conducted by Maharjan, G., & Baby (2019) found that 53.3 % of the nurses had moderate stress, 40.0 % had mild stress, and 6.7 % had severe stress. 73.3% of nurses reported mild stress in the posttest, whereas 26.7% reported no stress. The study showed that Progressive Muscle Relaxation Therapy can help nurses reduce their stress levels.

Relaxation is the most efficient and effective therapy for psychosomatic disorders, such as anxiety (Bandealyet al., 2021). This is due to the body's attempt during the relaxed state to repair damage and eliminate toxins by generating natural chemicals. Furthermore, relaxation increases useful output by nurturing internal abilities and increasing the capacity to think and innovate via the empowerment of psychological and mental strength, as well as an increase in self-confidence (Kim & Kim, 2018).

The fundamental idea behind PMR is to educate people on how to actively restrict their muscular tension and, as a result, lessen their anxiety. This strategy's primary benefits in anxiety reduction and management are its ease, cost-effectiveness, and independence of practice. Nursing is challenging for nursing students and contributes to their anxiety due to the quantity of instructional content they must study as well as the stressful clinical setting. PMR may influence individuals' views of their abilities to cope with everyday life stresses and can be used to reduce students' anxiety as an effective strategy to lower clinical environment anxiety.

### **Limitations of the study**

The current study's limitations include that the sample size was rather small, and the intervention was only carried out during one clinical practice session and at one university. As a result, the findings will be limited in their generalizability.

### **Implications, conclusion and recommendations**

The current study's findings indicate that PMR has an effect on psychiatric mental health clinical anxiety reduction of nursing students. As a result, it is recommended that, in order to reduce anxiety, educational programs on this method be done for nursing students at nursing schools prior to the start of psychiatric mental health clinical training.

### **Acknowledgments**

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### **Conflict of Interest**

Researcher declares no conflict of interest with any organization regarding the materials discussed in this paper.

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## تأثير تمرين استرخاء العضلات التدريجي في القلق لدى طلاب التمريض قبل التدريب

### الإكلينيكي النفسي والعقلي

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#### ملخص

##### • مقدمة:

الخبرات السريرية النفسية والعقلية تقدم تدريباً قيماً للممرضات. وتتطلب الرعاية الصحية عالية الجودة وجود ممرضات يتمتعن بالقدرات والمعرفة والمواقف اللازمة لرعاية الأشخاص الذين يعانون من مرض أو ضائقة نفسية. والغرض من هذه الدراسة هو معرفة تأثير تمرين استرخاء العضلات التدريجي في القلق لدى طلاب التمريض في إكلينيكي تمريض الصحة النفسية والعقلية.

##### • الطرق:

تم إجراء دراسة تجريبية قبلية وبعديّة في خريف 2020م، في كلية التمريض، في الجامعة العربية الأمريكية في فلسطين. وتكونت عينة الدراسة من 60 طالب تمريض مسجلين في دورة تمريض الطب النفسي والصحة العقلية. وتم اختيارهم من خلال أخذ عينات متتالية. وأجريت هذه الدراسة على مجموعتين من طلاب التمريض، تلقت إحداهما تمرين استرخاء العضلات التدريجي من جاكوبسون، مدة خمسة أيام متتالية في الأسبوع، ولمدة أسبوعين قبل دخول البيئة السريرية، ولم تحصل المجموعة الثانية على أي تدريب. وتم تطبيق مقياس القلق S نموذج-STAI Y (الجمع البيانات قبل التدخل وبعده).

##### • النتائج:

انخفض حجم القلق في مجموعة التدخل بعد تمرين استرخاء العضلات التدريجي بشكل أكبر من المجموعة الضابطة ( $t(58) = 17.26$ ) ،  $P < 0.05$  كان هناك قلق أقل بعد البرنامج في مجموعة التدخل ( $M = 1.1$ ) ،  $SD = 0.4$  من المجموعة الضابطة ( $M = 2.9$ ) ،  $SD = 0.4$  .

##### • الخلاصة:

أشارت نتائج الدراسة إلى التأثير الإيجابي لتمرين استرخاء العضلات التدريجي في مستويات القلق لدى طلاب التمريض في البيئات السريرية للصحة النفسية والعقلية. ونتيجة لذلك، يوصى بإجراء برامج تعليمية على هذا النهج لطلاب التمريض في مدارس التمريض قبل بدء الممارسة السريرية النفسية والعقلية لتقليل القلق.

الكلمات الدالة: استرخاء العضلات التدريجي، الممرضون، التمريض العقلي والنفسي، القلق.