

## Screening of behavioral problems in children using child behavior checklist (1½–5 years)

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### ABSTRACT

**Background:** Tremendous rise in behavioral disorders in child population demands screening at the earliest. Screening asymptomatic preschool children using validated preschool child behavior checklist (CBCL) (1½–5 years) may help in early diagnosis and treatment. **Objective:** The objective of the study was to assess the behavioral problems, estimate their proportion in study population, and find its association with various sociodemographic factors. **Materials and Methods:** An observational cross-sectional study was undertaken in which 192 children of age group 1½–5 years were selected from the outpatient department attendees of a tertiary care hospital. Validated preschool CBCL was used which has 100 statements, each scored by parents as 0=not true, 1=somewhat true, or 2=very true and categorized to CBCL empirically based scale internal problems, external problems, total problems, and CBCL-diagnostic and statistical manual of mental disorders (CBCL-DSM) oriented scale. Based on total score, they were categorized to normal, borderline, and clinical range for CBCL both scales. Sociodemographic risk factors were recorded. **Results:** The overall proportion for behavioral disorder was 16% in studied population. Autism spectrum problems constitute highest (13%) of CBCL-DSM oriented scale problems. CBCL empirically based scale external problems are more in boys (16.3%) than girls (6.8%) in the clinical range ( $p=0.01$ ). **Conclusion:** High proportion (16%) of behavioral disorders in preschool children, especially in boys, points toward need of early screening and intervention.

**Key words:** Behavioral problems, Child behavioral checklist (1½–5), Diagnostic and statistical manual of mental disorders

According to the National Mental Health Survey (2016) [1] in preschool children, rates of clinically significant challenging behavior have been estimated at 8–17%. Kleigman *et al.* [2] reported that 7.4% of children at 3–7 years of age have emotional and behavioral problems, defined as either elevated symptoms or serious overall difficulties. Many disorders of children, adolescents, and adults are deeply rooted in the preschool period. Recent epidemiologic studies showed that around one-fifth to one-third of children suffer from cognitive, social, and emotional disorders that would warrant remedial and therapeutic intervention [3]. Screening of behavioral problems in toddlers to estimate the prevalence is of emerging necessity of society.


Behavior is influenced by factors such as age, gender, family background, and mother's working status. [4] A study by Alexander *et al.* [5] conducted in Karnataka, India, reveals more of behavioral problems of preschool kids in working mothers than non-working mothers. In another study conducted in New Delhi by Rai *et al.* [6], the prevalence was high in 3–4 years than

4–5 years with a male predominance. No such data are available for Central India; therefore, we planned this study to estimate the prevalence of behavioral problems in children.

### MATERIALS AND METHODS

This observational cross-sectional study was conducted in preschool children of age group 18–60 months from April 2020 to March 2021 in the pediatric outpatient department using child behavior checklist (CBCL 1½–5 years). A total of 192 preschool children were enrolled in the study. Sample size was calculated taking the prevalence of 7.4% [2] using the formula  $n = Z\alpha^2pq/d^2$ . Random number table was generated from the computer and children were randomly selected after taking informed parental consent. Children with chronic medical illness, established developmental disorders, and convulsive disorders were excluded from the study. Participant's details including sociodemographic profile and birth order were recorded.

CBCL (1½–5 years) [7] was used as the screening tool which is an internationally validated tool. Many studies have demonstrated a high rate of reliability between the scales of the

Access this article online	
Received - 19 February 2022 Initial Review - 31 March 2022 Accepted - 09 April 2022	Quick Response code 
DOI: 10.32677/ijch.v9i4.3159	

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CBCL and actual psychological diagnosis [8]. The CBCL 1.5–5 consists of three summary scales, seven syndrome scales, and five diagnostic and statistical manual of mental disorders (DSM)-oriented scales. Summary scales include internal, external, and total problems constituted by seven syndrome scales.

