



# **EFFECTIVENESS OF TRATAKA (YOGIC GAZING) ON ANXIETY IN PHYSIOTHERAPY STUDENTS: A PRE-POST EXPERIMENTAL STUDY**

A PROJECT SUBMITTED TOWARDS COMPLETE FULFILLMENT OF THE REQUIREMENT  
FOR THE INERNSHIP OF BACHELOR OF PHYSIOTHERAPY.

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SUBMITTED TO:

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## **INTRODUCTION**

Yoga has become a popular system of exercise for wholesome development of personality by maintaining fitness and health.[1]

Traditional Yoga practices include Shatkarma, which is a set of six practices that help you cleanse your body, mind, and spirit. [8]

Hathapradipika and Gheranda Samhita, two traditional classical Hatha Yoga texts, emphasise six types of cleansing techniques (Shatkriyas), with their primary mechanism of action being stimulation.

The techniques include Dhauti (internal cleansing), Basti (yogic enema), Neti (nasal cleansing), Trataka (TK) (concentrated gazing), Nauli (abdominal massaging) and Kapalabhati (frontal sinus cleansing).[8]

Looking intently with an unwavering gaze at a small point until tears are shed is known as Trataka. [9]

Hatha Yoga focuses on strengthening and purification of body – mind. Harmony of body and mind is the main objective and is achieved by practice of asanas, cleansing, pranayama, mudras, bandhas.[13]

The Sanskrit term trataka's direct translation is "to gaze persistently." [1] Trataka is a Hatha Yoga method to develop concentration. [1]

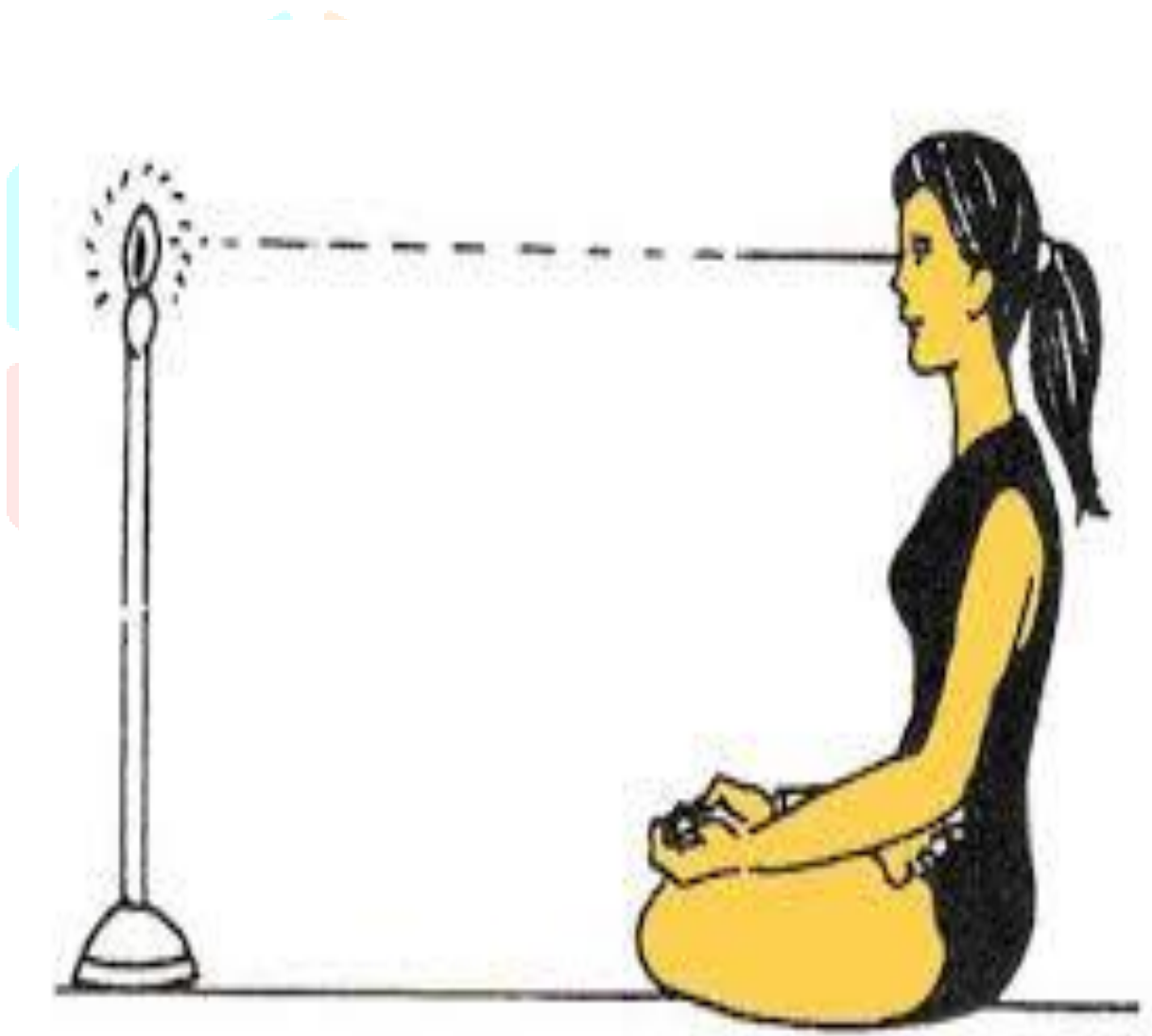
Trataka practise enhances mind-body coordination, increasing accuracy in establishing harmony in perception and performance. [2]

Trataka (Yogic Visual concentration) is one of the cleansing techniques considered to enhance vision and positively influence cognitive processes. [1]

The process of Trataka involves focused attention on a candle flame, the practice leads to the mind becoming one-pointed and arouses inner vision . [1]

During trataka , whole system is stimulated and awakened by concentration through eyes and induces sensitivity of pineal gland. [1]

The pineal gland is a small pea sizes gland above the top of the spine, in the center of the head between the two ears (technically it is located between the two cerebral hemispheres and above the cerebellum). [1]



The eye is directly connected to the pineal gland through the sympathetic nervous system.[1]

Like the parasympathetic nervous system, the centre of the sympathetic nervous system is the hypothalamus.[2]

Trataka focusing through the eyes stimulates and awakens Entire system. This increases the pinealgland's reception through the sympathetic nervous system, resulting in increased arousal in the individual.[2]

This is why Trataka is such a powerful technique that it directly affects the pineal gland.

