

# SCREENING FOR ANXIETY AND DEPRESSION IN CHILDREN WITH ASTHMA - PILOT STUDY

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## ABSTRACT

**BACKGROUND:** Bronchial asthma is an important public health problem at the global level. In India, Prevalence of Asthma in children of 6-13 years is 2.3%. Psychological factors may influence the symptoms and management of Asthma in children. Hence, there is a need to assess Anxiety and Depression in children with asthma.

**AIMS AND OBJECTIVES:** To Screen for Anxiety and Depression by using Revised Children Anxiety and Depression (RCAD) scale in Asthmatic children in the age of 6 to 11 years.

### Objectives:

- 1) To assess the Anxiety and Depression by using Revised Anxiety and Depression score in children with asthma and in age and sex matched normal healthy children.
- 2) To assess and compare sex wise distribution and affection in both the groups

**METHODOLOGY:** An Observational, Cross-sectional study was conducted at the Tertiary health care centre of Mumbai, India. All Asthmatic children who participated in the study were recruited from the Paediatric Asthma Clinic. Normal data was taken from Primary and Secondary school children from Mumbai. Total 60 participants from each group (Control and Asthmatic) were taken and interviewed for RCAD Scale.

**RESULT:** Out of 60 Asthmatic children, RCAD score of Anxiety was 15.00%. Total Anxiety and Depression score was 17% and Depression score was 22% in Asthmatic children. Boys were affected more than girls. RCAD score value showed affected in Normal Children too but the percentage was low as compared to asthmatic children.

**CONCLUSIONS:** This study results revealed that Anxiety and Depression is seen more in Children with Asthma as compared to the control Group.

**Keywords:** Asthmatic Children, Anxiety and Depression

## 1. INTRODUCTION

Bronchial asthma is an important public health problem at the global level. It was found that the prevalence of asthma was 7.6% (95% CI: 5.9–9.6%) in school based studies and 8.7% (95% CI: 5.1–13.1%) in community based studies in India.. (Daniel RA, Aggarwal et al (2022).

Asthmatic children usually have fear of acute attack of breathlessness during exertion. It has a deleterious effect on their mind and affect their quality of life

(HRQOL) Most of the studies have found the asthmatic children had lower self-esteem, social isolation, aggression, and anxiety and depression compared to those with other chronic illnesses [Veronica \(2012\)](#).

Psychological factors may influence the symptoms and management of asthma in children.

Several study reported that asthma symptoms can be exacerbated by feelings of anxiety and tension, and one-third of children diagnosed with asthma may also have a concurrent diagnosis of an anxiety disorder. [Katon & Richardson \(2004\)](#). Each child grows and develops at his or her own rate. School-age period between six to twelve years is a time of relatively slow and steady growth. And it is the period of development of expected physical, emotional, and mental abilities of children.

School plays a crucial and formative role in the development of the child. The physical and mental growth is affected in the asthmatic children because of increased Absentism in schools due to acute attack of breathlessness.

A small amount of anxiety is normal in the developing child is accepted but it is seen that it has increased in asthmatic children as per the study conducted by [Paul et al. \(2004\)](#). This persistent feeling of anxiousness affect their physical growth as well as mental stability. [Katan \(2005\)](#) suggested that an acute episode of stress can trigger, within hours, a sequence of molecular events related to structural modelling in the amygdale, which can lead to the eventual development of anxiety.

It may affect Children's play time and Study progress as documented by [Veronica \(2012\)](#) Hence there is a need to assess the anxiety and depression in children with asthma. Most of the studies are based on adult population. There are potential gaps in the literature regarding the severity of psychological disorders in asthmatic Children in India as compared to their age match Normal healthy Children.

**Revised children anxiety and depression scale (RCAD)** [Kösters & Mai \(2015\)](#)

The RCADS is a self-report questionnaire to assess mental disorders in children. It is tool to screen for anxiety and depressive disorders. It has been shown to be a reliable and valid instrument in school-based sample.

As per literature available on asthma, most of the researcher had used this scale in their studies and has shown good reliability.

## 1.1. OBJECTIVES

The purpose of this study was to assess and screen for Anxiety and Depression in Children with asthma (defined as children ages 6–11 years) with their age and sex match normal healthy Children.

## 2. METHOD

### Design

This was an Observational, Cross-sectional, study conducted at physiotherapy OPD of the Tertiary health Care Centre of Mumbai, India between November of 2019 and February of 2020.

### Participants

All asthmatic Children who participated in this study were recruited from the Paediatric OPD of a Tertiary health care centre of Mumbai, India. They were referred for physiotherapy treatment. Children were included in the study if they met these

criteria: (1) Diagnosed with mild-to-moderate asthma by a physician at least 6 months before the study as per GINA Guideline 2015, and (2) The children's who were on asthma medication. (3) Normal healthy children were recruited from primary and secondary school going Children from east and west zones of Mumbai. Exclusion criteria was set as, children with Cardiac and other respiratory comorbidities and those with cognitive or motor limitations did not included in the study. The child who had an exacerbation on the day of testing was excluded. The local ethics committee approved the study and written informed consent was obtained from all of the participants and their parents.

