



## A two-arm open labeled randomized controlled prospective clinical study to assess the efficacy of 'Kumbhak Kriya-selected from Kumbhak Paddhati Text' in the management of anxiety neurosis of working women with ayurvedic perspective

Mrunal Ashay Jamdade\* and Mangala Wange



Department of Swasthavritta and Yoga, Dr. D Y Patil deemed to be University, School of Ayurveda, Nerul, Navi Mumbai and Maharashtra, India

E-mail/Orcid Id:

MSJ,  [dr.mrunaljamdade@gmail.com](mailto:dr.mrunaljamdade@gmail.com),  <https://orcid.org/0000-0003-1502-1173>;

MW,  [mangala.wange@dypatil.edu](mailto:mangala.wange@dypatil.edu),  <https://orcid.org/0009-0001-4419-1641>

### Article History:

Received: 23<sup>th</sup> Feb., 2023

Accepted: 17<sup>th</sup> Apr., 2023

Published: 30<sup>th</sup> Apr., 2023

### Keywords:

Anxiety Neurosis,  
Kumbhak Kriya,  
Pranayama, stress in  
women

**Abstract:** The mild to severe stress of juggling work and family that eventually develops into Anxiety Neurosis is something every working woman has to deal with. The mental and physical effects of prolonged stress are known as *Rasavaha* and *Manovaha Srotasduшти*, respectively. Constant anxiety causes abnormalities that make it difficult to function normally in daily life. In the workplace, women who suffer from anxiety neurosis may find relief through *pranayama*. In this trial we studied the efficacy of Kumbhak Kriya *Pranayama* from the "Kumbhak Paddhati Text": in Treating Anxiety and Neurosis in Professional Women. Here, we have provided the results of a randomized, prospective, controlled clinical trial with an open label, total 100 female patients working for more than 8 hours every day and 50 patients with anxiety neurosis were enrolled and randomly assigned to either the Experimental Group or the Control Group. Everyone in the Experimental Group was instructed in various forms of *Pranayama* and then monitored on Days 7, 21, and 42. Follow-up evaluation based on subjective and objective indicators. The data was put through the right statistical procedures so that conclusions could be drawn. In clinical evaluations, selected *Pranayama* - Kumbhak Kriya from the "*Kumbhak Paddhati Manuscript*" showed promising results for treating anxiety neurosis in professional women. Neither during nor after the research period were any untoward effects recorded. So, *Kumbhak Kriya*-selected from *Kumbhak Paddhati Text* i.e., some *Pranayama* techniques can help working women with Anxiety Neurosis.

### Introduction

Every person experiences anxiety or nervousness before completing a task or taking a test. The term anxiety disorders cover pathological fear and anxiety (Shackman et al., 2021). Anxiety, according to Sigmund Freud and his followers, is a signal that impulses of an unwanted character that are also contrary to societal norms are probable to reach the conscious mind and do harm (Barlow, 2002). Anxiety is a typical response to stressful or hazardous situations, but it is abnormal to feel constant, intense anxiety without any obvious triggers. Anxiety is a multifaceted mental and physical state with

physical, emotional, cognitive, and behavioral manifestations (Woo, 2010). Anxiety-related neurosis is a frequent mental condition that has negative effects on both mental and physical wellbeing (Ormel et al., 2013).

Anxiety disorders come in a wide range of forms, from specific phobias to more broad diagnoses like panic disorder or social phobia (<https://www.nimh.nih.gov>). According to Shaffer and Shoben (1956), "anxieties vary greatly in intensity from a mere qualm in a transient situational conflict to a permeating distress that may effect of a person's social adjustment." Researchers in India (Jalandhar, Shimla and Punjab) surveyed 406

\*Corresponding Author: [dr.mrunaljamdade@gmail.com](mailto:dr.mrunaljamdade@gmail.com)



This work is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License.

working and non-working women on their levels of anxiety and despair (Kumar et al., 2013). Positive life changes were shown to be associated with depression among employed women, while positive life changes were associated with anxiety and negative life changes were associated with depression among unemployed women (Maqsood et al., 2019). Anxiety in working women leads to decrease in their work efficiency (Hofmann et al., 2012). In this condition, Cognitive Behavioural Therapy (CBT) and medication are used for treatment but both have limited efficacy (Dashora, 2013).

Many studies have been published demonstrating the effectiveness of Yoga for treating anxiety. With the help of Ayurvedic basic principles, ignored knowledge of *Pranayama* of '*Kumbhak Paddhati*' text can be studied. This was a sincere attempt to prove its efficacy in management of anxiety neurosis. Study of this ancient text – *Kumbhak Paddhati* – Science of *Pranayama* would be helpful as many different *Pranayama Paddhati* are given. Dr. Gharote and Dr. Devnath have edited this book but no one studied it with ayurvedic perspective.

