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EFFECTS OF A TRAINING PROGRAM COMBINING PROGRESSIVE MUSCLE RELAXATION AND BREATHING TECHNIQUES ON ANXIETY IN SAUDI MENTAL HEALTH NURSES

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Abstract

Anxiety is more common in psychiatric mental health nurses because they frequently work long hours and endure significant levels of stress. This study sought to know how a progressive muscle relaxation and breathing techniques training program affected the anxiety levels of Saudi psychiatric mental health nurses. Design: The current study used a quasi-experimental research design. Sample: Based on the inclusion and exclusion criteria, a purposive sample of 80 psychiatric nurses was chosen. For the intervention group, forty nurses were chosen at random. Tools: personal data sheets and the Anxiety State and Traits Inventory were used to gather data for the current investigation. The results showed that anxiety levels before and after a relaxation training program differed statistically significantly. Recommendation: Designing and implementing programs must be carried out for prevention and management of stress and anxiety among psychiatric nurses are necessary.

Keywords: Anxiety, Progressive Muscle Relaxation, Psychiatric Nurses.

INTRODUCTION

Psychosocial risks may arise because psychiatric nurses execute a wide range of tasks with differing demands and responsibilities. According to Ahmed, El Zenie, El Sayed, and El-Sebaie (2024), the environment and demands of psychiatric hospital units may put nurses in danger, which could negatively impact their health and the quality of care they provide to patients. Because they are often overworked and under pressure, psychiatric mental health nurses are more prone to suffer from anxiety and despair. Patients with mental illnesses also exacerbate working conditions; a closed workplace, hostile, depressed, and dangerous coworkers, and frequent violent incidents in the workplace all contribute to what is regarded as the most dangerous working environment. The distinct stress that psychiatric nurses experience at work has a negative impact on their mental health. As stated by Niu et al. (2019), Maharaj, Lees, Lal, 2018; Chen et al., 2022; Fia, Ayarkwah, Baidoo, 2022).

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Anxiety is one of the most prevalent conditions that nurses may experience. According to a study on anxiety among Saudi Arabia's nursing staff conducted by Alharbi et al. in 2024, the prevalence of anxiety was 28.8%. a study by Opoku Agyemang, Paul Ninnoni, and Ebu Enyan (2022) on the prevalence and determinants of stress, anxiety, and depression among psychiatric nurses in Ghana revealed that 42% of psychiatric nurses experience mild to high stress and 27% experience mild to severe anxiety.

Sleep disruptions, elevated levels of autonomic stimulation, unpleasant feelings, unease, apprehension, fear, or concern, and cognitive, physical, emotional, and behavioral components are all signs of anxiety (Dagget, Molla, Belachew, 2016). It can be explained as a typical response to stressful circumstances and could be useful in coping with frightening or stressful situations. But if anxiety is not adequately and promptly controlled, it can lead to pathological disorders that are frequently accompanied by headache, sweating, palpitations, muscle spasms, and exhaustion. Pathological anxiety is defined as excessive and ongoing emotional disruption that impairs a person's behavior, relationships, functionality, and general quality of life (Sadock; Sadock and Pedro, 2022).

One useful method for reducing nurses' anxiety in a clinical setting is progressive muscle relaxation (PMR). It might affect how nurses perceive their capacity to handle stress in daily life. According to reports, progressive muscle relaxation exercises (PMRE) help people feel less stressed and anxious. Major muscular groups are voluntarily tensed and relaxed to produce this effect. It observed that progressive muscle relaxation exercises, or PMRE, can lower anxiety and tension. By voluntarily tensing and releasing the main muscular groups, this effect is produced (Gallego-Gomez, et al.2020). Additionally, the parasympathetic nervous system is activated by PMRE. Put another way, the relaxation techniques lower the degree of stress and physiological tension by reducing the sympathetic nervous system, which is activated in reaction to stress. Therefore; it is believed that nursing students will experience less clinical stress throughout their clinical practice if they engage in muscle relaxation exercises. This will also lessen burnout by lowering stress levels (Zhao, et al., 2012; Vancampfort, et al., 2013).

According to Hamasaki (2020) and Ma et al. (2017), deep diaphragmatic breathing (DDB) is a widespread workout for people with or without medical conditions.While the abdominal muscles contract slowly and completely during expiration, causing the belly to compress, the diaphragm contracts slowly and totally during inspiration, causing the belly to expand in DDB.

It is possible to place one hand on the abdomen and the other on the chest during the procedure to ensure that the abdomen swells with deep inspiration and sinks with deep expiration (Bao, 2020; Hamasaki, 2020). It can be done in different postures, such as standing, sitting, and supine, and combined with other exercises, like yoga (Bao et al., 2020; Hamasaki, 2020; Liu et al., 2016; Ma et al., 2017).

One therapy that people have found useful for lowering muscle tension is called PMR. It describes a set of methods that entail repeatedly tensing and relaxing different body muscular groups.

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Deep breathing exercises are frequently combined with muscle tensing and relaxation (Pradhan, Samantaray, & Pathantasingh, 2020). PMR seeks to affect the autonomic arousal aspect of stress and anxiety by easing skeletal muscle tension.

It is believed that when skeletal muscle tension decreases, so do other aspects of autonomic arousal, such as blood pressure and heart rate. According to recent research, far less sessions are required to achieve comparable outcomes.

Similar to diaphragmatic breathing, PMR sessions typically involve settling into a comfortable position and taking deep breaths while tensing and relaxing sixteen different muscle groups (e.g., beginning with the head muscles and working down the body before finishing with the feet) (Chaudhuri, Manna, Mandal, & Pattanayak, 2020).

Similarly, Gallego Gomez et al. (2020) PMR is a useful technique for reducing nurses' anxiety in a clinical setting and may affect people's perceptions of their capacity to handle stress in daily life. According to reports, the PMRE lowers anxiety and tension. Major muscular groups are voluntarily tensed and relaxed to produce this effect. Furthermore, the parasympathetic nervous system is triggered by PMRE.Stated differently, relaxation techniques lower physiological tension and stress levels by reducing sympathetic nerve activity, which is triggered in response to stress. As a result, it is believed that muscle relaxation exercises can lessen the anxiety that nurses encounter in their professional work, as well as burnout by lowering stress levels (Vancampfort et al. (2013) and Zhao et al. (2012).

Psychiatric mental nurses may face stressful situations at work that impact their well-being and sense of self, in addition to being vital in alleviating the suffering of psychiatric patients. There is a correlation between nurses' performance and psychological adaptation. (Kelly, Fenwick, Brekke, & Novaco, 2016).

Significance

The results will offer a nursing intervention based on non-pharmacological evidence to reduce anxiety and improve nurses' coping skills. It gives nurses a useful tool to help them relax and lower their general anxiety levels.

The significant effect size for anxiety, emotional tiredness, and depression, the clinical significance of these findings is very significant. Until more significant and efficient measures are done for their mental health, the results may serve as the foundation for raising the standard of nursing care for worried patients. The study's findings provided insight into how progressive breathing and muscular relaxation techniques reduced the anxiety levels of psychiatric nurses. Based on these findings, psychiatric nurses who work in demanding wards may benefit from include progressive muscle relaxation techniques in their training regimen. The current study is merely a preliminary effort that will inspire and drive researchers to do several other studies in this field.

