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A Study on Repetitive Behavior in Different Childhood Disorders in A Tertiary Care Hospital

Dr. Sk Ashik Uzzaman[1], Dr. Saswati Nath[2]*, Dr. Sumit Mukherjee[3], Dr. Uday Sankar Mandal[4], Dr. Arnab Pathak[1], Dr. Marufa Bilkish[5]

[1]Junior Resident, Department of Psychiatry, R.G.Kar Medical College, 1, Khudiram Bose Sarani, Kolkata, West Bengal 700004, India

[2]Associate Professor, Department of Psychiatry, R.G.Kar Medical College, 1, Khudiram Bose Sarani, Kolkata, West Bengal 700004, India

[3]Senior Resident, Department of Psychiatry, Calcutta National Medical College & Hospital, 32, Gorachand Rd, Beniapukur, Kolkata, West Bengal 700014, India.

[4] Assistant Professor, Department of Psychiatry, R.G.Kar Medical College, 1, Khudiram Bose Sarani, Kolkata, West Bengal 700004, India

[5]Junior Resident, Department of Obstetrics & Gynaecology, Calcutta National Medical College & Hospital, 32, Gorachand Rd, Beniapukur, Kolkata, West Bengal 700014, India

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***Corresponding author**
Dr. Saswati Nath

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Abstract: Repetitive behavior is a common symptom in children and is characterised by sameness, rigidity and repetitiveness. These stereotypic and repetitive behaviors are seen in various psychiatric as well as neurological disorders. Till today, the focus of almost all studies was on repetitive behavior in ASD & OCD. The purpose of this study is to bring all the children presenting with repetitive behavior under the same roof, to investigate the patterns of repetitive behaviour in children associated with different childhood disorders and to study the distribution and severity of repetitive behaviors among childhood psychiatric disorders. A Cross-sectional observational study, for the duration of 1 year, was performed on 72 Children (0-12yr) with repetitive behaviour attending the child guidance clinic, who had given consent. Children were screened by using CBCL and diagnosed as per ICD-10 DCR. Severity of repetitive behaviors was assessed using the RBS-R scale & score of different subscale of each disorder were compared. Statistical analysis was done on SPSS version 23. Total 8 types of disorders were included in this study. Stereotyped behavior, Self-injurious behavior more in PDD than OCD, MR &TIC. Compulsive behavior more in OCD than PDD, TIC & MR. Ritualistic behavior, sameness behavior, restricted behavior and total score are more in OCD than tic disorder. Stereotyped behavior more in Tic disorder than OCD. Stereotyped behavior and self-injurious behavior more in MR than OCD. This research contributes to the literature looking at domains or specific groups of repetitive behavior within children with PDD, OCD, TIC and other disorders. As per our knowledge this is the first study in India on repetitive behavior in different childhood disorders.

Keywords: Repetitive Behavior, Childhood disorders.

INTRODUCTION

Repetitive behaviour is a broad term used to describe a large variety of behaviors characterised by sameness, rigidity and repetitiveness. These behaviors are universally seen in children with autism spectrum disorder (ASD) [1, 2]. Although repetitive behaviors are one of the defining characteristics of autism or pervasive developmental disorders (PDD), they are not exclusive to PDD and are also seen in young children with typical development; [3, 4] and in children with other developmental, neurological and psychiatric disorders [5].

Most childhood habits are benign and have no specific observable physical sign. Repetitive movements are common in infant and young children. It is seen that more than 60% children of 2-4 years of age and 15-20% of children, aged up to 6 years. Repetitive behavior has diminishing rates over time [6].

The *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5),* designates repetitive, seemingly driven, and apparently purposeless motor behavior that interferes with social, academic or other activities and may result in self –harm, as stereotypic movement disorder [7].

This stereotypic and repetitive behavior seen in**:** Autism spectrum disorders (ASD), Obsessive-compulsive disorder (OCD), Tic disorder, Schizophrenia, Status epilepticus, Abuse, Central nervous system (CNS) disease, Congenital blindness or deafness, Developmentally appropriate self-stimulatory behaviors in young children, Environmentally based sensory deprivation, Mannerisms, Neurologically based movement disorder (e.g. chorea, dystonic movements, athetosis, myoclonus, hemiballismus, or spasms), Self-stimulatory behaviors in individuals with hearing impairment or other sensory deficits etc [7].