The exploratory study of 14 middle aged, working, married women who diagnosed with Generalised Anxiety Disorder (GAD) was carried out by the authors. At the starting point, patients were showing mild to moderate level of anxiety which was decreased to mild level after regular *Kumbhak Paddhati Pranayama*. Those participants who were taking symptomatic medications for headache, body ache etc., have shown decreased drug dependency (Wilmer et al., 2021).

With these considerations in mind, a preliminary investigation titled "A Two-Arm, Open Labeled, Randomized and Controlled Prospective Clinical Study to assess the Efficacy of '*Kumbhak Kriya*-selected from *Kumbhak Paddhati* Text' in the Management of Anxiety Neurosis of Working Women with Ayurvedic Perspective" was carried out, and findings were reported, based on the information gathered in the course of this research.

## Materials & Methods

### Study design and site

This randomised, prospective, controlled clinical study involved two groups and was conducted in the outpatient and inpatient departments of the D. Y. Patil deemed to be University School of Ayurveda at Nerul, Navi Mumbai, 400 706.

### Ethical considerations

Clinical Trials Registry (Ref- CTRI/2022/03/041300)-India was notified of the trial, and authorization to conduct the research was granted by the Institutional

Ethics Committee at D. Y. Patil Deemed to be University's School of Ayurveda in Nerul, Navi Mumbai, 400 706.

### Materials

Previous research on *Pranayama* and anxiety neurosis was reviewed, as well as textbooks and scholarly literature on the therapeutic efficacy of *Pranayama* was followed. Especially *Pranayama Paddhati* given in the book authored by Dr. Gharote and Dr. Devnath (2010) was studied thoroughly.

### Enrolment of study participants

Patients with anxiety neurosis who are married, working full-time (service or business), and who visit the outpatient clinic of the study centre were considered for inclusion.

### Inclusion Criteria

Women having a diagnosis of anxiety neurosis, who were married, between the ages of 25 and 45, not pregnant at the time of the study, and employed full-time in either the service or commercial sectors were eligible to participate. Participants in the clinical study were required to give written informed consent, engage in regular *Pranayama* practise, and adhere to all other specified requirements of the protocol.

### Exclusion criteria

Women who were not prepared to commit to regular *Pranayama* practice and follow-up were not included in the study. This included women who were pregnant, had been diagnosed with other systemic disorders, or were receiving medications for these conditions. Patients with any other conditions that the researchers deemed unsuitable for enrollment or that could interfere with trial participation were also not included.

### Sample size

The prospective clinical trial included 100 individuals with anxiety neurosis who were employed full-time. Simple randomization technique by lottery method was used for sampling.

### Methodology

In this clinical trial, we chose *Pranayama* techniques based on their durations as listed in the "Kumbhak Paddhati" text book. Five different Kumbhak Kriyas from the textbook (Sahita, Vyanvayu, Bhramari, Murchana, and Kak Chanchu) were chosen for this analysis. One hundred professional women with Anxiety Neurosis were chosen because they had consistently attended eighty percent or more of available *Pranayama* classes. By use of a lottery system, the patients were split into an experimental group of 50 and a control group of 50.

The Hamilton Anxiety Rating Scale (HMA-A) (Hamilton, 1959) was used to make an initial diagnosis of

anxiety in the study's participants, with the support of clinical psychiatry for confirmation. Every patient in the clinical trial signed an informed consent form before they participated. Each patient underwent a series of tests to rule out co morbid conditions, including a complete blood count, random blood sugar level, thyroid function test, etc. Every patient was evaluated pre-study for a variety of parameters including heart rate, respiration rate, blood pressure, weight, temperature, and electrocardiogram (ECG).

## Intervention

### Experimental Group

Everyone in the Experimental Group was instructed in various forms of *Pranayama* and then monitored on Days 7, 21, and 42. Mornings, specifically between 7 and 8 a.m., were reserved for all *Pranayama* classes. *Pranayama* took 20 minutes and consisted of the following:

- *Sahit Kumbhak Kriya* - 5 minutes
- *Vyan Vayu Kumbhak Kriya* - 5 minutes
- *Bhramari Kriya* - 2 minutes
- *MurcchanaKumbhak* - 3 minutes
- *KakChanChuKumbhak* - 2 minutes of work, then two minutes of rest

Each subsequent check-up revealed an increase in the patient's ability to hold their breath for longer (as measured by the number of breaths counted, or *Matra Kumbhak*). Six weeks was the full length of the study (42 days).

### Control Group

There were 50 diagnosed patients of Anxiety Neurosis in this group and they were observed for 6 weeks. No treatment was given to them. The follow up were taken on Day 7, Day 21 and Day 42. With the help of assessment criteria, observations were noted in the CRF.