Aim

This study aimed to investigate the effect of progressive muscles relaxation with breathing exercises training program on anxiety among Saudi psychiatric nurses.

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Research Hypothesis

Psychiatric nurses who will receive progressive muscle relaxation with breathing exercise training program will have statistically significance differences on anxiety trait(STAIA-T) at post intervention than pre according to the study groups (experimental and control).

Psychiatric nurses who will receive progressive muscle relaxation with breathing exercise training program will have statistically significance differences on anxiety state (STAI-S) at post intervention than pre according to the study groups (experimental and control)

Design

A quasi-experimental research design was applied in the present investigation. Participants in a study cannot be randomized to either the experimental or control group for moral or practical reasons.

Sample

A sample includes all Saudi staff nurses of Irada psychiatric hospital, who is agreed to participate in this study. A purposive sample of 80 psychiatric nurses was chosen according to following inclusion and exclusion criteria. The 40 nurses were selected randomly to participate in the intervention whereby the remaining 40 for the control group who will not receive the intervention.

Inclusion Criteria:

Nationality: Saudi staff nurse.

Gender: both male and female.

Nurses who are licensed to practice in Saudi Arabia by the Ministry of Health

He/she is currently working in either of the selected mental health facilities.

He/she has been working in the current mental health facility more than the probationary period (> 6 months).

He has no ailments that poses risk to mental health disorders

Exclusion Criteria:

Nurses who had taken progressive muscle relaxation with breathing exercises training program

Nurses who served in more than one hospital

Nurses with medical or mental illness history

Sample size

Eighty participants made up the sample size that was established... With a margin of error of 5%, an estimated population size 100 and an expected outcome level standard of care domains of 50%and 95%, the estimated sample come to 80 participants, 40 in study group and 40 in control group.

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Sample size: researcher determined the sample size as following

$$n=[N*p(1-p) /[(N-1) *(d2/z2) +p(1-p)]$$

* n: the sample size

* N: =100

* d: = 0.05

* Z: = 1.96

* P: The ratio of the property =0.50 then

The size of the sample computation from the previous equation is

n = (100*0.5*0.5)/ ((99*0.05*2)/1.96*2+0.5*0.5) = 80

* Then the sample size = 80

At the time of pre- intervention assessment participants and the researcher didn't knows who would participate in each group. The researcher gives a list of nurses and one individual not part of the research team provide code for each one from 1 to 80, after that the researcher selected single numbers and assigned it to intervention group and the double numbers were assigned to control group.

Tools

Personal data sheet. It was developed by the researcher and includes, age, sex, marital status, level of education, current job, years of psychiatric work experience, Years spent in the nursing profession and attendance of any training workshop in the management of anxiety. Spielberg (1983) created the Spielberger State-Trait Anxiety Inventory (STAI). The scale consists of a 40-item self-completed questionnaire designed to evaluate state anxiety, which is a transient state influenced by the current circumstance, and trait anxiety, which is a general tendency to feel anxious, where the respondent notes how he or she feels "generally." The Arabic version was translated by (Ghareb, 2015).

Spielberg (1983) created the Spielberger State-Trait Anxiety Inventory (STAI). The scale comprises of a 40-item self-completed questionnaire designed to evaluate state anxiety, which is a transient state influenced by the current circumstance, and trait anxiety, which is a general tendency to feel anxious, where the respondent notes how he or she feels "generally." Spielberg (1983) made the Spielberger State-Trait Uneasiness Stock (STAI). The scale comprises of a 40-item self-completed survey outlined to assess state anxiety, which may be a transient state influenced by the current circumstance, and, trait anxiety, which is a general tendency to feel anxious, where the respondent notes how he or she feels "generally."

On the STAI, a number of items (Items 1, 2, 5, 8, 11, 15, 16, 19, 20) had inverted codes. From 1 ("not at all" for S-anxiety and "almost never" for T-anxiety) to 4 ("very much so" for state anxiety and "almost always" for T-anxiety), each subscale employs a 4-point Likert scale. With a possible range of 20 to 80 for each subscale, a higher score denotes

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more severe anxiety. Spielberger (1983) indicates that scores of 20–39, 40–59, and 60–80 correspond to low, moderate, and high anxiety, respectively. The scale's internal consistency coefficients have spanned from .86 to .95, with test-retest reliability falling between .65 and .75 over a two-month period (Spielberger et al., 1983).

The State-Trait Anxiety Inventory (STAI) is a widely employed tool for assessing trait and state anxiety (Spielberger et al., 1983). It can be utilized in clinical training to identify anxiety and distinguish it from depressive syndromes (Greene et al., 2017; Spielberger et al., 1983; Ugalde et al., 2014). The questionnaire's reliability has been reported in the range of 0.86–0.95 (Spielberger et al., 1983). The study instrument was evaluated for content validity by three professors in psychiatric mental health nursing. The Arabic version was sourced from the El-Anglo-Egyptian bookshop and its website

Ethical Considerations

A primary approval was obtained from ethical committee of scientific research at faculty of nursing, Cairo University to conduct the proposed study. The protocol has been approved by the Institutional Review Board (IRB) of King Khalid Hospital. The IRB has reviewed the research proposal and has determined that it meets the ethical standards outlined in the Belmont Report and the GCP ICH guidelines. Approval is given for one year from the date of this letter. The following ethical considerations were respected from the beginning of data collection: Permission to carry out the study was obtained from the head of Irada psychiatric hospital in Jeddah KSA to carry out the study. Oral and written informed consents were obtained from the nurses after explaining the purpose, nature of the study. Participation in the study was voluntary, the right to refuse to participate in the study or withdraw from the study even after beginning at whatever time without fronting any undesirable effect will be guaranteed. The researcher ensured that anonymity and confidentiality was maintained during and after the research processes, no names were included in the questionnaire sheet, obtained data was protected by the allocation of a code number for each participant who was respond to the questionnaire... Final approval was obtained after data collection and program implementation from ethical committee of scientific research at faculty of nursing, Cairo University.

Procedures

Data collection was carried out using the chosen standardized measurers for personal data, and The Spielberger State-Trait Anxiety Inventory (STAI). The study will follow a pre-test-post-test research design whereby the selected nurses from both control and intervention groups was assessed with the selected tools. The findings in the pre-test will serve as the baseline data. After the interventions, during post-test, the nurses in experimental group were further be evaluated if there are improvements using the same tools. Conversely, the control group was answering together the tool but will not be introduced as part of the intervention. After obtaining the needed permissions to conduct the current study, the participant was recruited. The researcher provides information about the goal, scope, and length of the study as well as what was anticipated of the participants. In order to get the cooperation and acceptance of the eligible nurses, the

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researcher contacts them and explains the nature and goal of the program. And to fill the informed consent. The researcher divided the study groups into two group's twenty nurses 20 for each for more effective training and practice. Each session includes information and basic guidelines about progressive muscle relaxation with breathing exercises training program.