In addition, all other disturbing thoughts that reduce acceptance are silenced, at least temporarily, by intense concentration.[5]

Trataka eliminates all eye diseases. It not only benefits eyes but a whole range of physiological and mental function[5].

It promotes perception of subtle manifestations .[5]

It also arouses inner vision i.e. Ekagrata.

Trataka is believed to enhance mental clarity and concentration. By training the mind to focus on a single point, individuals may experience improved attention and reduced mental distractions.

Engaging in Trataka may help reduce stress and anxiety. The practice encourages relaxation and can serve as a form of meditation, which has been shown to have positive effects on mental well-being.

While gazing at a candle flame or another object for extended periods, Trataka may also help improve eye health and vision by exercising the eye muscles and reducing eye strain.

Pineal gland stimulates sympathetic nervous system to control adrenal secretion.

When adrenal secretions reduces simultaneously, the anxiety level of person is also reduced.

Steady gazing reduces C.N.S. & A.N.S. activity through diminution in proprioceptive feedback to reticular activating system.

According to WHO, anxiety is mental disorder that involves excessive and intense feeling & worry that is difficult to control.

Additionally, anxiety, which may be understood as the pathological counterpart of normal fear, is manifest by disturbances of mood, as well as of thinking, behaviour, and physiological activity.

Diagnostic criteria are include excessive anxiety and worry for at least six months, difficulty controlling the worrying.

The anxiety is associated with three or more of the following symptoms for at least 6 months: restlessness, feeling keyed up or on edge, being easily fatigued, difficulty in concentrating or mind going blank, irritability, muscle tension, sleep disturbance, and irritability.

A subjective experience of distress with accompanying disturbances of sleep, concentration, social and/or occupational functioning are common symptoms in many of the anxiety.

Despite their similarities, these disorders often differ in presentation, course and treatment.

Patients often present with complaints of poor physical health as their primary concern. This may temporarily distract from the underlying anxiety symptoms.

There are several major psychological theories of anxiety: psychoanalytic and psychodynamic theory, behavioral theories, and cognitive theories.

Psychodynamic theories have focused on symptoms as an expression of underlying conflicts.

Phobic behaviors similarly have been viewed as a result of the defense mechanism of displacement.

From the psychodynamic perspective, anxiety usually reflects more basic, unresolved conflicts in intimate relationships or expression of anger.

Anxiety is highly common and according to WHO by 2020, it would be the second-most prevalent condition worldwide. [2]

Failure to detect these disorders unfortunately leads to increase psychological morbidity with unwanted effects throughout their careers and lives. [11]

Physiotherapy students are at risk of experiencing anxiety which cause psychological distress and may impact on their academic performance. [2]

Chronic anxiety is associated with lower academic achievement. [3]

The levels of anxiety are highest in the first years which can be explained by the new atmosphere and pressures; as also living away from family for many of the students. [12]

The anxiety levels of physiotherapy students varied greatly academics and clinical placements. [2]

The Accumulated evidence postulated that physiotherapy students' mental health deteriorates because of the challenging learning environment and ongoing battle to become certified healthcare providers. [2]

Several neurotransmitter systems have been implicated to have a role in one or several of the modulatory steps of anxiety involved.

The most commonly considered are the serotonergic and noradrenergic neurotransmitter systems.

In very general terms, it is thought that an under activation of the serotonergic system and an over activation of the noradrenergic system are involved.

These systems regulate and are regulated by other pathways and neuronal circuits in various regions of the brain, resulting in deregulations of physiological arousal and the emotional experience of this arousal.

Many believe that low serotonin system activity and elevated noradrenergic system activity are responsible for its development.

It is, therefore, selective serotonin reuptake inhibitors (SSRI) and serotonin-norepinephrine reuptake inhibitors (SNRI) that are the first-line agent for its treatment.

Disruption of the gamma-aminobutyric acid (GABA) system has also been implicated because of the response of many of the anxiety spectrum disorders to treatment with benzodiazepines.

There has been some interest in the role of corticosteroid regulation and its relationship to symptoms of fear and anxiety.

Corticosteroids may increase or decrease the activity of certain neural pathways, affecting not only behaviour under stress, but also the brain's processing of fear-inducing stimuli.

Cholecystokinin has long been viewed as a neurotransmitter involved in regulating emotional states.

## NEED OF STUDY:

Prevalence of anxiety in physiotherapy students is 53%. [1]

The high rate of anxiety among physiotherapy students is also associated with numerous factors like increased academic stress, insufficient duration to complete the syllabus, alcohol use, drug addiction, family problems, family history of depression and staying away from home.

