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Non-Pharmacological Approach of Food & Yoga to Mollify Tension-Type-Headache Induced by Stress Incited *Dharan* of *Kshudha Vega* (Suppression Of Urge Of Hunger)

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ABSTRACT:

Disorders caused by men's imprudence and indulgence in unhealthy lifestyles lead to the development of lifestyle disorders. Suppression of natural urge of hunger is commonest & frequent health perilous.

Objective: To investigate the role of *Bhramari Pranayam* in the prevention of tension-type headaches, as well as to provide facts on the necessity of eating timely.

Material & Methods: The study was a prospective, parallel, randomized controlled trial. After approval from Institutional Ethical Committee, Clinical Trials Registry (India), 30 participants with the onset of headache in the past just before mealtime & ≥ 3 months were enrolled for study after determining the inclusion criteria & taking consent from the outpatient-inpatient department of the concerned institute and were divided into two groups. Group A participants were counseled for only timely consumption of food & Group B participants were counseled for timely consumption of food along with *Bhramari Pranayam* for 45 days. All patients were asked to maintain a headache diary.

Observation and Result: The results of the treatment were assessed based on relief in signs and symptoms of the assessment criteria. The mean age interval was 30-40 years. Stress was a common factor in all participants, skipping morning meal habits were common in 53.33% of males,66.67% of females.48%participants had an irregular sleeping pattern.96.67% showed gradual onset of tension headache, tight quality 46.66% & temporal-frontal as the commonest site of pain in 36.67%.

Conclusion: *Bhramari Pranayam* along with timely consumption of food showed a better effect.

Keywords: *Adharniya Vega Kshudha*, *Bhramari Pranayam*, *Kshudha Vega*, Tension-Type-Headache

INTRODUCTION:

Irregular eating habits, suppression of natural urges, lack of proper sleep have become part of our lives.[1]The tension associated with stress concentrates on the head muscles and nerves. Chronic activation of the stress response can result

in wear and tear on the body[2], which can eventually lead to disease. "Stress can (a) contribute to the start of a headache problem, (b) hasten the progression of a headache disorder into a chronic illness, and (c) provoke and intensify individual headache episodes. Stress can exacerbate headache-related impairment and lower quality of life on its own. Finally, the headache itself can be a source of stress, jeopardizing an individual's health and well-being.[3,4] The origin of tension headaches has remained a mystery despite several clinical and neurophysiological research. Research demonstrates the importance of timely meals and their health benefits. Many types of research evaluated the role of *Bhramari Pranayam* in a variety of health issues, but no specific role for Tension-Type Headache (TTH) & stress-induced *Kshudha Vega Dharana* (suppression of urge of hunger) in lifestyle that causes headaches had been revealed.[5] Breakfast is essential to a person's health, and skipping it may have a significant impact on metabolism. Nutrient intake is critical to the nervous system's and behavior's proper operation. Nutritional deficiency may be a complication of suppressing the urge of hunger. The most prevalent nutritional deficiency worldwide among females is iron deficiency anemia.[6]

METHODS:

Trial Design & Site:

A parallel-group trial was conducted, before and after the intervention study in the outpatient and inpatient department of the Bharati Vidyapeeth (Deemed to be University) College of Ayurved and Hospital, Katraj, Dhankawadi, Pune,Maharashtra. India.

Sampling Assortment & Participant Selection:

The case-control ratio was maintained at 1:1 without matching. The population of the study was the individuals who had onset of Tension Headache due to stress-induced suppression of natural urge of hunger in the past just before the meal time & chronic in nature in simple words those who skip morning meals. Individuals visiting the hospital's OPD and IPD for diet or stress counseling from various departments of the concerned institute were interviewed for stress-induced *kshudha vega dharana(*(suppression of urge of hunger) , leading to tension headache, and after receiving consent and determining the inclusion criteria, they were enrolled in the study, and they were further divided into two groups:**Group A**:15 Patients were guided for timely consumption of food for a period of 30 days. **Group B**:15 Patients were guided for *Bhramari Pranayam* along with timely consumption of food for a period of 30 days. Consent was taken from each patients. Systemic and general examination was done. *Bhramari Pranayam* was taught to Group B patients by experts for 7 days along with self practicing it for 30 days. Two Groups were compared for it's effect.A special case proforma consisting of basic information about the participants & families, a questionnaire to assess the level of stress by Perceived Stress Scale-4(PSS-4),[7] a semi-structured questionnaire based on textural symptoms of suppression of the urge of *Kshudha* (hunger) according to *Charak Samhita*[8] was used to assess the impact of suppressing the urge of hunger on physical health & dietary intake habits of participants & for *kshudha* (hunger) assessment increased meal frequency was observed before treatment (BT) & after treatment (AT)**[SupplementList1]**C:\Users\admin\AppData\Local\Temp\Rar$DI87.608\Revised Manuscript\Supplement List 1.docx. For assessment of Tension-Type-Headache ICHD (Beta3) Classification was used.[9,10,11] After trial commencement, the inclusion of one more exclusion criteria was made i.e exclusion of participants having headaches due to refractive error & unused optical glasses after correction of refraction as it is one of the trigger factors.

