# A Study to Assess the Effectiveness of Deep Breathing Exercise on Management of Level on Stress of Psychotic Patients at Selected Hospital, Guwahati, Assam

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**Abstract:** <u>*Background*</u>*: Psychosis refers to an abnormal condition of the mind described as involving a "loss of contact with reality". Stress is a natural physical and mental reaction to life experiences. Stress can also trigger symptoms of psychosis in people who are particularly at risk for psychotic disorder.* <u>*Objective of the study*</u>*: The aim of the study is to assess the effectiveness of deep breathing exercise on management of level on stress of psychotic patients.* <u>*Method of the Study*</u>*: A qualitative research approach with pre-experimental research (one group pre-test post-test) design. 60 psychotic patients were selected using purposive sampling technique. The study was conducted in Gauhati Medical College and Hospital, Guwahati, Assam. The tool for data collection was interview structured questionnaire (socio-demographic variables) and Perceived Stress Scale was used to assess the level of stress of psychotic patients.* <u>*Result*</u>*: The findings of the study revealed that in pre-test majority 43(71.7%) of participants had high stress, while in post-test majority 34(56.7%) of participants had low stress. So, the study can be concluded that deep breathing exercise is effective in reducing the level on stress among psychotic patients.* <u>*Conclusion*</u>*: The findings of the study are consistent with the literature and have support from the other studies.*

**Keywords:** Deep breathing exercise, stress, psychotic patients

## 1. Introduction

**"Mental illness is nothing to be ashamed of, but stigma and bias shame us all"**

**-Bill Clinton**

Psychosis is a marked disturbance in personality, with impairment in social, interpersonal, occupational functioning. In psychosis, marked impairment in judgment and absent understanding of current symptoms and behavior also present.[1]

Researcher shows that three out of 100 people will experience psychosis at sometime in their lives. It is common for a person to have psychotic symptoms for more than a year before receiving treatment.[2]

Intense stress can cause psychosis. Stress can also trigger symptoms of psychosis in people who are particularly at risk for psychotic disorder.[3] Patients with psychosis are likely have increased stress that not only affects their brains but may also be associated with subclinical cardiovascular, metabolic and stress response dysfunction.[2]

Deep breathing exercise is one of the effective exercise which helps the individual to reduce stress, anxiety and also other physical and health related issues. Mainly, it is the best relaxation and cheapest method which helps an individual to combat stress.[4]

## 2. Background of the study

A survey conducted by **Rahul Shidhaya (December 20,2019)** on the burden of mental disorders across the states of India: the Global burden of disease study 1990-2017, found that prevalence of depressive disorder was 3.3%, bipolar disorder 0.6% and schizophrenia 0.3%.[5]

A research study conducted by **Mathew Varghese et al (2016) on** National mental health survey of India, 2015-2016 prevalence, pattern and outcomes. The results from the study showed that there was a lifetime prevalence of 1.4% observed for schizophrenia and psychotic disorders. The lifetime prevalence of depressive disorders was 5.1% and was nearly double the current prevalence rate (2.7%). The current rates for schizophrenia and other psychotic disorders were about one-fourth of the lifetime prevalence indicating the chronicity of the disorder.[6]

The "**Adult Psychiatric Morbidity Survey 2014**", published in September 2016, includes a chapter on psychosis. It includes an estimated prevalence of psychotic disorder in the last year in England of 0.7% of adults aged 16 and over. This is higher than the estimate from the 2007 survey (0.4%) and the report includes the commentary 'while statistical tests indicate that this might be a significant increase, these figures are also consistent with a continued trend of broad stability in rates of psychosis. Any conclusion about trends should be treated with caution considering the numbers of confirmed cases were low (23 in 2007; 26 in 2014). Although low numbers of identified cases restricts subgroup analysis, from consideration of the 2007 and 2014 cases together, the report highlights higher

prevalence of psychosis among black men, people who are economically inactive and people living alone.[7]

