**Kufa Journal for Nursing Sciences**
**Open Access Full Text Article**

**Publisher**
**University of Kufa, Faculty of Nursing**

Received: 02 June, 2024
Accepted: 13 July, 2024
Published: 04 October, 2024
Vol. 14(2), 2024: 84 – 94

https://doi.org/10.36321/kjns.vi20242.16403

**ORIGINAL RESEARCH**

# Improving Mental Health Outcome in Hypertensive Patients: The Role of Relaxation Techniques

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## ABSTRACT

**Background:** Relaxation techniques (progressive muscle relaxation and deep breathing) have an impact on the patients with hypertension as they produce a relaxation response within the body and thus, are efficient in lowering the stress and blood pressure in the patients.
**Objectives:** This study aims to determine the role of relaxation techniques (progressive muscle relaxation and deep breathing) on improving mental health outcome in hypertensive patients (depression, anxiety and stress).
**Methodology:** A Quasi-experimental design used to guide this study, it was conducted by use of a pre-posttest approach during the period 26th of November, 2023 to 7th of April, 2024. A non-probability (purposive) sampling has been performed during a selection of (100) patients who attending Outpatient Clinic in Al-Diwaniyah Teaching Hospital, (50) patients as control group and (50) patients as study group. The researcher used a socio-demographic and psychological parameter scale (DASS-21).
**Results:** The findings of the current study show highly statistically significant differences in post-test between study and control group (at $P \leq 0.001$). On other hand, there is no statistically significant difference in the pre-test between the two group of all psychological parameter (at $P \leq 0.05$).
**Conclusion:** Based on the study's findings, progressive muscle relaxation and deep breathing exercises can both proved to be significantly effective in improve mental health in hypertensive patients (depression, anxiety and stress).
**Recommendations:** In order to reduce hypertension and other psychological parameters in patients with essential hypertension, the researcher suggested combining pharmacological therapies with non-drug therapy (relaxation techniques intervention) in the management of hypertension.

***Keywords:*** Effect, Relaxation Techniques, Hypertension.

## INTRODUCTION

Hypertension, defined as blood pressure greater than (140/90 mm Hg), is one of the major and the most prevalent global health concerns. It can be an asymptomatic disease which is sometimes called the silent killer (Delavar et al., 2020).

Hypertension is divided into a primary (formerly and still also currently referred to as 'essential') and secondary forms. Secondary hypertension originates from specific causes and can be detected in only a small fraction of hypertensive patients. Primary



***How to Cite:*** Atiyah, A. A., & Hameed, D. M. (2024). Improving mental health outcome in hypertensive patients: The role of relaxation techniques. *Kufa Journal for Nursing Sciences, 14*(2), 84–94. https://doi.org/10.36321/kjns.vi20242.16403

hypertension covers the remaining large fraction of the hypertensive population (Mancia et al., 2023).

In this regard, hypertension is the single most common risk factor for cardiovascular disease (CVD) burden and mortality worldwide. In 2019, hypertension was reported as the number one cause of death in women, and the number two cause of death in men, accounting for almost 20% of deaths (~11 million) globally (Parati et al., 2023). As well as, it is caused 9.4 million deaths in 2010 alone, making it the leading cause of death globally. It's associated with an increase in cardiovascular disease, kidney failure, and stroke (Al-Hchaim et al., 2022).

Most people with hypertension are treated with antihypertensive medications. One study stated that patients who discontinued anti-hypertensive therapy would have five times more likely to have a stroke. On the other hand, the drugs used to lower blood pressure if consumed in a long term can cause organs damage. Many non-drug therapies such as diet, exercise and relaxation therapies have proved compared to drugs in cases of borderline to mild hypertension. It can be used to control and bring down the blood pressure with no side effects. One of non-pharmacological treatment is relaxation training (Herawati and Azizah, 2016).