Eligibility Criteria:

Inclusion Criteria:

1. Patients presenting with Tension-Type-Headache due to *Kshudha Vega Dharan* (suppression of urge of hunger)
2. Age between 18 to 60 years
3. Both males and females
4. Patients who had maintained the headache diary or had visited for regular follow-up were included[12]
5. Patients presented with headaches striking just before mealtime.

Exclusion Criteria:

1. Toxic and other major diseases (like Cardiac, Respiratory systems), psychiatric and seizure patients.
2. Headache aggravated by overuse of medications.
3. Patients having migraines, Secondary Headaches, Head Injury induced Headaches, IIH (Idiopathic Intracranial Hypertension), ICP (Intra Cranial Pressure), Sinusitis, Aneurysm, Cough Headache, Google Headache, Hangover Headache.
4. Any other causative factors are other than *Kshudha Vega Dharan* that induced headache.
5. Headache due to refractive error & unuse of optical glasses after correction of refraction.

Method of Recruitment:

After approval from the Ethical Committee, Clinical Trials Registry (India)(CTRI/2021/02/031277),30 Participants of stress-induced *kshudha vega dharan* (suppression of urge of hunger) triggering Tension-Type-Headache were selected randomly by computer-generated numbers from the concerned institute. We screened participants who visited the site for stress counseling, dietary intake guidance, lost body weight due to unknown reasons, felt generalized weakness, unknown headache & mild to moderate body ache the whole day(n=62).

Case Definition of Stress:

The body's non-specific reaction to any demand for change. Just like shutting off the fan in the middle of a hot summer day stresses our bodies, so does suppression of any form of vega (urge). Hunger suppression works as a stressor on the body, causing a headache right before mealtime.[13] According to the *ayurvedic* text of *Charak Sutrasthan* 17/10, disturbed *manasantap* (psychic) is the primary cause of *shirashula* (tension headache)[14].

Case Definition of Tension-Type-Headache:

CTTH has been defined as having a dull, pressing, or tight quality pain, mild to moderate in strength, has a high frequency (> 15 headache days per month) for more than 3 months, A minimum of two of the following characteristics must be present in each variety:

1. Bilateral location
2. A pressing or tight (non-pulsating) quality
3. Mild or moderate-intensity

4. Not aggravated by routine physical activity and not accompanied by nausea and vomiting. Photophobia or phonophobia may be present, but not both[11]

Study Setting

It was a single-center trial conducted in the outpatient and inpatient department of the concerned institute hospital.

Intervention:

Case-Control :

Later, deciding on inclusion criteria, participants agreed to consent after reading the patient information sheet (PIS), and enrollment of 15 participants in Group A, they were advised to consume meals on time mainly morning meals while not repressing the natural urge of *kshudha* (hunger) at any point in time in a day for continuous 30 days.

Case Experimental:

After completing the practice under professional supervision for 7 days, 15 participants in Group B were advised to consume meals on time mainly morning meals and to practice *Bhramari Pranayam* regularly between 5 to 7 a.m. for 30 days.

Standard Operating Procedure(SOP):

1. Sit in *Padmasana* or *Sukhasana*.
2. Spine erects, eyes closed.
3. *Shanmukhi Mudra* performed i.e. (plug the ears with respective fingers or thumb).
4. Then inhale and exhale forcibly with a humming or buzzing sound.
5. Feel the sound and vibrations produced by this breathing technique.
6. Awareness was noted in the head making breathing steady and even and in the *Adyna Chakra*.[15]

Time of the Practice*:*

Pranayam was given 30 days to perform. Before sunrise, early in the morning (between 5 to 7 a.m.) because oxygen content is maximum in the air & the mind is clear from any thought processes.