## 3. Need of the Study

**"Reduce the stress levels in your life through relaxation techniques like meditation, deep breathing and exercise. You'll look and feel better for it."**

**-Suzanne Sommers**

Stress is the body's normal reaction to daily events. There are several sources of stress and as many ways to react it. Fundamentally, stress is a human defense mechanism, but it is important to not let it take over. Stress comes from various sources of a different nature, such as physical, psychological, emotional, social etc.[8]

**Natasha Martland et al (2020)[9]** conducted a study on "Are adult stressful life events associated with psychotic relapse?" The study showed that adult stressful life events, occurring after psychosis onset, appear to be associated with psychotic relapse.

Studies suggest that relaxation techniques may have real health benefits, as they can lower the blood pressure and heart rate and slow down the breathing. A lot of relaxation techniques can calm down by helping the person to focus on breathing. Among all of the relaxation techniques deep breathing techniques are simple and easy to do anywhere, even a few spare minutes at work.[10]

By reviewing the literature it was found that there was very limited number of researches done based on the effectiveness of deep breathing exercise on management of level on stress for psychotic patients. So, the researcher feel the need for doing a study on assessment of deep breathing exercise on psychotic patients to reduce the stress and to maintain a good mental and physical well being of the patients who are admitted in the Gauhati Medical College & Hospital, Guwahati, Assam.

## 4. Review of Literature

**Natasha Martland et al (2020)** conducted a study on are adult stressful life events associated with psychotic relapse? a systematic review of 23 studies, which was published online by Cambridge University Press. The aim of this systematic review is to summarize available research investigating the association between recent stressful life events and psychotic relapse or relapse of bipolar disorder, if the diagnostic include psychotic symptoms. PsycINFO, Medline and EMBASE were searched for cross-sectional, retrospective and prospective studies published between 01/01/1970 and 08/01/2020 that investigated the association between adult stressful life events and relapse of psychosis. Study quality was assessed using the Effective Public Health Practice Project guidelines. Twenty three studies met eligibility criteria (prospective studies: 14; retrospective studies: 6; cross sectional: 3) providing data on 2046participants in total (sample size range: 14-240 participants). Relapse was defined as a return of psychotic symptoms (n=20), a return of symptoms requiring

hospitalization (n=2) and a return of symptoms or hospitalization (n=1). Adult stressful life events were defined as life events occurring after the onset of psychosis. Eighteen studies found a significant positive association between adult stressful life events and psychotic relapse and five studies found a non-significant association. The study concluded by mentioning that adult stressful life events, occurring after psychosis onset, appear to be associated with psychotic relapse.[9]

**Mahender Singh et al (2020)** conducted a study on A cross sectional study on the socio-demographic variables, clinical variables, the role of stressors and phenomenology in patients with acute and transient psychotic disorders in North India. The objectives of the study was to study the socio-demographic characteristics, clinical variables, the role of stressors and phenomenology in patients with acute and transient psychotic disorders. The study was cross-sectional observational study which includes 150 patients who met the inclusion criteria and were diagnosed according to ICD-10. A written informed consent was obtained from the patient and/or their family members. Patients information was recorded on socio-demographic and clinical profile sheet. Thereafter, PSLES and PANSS scales were applied to assess the stressor and phenomenology respectively. Results of the study showed that maximum patients who develop the illness had psychological stressor in their lifetime mainly before 2 weeks of the onset of the illness.[11]

**Marija Rusaka et al (2014)** conducted a study on a prospective follow-up study of first-episode acute transient psychotic disorder in Latvia. A prospective follow-up study at all first time admitted patients from the Riga Centre of Psychiatry and addiction Disorders who fulfilled the ICD-10 criteria for ATPD (WHO,1993) during the 15 months period from 9 January to 30 March 2011 and followed up until 31 October 2012. Stressful life events, demographic and clinical features during the index episode were assessed. Results showed that 102 patients were admitted with first-episode ATPD. Stressful life events were found in 59.0% participants of the study.[12]

