

## Assessment of Behavioural Problems in Children with Chronic Asthma - A Cross Sectional Study

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### Abstract

**Background:** Asthma is a chronic illness involving the airways in the lungs. Children are more susceptible. A strong link between asthma and psychiatric illnesses has been established. Hence psychological factors govern the management of asthma. The objective of the study was to assess the self-esteem of children with asthma and their behaviour as reported by the parents/guardians.

**Methods:** The cross-sectional study was conducted at Ramaiah Medical College and Hospital, Department of Paediatrics. Asthmatic children diagnosed as mild to moderate, visiting the asthma clinic, between the age of 5 - 16 years were included. Duration of study was from 1<sup>st</sup> June 2017- 1<sup>st</sup> June 2018. The assessment was done in a counselling room for both parents and children. The respondents could either answer the questionnaire or point out their choices or indicate them verbally. Culture free self-esteem Inventory (CFSEI) by Battle (1981) was used for the study. CBCL by Achenback and Ederirock (1983) is designed to record in a standardised format the behavioural problems and social competencies of children aged between 4 - 16 years, as reported by parents/guardians.

**Result:** A total of 70 children aged between 5 - 16 years were enrolled in the study. 6 from cases and 4 from control group were dropped out due to various reasons. 30 each in control and case group were part of the study, with regular follow-ups to the clinic. Majority of the children belonged to the age group of 10 - 13 years (63.3%) in cases and 10 - 14 years (63.03%) in control group. The sample consisted of 63% of boys (n = 19) and 37% were girls (n = 11) in cases and the control group had 60% boys (n = 18) and 40% girls (n = 12). Among the cases, about 50% had at least 3 wheezing episodes. Among the number of inpatient admissions, 14 were admitted once, 4 were admitted twice and 1 child with 3 admissions. The school absenteeism in cases varied from 1 - 6 weeks per academic year. Mean and standard deviation of sample on self-esteem scale for boys between cases and controls showed significant differences. Considering general self-esteem where maximum mean value in 10.36 in cases and 13.05 in control (p < 0.05). Parental self-esteem showed significant differences between the two groups. Mean and standard deviation of the sample on self-esteem scale for girls showed maximum mean value of 2.273 in general self-esteem and 0.132 in social self-esteem.

On the correlation between measures of self-esteem in clinical cases a highly significant correlation exists between social self-esteem and general self-esteem. Hence asthmatic children were reported to have more behavioural problem and lower self-concept [14].

Asthmatic children were rated by their parents/guardians as having high level of behavioural problems than non-asthmatic children. Some of the common behavioural and emotional problems reported in asthmatic children were restlessness, argumentative, self-conscious, secretive, physical problems with no medical cause. 50% complained that no one loves them, temper tantrums, impulsive behaviour, stubborn and irritable. 42% were disobedient at home, bites finger nails, sudden changes in mood and feelings. 33% were too dependent, shy, too fearful and anxious. 25% felt lonely, confused, withdrawn, worried and were nervous. 17% had day dreams, strange ideas, suspicious and felt inferior.

**Keywords:** Children; Asthma; Behavioural Problems; Self-Esteem

## Abbreviation

CFSEI: Culture Free Self-Esteem Inventory

## Introduction

Asthma is a chronic illness involving the airways in the lungs. The airways are always inflamed during asthma and they become even more swollen and the muscles around the airways can tighten when something triggers the symptoms (AAAAI) [15] and this makes it difficult for the child to breathe.

Children are more prone to develop asthma, and a strong family history is often noted. Most often, asthma is associated with allergic reactions, and are known as allergic asthma. Asthma can develop before the age of five years in majority of the cases.

Since 1970's the prevalence of bronchial asthma has increased continuously and currently affects an estimated 4 to 7% of the people worldwide. The prevalence of childhood asthma varies widely from country to country. 20,000 children in the city of Bangalore under the age group of 18 years showed a prevalence of 29.5% during 1999, according to hospital based study by Paramesh during 1999 [2]. Study conducted by Caroline., *et al.* (2011) shows that 19.26% of the children presented symptoms of asthma and 35% were classified as having clinical behavioural problems [3].

Psychological factors may contribute and have an impact on the symptoms and influence the management of asthma. The notion that emotional stress can precipitate or exacerbate acute and chronic asthma [1] has been recognised anecdotally for many years. Faulty symptom attribution, adoption or rejection of the sick role, and low self-esteem, are psychological barriers that may negatively impact treatment adherence.

Self-esteem is an attitude which can either be positive or negative that a person has about himself or herself and that it is a product of the influences of culture, society, family and interpersonal relationship [4]. It is an individual's evaluation of his/her self-worth and also defined as the value each individuals place on one's own characteristics, abilities and behaviour [5].