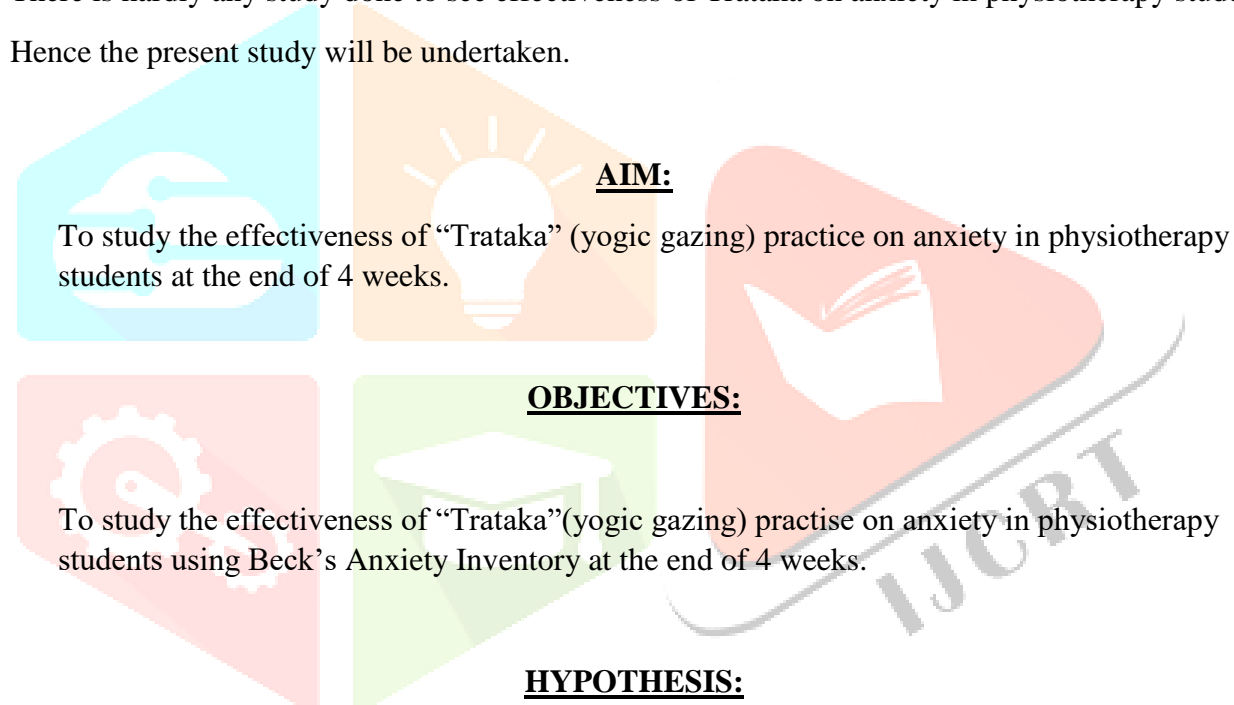
Academic factors are found to be the most important stressors which leads to anxiety issues in physiotherapy students.

Hence, there is a pressing need for definite measures to decrease substantially the burden of anxiety on the students.

Previous studies have shown that, Trataka has various benefits on human body which are physiological that it stimulates sympathetic nervous system , psychological benefits includes improvement in cognition , improves sleep quality, enhances concentration , memory and willpower.

There is hardly any study done to see effectiveness of Trataka on anxiety in physiotherapy students.

Hence the present study will be undertaken.



### **1 .Null Hypothesis: (H0)**

There will be no effect of Trataka (yogic gazing) on anxiety in physiotherapy students by using BECK’S Anxiety Inventory at the end of 4 weeks.

### **2 .Alternate Hypothesis: (H1)**

There will be effect of Trataka (yogic gazing) on anxiety in physiotherapy students by using BECK’S Anxiety Inventory at the end of 4 weeks.

## REVIEW OF LITERATURE:

- 1. Suresh Kumar, Dr. Dharemendra Prasad et al. presented the article “Effect of trataka on psycho physiological variables of cricket players” in October 2023 .** The primary purpose of study was to determine how trataka training affected reaction time in cricket players. The subjects were split into two groups, the Control group and the Experiment group, equally. The control group received no therapy, while the experimental group participated in an 8-week training programme five days a week. The age range of the subjects was 18 to 25. The researcher choose and employed chronoscope (reaction timer) equipment in order to gather data. Using descriptive statistics analysis of covariance (ANCOVA), a statistical tool, and the LSD post-hoc test, the data were examined with the aid of SPSS software .From this study researchers concluded that trataka practice for 8 weeks significantly improves reaction time of inter college level cricket players in university.
- 2. Sahana, Vijaya Kumar et al. Presented the article “effect of trataka [yogic cleansing technique] on post-covid cognitive impairments in elders” in august 2022.** People who have survived COVID-19 frequently complain of cognitive dysfunction, which has been described as brain fog. 30 elders between 60-80 years were enrolled. Trataka intervention was given for 30 days. From this study researches concluded that thirty days Trataka practice was successful in improving sustain attention, working memory capacity among post-covid elders, a longer follow-up period will enable researchers to thoroughly examine neuro-cognitive changes. Although this was limited by small sample size, lack of heterogeneous population, these findings suggest rigorous systematic approaches and advanced imaging techniques to examine Trataka practice as a means to enhance executive function among post-covid elders.
- 3. Dr.Aparna Bagul ,Dr. Rekha Parmar et al. presented the article “ the therapeutic effect of tratak karma : A review article” in December 2020.** Researchers from this study concluded that Yoga-based Trataka, ocular exercise as an add-on, or alternative treatment, is a reasonably effective non-pharmacological intervention. The habit of practicing Tratak may be the secret to fulfilling the need to avoid ocular and psychological disorders, as Ayurveda aims at prevention first and treatment later. The results of tratak can also aid in the formulation of a policy on health care.
- 4. Champak Bhadra, Dr. Kallol Chatterjee et al. presented the article “Effect of Trataka on pulse rate of college level male students” in 2018, published in International Journal of Yogic, Human Movement and Sports Sciences.** The purpose of study was to compare pulse rate between pre-test and post-test of college level male students. This study concluded that acute effect of Trataka practice reduced pulse rate and impact on pulse rate. Also there was significant difference on pulse rate between pre and test of Trataka practice of college level male students.
- 5. Parth Rajesh Pandya et al. presented the article “Trataka: A Promising Intervention to Reduce Anxiety in Children :A Randomized Controlled Trial with Cognitive and Electrodermal Measure” in 26 October 2024 , published in International Journal of Yoga.** Researchers conducted a randomised control trail of total of 120 children aged 8–11 years requiring local anaesthesia for dental procedures were recruited from a government dental clinic. Inclusion criteria were: parental and child consent, MASQ score above 25, the recommended cut-off for childhood anxiety (indicating probable anxiety), no significant medical/psychological conditions, and no prior experience with Trataka or relaxation techniques. This study concluded

that Trataka is more effective intervention for managing dental anxiety in children compared to relaxation techniques. Children practicing Trataka for 4 weeks exhibited significantly greater reductions in self-reported anxiety, cognitive processing time (Stroop), and physiological arousal (EDA) compared to those receiving relaxation techniques training.

