

## Psychological Problems of Children with Bronchial Asthma Presenting to Pediatric Hospital, Bikaner, Rajasthan

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### Abstract

Bronchial asthma is a chronic inflammatory disease of respiratory tract in which episodes of bronchospasm which are seen as life threatening events are potent stressors affecting quality of life. 400 children with asthma were studied divided equally into study and control group. Children in the study group after comparing with an age, sex and socioeconomic status of control group were evaluated using Childhood Psychopathology Measurement Schedule (CPMS) Questionnaire. Those who were considered positive for psychopathological disorders were assessed further and interviewed clinically and were diagnosed according to International Classification of Diseases-10 (ICD-10) criteria. 27% cases compared to 7% controls were diagnosed to have psychiatric disorders on basis of CPMS cut off level. Maximum proportion among ICD-10 classified psychiatric disorders was of Anxiety depression followed by moderate mental retardation, anxiety and nocturnal enuresis.

**Keywords:** Asthma; Psychological Problems; ICD-10 Classification.

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### Introduction

Bronchial asthma is a chronic inflammatory disease of respiratory tract which is often secondary to allergic inflammation, but not in all cases. Paroxysmal, reversible bronchospasms induced by the effects of numerous mediators secreted by allergic inflammatory cells on the bronchial smooth muscles are characteristics of the course of asthma [1]. These episodes of bronchospasm which are seen as life threatening events are potent stressors affecting quality of life. Severe asthma constitutes 5-10% of the total asthmatic population [2,3].

It is one of the most common chronic disease in childhood having psychosocial impact on the child as well as family. Children with chronic physical illness are at increased risk for developing psychological disorders [4]. Most children with asthma overcome this problem without much difficulty but those who are not able to cope up with this problem may experience psychological

maladjustment [5]. These children use less-adaptive coping strategies such as withdrawal, blaming themselves or others for their condition, negativity and irritability [6]. These children also have poorer medical outcomes. Bronchial asthma can interfere with children's happiness and how they feel about themselves. In the past two decades, increased levels of behavioral problems have been reported in asthma patients as compared to other children [7]. Many factors affect psychological health of children suffering from bronchial asthma:

1. A child may be sad and grieving because of a doctor's suggestion to remove a pet from the home, or to limit his or her activities
2. A child may feel "different" than peers
3. Medicine side effects can affect children's mood and they feel about themselves and their bodies
4. Children, when sick, can be clingy, lethargic, sad, fussy, mad, tearful and withdrawn.

Very few literatures are available for assessment of behaviour of children suffering from bronchial

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asthma. The following study was conducted to assess the psychiatric morbidity among children with bronchial asthma through Childhood Psychopathology Measurement Schedule [8] (CPMS scoring).

#### *Aim & Objectives*

- To assess the nature of psychosocial problems in children and young adults with asthma.

#### **Methods**

In this cross sectional study children with bronchial asthma who attended the asthma clinic in Pediatric hospital, PBM Hospital attached to S.P. Medical College, Bikaner, and who fulfilled the inclusion criteria were taken up for study. Sample size was 400 including equal number of cases and controls. Consecutive cases from 1st January 2016 to 31<sup>st</sup> December 2016 were included. Diagnosis of asthma was made on basis of severity [9]. The inclusion criteria were school going children in the age group 6-15 years, duration of asthma symptoms more than one year and, parental consent for study. Children with chronic illnesses other than bronchial asthma, those with primary psychiatric disorders or neurological disorders (including epilepsy) and with mental retardation were excluded. Controls were selected from children attending the general pediatric outpatient department for minor illnesses. After obtaining permission from institutional ethical committee and consent from eligible study participants' parents; children in the study group were compared with an age, sex and socioeconomic status matched control group. Children were evaluated using CPMS Questionnaire. CPMS was translated into Hindi. The caretakers/ parents who accompanied study participants were asked about psychological behaviour of their child as per CPMS questions. Those children who were considered positive for psychopathological disorders were assessed further and interviewed clinically and were diagnosed according to International Classification of Diseases-10 (ICD-10) criteria.

#### *Statistical Analysis*

The data collected were analyzed with the help of SPSS 22.0 software in terms of mean, SD, Range and appropriate test of significance wherever required.

#### **Observation and Results**

Table 1 shows that in this study, equal number included in both case and control in all age groups. Maximum (54%) cases and controls belonged to age group 6-9 years.

Table 2 shows that similar number of cases and controls were included among male and female.

Male were more included in both group of study as compare to female.

Table 3 shows that maximum cases (64.5%) were 1-3 years old when they developed bronchial asthma whereas 35.5% were 4-7 years old.