Some efforts to treat high blood pressure include controlling and avoiding medicines that can be made independently and affordable to keep blood pressure stable in patients with high blood pressure. Several studies have provided drug-free treatment that can reduce high blood pressure, namely deep breathing relaxation and progressive muscle relaxation (Noefitasari and Idris, 2022).

As well as, Hamdani et al., (2020) argued that relaxation techniques work through physiological and psychological mechanisms through deal with muscular tension and a state of peace where a person does not experience negative thoughts such as tension, anxiety or fear. The impact of relaxation techniques can be measured using the physiological and psychological indicators; Physiological indicators such as heart rate, blood pressure, respiratory rate, muscle tension, and blood flow, provide an objective measure of relaxation response. While Questionnaire, interview schedules and self-report measures such as Depression Anxiety and Stress Scale-21 (DASS21) have been used to measure the relaxation response in adolescents. Therefore relaxation techniques are effective for a range of medical conditions including cardiac arrhythmias, hypertension as well as psychological status such as depression and anxiety.

Relaxation techniques including progressive muscle relaxation (PMR) which involving tensing and relaxing the various muscle sets of the human body and breathing exercises which involve slow and deep inhaling and exhaling for increasing the oxygen content of the body without the use of device performed for therapeutic purposes. Relaxation techniques have an impact on the patients with hypertension as they produce a relaxation response within the body and thus, are efficient in lowering the stress and blood pressure in the patients (Bhardwaj and Koul, 2021).

Also, Mulyati et al., (2021) stated that PMR therapy is a simple and effective relaxation therapy to reduce muscle tension, reduce stress and reduce high blood pressure and can reduce anxiety five times per week, improve physical function, reduce sleep disorders, reduce mental disorders, and improve quality of life.

PMR exercises prevent the unwanted side effects of stress and anxiety by balancing posterior and anterior hypothalamic activities. They have many benefits, such as improving physical and mental states by decreasing the effects of stress and anxiety, providing a distraction from the pain, decreasing fatigue, and facilitating sleep. The benefits of PMR exercises, such as the fact that they usually have no side effects, are quickly learned, non-costly or low cost, and easy to apply (Talo and Turan, 2023).

Other non-pharmaceutical interventions are diaphragmatic slow deep breathing have been found

to influence stress levels. Diaphragmatic breathing has been reported to reduce the respiratory rate and maximizes the volume of gases in the blood. Thus, it follows that slow deep breathing can reduce stress and anxiety (Obaya et al., 2023).

Deep breathing, is a technique that is based on the notion that mind and body integration produces relaxation. The technique requires participants to contract the diaphragm, slowly inhaling and exhaling. Deep breathing has been shown to have a positive impact on various factors like stress, anxiety, and negative affect in numerous studies (Toussaint et al., 2021).

As well as, (Saeed et al., 2021) stated that the application of relaxation techniques were mentioned in several literatures and have well result in reducing anxiety and lowering vital signs.

## AIMS OF THE STUDY

This study aims to determine the role of relaxation techniques (progressive muscle relaxation and deep breathing) on improving mental health outcome in hypertensive patients (depression, anxiety and stress).

## METHODOLOGY

**Design of the Study:** A quasi-experimental design has used to guide this study, it was applied by use of pre-posttest approach for two groups of samples (study and control) during the period from 26th of November, 2023 to 7th of April, 2024.