### Criteria for assessment

#### Subjective parameters

Following subjective parameters were observed in all the patients – *AtiChinta*, *HridSpanda*, *Aasya Vairasyata*, *Hrullas*, *Krushangata*, *Shir Shula*, *Angmard/Shram/Daurbalya*, *AlpaNidra/Nidranash*, *Vishadata*, *Swapna Prachiti*, *BhayPrachiti*, *Swedpravrutti*, *Anavsthitachittatva*, behavior at interview (restless, rapid respiration).

#### Objective parameters

Factors such blood pressure (systolic and diastolic), pulse rate, weight, temperature, Blood Haemoglobin level, Blood Sugar Level (R), Thyroid Function Test, ECG and Skin Galvanic Response and Hamilton Anxiety Rating Scale (HMA-A) were recorded on Day 0, Day 7 and Day 42 (Sharma et al., 2016; Hamilton,

1959).

## Statistical Analysis

The study's findings and interpretations are the product of statistical analysis of the data it generated and collected. Tables and graphs were used to display the demographic information. Statistical analyses were performed on the study data. The data was analysed statistically using GraphPad InStat (available at [www.graphpad.com](http://www.graphpad.com)). If the data passed the normality test (K-S test) for single sample correlated observations, the students' paired t-test was used to make comparisons within groups. If the data failed the normality test (K - S test) for correlated observations in a single sample, the Wilcoxon matched-pairs signed-ranks test was used to determine statistical significance. A significance level of 0.05 was used.

## Results

A total of 100 patients were included in the current clinical investigation, split evenly (50 each) between an Experimental Group and a Control Group. Here are some stats about them and the results of their clinical evaluation:

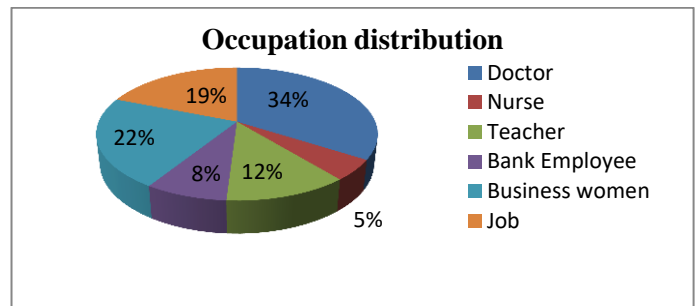


Figure 1. Graphical presentation of Occupation distribution in both groups

## Demographic Details

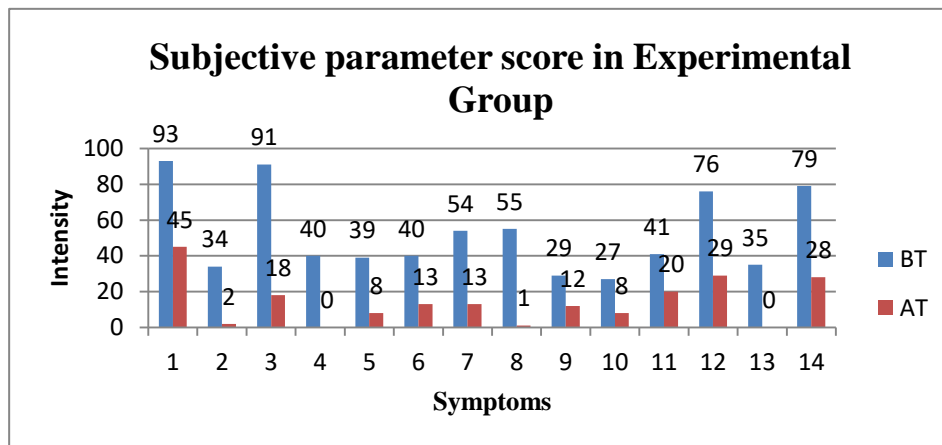
The average age of 50 female patients enrolled in Experimental Group and Control Group were  $37.68 \pm 4.82$  years and  $37.64 \pm 3.88$  years respectively with statistically insignificant difference between two groups ( $p = 0.9636$ ).

Table 1. Occupation distribution in both groups

Occupation	No of patients in Control Group	No of patients in Experimental Group	Percentage
Doctor	18	16	34%
Nurse	2	3	5%
Teacher	5	7	12%
Bank Employee	4	4	8%
Business women (Entrepreneur)	13	9	22%
Job	8	11	19%
<b>Total</b>	<b>50</b>	<b>50</b>	<b>100%</b>

**Table 2. Subjective parameter scores in experimental group**

Sr. No.	Subjective parameters	Before treatment	After treatment
1	Ati Chinta	93	45
2	Hrid Spanda	34	2
3	Asya Vairasyatva	91	18
4	Hrullas	40	0
5	Shirshula	39	8
6	Angamard/Shrama/Daurbalya	40	13
7	Alpa Nidra	54	13
8	Vishadata	55	1
9	Swapna Prachiti	29	12
10	Bhaya Prachiti	27	8
11	Swed Pravrutti	41	20
12	Anavasthit Chittatva	76	29
13	Shwas krichrita	35	0
14	Behavior at interview	79	28