Till today, the focus of almost all studies was on repetitive behavior in Autism spectrum disorder and obsessive-compulsive disorder. There are very few studies exploring the repetitive behavior in other children in India. But repetitive behavior, even in normally developed children can impair their academic and social performance. Given the recent emphasis on the early detection and early intervention of academic and learning problems, it is important that children with repetitive behavior who are suspected of having neuropsychological difficulties be evaluated as soon as possible.

So, this study is an attempt to assess the nature and extent of all types of repetitive behavior in children, the underlying disorders they are suffering from and their association with their psychiatric disorders and sociodemographic factors.

AIM & OBJECTIVES

- To investigate the patterns of repetitive behaviour in children associated with different childhood disorders.
- To study the distribution and severity of repetitive behaviors among childhood psychiatric disorders.

MATERIALS & METHODS

This is a cross-sectional observational study, duration of 1 year, was performed on 72 Children (0-12yr) with repetitive behaviour attending the child guidance clinic at our tertiary care hospital. Cases were taken every Saturday, once in a week. After taking informed consent from the parents, consecutive children attending Child Guidance Clinic aged up to 12 years who fulfilled the inclusion and exclusion criteria.

Inclusion criteria for the study population

Patient attending in the child guidance clinic with complaints of repetitive behavior, aged up to 12 years, of both sexes, have given informed consent.

Exclusion criteria

Parents refusing to give informed consent, severe neuromotor disorder which makes them unable to perform tests, severe visual and hearing impairment.

Methods

Children were screened by using CBCL. There are two versions of check list

- Preschool Checklist (CBCL/ 1.5-5 years).
- School age version (CBCL/6-18 years) and diagnosed as per ICD-10 DCR.

Severity of repetitive behaviors was assessed using the RBS-R scale (Repetitive behavior scale revised) The RBS-R was introduced by Bodfish, Symons, Parker, & Lewis in the year 2000. It has 43-item informant based behavior rating scale that measures the severity of a variety of behaviors among individuals presenting with repetitive behaviors. It contains six subscales - Stereotyped Behavior (6 items), Self-Injurious Behavior (8 items), Compulsive Behavior (8 items), Ritualistic Behavior (6 items), Sameness Behavior (11 items) ,Restricted Behavior (4 items)

Each scored on a four point Likert-type scale (0 = behavior does not occur, 1 = behavior occurs and is a mild problem, 2 = behavior occurs and is a moderate problem, 3 = behavior occurs and is a severe problem). Score of different subscale of each disorder were compared. Statistical analysis done on SPSS version 23.

RESULTS

The results of this study shows, out of 72 children 47 were male and 25 were female (Fig-1). Total 8 types of disorders were found in this study. Pervasive Developmental Disorders(PDD) -29.2%, PDD+Hyperkinetic disorder-6.9%, Obsessive Compulsive Disorder(OCD) - 15.3%,Mental Retardation(MR)-20.8%, OCD+ MR-2.8%,Tic disorder -22.2%, Major depressive disorder- 1.4%, Simple partial seizure-1.4% (Fig-2).

In the assessment of repetitive behavior of individual disorders and their comparison with each others. The RBS-R scale values were compared on the basis of Non parametric tests (Mann- whitney) (Table - 1).

The Stereotyped behavior, Self-injurious behavior & total score is more in PDD than OCD. Compulsive behavior is more in OCD than PDD (Table-1).

Stereotyped behavior, compulsive behavior, ritualistic behavior and total score in PDD is more than MR (Table-1).

Stereotyped behavior, self-injurious behavior, compulsive behavior, ritualistic behavior, sameness behavior, restricted behavior, total score all are more in PDD than Tic disorder (Table-1).

Stereotyped behavior and self-injurious behavior are more in MR than OCD. Compulsive

behavior, ritualistic behavior, sameness behavior are more in OCD than MR (Table-1).