In the educational package, the forms and sheets were designed to complete the activities within a session and practice the ability to solve problem. Participants were given a program matrix. Each session of progressive muscle relaxation with breathing exercises training program included practice and repetition, role-playing, feedback, role models, and additional behavioral and cognitive exercises. Participants in the study group were given a program matrix including brief description of the progressive muscle relaxation with breathing exercises training program were taught in each session through role model provision, role playing, feedback, practice and repetition, and other cognitive and behavioral tasks. At the conclusion of each session, homework tasks outside of sessions were assigned in proportion to the debates that were covered. At the start of each session, the homework assignments were examined and feedback was given.

Both groups were immediately given a posttest to complete again following the training sessions. The control group's participants received the program bundle. After completing post test tools (program description's booklet, pressures and program matrix. Also, the researcher conducts two sessions for program description.

Program aims to:

- Provide nurses with essential knowledge and skills about PMR with breathing exercises.
- Practice PMR with breathing exercises to mitigate anxiety.

Program description

This program aimed to provide nurses an overview about relaxation techniques, benefits, types and how to practice it effectively. The program consists of ten sessions, 90 minutes for each.

The first session: document the relationship between the researcher and the nurses and between the nurses themselves, where the researchers introduce themselves to the participating nurses, as well as encouraging the nurses to introduce themselves and get to know each other. Presenting and discussing the objectives of the program and explaining the training methods that will be used.

The second session: pre-prepared scientific simplified material is presented and explained about the meaning of anxiety, causes, risk factors, factors contributing to depression at workplace, problems associated with it and how to manage it.

Third and fourth sessions: These sessions aim to explain the concept of stress and stress management, types and sources of stress, work stress meaning and its effect on different body system, and how to overcome stress.

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Fifth session: This session aims to train nurses about breathing exercise and how to practice it regularly. Breathing exercises will present through video. The nurses will ask to practice it regularly during the day.

The sixth session: this session aims to provide theoretical background about relaxation techniques meaning, types and benefits of it. Also, demonstrate and practice of deep breathing exercise as one of the relaxation techniques

Seventh, eight and nine sessions: These sessions aim to discuss the concept of progressive muscle relaxation, benefits, and how to practice it. Explain the meaning of relaxation, both mental and physical, give some examples about relaxation techniques and exercise, and practice some exercises that lead to relaxation during the session.

Ten sessions: Revision and evaluation, this session aims to: Summarize what was presented in previous sessions. - Discuss the activities and homework of the previous session.

Discuses nurse ‘opinions about the training sessions and the extent to which they are used.

Thanking the nurses participating in the program. Create contact links. Evaluate the program in terms of the appropriateness of the activities used, time, and homework. Encourage nurses to apply and practice what was taught during the sessions in their daily lives.

Evaluation phase:

It will be done through the same relevant selected tools for personal information and anxiety state and trait... This post assessment will be done by the researcher for all participant groups.

Data analysis

Table 1: Personal characteristics of the studied nurses among experimental and control groups

Factor	Category	Experimental Group		Control Group	
		Frequency	Percentage	Frequency	Percentage
Age	20 to ≤ 30 years	11	27.5	27	67.5
	30 to≤ 40 years	24	60.0	10	25.0
	40 to ≤ 50 years	4	10.0	3	7.5
	More than 50 years	1	2.5	0	0.0
	Total	40	100.0	40	100.0
Gender	Male	32	80.0	33	82.5
	Female	8	20.0	7	17.5
	Total	40	100.0	40	100.0
Place of residence	Village	4	10.0	3	7.5
	Governorate	3	7.5	5	12.5
	City	33	82.5	32	80.0
	Total	40	100.0	40	100.0

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Table (1) demonstrates that 60% compared to 25% of the studied nurses were in age between 30 to ≤ 40 years for experimental and control groups respectively. 80% compared to 82.5% were male for experimental and control group respectively. As regards residence, 82.5% compared to 80% lived in city for experimental and control group respectively.

Table 2: Personal characteristics of the studied nurses (marital status, educational level, and current position) among experimental and control groups

Factor	Category	Experimental Group		Control Group	
		Frequency	Percentage	Frequency	Percentage
Marital status	Single	17	42.5	23	57.5
	Married	22	55.0	16	40.0
	Divorced	1	2.5	1	2.5
	Total	40	100.0	40	100.0
Educational level	Diploma	13	32.5	5	12.5
	Bachelor's	27	67.5	34	85.0
	Master's	0	0.0	1	2.5
	Total	40	100.0	40	100.0
Current position	Nurse	27	67.5	38	95.0
	Head of department	9	22.5	0	0.0
	Nursing Supervisor	4	10.0	2	5.0
	Total	40	100.0	40	100.0

Table (2) demonstrates that in the experimental group, 55% of the nurses were married, while in the control group, 40% were. For the research and control groups, 42.5% and 57.5% of them, respectively, were unmarried. For the experimental and control groups, respectively, 67.5% and 85% of the nurses who took part had a bachelor's degree. Nonetheless, 12.5% and 32.5% of them, respectively, have a diploma for the control and experimental groups. For both the experimental and control groups, nurses made up 67.5% and 95% of the workforce, respectively.

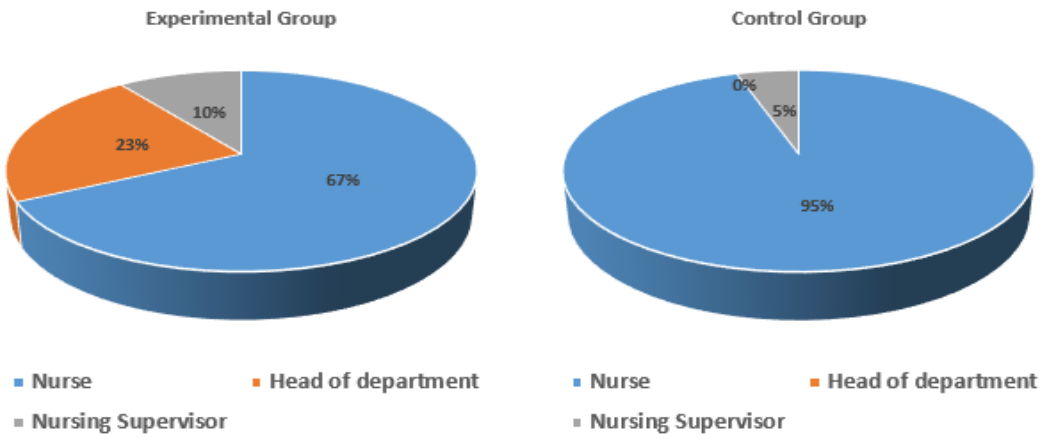

Figure 1: Distribution of the studied nurses according to current position for experimental and control groups.

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Figure (1) demonstrates how the nurses in the study were distributed based on their current positions. The majority of participants—67%—are nurses, who make up 95% of the experimental and control groups, respectively.