**Figure 2. Graphical presentation of Subjective parameter scores in experimental group**

Here, in Table 1, out of 50 patients in Experimental Group, 18 (32%) were doctors, 02 (6%) are Nurse, 05 (14%) were Teacher, 4(8%) are Bank Employee, 13 (18%) are Business women, 08 (22%) are doing Job. Out of 50 patients in Control Group, 16 (32%) were doctors, 03 (6%) are Nurse, 07 (14%) are Teacher, 04 (08%) are Bank Employee, 09 (18%) are Business Women, 11 (22%) are doing Job. In Figure 1, we can see that out of 100; 34 were doctors, 19 were doing job, 22 were business women, 12 were teacher, 8 were bank employee, and 5 were nurse who have participated in the study.

#### Details of Clinical Assessment

##### Subjective Parameters

Hamilton Anxiety Rating Scale is used to record the observations.

#### Observations

##### Experimental group

Here, in experimental group (Fig 1) all the parameters are having after the study lower values than that of before the study values. Ati Chinta, Hrullas, Vishadata, Shirashula, Hrudspanda parameters are having more significant result than other parameters.

In Figure 2, for experimental group according to Hamilton Anxiety scale measured scores before and after the study was given. In experimental group values of subjective parameters were having significant changes.

##### Control group

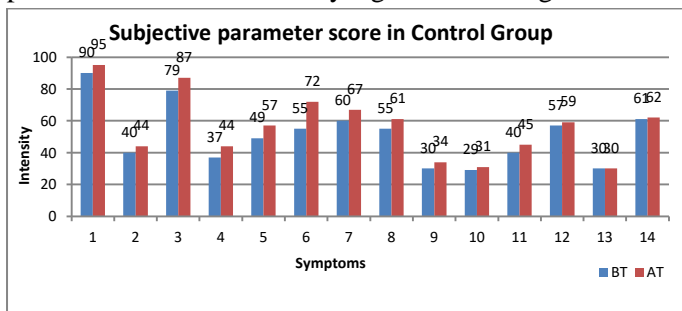
Here, in control group (Table 3), almost all the parameters are having same values before and after the study. Ati Chinta Hrullas, Angamarda/ Daurblya/ Shrama, Alpa nidra and Vishadata parameters values are increased at the end of the study.



**Table 3. Subjective parameter scores in Control Group**

Sr No	Subjective parameters	Before treatment	After treatment
1	Ati Chinta	90	95
2	Hrid Spanda	40	44
3	Asya Vairasyatva	79	87
4	Hrullas	37	44
5	Shirshula	49	57
6	Angamard/Shrama/Daurbalya	55	72
7	Alpa Nidra	60	67
8	Vishadata	55	61
9	Swapna Prachiti	30	34
10	Bhaya Prachiti	29	31
11	Swed Pravrutti	40	45
12	Anavasthit Chittatva	57	59
13	Shwas krichrita	30	30
14	Behavior at interview	61	62

In Figure 3, for control group according to Hamilton Anxiety scale measured scores before and after the study was given. In control group values of subjective parameters did not show any significant changes.

**Figure 3. Graphical presentation of Subjective parameter scores in Control Group**

### Statistical Analysis and Results

#### Atichinta

The median scores of *Atichinta* in Experimental Group and Control Group after treatment were 01 (00 – 03) and 02 (01 – 03) respectively. The difference in the median scores of *Atichinta* in Experimental Group and Control Group after treatment was statistically significant ( $p = 0.0000891$ ).

#### Hrid Spanda

The median scores of *Hrid Spanda* in Experimental Group and Control Group after treatment were 01 (00 – 01) and 01 (00 – 02) respectively. The difference in the median scores of *Hrid Spanda* in Experimental Group and Control Group after treatment was statistically significant ( $p = 0.00000477$ ).

#### Aasya Vairasyata

The median scores of *Aasya Vairasyata* in Experimental Group and Control Group after treatment were 01 (00 – 01) and 02 (00 – 03) respectively. The

difference in the median scores of *Aasya Vairasyata* in Experimental Group and Control Group after treatment was statistically significant ( $p = 0.000090$ ).

**Hrullas:** The median scores of *Hrullas* in Experimental Group and Control Group after treatment were 00 (00 – 00) and 01 (00 – 02) respectively. The difference in the median scores of *Hrullas* in Experimental Group and Control Group after treatment was statistically significant ( $p = 0.0005$ ).

#### Shir Shula

The median scores of *Shir Shula* in Experimental Group and Control Group after treatment were 00 (00 – 02) and 01 (00 – 02) respectively. The difference in the median scores of *Shir Shula* in Experimental Group and Control Group after treatment was statistically significant ( $p = 0.0000003$ ).