Compulsive behavior, ritualistic behavior, sameness behavior, restricted behavior and total score are more in OCD than tic disorder. Stereotyped behavior was more in Tic disorder than OCD (Table-1).

Self-injurious behavior, restricted behavior and total score are more in MR than Tic disorder (Table-1).

Compulsive behavior is more common in OCD only but stereotyped behavior and self-injurious behavior are more in OCD + MR than OCD (Table-1).

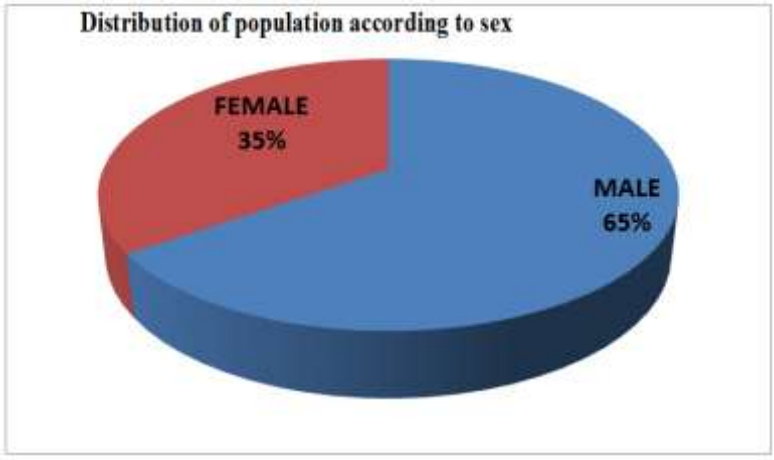

Fig-1: Pie diagram show study population male predominant

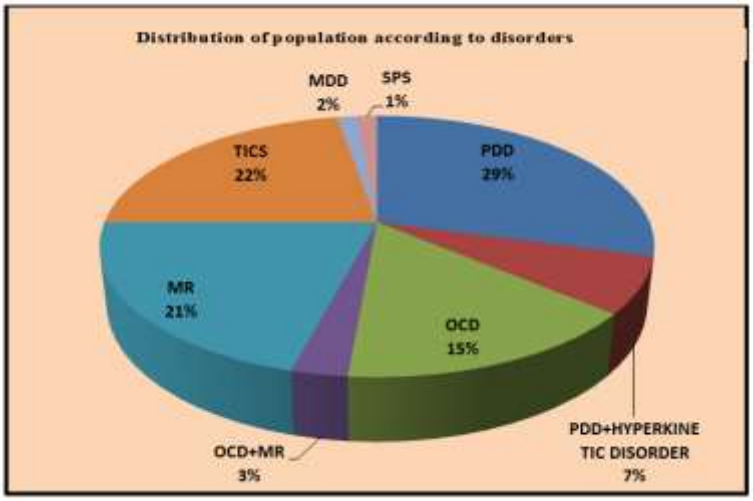

Fig-2: Pie diagram shows distribution of disorders of the population

Table-1: Shows median value of different disorders on RBS-Rscale. Nonparametric (Mann-whitney) test done. Statistically significant (<0.05)**

Diagnosis	Stereotyped Behavior subscale	Self-injurious behavior subscale	Compulsive behavior Subscale	Ritualistic behavior Subscale	Sameness Behavior subscale	Restricted behavior Subscale	Total score
PDD vs OCD	10.00* 2.00	2.00* 2.00	4.00* 6.00	1.00* 3.00	1.00 0.00	0.00 0.00	21.00* 17.00
PDD vs MR	10.00* 5.00	2.00 5.00	4.00* 0.00	1.00* 0.00	1.00* 0.00	0.00 0.00	21.00* 15.00
PDD vs TIC	10.00* 6.00	2.00* 1.50	4.00* 1.00	1.00* 0.00	1.00* 0.00	0.00* 0.00	21.00* 9.50
MR vs TIC	5.00 6.00	5.00* 1.50	0.00 1.00	0.00 0.00	0.00 0.00	0.00* 0.00	15.00* 9.50
OCD vs MR	2.00* 5.00	2.00* 5.00	6.00* 0.00	3.00* 0.00	0.00* 0.00	0.00 0.00	17.00 15.00
OCD vs TIC	2.00* 6.00	2.00 1.50	6.00* 1.00	3.00* 0.00	0.00* 0.00	0.00* 0.00	17.00* 9.50