**Setting of the Study:** The study was conducted at Outpatient Clinic in Al-Diwaniyah Teaching Hospital.

**Sample of the Study:** A purposive (non-probability) sampling has been performed for all hypertensive patients, the sample is purposive because the researcher set a standard as specifications for selecting sample members. The criteria for selecting the study samples are: patients who diagnosed with primary/essential hypertension for at least six months ago with blood pressure ≥ 130/90 and willing to participate in the study with age ranging from 18 to less than 65 years old. While patients with other co-morbid diseases such as cardiovascular disease, kidney disease, acute respiratory disease, diabetes, etc… and patient who do not complete the program, patients suffering from mental illness, or those taking anti-anxiety, stress, depression drugs, and patients with musculoskeletal disorder are excluded from the study. The total population of patients who attending at selected setting throughout the study period was (132) and distributed as following: (10) patients in the pilot study, (10) patients selected for need assessment. In addition, (12) are excluded according to the study sample criteria. Therefore, the total number was (100) patients took part in the study according to (Krejcie and Morgan, 1970), and was divided into two groups; (50) patients as a study group and they are exposed to the intervention and (50) patients who are not exposed to the intervention considered as a control group.

**Instrument:** To determine the effect of the relaxation techniques (progressive muscle relaxation and deep breathing), the researcher uses instruments consists of (2) tools:

**Tool I: The Socio-Demographic characteristics for hypertensive patients**. This part is concerned with the collection of basic socio-demographic data obtained from the patients by interview questionnaire sheet that involved five items (age, gender, marital status, educational level, and occupational status).

**Tool II: Depression Anxiety Stress Scale (DASS 21)**. The Depression Anxiety Stress Scale (DASS-21) contains 21 items in three subscales, which assess symptoms of depression (items 3, 5, 10, 13, 16, 17, 21), anxiety (items 2, 4, 7, 9, 15, 19, 20), and stress (items 1, 6, 8, 11, 12, 14, 18). The degree to which respondents endorsed the symptoms over the course of the last week is rated on a scale that ranges from 0 (did not apply to me at all) to 3 (applied to me very much or most of the time). Higher scores reflect higher levels of symptom endorsement

**Ethical Consideration:** Ethical considerations represent a pivotal facet within the domain of nursing

research; the aim of ethical consideration is to ensure the researcher's and the participant's rights, as well as, the researcher familiarized the study participants with the overall goal of the study and confirmed participants that the confidentiality of their data will safeguarded and securely sustained during and following study participation. The researcher further assured study participants that their names would remain unknown in the presentation, reporting, and any eventual publication of the study

**Methods of data collection:** The study was conducted according to the following steps:

1. All participants in both groups were interviewed individually and informed about the study purpose and obtaining formal consent from each patient to participate in the study prior to enrollment in the study.
2. The (50) patients in the control group were received only routine hospital care, then tools (I and II) were collected from the patients as (pre-test). After seven days the (tool II) was re-administered for the control group as post–test.
3. The following (50) patients were recruited as the study group. Where the researcher interviewed each patient individually and explained the purpose of the study and benefit, steps, frequency and duration of progressive muscle relaxation and deep breathing. During this interview tools (I and II) was administered to the patient as (pre-test). After that, each patient in the study group was training on progressive muscle relaxation technique and deep breathing and the researcher explained that each muscle group will be tensed for 5 seconds and then relaxed for 10 seconds twice/7days, and slow deep breathing twice/7days. After 14th sessions of relaxation techniques, the patients in the study group were assessed by using tool II as (post-test).

**Statistical Methods:** Data have been analyzed through the use of Statistical Package for Social Science (SPSS) application.

## RESULTS

Table (1) demonstrate the frequency count for selected demographic characteristics of two groups (study versus control). Regarding hypertensive patient age; the mean age in the study group is (44.96) while in the control group patients are (46). Concerning patient sex, (62%; 58%) was male for study and control groups respectively, and predominant percentage of both groups was married. A high percentage of the hypertensive patients (40%) graduating from primary school in the study group and (32%) in the control group are institute or bachelors graduated. In this regard, the majority of sample (44%; 40%) for study and control groups respectively were governmental employment.

Table (2) illustrate the distribution of the participants for both groups in pre-test regarding psychological parameter (depression, anxiety and stress). The table show that patients have moderate depression in the study and control group (92%; 94%) respectively, and sever anxiety (76%) for study group and (80%) for control group, while regarding stress (82%; 70%) depression in the study and control group respectively.