**Su-Ha Lee et al. (2020)** conducted a study on effects of deep and slow breathing on stress stimulation caused by high-intensity exercise in healthy adults. The purpose of the study was to investigate the effects of deep and slow breathing on the chain- reaction changes of stress stimulation at over time by measuring electroencephalogram and heart rate variability. Twenty-six healthy subjects were divided into two different groups: control group and deep and slow breathing. All subjects were exposed to a stress- stimulated environment with 80% exercise intensity. After 80% exercise intensity was maintained for 10 minutes, the subjects rested for 5 minutes and then measuring electroencephalogram and heart rate variability. The results showed that deep and slow breathing exercise will be used as a meaningful intervention for patients of stress-related diseases or potential patients.[13]

**Emma Seppala et al (2020)** conducted a study on why breathing is effective in reducing stress. The combination

of Covid-19 pandemic and battles for social justice have only exacerbated the anxiety that many of us feel every day, and studies how that this stress is interfering with our ability to do our best work. This research study evaluated two recently published studies to explore several different techniques and found that a breathing exercise was most effective for both immediate and long term stress reduction. In the first study, participants were randomly assigned to one of the three programs i.e Breathing exercise (SKY Breath Meditation), Mindfulness- Based Stress Reduction and Foundations of Emotional Intelligence or to a control group (no intervention). Results showed that participants who practiced SKY Breath Meditation experienced the greatest mental health, social connectedness, positive emotions, stress levels, depression and mindfulness benefits. In the second study, conducted at the University of Arizona, SKY Breath Meditation was compared to a workshop that taught more conventional, cognitive strategies for stress-management (in other words, how to change your thoughts about stress). The results showed that, SKY Breathing was more beneficial in terms of immediate impact on stress, mood and conscientiousness. The final result of this research study showed that, daily breathing techniques will train the nervous system for resilience over the long run. These simple techniques can help you sustain greater wellbeing and lower your stress levels – at work and beyond.[14]

**Carlos Melo-Dias et al(2019)** conducted a study on schizophrenia and progressive muscle relaxation- a systematic review of effectiveness. The main objective of the study was to perform a systematically search, appraise and synthesize the best available evidence on the effectiveness of progressive muscle relaxation in the adults with schizophrenia in any setting reducing stress, anxiety, personal and social functioning, cognition and well-being. Major database were searched to find both published and unpublished studies from inception until April 2017, using Schizophren* AND Relax* as keywords and studies published in Portuguese, English, Spanish, Italian, French were considered for inclusion in this review. The results reported benefits in participants after progressive muscle relaxation intervention on stress, anxiety, well being, personal and social functioning.[15]

**Problem Statement**
"A Study to Assess the Effectiveness of Deep Breathing Exercise on Management of Level on Stress of Psychotic Patients at Gauhati Medical College and Hospital, Guwahati, Assam."

**Objectives**

**General Objective:**
To assess the effectiveness of deep breathing exercise on management of level on stress of psychotic patients.

**Specific objectives:**
- To assess the level on stress among the psychotic patients.
- To assess the effectiveness of deep breathing exercise on reduction of level on stress of psychotic patients.

- To find out the association between pre-test level on stress of psychotic patients with their selected demographic variables.

**Operational Definitions**

**Deep breathing exercise:** In this study, deep breathing exercise means taking a breath slowly through nose, then holding the breath for the count of 1 to 5 and then slowly steady breath out through the mouth.

**Stress:** In this study, stress means any internal or external conditions which affects the balance or equilibrium of psychotic patients, those results in inability to cope with the demands of their day to day life.

**Psychotic patient**: In this study, Psychotic patients are the patients who are having problems in thinking, perception, cognitive, judgement; who are admitted in Gauhati Medical College & Hospital, Guwahati for the treatment and diagnosis is confirmed by the psychiatrist according to ICD 10 criteria; and are decreased their symptoms with the help of antipsychotic medication; are able to follow the demonstration given by the researcher and have moderate to severe level of stress according to Perceived Stress Scale (PSS).