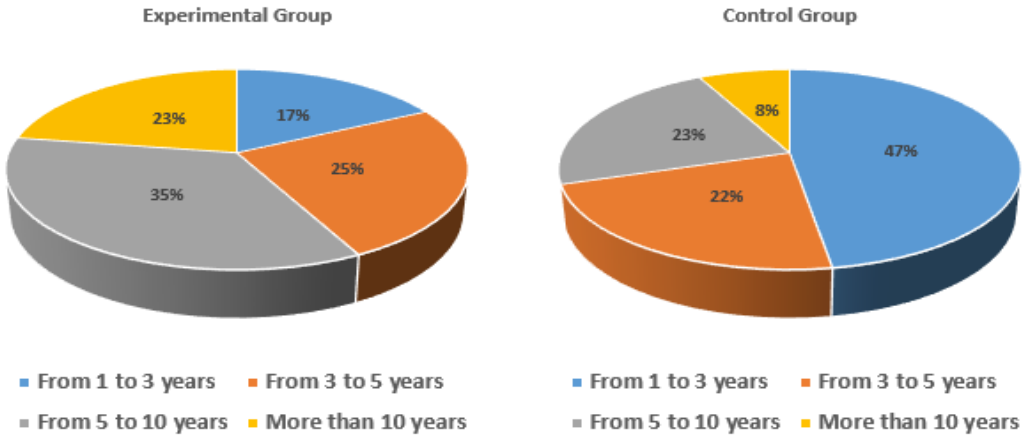

Figure 2: Distribution of the study sample according to years of work in a psychiatric hospital for experimental and control groups.

Figure (2) demonstrates that 35% of nurses in the experimental group and 23% of nurses in the control group have worked in a psychiatric institution for five to ten years, respectively. For the experimental and control groups, respectively, 25% and 22% of nurses have worked at a psychiatric hospital for three to five years, while 17% and 47% of them have worked there for one to three years. Additionally, 23% and 8% of nurses in the experimental and control groups, respectively, have worked in a mental health facility for more than ten years.

Table 3: Degrees of state anxiety (STAI-S) among nurses at pre-training and post-progressive muscle relaxation with breathing exercises program for experimental and control groups

Degrees of State anxiety (STAI-S)	Groups	Pre- training		Post training	
		No	%	No	%
Low	Experimental	2	5	35	87.5
	Control	2	5	2	5
Moderate	Experimental	37	92.5	5	12.5
	Control	36	90	36	90
High	Experimental	1	2.5	0	0
	Control	2	5	2	5

Table (3) and figure 8&9. shows that, 5%, 92.5% and 2.5% among nurses at pre-training compared to 87.5%, 12.5% and zero% post- progressive muscle relaxation with breathing exercises program has low, moderate and high state anxiety (STAI-S) for experimental group. Also, 5%, 90% and 5% compared to 5%, 90 and 5% post- progressive muscle relaxation with breathing exercises program have low, moderate and high state anxiety (STAI-S) for control group respectively.

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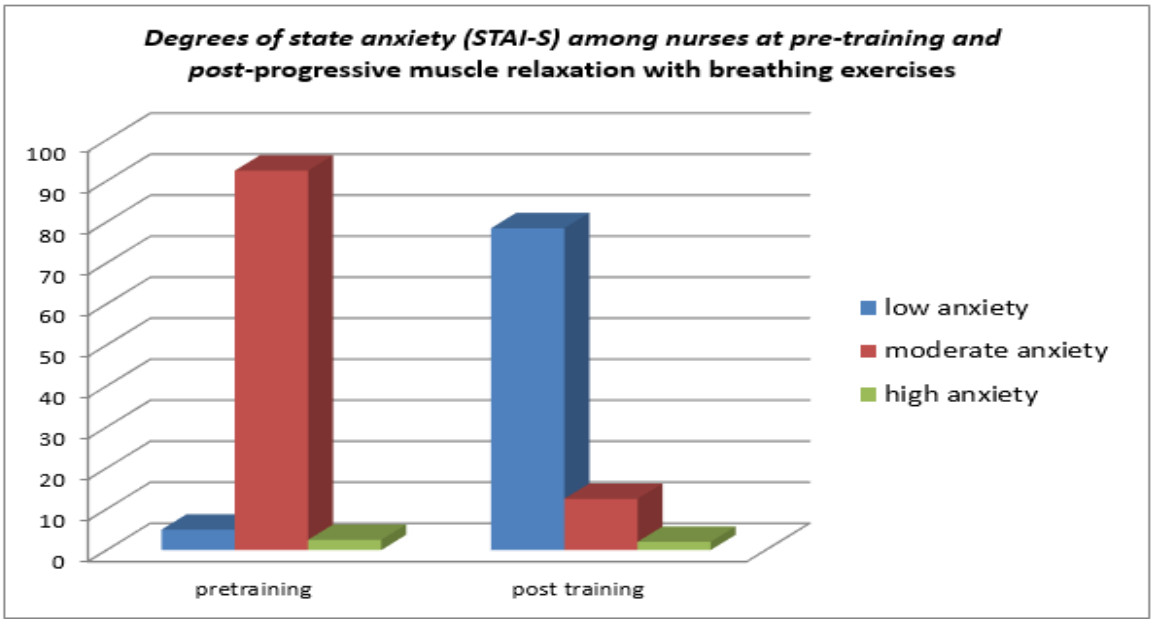

Figure 3: Degrees of state anxiety (STAI-S) among nurses at pre-training and post- progressive muscle relaxation with breathing exercises program for experimental group

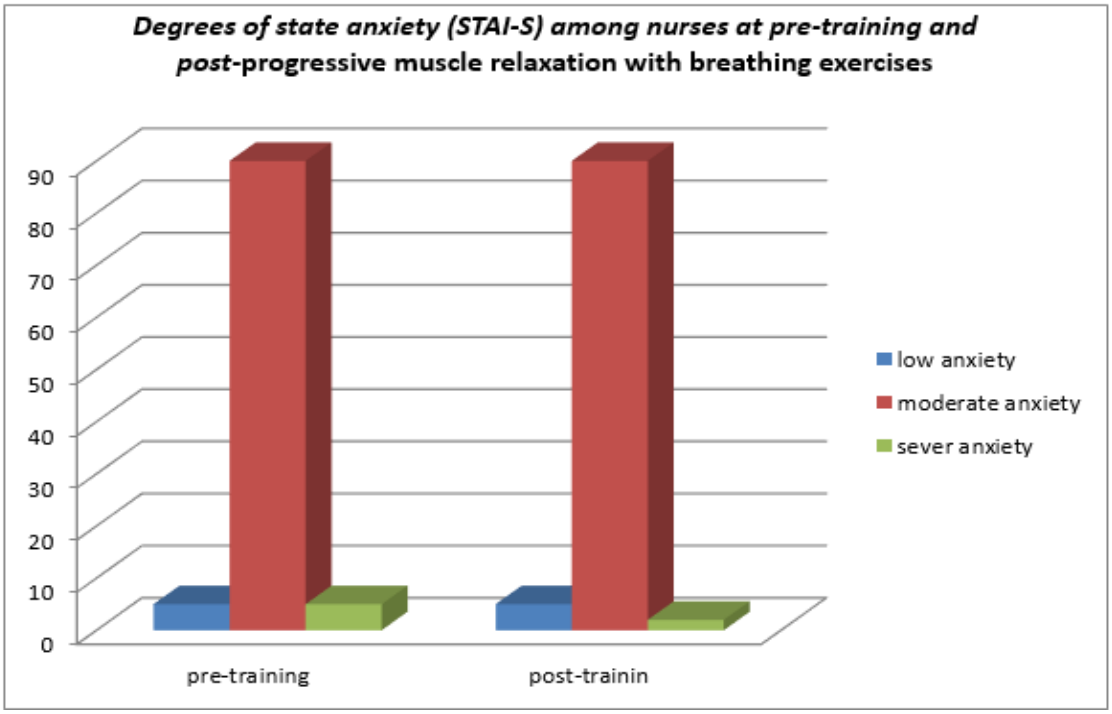

Figure 4: Degrees of state anxiety (STAI-S) among nurses at pre-training and post- progressive muscle relaxation with breathing exercises program for control group