**6 Anshu Chundawat, Srikanta Kumar Panda et al. presented article “Tratak and its benefits: A Review”, published in Journal of Ayurveda and integrated medical science” Vol.8 Issue 5 in May 2023.** Researchers concluded that Trataka has physiological, psychological and spiritual benefits on the individual who follows it. It is highly recommended for students and working professionals for greater efficiency. Various research studies have shown that eye exercises can help with health problems. TK has shown significant benefit on autonomic function, cognition, relaxation and sleep. It helps to alleviate a variety of eye discomforts.

**7. Dileep Madjid Et al . presented article “Effect of Trataka Exercise on Eye Health of Students with Eye Problems results were found in eye health of physical education” 2022 published in Journal of Educational Research and Policies published in vol 4 issue 4 .** Researchers from this study concluded that trainees with eye problems following five weeks Trataka practice. It was found that the Un-Corrected Visual Acuity of right eye in one subjects improved significantly from severe low vision to moderate low vision. It was found that the Un-Corrected Visual Acuity of left eye in one subjects decreased significantly from normal to moderate low vision. There were no significant changes in Best-Corrected Visual Acuity of right eye due to practice of Trataka. There were no significant changes in Best-Corrected Visual Acuity of left eye due to practice of Trataka.

**8. Asim Kulshrestha , Anuja et al presented article “Impact of trataka on mental relaxation” .** Researchers conducted the present study to study effect of trataka on mental relaxation through alpha E.E.G. Trataka practice was give to all samples in a group for a period of 25 days regularly with a definite pattern in the night. Alpha-E.E.G biofeedback machine was used as data collection device. In this study t-test was used for analysis. Researchers from this concluded that there is positive significant effect of trataka on mental relaxation. Alpha E.E.G. biofeedback machine is used for measuring mental relaxation.

**9. K.S. Chetana , Satyapriya Maharama et al presented article effects of “ trataka on women having menopause symptoms” September 2022 published in International Journal Of Healthcare Sciences Vol.10 Issue 1.** Two group experimental pre post design were conducted on 60 menopausal women age range between 35 to 55 years. Thirty women in each group were divided into yoga and control group. Women having clinical physical and mental illness were excluded. Intervention group practiced Trataka session for 40 minutes per day for fifteen days. Control group followed their routine activity. Menopause Rating Scale (MRS) assessed as pre and post on the day 1 and day 15 after intervention. Researchers concluded that trataka practise is effective in reducing total menopausal symptoms in women having menopausal symptoms.

**10. Sankalp & Aanuj Yadav et al. presented article Effect of Tratak (Yogic Ocular Exercises) on Intraocular Pressure in Glaucoma in International Journal of Yoga 15(1):p 59-69, Jan–Apr 2022.** Researchers have concluded trataka as a practice for maintaining ocular health and avoiding various eye diseases. TK is a yogic practice involving accommodation and de-accommodation of eyes. It requires uninterrupted gazing of a nearby small object (like burning candle placed few feet apart) or a far-off big object like sun or moon, till watering of eyes begins.

**11. Recently, in 2019, Gupta and Aparna et al.** found significant reduction of IOP (intraocular pressure) because accommodation of eyes significantly impacts the dynamics of IOP in the healthy individuals who practiced trataka.

12. **Swati Kamthekar, Brijesh Iyer et al presented article Trataka meditation as a cam for stress management: an EEG based analysis 2021 published in International Conference on Intelligent Technologies (CONIT), 1-6, 2021.** Researchers observed that during short term trataka meditation, the brain signals reduce irregularity, calm down the person, reduce stress and regularize brain wave pattern.

13. **Mr. Vedanta Mukherjee, Mr DevKumar Das et al. presented article effect of trataka in reducing stress among female teachers due to extensive copy checking 2020 published in Journal Of Xidian University in Vol.14 Issue 5 2020.** Findings from their statistical analysis reveals that systematic practice of “Jyoti Trataka” for seven days have shown significant improvement in reducing work related stress or stress related symptoms among teachers due to excessive copy checking and meeting deadlines during exam time. The reason behind this improvement is proper practice of “Jyoti trataka”. Participants felt much calm, were able to have deep sleep which they felt had an immense effect in feeling energized, also felt that they were able concentrate much better for longer time and it helped them to finish their designated work easily within their stipulated time or deadline.

14. **P.S.Swati, Raghvendra Bhat et al presented article effect of trataka (Yogic Visual Concentration on the performance in the corsi block tapping task: a repeated measures task December 2021.** Each training session lasted for 20 min/day for 6 days a week. After completion of the training period, a 1-week washout period was given. Each participant then was assessed in two sessions in Trataka and in eye exercise on two separate days, maintaining the same time of the day. The results of this study indicated a positive impact of the Trataka session on the CBTT, indicating enhanced working memory, spatial memory, and spatial attention among the subjects compared to the baseline and eye exercise sessions. Thus, Trataka could be used to improve memory and attention in young adults.

15. **Rajbhoj, Pratibha Hemant et al presented article “Immediate Effect of Trataka Kriya on Heart Rate, Respiratory Rate, and SpO2 as Stress Correlates in Healthy Individuals: A Single-arm Clinical Trial” December 2024.** Researchers observed that during Trataka Kriya, mental purification of the mind occurs, brings the thoughts, emotions, and memories to the conscious level which leads to an emotional release phenomenon. This process helps participants feel unburdened as well as relaxed, effectively restoring homeostasis and promoting a calm state of mind. There is parasympathetic shift, and so, there is less adrenaline secretion and more secretions of happy endorphins. Thus, there are no exertion and no tiredness which brings, in a way, relaxation to heart muscles. This helps to reduce the heart rate as well as pulse rate also.

16. **G. Gopinathan, Kartar Singh Dhiman et al presented the article “A clinical study to evaluate the efficacy of Trataka Yoga Kriya and eye exercises (non-pharmacological methods) in the management of Timira (Ammetropia and Presbyopia)’ in AYU journal (2012).** Researchers took Snellen’s as outcome measure and observed that there is one line reading improvement in Snellen's chart. Researchers from this study concluded that there was moderate improvement in clarity of vision, contrast sensitivity and fineness of objects. Though the degree of this improvement was almost similar in both groups, a better relief was appreciated by patients of the Trataka Yoga Kriya group. It is an encouraging finding that a non-pharmacological, low-cost, relaxation technique can improve the quality of vision, by which it indirectly checks the progression of the disease condition.