Method of Training:

The practice was initially for 1 time/day with 5 cycles of breathing followed by one min rest from one cycle of *Bhramari Pranayam*. For practicing sessions participants were trained the very day at the very time and were asked to attend the online session for the rest of the days at the predecided time. Participants maintained a headache diary and were advised to call the investigator at any given point in time in case they had any queries. *Pranayam* for the 1st week ensuring that patients hold the bee sound in one breath for approximately 15 seconds alone before adding 1 breath cycle to the previous one every next week & gradually increasing to a maximum of 10 cycles of breathing depending on breathing capacity.[16]

Follow Up:

Follow-up was done periodically 1st on the 7th day, 2nd on the 14th day, 3rd on the 21st day, 4th on the 30th day & Post-treatment follow up on the 45th day. The follow-ups were taken up once a week over a phone call to assess the regularity of practice of *Pranayam* and also to keep the subjects motivated.

Withdrawal:

When the patient did not practice *Bhramari Pranayam* as per training after 7 days and did not maintain the daily diary of headache, or did not attend the follow-up call after 7 days every week he/she was withdrawn from the research and was considered a dropout(n=2).

Outcomes:

Primary Outcome:

In *Ayurveda,* 1st line of treatment is avoiding the cause is the treatment. By avoiding the stress-induced suppression of the natural urge of *kshudha* (hunger) one can avoid the corresponding triggering cause for Tension-Type Headache. *Bhramari Pranayam* may operate as a therapy for both the body and the mind. *Kshudha* (hunger) aggravates *vata* dominant**[Table5][17,18,19] ,** *tridosha* (three humoral), producing vitiation of *Shira* (head) residing *mana* (psychic) & *rakta* (blood) in the *Shira* (head), leading to *srotodusti* (nervous channel disturbance) and the formation of tension-type-headache.

Secondary Outcome:

To draw attention to the health problems created by the suppression of the urge of *Kshudha*(hunger), as well as to examine its impact on physical and mental health. The contemporary interpretation of the preceding themes in light of today's lifestyle highlights the importance of eating on time in obtaining mental and physical wellness.

Statistical Method:

The data were analyzed by using Statistical Package for Social Sciences (SPSS) version 21. Continuous variables which included age of the patients, pain severity, CTTH quality, intensity, frequency, sleep quality, *Kshudha* (hunger) frequency, etc. were reported as mean. Categorical data of patients were reported as frequency and proportions. The significance level was kept at $p<0.05$. Wilcoxon test was used to see the effect of somatic complaints, Mann-Whitney's U test was used to compare the difference, percentage of improvement values in somatic complaints between the groups. T-test was used to analyze the stress levels between the groups just before and after treatment. And for the remaining data, the mean was compared between the groups.

OBSERVATION AND RESULTS:

A total of 62 participants were screened for eligibility and 32 met eligibility criteria and are randomized between Feb 2021 to Nov 2021 & the results of 30 participants were analyzed. All randomized participants in group A(n=15) who were counseled for timely consumption of meals, especially morning food and not to suppress the urge of hunger at any given point of time completed the trial while in group B(n=17) 15 participants practiced *Bhramari Pranayam***[Fig.1]** with timely consumption of meals especially morning food completed the trial and 2 were dropouts due to inefficient to follow study protocol due to time constraints. Baseline demographic and clinical characteristics were similar in both the groups except for more male participants allocated in Group B.Follow up and analysis of 30 participants were done for the study**[Fig2].**The maximum, no of participants was of 30-40 years of age. Males were dominant. 67% of participants were married, 40% were of *vataj-pittaj prakruti*, and was determined by the online tool for assessment of *prakruti*(body constituent)[20] 30% of participants were from the marketing field.45% were addicted to tea. 53% of participants followed a vegetarian diet in their lifestyle. Skipping Morning Meals habit was found common in 90%of the participants. 10% of participants showed untimely food consumption. 48% showed an irregular sleeping pattern. Stress was found common in 90% of participants. Gradual onset of Headache was found common in 96.67% no. of participants. Temporal + Frontal [36.67 %] was found to be the most common site of Headache with tightness [46.66%] in participants.The mean increment in the *Karshya* (emaciation)[21], *daurbalya* (weakness), *vaivarnya* (discoloration), *angamarda* (body ache)[22] score was significant as observed by the Wilcoxon test (as p value<0.05) **[Table 1].** As the p-value was >0.05 in both the groups by Mann-Whitney's U–test **[Table2]**, but, the percentage of improvement in Group B was more effective on the above parameters than in Group A. The mean grade of *aruchi* (anorexia) which showed improvement after 30 days were similar in both the groups i.e 90.63% on the 45th day in group A and 90% in group B., Also, the percentage of improvement was seen similar in both, Group A was more effective in *aruchi* (anorexia)[22]. *Bhrma* (dizziness)[23] was not found in any participants in either of the groups.There was no statistically significant difference between Group A and Group B on **Duration of Headache, Nature of Headache & Characteristic of Headache** as p value>0.05 by Mann Whitney's U-Test, but a percentage of improvement was seen in Group B[100%] by Wilcoxon Test as p value<0.05. There were no participants in group A or group B who exhibited the symptoms of nausea, photophobia, phonophobia, or vomiting. Furthermore, headache has not been linked to any other disorder or triggers that any participants were aware of in both groups. Group B showed better results on **Perceived Stress Scale (PSS-4)** after treatment as shown in [**Chart1][Table3]** ***Kshudha*** (hunger) was significantly improved in group B participants as compared to group A.