It's long been considered that Asthma is a condition in which psychological factors play a role. Psychological variables may affect the outcome in asthma via their effects on treatment adherence and symptom reporting. Interpretation of asthma symptoms as well as the manifestation of measurable changes in immune and physiologic markers of asthma is influenced by the central cognitive process [10].

The association between asthma and childhood behaviour problems has been identified, namely through higher behavioural problem scores in asthmatic children, with significant differences found in multiple domains between groups [6,7,9]. Further studies have proved the role of psychological problems in the symptom and severity of asthma indicating that children with high behavioural problems show more number of days of wheezing problem (about 18 days per year) [8].

## Objective of the Study

The objective of the study was to assess the self-esteem of children and their behaviour as reported by the parents whose children are asthmatic.

## Methods

### Study population

The cross-sectional study was conducted at Department of Paediatric, M S Ramaiah medical college and Hospital. The children attending asthma clinic and diagnosed as asthmatics were included for the study. The children who were between the age group of 5 - 18 years were considered for the study. The children who were diagnosed as mild to moderate asthmatics were included. Parents of children

enrolled provided consent for the study and the hospital approved the study. A sample of 30 paediatric cases and 30 controls with minor self-limiting illness, aged between 5 - 16 years attending paediatric clinics in the hospital were selected. The study excluded the children who had psychiatric illness, systemic illness, chronic pulmonary disorders and irregular with follow up visits. The duration of asthma varied widely, ranging mostly between 6 months to 6 years.

The assessment was done in a counselling room for both parents and children who had the knowledge of both English and Kannada. The respondents could either fill the questionnaire or point out their choices or indicate them verbally.

### Socio demographic details

A semi structured questionnaire was used to gather information about demographic variables, treatment details and disruption in schooling.

### Self-esteem measure

Culture free self-esteem Inventory (CFSEI) by Battle (1981) was used for the study. It is a 60 item questionnaire classifiable into 5 subscales: General self-esteem, social/peer related self-esteem, Academic/school related self-esteem, parents/home related self-esteem and life scale indicating defensiveness.

The subscales were derived using factor analysis. The scales can be used on children who are in first grade. The highest score is 50 on the first four sub scales combined and on the lie scale 10. The items in the instrument are divided into 2 groups-those that indicate high self-esteem and those that indicate low self-esteem. The child marks each item yes or no. Higher score indicates higher self-esteem. The total score is obtained by summing the item scores. The maximum possible score is 50 excluding the lie scale. The maximum score on the lie scale, which indicates defensiveness, is 50.

### Child behaviour checklist measure

CBCL developed by Achenback and Ederirock (1983), is designed to record in a standardized format the behavioural problems and social competencies of children aged 4 through 16 years, as reported by parents and others who know the child well. The items are numbered 1 - 113, but item 56 includes physical problems (a) through (h), the total number of specific problems of listed behaviours is 118.

Zach of the 118 behaviour problem items is scored on a 3 step response scale. For each item that describes the child currently or within the last six months, parents are to circle 2 if the item is "very true" or "often true" of their child and 0 if the item is "not true" of their child. The middle category is used when mild or ambiguous instances of behaviour would make a forced choice between present and absent difficult.

## Results

### Study population

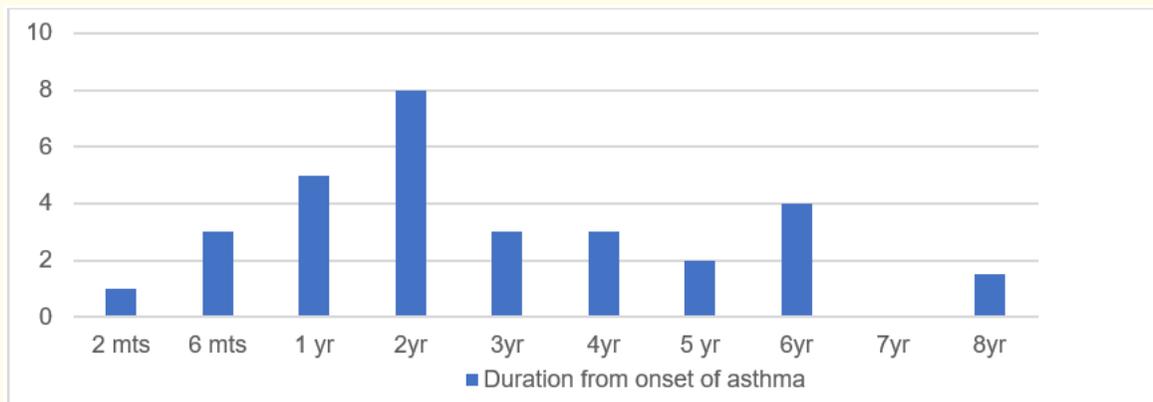
A total of 70 children were enrolled in the study. 6 from the cases and 4 from the control group were dropped out due to various reasons. 30 children are in control group and 30 in cases. The children were regular in their follow ups to the clinic. The age range of the children was between 6 - 16 years.