**Assumptions**
- Patients with psychotic conditions are having moderate to severe level of stress.
- Deep breathing exercise may help psychotic patients to gain control over their stress level.

**Hypothesis**
Hypothesis are tested at **0.05** level of significance.
- $H_1$- There is a significant decrease in the level on stress among psychotic patients after deep breathing exercise.
- $H_2$- There is a significant association between pre-test level on stress among psychotic patients with their selected demographic variable.

**Delimitation**
The study is limited to the patients—
- Who are admitted in the Psychiatric Ward of Gauhati Medical College & Hospital, Guwahati, Assam.
- Who are having moderate and severe level of stress.
- Who are not taking alcohol and other substances.

## 5. Research Methodology

A quantitative research approach was adopted by the researcher to assess the effectiveness of deep breathing exercise on management of level on stress of psychotic patients at Gauhati Medical College & Hospital, Guwahati, Assam. The study population was the psychotic patients admitted in Psychiatric ward of GMCH and 60 samples were selected by using purposive sampling technique. The variables are divided as-
- **Independent Variable-** Deep breathing exercise.
- **Dependent Variable**- Stress among psychotic patients.

# 6. Analysis and Interpretation

The analysis of data were arranged under the following sections:

- **Section I**: Frequency and percentage distribution of demographic variable.
- **Section II:** Frequency and percentage distribution of level of stress on psychotic patients
- **Section III:** Effectiveness of deep breathing exercise on reduction of level of stress on psychotic patients.
- **Section IV:** Association of pre-test level of stress on psychotic patients with their selected demographic variable.

**Section I:** Frequency and percentage distribution of demographic variable, N=60

| S. No | Particulars | Frequency | Percentage (%) |
|---|---|---|---|
| 1. | **Age in years** | | |
| | a. 18-25 years | 28 | 46.6 |
| | b. 26-33 years | 16 | 26.7 |
| | c. 34-41 years | 10 | 16.7 |
| | d. More than 42 years | 6 | 10 |
| 2. | **Sex** | | |
| | a. Male | 28 | 63.3 |
| | b. Female | 22 | 36.7 |
| 3. | **Educational status** | | |
| | a. Illiterate | 6 | 10 |
| | b. Primary school | 12 | 20 |
| | c. Middle school | 9 | 15 |
| | d. High school | 13 | 21.6 |
| | e. Higher secondary | 12 | 20 |
| | f. Graduate | 7 | 11.7 |
| | g. Post graduate | 1 | 1.7 |
| 4. | **Religion** | | |
| | a. Hindu | 49 | 81.7 |
| | b. Christian | 2 | 3.3 |
| | c. Muslim | 9 | 15 |
| 5. | **Occupation** | | |
| | a. Student | 7 | 11.7 |
| | b. Professional | 10 | 16.7 |
| | c. Semi professional | 5 | 8.3 |
| | d. Arithmetic skill jobs | 3 | 5 |
| | e. Skilled workers | 6 | 10 |
| | f. Semi skilled worker | 4 | 6.7 |
| | g. Unskilled worker | 5 | 8.3 |
| | h. Unemployed | 4 | 6.7 |
| | i. Housewife | 16 | 26.6 |
| 6. | **Family income per month** | | |
| | a. Less than 10,000 per month | 1 | 1.7 |
| | b. 10,001-20,000 per month | 26 | 43.3 |
| | c. 20,001-30,000 per month | 25 | 41.7 |
| | d. 30,001-40,000 per month | 6 | 10 |
| | e. More than 40,001 per month | 2 | 3.3 |
| 7. | **Marital status** | | |
| | a. Married | 44 | 73.3 |
| | b. Single | 16 | 26.7 |
| 8. | **Type of the family** | | |
| | a. Joint family | 11 | 18.3 |
| | b. Nuclear family | 49 | 81.7 |
| 9. | **Duration of illness** | | |
| | a. Below 6 months | 33 | 55 |
| | b. 6-12 months | 17 | 28.3 |
| | c. Above 12 months | 10 | 16.7 |