## METHODOLOGY:

**Type of study:** Experimental study

**Duration of study:** 6 months

**Sample size:** yet to be calculated

**Sampling method:** Purposive sampling

**Study setting:** Physiotherapy Colleges in Pune city.

**Study population:** Physiotherapy students

### CRITERIA:

#### **1. INCLUSION CRITERIA:**

1. Physiotherapy students (19 -25yrs).
2. Students having low to moderate score on BECK'S anxiety inventory' (0-35).

#### **2. EXCLUSION CRITERIA:**

1. Doing meditation regularly.
2. Already on exercise programme.
3. Undergoing treatment for psychiatric disorder
4. Any chronic illness

## MATERIALS

- Consent form.
- Pen.
- Paper.
- Gazing candle.

**OUTCOME MEASURE:****Beck Anxiety Inventory:**

**Beck Anxiety Inventory (BAI)** is a scale is a self-report measure of anxiety.

Items: 21

Reliability: 0.92

Test-retest reliability: 0.75

**Scoring:** All questions as following:

Response	Score
Not at all	0
Mildly but it didn't bother	1
Moderately, it was pleasant sometimes	2
Severely	3

The total score is calculated by finding the sum of the 21 items:

Anxiety Score	Level:
0-21	Low anxiety
22-35	Moderate anxiety
36-above	Potentially concerning levels of anxiety

## Beck Anxiety Inventory (BAI)

Below is a list of common symptoms of anxiety. Please carefully read each item in the list. Indicate how much you have been bothered by that symptom during the past month, including today, by circling the number in the corresponding space in the column next to each symptom.

	Not at all	Mildly, but it didn't bother me much	Moderately – it wasn't pleasant at times	Severely – it bothered me a lot
Numbness or tingling	0	1	2	3
Feeling hot	0	1	2	3
Wobbliness in legs	0	1	2	3
Unable to relax	0	1	2	3
Fear of worst happening	0	1	2	3
Dizzy or lightheaded	0	1	2	3
Heart pounding / racing	0	1	2	3
Unsteady	0	1	2	3
Terrified or afraid	0	1	2	3
Nervous	0	1	2	3
Feeling of choking	0	1	2	3
Hands trembling	0	1	2	3
Shaky / unsteady	0	1	2	3
Fear of losing control	0	1	2	3
Difficulty in breathing	0	1	2	3
Fear of dying	0	1	2	3
Scared	0	1	2	3
Indigestion	0	1	2	3
Faint / lightheaded	0	1	2	3
Face flushed	0	1	2	3
Hot / cold sweats	0	1	2	3

**PROCEDURE:**

The study was started with a synopsis presentation in front of the ethical committee in PES Modern College of Physiotherapy.



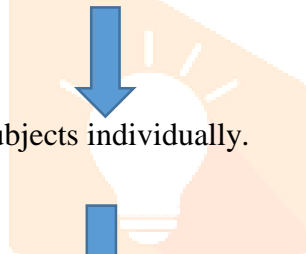
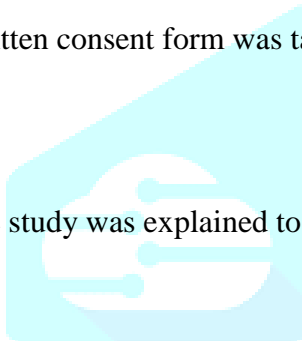
Permission and approval were taken from ethics committee.



Subjects were enrolled on basis of inclusion and exclusion criteria.



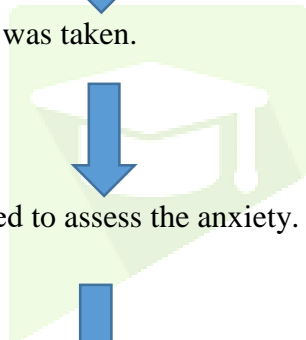
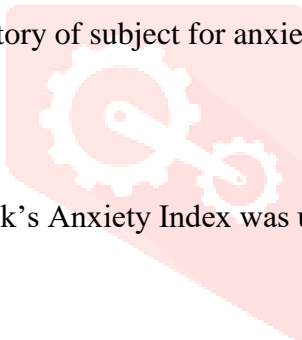
Written consent form was taken from willing subjects.



The study was explained to subjects individually.



History of subject for anxiety was taken.



Beck's Anxiety Index was used to assess the anxiety.



The collected was analysed statistically.

**PROTOCOL:**

A] Pre –intervention data will be obtained by administrating BECK'S Anxiety Inventory.

Pre-Trataka Karma:

The subject should remove contact lenses or spectacles before performing all these exercises.

### **1. Eye Rotation:**

Here, a thumb sign is utilized to fix the subject's focus in a specific direction, making the eye exercise technique simple.

The subject should start rotating his hand in a clockwise direction by keeping the thumb sign intact and focusing on the thumb with his/her eyes.

Subject should start rotating both of his eyeballs simultaneously with the rotation of his hand i.e., when the hand rotates in a clockwise direction the movement of the eyes will also be in the same direction.

The subject should perform this rotation exercise three to four times with one hand. After this keep the hand in a relaxed position, close both eyes, and relax for some time.

The subject should stretch his/her left hand in the thumb sign and should start the same exercise but the rotation of the hand should be in the anticlockwise direction this time simultaneously with the hand eyes will also rotate in an anti-clockwise direction.

Repeat it three to four times.

### **2. Eye Marching:**

Begin slowly sliding both of your hands apart while focusing on the right thumb first, followed by the left, and continue to focus on both of these thumbs simultaneously as they move apart.

The focus should continue uninterrupted. After advancing to a point where thumbs are clearly visible, slowly return to the starting position while maintaining uninterrupted ocular movement.

After returning to your starting posture, relax the hands and eyes and take some time to unwind.

Again, stretch both hands and make a sign of thumb start moving both hands in the opposite direction to each other but this time eye movement should be in the opposite direction focus on the left thumb and then on the right thumb keep this movement continuing with the movement of thumbs.