DISCUSSION

A hallmark of early childhood is a desire for repetition. This is a part of normal development. It is common for a child to ask for the same toy 4 or 5 times a day or to utter the same phrase repeatedly multiple times. In a study of typically developing children, Barbar *et al*., found that these behaviors were particularly common between the ages of 2 and 4 [8].

In the current study type and severity of repetitive behavior of various disorders are compared with the help RBS-R. In comparison of PDD & OCD there are potential symptom overlaps. In the current study it was seen that the stereotyped behavior, Self-injurious behavior & total score was more in PDD than OCD (Table-1). Compulsive behavior was more in OCD than PDD. This finding supports previous study reports[9-11]. Overlapping symptoms of PDD and OCD can be differentiated by potentially pleasurable nature of stereotypic activities of autism and distressing character of ritualistic behavior of OCD.

It was seen that 2/3 of the PDD patients had Mental Retardation (MR). When compared repetitive activities of PDD and MR (Table-1), it was seen that, stereotypic behavior, compulsive behavior, ritualistic behaviors and also total score were more in PDD than MR.

In recent years, it has been reported that, there is increasing similarities between Tic disorder & ASD; both are neurobiological conditions that predominantly develop during childhood had similar repetitive and stereotypic behaviors, affects mostly boys. Total score of repetitive behavior is higher in PDD than Tic disorder (Table-1).

Stereotyped behavior and self-injurious behavior are more in MR than OCD. Compulsive behavior, ritualistic behavior, sameness behavior are more in OCD than MR (Table-1). This finding supports previous studies, lower order repetitive behavior (LOR) more in MR[12] than OCD. Higher order repetitive behavior (HOR) seen more in OCD [13].

OCD and Tic have bidirectional relationship. 20-40% Tic disorder patients meet the full criteria for OCD [14]**.** Often there is difficulty in diagnosis as well as change in diagnosis in long run. In comparison of pattern and severity of repetitive behavior it is seen that compulsive behavior, ritualistic behavior, sameness behavior, restricted behavior and total score are more in OCD than tic disorder. Stereotyped behavior was more in Tic disorder than OCD (Table-1).

Comparing repetitive behavior of MR & Tic disorder (Table-1) shows self-injurious behavior, restricted behavior, total score are more in MR than Tic disorder.

PDD & PDD+Hyperkinetic Disorder were compared on the basis of RBS-R and no statistically significant findings came out. All subscales and total score of RBS-R in both the disorder are same (table-1). In a previous study, PDD and PDD+MR, the author found no statistically significant findings with co morbidity [15]. In this study we found no difference in core symptom of the primary disorder i.e. repetitive behavior almost same between PDD & PDD+ Hyperkinetic disorder.

LIMITATIONS

- Small sample size.
- Only main disease was included. Co morbidity of illness were not considered.
- RBS-R scale is a parent response scale, so it depends on parent's intelligence level and there was a potential chance for inaccurate reporting.
- As only based on parent reporting the behaviors more problematic to the parents can be reported more and thus can impose a bias in the study.

CONCLUSION

Childhood disorders mostly present with overlapping symptoms and there are diagnostic dilemmas. Nature of repetitive behaviour often helps to differentiate autism, OCD or other disorders. There have been very few studies specially in our country on Repetitive behavior in children. More studies are needed about nature of repetitive behaviour in different childhood disorders taken together.

ABBREVIATIONS

- **PDD**-Pervasive Developmental Disorder
- **OCD**-Obsessive Compulsive Disorder
- **MDD**-Major Depressive Disorder
- **SPS**-Simple Partial Seizure
- **RBS-R** – Repetitive Behavior Scale – Revised.
- **ICD 10 DCR -** International Classification of Diseases and related health – problems Diagnostic Criteria for Research
- **CBCL**-Child Behavior Check List

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