DISCUSSION:

Assessments:A higher incidence of CTTH was recorded in the age group of 30-40 years. It may be due to lack of time for healthful eating is named as a common reason for eating outside food and convenience foods(takeaway or prepackaged), also eating on the run is associated with poor dietary intake as this age group peoples are at the verge of establishing themselves on economical status. The maximum impact on Males[63%] was substantial as the work hours per week were associated with time-related barriers to healthful eating and stressful life to achieve work goals and ignorance of health goals.[67%] of participants were married in the study. Married persons might have family problems or problems with a life partner, leading to a stressful life. Some married peoples also lead a life of a bachelor and go outside the hometown to earn a better livelihood which itself is a stressful condition and contributes to skipping meals or untimely meals as a triggering factor for CTTH.[30%] from marketing is substantial due to stressful working hours, pressure to achieve the daily target, imbalance in work and hurry-curry-worry lifestyle, social duty towards society, and also limited knowledge to eat healthy food.[40 %] belonged to *vata- pitta* prakruti probably due to *vata-pitta* peoples are prone to worry, anxiousness & when *vata* along with *pitta* gets imbalance it manifests in the body as digestive challenges, *karshya* (emaciation), *daurbalya* (weakness), *vaivarnya* (discoloration), *agnimandhya* (body ache), *ama uttpatti* (toxin accumulation).53% followed a vegetarian diet in their lifestyle. 45% of the patients were addicted to tea which is one of the triggering factors of TTH and suppressing the urge of hunger, and vitiation of *vata* in the body. Irregular Sleep was found in [73.33%] in Group A and [66.67%] in Group B. Though it is one of the triggering factors of CTTH. Skipping Morning Meals habit found in [53.33%] male patients & in Group A and [66.67%] female patients in Group B it may be due to family liabilities apart from professional life, Limited time to do things, mood swings, habitual of skipping morning breakfast, or lack of knowledge about the importance of morning breakfast. Untimely Food Consumption was found in [13.33%] in Group A and [6.67%] in Group B due to a regular habit of doing that, limited time for food intake, laziness.There was no statistically significant difference between Group A and Group B on *Karshya* (emaciation) with a p value>0.05. *Bhramari Pranayam* with timely consumption of food both was effective, but the percentage of improvement in Group B[100%] was greater than in Group A[57.69%]. Group B[100] was more effective due to calming effect of *Bhramari Pranayam* on *chinta manobhavas* (stress) in the *shirapradesh* (head region) which pacifies vitiated *vata* promoting digestive fire. This *ahara rasa vyapta vayu* (digestive juice) is unable to provide optimum *poshan* (nourishment) to *rasadi dhatu* (tissue metabolism) promoting *karshyata* (emaciation).[24]There was no significant difference between Group A and Group B on *Daurbalya* (weakness). But Group B was more effective as compared to Group A on *rasadhatu sara* (nutritional juice). This could be because the *ahara* (food) was given at the right time, combined with *Bhramari Pranayam* which calmed the *mana* (psychic) releasing the relaxin hormone fulfilling nutritional & calorie requirements. No statistically significant difference between Group A and Group B on *vaivarnya*(discoloration). But, the percentage of improvement in Group B was more effective as compared to Group A which may be due to improvement in *rasa dhatu* (tissue metabolism) and nourishment of the body at the tissue level after timely & routine consumption of food.There was no statistically significant difference between Group A and Group B on *angamarda* (body ache)as the p-value was greater than 0.05. *Bhramari Pranayam* boosts of routine intake of food at the proper time and in quantity provided necessary nutrition to the *mamsa dhatu* (muscles of the body), alleviating the *vata*, boosting metabolism. *Aruchi* (anorexia*)* has shown a slight percentage improvement in Group A[90.63]% in comparison to Group B [90.00%], this may be due to taking timely food & in proper quantity which might have improved *rasavaha srotas dushti* (blood channels) and *annavaha sroto dusti* (gastrointestinal tract)[25]. Suppression of the urge of *Kshudha* (hunger) to prolong slows the *Jatharagni*(digestive fire) which gives rise to *Aruchi*(anorexia). The difference between hunger and fasting is explained in **[Table 4].**[26]There was no statistically significant difference between Group A and Group B in duration, nature & characteristics of Headache, in the management of Chronic Tension-Type- Headache Induced by *kshudha* (hunger). Acoustic vibration might be playing a key role in producing the effect of *Bhramari Pranayam* on the brain and whole head. The hypothalamus sends impulses to the parasympathetic nervous system which helps to tune the whole neuroendocrinal system to function in a harmonious and synchronized way. Group B was more effective compared to Group A in the management of Chronic Tension-Type- Headache Induced by *Kshudha* (hunger). This may be due to the continuous

