

Integral Role of Yoga Therapy on Psycho-Physiological Facet (Anxiety- Forced Vital Capacity) of Bronchial Asthmatics Life

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Abstract:

In the various stream of Yoga, comprehensive and efficient therapeutic yogic plan are given to manage the psycho-physiological facet (anxiety- forced vital capacity) of Bronchial asthmatics life. In this study eighty patients with Bronchial asthma were randomized into two groups i.e., experimental group (n=40) and control group (n=40). They were underwent Yoga therapy program for 60 days in an integrated set of yogic practices, including jihvāmūla, karṇarandhra and kapālarandhra (these śhaṭkarmas comes under dantadhauti), tadasana, tiryaka tadasana, kati chakrasana and marjariasana, nāḍīśodhan prāṇāyāma, bhastrikā prāṇāyāma and Gayatri mantra. Bronchial asthmatics were practiced these exercises for 45 minutes daily. Anxiety level and forced vital capacity (FVC) were assessed on all the Bronchial asthmatics initially and after 60 days as psycho-physiological outcomes. Subjects of experimental group showed a statistically significant decreasing trend in anxiety level and increasing trend in forced vital capacity (FVC) after 60 days Yoga practice, while control group showed no such improvement (P>0.01). Thus, the integrated Yoga therapy programme significantly improve anxiety level and FVC in subject with Bronchial asthma.

Key words: yoga bronchial asthma anxiety forced vital capacity.

Introduction:

Bronchial Asthma is a chronic inflammatory disease as well as the most common psychosomatic imbalance. ‘Two-third of Asthma patient are anxious during an acute Asthma attack’ (Butz and Alexander, 1993). An intense anxiety and emotional imbalance is noticed in patients of Asthma (Bell & Jasnoski, et.al., 1991). Self-control is only decisive for the successful treatment of Asthma. ‘The psychological symptoms are the risk factors for the increase in morbidity and mortality of Asthma’ (Harrison, 1998). Hence, it’s clear that, Asthma is a psychosomatic problem in which both the mind and the body are affected.

The real aim of yoga is self realization and to make free from the worldly bondages and desires. The process of *hathayoga* is to get the path of *rajayoga* and the purpose of *rajayoga* is to control over mind-field, for this the only base is the special *Purusha* (P.Y.S. 1/24). This special *Purusha* is free from afflictions, actions, their fruitions and their *samskaras*. Therefore when all processes are done by focusing on special *Purusha*, man gets rid of all problems, and grieves.

If there is illness in our bodily senses or mind then it becomes a disease which leads to an obstacle (*yogantaraya*) or distraction (*vikshepa*). Along with illness five types of distractions are also accompanied such as grief, frustration,

unsteadiness of the limbs and irregular inhalation and exhalation (P.Y.S. 1/31). In Asthma all these five distractions are clearly visible which show the distracted state of mind. By various practices of yoga these distractions are overcome.

Modern medical system works where on the level of cell, cell organelles, tissues, organs and organ system. On the other hand the process of *hathayoga* works on the level of *prana*, *nadi* and *chakra*. As organs, organ systems, tissues, cells are made up of omnipresent physical material, in the same way *nadis*, and *chakras* are also made up of omnipresent material. *Prana* that flows in nerves and energy centers are omnipresent conscious material. Functions of body and cells are only the physical manifestation of such *pranic* element.

Breath on one hand is related to the body and on the other to the mind. By controlling the breath and practicing yoga regularly, Asthma can be controlled and managed thereby a long life can be acquired.

In the management of psycho-physiological aspect of Asthma, practices include *shatkarma* (*jihvamula*, *karnarandhra* and *kapalrandhra*), *asana* (*tadasana*, *triyaktadasana*, *katichakrasana* and *marjariasana*), *pranayama* (*nadishodhan* and *bhastrika*) and chanting of *Gayatri Mahamantra*. These specific yogic practices are able to cure disease of Asthma.

Through comprehensive review of literature, one gets insight to move in right direction by which depth and gravity of research work is known. The description of review of literature is as follows:

Krishna (1985) studied the effect of pranayama and Om chanting on anxiety

neurosis and emotional instability, the results depicted significant reduction.

