



# Screening Interview on Behavioral Changes in School Performances of 6-12 Years Old Children of Diagnosed Acute Lymphoblastic Leukemia (ALL) in Bangladesh

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## Abstract

**Objective:** Find out the changes in behavior of school performances after the diagnosis of disease.

**Method:** This study of 'Screening interview on behavioral changes in school performances of 6-12 years old children of diagnosed Acute Lymphoblastic Leukemia (ALL) in Bangladesh' is a limited study of small sample and small duration. It is a descriptive study where data collection was done on 8 children of diagnosed Acute Lymphoblastic Leukemia by using CBCL.

**Results:** Result shows hyperactive behavior reduced after diagnosis of ALL, withdrawn becomes more frequent in ALL, poor attention and concentration was slightly increased in ALL, no change in aggressive behavior, no change in disruptive behavior, uncooperative behavior was slightly reduced, children become slightly manipulative, inappropriate social behavior was slightly increased.

**Conclusion:** Psychiatric problems such as social, emotional and behavioral problems as well as change in school performances are the consequences of many chronic diseases. In where childhood malignancies are related to change in emotional behavior and social behavior as well as change in school performances. Acute Lymphoblastic Leukemia (ALL) is a common childhood malignancies and mostly it is curable. For proper treatment by using multidiscipline involvement, it needs more survey and broad spectrum study on this title.

**Keywords:** Pediatrics; Child psychiatry; Cognition; Behavioral abnormalities; Depression

## Abbreviations

ALL: Acute Lymphoblastic Leukemia; CBCL: Child Behaviors Check List

## Introduction

Acute Lymphoblastic Leukemia is one of the most common childhood malignancies, comprising approximately 30 percent of all childhood malignancies. After onset of the symptoms of ALL, children show some changes in their social and emotional behavior. In their premorbid personality children behave as a healthy individual but as much as disease progresses gradually, behavior changes. Such like other chronic disease ALL also reduces the adaptive behavior of individual. After starting of treatment there is also changes in social and emotional behavior from previous behavior [1].

## Objective

Find out the changes in behavior of school performances after the onset of disease in comparison with before the onset of disease.

**Table 1:** Demographic data.

Age of children	6years-12years
Occupation of mothers	House-wife
Occupation of fathers	Business, Service
Socio-economic condition	Below average
Monthly income	Below \$250
Collection of cost of treatment	Land sale, taking loan, taking fund

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**Table 2:** Hyperactive behavior before the onset of disease and after the onset of disease.

Hyperactive behaviour	Before onset of ALL		After onset of ALL	
	Almost never	Frequent	Almost never	Frequent
Presence/absence of symptoms				
Out of seat	3 (37.5%)	5 (62.5%)	6 (75%)	2 (25%)
Constant movement in desk	3 (37.5%)	5 (62.5%)	6 (75%)	2 (25%)
Can't remain in line to and from classes	5 (62.5%)	3 (37.5%)	6 (75%)	2 (25%)
Constant verbal behaviour	5 (62.5%)	3 (37.5%)	6 (75%)	2 (25%)
Has nervous muscle twitches, eye-blinking, nail-biting, etc.	6 (75%)	2 (25%)	7 (87.5%)	1 (12.5%)

**Table 3:** Withdrawn before the onset of disease and after the onset of disease.

Withdrawn	Before onset of ALL		After onset of ALL	
	Almost never	Frequent	Almost never	Frequent
Presence/absence of symptoms				
Listless, tired	8 (100%)	0 (0%)	2 (25%)	6 (75%)
Seems generally unhappy	8 (100%)	0 (0%)	3 (37.5%)	5 (62.5%)
Stares blankly into space	8 (100%)	0 (0%)	4 (50%)	4 (50%)
Rarely asks for assistance even when work is too difficult	7 (87.5%)	1 (12.5%)	6 (75%)	2 (25%)
Does not attempt work	8 (100%)		4 (50%)	4 (50%)
Apprehensive about committing self to a response	5 (62.5%)	3 (37.5%)	3 (37.5%)	5 (62.5%)
Weeps or cries without provocation	6 (75%)	2 (25%)	4 (50%)	4 (50%)
Avoids calling attention to self	6 (75%)	2 (25%)	5 (62.5%)	3 (37.5%)