and regular practice of *Bhramari Pranayam* which has instantly calmed the *mana* (psychic) situated in the *Shira Pradesh* (head region) acc. to *ayurved*. The parasympathetic nervous system is linked with a peaceful and composed status of body and mind. *Pranayam* increases the oxygenated blood supply to the head.[27] This fulfills the need for nutrients and water in the tissues and reduces strain on the nerves. Other symptoms which include photophobia/phonophobia, nausea and vomiting, and headache not attributed to another disorder showed no change as no participants in both groups had these symptoms.Noradrenalin, a substance that works as a hormone and neurotransmitter in the nervous system, really increases with a deeper breath and vibrates while exhaling, attributable to *Bhramari Pranayam*. Group B is more effective as compared to Group A on the **Stress Test** in the management of Tension-Type- Headache Induced by *Kshudha* (hunger) as the mental health percentage score in Group B[12.57%]was more as shown in **[Table3].** A percentage of improvement was seen in Group B[100%]which was more than Group A[76.47%] hence, Group B was more effective as compared to Group A in *Kshudha* management as acoustic vibration played a role in producing the effect of *Bhramari Pranayam* in the brain and throughout the head, stimulating the cerebral cortex to send impulses to the hypothalamus, which controls the pituitary gland and is the hunger and thirst center in the brain. Improved *agni* (metabolic fire) and regular food intake have provided necessary nutrition while channelizing the *prakrut gati* (normal movement) of *vata* and gradually increasing *Kshudha* (hunger) management.

Mode of Action: Mind and body are not separate entities, the *sthula* (gross body) form of the mind is the body, and the *sukshma* (subtle body) form of the body is the mind. *Bhramari Pranayam* works by improving circulation and soothing the sympathetic nerves. It balances the sympathetic and parasympathetic nervous systems and reduces stress, cerebral tensions anger, anxiety, and insomnia.[28,29] Consumption of meals only when hungry promotes *prakruti* (body constituent) functioning of *agni* (metabolic fire), less formation of *ama* (toxin), and good *uttam rasa* (nutritive juice) formation. Nitric oxide stimulates the parasympathetic nervous system, which increases metabolic activity, activates the nervous system & resumes digestion acoustic vibrations produced by one's voice box which stimulates the hypothalamic activity of hunger is controlled by life *prana vayu*(30). Which promotes *preenan* (nourishment) of weekend *dhatus* (tissues), promoting *uttam dhatu sarta* (good nutritive juice). This causes an increase in *rasa-rakta dhatu* (circulatory fluid & blood cells)and the pacification of developed symptoms of suppression of urge of hunger dropping along with the decrease of accumulation of *vata sthanashansraya* in the *shira pradesh* (head region) and a decrease in TTH. The Intervention of *Bhramari Pranayam* calms *mansik bhavas* along with vitiated *mana* suited in *Shira Pradesh*(head region) which increases the capacity of *Swa vishya Grahan*(sensory object), increases the capability of *rasaindriya karma*(sense of taste). Consumption of *ahara*(food) at the time of *kshudha vega* promotes *uttam rasa uttpatti*(good digestive juice) which improves *agnimandhya* (low metabolism) and lowers *ama* (toxins) formation. *Preenan* (nourishment) of *uttam rasa* (best digestive juice) to *dhatu* (tissues) & *uttam dhatu sarta* which promotes the development of *rasa* and *rakta dhatu* leading to the *shaman* of *lakshanas* (alleviation of symptoms) of *kshudha vega* and promoting of *prakrut gati* of *vata* in *amashay* which ultimately decreases *sthanasamshray* (location of disease) of *vata* in *Shira Pradesh* (head region). All previous work on the subject had been concluded before initiating this research, and additional research had been focused to avoid duplication of effort. There has been research that has studied and evaluated the role of *Bhramari Pranayam* in a variety of health issue[30,31] but no specific role for TTH & suppression of urge of *kshudha vega dharana* (hunger) in stressful lifestyle that causes headache had been revealed and the role of *Bhramari Pranayam* in such settings.