#### Angamarda/Shram/Daurbalya

The median scores of *Angamarda/Shram/Daurbalya* in Experimental Group and Control Group after treatment were 00 (00 – 01) and 02 (00 – 03) respectively. The difference in the median scores of *Angamarda/Shram/Daurbalya* in Experimental Group and Control Group after treatment was statistically significant ( $p = 0.0000011$ ).

#### Alpanidra/Nidranash

The median scores of *Alpanidra/Nidranash* in Experimental Group and Control Group after treatment were 00 (00 – 02) and 01 (00 – 03) respectively. The difference in the median scores of *Alpanidra/nidranash* in Experimental Group and Control Group after treatment was statistically significant ( $p = 0.000101$ ).

#### Vishadata

The median scores of *Vishadata* in Experimental Group and Control Group after treatment were 00 (00 – 01) and 01 (00 – 03) respectively. The difference in the median scores of *Vishadata* in Experimental Group and Control Group after treatment was statistically significant ( $p = 0.00000151$ ).

#### Swapna Prachiti

The median scores of *Swapna Prachiti* in Experimental Group and Control Group after treatment were 00 (00 – 02) and 01 (00 – 03) respectively. The difference in the median scores of *Swapna Prachiti* in Experimental Group and Control Group after treatment was statistically significant ( $p = 0.039519$ ).

#### Bhay Prachiti

The median scores of *Bhay Prachiti* in Experimental Group and Control Group after treatment were 00 (00 – 01) and 01 (00 – 02) respectively. The difference in the median scores of *Bhay Prachiti* in Experimental Group

and Control Group after treatment was statistically significant ( $p = 0.023193$ ).

### Swed Prarvutti

The median scores of *Swed Prarvutti* in Experimental Group and Control Group after treatment were 00 (00 – 02) and 01 (00 – 02) respectively. The difference in the median scores of *Swed Prarvutti* in Experimental Group and Control Group after treatment was not statistically significant ( $p = 0.071418$ ).

### Anavsthit Chittatva

The median scores of *Anavsthit Chittatva* in Experimental Group and Control Group after treatment were 01 (00 – 02) and 01 (00 – 03) respectively. The difference in the median scores of *Anavsthit Chittatva* in Experimental Group and Control Group after treatment was statistically significant ( $p = 0.000003$ ).

### Shwas Krichrita

The median scores of *Shwas Krichrita* in Experimental Group and Control Group after treatment were 00 (00 – 00) and 01 (00 – 02) respectively. The difference in the median scores of *Shwas Krichrita* in Experimental Group and Control Group after treatment was statistically significant ( $p = 0.000001$ ).

### Behavior at Interview

The median scores of Behaviors at Interview in Experimental Group and Control Group after treatment were 01 (00 – 02) and 01 (00 – 32) respectively. The difference in the median scores of Behaviors at Interview in Experimental Group and Control Group after treatment was statistically significant ( $p = 0.000002$ ).

### Objective Parameters

In this study objective parameters were used to rule out any associated disorders. Patients having normal values (except SGR) were included in the study.

### Heart Rate

In the Experimental Group, the mean heart rates before and after treatment were  $71.84 \pm 3.23$  /min and  $65.92 \pm 2.88$  /min respectively with no statistically significant difference ( $p = 1.00$ ). In the Control Group, the mean respiratory rates before and after treatment were  $71.44 \pm 2.83$  /min and  $71.36 \pm 2.90$  /min respectively with no statistically significant difference ( $p = 0.5555$ ). Mean value for Heart Rate was significantly reduced within normal limits from 71.84 to 65.92/min after treatment in Experimental Group and it was slightly reduced from 71.44 to 71.36/min in Control Group. As the p-value was greater than 0.05 at 5% level of significance, it can be said that there was no significant effect of *Kumbhak Paddhati* on heart rate.

### Systolic and Diastolic Blood Pressure

Mean value for Blood Pressure remained same after treatment in EG and CG. It can be said that there was no significant effect of *Kumbhak Paddhati* in Systolic and Diastolic Blood Pressure.

### Respiratory Rate

In the Experimental Group, the mean respiratory rates before and after treatment were  $16.84 \pm 0.99$  /min and  $12.60 \pm 0.93$ /min respectively with no statistically significant difference ( $p = 1.00$ ). In the Control Group, the mean respiratory rates before and after treatment were  $16.52 \pm 1.20$  /min and  $16.52 \pm 1.20$  /min respectively with no statistically significant difference ( $p = 0.5$ ). Mean value for Respiratory Rate is significantly reduced within normal limits in Experimental Group after treatment than Control Group.

### Body Weight

In the Experimental Group, the mean body weights before and after treatment were  $61.54 \pm 5.29$  kg and  $61.88 \pm 4.89$  kg respectively with no statistically significant difference ( $p = 0.3723$ ). In the Control Group, the mean body weights before and after treatment were  $61.39 \pm 5.39$  kg and  $61.15 \pm 5.53$  kg respectively with no statistically significant difference ( $p = 0.5877$ ). There was a slight gain in body weight after the treatment in the Experimental Group to the Control Group but which was not statistically significant ( $p = 0.7565$ ).