Nagarathna, Nagendra & Seethalakshmi (1991) examined the one hundred and ten episodes of airway obstruction in 86 Bronchial asthmatics were treated by a special eight stepped yoga chair breathing procedure consisting of very simple neck muscle relaxation movements and asanas with breathing exercises. The patients gained great confidence and tried this technique before resorting to drugs. The reduction in panic anxiety elements, cutting the vicious circle of aggravating bronchial obstruction appear to work in relieving the acute episodes.

Steurer-Steysa, Russib & Steurerc (2002) had randomised asthmatic patients into four groups by introducing pranayama, physiotherapy, breathing exercises and no intervention. After a follow-up period of 4 months, results showed that yoga and breathing exercises improved the mental state of wellbeing of the subjects and enabled better coping with stress and lung function.

Sodhi, Singh & Dandona (2009) studied the effect of yoga training on pulmonary functions in patients with Bronchial Asthma. In this study one hundred twenty patients of Asthma were randomized into two groups-yoga training group and control group. Yoga training group subjects showed a statistically significant increasing trend ($P < 0.01$) in % predicted peak expiratory flow rate (PEFR), forced expiratory volume in the first second (FEV1), forced vital capacity (FVC), forced mid expiratory flow in 0.25–0.75 seconds (FEF25-75) and FEV1/FVC% ratio at 4 weeks and 8 weeks as compared to control group. The results conclude that yoga breathing exercises used adjunctively with standard pharmacological treatment significantly improves pulmonary

functions in patients with Bronchial Asthma.

Venkateswarlu (2012) surveyed that the yoga is proper means to achieve the end of controlling of the mind and maintain the life with great peace which essential for the present days. This descriptive study discusses effect of practice of yoga in the cure of psychosomatic disorder.

From these reviews of literature I infer that by practicing some particular yogic practices significant improvement is seen in pulmonary functions, scores of drug treatment, stress and anxiety, etc. These reviews are found to be single dimensional and lacking holistic approach of including both psychological as well as physiological measures of Asthma. Moreover only few studies could be found keeping psychological parameters in focus.

Present research is an effort in the direction of managing psycho-physiological aspect of Asthma through yoga. This research also touches some new aspects of yogic practices like *jihvamula*, *karnarandhra* and *kapalrandhra* are included for the first time for treating Asthma.

There is a distressful situation in Asthma epidemiology in different parts of the world. According to the World Health Organization (WHO) '300 million people suffer from Asthma' (WHO 2004) and 'over 80% of Asthma deaths are reported from low and lower-middle income countries' (Braman 2006). Asthma creates a heavy economic burden on health care resources (Weiss, et.al., 1992). Yoga has played a vital role in increasing lungs functions and reduces usage of bronchodilator in asthmatics (Birkel, 2000). Hence, good management in the treatment through yoga could lead to reducing mortality and treatment costs of Asthma. *Shatkarma* (*Jihvamula*,

karnarandhra and *kapalrandhra*,) *asana* (*tadasana*, *triyaktadasana*, *katichakrasana* and *marjariasana*), *pranayama* (*nadishodhan* and *bhastrika*) and chanting of *Gayatri Mahamantra* are useful from both the physiological and the psychological point of view of asthmatics. Effects of these practices on the Asthma patients have dual benefits, i.e., clinical as well as sublime.

With reference to the previous studies present work aimed to study the effect of Integral role of yoga therapy on psycho-physiological parameter (viz. anxiety and FVC) of the asthmatics.

With above aim and objective the researcher made the following two hypotheses:

- (a) the average anxiety level of the asthmatics in the experimental group reduces after practicing yoga therapy.
- (b) The average FVC level of the asthmatics in the experimental group increases after practicing yoga therapy.

Research Methodology

The research design of the study is two groups before and after design. After administering the selected psycho-physiological measurements, the asthmatic patients were divided into experimental group and control group. The techniques of measurement and the patients recording the data were the same for both the groups. Both the groups are taking the standard Bronchial asthma therapy for bronchial dilation as per the advice of the concerned physician. The intervention of Integrated Yoga therapy was administered for experimental group to manage Bronchial Asthma. Each day yogic session was conducted from 8:00 a.m. to 8:45 a.m., for a period of 60 days.