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Table 4: Degrees of trait anxiety (STAI-t) among nurses at pre-training and post-progressive muscle relaxation with breathing exercises program for experimental and control groups

Degrees of anxiety	Groups	Pre- training		Post training	
Trait anxiety (STAI-T)		No	%	No	%
Low	Experimental	10	25	39	97.5
	Control	14	35	14	35
Moderate	Experimental	30	75	1	2.5
	Control	26	65	26	65
High	Experimental	0	0	0	0
	Control	0	0	0	0

Table (4) and figure10&11 reveals that, 25%, 75%, and zero % compared to 35%, 65% and zero of studied nurses have low, moderate and high anxiety at pre-training for experimental and control groups respectively.

Also, 97.5%, 2.5% and zero % compared to 35%, 65%, and zero% of studied nurses have low, moderate and high anxiety at post progressive muscle relaxation with breathing exercises program for experimental and control groups respectively.

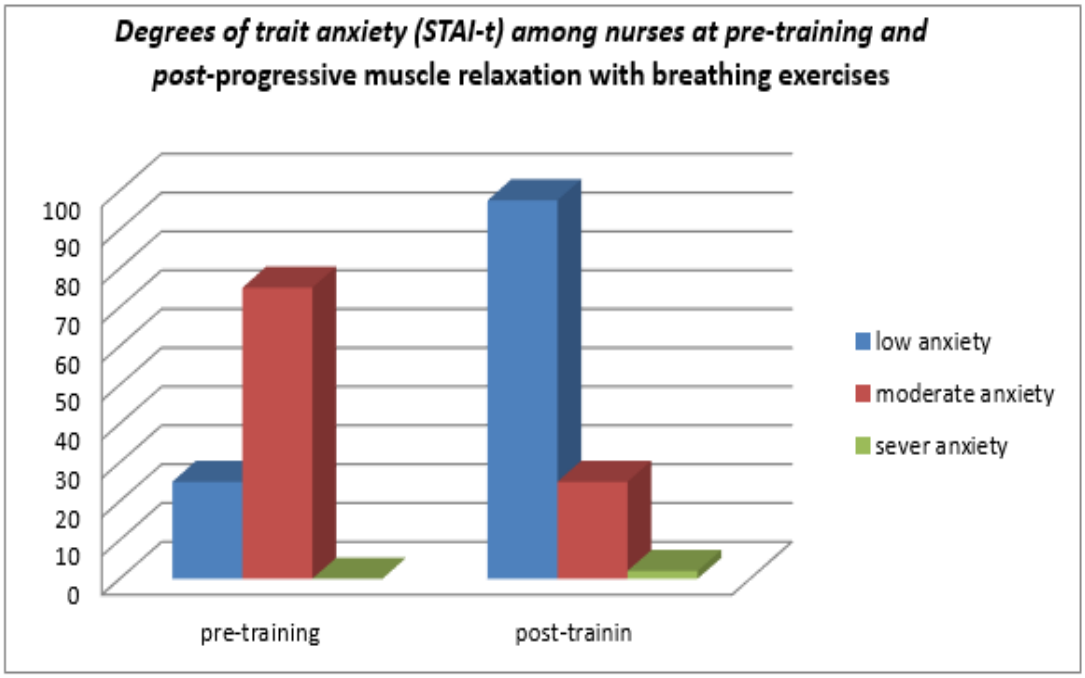

Figure 5: Degrees of trait anxiety (STAI-t) among nurses at pre-training and post-progressive muscle relaxation with breathing exercises program for experimental group

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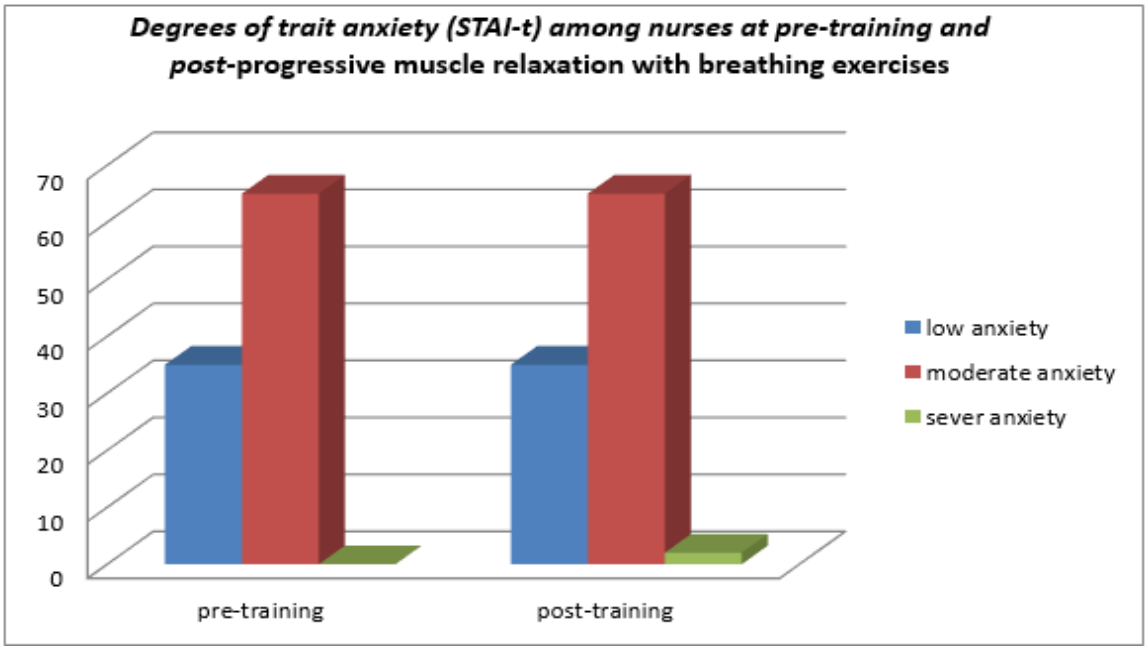

Figure 6: Degrees of trait anxiety (STAI-t) among nurses at pre-training and post-progressive muscle relaxation with breathing exercises program for experimental group