CONCLUSION:

Bhramari Pranayam along with timely consumption of food showed a better effect in the management of Tension-Type-Headache induced by suppression of urge of *adharniya –vega –kshudha*, the integrated non-pharmacological treatment showed relief from symptoms like *kshudha* (emaciation),*daurbalya* (weakness), and *angamarda* (body ache). By improving relaxing hormones it made the bodywork systematically by lowering stress and increase in hunger and appetite along with normalizing metabolism by aligning *vata gati* in the normal direction.

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Table 1: Shows observations at a glance

**95% C. I was maintained throughout the study*

PARAMETER	GROUP	MEAN		X		% OF IMPROVEMENT		POSITIVE RANK		NEGATIVE RANK		TIE		Z		P-VALUE	
		B.T	A.T	1ST WEEK	POST-TREATMENT FOLLOW UP	1ST WEEK	POST-TREATMENT FOLLOW UP	1ST WEEK	POST-TREATMENT FOLLOW UP	1ST WEEK	POST-TREATMENT FOLLOW UP	1ST WEEK	POST-TREATMENT FOLLOW UP	1ST WEEK	POST-TREATMENT FOLLOW UP	1ST WEEK	POST-TREATMENT FOLLOW UP
Karshya	A	1.73	0.73	0	1	0.00	57.69	0	0	0	13	***15***	***2***	***0***	***3.419***	1	0.001
	B	1.53	0	0	1.53	0.00	100.00	0	0	0	13	15	02	0	-3.30	1	0.001
Daurbalya	A	2.40	0.53	0.13	1.86	5.56	77.78	0	0	02	15	13	0	-1.41	-3.50	0.157	0
	B	2.86	0.53	0	2.33	0	81.40	0	0	0	15	15	0	0	-3.49	1	0
Vaivarnya	A	1.53	0.33	0	1.2	0	78.26	0	0	0	15	15	0	0	-3.62	1	0
	B	1.33	0.20	0	1.13	0	85	0	0	0	13	15	02	0	-3.31	0	0.001
Angamarda	A	1.6	0.2	0.06	1.4	4.1	87.50	0	0	1	15	14	0	-1	-3.57	0.031	0
	B	1.73	0.13	0.13	1.6	7.69	92.31	0	0	2	13	13	02	-1.41	-3.22	0.157	0.001
Aruchi	A	2.13	0.2	0	1.93	0	90.63	0	0	0	15	15	0	0	-3.62	1	0
	B	2	0.2	0.06	1.8	3.33	90.00	0	0	1	14	14	01	-1	-3.40	0.317	0.001
Bhrma	A	0	0	0	0	0	0	0	0	0	0	15	15	0	0	1	1
	B	0	0	0	0	0	0	0	0	0	0	15	15	0	0	1	1
Duration of Headache	A	1	0.13	0	0.86	0	86.67	0	0	0	13	15	02	0	-3.60	0.317	0
	B	1	0	0.06	1	6.67	100.00	0	0	1	15	14	0	-1	-3.87	1	0
Nature of Headache	A	1	0.86	0	0.86	0	86.67	0	0	0	13	15	2	0	-3.60	0.317	0
	B	1	0	0.06	1	6.67	100	15	13	0	0	0	2	-3.87	-3.30	0	0.001
Characteristic of Headache	A	1	0.13	0	0.86	0	86.67	0	0	0	13	0	2	0	-3.60	1	0
	B	1	0	0.06	1	6.67	100.00	0	0	1	15	14	0	-1	-3.87	0.317	0
Kshudha	A	1.13	2	0	0.86	0	76.47	0	13	0	0	15	2	0	-3.60	1	0
	B	1	2	0	1	0	100.00	0	15	0	0	15	0	0	-3.87	1	0

