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# CROSS SECTIONAL OBSERVATION INVESTIGATION ON IMPACT OF INFLUENTIAL FACTORS IN THE CLINICAL MANAGEMENT OF BRONCHIAL ASTHMA (SWASAKASAM)

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## ABSTRACT

Bronchial asthma becomes a global concern as it causes economic disabilities of societies around the globe. The prevalence of asthma has increased continuously since the 1970s, and now affects an estimated 4 to 7% of the people worldwide. Asthma present with versatile clinical indications often emerged with comorbid conditions. Conventional allopathic medicines offer certain symptomatic treatment whereas in recent time people started rely on traditional medicine for effective clinical management. Still the proper understating on disease etiology and pathogenesis becomes essential for physician to fetch appropriate clinical outcome. The main objective of the present work is to carry out the cross sectional observational study involving 100 patients with the diagnosis of bronchial asthma known as swasakasam in siddha terminology. The questionnaire was divided accordingly to study objective that covers the entire purpose of the study such as family history, dietary habits with life style modifications etc. Data's of the study provided some significant outcomes with respect to disease etiology, comorbidity and preference towards traditional therapies. Majority (39%) of the participants belonged to the age category of 30 to 49 years and 10 to 29years. 23% of the participants were belonged to agriculture and self-employed and other 22% of participants were student's. 69% of the participants were non –smokers and 68% of the participants were non-alcohol consumers. Outcome of this study further extensively reveals that 45% of the patients under siddha treatment found beneficial in managing asthma. It was concluded from the data's obtained from the present observational study that males are highly prone towards bronchial asthma and also people started preferring siddha therapy for their management.

**KEY WORDS:** ***Bronchial asthma, Siddha system, Comorbidity, Traditional therapies, Observational study***

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## 1. Introduction

Bronchial asthma is a paroxysmal attack of breathlessness, chest tightness, and wheezing resulting from paroxysmal narrowing of the bronchial airways. Asthma is characterized by inflammation, obstruction, and hyper-responsiveness of the airway. Patients cough more during sleep and when awake in the morning. Asthma affects 10% of the population. Epidemiology will help us to study prevalence, morbidity, and mortality rate of asthma. About 235 million people worldwide have been affected. Many people die from this deadly disease due to its high prevalence rate in many countries [1].

Epidemiological study provide evidence that some diseases tend to develop together more often that it would be expected by chance, suggesting shared pathogenetic mechanisms [2]. Various terms are used to describe this phenomenon, such as co-morbidity, syntropy, multi-morbidity. Examples of common comorbid diseases include allergic disorders (bronchial asthma, allergic rhinitis, atopic dermatitis) [3], autoimmune phenotypes of so-called "the kaleidoscope of autoimmunity" [4], cardiovascular diseases continuum [5].

Traditionally, bronchial asthma has been divided into several subtypes that are characterized as extrinsic (allergic) or intrinsic (non-allergic) asthma and bronchial asthma with a mixed form of intrinsic and extrinsic asthma [6]. Today, bronchial asthma can be classified into many either TH2-dependent or non-TH2-dependent phenotypes [7].

Current approach to treat asthma is mostly based on the use of corticosteroids and inhaled bronchodilators [8]. For a majority of individuals, these therapies are efficient at humanizing function of lung and life quality and decreasing manifestations and disease exacerbations [9]. Apprehension exists concerning the adverse reactions of these therapies in some individuals, particularly when prescribed in high dose [10]. Additionally, there is increasing identification of subgroups of individuals who emerge refractory to existing treatment and who are thought "complex to manage." At present, new and costly biologic treatments are being emerged to tackle this unmet requirement. Traditional medicines to tackle the concern of adverse reactions and decrease the effectiveness comprises of the application of phytomedicine [11].

Asthma is a serious allergic disorder of the respiratory system and this has a great burden on medical treatment. Several medicines are available, but they have many serious side effects. The main objective of the present work is to carry out the cross sectional observational study involving 100 patients with the diagnosis of bronchial asthma known as swasakasam in siddha terminology.

