

## Effect of Pranayama on Geriatric Depression: A study of Madhubani District of North Bihar

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**Abstract:** The present piece of research work was intended to see the effect of Pranayama – a kind of yoga on geriatric depression with particular reference to Madhubani district of North Bihar. The study was conducted when it has been observed that most of the aged especially in Madhubani district is suffering from depression and they are unable to go into professional clinic to have treatment from the doctors due to financial constraints. Thus, present investigator tried to solve geriatric depression using Pranayama – a kind of yoga and it has been found that Pranayama is very much useful to get cure from the geriatric depression. In this study, total sample N=100 were selected from different locality of Madhubani district. Subjects' age were ranged between 60 to 68. Having collected the data by demonstrating Pranayama, it has been found that regular exercise of Pranayama directly affects the human organism and is very much helpful to reduce geriatric depression. Finally, obtained result discussed in detail by highlighting the probable psycho-social reasons.

**Keywords:** Pranayama, Geriatric Depression, Madhubani, North Bihar.

### INTRODUCTION

Generally, depression may be described as feeling of sad, unhappy, miserable, or down in the dumps. Most of us feel this way at one time or another for short periods. True clinical depression is a mood disorder in which feelings of sadness, loss, anger, or frustration interfere with everyday life for weeks or longer.

The exact cause of depression is not known. Many researchers believe it is caused by chemical changes in the brain. This may be due to a problem with our genes, or triggered by certain stressful events. More likely, it's a combination of both. Some types of depression run in families. But depression can also occur if you have no family history of the illness. Anyone can develop depression, even kids.

Depression is characterized by a depressed mood or loss of interest or pleasure in almost all daily activities for a period of at least two weeks, with the clinical evolution, worldwide, life expectancy is increasing. Currently about 10% of the world's population is made up of older adults (aged 65 and above). This figure is set to rise steadily, to as much as 30% in many societies. To put this in context, we need to look at some figures: in 1950 the population of the world's elderly was 200 million and this is estimated to rise to 1.2 billion by 2025, a six fold increase in only 75 years. India is the second-most populated country in the world, in terms of elderly population of 60 years and above. The latest World Health Assembly of 24 May 2013 considered older people to be a vulnerable group, with a high risk of experiencing mental health problems in its report. The number of older adults is growing fast all over the world. The socioeconomic impact of such

demographic changes is adding to the overall mental health consequences. Chronic physical and mental illnesses mainly depression affect the elderly. Depression affects about one in ten people aged over 65 years, making it the most common among the mental health disorders of later life. Depression affects more than 350 million people of all ages, in all communities, and is a significant contributor to the global burden of disease. The World Health Organization estimated that the overall prevalence rate of depressive disorders among the elderly generally varies between 10 and 20%, depending on the cultural situations. Depression among the aged is a widespread problem, but is often not recognized or treated. It may be overlooked because for some older adults who have depression, sadness is not their main symptom. They may have other, less obvious symptoms of depression or they may not be willing to talk about their feelings. Hence, the present piece of research endeavor had been planned to study the effect of Pranayama – a kind of yoga on geriatric depression with particular reference to Madhubani District of North Bihar.

It is important to be mentioned that late life depression and anxiety have been identified as some of the most common mental health problems affecting elders. It is estimated that by the year 2020 depression