Table (3) illustrate the distribution of the participants for both groups in post-test regarding psychological parameter (depression, anxiety and stress). The table show that patients in the study group have normal level for all psychological parameter in post-test, where (64%) for depression and (72%) for anxiety and stress. While in the control group have moderate depression, severe anxiety and mild level of stress (98%, 84%, and 62%) respectively in post-test.

Table (4) demonstrate a high statistically significant differences between pre-test and post-test regarding psychological parameter (depression, anxiety and stress) at P- value equal or less than (0.001) when analyzed by Paired-Sample t-test.

Table (5) demonstrate a non-significant differences between pre-test and post-test regarding psychological parameter (depression, anxiety and

stress) at P- value equal or less than (0.05) when analyzed by Paired-Sample t-test.

Table (6) shows there is highly statistically significant differences in post-test between study and control group at all Psychological parameter (at P equal or less than 0.001). On other hand, there is no statistically significant differences in the pre-test between the study and control group of all Psychological parameter (at P equal or more than 0.05) when analyzed by Independent sample t- test.

**DISCUSSION:**

**Part I: The Socio-Demographic characteristics for hypertensive patients:**

Through the data analysis distribution of demographic variables, the percentage distribution of participants with reference to age group reveals the highest percentage (42%) and (34%) for the study and control groups respectively within the age group (41-45 years) with mean age of the patients in the study group (44.96) and (46) in the control group, also reveal that the majority 31(62%); 29(58%) for the study and control groups respectively were male with reference to sex groups. These results are consistent with the study conducted by Salah Mohamed et al., (2022) who reported that men age for the study group (47.80) and (45.91) for the control group. These results also are congruent with the study conducted by (Mustafa and Hassan, 2020) who reported that (72%) of patients in the experimental group and (76%) in the control group were male. Moreover, this finding was consistent with the study conducted in China by Xiao et al., (2020) who reported that male have the highest percentage (53.85%; 57.50) of the study and control groups respectively. Also, this finding in line with a study done by (AL-Ashour, 2014) who reported that male have the majority percentage (80%) of the study group and the highest percentage (60%) of the control groups.

Percentage distribution of samples with reference to the marital status reveals about 25 (50%); 23(46%) of the study and control groups respectively were married. This result is supported with study conducted by (Mustafa and Hassan, 2020) who revealed that the majority of the patients in the experimental and control groups respectively 46 (92%) and 48(96%) were married. Also, the result of the current study consisted with the study carried out by Abbasiah et al., (2023) which revealed that majority (93.4 %) of participants was married.

Concerning the education level of sample, the result of current study revealed that the highest percentage 20(40%) of study group was primary school graduated, while 16(32%) of control group was institutes graduated and above. This result is consistent with study conducted by Nazari et al., (2022) which revealed that the highest percentage of study sample and control group respectively (36.7%); (46.7%) was diploma regarding qualification level. Moreover, the result of the current study consisted with the study carried out by Noefitasari and Idris, 2022) which revealed that majority (56,7%) of participants was primary school graduated. Moreover, this finding was consistent with the study conducted by Ikhwan et al., (2019) who reported that primary school education level have the highest percentage (52.08%) of the study. Also, (Al-Naffakh and Ali, 2019) reported that primary school education level have the predominant percentage.

**Part II: Effect of relaxation techniques on psychological outcomes for hypertensive patients:**

The present study revealed that depression, anxiety, and stress mean scores significantly decreased after the application of relaxation techniques in the study group. Meanwhile, no such difference was found in the control group after the application of routine care only. This result suggests a possible positive effect of relaxation techniques on the reduction of depression, anxiety, and stress among hypertensive patients. This may be attributed to the fact that relaxation techniques can reduce psychological symptoms by decreasing the activity of stress hormones, raising blood flow to major muscles,

decreasing muscle tension and improving concentration and mood, reducing fatigue, decreasing anger, and enhancing confidence to deal with problems.