In the age distribution of the samples, majority of the children belonged to the age group of 10 - 13 years (63.3%) in cases and 10 - 14 years (63.03%) in control group.

Gender distribution of the case group showed, 63% of the cases comprising of boys (n = 19) and 37% of cases being girls (n = 11).

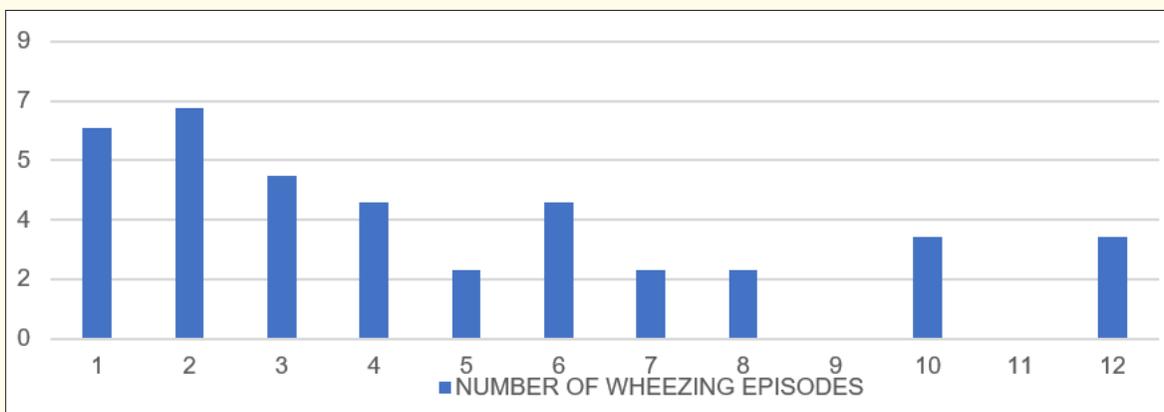
Gender distribution of the control group showed, 60% of the control samples being boys (n = 18) and 40% of control group being girls (n = 12).

The above chart shows the duration of illness in the cases which ranged from 2 months to 8 years.



Graph 1: Indicates the duration of illness in cases.

As the above graph represents most of the children (about 50%) had at least 3 wheezing episodes but number varied widely from 1 - 12 episodes.



Graph 2: Shows the number of wheezing episode in cases.

Among the children with inpatient admissions, 14 children were admitted once, 4 children had two admissions and 1 child had three admissions.

The school absenteeism in cases varied from 1 week to 6 weeks per academic year. On the whole 11 children missed up to 1 week, 7 children missed between 2 - 3 weeks, 3 children missed between 4 - 5 weeks and 1 child was not able to attend for more than 6 weeks.

Variables		Cases N = 19	Control N = 18	t value	Sig	P Value
General Self-esteem	M	10.36	13.05	2.945	0.006	< 0.05*
	SD	3.0	2.5			
Academic Self-Esteem	M	6.89	7.72	1.507	0.143	> 0.005
	SD	1.2	1.9			
Social self-esteem	M	6.10	7.00	1.644	0.109	> 0.05
	SD	1.7	1.5			
Parental Self-esteem	M	6.36	7.94	2.736	0.010	< 0.05*
	SD	1.9	1.5			
Lie-score	M	4.13	4.16	0.244	0.808	> 0.05
	SD	2	1.5			
Total Self-esteem	M	29.52	35.72	3.541	0.001	< 0.05*
	SD	5.7	4.8			

Table 1: Shows the mean and SD of the sample on self-esteem scale for boys.

\*P < 0.05.

The above table shows difference in self-esteem in all the domains between the cases and controls. Significant differences is found In the area of General Self-esteem where the maximum mean value is 10.36 in cases and 13.05 in non-asthmatic (p < 0.05). In the domain of parental self-esteem significant differences are found between the two groups. On the whole there is significant difference (< 0.05) in self-esteem between the two groups.

Measures	Cases (N = 19)	Control (N = 18)	't' value	Significance	P value
Mean	43.47	27.5	3.215	0.003	P < 0.001
SD	14.6	15.5			

Table 2: Indicates the scores on CBCL for boys between the case and control group.

df = 29, p < 0.05\*.

The table above indicates a highly significant gender difference in the behavior of the children as reported by their parents.