#### CBCL Syndrome scales

- I. Emotionally reactive
- II. Anxious/depressed
- III. Somatic complaints
- IV. Withdrawn
- V. Sleep problems
- VI. Attention problems
- VII. Aggressive behavior

#### DSM oriented CBCL scale

- I Depressive problems
- II Anxiety problems
- III Autism spectrum problems
- IV Attention deficit / hyperactivity problems
- V Oppositional deficit problems

#### Summary Scales

1. Internal problems: consisting of I, II, III and IV syndrome scales.
2. External problems: consisting of VI, VII syndrome scales
3. Total problems: internal + external + V

CBCL/1.5–5 hand-scoring profile was purchased from store.aseba.org [7]. Checklist includes 100 statements and explained to parents in regional language and instructed to encircle 0, 1, or 2 for each item that describe the child now or within the past 2 months, with 0=not true, 1=somewhat/sometimes true, and 2=very true/often true. Scores were summarized for each syndrome scales and then for summary scales and DSM oriented scales. The raw score obtained is crosschecked with corresponding T score available from CBCL hand-score profile and entered in MS Excel along with demographic details. Based on T score, study subjects were categorized into normal, borderline, or clinical range. T score 29–59 was included in normal range for behavioral problems and 60–63 in borderline and above 63 to clinical range abnormalities.

#### Statistical Analysis

Appropriate statistical analysis was carried out using Epi Info software. Quantitative data were expressed in mean±standard deviation or median with interquartile range while qualitative data were expressed in percentage and statistical differences between the proportions were tested by Chi-square test.  $p < 0.05$  was considered statistically significant.

#### RESULTS

A total of 192 children were enrolled in study, out of which maximum (43%) were in 33–46 months of age and 27% were

from 18 to 32 months of age. About 54% were male and 46% were female. About 68% of children had working mothers. Most of the study participants belonged to lower-middle class (37%) and upper-middle class (36%).

CBCL empirically based summary scale had a mean T score of  $58.65 \pm 8.33$  constituting 29.7% of children in the clinical range for internal problems and mean T score of  $53.7 \pm 8.8$  resulting in 12% in the clinical range for external problems (Table 1) and mean T score  $56.9 \pm 9.2$  for total problems constitute a proportion of 16% of 192 children ( $n=32$ ) in the clinical range. Based on the age group, clinical range for internal, external, and total problems was highest in children in 18–32 months age group with 25%, 34.6%, and 19.4% children in each group, respectively. It was 10.8%, 27.7%, and 7.2%, respectively, in the age group of 33–46 months and 15.8%, 28.1%, and 12.3%, respectively, in the age group of 47–60 months but this difference was not statistically significant. In relation to gender, clinical range for total problems was 19.2% in males compared to 12.5% in females; internal problems were 31.7% in males compared to 27.3% in females.

External problems were significantly more in 16.3% of males compared to 6.8% in females ( $p=0.01$ ) (Table 2). About 18.5% of children of non-working mothers were in clinical range compared to 11% in working mothers. Children belonging to upper class had higher proportion (22%) compared to upper-middle and lower-middle class with 17.4% and 15.5%, respectively.

Autism spectrum problems were seen in 13% of children followed by depressive problems 5.2%, oppositional defiant problems 4.7%, anxiety problems 2.7%, and attention problems 2.1% in CBCL DSM-oriented scale (Fig. 1).

#### DISCUSSION

In the present study, CBCL was used as screening tool for assessing behavioral diseases among preschool children. Many researchers have used CBCL as a screening tool [9].

Proportion was 16% in the present study whereas other studies have similar proportion, a study done by Egger *et al.* was having proportion of 7–25% [10], a study by Erol *et al.* [11] was having proportion of 9%, and a study by Campbell [12] was having proportion of 10–15%. The prevalence for clinical range of CBCL category in 18–32 months age group is