### Blood Hemoglobin Level

In the Experimental Group, the mean blood hemoglobin levels before and after treatment were  $12.44 \pm 0.56$ gm% and  $12.61 \pm 0.55$ gm% respectively with no statistically significant difference ( $p = 0.0790$ ). In the Control Group, the mean blood hemoglobin levels before and after treatment were  $12.44 \pm 0.56$  gm% and  $12.61 \pm 0.55$  gm% respectively with no statistically significant difference ( $p = 0.0694$ ). There is slight increase in Mean value of Hemoglobin level within normal limits from 12.44 to 12.61 gm% after *Kumbhak Paddhati* in EG.

### Blood Sugar Level (R)

In the Experimental Group, the mean blood sugar levels (random) before and after treatment were  $105.96 \pm 11.62$  kg and  $104.42 \pm 12.32$  kg respectively with no statistically significant difference ( $p = 0.7399$ ). In the Control Group, the mean blood sugar levels (random) before and after treatment were  $109.98 \pm 13.67$  kg and  $109.10 \pm 13.69$  kg respectively with no statistically significant difference ( $p = 0.6261$ ). The mean value for Blood sugar level was significantly reduced within normal limits in the Experimental Group after treatment than the Control Group ( $p = 0.0362$ ).

## Thyroid Function Test

In the Experimental Group, the mean TSH levels before and after treatment were  $3.26 \pm 0.95$  kg and  $3.10 \pm 0.86$  kg respectively with no statistically significant difference ( $p = 0.8067$ ). In the Control Group, the mean TSH levels before and after treatment were  $3.33 \pm 0.93$  kg and  $3.28 \pm 0.93$  kg respectively with no statistically significant difference ( $p = 0.5978$ ). Mean value for TSH is significantly reduced within normal limits from 3.259 to 3.1024 after treatment in the Experimental Group than Control Group. Mean value for T3 is significantly reduced within normal limits from 69.3446 to 68.0886 after treatment in EG than CG. Mean value for T3 was significantly reduced in Experimental Group after treatment than Control Group ( $p = 0.000115$ ). Mean value for T4 was significantly reduced in Experimental Group after treatment than Control Group.

**Table 4. After treatment SGR Levels in both groups**

Sr. No.	SGR Level after treatment	Experimental Group	Control Group
1	Relaxed (0)	15	00
2	Relaxed to Mild Stressed (1)	34	23
3	Mild to Moderate Stressed (2)	01	27
4	Moderately Stressed (3)	00	00
<b>Total</b>		<b>50</b>	<b>50</b>

## Skin Galvanic Response (SGR)

Here, in Table 4 experimental group after treatment 15 patients showed relaxed state, 34 patients showed relaxed to mild, 1 patient showed mild to moderate stress and no patient was moderately stressed. Whereas in Control Group after treatment no patient showed relaxed state, 21 patients showed relaxed to mild, 26 patients showed mild to moderate stress and 3 patients were moderately stressed. SGR level was reduced in Experimental Group after the treatment of *Kumbhak Paddhati* as there was no one patient moderately stressed in Experimental Group after *Kumbhak Kriya* (Figure 4).

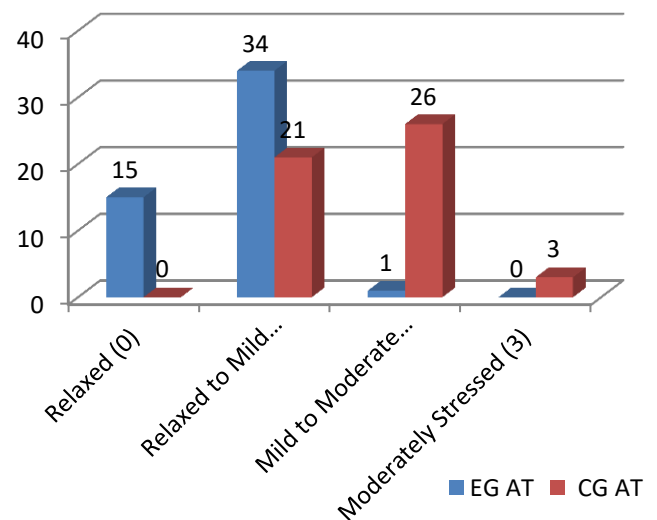
## Discussion

Those who suffer from anxiety disorders have excessive anxiety, fear, or concern, which leads them to either avoid situations that could trigger their anxiety or form compulsive rituals that make them feel less anxious. Everybody experiences worry in response to particular situations, but people with anxiety disorders experience excessive and irrational anxiety that interferes with their relationships, academic and professional performance, social interactions, and leisure time. Lack of self-awareness and self-management causes people to make

poor judgements during crucial stages of their lives. Several studies have demonstrated the importance of yoga in the treatment of anxiety disorders. Antidepressants counseling sessions are utilized to treat this problem, which was previously managed symptomatically. Yoga's therapeutic components are now showing promise in the treatment of anxiety disorders.