Duration of yogic intervention was 60 days and Daily practice was for 45 minutes

The outcome measures were assessed in both groups ranging instantly till 60th day as pre and post data.

Protocol of the selected Yoga therapy program

S.N.	Category	Duration	Category Detail	Name of practice
1.	Kriyas (Cleansing techniques)	5 minutes	Dhauti	Jihvāmūla, Karnarandhra and Kapālrandhra practiced under Dantadhauti
2	Yogasanas (Postures)	10 minutes	Standing group (3 asanas)	Tadasana, Tiryaka tadasana and Kati chakrasana
			Vajrasana group (1 asana)	Marjariasana
3	Breathing Practices	25 minutes	prānāyāma	Nādīshodhan and Bhastrikā pranāyāma
4	Mantra	5 minutes	Mantra Yoga	Gayatri Mantra

Note: Each session ended with the ‘Om’ chanting and three fold recitation of ‘Shanti’.

To evaluate the usefulness of the integrated programme of the preferred yogic therapy, accidental sampling was adopted for the selection of the asthmatics. A clinical study was conducted at the Holistic Health Management Department, School of Yoga & Health, Dev Sanskriti Vishwavidyalaya, Haridwar. Eighty patients of both sexes, diagnosed with Bronchial Asthma between the age group of 18-60 years were selected for the experimentation. There were 18 females and 22 males in both the groups.

Patients who were already diagnosed at hospital level to have Bronchial Asthma and those who were able to join the Yoga camp for Yoga practice were included in the study based on their consent. 80 patients selected for the study were divided into two groups among them 40 were in experimental and 40 were in control group.

Sinha’s comprehensive anxiety test (A.K.P. Sinha and L.N.K. Sinha). and

Medspiror which is manufactured and marketed by recorders & medicare systems Chandigarh were used for the measurement.

Result and Discussion

In the study of the presented experimental research over asthmas’ psycho-physiological aspects related to anxiety and FVC level of pulmonary function had been selected as dependent variables. These dependent variables were studied under the influence of independent variables such as *jihvāmūla*, *karnarandhra* and *kapālrandhra* (come under *dantadhauti of shatkarma*), *tadasana*, *tiryaka tadasana*, *kati chakrasana* and *marjariasana*, *nādīshodhan prānāyāma* and *bhastrikā prānāyāma* and *Gayatri mantra* for asthmatic management.

From the results obtained through the research it is clearly stated that the practice of Yoga by the asthmatics brings significant difference in their psycho-physiological factor (anxiety and FVC).

Table 1: Effect of intervention (yogic/control) on average anxiety level in both groups

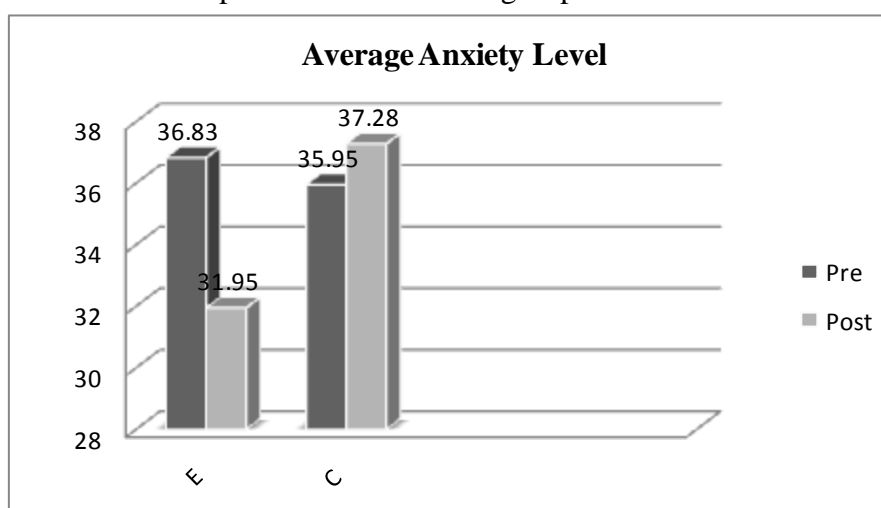
Group		N	M	SE _M	R	df	SE _D	Paired t-value	P- value
Ex. Gr.	Pre	40	36.83	2.98	0.98	39	0.60	8.16**	P< 0.01
	Post	40	31.95	2.92					
Control Gr.	Pre	40	35.95	2.43	0.98	39	0.51	2.58*	P<0.05 P> 0.01
	Post	40	37.28	2.33					