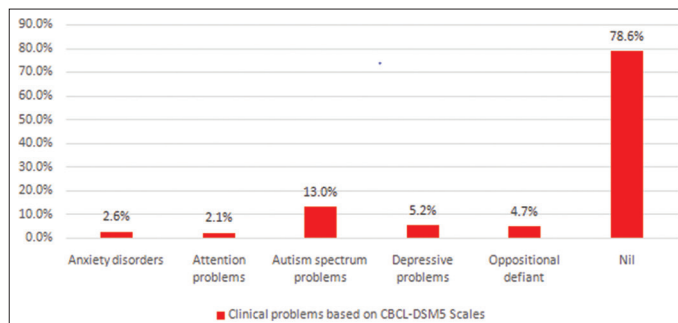


Figure 1: Clinical problems based on child behavior checklist-diagnostic and statistical manual of mental disorders 5 scale in the study population

**Table 1: Descriptive statistics for T score internal, external, and total of CBCL empirically based scale**

	T Score Internal problems	T Score External problems	T score for total problems
Mean	58.65	53.71	56.92
Std. Deviation	8.331	8.882	9.214
Percentiles	Percentiles 25 <sup>th</sup>	48.00	51.25
	Percentiles 50 <sup>th</sup> (Median)	59.00	58.00
	Percentiles 75 <sup>th</sup>	64.00	63.00

**Table 2: Proportion of borderline and clinical range according to CBCL category in males and females**

	Female		Male		p value
	No.	%	No.	%	
<b>CBCL category total</b>					
Normal	60	68.2	59	56.7	0.24
Borderline clinical range	17	19.3	25	24.0	
Clinical range	11	12.5	20	19.2	
<b>T score internal</b>					
Normal	50	56.8	50	48.1	0.47
Borderline clinical range	14	15.9	21	20.2	
Clinical range	24	27.3	33	31.7	
<b>T score external</b>					
Normal	77	87.5	72	69.2	0.01
Borderline clinical range	5	5.7	15	14.4	
Clinical range	6	6.8	17	16.3	

25% and showing decreasing trend of 16.9% in 33–46 months age group and 15.8% in 47–60 months age group (Table 1) is giving same kind of result as study done by Chandrashekhar *et al.* [13] and Roberts *et al.* [14].

In the present study, internal problems and external problems were assessed and internal problems were more than external problems in all age groups in contradiction to longitudinal study conducted by Nuria-de la Rosa *et al.* [3] In the present study, 19.2% of boys and 12.5% of girls in clinical range showing that preschool boys are more vulnerable to behavioral problems than the girls of the corresponding age (Table 2) as were seen in studies by Gupta *et al.* [3] and Reddy *et al.* [15]. Socioeconomic profile of family may influence rearing pattern which has direct effect on child development. In our study, 22.2% of upper class (I) children were in the clinical range followed by decreasing trend in II, III, and IV classes against the observation by Reddy *et al.* [15], Rai *et al.* [6], and Neves *et al.* [16].

In the present study, the higher percentage of borderline problems were observed in single child (23.4%) families than children have siblings (two children; 22.3% and  $\geq 3$  children; 18.2%) similar to a study done by Rizzo [17]. In our study, 68% of mothers were not working and 32% were working. Among working women, most were unskilled workers where the child can

accompany them. Total 11.3% of the children who had working mothers had behavioral problems while it was seen in 18.5% in children whose mothers were not working. Studies done by Tang *et al.* [18] and Kulkarni *et al.* [19] observed a negative impact on behavior of preschool children whose mothers were working.

As per CBCL-DSM5 scale, children in the clinical range for autism spectrum problems were highest (13%), depressive problems (5.2%), with more than 1 behavioral problem in same child, similar to a study done by Rescorla *et al.* [20] which showed reliability of CBCL as a Level 1 screener in children with risk for ASD and another study by Bellina *et al.* [21].

## CONCLUSION

Overall proportion of behavioral disorders in preschool children is found high in the present study with male preponderance probably because of social structure of society and needs longitudinal study in this field.

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*Funding: None; Conflicts of Interest: None Stated.*

**How to cite this article:** George A, Shrivastava J. Screening of behavioral problems in children using child behavior checklist (1½–5 years). *Indian J Child Health*. 2022; 9(4):43-46.