Practicing Slow Breathing Exercise Regularly Can Improve Lung Function Status in Case of Major Depressive Disorder Patients

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ABSTRACT

Background: Major Depressive Disorder (MDD) is associated with depressed lung function. This depressed lung function can be improved by slow breathing exercise.

Objectives: To observe \( \text{FEF}_{25-75\%} \) in newly diagnosed Major Depressive Disorder patients and after three months of regular practice of slow breathing exercise.

Methods: This prospective study was carried out in the Department of Physiology, Bangabandhu Sheikh Mujib Medical University (BSMMU) from January to December, 2014 to assess the lung function status in MDD patients. For this, 30 newly diagnosed MDD patients (group A1), age 20 to 50 years were enrolled from the Department of Psychiatry of BSMMU. FEF \(_{25-75\%} \) of all subjects were assessed by a portable digital spirometer (PONY FX, Cosmed, Italy) before and after (A2) three months of regular practice of slow breathing exercise. For statistical analysis, paired sample \( t \) test was done and p value \( \leq 0.05 \) is considered as level of significance.

Results: There was significant improvement of lung function status found when compared between before and after three months of regular practicing of slow breathing exercise.

Conclusion: From this study it may be concluded that SBE is very effective and potent method for improvement of poor lung function associated with all types of pulmonary functional disorder in MDD.

Keywords
Major Depressive Disorder (MDD), Slow Breathing Exercise (SBE).

Introduction
Depression is the most common chronic condition next to hypertension experience in general medical practice. Out of ten patients visiting psychiatric outpatient department; one patient is
Major Depressive Disorder (MDD) is defined by depressed mood or loss of interest in nearly all activities or both for at least two weeks, accompanied by a minimum of three or four of the following symptoms (for a total of at least five symptoms altogether) such as insomnia or hypersomnia, feeling of worthlessness or excessive guilt, fatigue or loss of energy, diminished ability to think or concentrate, substantial change in appetite or weight, psychomotor agitation or retardation and recurrent thoughts of death or suicide [1].

Depression is a major cause of morbidity worldwide. The WHO ranks depression as the fourth leading cause of disability worldwide and by 2020, it will be the second leading cause. Population studies have consistently shown major depression is about twice as common in women as in men, although the underlying cause and factor is unclear. Old age people are more affected. People are most likely to suffer their first depressive episode at about 25.7 years in high income and 24 years in low to middle income country [2].

Depression may affect all the organs of the body and is responsible for different diseases such as Myocardial Infarction (MI), other coronary artery diseases, stroke, diabetes, kidney diseases, arthritis, Parkinson’s disease and other autoimmune diseases [3].

Researchers found depressed lung function in depressive illness patients which is more in major depressive disorder [4]. Another study found that Major Depressive Disorder (MDD) was associated with lower FEV₁ [5]. Whereas no difference in lung function was found in MDD patients when compared to control [6].

Chanavirut and his colleagues (2006) investigated the effect of breathing and chest wall expansion exercise (yoga) on lung function parameters in young, healthy volunteers. They found significant increase in FVC, FEV₁, FEF₂₅₋₇₅% after practicing breathing exercise for 6 weeks.

Sayyad and his colleagues (2014) studied lung function parameters on asthma patients after practicing eight weeks of yoga. They found significant increase in FVC and FEV₁.

In 2010, Ahmed and his coworkers studied lung functions in healthy volunteers who were exposed to yoga practice by employing posture and controlled breathing exercise (pranayam) for 30 days and 60 days in two age groups. They found significant increase in all spirometry parameters in all age groups after 60 days but these values were found increased in old age groups after 30 days.

Another study found that after practicing yoga breathing exercise for 4 weeks, all the lung function parameters were significantly increased. Similar findings were observed by Panwar et al (2012) Yadav and Das (2001).

Table 1: Baseline characteristics of study subjects.

| Groups          | Age (years) | BMI (Kg/m²) | SBP (mmHg) | DBP (mmHg) |
|-----------------|------------|-------------|------------|------------|
| MDD patients    | 34.13 ± 1.49 (22-50) | 27.51 ± 0.56 (20.16-32.2) | 120 ± 1.86 (100-140) | 79.00 ± 1.73 (60-90) |

Data were expressed as Mean ± SE. Figures in parentheses indicate ranges. BMI= Body Mass Index; SBP= Systolic Blood Pressure; DBP= Diastolic Blood Pressure.
Discussion
The present study has been undertaken to observe pulmonary functions in 30 female MDD patients before and after three months of practicing a yoga-based relaxation technique, slow breathing exercise. Pulmonary functions were assessed by measuring FEF25-75% with a portable micro spirometer. Different researchers found that pulmonary functions are significantly reduced in patients with depressive illness especially in major depressive disorder patients. Islam and his colleagues investigated lung function by spirometry in depressive disorder patients and found lung function parameters were significantly lower in depressive disorder patients in comparison to healthy subjects [4]. Another study was done on US soldiers with Vietnam experience to find out association between MDD with lung function. But they did not find any significant association between MDD and poor lung function [5]. Calikoglu and his colleagues investigated lung function test with major depression. J women health disorder is associated with reduced lung function in the Vietnam experience study. Psychosom med. 2011; 73: 716-720.

Thus, SBE can be strongly advocated as an alternative or adjunct to antidepressive medication in the MDD for improvement of their respiratory efficiency.

Conclusion
Therefore finally it can be concluded that SBE is a very effective and potent method for improvement of poor lung function associated with all types of pulmonary functional disorder in MDD.

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