**Section II**: Frequency and percentage distribution of level of stress on psychotic patients, N=60

| Level of stress | Pre-test | | Post-test | |
|---|---|---|---|---|
| | Frequency | Percentage (%) | Frequency | Percentage (%) |
| Low stress | 0 | 0 | 34 | 56.7 |
| Moderate stress | 17 | 28.3 | 26 | 43.3 |
| High stress | 43 | 71.7 | 0 | 0 |

**Section III:** Effectiveness of deep breathing on reduction of level of stress on psychotic patients, N=60

| Comparison of level of stress | Mean | SD | Mean Difference | t test value | Df | p value |
|---|---|---|---|---|---|---|
| Pre-test | 28.25 | 3.229 | 11.62 | 18.25 | 59 | 0.001** |
| Post-test | 16.63 | 5.452 | | | | |

**\*P<0.05 level of significance**

**Section IV:** Association of pre-test level of stress on psychotic patients with their selected demographic variable, N=60

| Demographic variables | Pre-test level of stress | | $\chi^2$ Value | Df | p value |
|---|---|---|---|---|---|
| | Moderate stress | Severe Stress | | | |
| **Age in years** | | | | | |
| a. 18-25 years | 10 | 18 | 8.724 | 3 | **0.033\*** |
| b. 26-33 years | 2 | 14 | | | |
| c. 34-41 years | 1 | 9 | | | |
| d. More than 42 years | 4 | 2 | | | |
| **Sex** | | | | | |
| a. Male | 15 | 23 | 6.334 | 1 | **0.012\*** |
| b. Female | 2 | 20 | | | |
| **Educational status** | | | | | |
| a. Illiterate | 3 | 3 | 6.267 | 6 | 0.394 |
| b. Primary school | 5 | 7 | | | |
| c. Middle school | 2 | 7 | | | |
| d. High school | 3 | 10 | | | |
| e. Higher secondary | 1 | 11 | | | |
| f. Graduate | 3 | 4 | | | |
| g. Post graduate | 0 | 1 | | | |
| **Religion** | | | | | |
| a. Hindu | 16 | 33 | 2.556 | 2 | 0.279 |
| b. Christian | 0 | 2 | | | |
| c. Muslim | 1 | 8 | | | |
| **Occupation** | | | | | |
| a. Student | 3 | 4 | 11.97 | 8 | 0.152 |
| b. Professional | 5 | 5 | | | |
| c. Semi professional | 1 | 4 | | | |
| d. Arithmetic skill jobs | 1 | 2 | | | |
| e. Skilled worker | 1 | 5 | | | |
| f. Semi skilled worker | 1 | 3 | | | |
| g. Unskilled worker | 1 | 4 | | | |
| h. Unemployed | 3 | 1 | | | |
| i. Housewife | 1 | 15 | | | |
| **Family income per month** | | | | | |
| a. Less than 10,000 per month | 0 | 1 | 2.292 | 4 | 0.682 |
| b. 10,001-20,000 per month | 9 | 17 | | | |
| c. 20,001-30,000 per month | 5 | 20 | | | |
| d. 30,001-40,000 per month | 2 | 4 | | | |
| e. More than 40,001 per month | 1 | 1 | | | |
| **Marital status** | | | | | |
| a. Married | 9 | 35 | 5.044 | 1 | **0.025\*** |

| | | | | |
|---|---|---|---|---|
| b. Single | 8 | 8 | | |
| **Type of the family** | | | 0.684 | 1 | 0.408 |
| a. Joint family | 2 | 9 | | |
| b. Nuclear family | 15 | 34 | | |
| **Duration of illness** | | | 8.136 | 2 | **0.017**[*] |
| a. Below 6 months | 14 | 19 | | |
| b. 6-12 months | 3 | 14 | | |
| c. Above 12 months | 0 | 10 | | |

**\*p<0.05 level of significance**

## 7. Discussion

**Objective 1:** To assess the level of stress among the psychotic patients.

The results of the study revealed that majority i.e 43(71.7%) of participants had high stress and 17(28.3%) of participants had moderate stress.