Table (1) Shows that the mean and standard error of mean ($M \pm SE_M$) of average anxiety level for asthmatic patients of the experimental group before and after the yogic practices were consecutively found to be 36.83 ± 2.98 and 31.95 ± 2.92 . The correlation (r) is 0.98 and standard error of deviation (SE_D) is 0.60. Its paired t-value is 8.16 which is statistically significant at 0.01 significance level because the calculated value on 39 df is 8.16 which is greater than the tabulated value by 2.71. This emphasizes that average anxiety level in post group is significant less than that in pre group due to the yogic intervention which means that yogic therapy reduces the anxiety level among the asthmatics.

The ($M \pm SE_M$) of pre and post average anxiety level of the Asthma patients of the

control group were consecutively found to be 35.95 ± 2.43 and 37.28 ± 2.33 . The correlation (r) is 0.98 and standard error of deviation (SE_D) is 0.51. Its paired t-value is 2.58. Hence the calculated value on 39 df is 2.58 which is more than the tabulated value by 2.02 is statistically significant at 0.05 significance level and anxiety gets significantly increase.

These results indicate the average anxiety level has significantly high in the control group over the period which indicates there could be increasing progression of the anxiety level during the study. This further shows the effectiveness of yoga intervention not only checking the increase of anxiety level over the time but also reduces significantly the increase anxiety level of the asthmatics of experimental group.



Anxiety is a normal reaction to extreme dyspnea (Gift, 1991). It seems to affect the Asthma and its treatment. Compared to others, Asthma patients are pessimistic about their own abilities to control and to

cope with their illness (Kinsman et al., 1980). Therefore anxiety reduction is a prime necessity to treat the Asthma. Various studies have reported that the practice of yoga can produce significant

decline in the anxiety scores. Gupta et al. (2006) examined the effect of yoga based lifestyle intervention on state and trait anxiety. The finding suggests that the programmed yogic intervention leads to notable reduction in the anxiety score. Breese (2005) reported that the psycho-physiological effects induced by pranayama include feelings of relaxation, peace, enabling patients to escape from unintentional anxiety.

The above mentioned studies give support to the observation of the present study. In table no-1, the experimental group subjects show statistically significant decreasing trend in average anxiety level over the time ($P < 0.01$) while in control group subjects show highly significant increasing trend in average anxiety level over the period ($P < 0.05$). This shows the effectiveness of the yogic intervention to reduce the anxiety of asthmatics.

Table 2: Effect of intervention (yogic/control) on average FVC level of pulmonary function of asthmatics based on percentage of predicted values in both groups

Group		N	M	SE _M	r	df	SE _D	Paired t-value	P-value
Exper.	Pre	40	71.25	2.09	0.83	39	1.17	5.92**	P < 0.01
	Post	40	78.18	1.84					
Control	Pre	40	70.93	1.88	0.90	39	0.82	1.57	P > 0.05
	Post	40	69.63	1.58					

Table (2) Shows that the mean and standard error of mean ($M \pm SE_M$) of average percentage of predicted FVC level the Asthma patients of the experimental group before and after the yogic practices were consecutively found to be $71.25 \pm 2.09\%$ and $78.18 \pm 1.84\%$. The correlation (r) is 0.83 and standard error of deviation (SE_D) is 1.17. Its paired t-value is 5.92 which is statistically significant at 0.01 significance level because the calculated value on 39 df is 5.92 which is greater than the tabulated value by 2.71. This emphasizes that average % predicted FVC level in post group is significant more than that in pre group due to the yogic intervention which means that yogic therapy increases the average % predicted FVC level among the asthmatics.