Once the thumb can be seen clearly from a distance, one should begin moving the thumb back toward the starting position while maintaining uninterrupted ocular movement.

After returning to start the posture, relax the hand, shut the eyes, and unwind for a while. Repeat it three to four times.

### **3. Eye Up and Down:**

Start moving your right hand in the upward direction and your left hand in the downward direction.

Focus on the right thumb and then on the left thumb keep focusing on both these thumbs simultaneously one after the other as the thumbs move away from each other but the process of focusing should be continued without interruption.

After reaching a distance up to which thumbs can be seen without any difficulty one should start moving the thumb toward each other but the movement of eyeballs should go without interruption.

After returning to start the posture, relax your hand, close the eyes, and take some time to unwind.

Again, make the thumb sign this time move the left hand in the upward direction and the right hand in the downward direction.

But this time eye movement should be in the opposite direction focusing on the left thumb rather than on the right thumb keep this movement continuous with the movement of thumbs.

After returning to start the posture, relax the hands, close the eyes, and take some time to unwind. Repeat it three to four times.

#### 4. Eyes far & near:

By keeping your left hand at its original position move your right hand towards your body.

Focus on the right thumb first and then on the left thumb keep focusing on both these thumbs simultaneously one after the other as the thumb moves away from each other but the focusing should go on without interruption.

Move the thumb as much as it is visible to our eyes easily, after that bring it back to its original position but the movement of the eyeball should remain constant from right to left.



TRATAKA INTREVENTION





### TRATAKA GROUP INTERVENTION

After regaining the original position, relax the hand, close the eyes, and relax for a certain time duration.

By keeping one's right hand at its original position move the left hand towards your body.

Now focus on the left thumb first and then on the right thumb keep focusing on both these thumbs simultaneously one after the other as the thumb moves away from each other but the focusing should go on without interruption.

Move the thumb so that it is visible to the eyes easily, after bringing it back to its original position but the movement of the eyeball should be constant from left to right.

Repeat it three to four times.

After this, hands should be kept in a relaxed position, eyes should be closed and relaxed for some time.

### **Bahiranga Trataka (external concentrated gazing) :**

Practice in a dark room that is free from draughts and insects.

Place a candle two to three feet in front of you with the flame at eye level. It is essential that the flame remains stationary and does not flare.

Sit in a comfortable meditative pose, preferably Siddhasana/ Siddha Yoni Asana, and place your hands on the knees in Chin Mudra.

Relax the whole body, close your eyes, and prepare for the meditative practice.

Make calm and quiet and be prepared to keep your body perfectly still throughout the whole practice.

Practice (steadiness of the body) prior to the procedure for a few minutes.

Then open your eyes and gaze at the middle portion of the candle flame, just above the wick.

Try to keep the eyes perfectly steady. Do not blink. Lower the eyelids if the eyes become sore or tired.

Stare as long as possible, five or ten minutes, or if one can gaze longer without closing the eyes, do so.

Only when you really need to, should you close the eyes. Try to keep the mind empty.

If any thoughts occur, one should be put out of the mind immediately. Remain the silent witness, Sakshi, throughout the whole practice.

When finally, the eyes are closed, they should be fixed on the impression of the flame in front, in Chidakasha.

If it moves bring it back to the center and continue gazing until the impression disappears.

Once one can stabilize the image, study it and look intently at the colour. Sometimes anybody may not see light, but an impression that is blacker than Chidakasha itself. Keep the mind completely devoid of thought.

Only be aware of the object of concentration. When thoughts come, let them pass and remain uninvolved.

Practice for fifteen to twenty minutes.

### **Antaranga Trataka (internal concentrated gazing):**

Prepare self in the same way as for Bahiranga Trataka.

Keep the eyes closed through the intervention and concentrate on the symbol.

If one has no symbol, then try to visualize a point of light, like a twinkling star or a crescent/full moon.

Try to see the object clearly and steadily in the dark space in front of the closed eyes.

Practice for five to twenty minutes. Post-Trataka Karma Volunteers are advised to close their eyes, relax, breathe naturally, and try not to think about anything else. Remain in this position for at least five minutes.

**Time of practice:** The ideal time for practice of this procedure is early morning or night.

**Duration:** 3 times a week for 4 weeks.

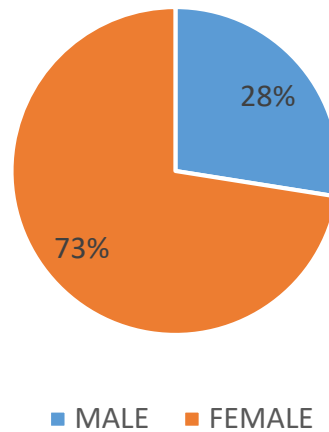
Post –intervention data will be obtained by administrating BECK’S Anxiety Inventory.

### **Data & Statistical Analysis:**

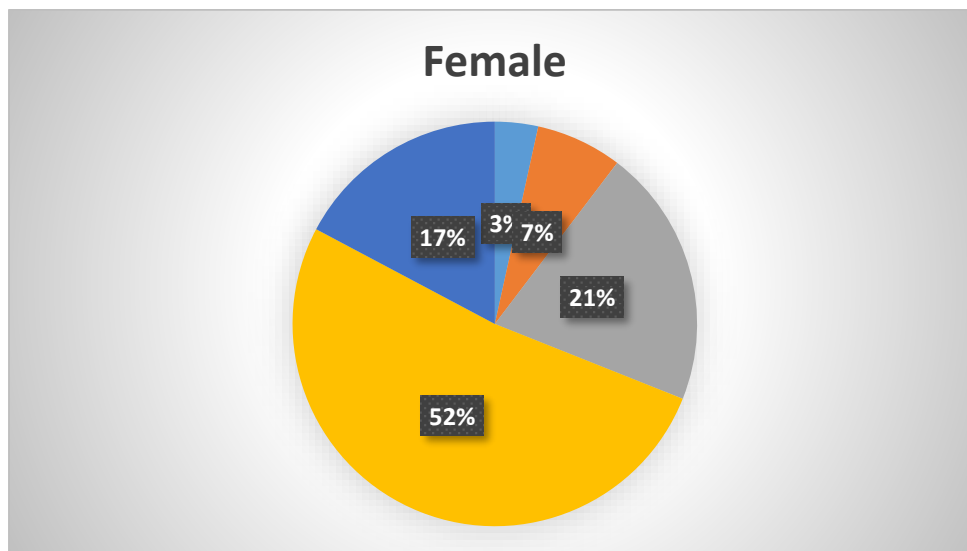
1. Anxiety was assessed using Beck’s Anxiety Index.
2. Data was entered in Excel sheet, tabulated and subjected to statistical analysis.
3. The data was analysed using Microsoft excel software, via using the paired T –test to check the changes in values between the pre protocol administration and post protocol administration values of anxiety of physiotherapy students after following trataka for 4 weeks.