Table 5: Ddifferences in state and trait anxiety at pre/ post progressive muscle relaxation with breathing exercises program among nurses for both experimental and control groups

Two Way ANOVA with Repeated Measures					
Source	**Group**	**Mean ± SD**	**Wilks' Lambda**		**Partial Eta Squared (η^2)**
			F	**Sig.**	
State and Trait Anxiety (Pre-Training)	Experimental	92.82 ± 11.033	709.991	.000	.901
	Control	89.60 ± 13.435			
	Total	91.21 ± 12.322			
State and Trait Anxiety (Post-Training)	Experimental	64.20 ± 9.387			
	Control	89.50 ± 13.403			
	Total	76.85 ± 17.153			
Training * Group			700.139	.000	.900

Table (5) demonstrates that level of significance of F-test (Wilks' Lambda) between the state and trait anxiety among nurses at pre-training and post progressive muscle relaxation with breathing exercises program is less than 0.05 (Sig. < 0.05), indicating that find a statistically significant difference in state and trait anxiety between pre-training and post-training this difference in favor of state and trait anxiety after the training, where the results show that the total mean of state and trait anxiety among nurses after training is less than the total mean of it before the training, with a total mean (standard deviation) of 76.85 (17.153) and 91.21 (12.322), respectively. In addition to the level of significance of F-test (Wilks' Lambda) is less than 0.05 (Sig. < 0.05), indicating that there is an interaction

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between the training and the study groups (experimental and control), that is, the effect of training on control and experimental groups is not equal, where the mean of state and trait anxiety inventory after the training according to experimental group is less than the mean of it according to control group, with a mean (standard deviation) of 64.20 (9.387) and 89.50 (13.403), respectively.

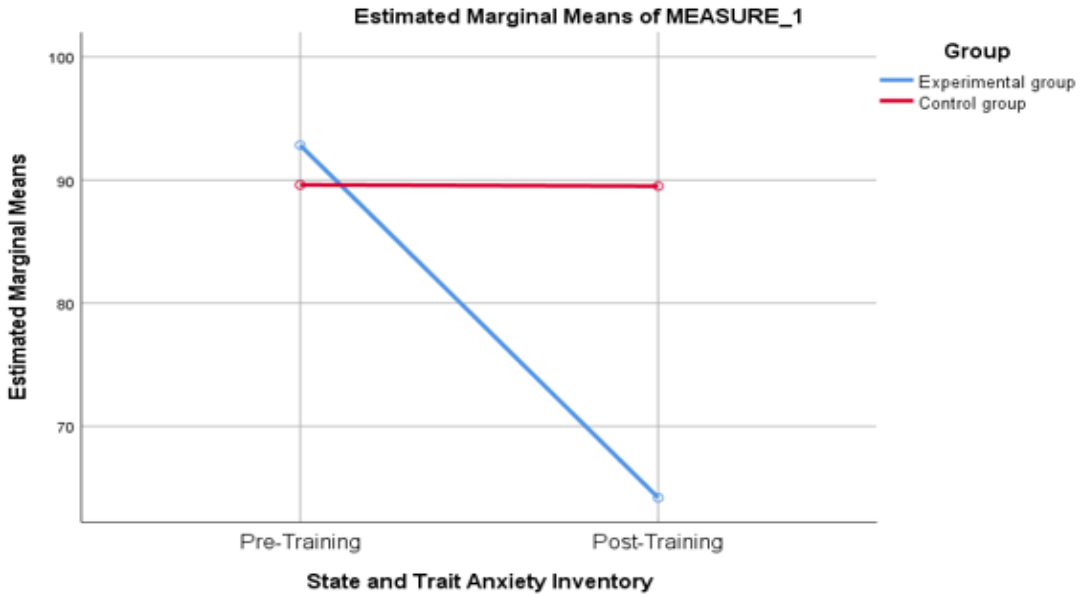

Figure 7: Estimated marginal means of state and trait anxiety among nurses before and after progressive muscle relaxation with breathing exercises program for both experimental and control groups

Figure (7) demonstrates the training's significant impact in lowering nurses' anxiety levels both before and after training, as the partial Eta squared (η^2) equal to (0.901) where ($\eta^2 > 0.14$), in addition to the effect size of the interaction between the training and group is large, with partial Eta squared (η^2) equal to (0.900) where ($\eta^2 > 0.14$)

Table 6: Ddifferences in state anxiety (STAI-S) at pre /post progressive muscle relaxation with breathing exercises among nurses according to the study groups (experimental and control).

Two Way ANOVA with Repeated Measures					
Source	**Group**	**Mean ± SD**	**Wilks' Lambda**		**Partial Eta Squared (η^2)**
			F	**Sig.**	
State Anxiety (STAI-S) (Pre-Training)	Experimental	49.58 ± 6.352	1013.711	.000	.929
	Control	48.38 ± 7.256			
	Total	48.97 ± 6.803			
State Anxiety (STAI-S) (Post-Training)	Experimental	33.67 ± 5.876			
	Control	48.33 ± 7.255			
	Total	41.00 ± 9.867			
Training * Group			1001.040	.000	.928

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Table (6) Table (6) demonstrates that the F-test (Wilks' Lambda) level of significance between the state anxiety (STAI-S) before and after training is less than 0.05 (Sig. < 0.05), suggesting that there is a statistically significant difference in state anxiety between pretraining and post training. With a total mean (standard deviation) of 41.00 (9.867) and 48.97 (6.803), respectively, the results show that the total mean of state anxiety after training is lower than the total mean of it prior to training. In addition to the level of significance of F-test (Wilks' Lambda) is less than 0.05 (Sig. < 0.05), indicating that there is an interaction between the training and the study groups (experimental and control), that is, the effect of training on control and experimental groups is not equal, where the mean of state anxiety after the training according to experimental group is less than the mean of it according to control group, with a mean (standard deviation) of 33.67 (5.879) and 48.33 (7.255), respectively.