**Table 4:** Poor attention before the onset of disease and after the onset of disease.

Poor Attention/Concentration	Before onset of ALL		After onset of ALL	
	Almost never	Frequent	Almost never	Frequent
Presence/absence of symptoms				
Does not follow oral lessons	8 (100%)	0 (0%)	5 (62.5%)	3 (37.5%)
Does not follow lessons on board or visual materials	7 (87.5%)	1 (12.5%)	4(50%)	4(50%)
Rarely completes any assignments	6 (75%)	2 (25%)	3 (37.5%)	5 (62.5%)
Daydreams	6 (75%)	2 (25%)	4 (50%)	4 (50%)
Demands individual explanation of assignments	7 (87.5%)	1 (12.5%)	6 (75%)	2 (25%)
Easily distracted from task by ordinary classroom stimuli (minor movement, noises)	4 (50%)	4 (50%)	1 (12.5%)	7 (87.5%)

**Table 5:** Aggressive behavior before the onset of disease and after the onset of disease.

Aggressive behaviour	Before onset of ALL		After onset of ALL	
	Almost never	Frequent	Almost never	Frequent
Presence/absence of symptoms				
Attacks other children by hitting, shoving, etc.	5 (62.5%)	3 (37.5%)	6 (75%)	2 (25%)
Verbally attacks and provokes other children	4 (50%)	4 (50%)	4 (50%)	4 (50%)
Steals	4 (50%)	4 (50%)	5 (62.5%)	3 (37.5%)
Explosive or angry when things do not go own way	4 (50%)	4 (50%)	4 (50%)	4 (50%)
Argues with the teacher over behaviour	6 (75%)	2 (25%)	5 (62.5%)	3 (37.5%)
Destructive of others' belongings and schoolwork	4 (50%)	4 (50%)	6 (75%)	2 (25%)
Strikes back with angry behaviour to teasing	5 (62.5%)	3 (37.5%)	5 (62.5%)	3 (37.5%)

## Method and Procedure of Data Collections

**Type:** Descriptive study

**Sample number:** 08

**Place of sample collection:** Pediatric Hematology and Oncology department of Bangabandhu Sheikh Mujib Medical University, Shahbag, Dhaka, Bangladesh.

**Date of sample collection:** 9<sup>th</sup> August 2018 to 14<sup>th</sup> August 2018

**Criteria of sample:**

1. Diagnosed case of childhood Acute Lymphoblastic Leukemia.
2. School going children.
3. Age: 6 years to 12 years.

**Procedure:** Survey was done by taking interview from the mother about school performance and other behavior of their children. Interviewing was done by using Child Behavior Check List (CBCL). Mothers of the children were asked all the questions of Child Behavior Check List (CBCL). Data collection was done by using CBCL on two onsets.

**Table 6:** Disruptive behavior before the onset of disease and after the onset of disease.

Disruptive behaviour	Before onset of ALL		After onset of ALL	
	Almost never	Frequent	Almost never	Frequent
Presence/absence of symptoms				
Demands attention of any sort from teacher and peers	4 (50%)	4 (50%)	4 (50%)	4 (50%)
Doesn't follow class or school rules (quiet, on time, etc.)	7 (87.5%)	1 (12.5%)	7 (87.5%)	1 (12.5%)
Interrupts lessons by antics (verbal or physical)	6 (75%)	2 (25%)	6 (75%)	2 (25%)
Tells bizarre stories	5 (62.5%)	3 (37.5%)	6 (75%)	2 (25%)
Does not conform to limits on own without control from others	6 (75%)	2 (25%)	6 (75%)	2 (25%)

**Table 7:** Uncooperative behavior before the onset of disease and after the onset of disease.

Uncooperative behaviour	Before onset of ALL		After onset of ALL	
	Almost never	Frequent	Almost never	Frequent
Presence/absence of symptoms				
Blames other for own mistakes	5 (62.5%)	3 (37.5%)	6 (75%)	2 (25%)
Will not follow routine	6 (75%)	2 (25%)	8 (100%)	0 (0%)
Works only when threatened with punishment	5 (62.5%)	3 (37.5%)	6 (75%)	2 (25%)
Defiant of teacher's requests	7 (87.5%)	1 (12.5%)	8 (100%)	0 (0%)
Argues with peers over minor situations	5 (62.5%)	3 (37.5%)	5 (62.5%)	3 (37.5%)
Must have last word in arguments	5 (62.5%)	3 (37.5%)	5 (62.5%)	3 (37.5%)