Variables		Cases N = 11	Control N = 12	t value	Sig	P Value
General Self-esteem	M	12.18	14.41	2.273	0.034	< 0.05
	SD	1.8	2.7			
Academic Self-Esteem	M	7.54	7.50	1.507	0.954	> 0.05
	SD	1.4	2.1			
Social self-esteem	M	6.72	6.83	0.132	0.896	> 0.05
	SD	1.3	2.3			
Parental Self-esteem	M	6.81	7.41	0.984	0.336	> 0.05
	SD	1.5	1.3			
Lie-score	M	4.54	3.33	2.020	0.056	> 0.05
	SD	1.3	1.4			
Total Self-esteem	M	33.27	36.16	1.435	0.166	> 0.05
	SD	3.5	5.7			

Table 3: Shows the mean and SD of the sample on self-esteem scale for girls.

\*P < 0.05.

The above table indicates the maximum mean value in the domain of General Self-esteem which is 2.273 and the least is in the domain of social self-esteem which is 0.132. The obtained p value is significant in the domain of General Self-esteem at 0.05 level.

Variables	Cases (n = 18)	Control (n = 12)	't' value	Significance	p-value
Mean	43.81	23.08	2.859	0.009	< 0.001
SD	21.3	12.6			

**Table 4:** Indicates the Sores of CBCL between the case and control group among girls.  $df = 29, P < 0.05^*$ .

The obtained t value of 2.859 is significant at 0.01 levels indicating significant differences between asthma and non-asthmatic children.

Variables	Child Behaviour Checklist	
	Cases	Control
General Self-esteem	-0.202	-0.684
Social Self-esteem	-0.033	-0.256
Academic Self-esteem	0.005	-0.511
Parental self-esteem	-0.015	-0.136
Lie	0.149	0.303
Total score	-0.121	-0.608

**Table 5:** Indicates the correlation between self-esteem behaviour checklist of the child of both asthmatics and control group.

The correlation values indicate no significant relationship between the two variables on any dimensions of the self-esteem. Except Academic self-esteem in case of asthmatics all other domains show negative correlation.

Measures	General Self-Esteem	Social Self-Esteem	Academic Self-Esteem	Parental Self-Esteem	Lie Score
Social Self-Esteem	0.490**				
Academic Self-Esteem	0.285	0.074			
Parental Self-Esteem	0.402*	0.188	0.097		
Lie Score	-0.25	-0.059	-0.092	-0.476	
Total Self-Esteem Scores	0.889**	0.652**	0.461	0.614**	-3.347

**Table 6:** Indicates the correlation between measures of self-esteem subscale scores in cases group.

\*\*P < 0.01; \* p < 0.05.

Table displays the correlation between the domains of self-esteem in asthmatic cases. A significant correlation exists between social self-esteem and General Self-esteem, Parental Self-esteem and General Self-esteem.

**Discussion**

The purpose of the study was to assess self-esteem and behavioural problems as rated by parents is asthmatics and non-asthmatics. The study found a significant difference in domains of general self-esteem and parental self-esteem. The study also indicates asthmatic children with asthma have low self-esteem and Siegel [11] found that children with chronic illness had higher depression score too. Hoare and Mann [12] in their study observed that children with chronic illness were found to have high childhood behavioural scores than normal subjects.

Some of the common behavioural and emotional problems reported in asthmatic children were restlessness, argumentative, self-conscious, secretive, had physical problems with no medial cause. 50% of them complained that no one loves them, had temper tantrums, impulsive behaviour, were stubborn and irritable. 42% were disobedient at home, bites finger nails, sudden changes in mood and feelings. 33% were too dependent, shy, too fearful and anxious. 25% felt lonely, confused, withdrawn, worried, repeated certain acts over and over with compulsion and nervousness. 17% had day dreams, strange ideas, suspicious and felt inferior.

The correlation coefficient between self-esteem and CBCL indicates negative relationship between two variables in both cases and control group except in domain of academic self-esteem and parental self-esteem.

On correlation between measures of self-esteem in clinical cases a highly significant correlation exists between social self-esteem and general self-esteem and significant relationship between parental self-esteem and general self-esteem.

In interpreting the findings of the study it is important to note that the child behaviour was obtained from the report of parents. There is a good evidence that behaviour problem in asthmatic children can be substantially reduced by parents approach and management of behaviour problems and education to both parents and asthmatic children.

Parents need to be guarded professionally to manage child calmly with patience.

### Conclusion

The result of the study found a significant difference indicating that asthmatic children have low self-esteem and also found that children with chronic diseases had higher depression score and lower self-esteem.

There is good evidence from the findings of the study that behaviour problems in asthmatic children can be substantially reduced by parents approach and management of behaviour problems and educating both parents and the asthmatic children.

As responsible physicians, it is our duty to identify any of the associated psychological issues in those asthmatic cases and address them as needed. Also, the parents need to be guided professionally to manage the child calmly and use reinforcement when the child is showing the symptoms of asthma.

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