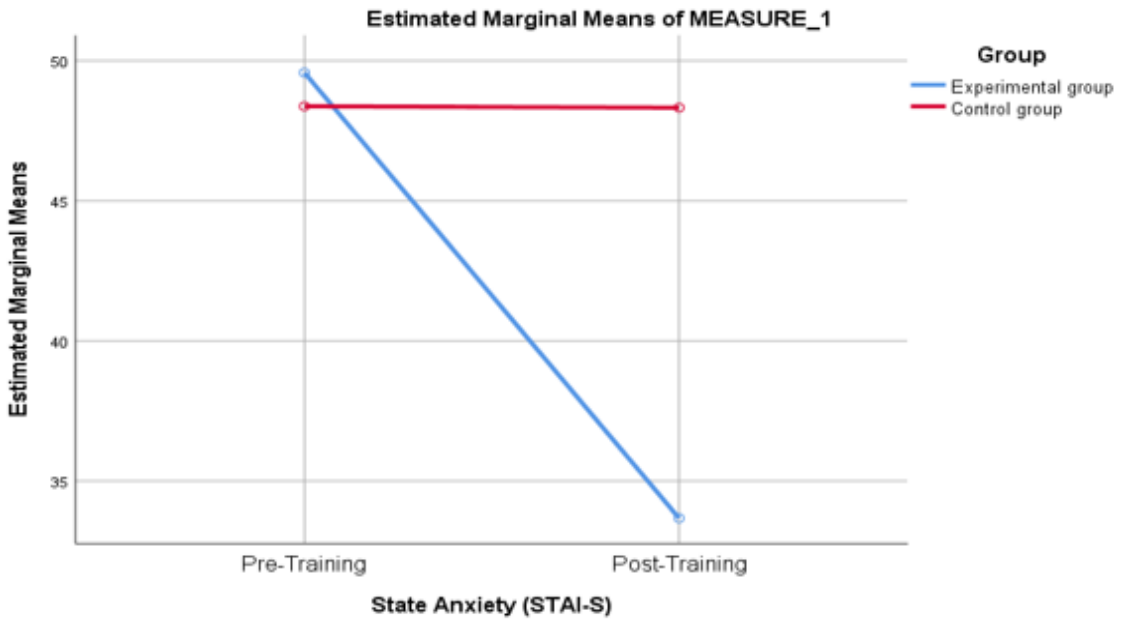

Figure 8: Estimated marginal means of state anxiety (STAI-S) among nurses before and after the progressive muscle relaxation with breathing exercises program according to the study groups (experimental and control)

Figure (8) shows the effect size of the training on reducing the state anxiety (STAI-S) among nurses pre-training and post-training is large, as the partial Eta squared (η^2) equal to (0.929) where ($\eta^2 > 0.14$), in addition to the effect size of the interaction between the training and group is large, with the partial Eta squared (η^2) equal to (0.928) where ($\eta^2 > 0.14$). According to the previous results, we accept the hypothesis that psychiatric nurses who will receive progressive muscle relaxation with breathing exercise training program will have statistically significance differences on anxiety state (STAI-S) at post intervention than pre. according to the study groups (experimental and control)

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Table 7: Differences in trait anxiety (STAI-T) at pre /post progressive muscle relaxation with breathing exercises among nurses according to the study groups (experimental and control).

Two Way ANOVA with Repeated Measures					
Source	**Group**	**Mean ± SD**	**Wilks' Lambda**		**Partial Eta Squared (η^2)**
			F	**Sig.**	
Trait Anxiety (STAI-T) (Pre-Training)	Experimental	43.25 ± 6.250	332.421	.000	.810
	Control	41.23 ± 6.814			
	Total	42.24 ± 6.576			
Trait Anxiety (STAI-T) (Post-Training)	Experimental	30.53 ± 4.368			
	Control	41.18 ± 6.778			
	Total	35.85 ± 7.798			
Training * Group			327.237	.000	.808

Table (7) demonstrates that there is a statistically significant difference in trait anxiety between pre training and post training, with the F-test (Wilks' Lambda) level of significance between the trait anxiety (STAI-T) before and after training being less than 0.05 (Sig. < 0.05). This difference favors trait anxiety following training, with a total mean (standard deviation) of 35.85 (7.798) and 42.24 (6.576), respectively, the results demonstrate that the overall mean of trait anxiety during training is lower than the overall mean of trait anxiety before to training. In addition to the level of significance of F-test (Wilks' Lambda) is less than 0.05 (Sig. < 0.05), indicating that there is an interaction between the training and the study groups (experimental and control), that is, the effect of training on control and experimental groups is not equal. where the mean of trait anxiety (STAI-T) Following training, the experimental group's mean (standard deviation) was lower than the control groups, at 30.53 (4.368) and 41.18 (6.778), respectively.

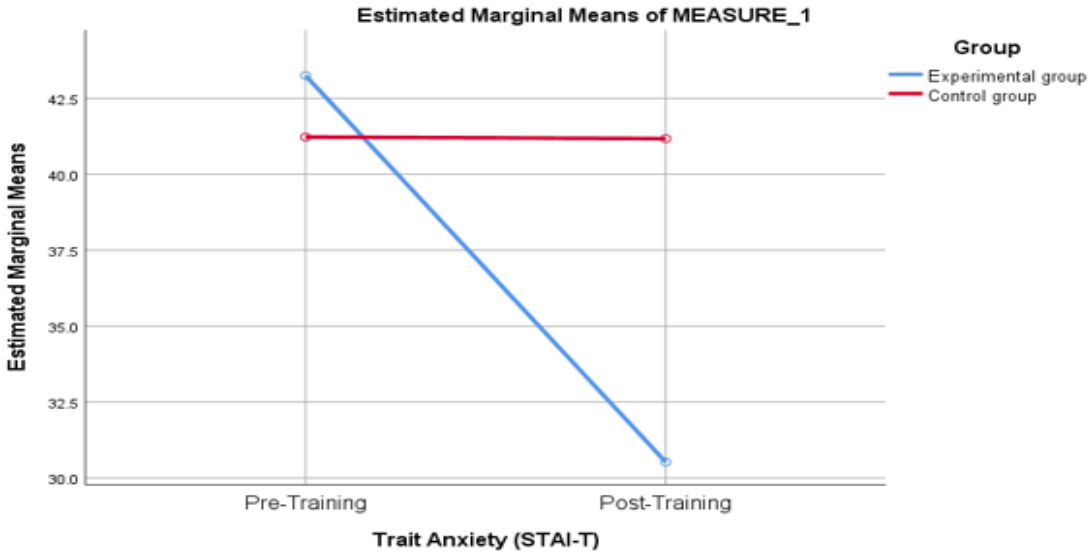

Figure 9: Estimated marginal means of trait anxiety (STAI-T) before and after the training according to the study groups (experimental and control)

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Figure (9) The partial eta squared (η^2) equals (0.810), indicating that the instruction had a significant impact on lowering the trait anxiety scale (STAI-T) among nurses both before and after training.

DISCUSSION

According to the current study's findings, sixty percent of the nurses in the experimental group and twenty-five percent of the control group were between the ages of thirty and under forty. The studied nurses' age and degree of maturity may suggest that they were able to develop a certain degree of professional isolation. Younger nurses or those with less experience may face unique stressors related to navigating the demands of the profession and developing coping mechanisms. Older nurses, while potentially having more experience, may also experience higher levels of stress due to increased responsibilities or potential career plateaus. Result of the current study revealed that fifty five percent compared to forty percent of the studied nurses were married for experimental and control groups respectively. For the study and control groups, 42 percent and half of the nurses were single, divorced, or widowed, and 57 percent and half were single. These findings demonstrated that the majority of research participants were married nurses. The fact that these women's numerous and varied responsibilities as moms, wives, workers, and housekeepers raise their stress levels may help to explain this finding. The study's sample of 90 nurses revealed that the majority of them were married. These findings, however, conflicted with the University of Ottawa's (Salmond et al. 2019), who discovered that just 12% of nurses who treat children with cancer are married, whereas the majority are divorced.