**Table No.1-Gender distribution:**

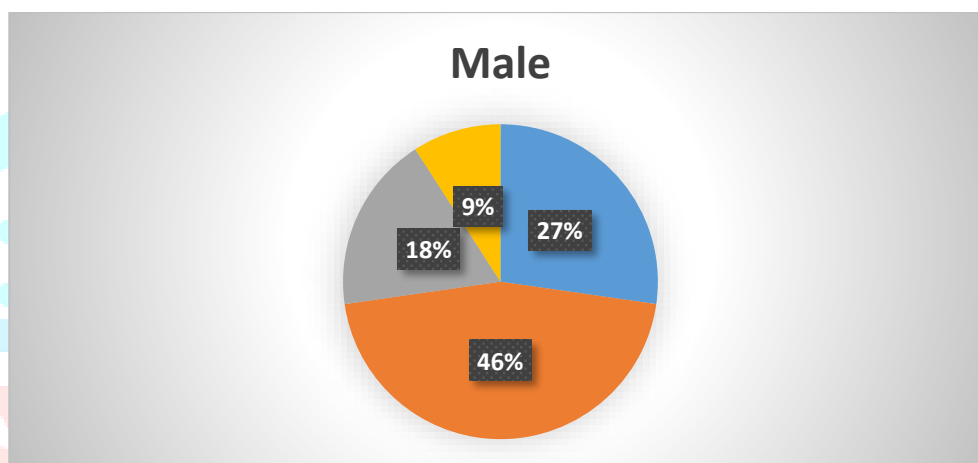
Gender	Total numbers(40)
Male	11
Female	29

**Percentage -wise Gender distribution:****Pie Chart No.1: Gender Distribution****Table No.2 Age wise- distribution:**

Age	Female	Male
20	1	-
21	2	-
22	6	3
23	15	5
24	5	2
25	-	1



**Pie chart No.2: Age wise distribution (Female)**



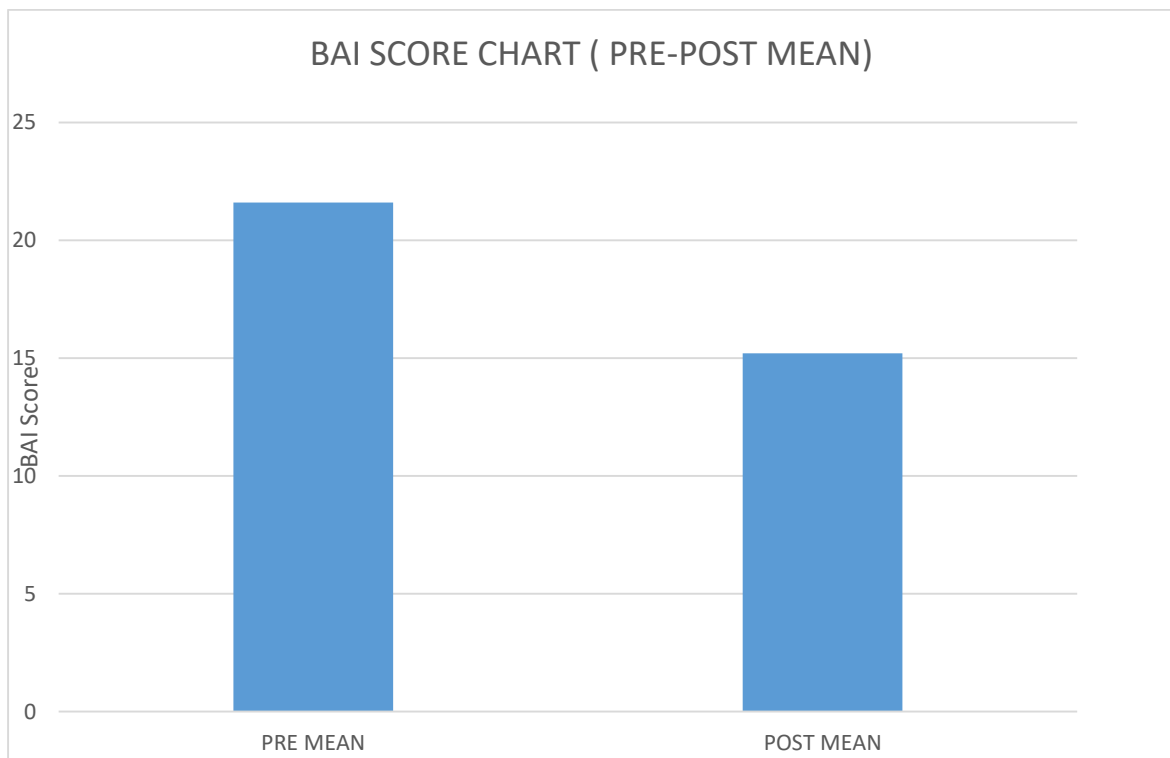
**Pie chart No.3: Age wise distribution (male)**

**RESULTS:**

1. The following study was conducted to check Effectiveness of Trataka on anxiety in physiotherapy students by the end of 4 weeks.
2. The pre protocol values of anxiety have been assessed and compared with post protocol by using a Beck’s Anxiety Index and they compared by using paired t test.
3. The statistical analysis shows that the P value is <0.001 which implies that the results are statistically significant.
4. These findings indicates that the trataka protocol resulted in significant reduction in anxiety in physiotherapy students.