will have risen from fourth to second amongst health conditions worldwide, taking into consideration associated disability and premature mortality [1]. The prevalence of depression in the U.S. total population has been measured at 1% [2]. Minor depression and other non major forms of clinical depression are more prevalent in elderly populations than is major depressive disorder. Reports of the prevalence of clinically significant depressive symptoms among community-dwelling older adults range from approximately 8% to 16% [3]. Taimini, I.K. [4] suggested that depressive symptoms or subsyndromal cases of minor depression are common among elderly persons. Blazer, D., Hughes, D., & George, L. [5] found that 14.7 percent of a community sample of persons older than 65 had “substantial depressive symptoms.” Although major depression is the most studied and well-defined depressive syndrome, other depressive subsyndromal disorders are also associated with significant functional impairment and disability. In this study we focus on clinically significant geriatric depression that does not meet established criteria for major depressive disorder. The magnitude of mental morbidity in the Indian situation is a serious cause of concern. In India, nearly 4 million elderly persons (age 60 and above) are mentally ill [6], which, although lower than in western countries, requires to be taken seriously as the necessary psychiatric services fall woefully short of our requirements. The prevalence of anxiety in community samples ranges from 1.2% to 15%, and in clinical settings from 1% to 28%. The prevalence of anxiety symptoms is much higher, ranging from 15% to 52.3% in community samples, and 15% to 56% in clinical samples [7]. Older adults are more susceptible to experience depression along with an anxiety disorder. There are several possible reasons why anxiety disorders have not achieved prominence in the field of geriatric psychiatry. Despite their frequency in the community, late- life anxiety disorders per se are not common in mental health settings. They are usually co- morbid with major depressive disorder, and the depression is usually the primary reason for referral and the primary focus of treatment. A fairly common manifestation of anxiety in late life is a cluster of symptoms characterized by anxious mood; tension; and diffuse somatic complaints, such as dizziness, shakiness, and nausea. Depression in later life frequently coexists with other medical illnesses and disabilities. It can be triggered by a range of long-term illnesses to which later life is particularly prone, such as diabetes, stroke, heart disease, cancer, chronic lung disease, Alzheimer’s, Parkinson’s, and arthritis. Alongside physical conditions that accompany depression or conducive to it, multiple social factors may worsen elders’ psychological conditions. Such factors include the loss of family members, friends, work, and social status—all changes that emphasize the relative lack or loss of control associated with this stage of life. Depression among the elderly often goes undiagnosed. It is associated with chronic physical

illness; symptoms of depression are also a common side effect of prescriptive medications including anti-hypertensive drugs. Our cultural ethos gives a special place to the elderly as wise people and counselors of society. Both geriatric support and social engineering aimed at improving the competence of the elderly and ensuring their active participation in society should be considered together in evolving any policy on ageing care. The experience and wisdom of old age is a treasure for any society; its gainful utilization would be beneficial for both the elderly as well the entire society. This can be achieved only by adding “life to years” and not just “years to life”. The regular practice of Pranayama can be quite effective in not only overcoming anxiety and depression among the elderly but also help them in promoting mental health which will help them develop a sort of resilience to any kind of mental or physical illness. Pranayama is commonly used to describe various yogic breathing exercises that help give the practitioner control of the life force, or pranayama. Pranayama has been reported to be beneficial in treating a range of stress related disorders, improving autonomic functions, relieving symptoms of asthma, and reducing signs of oxidative stress. Practitioners report that the practice of pranayama develops a steady mind, strong will-power, and sound judgment, and also claim that sustained pranayama practice extends life and enhances perception. Alternate-nostril breathing (Anuloma- Viloma Pranayama) consists of slow deep quiet breaths using one nostril at a time [8].

#### **AIM AND OBJECTIVES OF THE PRESENT STUDY**

It is often seen that mental health care professional may be less likely to recognize the patients having depression. Since long, our very own Indian system of yoga is being used for improving various physical and mental illnesses. Yoga and its various techniques like pranayama can be a useful way to minimize the psychological distresses like depression of the individuals especially in elderly population.

