

A Study to Assess the Psychosocial Impairment among Children with Bronchial Asthma Attending Asthma Clinic at A Tertiary Care Hospital

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Abstract: ***Introduction:** Bronchial Asthma is the most common chronic disease in childhood and has been designated a public health problem due to its increasing prevalence in recent decades. Asthma in childhood has a significant impact on the lifestyle of children and their families. Fear, stress, anxiety and depression are common psychological features associated with asthma among children. **Objectives:** To Assess the psychosocial impairment among children with Bronchial Asthma attending the asthma clinic as measured by Paediatric Symptom Checklist (PSC). To Determine the association of psychosocial impairment with severity of the disease. **Method:** A cross-sectional descriptive survey approach was used to assess the psychosocial impairment among children (N=70) suffering from bronchial asthma. Data was collected through a semi-structured tool which included demographic data and a standard Paediatric Symptom Checklist tool. **Results:** 21(30%) of the participants elicited psychosocial impairment in the form of multiple aches & pains, easy fatigability, self centered attitude, regression in developmental age & argumentative behavior. There was no statistical significance between socio-demographic variables and psychosocial impairment at 5 % level of significance. However there was strong association between psychosocial impairment and severity of disease among the study group ($p < 0.001$). **Conclusion:** Bronchial Asthma is the most common chronic illness of childhood and young children experience the greatest burden of asthma morbidity. The current study showed an association between severity of disease and psychosocial impairment. The combined burden of chronic illness, psychosocial impairment and poverty in our country has an impact on quality of life of these children and their families. Hence these findings clearly suggest a need for an early bio-psychosocial approach to care for these vulnerable children with bronchial asthma.*

Keywords: Psychosocial impairment, Bronchial asthma, Tertiary care centre

1. Introduction

Bronchial asthma is a disease of inflammation of the airways. The symptoms associated with bronchial asthma are chest tightness, wheezing, increased airways responsiveness to a variety of stimuli, shortness of breath and coughing that occur in paroxysms and are usually related to specific triggering events. This airway narrowing is partially or completely reversible.¹ This chronic disease disturbs the psychology of the child as well as the family members, which is usually ignored by the clinicians and other health care personnel

2. Background

According to a study by S S Braman in 2006 on Global Burden of Asthma, there has been a sharp rise in the global prevalence, morbidity, mortality and economic burden associated with asthma over the last 40 years, particularly in children. The disease is estimated to affect as many as 300 million people worldwide and its prevalence increases by 50 % every decade. Hence it is expected to increase by another 100 million by 2025.²

The prevalence of bronchial asthma in children varies from 1 to more than 30 % in different populations and is increasing in most countries.³ The economic cost of bronchial asthma is considerable both in terms of direct medical costs (such as hospital admissions and cost of drugs) and indirect medical costs (such as time lost from work and premature death).⁴ As per the report by World Health organisation (WHO), 5, 00,000 annual hospitalisations are due to bronchial asthma.

Out of this 34.6 % is contributed by children up to 18 years of age.⁵

The number of disability- adjusted life years (DALYs) lost due to bronchial asthma worldwide has been estimated to be currently about 15 million per year. Bronchial asthma accounts for around 1 % of all DALYs lost, which reflects the high prevalence and severity of the disease.³

3. Material & Methods

The population for the study was children with bronchial asthma in the age group of 5-12 yrs attending asthma clinic of a tertiary care hospital. Seventy children were randomly selected for the study. The children with acute exacerbation, chronic illnesses like DM, CKD, nephrotic syndrome etc and any other psychiatric illness were excluded from the study. A Psychosocial Impairment Assessment Tool for Asthmatic Children was prepared comprising various sections which included the demographic details, severity of disease and assessment of psychosocial impairment. The assessment of severity of disease was done with the help of NHLBI (National Lung Heart & Blood Institute)⁶ guidelines and assessment of psychosocial impairment was done with the help of Paediatric Symptom Checklist(PSC)⁷.

4. Results

The data collected was analyzed using descriptive and inferential statistics. The demographic data of the study is as mentioned below

Table 1: Demographic variable in study group (N=70)

Parameter		No of children	Percentage
Age (Yrs)	5 – 6	26	37.14
	7 – 8	18	25.71
	9 – 10	15	21.43
	11 – 12	11	15.71
Sex	Male	44	62.86
	Female	26	37.14
Onset of disease (Yrs)	≤ 1	13	18.57
	2 – 3	30	42.86
	4 – 5	16	22.86
	6 – 7	7	10
	8 – 9	1	1.43
	10 – 11	3	4.29
Duration of illness (Yrs)	0 – 5	58	82.86
	5 – 10	11	15.71
	>10	1	1.43

The demographic characteristics revealed that the data was homogenous and bronchial asthma was more predominant among the males. 42.86% children had onset of illness in the age of 2-3 yrs and about 82.86% children had the disease duration of <5 yrs

Table 2: Percentage & Frequency distribution of psychosocial impairment (N=70)

Psychosocial impairment	Frequency	Percentage
Yes	21	30
No	49	70
Total	70	100

The data revealed that out of 70 participants, 21(30 %) had psychosocial impairment. On further analysis of individual items in the standard tool, various aspects of psychosocial impairment were highlighted. 59(87.3 %) had complains of aches and pain, 56(80 %) participants got tired easily, 59(87.3 %) got easily distracted, 47(67.14 %) manifested with easy irritability, 45(64.3 %) showed features of regression in developmental age and 49(70 %) had self-centered attitude.