In terms of educational background, the experimental group's nurses had a bachelor's degree, whereas the control group's nurses had a bachelor's degree, at 67 and 85 percent, respectively. For the experimental group, however, thirty-two and a half of them hold a diploma, while for the control group, twelve and a half do. According to Vega et al. (2023), nurses who worked in inpatient units with higher levels of education also reported higher levels of anxiety than professionals with a medium level of education. A similar study conducted in Bangladesh found that nurses significantly had lower scores on the anxiety and stress subscale ($p < 0.001$) than nursing professionals with a master's degree (Chowdhury et al., 2021). The study found that males made up 80% of the experimental group and 82% of the control group. Male nurses were more common in mental health facilities, maybe due to their perceived physical strength and ability to handle violent patients. The interests and talents of many male nurses are also well matched to the demands of emergency situations, which necessitate quick decisions. In providing comprehensive mental health care, male psychiatric nurses often excel in deescalating situations and providing therapeutic interventions.

As regard years of experience in nursing thirty seven percent and Two-thirds of the nurses in the study have five to fewer than 10 years of nursing experience, for both the experimental and control groups. Also, thirty five percent and sixty-two and half percent have one to less than five years of experiences in nursing for both experimental and

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control groups respectively. Twenty three percent and thirteen percent have worked for more than fifteen years of experiences in nursing for both experimental and control groups respectively. Experience has a different effect on anxiety and stress levels. While some research suggests that mental nurses may develop greater emotional tiredness as they age, other studies suggest that more experienced general ward nurses may report lower levels of stress. Psychiatric nurses typically endure higher levels of stress than their general ward counterparts. This disparity may be caused by a variety of factors, including the nature of patient interactions, the possibility of violence, and the emotional toll of caring for people with mental health conditions.

Years of experience can play a role, with some studies suggesting that more experienced nurses, particularly in general wards, and may report lower overall stress levels. However, the impact of experience can vary across specialties, with some research indicating that psychiatric nurses may experience higher emotional exhaustion as they age (Sidra & Iftikhar, 2020) On the other hand, Harrison, Hauck, and Hoffman (2014) found that male nurses often feel compelled to assume leadership positions during physical de-escalation situations when violence erupts, although they are generally under supported. Male nurses are under more stress as a result of this expectation, which exacerbates their emotions of vulnerability and loneliness. Their dedication to the field and job satisfaction may be further weakened by the lack of encouragement and acknowledgment for their efforts. Additionally, age, sex, marital status, education, income, and length of employment did not affect psychological distress, according to a univariate analysis of socio-demographic data. Nonetheless, shift employment and professional titles were closely associated with it. This may have to do with the fact that nurses deal with a variety of demands from their families, their jobs, and society at large. Furthermore, professional nurses experience psychological anguish as a result of their ongoing exposure to high levels of pressure (Dong, Zhang, Sun, Sang, Xu 2017).

Results of current study revealed that, twenty five percent, seventy five percent and zero % compared to thirty five percent, sixty five percent and zero percent of studied nurses have low, moderate and high anxiety at pre-training for experimental and control groups respectively. Also, ninety-seven and half percent, two and half percent and zero percent compared to thirty five percent, sixty five percent, and zero percent of studied nurses have low, moderate and high anxiety at post progressive muscle relaxation with breathing exercises program for experimental and control groups respectively. The program implemented in this study teaches nurses breathing exercises and PMR. These techniques increase self-confidence in nurse, promote a sense of calm, minimize misunderstanding and conflict. Also, training reduces anxiety, feelings of helplessness and help them to handle difficult situation effectively. The training can help nurses identify their personal stress triggers, allowing them to develop proactive strategies to manage or avoid them.

The study's findings demonstrated a statistically significant difference in state and trait anxiety between pre-training and post-training, with the majority of the difference occurring after training, where the results show that the total mean of state and trait

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anxiety among nurses after the training is less than the total mean of it before the training, This could be due to progressive muscle relaxation with breathing exercises implemented in the study incorporating cognitive-behavioral techniques and relaxation methods, have been shown to reduce psychiatric nurses' levels of trait and state anxiety. Nurses may be able to reframe stressful situations and create more flexible coping mechanisms by recognizing the causes and sources of negative thoughts and confronting them. Deep breathing techniques and progressive muscular relaxation are useful for fostering relaxation and lowering the physiological signs of worry. Therefore, we accept the research hypothesis Psychiatric nurses who will receive progressive muscle relaxation with breathing exercise training program will have statistically significance differences on anxiety state and trait at post intervention than pre. The study aimed to ascertain the effects of progressive muscle relaxation exercise (PMRE) on nursing students' anxiety levels in a critical care unit prior to clinical training. Comparisons were made between the anxiety scores of the control and intervention groups. According to the findings, the nursing students in the intervention group scored significantly lower on the anxiety scale. Additionally, it is well known that PMRE is one of several stress-reduction techniques. Our findings demonstrated that the PMRE program had a positive effect on the average anxiety score of nursing students undergoing intensive clinical training Although there aren't many studies in the literature that use PMRE as a stress-reduction technique for nursing students, the findings they came up with are in line with ours. One of these studies found that students who participated in PMR exercise for three weeks found that their clinical stress levels decreased (Pelit-Aksu et al., 2021). Additionally, Kim (2000) showed that PMR was beneficial in lowering clinical stress symptoms and recommended that nursing students take the PMRE for eight weeks before to beginning clinical practice.

According to Gangadharan and Madani (2018), who also found that PMRE was highly helpful, most participants reported that their negative emotions subsided and that their emotional state reverted to normal. After three weeks of twice-weekly PMR, the stress levels of Jordanian nursing students decreased (Alhawatmeh and Ross, 2017). According to Veiga et al. (2019), a relaxation treatment decreased the psychological and physiological stress markers of nurses. Furthermore, Progressive Muscle Relaxation Therapy has been found to help nursing students reduce their stress levels throughout their initial clinical training and pediatric courses in two study studies on nursing students (Toqan et al., 2022a, & Toqan as al., 2022b). The most successful treatment for psychosomatic conditions like anxiety is relaxation (Ayed, 2022). This results from the body's attempt to produce natural chemicals while in a relaxed state in order to repair damage and get rid of pollutants. Additionally, relaxation boosts productive output by fostering internal skills, enhancing the ability to think and invent through the development of mental and psychological strength, and boosting self-confidence (Kim, Kim, 2018). According to the findings of the study by Carver and O'Malley (2015), teaching students a simple method to reduce their anxiety levels may be helpful because anxiety can be a problem that hinders their ability to learn during simulation. Progressive muscle relaxation may reduce anxiety, which could result in better communication and more rational thought processes.

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CONCLUSION

A program that combines breathing techniques with progressive muscle relaxation has an impact on clinical anxiety reduction in psychiatric mental health. The control and intervention groups' anxiety scores were contrasted. The findings revealed that the nurses in the intervention group had a noticeably lower anxiety score.

Recommendations

- The intervention in the present study is needed to be applied in a large sample of nurses and in longer duration to follow up their abilities to be integrated in the workplace, social life and cope effectively with its problems.
- Regular Mental Health Screening for psychological problems among PMHNs (stress, anxiety, and depression) must be incorporated as part of the nurse's regular check-up.
- Regular Mental Health Screening for psychological problems among PMHNs (stress, anxiety, and depression) must be incorporated as part of the nurse's regular check-up.

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