Remarkably, elderly depression can be quite common as ageing which presents its own set of challenges, many elderly people have to face few difficult situations where certain health conditions could be taking a toll on the person, failing health or death of a spouse could contribute heavily to depression in the elderly. Elderly people who have led a fairly independent life might be required to depend on others because of their disabilities. In such cases, it is natural to feel lonely and in the absence of a support system in terms of spouse, family, and friends, elderly depression sets in during old age. Only few seek professional help on time. In the absence of a spouse and children, who are busy with their own lives, everyone fails to pay attention to the subtle signs and symptoms of depression. The general mindset is to attribute these signs and symptoms of elderly depression as part of

growing old. It is also a wide spread problem globally; often it is not recognized and not treated. Surprisingly, there is little research that has been done on this disorder in the elderly. Various therapies have been implemented in the treatment of depression in elderly. There is increasing evidence that different forms of pranayama work to treat symptoms of depression in elderly. Thus, the present study was aimed at studying effect of pranayama on depression with particular reference aged who is living in and around Madhubani district of North Bihar. This is an unexplored area so, the present investigator tried to see the effect of pranayama on the phenomenon undertaken for the present piece of research work. The study will help to understand the aged people’s behavior to reduce the degree of depression by using pranayama – a kind of yoga. Hence, the present study is of utmost value throughout the glob.

**HYPOTHESES**

On the basis of broad objectives of the study the following hypothesis was formulated:

- Depressions will decrease with regular practice of Pranayama among the depressed aged especially in Madhubani district of North Bihar.

**METHODOLOGY**

**Sample**

In the present piece of research work, it had been planned to collect information on N=200 elderly depressed people but due to non-availability of respondents only N=100 samples were selected from different villages/wards of Madhubani Districts. Further, it was also decided to form a homogeneous group of samples to avoid heterogeneity. For this, some variables like age and family structure were controlled, because different studies show that these variables have a definite and direct bearing upon our social status. In order to avoid the effect of these variables, the following criteria were laid down for selecting samples:

1. Sex - Male elderly
2. Age - Ranging between 60 - 68 years.

So, due to the limitation of time and financial obstacles, only N=100 elderly people were selected as samples on the basis of their attendance sheet. Although, in this investigation, the attempt has been made to see the effect of Pranayama on Geriatric depression, so, they were found improper for sampling because the questionnaire of the tests seeks information about mental health, as well as, physical position. As the investigator earlier said that a homogeneous group of sample was formed for this study.

**Variable Structure**

For the present study the following structure was adopted and adhered to:

**Table-1: showing variable structure**

Independent Variable	Dependent Variable
(1) Elderly mental and physical position (Aged 60 +)	(1) Depression

**Tools Used:**

The following measures/ tests were used to collect the data pertaining to the present study:

- **Biographical Information Blank:** For tapping biographical information from the subjects, a biographical information blank was prepared by the present investigator. It includes name, age, income, number of dependents, types of family, caste, religion, education and village/wards, etc.
- **Beck Depression Inventory (BDI):** Beck, 1970. an inventory developed by Beck [10]. It is a 21-item self-report instrument for measuring the severity of depression in adults. It was developed for the assessment of symptoms corresponding to criteria for diagnosing depressive disorders listed in the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders [10]. The BDI was scored by summing the rating for the 21 items. Each item was rated on a 4 point scale ranging from 0 to 3, if an examinee had made

multiple endorsements for an item; the alternative with the highest rating was used. The maximum total score is 63. Higher Scores indicate, in this inventory, higher degree of depression.

**Administration of the Tests:** The details of the administration of the tests are following:

First of all, the elderly people of different village/wards of Madhubani district were asked to gather in a hall. As they took their proper seats it all looked like a class-room situation. With the help of some friends were explained about the planning of data collection. Though, in the beginning, they expressed some hesitation because they never had such an experience, but after a while the situation became very calm and a rapport was established between the investigator and the respondents. In this session there were 100 elderly people selected as samples.

Firstly, the respondents were supplied a biographical information blank (BIB) which had questions regarding their personal information like

name, age, religion, caste, occupation, income, number of dependents, etc. They were asked to fill it up very correctly and do not let any question unanswered and they were also assured that provided information on the data sheet will be kept strictly confidential. As the subjects finished this task they were supplied the Beckman Depression Inventory (BDI). Actually, it was

a time taking work because each question had 3 possible answers and subjects were to tick-out one of them, which was correct in their opinion. It is also to be mentioned that during data collection, the investigator was moving around the elderly people so that they could complete their task minutely and no question could be left unanswered.