The present study was supported by a study conducted by **Marija Rusaka and Elmars Rancans (2014)** on a prospective follow-up study of first episode acute transient psychotic disorder in Latvia. The results of the study showed that majority i.e 59.0% participants experienced stressful life events during the first episode psychosis.[12]

**Objective 2:** To assess the effectiveness of deep breathing exercise on reduction of level of stress on psychotic patients.

In the present study, while determining the effectiveness of deep breathing exercise on reduction of level of stress, the results showed that pre-test mean stress score was $28.25\pm3.229$ and post-test mean stress score was $16.63\pm5.452$ with mean difference was 11.62. The comparison was tested using paired t test with obtained (t=18.62) was statistically significant at p<0.05 level. Findings revealed that deep breathing exercise was effective on reduction of level of stress on psychotic patient.

The present study was supported by a study conducted by **Carlos Melo-Dias et al(2019)** on Schizophrenia and progressive muscle relaxation- a systematic review of effectiveness. The results of this study showed that progressive muscle relaxation techniques was effective for adults diagnosed with schizophrenia. It is useful in decreasing the levels of stress, anxiety, improve well-being and social functioning in adults diagnosed with schizophrenia.[15]

**Objective 3:** To find out the association between stress of psychotic patients with their selected demographic variables.

In the present study, while determining the association between stress of psychotic patients with their selected demographic variables, results of chi-square shows that there is significant association between age ($\chi^2$=8.724, df=3, p value=0.033), sex ($\chi^2$=6.334, df=1, p value=0.012, marital status ($\chi^2$=5.044, df=1, p value=0.025) and duration of illness (($\chi^2$=8.136, df=2, p value=0.017) at 0.05 level of significance.

The present study was supported by a study conducted by **Mahendra Singh et al.(2020)** on a cross sectional study on the socio-demographic characteristics, clinical variables, the role of stressors and phenomenology in patients with acute and transient psychotic disorder in North India. The results showed that there was a significant association between stress of patients with acute and transient psychotic disorder with their age, sex, marital status and duration of illness ant 0.05 level of significance.[11]

## 8. Conclusion

The study can be concluded that the people with psychotic condition should receive various kinds of relaxation techniques like yoga or meditation to reduce their level of stress which will help them to have a speedy recovery and decrease the chances of relapse of their condition.

## 9. Nursing Implication of the Study

**Nursing Education:**
Nursing students should have more leraning experience to aware about assessment, planning, implementation and evaluation of stress of psychotic patients**.**

**Nursing administration:**
- Nurse administrator need to encourage, plan and conduct in-service educational programme for the nursing personnel.
- Administration can set protocol for demonstration of deep breathing exercise in OPDs, PHC, CHC, sub centre, tertiary care centre and community people.
- The findings of the study emphasizes on the need to decrease the level of stress of psychotic patients, it helps in reducing the chances of relapse of the disease.

**Nursing Practice**
Based on the findings of the study, nursing practice can be improved in the hospital as well as community setting. As the majority of the participants had high stress level along with the psychotic condition, nursing practice should extent to the limit so that the psychotic patients will get enough knowledge regarding the management of level of stress.

**Nursing Research**
- Research is very important in generating new knowledge and refining existing knowledge and practice, thus lifting up the standards of the profession.
- Nursing research can be done in hospital or community setting with patients of same or different diagnosis can also help to gather more information about stress management.
- The research helps to plan new interventional strategies for reducing the level of stress among psychotic patients which will help them to prevent the chances of relapse of the disease.

## 8. Recommendation

- The similar study can be replicate with larger sample with different demographic variables.
- The similar study can be done in different settings.
- Comparative study can be conducted with psychotic and non-psychotic patients or in substance abuse patients.

- The similar study can be conducted by using true experimental research design to determine effectiveness of deep breathing exercise on management of level of stress.

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