High blood pressure is associated with stress and anxiety. Stress in life cannot be avoided. Normal stress increases heart rates and prepares the body for a fight or flight response. In case of prolonged stress i.e. when the elder is unable to cope with stressors or when the stressor cannot be removed, it may lead to irritability, fatigue, headache, sleep disturbance, physical problems and high blood pressure. It is reported that prolonged stress and anxiety are the main risk factors for hypertension (Cramer et al., 2013).

Management of hypertension needs to be done in the right way. Management can be divided into two, namely pharmacological management and non-pharmacological management. Pharmacological drugs have a fast reaction to lower blood pressure, but this can have dangerous side effects for hypertensive patients. In addition, if the anti-hypertensive drug is consumed excessively, it will cause fluid retention, allergies, and cardiac arrhythmias. Non-pharmacological therapy is recommended for people with hypertension to control food and sodium intake, lose weight and exercise and relaxation techniques. Relaxation techniques that can be done are slow deep breathing exercises and progressive muscle relaxation which is provides satisfactory results in therapy programs for muscle tension, lowering blood pressure, and reducing anxiety (Abbasiah et al., 2023).

In this regard, many studies reported the effect of different relaxation techniques in reducing stress, anxiety and blood pressure among these are progressive muscle relaxation (PMR) technique (Abdelsaid et al., 2019). This result has concordant with a systematic review conducted by Muhammad Khir et al., (2024) to compile the research evidence on the efficacy of PMR in adults for stress, anxiety, and depression. The review show that combined PMR and SDB are effective in reducing stress, anxiety, and depression in adults.

Individuals diagnosed with hypertension face not just a limited chance of survival but also an extended period of physical and emotional distress. Because it negatively affects a patient's chances of survival and makes them feel threatened both physically and psychologically, hypertension is regarded as a terrifying condition. One major aspect influencing the client's worry is their medical condition, namely their hypertension. He thinks that there is no family support system or direct family care, and he is concerned about his health (Isrianawati et al., 2021).

Similarity, the study performed by Toussaint et al., (2021) consistence with the current study which show effectiveness of relaxation exercises in promoting both psychological and physiological relaxation states were significantly higher for the relaxation groups as compared to the control group.

Additionally, the findings of another study conducted by Farris et al., (2023) indicate that a short-term progressive muscle relaxation intervention can lead to statistically and clinically significant acute changes across various domains (depression and anxiety) at ($p < 0.001$) that agree with the current study.

A study entitled "Effect of Relaxation Technique on Blood Pressure, Stress and Quality of Life among Hypertensive Females in Damanhour City carried by El Shahat El Gammal et al., (2023) stated noticed that (70.0%) of the study group compared to (60.0%) of the control group had high level of stress before intervention. After 4 week of the relaxation technique, the majority (86.7%) of the patients in the study group compared to (23.3%) of the patients in the control group had low level of stress, while, (0.0%) of the patients in the study group compared to (66.7%) of the control group had high level of stress. While the current study showed that 41 (82%) of the study group compared to 35(70%) of the control group had high level of stress before intervention,

While 36(72%) the study group had no stress after application of relaxation techniques compared to 31(62%) of the control group who had mild stress.

Another study also consistent with the result of present study conducted by (Ebrahem and Masry. 2017) indicated that anxiety level, stress, depression, and quality of life were improved in the intervention group (relaxation therapy) with a statistically significant degree compared to the control group.

Patients with hypertension suffer from anxiety and stress since their blood pressure needs to be constantly regulated. Anxious patients often have bodily imbalances, including tense muscles, irregular eating and sleeping patterns, and abnormalities in vital signs. In addition to causing tension in the muscles and increased blood flow to them, anxiety also causes the heart rate to rise, the breathing to speed, and the digestive system to malfunction. Patients with hypertension who experience muscular tension as a consequence of a physical imbalance might benefit from receiving therapy with relaxation techniques.