**Table-2: Personal characteristic of elderly people selected for the study**

Demographic Characteristics	Category	Elderly People	
		Frequency	%
Age (years)	60-68	100	100
Family type	Nuclear	75	75
	Joint	25	25
Caste	Forward	40	40
	backward	55	55
	Scheduled caste	05	05
Religion	Hindu	100	100
Education	Illiterate	Nil	Nil
	Can read only	45	45
	Can read and write only	20	20
	Middle & High school	20	20
	College graduate	10	10
	PG, Professional	05	05
	Advanced education	Nil	Nil
	Total	100	100
Past Occupation	Employed	20	20
	Industries Labour	45	45
	Officer	05	05
	Clerks, school teacher	15	15
	Technician, Peon	05	05
	Other govt. service	10	10
	Total	100	100
Family income	Low	70	70
	Medium	20	20
	High	10	10
	Total	100	100

**Analysis of the Data**

The obtained data have been subjected to a variety of analysis with a view to test the basic determining influence of different variables like family behaviors, family systems, family's socio-economic level and education. The rational and theoretical frame work of the study has already been discussed under the caption of hypothesis.

Statistical analysis of the obtained data was undertaken with a view to determine the extent of significant difference between Pranayama and depression. For this purpose, first of all, the subjects of different family systems viz. joint and nuclear were sorted out on the basis of their depression. Having identified the geriatric depression, experiment started among the aged of Madhubani District. Thereafter, the Means, SDs and t-value of the two groups were

computed as a whole to see the effect of Pranayama on Geriatric Depression.

**RESULTS AND DISCUSSIONS**

The aim of the present study is to conduct a meta-analysis of the effect of Pranayama on geriatric depression on populations varying in age, physical and mental health. Yoga seems to be a possible intervention which improves mental health in more than one way. For this reason a dual perspective will be assumed. On the ground of medical perspective that viewed mental health as the absence of illness and the positive perspective which emphasized on the healthy parts of a person.

Strength of yoga is that it can be used as a self-management technique where a yoga exerciser does not need to go to the hospital or therapist. An individual could well use yoga their entire lifetime to improve

their well-being as well as preventive means against depressive symptoms or the development of severe depression.

Although yoga has been studied in the past decade, a meta-analysis of RCTs is relevant to show powerful empirical evidence of the effectiveness of yoga on mental health. This meta-analysis distinguishes itself by taking on dual perspective, taking quality of the studies into account and by only including RCTs. Depression, depressive symptoms, and well-being which consist of emotion, psychological, social well-being, were the outcome measures. Potential variables moderating the effectiveness of yoga, such a style of yoga, duration of intervention, quality of research design, were also examined.

### Selection of studies

A further selection using the following inclusion criteria: (1) It's a primary study, (2) Experimental group has an yoga intervention, with exercises which consist of, pranayama or a specific form of yoga, (3) Outcome measure are on the area of psychological health; depression, anxiety, mood and stress, (4) Measurement instruments are used for psychological outcomes, for example Beck' Depression Inventory for depression, (5) study must use a randomized controlled trial (RCT), (6) study must have a full text available. Using these criteria, studies remained on which this meta-analysis made a further selection by using the following inclusion criteria; outcome measurements have at least one of the following; depression, depressive symptoms, well-being or comparable forms. In the end of studies remained, which were used in this analysis (see figure 2 for flow chart). In these studies that measured depression, instruments and subscales that explicitly measure depression were used e.g. the Beck Depression Inventory.

### RESULTS

In the present study total subjects N=100 were participated on depression inventory. From the analysis emerged that the study used different group types for comparison and compared their experimental group with a control group that got some form of intervention; group/individual counseling, Pranayama, meditation, physical education, social group and psycho-education.

What also emerged was a lot of different types of yoga in this pool of studies. Some of these types are, Iyengar, Kriya and Kripalu. All the yoga forms share the same methods, which are breathing, physical exercise and meditation, but only emphasizes differences to each other. It's unclear how much the three methods are used in proportion by each form of yoga.