## 2.Materials and Methods

### 2.1. Study design

Observation study comprises of 100 patients with the compliant of Swasakasam (Bronchial asthma) was chosen for the individualized in-depth evaluation and subjected to survey on factors influencing Swasakasam in patients attending Out-patient department of Aringnar Anna Government Hospital of Indian Medicine-Chennai-106. Participants were also explained that completion and submission of the questionnaire would be taken as consent to participate in this study. Data were dealt with the high level of anonymity and confidentiality.

### 2.2. Questioner Pattern

The questionnaire was divided accordingly to study objective that covers the entire purpose of the study such as family history, dietary habits with life style modifications etc.

### 2.3. Inclusion criteria

The following are the inclusion criteria for the present observational study

•Known history of bronchial asthma
•Both Genders
•Willing to provide consent

### 2.4. Exclusion Criteria

The following are the exclusion criteria for the present observational study

•Pulmonary TB / HIV
•Pregnancy and lactating mother
•Mentally retarded patients

### 2.5. Study Approval

This study was approved by institutional ethical committee of Government siddha medical college, Arumbakkam, Chennai, Tamil Nadu 600106.

### 2.6. Statistical Analysis

All these data entered in Microsoft excel and analysis was done by SPSS statistics version 26. Percentage, Chi-square test and logistic regression were used in final analysis.

## 3.Results

### 3.1. Result analysis on general demography of the patients under study

Result analysis of the demographic data reveals that among the study population majority (51%) of the participants were females and 49% were males. Majority (39%) of the participants belonged to the age category of 30 to 49 years and 10 to 29years, followed by (16%) in 50 to 59 years, (17%) in 60 to 69 years (15%), in 0 to 9years (9%) and (4%) between 70 to 80 years of age. Further with respect to consideration on BMI it is calculated that underweight (2%), Normal (44%), over weight (41%), Obese (13%) and (15%) had family history of bronchial asthma. Out of the 100 participants, 61% received only siddha treatment and 21% received both siddha and allopathic medicine. Siddha/yoga received by (6%) and siddha/yoga/allopathy (2%), siddha/homeopathy received by (3%), Siddha/Unani (4%), and Siddha/Ayurveda received by (3%) for Bronchial asthma management. As shown in Table 1.

### 3.2. Result analysis on the impact of clinical characteristics, Behavioral, comorbidity and Disease history

Distribution of participants based on clinical characteristics, behavioral measures and history of disease reveals that majority (23%) of the participants were belonged to agriculture and self-employed, majority (22%) of participants were student's groups, majority (9%) of the participants belongs to sales business. Among behavioral measures majority (69%) of the participants were never smokers comparing to smokers, majority (68%) of the participants were non-alcohol population compared to alcohol consumer. Histories of disease showed majority (82%) of the participants were non hypertensive and 89% were non diabetic, 4% had thyroid disorder, 2% had TB & uterine CA, 1% were affected by sinusitis. Among 100 study participants 55% of participants used nebulizer occasionally, majority (89%) of participants had taken non steroid medications, 11% occasionally taken steroids. Complication showed majority (99%) of participants reported no complications in taking AYUSH medicine and 1% reported complication (nausea/vomiting) occurred in Ayurveda medication. As shown in Table 2.

### 3.3. Result analysis on preference towards specific therapy for the clinical management of bronchial asthma

From the data's collected based on the questionaries' with respect to preference of treatment, dietary advice, expenditure and treatment outcomes nearly 45% of the patients who take siddha treatment in the hospital rated management was good, followed by moderate (14%), and (2%) stated it was bad. 17% of the patients who take Siddha/Allopathy treatment stated improvement was moderate (3%), and (1%) reported it was bad. 61% of the study participants have accepted Siddha medicine to be the best treatment option for Asthma management. As shown in Table 3.