Table 3: Association between parameters and psychosocial impairment in study group, (N=70)

Parameters		Psychosocial impairment		P Value
		Yes (%)	No (%)	
Age (Yrs)	5 – 6	7 (10)	19 (27.14)	>0.05
	7 – 8	7 (10)	11 (15.71)	
	9 – 10	3 (4.29)	12 (17.14)	
	11 – 12	4 (5.71)	7 (10)	
Sex	Male	14 (20)	30 (42.86)	>0.05
	Female	7 (10)	19 (27.14)	
Onset of disease (Yrs)	≤ 1	5 (7.14)	8 (11.43)	>0.05
	2 – 3	9 (12.86)	21 (30)	
	4 – 5	6 (8.57)	10 (14.29)	
	6 – 7	1 (1.43)	10 (14.29)	
Duration of illness (Yrs)	0 – 5	16(22.86)	42 (60)	>0.05
	5 – 10	4 (5.71)	7 (10)	
	>10	1 (1.43)	0	

The selected socio-demographic variables of the study sample were associated with the psychosocial impairment. But the demographic variables did not show any significant association with psychosocial impairment at 5% level of significance (p <0.05)

Table 4: Association between severity of disease and psychosocial impairment, (N=70)

Severity of disease	Psychosocial impairment		Total	P Value
	Yes	No		
Severe Persistent	2	0	29	<0.001
Moderate Persistent	15	14	33	
Mild Persistent	3	30	6	
Intermittent	1	5	70	
Total	21	49	2	

The computed χ^2 value of 18.56 showed statistical significant at 0.05 level indicating that there is a significant relationship existing between psychosocial impairment and severity of disease. ($\chi^2 = 18.56$, $p < 0.001$).

5. Discussion

Health, happiness, independence, and productivity are basic human desires. For children, this means achieving normal growth and development, acquiring a sense of accomplishment, developing an identity and initiating independence. Over a period of time, all children face the similar developmental tasks. Achieving these developmental milestones depends on many conditioning factors. One conditioning factor that greatly influences developmental outcomes and quality of life is chronic illness. Bronchial asthma is one such chronic illness. Chronic diseases like bronchial asthma, affects an estimated 10 – 20 % of all children during childhood and adolescence.⁸ Chronic chest troubles are the most common cause of chronic illness and can affect cognition, psychosocial behaviour, and school performance of children. Chronic illnesses like bronchial asthma are important factors affecting psychosocial status of children and adolescents.⁷ It has an impact on the psychology of the parents which proportionately affects the psychology of the child.

Most of the study sample i.e. 37.14 % was in the age group of 5 - 6 years followed by 25.71 % in the age group of 7 - 8 years, and minimum 15.11 % in 11 - 12 yrs of age. The mean age of study sample was 7.81 with SD \pm 2.18. These findings indicate that the prevalence of asthma is more among children with lower age group and decreases with advancement of age.⁹

On comparing the two sexes, it was observed that there was increasing incidence of bronchial asthma among males (62.86 %) as compared to females (37.14 %). The findings are in concurrence with the findings of many similar studies.^{9, 10, 11} The reasons are unclear, although it has been suggested that the size of lungs, smaller at birth in boys, proportionately larger in adult men which can influence the development of bronchial asthma. Furthermore, parents of boys seem to have a greater tendency to report symptoms earlier than do those of girls in Indian scenario

Based on age of onset of illness, the present study revealed that most of the study sample (42.86 %) had onset of the disease in 2 - 3 years of life followed by 22.86 %, who had the disease in 4-5 years of life. Hence the age of onset ranged from less than 1 year to as high as more than 10 years with a mean of 2.46 and SD \pm 1.20. 82.86 % of study sample had duration of illness ranging from 0 - 5 Years and just

1.43 % had duration of illness for more than 10 years. The mean duration of illness was 3.98 with a $SD \pm 2.34$. The child is prone for infection as there is poor immunity during this time. Hence lungs are more susceptible to both internal and external injuries at this stage.¹ This may explain the association between early onset of asthma and increased severity of the disease.