Table 2: Comparative Observations between Groups

PARAMETER	*GROUPS*	*% OF IMPROVEMENT*	*MANN WHITNEY'S U TEST*	*Z*	*P-VALUE*
Karshya	A	57.69	85	-1.298	0.194
	B	100.00			
Daurbalya	A	77.78	90.5	-0.987	0.324
	B	81.40			
Vaivarnya	A	78.26	89.5	-1.077	0.282
	B	85			
Angamarda	A	87.50	98.5	-0.75	0.453
	B	92.31			
Aruchi	A	90.63	80	-1.53	0.126
	B	90.00			
Bhrma	A	0	112.5	0	1
	B	0			
Duration of Headache	A	86.67	97.5	-1.43	0.15
	B	100.00			
Nature of Headache	A	86.67	97.5	-1.43	0.15
	B	100.00			
Characteristic of Headache	A	86.67	97.5	-1.43	0.15
	B	100.00			
Kshudha	A	76.47	105	-5.98	0.55
	B	100.00			

Table 3: Showing Observations of Stress Test with a comparison between the groups

PARAMETER	*GROUP*	*MEAN*		*X*	*% OF IMPROVEMENT*	*t VALUE*	*P-VALUE*
		B.T	A.T				
Stress Test (PSS-4)	A	10.2	9	1.2	11.76	11.23	0
	B	11.66	10.2	1.46	12.57	6.81	0
COMPARISON							
Stress Test (PSS-4)	A				11.76	-1.36	0.186
	B				12.57		

Table 4: Difference between hunger and fasting at a glance

FASTING	**HUNGER/STARVATION**
Voluntarily	Involuntary
Complete abstention from food in any shape or form	Absence of essential nutrients that could support the life of an organism.
Life-Saving	Life-Threatening
No loss of muscle mass	Loss of muscle mass
Energy level Maintained	Low energy level
You haven't eaten in less than 48 hours and haven't eaten in less than two weeks.	You have not eaten for several days or have consumed very few calories for more than two weeks.
Your body produces numerous hormones that aid in fat breakdown and blood sugar regulation.	There has been a decrease in the production of thyroid hormones, an increase in fat burning, and very low blood sugar levels.
You only get hungry once in a while, but when you do, you always feel satiated after eating.	You feel hungry all the time.

Table 5:Similarities between *Vatik Shira Shula* & TTH

Rupa of Vatika Shirahshula	**Symptoms of TTH**
Shankhanistoda, Ghatasambheda etc.	Typically involve the entire head commonly occipital and bilateral region.
Sayam Kala (Bhavanti *Tivranishi*)	Moderately severe in the evening time.
Prakasha Asahyata	Photophobia
Shabda Asahisnuta	Phonophobia
Shiroghrurnanam	Dizziness
Nidra Alpata	Disturbed sleep