Women are more likely than men to report having an anxiety condition and to have one diagnosed. Yet, rather than actual disparities in prevalence, this may reflect the ways in which men and women seek out health services differently (www.phac-aspc.gc.ca; Usama et al., 2020). Total 100 female patients working for more than 8 hours every day and suffering from anxiety neurosis were enrolled in the present clinical study and divided into two groups as Experimental Group and Control G were included in the current clinical investigation and split into two groups with 50 patients each. The patients who were advised to do *Pranayama* for continuous 42 days (6 weeks) showed significant relief in symptoms of anxiety neurosis such as *Ati Chinta*, *Hrid Spanda*, *Aasya Vairasyata*, *Hrullas*, *Krushangata*, *Shir Shula*, *Angmard/Shram/Daurbalya*, *Alpa Nidra/Nidranash*, *Vishadata*, *Swapna Prachiti*, *Bhay Prachiti*, *Anavsthitachittatva*, behavior at interview (restless, rapid respiration) compared to patients enrolled in Control Group.

## SGR distribution



**Figure 4. Graphical presentation of after treatment SGR Levels in both groups**

The patients who have followed the *Kumbhak Kriya Pramayama* for 42 days showed improvement in objective parameters such as respiratory rare, blood hemoglobin level, blood sugar level, TSH, T3, T4 and SGR scale as well as Hamilton Anxiety Rating Scale

compared to patients enrolled in Control Group. The randomized controlled trial suggested that continuous 42 days practice of *Kumbhak Paddhati Pranayama* was effective in relieving symptoms of Anxiety Neurosis. No adverse effects were noted during or following the *pranayama* sessions.

*Pranayama*, or breathing techniques, can help you manage your thoughts more effectively in practise. In order to reach realisation, Acharya Patanjali outlined the eight limbs of yoga, often known as Ashtanga Yoga. The term "*pranayama*" refers to the unification of the body, mind, and spirit. Yoga refers to a particular state of consciousness as well as techniques that aid in achieving that objective or state of connection with the divine since its traditional meaning is union between both the Jivatma and Paramatma, or between one's own consciousness and the global consciousness (Jain, 2018; Vitor et al., 2023).

Using an Ayurveda and contemporary viewpoint, the following mechanisms of *pranayama* benefits can be stated: Anxiety Neurosis is one of the psychosomatic disorders which involved vitiation of *Rasavaha Srotas* and *Manovaha Srotas*. Aggravated *Vata Dosha* and *Pitta Dosha* cause *Rasavaha Srotas – Hridaya* and *Dash Dhamanya Dushti*. *Pranayama* is helpful for *Hridaya*, lowering *Vata* and *Pitta Dosha Dushti Lakshanas* and thus is helpful in treating Anxiety Neurosis. *Pranayama* exercises improve cortico-limbic cells, improve neurotransmitter function, and aid in mental focus, all of which contribute to a reduction in stress. Practices of *Kumbhak Paddhati Pranayama* are helpful in reversing the pathophysiology of many psychosomatic ailments and lowering acute stress within 15 minutes (Tripathi, 2002; Bhalekar, 2019; Rajapurkar, 2013).

## Conclusion

The two-arm open labelled randomized controlled prospective clinical study, which was carried out to evaluate the effectiveness of "Kumbhak Kriya-selected from Kumbhak Paddhati Text" i.e., some forms of *pranayama* in the management of anxiety neurosis in women with an Ayurvedic perspective, offers important insights into the potential of Ayurvedic practices in managing anxiety disorders. According to the study, Kumbhak Kriya is a useful technique for lowering anxiety especially in working women. It also emphasizes the significance of looking into complementary treatments, like Ayurveda, for the treatment of anxiety problems, which are more common in today's culture. The study's conclusions call for more investigation into the potential benefits of Ayurvedic practices as alternative therapies for the treatment of anxiety

disorders. Overall, this study emphasizes the necessity for a holistic healthcare approach that takes into account alternative therapies and has a strong emphasis on mental health and wellbeing. Extensive clinical studies with large sample size, advanced assessment parameters covering large geographical distribution can be conducted in future for better outcomes.