**Table no.3 Standard Deviation**

Outcome measure	Pre value	Post value
Beck’s anxiety index	4.09	3.07



**Bar Graph 1: BAI Pre and post**

### **DISCUSSION:**

This study was conducted to check the effectiveness of Trataka (Yogic Gazing) on anxiety among physiotherapy students aged 19–25 years using the Beck's Anxiety Inventory (BAI) over a period of four weeks.

The pre protocol values of anxiety have been assessed and compared with the post protocol values by using Beck's Anxiety Index in physiotherapy students.

The results showed clear improvements in anxiety score following the intervention, supporting effectiveness of this protocol.

Participants reported much less anxiety after the intervention, with average anxiety score dropping from 22 to 15 after following the protocol for 4 weeks.

Anxiety and fear responses are provided by body's ANS. The ANS helps to control involuntary activities. When one faces anxiety, ANS triggers adrenal gland and it releases corticosteroids. These corticosteroids stimulate certain regions of brain and other organs also to setting in motion anxiety actions. It reduces arousal which calms the mind, oxygenates the blood and soothes anxiety.

The pineal gland is a small pea-sized gland above the top of the spine, in the centre of the head between the two ears (technically it is located between the two cerebral hemispheres and above the cerebellum). The eye is directly connected to the pineal gland through the sympathetic nervous system.

Like the parasympathetic nervous system, the centre of the sympathetic nervous system is the hypothalamus. The hypothalamus is also the centre of consciousness and pleasure along with sleep and pain. Thus, the eye, the pineal gland, the sympathetic nervous system, the hypothalamus, and individual arousal are all directly or indirectly related.

With Trataka, focusing through the eyes stimulates and awakens the entire system. This increases the pineal gland's reception through the sympathetic nervous system, resulting in increased arousal in the individual. This is why Trataka is such a powerful technique. It directly affects the pineal gland. In addition, all other disturbing thoughts that reduce acceptance are silenced, by intense concentration.

Physiologically, steady gazing reduces central and autonomic nervous system activity by diminishing proprioceptive feedback to the reticular activating system, resulting in calmness and relaxation. It shows similar results to our study.

When the same object is constantly seen, the brain becomes accustomed or habituated and soon stops registering that object. Habituation coincides with an increase of alpha waves indicating diminished visual attention to the external world; when they are produced, particular areas of the brain have ceased functioning. Vision depends not only on the eyes, but upon the entire optic tracts. . When the image of an external object is stabilized on the retina, after a period of time, perception of the image will completely disappear and a suspension of the mental processes occurs. Therefore, during the practice of trataka it is essential to maintain the inner awareness so that when the mind is suspended all that remains is the awareness.

Our results strongly agrees with Chundawat et al. suggesting that Trataka enhances psychophysiological relaxation and cognitive functioning. Trataka is known to activate the parasympathetic nervous system and balance autonomic activity through the stimulation of the pineal gland, leading to reduced sympathetic arousal and decreased secretion of stress hormones such as adrenaline and cortisol.

Additionally, K.S.Chetana and colleagues observed that 15 days of Trataka is effective in reducing the somatic, psychological, urogenital and also total menopausal symptoms.

Our results agree with G. Shathirapathiya et al. found that trataka can be considered as a treatment modality in reducing insomnia severity and in improving quality of sleep in people with insomnia.

Dr. Dharmendra Prasad and SureshKumar et al. concluded that trataka practice for 8 weeks significantly improves the reaction time in inter college level male cricket players.

Amitava ghosal, Shubhankar Kabi et al. observed that trataka protocol helps to develop selected psychomotor abilities that positively helps to develop cognitive function. This protocol can also be used to improve psychomotor ability in general population as well as in athletes.

Palash Pramanik, Sridip Chatterjee et al. observed that practice of trataka enhances mental relaxation and pleasant state of mind by reducing the heart rate and respiratory rate and successfully balancing the autonomic nervous system.

Champak Bhadra, Dr. Kallol Chatterjee et al. observed that there is significant effect of 15 minutes practice of trataka on reducing systolic blood pressure and no effect on diastolic blood pressure.

Our results strongly agree Pushp Lata Rajpoot, Pushpa Vaishnav et al. having similar findings to our study concluded that Anxiety is proven a persistent psychological problem among children that may become chronic and may carry a risk of current or later functional impairment if not adequately treated. The research findings of the study reveal a significant effect of Trataka on anxiety among adolescents. Hence, it is concluded that Trataka significantly decreases anxiety among adolescents. As a gazing or staring meditation, Trataka is the technique of spiritual aspirants that is supposed to develop psychic powers and the ability to terminate the restlessness of eyes seeking something. By gaze fixing, the restless mind also comes to a halt. So, regular Trataka practice should be done to improve the mental health and wellbeing.

Dr. Sakshi Sharma. Mahendra Kumar Sharma et al. observed that Trataka karma can be considered as a non pharmacologic and therapeutic intervention for reducing symptoms as well as relieving the severity of computer vision syndrome.

Dr. Shuddhamati Thakaram Doke, Dr. Rajkumar Andhalkar et al. observed that Computer Vision Syndrome comes to existence due to excessive use of video display terminal in this modern era. Trataka is the best practice to deal with it.

Dr. Poonam Bedre, Dr. Priti Khole et al observed that Trataka stimulate external ocular muscles to work more efficiently, it also increases the blink reflex and aqueous humour circulation, which encourages

nourishment of the ocular tissues. Trataka able to improve blood circulation while also easing the strain that is placed on the eye muscles. Symptoms like eye watering, burning, redness, and eye strain improved.

Pradnya Karandikar et al. observed that Prandharna Group proved to be superior than Tratak Group in Positive Breath Holding Capacity.

G. Gopinathan, Kartar Singh Dhiman, et al. concluded that trataka is an encouraging technique that is non-pharmacological, low-cost, relaxation technique can improve the quality of vision, by which it indirectly checks the progression of the disease condition.

### **CONCLUSION:**

This study concludes that trataka is effective in reducing anxiety in physiotherapy students.

### **LIMITATIONS:**

The number of male participants was relatively small.

### **FUTURESCOPE OF STUDY:**

Further studies can be conducted to target specific population for reducing anxiety.

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