Table 4 shows that maximum 38% cases had asthma since 7-9 years followed by 35.5% children having asthma since 4-6 years

Table 5 shows that almost equal proportions of cases were having mild to moderate asthma. Only 5% were having severe asthma

Table 6 shows distribution of cases and controls according to CPMS Score cut off to separate children having psychosocial problems from the children not having psychosocial problems. The occurrence of psychosocial problems in cases and controls was observed to be statistically significant ( $p=0.0001$ )

Table 7 shows mean CPMS score among cases was 8.90 with SD of 7.74 whereas mean CPMS score among controls was 5.19 with SD of 2.58. 27% cases and 7% controls were diagnosed to have psychiatric disorders on basis of CPMS cut off level i.e. 10. The difference between scores of both groups was observed to be statistically significant ( $p=0.0001$ )

Table 8 shows maximum proportion among ICD-10 classified psychiatric disorders was of Anxiety depression followed by moderate mental retardation, anxiety and nocturnal enuresis.

**Table 1:** Distribution of Cases & Controls according to Age Group

Age Groups	Case		Control	
	No.	%	No.	%
6 - 9	108	54	108	54
10 - 12	63	31.5	63	31.5
13 - 15	29	14.5	29	14.5
Total	200	100%	200	100%
Mean $\pm$ SD	9.86 $\pm$ 2.18		9.86 $\pm$ 2.18	

SD- Standard Deviation

**Table 2:** Distribution of Cases & Controls according to Sex

Sex	Cases		Controls	
	No.	%	No.	%
Male	113	56.5	113	56.5
Female	87	43.5	87	43.5
Total	200	100.0	200	100.0

**Table 3:** Age at onset of asthma (In years)

Onset	No.	Case	%
1 - 3	129		64.5
4 - 7	71		35.5
Total	200		100.0

**Table 4:** Cases according duration of asthma (in years)

Years	No.	Case	%
1 - 3	22		11
4 - 6	71		35.5
7 - 9	76		38
10-12	31		15.5
Total	200		100.0

**Table 5:** Severity of asthma

Severity	No.	Case	%
Mild	97		48.5
Mod	93		46.5
Severe	10		5
Total	200		100.0

**Table 6:** Distribution of Cases and Controls according to CPMS Cut off level

CPMS Level	Cases (N1, %)	Controls (N2, %)
≥10	54 (27.0%)	14 (7%)
<10	146 (73%)	186 (93%)

[ $\chi^2 = 22.492$ ,  $df=1$ ,  $p=0.0001$ ]

CPMS- Childhood Psychopathology Measurement Schedule

**Table 7:** Distribution of Cases and Controls according to CPMS scoring

CPMS	Mean	SD	Min	Max	
Cases (N1=200)	8.90	7.74	1	36	
Control (N2=200)	5.19	2.58	1	11	p=0.0001

CPMS-Childhood Psychopathology Measurement Schedule  
SD- Standard deviation, Min-Minimum, Max- Maximum

**Table 8:** ICD-10

S. N.	ICD-10 Psychiatric Disorders	Cases		Controls	
		No.	%	No.	%
1	Mild mental retardation	2	5.88	1	7.14
2	Moderate mental retardation	6	17.65	6	14.28
3	Anxiety	3	8.82	3	21.42
4	Anxiety depression	18	52.94	4	28.56
5	Conduct disorder	1	2.94	1	7.14
6	Attention deficit	1	2.94	1	7.14
7	Nocturnal enuresis	3	8.82	6	14.28
	Total	34	100.0	14	100.0

ICD- International Classification of Diseases

## Discussion

Our study titled “Psychological Problems of Children with Bronchial Asthma, presenting to Pediatric Hospital, Bikaner, Rajasthan” was conducted with the objectives of assessing the nature and magnitude of psychosocial problems in children and young adults with asthma and to identify the risk factors for these problems. Over the past several years, a number of studies have shown rise in behavior problems among children with persistent asthma. The prevalence of Bronchial Asthma has increased continuously since the 1970s, and now affects an estimated 4 to 7% of the people worldwide. UK has the highest prevalence of severe Bronchial Asthma in the world [10].

According to Dhaka S et al [11] the mean age of study sample was 7.81 with SD  $\pm$  2.18. Our study sample had mean age 9.86 $\pm$ 2.18 years. These findings indicate that the prevalence of asthma is more among children with lower age group and decreases with advancement of age.

In our study, 56.5% were males. The findings are in concurrence with the findings of Dhaka S et al who observed that there was increasing incidence of bronchial asthma among males (62.86%) as compared to females (37.14 %).

In our study 27% cases and 7% controls were diagnosed to have psychiatric disorders on basis of CPMS cut off level i.e. 10 which is comparable to the findings reported by Malhi, et al. using the same screening instrument. They have reported that 20% of children with asthma suffered from psychological and behavioural problems [12]. Maximum proportion among ICD-10 classified psychiatric disorders was of Anxiety depression followed by moderate mental retardation and anxiety.

## Conclusion

Our study was conducted to describe the psychosocial adaptation problems of preschool children with asthma, compared with a matched group of healthy children. So screening of mental problems and psychological aspects associated with asthma is essential so that we could plan intervention for better control of asthma.

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