## 4.Discussion

Asthma is defined as a chronic inflammatory disorder of the airways which manifests itself as recurrent episodes of wheezing, breathlessness, chest tightness and cough. It is characterized by bronchial hyper-responsiveness and variable airflow obstruction, that is often reversible either spontaneously or with treatment. The prevalence of asthma in India is about 2%, and asthma is responsible for significant morbidity. In India, the estimated cost of asthma treatment per year for the year 2015 has been calculated at about 139.45 billion Indian rupees [12]. Result analysis of the demographic data reveals that among the study population majority (51%) of the participants were females and 49% were males. Majority (39%) of the participants belonged to the age category of 30 to 49 years and 10 to 29years, followed by (16%) in 50 to 59 years, (17%) in 60 to 69 years (15%), in 0 to 9years (9%) and (4%) between 70 to 80 years of age. Further with respect to consideration on BMI it is calculated that underweight (2%), Normal (44%), over weight (41%), Obese (13%) and (15%) had family history of bronchial asthma. Out of the 100 participants, 61% received only siddha treatment and 21% received both siddha and allopathic medicine. Siddha/yoga received by (6%) and siddha/yoga/allopathy (2%), siddha/homeopathy received by (3%), Siddha/Unani (4%), and

Siddha/Ayurveda received by (3%) for Bronchial asthma management.

Among all the treatment modalities polyherbal combinations are said to be well-accepted, safe and effective in asthma [13]. The reason for the therapeutic efficacy of herbal combinations in asthma is due to multiple blocking and homeostasis of very complex and interdependent cellular and mediator networks supporting and involved in the inflammatory process of asthma, whereas modern synthetic drug therapy aimed at blocking one mediator alone would be unlikely to have any significant effect on the disease process. None of the available treatments are found to be effective to provide a complete cure of this disease [14]. In the present study nearly 45% of the patients who take siddha treatment in the hospital rated management was good, followed by moderate (14%), and (2%) stated it was bad. 17% of the patients who take Siddha/Allopathy treatment stated improvement was moderate (3%), and (1%) reported it was bad. 61% of the study participants have accepted Siddha medicine to be the best treatment option for Asthma management.

The two major features of bronchial asthma include bronchoconstriction and inflammation; thus, the allopathic drugs are used to prevent or reverse the bronchoconstriction and decrease the inflammation via a different mechanism. Smooth muscles of the bronchial tree mainly contain β2 receptors, stimulation of which causes bronchodilation. All those sympathomimetic that cause stimulation of β2 adrenoceptors are useful in the treatment of bronchial asthma, especially those acting mainly on β2 receptors. Sympathomimetic are epinephrine, ephedrine, isoproterenol, albuterol, levalbuterol, bitolterol, metaproterenol, terbutaline, ritodrine, procaterol, isoetarine, formoterol, pirbuterol, and salmeterol [15]. From the study among 100 study participants 55% of participants used nebulizer occasionally, majority (89%) of participants had taken non steroid medications, 11% occasionally taken steroids. Complication showed majority (99%) of participants reported no complications in taking AYUSH medicine and 1% reported complication (nausea/vomiting) occurred in ayurveda medication.

## 5.Conclusion

Asthma is characterized by inflammation, obstruction, and hyper-responsiveness of the airway. Patients cough more during sleep and when awake in the morning. Asthma affects 10% of the population. Epidemiology will help us to study prevalence, morbidity, and mortality rate of asthma. Number of patients has been increasing day by day. Millions of people have died from asthma. It was concluded from the data's obtained from the present observational study that males are highly prone towards bronchial asthma and also people started preferring siddha therapy for their management.

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**Table 1: Demographics of the participants who were identified as having Bronchial asthma**

| Variables | Frequency | Percentage |
|---|---|---|
| **Gender** | | |
| Male | 49 | 49% |
| Female | 51 | 51% |
| **Age categories** | | |
| 0 - 9 years | 9 | 9% |
| 10 - 19 years | 11 | 11% |
| 20 - 29 years | 5 | 5% |
| 30 - 39 years | 20 | 20% |
| 40 - 49 years | 19 | 19% |
| 50 - 59 years | 17 | 17% |
| 60 - 69 years | 15 | 15% |
| 70 - 79 years | 4 | 4% |
| | | |
| **Marital status:** | | |
| Never married | 23 | 23% |
| Currently married/Married | 77 | 77% |
| | | |
| **Family history** | 15 | 15% |
| Other ailments: **BMI** Group | | |
| Under weight | 2 | 2% |
| Normal | 44 | 44% |
| Over weight | 41 | 41% |
| Obese | 13 | 13% |
| | | |
| **Treatment taken:** | | |

| | | |
|---|---|---|
| Siddha medicine | 61 | 61% |
| Siddha / Yoga | 6 | 6% |
| | | |
| Both (Siddha + Allopathy) | 21 | 21% |
| Both (Siddha +Yoga+ Allopathy) | 2 | 2% |
| Siddha/Homoeopathy | 3 | 3% |
| Siddha/ Unani | 4 | 4% |
| Siddha/ Ayurveda | 3 | 3% |
| **TOTAL** | **100** | **100%** |