## CONCLUSIONS:

Based on the study's findings, it can be concluded that progressive muscle relaxation and deep breathing exercises can both proved to be significantly effective in decreasing psychological effects in hypertensive patients (depression, anxiety and stress).

## RECOMMENDATIONS:

In order to reduce hypertension and other psychological parameters in patients with essential hypertension, the researcher suggested combining pharmacological therapies with non-drug therapy (relaxation techniques intervention) in the management of hypertension.

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**TABLES:**

**Table (1):** Distribution of the Participants (Study and Control Groups) According to Demographic Characteristics (n==50)

| Demographic Characteristics | Subgroups | Study group (no= 50) | | Control group(no= 50) | |
|---|---|---|---|---|---|
| | | f. | % | f. | % |
| Age groups | ≤ 40 | 8 | 16 | 8 | 16 |
| | 41 - 45 | 21 | 42 | 17 | 34 |
| | 46 - 50 | 16 | 32 | 16 | 32 |
| | 51 - 55 | 4 | 8 | 4 | 8 |
| | 56 + | 1 | 2 | 5 | 10 |
| | **Mean ± S.D.** | **44.96 ± (4.44)** | | **46 ± (5.77)** | |
| Sex | Male | 31 | 62 | 29 | 58 |
| | Female | 19 | 38 | 21 | 42 |
| Marital status | Single | 11 | 22 | 10 | 20 |
| | Married | 25 | 50 | 23 | 46 |
| | Widower | 10 | 20 | 9 | 18 |
| | Absolute/separate | 4 | 8 | 8 | 16 |
| Educational level | Read and write | 10 | 20 | 6 | 12 |
| | Primary school | 20 | 40 | 10 | 20 |
| | Intermediate school | 4 | 8 | 5 | 10 |
| | Secondary school | 9 | 18 | 13 | 26 |
| | Institutes graduated and above | 7 | 14 | 16 | 32 |
| Occupation status | Governmental employee | 22 | 44 | 20 | 40 |
| | free business | 9 | 18 | 13 | 26 |
| | Housewife | 16 | 32 | 11 | 22 |
| | Not work | 3 | 6 | 6 | 12 |
| **Total** | | **50** | **100%** | **50** | **100%** |

**f.: Frequency, n.: number of sample, %: Percentage, χ2 = Chi-Square test, F= Analysis of Variance, N.S = Non Significant at P >0.05.**

**Table (2):** Distribution of the Participants (Study and Control) according to their Pre-test Psychological Parameter
**f: Frequency, n: number of sample, %: Percentage.**

| Psychological parameter | Subgroups | Study group: (n= 50) | | Control group: (n= 50) | |
|---|---|---|---|---|---|
| | | f. | % | f. | % |
| **Depression** | Mild | 4 | 8 | 3 | 6 |
| | Moderate | 46 | 92 | 47 | 94 |
| **Anxiety** | Moderate | 6 | 12 | 10 | 20 |
| | Sever | 38 | 76 | 40 | 80 |
| | Extremely sever | 6 | 12 | 0 | 0 |
| **Stress** | Normal | 3 | 6 | 1 | 2 |
| | Mild | 41 | 82 | 35 | 70 |
| | Moderate | 6 | 12 | 14 | 28 |
| | **Total** | **50** | **100** | **50** | **100** |