Sample size was calculated depends on prevalence of asthma related anxiety from previous studies.

A total of 60 participants from each group (Control and Asthmatic) were selected and Interviewed for Revised Anxiety Depression scale (RCAD). Scores are aggregated into two total domains, total Anxiety Scale (sum of the five anxiety subscales) and total Internalizing Scale for Anxiety and depression (sum of all six subscales).

**RESULT:** The study comprised of 60 Asthmatic Children and 60 age and sex matched normal healthy Children of which there were 30 boys and 30 girls.

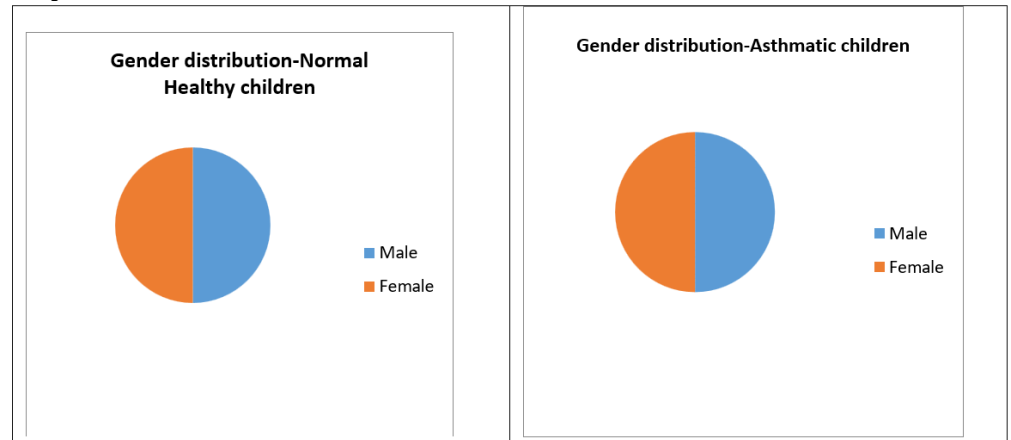
The mean age of the 120 participants (Normal-60 and Asthmatic-60) included in the study was 9.12 years with a SD 1.4 in males. The mean was 9.71 in female with SD 1.25 in females

Out of 60 Asthmatic children, RCAD score of Anxiety was 15% Depression was 22%, and total Anxiety and Depression score was 17 %. Boys were affected more than girls in all categories.

We found normal healthy children were also affected by anxiety 2%, depression 7% and Total Anxiety and depression was 2%.

**Table 1**

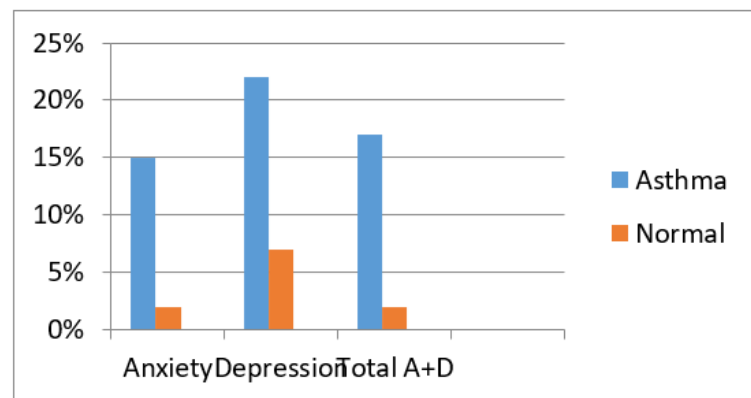
Table 1 DEMOGRAPHIC DATA			
AGE		SEX	
		Male	Female
Asthmatic Children	Count	30	30
	Minimum	6.00	6.00
	Maximum	11.00	11.00
	Percentile 25	8.00	9.00
	Median	9.00	10.00
	Percentile 75	10.00	11.00
	Mean	9.14	9.71
	Standard Deviation	1.48	1.25
Normal healthy Children	Count	30	30
	Minimum	6.00	6.00
	Maximum	11.00	11.00
	Percentile 25	8.74	9.26
	Median	9.00	10.00
	Percentile 75	10.00	11.00
	Mean	9.50	10.50
	Standard Deviation	1.35	1.37

**Graph 1****Graph 1** Male and Female Ratio in Asthmatic Children and in Healthy Normal Children

INFERENCE: Equal number of Boys and girls were included in the study from paediatric asthma OPD and from the primary and secondary school.