**Table 2: Impact of clinical characteristics, Behavioral, comorbidity and Disease history**

| | Study participants (N = 100) | Total |
|---|---|---|
| **Variables** | **Frequency** | **Percentage** |
| **Occupation:** | | |
| Agriculture / Self-employed | 23 | 23% |
| Household/ Domestic work | 22 | 22% |
| Student | 22 | 22% |
| Profession/Executive/Manager/ Big business | 17 | 17% |
| Clerical/Medium business | 5 | 5% |
| Sales | 9 | 9% |
| Skill manual | 1 | 1% |
| Not recorded | 1 | 1% |
| | | |
| **SMOKING:** | | |
| Never smoke | 69 | 69% |
| Past(12 months back) | 23 | 23% |
| Current(within 12months) | 8 | 8% |
| **ALCOHOL:** | | |
| Never | 68 | 68% |
| Past(12 months back) | 17 | 17% |
| Current(within 12months) | 15 | 15% |
| | | |
| **HISTORY OF DISEASE:** | | |
| **SYSHT-** | 8 | 8% |
| NON | 92 | 92% |
| | | |
| **DIABETES MELLITUS:** | 11 | 11% |

| | | |
|---|---|---|
| NON | 89 | 89% |
| **OTHER DISEASE:** | | |
| Thyroid | 4 | 4% |
| Sinusitis | 1 | 1% |
| TB | 2 | 2% |
| | | |
| **NEBULIZER USES:** | | |
| Occasionally | 55 | 55% |
| NON | 45 | 45% |
| | | |
| **STEROID TABLETS TAKE** | | |
| Occasionally | 11 | 11% |
| NON | 89 | 89% |
| | | |
| **ANY COMPLICATIONS:** | | |
| YES | 1 | 1% |
| Not recorded | 99 | 99% |

**Table 3: Preference towards specific therapy for the clinical management of bronchial asthma**

**Study participants (N = 100)**

| Variables | Frequency | | Percentage | Total |
|---|---|---|---|---|
| **How do you rate your Asthma management? GOOD / MODERATE / BAD** | | | | |
| Siddha | 45 | 14 | 2 | 61 |
| Siddha/Yoga | 3 | 2 | 1 | 6 |
| Siddha/Allopathy | 17 | 3 | 1 | 21 |
| Siddha/Yoga / Allopathy | 1 | 1 | 0 | 2 |
| Siddha/Homoeopathy | 2 | 1 | 0 | 3 |
| Siddha/ Unani | 2 | 1 | 1 | 4 |
| Siddha/ Ayurveda | 1 | 1 | 1 | 3 |
| **TOTAL** | **71** | **23** | **6** | **100** |
| **Which system of medicine has worked best for you?** | | | | |
| Siddha | 61 | | | 61% |
| Siddha/Yoga | 6 | | | 6% |
| Siddha/Allopathy | 21 | | | 21% |

| | | |
|---|---|---|
| Siddha/Yoga / Allopathy | 2 | 2% |
| Siddha/Homoeopathy | 3 | 3% |
| Siddha/ Unani | 4 | 4% |
| Siddha/ Ayurveda | 3 | 3% |
| **TOTAL** | **100** | **100%** |

| **Which system of medicine insists on Diet along with their treatment regimen?** | | |
|---|---|---|
| Ayurveda medicine | 1 | 1% |
| Yoga medicine | 10 | 10% |
| Unani medicine | 2 | 2% |
| Siddha medicine | 7 0 | 70% |
| Homoeopathy medicine | 2 | 2% |
| Allopathy medicine | 15 | 15% |

| **Expenditure -which system of medicine better?** | |
|---|---|
| Allopathy medicine (Rs 400-800) per months | 70% |
| Siddha (AYUSH Medicine) per months ( Rs 100- 150) | 86% |