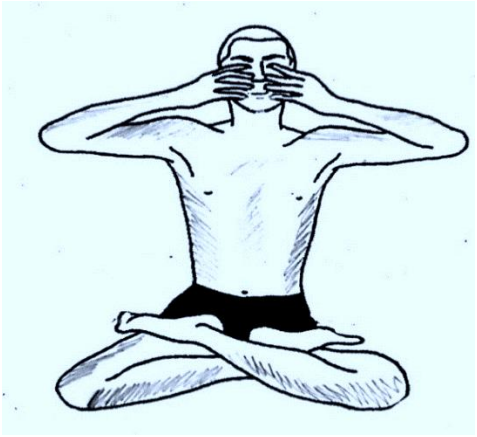


Figure 1:Diagram depicting the posture of the Interventional Group

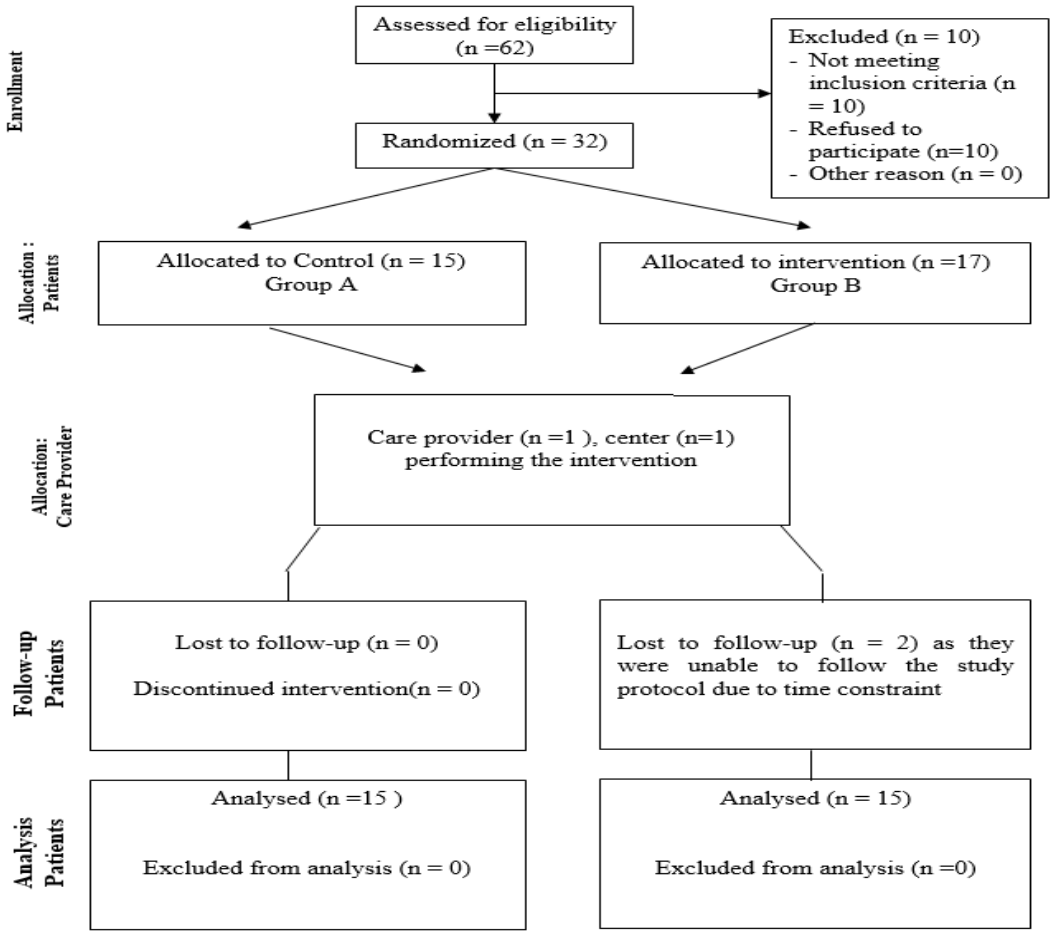
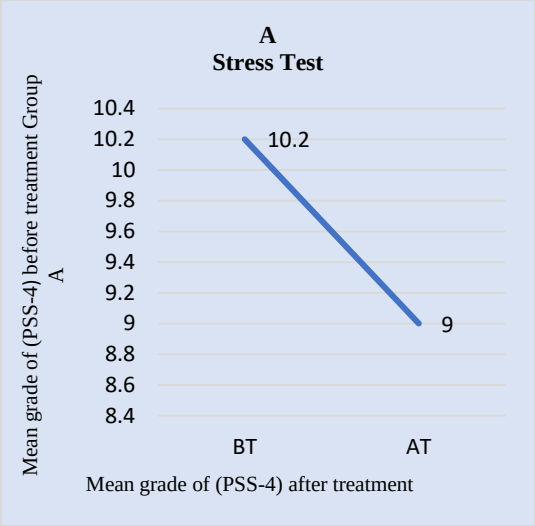


Figure 2:Flow chart of participants



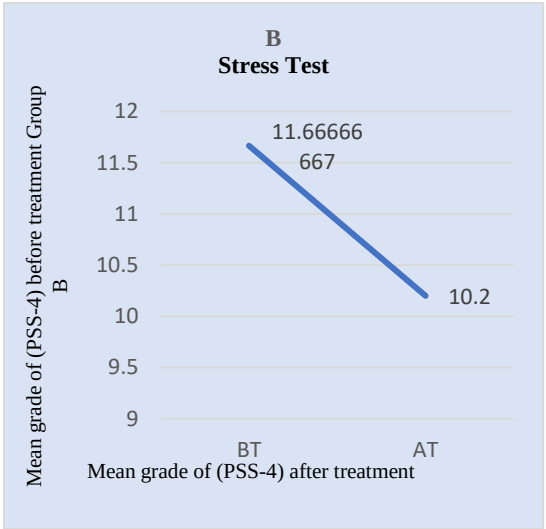


Chart1:A and B: Line Chart illustrating Stress Test in which X-Axis showing mean grade BT &Y-Axis showing mean grade AT