**Table 2****Table 2** Percentage of Affection of Anxiety and Depression in Asthmatic Children and Normal Healthy Children

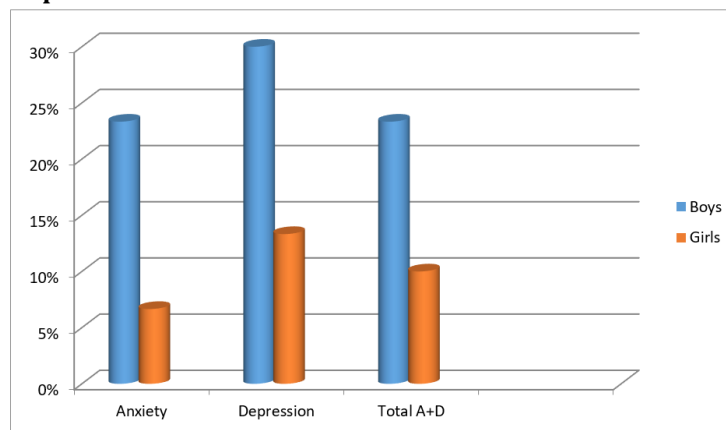
Category	Asthmatic children	Normal healthy children
Anxiety	15%	2%
Depression	22%	7%
Total Anxiety and Depression	17%	2%

**Graph 2****Graph 2** Anxiety and Depression Score by Revised Children Anxiety Depression (RCAD) Scale in Asthmatic and Normal Healthy Children**INFERENCE:**

As per [Graph 2](#) and [Table 2](#), the total anxiety score was more (15%) in asthmatic children as compared to (2%) normal healthy children. The score for MDD was more (22%) in asthmatic children as compared to (7%) normal healthy children. The total anxiety and depression score was more (17%) in asthmatic children as compared to (2%) in normal healthy children.

**Table 3**

<b>Table 3 Sex Wise Distribution in Asthmatic Children</b>		
	<b>Boys</b>	<b>Girls</b>
Anxiety	7/30=23.33%	2/30=6.66%
	9/60=15%	
Depression	9/30=30%	4/30=13.33%
	13/60=21.66%	
Total A+D	7/30=23.33%	3/30=10%
	10/60=16.66%	

**Graph 3****Graph 3 Sex Wise Distribution in Asthmatic Children**

Inference: As per [Graph 3](#) and [Table 3](#), Boys were more affected than girls. It was seen that 23 % anxiety in boys and 7% in girls. 30% depression seen in boys and 13% in girls. Total anxiety and depression score was more in boys (23%) as compared to girls (10%)

### 3. DISCUSSION

The study included 60 Asthmatic Children and 60 Age and Sex matched Healthy Normal Children. There were 30 boys and 30 girls in both the groups. The study was conducted physiotherapy OPD. Normal data was taken from primary and secondary school going Children from east and west zones of Mumbai. The Objectives of the Study was to screen the children with asthma for Anxiety and Depression by RCAD score and compare the findings with Age and Sex matched healthy Children.

This study results showed that Anxiety and Depression occurs more frequently in Children with Asthma compared to the control. Out of 60 Asthmatic children, RCAD score of Anxiety was 15% Depression was 22%, and total Anxiety and Depression score was 17 %. Boys were affected more than girls in all categories.

We found normal healthy children were also affected by anxiety 2%, depression 7% and Total Anxiety and depression was 2%.

**Paul Lehrer and Jonathan Feldman et al (2004)** explained the fact that elevated anxiety and depression have been found to be positively correlating with severity of asthma. According to them panic disorder was associated with asthma, whereas depression is seen more often in irreversible airway disease.

This study is also supported by [Selma & Geoff \(2011\)](#). It was an cross-sectional study performed on 431 children aged 11 to 14 years. They concluded that depression is more common in girls with non-atopic asthma. It differs from our study because we found boys were more affected than girls. However the probable cause of depression and anxiety could be same in both studies, that is impaired sleep in asthmatic patients due to fear of breathlessness. These asthmatic children generally wake up many times during their sleep. It can be frustrating and may have effect on their behaviour. Impaired sleep can cause fatigue throughout the day, affect the concentration, and thus affect the study as well as activity of daily living.

When the data compared with age-sex match children, there were 7% normal healthy children were screen positive for major depression and 2% for anxiety. The causative factors associated with depression in normal healthy children could be related to poor performance in studies, issues in the family, and economical problems as India is developing country.

Since the percentage of affection more in children with asthma determines the health related tension with these kids as compared to normal healthy children.

Anxiety and depression in asthmatic children gives poor outcomes measures with management and worsen the symptoms. It has been reported in many studies that those who suffered from both asthma and anxiety express a much lower quality of life than those who only have asthma. Poor quality of life again affect their mental well being. So it is vicious cycle and we need to break this by providing appropriate assessment and treatment. Hence it is need to address this psycho social dysfunction along with the routine management.

#### **4. CONCLUSIONS AND CLINICAL IMPLICATIONS**

This study concludes that children with asthma were screened positive for anxiety and depression. Boys were more affected than girls.

#### **5. IMPLICATIONS FOR PRACTICE AND RESEARCH**

This study adds to the weight of the literature regarding the mental health assessment in children with asthma in India.

#### **CONFLICT OF INTERESTS**

None.

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