Results show that Pranayama – a kind of yoga has a statistically significant and substantial positive outcome of mental health. Several characteristics of the study moderated the effect of yoga. In general, lower quality rated studies showed higher effect sizes and higher rated studies lower effect sizes. This was significant for the studies measuring depression. This might also be true for yoga interventions.

Obtained result shows that yoga interventions can be effective in reducing depression, depressive symptoms and the promotion of well-being. This is the case for a broad selection of populations, e.g. with people that are healthy, have psychopathology or somatic illness. Pranayama yoga could be a good addition to the list of positive interventions on mental health, in view of its possibilities as sit could be observed from the table -3.

**Table-3: Comparison of depression under before and after training in Pranayama**

Group	N	Mean	SD	t	Significance Level
Before Pranayama	100	27.39	11.86	8.44*	>.01
After Pranayama	100	14.56	09.25		

\*p>.01

From the table – 3 it can be observed that the mean score of the sample on Beck Depression Inventory show a significant difference as the samples got a mean of 27.39 with an SD of 11.86 prior to the training of the anuloma-viloma pranayama as compared to the post-training condition where the samples' got a mean score of 14.56 with an 9.25. The difference between the two conditions suggests a significant improvement in depression among the people doing pranayama which have been found highly significant at .01 level of confidence as t-value has been found 8.44 Thus, the result of the study supports the formulated hypothesis. The effect of pranayama was evident from

the scores from the comparison between the two conditions namely before and after pranayama suggesting that pranayama has an important role to play on the perceived mental health of the elderly. Pranayama has been found to help build that cheerful body-mind relationship, first by de-stressing the mind and then by freeing the body of its ailments. Pranayama work wonders for the human body, ridding it of all depressive energy and body tensions. Correct breathing can prevent most ailments. "In this process we are transported to our very source - called the pure consciousness. Once one is in a state of pure consciousness, day-to-day worries and tensions

disappear and the body begins to heal." "When one is going through a stressful situation, the whole physiology; the brain and endocrine system, is influenced negatively. Breathing techniques Pranayama establish a positive body-mind relationship. The most influential evidence for pranayama as a viable treatment for depression derives from research conducted by the National Institute of Mental Health and Neuroscience in India. According to the study, up to 73 percent of participants with depression saw a significant improvement when practicing Sudharshan Kriya Yoga (SKY), a pranayama technique. This method, also referred to as "The Healing Breath Technique", involves breathing with a natural breath through the nose, mouth closed, in three distinct rhythms. It is, essentially, rhythmic hyperventilation.

### CONCLUSION AND SUGGESTIONS

Present Study suggests that regular practice of SKY – a Pranayama technique lowers levels of triglycerides in the blood, significantly increases antioxidant capacity, marginally reduces oxidative stress, improves sleep, and increases an individual's overall sense of well-being. To date, there have been no significant side-effects reported. Review of the literature of Yoga research [8] concludes that Hatha yoga, a Pranayama technique has potential as a useful intervention for improved physical well-being, reducing anxiety, and enhancing personality development. Hatha yoga could be a helpful adjunct to medical and psychological treatment when practiced regularly by clients on their own to improve feelings of physical health, reduce their depression and enhance their self-concepts and emotional tone." The breathing practices, or pranayama, are one component of hatha yoga, which is intended to give one a healthy body and mind. Thus, it can be concluded that pranayama helps in the reduction of the anxiety and the depression level of the individual and elderly as well. This might prove to be a useful adjunct to medications and at times it may act as the only form of treatment. The findings would have a significant impact in our socio - cultural milieu as

people from rural areas are mostly poor and lack necessary medical care and our indigenous method of pranayama is not only cheap but also effective in the treatment of various mental and physical distresses. Yoga has not only been found to be preventive in nature but also promotive as it increases the human potentials and improves the immune system of the individual organism.

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