47.14 % of sample had mild persistent asthma, 29(41.43 %) had moderate persistent and just 2(2.86 %) had severe persistent bronchial asthma. Thirty percent of the study population had psychosocial impairment. On further analysis of individual items in the standard tool, various aspects of psychosocial impairment were highlighted. 59(87.3 %) had complains of aches and pain, 56(80 %) participants got tired easily, 59(87.3 %) got easily distracted, 47(67.14 %) manifested with easy irritability, 45(64.3 %) showed features of regression in developmental age and 49(70 %) had self-centered attitude. The prevalence of psychosocial impairment among children with bronchial asthma varies considerably, ranging from 16 % - 50 %.^{9,12} Prevalence found in the present study also falls within this range. The results are also comparable to a study conducted by Samuel S and et al in Egypt, which concluded that 39.1% of bronchial asthma children had internalizing behavioural disorders as compared to 6 % of controls, 13 % of children had externalising abnormalities whereas none of the control group manifested with externalising behavioural problems.¹³

Malhi P and et al also conducted a similar study in India and brought out the fact that the children with bronchial asthma were found to have significantly ($p < 0.01$) higher childhood psychopathology scores than control subjects. Some of the common behavioural and emotional problems reported were argumentative (31 %), labile mood (31 %), attention seeking (29 %), irritability (27 %) destructiveness (26%), temper-tantrums (24 %), fearfulness (24 %), dependency (24 %) and nervousness (22 %). In addition, 20 % of the children with bronchial asthma had scores above the recommended cut-off score on Child Psychopathology Measurement Schedule (CPMS) and were functioning in the clinically significant mal-adjustment range. In contrast, only 2.9 % of the control subjects had CPMS scores above the cut-off scores.¹⁴ These findings can be vindicated by the fact that parents pose lot of limitation in day to day activities of these children. Moreover owing to rapid industrialization, urbanization and inflated cost of living, majority of the young couples are employed and live in unitary setup, resulting in less time to look after the children. This leads to stress among the parents as well as the children. Under such circumstances, psychosocial problems and other psychiatric problems are on the rise that has been well documented by Katson W and et al in their study among youth with asthma.¹⁵ It highlights that youth with asthma has almost two-fold higher prevalence of co-morbid DSM- IV anxiety and depressive disorders compared with control.¹⁵ Same findings are also supported by Anees A and et al in India.¹⁶

The computed χ^2 for a probability of 0.05 was 18.56 at 3 degrees of freedom. This observed value is much greater than the probability table value for chi - square at 3 degrees of freedom. Hence, it can be interpreted that there is significant association between severity of illness and

psychosocial. These findings are equivalent to findings of Blackman JA and et al.¹⁷ They found that children with asthma have higher rates of attention deficit / hyperactivity disorder; diagnosis of depression, behavioural disorders, learning disabilities and missed school days (all $p < 0.001$). The more severe the asthma is, higher are the rates of these problems. Children with asthma are bullied more commonly. In addition, when socio-economic factors are controlled, asthma significantly increases the odds of having developmental, emotional and behavioural problems. Two other studies also had similar findings.^{17,14}

Study done by Curtis LM in 2007 also brought out the fact that asthma severity is related with psychosocial impairment.¹⁸ In their study, multivariate analysis of association between asthma morbidity and psychosocial impairment were conducted controlling demographic characters. Impairment was associated with mean symptom nights (2.8 vs 1.5 per 14 days, $p=0.001$). As compared to non-impaired children, impaired children were 11.8 % less likely to carry out everyday activities and reported 13.2 % worse physical health ($p < 0.001$). Daytime symptoms burden, β agonist use and exacerbation did not differ.¹⁷

But a study done by Bender BG and et al in 2000 is contrary to the finding of present study showed psychological adaption in the children was associated with the psychological adaptation of the family but not with disease related variables.¹⁹ Also, Wamboltz MZ and et al also inferred that children with severe asthma did not rate themselves as having higher levels of anxiety than those with mild or moderate asthma.²⁰

The possible explanation for these results is that living with chronic problems in childhood may affect the behaviour of child. Since physical as well as the emotional stress has known to cause acute exacerbations of symptoms among asthmatics. Hence it may result in another acute exacerbations and thus contributing the vicious cycle of repeated acute episodes, hospitalization and adjustment problems. Also this emotional stress and instability leads to difficulty in following the treatment, which also increases functional impairment and severity of disease. Hence, efforts need to be made to keep the child's asthma under control.

6. Conclusion

Bronchial Asthma is the most common chronic illness of childhood and young children experience the greatest burden of asthma morbidity. The current study showed an association between severity of disease and psychosocial impairment. The combined burden of chronic illness, psychosocial impairment and poverty in our country has an impact on quality of life of these children and their families. Hence these findings clearly suggest a need for an early bio-psychosocial approach to care for these vulnerable children with bronchial asthma.

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