**Table 8:** Manipulative behavior before the onset of disease and after the onset of disease.

Manipulative	Before onset of ALL		After onset of ALL	
	Almost never	Frequent	Almost never	Frequent
Presence/absence of symptoms				
Wants excessive visits to nurse	7 (87.5%)	1 (12.5%)	6 (75%)	2 (25%)
Wants excessive visits to the bathroom	7 (87.5%)	1 (12.5%)	6 (75%)	2 (25%)
Works only when given individual help	5 (62.5%)	3 (37.5%)	5 (62.5%)	3 (37.5%)
Blames mistakes on anything but self (size of book, your directions, etc.)	6 (75%)	2 (25%)	5 (62.5%)	3 (37.5%)
Constantly puts self-down or criticizes own work	6 (75%)	2 (25%)	5 (62.5%)	3 (37.5%)
Tries to keep you off task by talking about other things, etc.	8 (100%)	0 (0%)	6 (75%)	2 (25%)
Approaches new tasks, situation with "I can't do it"	8 (100%)	0 (0%)	6 (75%)	2 (25%)

1. Before the onset of disease.
2. After the onset of disease.

After collection of data on hyperactive behavior, withdrawn, poor attention, concentration, aggressiveness, disruptive behavior, uncooperative behavior, manipulative, inappropriate social behavior, it was organized in a same table to compare the changes before the onset of disease and after the onset of disease.

### Result

Result shows hyperactive behavior reduced after diagnosis of ALL, withdrawn becomes more frequent in ALL, poor attention and concentration was slightly increased in ALL, no change in aggressive behavior, no change in disruptive behavior, uncooperative behavior was slightly reduced, children become slightly manipulative, inappropriate social behavior was slightly increased (Table 1-9).

### Discussion

Childhood ALL was the first disseminated cancer shown to be curable. It actually is a heterogeneous group of malignancies with a number of distinctive genetic abnormalities that result in varying clinical behaviors and responses to therapy. ALL is diagnosed in approximately 2,400 children younger than 15 years of age in the United States each year. Social and emotional issues may come up during and after treatment. Factors such as the child's age when

diagnosed and the extent of treatment can play a role here in changing behavior [2,3].

Decline in cognitive function in children treated for ALL has historically been a common finding. ALL survivors had lower Intelligence Quotient (IQ) test scores, which corresponded to an approximately 6 to 8 point decrease in IQ. They also had moderate impairments in working memory, information processing speed, and fine motor functioning.

An Iranian study (2014) suggest that except for somatic problems, behavioral problems among the ALL cases are significantly less frequent than the healthy peers, which may stem from better care and support from the families. Their unique findings emphasize the need for more research on the psychosocial status of children with cancer in future.

In this study of 'Screening interview on behavioral changes in school performances of 6 to 12 years old children of diagnosed Acute Lymphoblastic Leukemia (ALL) in Bangladesh', the comparison was done with same individuals to find out the changes between before the onset of disease and after the onset of disease. So a finding can observe that how ALL can affect the emotional behavior and social behavior as well as school performances.

### Conclusion

Changes in school performances of Acute Lymphoblastic

**Table 9:** Inappropriate social behavior before the onset of disease and after the onset of disease.

Inappropriate Social Behaviour	Before onset of ALL		After onset of ALL	
	Almost never	Frequent	Almost never	Frequent
Presence/absence of symptoms				
Comments that no one likes him/her	7 (87.5%)	1 (12.5%)	7 (87.5%)	1 (12.5%)
Has no friends at school	6 (75%)	2 (25%)	6 (75%)	2 (25%)
Does not like to go out for recesses	6 (75%)	2 (25%)	5 (62.5%)	3 (37.5%)
Does not initiate play or talk with peers	6 (75%)	2 (25%)	5 (62.5%)	3 (37.5%)
Is avoided by peers at school	6 (75%)	2 (25%)	4 (50%)	4 (50%)
Personal appearance is lacking in cleanliness, order	7 (87.5%)	1 (12.5%)	4 (50%)	4 (50%)
Does not function in group or class discussions	8 (100%)	0 (0%)	7 (87.5%)	1 (12.5%)
Ridicules peers, torments younger or smaller students	8 (100%)	0 (0%)	7 (87.5%)	1 (12.5%)
Exhibits inappropriate behaviours in room (nose-picking, masturbation, etc.)	8 (100%)	0 (0%)	8 (100%)	0 (0%)

Leukemia (ALL) are slightly common according to this study. Previously there was no significant survey had done related to changes in behavior of school performances of diagnosed case of ALL in Bangladesh. Broad spectrum study can identify more information about this topic.

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