**Table (3):** Distribution of the participants (Study and Control) according to their Post-test Psychological Outcomes
**f: Frequency, n: number of sample, %: Percentage.**

| Psychological parameter | Subgroups | Study group: n= 50 | | Control group: n= 50 | |
|---|---|---|---|---|---|
| | | f. | % | f. | % |
| **Depression** | Normal | 32 | 64 | 0 | 0 |
| | Mild | 18 | 36 | 1 | 2 |
| | Moderate | 0 | 0 | 49 | 98 |
| **Anxiety** | Normal | 36 | 72 | 0 | 0 |
| | Mild | 13 | 26 | 0 | 0 |
| | Moderate | 1 | 2 | 7 | 14 |
| | Sever | 0 | 0 | 42 | 84 |
| | Extremely sever | 0 | 0 | 1 | 2 |
| **Stress** | Normal | 36 | 72 | 3 | 6 |
| | Mild | 14 | 28 | 31 | 62 |
| | Moderate | 0 | 0 | 16 | 32 |
| | **Total** | **50** | **100** | **50** | **100** |

**Table (4):** Evaluation the Effect of Relaxation Techniques on Patient's Psychological parameter at Pre and Post-test measurements for the Study Group

| Parameter | Period measurement | Study group (n=50) | | | | |
|---|---|---|---|---|---|---|
| | | Mean | S.D | t-test | d.f | Sig. |
| **Depression** | pre | 17.26 | 2.008 | 24.770 | 49 | H.S |
| | post | 9.02 | 1.609 | | | 0.001 |
| **Anxiety** | pre | 17.26 | 2.008 | 23.907 | 49 | H.S |
| | post | 6.46 | 1.864 | | | 0.001 |
| **Stress** | pre | 16.78 | 1.418 | 11.092 | 49 | H.S |
| | post | 10.2 | 4.13 | | | 0.001 |

**n=number of sample, S.D= Standard deviation, t-test= Paired Samples Test, d.f= degree of freedom=49, Sig. = Significance, H.S: High Significant at p<0.001.**

**Table (5):** Mean Difference (Paired t-test) Between the Control Group for Psychological Parameter at pre and post-test

| Parameter | Period measurement | Control group n=50 | | | | |
|---|---|---|---|---|---|---|
| | | Mean | S.D | t-test | d.f | Sig. |
| **Depression** | pre | 16.74 | 2.097 | .915 | 49 | 0.364 |
| | post | 16.48 | 1.644 | | | N.S |
| **Anxiety** | pre | 16.74 | 2.097 | -.059 | 49 | 0.953 |
| | post | 16.76 | 2.046 | | | N.S |
| **Stress** | pre | 17.2 | 1.678 | -.246 | 49 | 0.807 |
| | post | 17.28 | 1.841 | | | N.S |

**n= number of sample, S.D= Standard deviation, t-test= Paired Samples Test, d.f= degree of freedom=49, Sig. = Significance, N.S=Non Significant at p>0.05.**

**Table (6):** Mean Difference (Independent Sample t-test) Between The Study and Control Group for Psychological Parameter at Pre and Post-test

| Parameter | groups | | Statistical test (n=50) | | | | Significant |
|---|---|---|---|---|---|---|---|
| | | | Mean | S.D | t-test | p- value | |
| **Depression** | Pre-test | Study | 17.26 | 2.008 | 1.266 | 0.208 | N.S |
| | | Control | 16.74 | 2.097 | | | |
| | Post-test | Study | 9.02 | 1.609 | -22.924 | 0.001 | H.S |
| | | Control | 16.48 | 1.644 | | | |
| **Anxiety** | Pre-test | Study | 17.26 | 2.008 | 1.266 | 0.208 | N.S |
| | | Control | 16.74 | 2.097 | | | |
| | Post-test | Study | 6.46 | 1.864 | -26.308 | 0.001 | H.S |
| | | Control | 16.76 | 2.046 | | | |
| **Stress** | Pre-test | Study | 16.78 | 1.418 | -1.352 | 0.180 | N.S |
| | | Control | 17.2 | 1.678 | | | |
| | Post-test | Study | 10.2 | 4.13 | -11.070 | 0.001 | H.S |
| | | Control | 17.28 | 1.841 | | | |

**S.D = Standard Deviation, t-test= Independent Samples, N.S=Non Significant at p>0.05, H.S= High Significant at p>0.001.**