## Conflict of Interest

None

## References

- Anxiety disorders. A Report on Mental Illnesses in Canada, [https://www.phac-aspc.gc.ca/publicat/miic-mmacc/pdf/chap\\_4\\_e.pdf](https://www.phac-aspc.gc.ca/publicat/miic-mmacc/pdf/chap_4_e.pdf)
- Anxiety Disorders, National institute of mental health. <https://www.nimh.nih.gov/health/topics/anxiety-disorders>
- Barlow, D. H. (2004). *Anxiety and its disorders: The nature and treatment of anxiety and panic*. Guilford press.
- Bhalekar, S. (2019). *Pranayama Mudra and Meditation*, (2nd edition), Published by Kaivalyadham Lonavala, Chapter 6. Pp. 117 -155.
- Dashora, K. B. (2013). Problems faced by working women in India. *International Journal of Advanced Research in Management and Social Sciences*, 2(8), 82-94.
- Gharote, M. L., Devnath P. (2010). *Kumbhaka Paddhati Of Raghuvira Science Of Pranayama*. Lonavla publication, ISBN 10: 8190117653
- Hamilton, M. (1959). Hamilton anxiety scale. *Group*, 1(4), 10-1037.
- Hofmann, S. G., Asnaani, A., Vonk, I. J., Sawyer, A. T., & Fang, A. (2012). The efficacy of cognitive behavioral therapy: A review of meta-analyses. *Cognitive Therapy and Research*, 36, 427-440. <https://doi.org/10.1007/s10608-012-9476-1>
- Jain, V (2018). Effect of yogic intervention: *Pranayama* on the stress level of males & females. *International Journal of Indian Psychology*, 6(2), 129-138. <https://doi.org/10.25215/0602.073>
- Kumar, N. (2009). Psychological Stress and its Relationship with Achievement of Science Students of Jawahar Navodaya Vidhyalayas. *Revised Rates of NCERT Educational Journals*, 50, 84.
- Maqsood, Z., Akhtar, R., & Latif, H. (2019). The Effect of Depression Among Working and Non-Working Married Women, A Comparative Study. *Journal International Psychology and Behavioral Science*, 11, 1-6.



- Ormel, J., Jeronimus, B. F., Kotov, R., Riese, H., Bos, E. H., Hankin, B., & Oldehinkel, A. J. (2013). Neuroticism and common mental disorders: Meaning and utility of a complex relationship. *Clinical Psychology Review*, 33(5), 686-697.  
<https://doi.org/10.1016/j.cpr.2013.04.003>
- Rajapurkar, M.V. (2013). Stress management Modern and Yogic perspective – an overview, Kaivalyadham Lonavala publication, pp. 8, 17, 18.
- Rehman, U., Shahnawaz, M. G., Khan, N. H., Kharshiing, K. D., Khurshed, M., Gupta, K., & Uniyal, R. (2021). Depression, anxiety and stress among Indians in times of Covid-19 lockdown. *Community Mental Health Journal*, 57, 42-48.  
<https://doi.org/10.1007/s10597-020-00664-x>
- Shackman, A. J., & Fox, A. S. (2021). Two decades of anxiety neuroimaging research: new insights and a look to the future. *American Journal of Psychiatry*, 178(2), 106-109.  
<https://doi.org/10.1176/appi.ajp.2020.20121733>
- Shaffer, L. F., & Shoben, E. J. (1956). The psychology of adjustment, 2<sup>nd</sup> ed. Houghton Mifflin Co.
- Sharma, M., Kacker, S., & Sharma, M. (2016). A brief introduction and review on galvanic skin response. *Int. J. Med. Res. Prof.*, 2(6), 13-17.  
<https://doi.org/10.21276/ijmrp.2016.2.6.003>
- Tripathi, B. (2002). Charaka Samhita, Chaukhamba publication, 2002, Sutrasthana, Adhyay, 28/25-28.
- Vitor de Sá, R., Gulá, P. V. S. S., Prizon, T., Falcowski, R. M., Ruggiero, R. N., & Padovan-Neto, F. E. (2023). Anxiety and functional impairment affects undergraduate psychology students' learning in remote emergency teaching during the COVID-19 pandemic. *Scientific Reports*, 13(1), 1503.  
<https://doi.org/10.1038/s41598-023-27845-4>
- Wilmer, M. T., Anderson, K., & Reynolds, M. (2021). Correlates of quality of life in anxiety disorders: review of recent research. *Current Psychiatry Reports*, 23, 1-9.  
<https://doi.org/10.1007/s11920-021-01290-4>
- Woo AK (2010). Depression and Anxiety in Pain. *Rev. Pain.*, 4(1), 8-12.  
<https://doi.org/10.1177/204946371000400103>

#### How to cite this Article:

Mrunal Ashay Jamdade and Mangala Wange (2023). A two-arm open labeled randomized controlled prospective clinical study to assess the efficacy of 'Kumbhak Kriya-selected from Kumbhak Paddhati Text' in the management of anxiety neurosis of working women with ayurvedic perspective. *International Journal of Experimental Research and Review*, 30, 366-374.

DOI :<https://doi.org/10.52756/ijerr.2023.v30.034>



This work is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License.