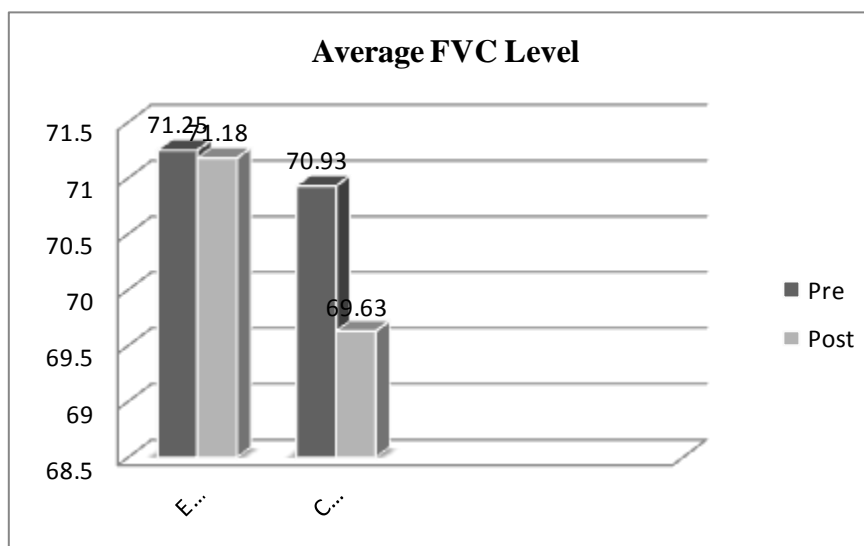
The ($M \pm SE_M$) of pre and post average percentage of predicted FVC level of the Asthma patients of the control group were consecutively found to be $70.93 \pm 1.88\%$ and $69.63 \pm 1.58\%$. The correlation (r) is 0.90 and standard error of deviation (SE_D) is 0.82. Its paired t-value is 1.57 which is

statistically not significant at 0.05 significance level because the calculated value on 39 df is 1.57 which is less than the tabulated value by 2.02. These results indicate that average % predicted FVC level in post and pre group is not significantly different in control group subjects during the period of yogic intervention.

Asthma is an obstructive pulmonary disease in which lung's air volume is more slowly expelled over the time course of the FVC test. The FVC is improved by the use of bronchodilator as it dilates the bronchial passages and reduces airflow obstruction. Yogic exercises also remove the obstruction of trachio bronchial tree. In a study, Murthy et al. (1984) found that pranayama practices significantly increase the FVC of the Asthma patients. Sathyaprabha et al. (2001) examined that the treatment of naturopathy and yoga lead to significant improvement in FVC of asthmatics. The above mentioned studies give support to the observation of the present study. In table no-2, the

experimental group subjects show statistically significant increasing trend in average % predicted FVC level over the time ($P < 0.01$) while in control group subjects show it is not statistically

significant increase in average % predicted FVC level over the period ($P > 0.05$). The result shows the efficacy of the yogic intervention to increase the average % predicted FVC level of asthmatics.



The above description clearly depicts that the yogic therapy's intervention designed in this research when apply on Asthma patients, the psycho-physiological problem of Asthma is significantly managed. The found results demonstrate the effect of yoga practices on body and mind of asthmatics.

This research brings forward a few suggestions for those who beholds interest in taking up research in this field-
Yogic study can be conducted on the psycho-spiritual level of Asthma patients. Comparative study can be conducted between yogic and other alternative therapies for Asthma management.

The researcher has done the research on the asthmatic patients of age between 18-60 years. A study can be done in future on separate groups of children and old age patients of Asthma.

Conclusion

In this scientific research work it can be concluded that the yogic therapy i.e.,

jihvamula, karnarandhra and kapalrandhra, tadasana, triyaktadasana, katichakrasana and marjariasana, nadishodhan and bhastrika pranayama & chanting of Gayatri Mahamantra have a significant effect over the psycho-physiological facet of Bronchial Asthma.

Hypothesis wise the research conclusions are as follows:

Yogic therapy significantly associated with the average anxiety level of asthmatics. It leads to significant reduction in the average anxiety level of Asthma patients in experimental group.

Yogic therapy significantly associated with the average FVC level of pulmonary function of asthmatics. It leads to significant increase in the average FVC level of pulmonary function of Asthma patients in the experimental group.

Thus I can conclude, the therapy used under the research play a significant role over the anxiety and FVC level of Bronchial asthmatics life.

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