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### **Assessing the Level of Behavioral Problems in Indian Children with Disability Using the Strength and Difficulties Questionnaire**

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#### **ABSTRACT**

The rates of behavior problems among young disabled children are three to four times higher than among non-disabled children and typically continue to persist into later childhood and adolescence. The objectives of the study include - studying the comparison using the Strength and Difficulties Questionnaire of the level of behavioural problems between the age groups 4-10 and 11-15 of children with Down syndrome and ADHD. To decipher the severity of behavioural problems in either of the age groups, to know the prevalence of problem behaviour typical for each age group and to compare the percentage of behavioural problems between male and female population. A cross sectional study was conducted in SRM Medical College Hospital and Research Centre. Patients aged 4-15 years, ADHD and DOWN'S syndrome, both gender were included in the study. The information collected from the period of June 2016 and June 2017 was selected. Patients were categorized as ADHD and DOWN'S. Analysis was performed for between group differences and age & gender differences. The study findings included ADHD 19(54.3%) and DOWN'S 16(45.7%), male 23(65.7%) and female 12(34.3), 4-10 years 16(45.7) and 11-15 years 19(54.3). Among ADHD children, majority were Female and in 11-15 Years age group. Among the study subjects, the proportion of ADHD was 54.3% and DOWN'S Syndromes was 45.7%. Male children (65.7%) were more compared to female children (34.3%). There was no statistical association between gender and category using chi square test, but there was a statistical significant association between IMS and Age group at 95% [P < 0.05]. According to this study, Down syndrome is a chromosomal disorder in which there is a remarkable presence of behavioral problem that could impede the course of intervention. Attention Deficit Hyperactivity Disorder is a disorder identified with increased behavioral problems with increased inattention and hyperactivity in the age group of 4 to 10 years.

**KEYWORDS:** Strengths and Difficulties Questionnaire (SDQ), Attention-deficit-hyperactivity disorder (ADHD), Total difficulties score (TDS) and Peer Problems score (PPS).

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## 1. INTRODUCTION

Behavioural problem commonly occur during childhood. It is defined as behaviours, thought or feeling that differ quantitatively from the norm, and as a result of these differences, the child is either suffering significantly or development is being significantly impaired<sup>1</sup>. Children with disability exhibit lots of behavioral problems which could either be as a result of some underlying issues or as a way to get away with things most of the time. Institute on Community Integration, College of Education, University of Minnesota<sup>2,3,4,5</sup>. These behavioral problems could be ranged from mild to severe depending on how much it affects or impede function and daily activities or skills. Numerous behaviours considered appropriate at early developmental levels, are obviously pathogenic, when they present at later age. The abnormal behaviours in these children create problems not only for themselves, but for others also. Children under 15 years of age constitute approximately one third of the world's population and more number of children are affected by some type of behavioural problems<sup>6</sup>. The rates of behavior problems among young disabled children are three to four times higher than among non-disabled children<sup>7,8</sup> and typically continue to persist into later childhood and adolescence<sup>9</sup>. These challenging behaviors often times affect the integration of functional skills in these children and acquisition of more skills which could pose a threat to interventional programs given by health professionals and also participation at home and society at large. Challenging behaviour is a common feature of developmental disabilities in childhood and adolescence. Although behavior problems also occur in typically developing children, and maybe absent in many children with developmental disabilities, but behavior problems are three to four times more common in children with developmental disabilities in comparison to those without. Furthermore, behavior problems in children with disabilities such as ADHD, Autism disorder, down's syndrome, cerebral palsy to mention a few, may be more severe and persistent, and may appear to contribute to higher levels of parental stress and lower levels of wellbeing in comparison to parents and family<sup>10</sup>.

Previous researches show the prevalence of ADHD and how it has alarmingly increased over the years (Findings of The Prevalence of Attention-Deficit-Hyperactivity Disorder: Its Diagnosis and Treatment in a Community Based Epidemiologic Study: National centre on Birth and Developmental Disabilities), showing that behavioural problems are usually key in children with ADHD. Down syndrome is also another disability that has its diagnosis increased in new birth and its prevalence is gradually increasing as emphasis and attention are drawn to behaviour problems that are present in

children diagnosed and how to address these problem behaviours Behavioural Problems in Children with down syndrome<sup>11</sup>.

These behaviour problems persist in these children and are sometimes difficult to solve. Caregivers and even professionals often search for what can be called an 'easy button' to solve complex problems. When these problems are not addressed early enough, they persist as age increases therefore making intervention and family participation difficult. Therefore, the essence of this research work, building on the researches that have shown the increased prevalence of children diagnosed with ADHD, problem behaviours typical to them in recent years and the rate at which behaviour problems in children with Down's syndrome affect function and also interfere with intervention, is to determine what age group shows more behavioural problems. Whether it's within the ages 4-10 or 11-15 thereby, giving a clear approach and understanding on how intervention procedures can be planned and what to look out for in these children in the course of intervention. This research work will be focusing on Down syndrome and ADHD amongst other forms of disability in children<sup>12</sup>.

## **2. METHOD**

### ***2.1 Research Design***

Cross sectional study research design

### ***2.2 Study Setting***

This study was conducted at SRM Medical College Hospital and Research Centre, South India. Children those who those who have ADHD one group and children those who have DOWM'S syndrome were included in this study. Patients aged 4-15 years and both the gender was included in the study. The information collected from the period of June 2016 and June 2017 was selected. Patients were categorized as ADHD and DOWN's. Analysis was performed for between group differences and age & gender differences. Descriptive statistics, Student Unpaired t test, Chi square test and ANOVA used for data analysis in this study.

The article discusses the ways in which the data may be used to improve mental health and school performance by considering where resources are best allocated, by challenging expected patterns of mental health and by using data to inform the design, implementation and evaluation of strategies and services to improve mental health. It also describes a study that examined the

opportunities and practical difficulties of using the SDQ in schools. It had the following aims.

The first was to explore some of the practical difficulties of using the SDQ in schools and to arrive at simple recommendations for its future use. The second was to gather data from schools and children and assess its relevance to the efforts to improve of mental health and school performance. A third objective was to monitor how participating local authorities reacted to the data that emerged. Finally, the study aimed to draw out some recommendations about how applying the SDQ in schools can inform the design, implementation and evaluation of strategies and services to improve children's mental health and school performance. The SDQ consists of 25 items: emotional symptoms (5 items), conduct problems (5 items), hyperactivity/inattention (5 items), peer relationship problems (5 items) and prosaically behavior (5 items)<sup>13, 14, 15, 16, 17</sup>.

### 3. RESULTS

Describes the Demographical characteristic data distribution of the selected study subjects from the hospital. The study comprises of 19(54.3%) ADHD children and 16(45.7%) DOWN's syndrome children. About 23(65.7%) are males and 12(34.3%) are females. The age group of children being selected include 16(45.7%) 4-10 years and 19(54.3) 11-15 years children. The simple bar chart depicts that ADHD disease (54.3%) is more compared to Down's syndrome. The gender categories, male (65.7) are two times more compared to female. The age group categories 11-15 Years are more (54.3%) compare to the other age group of this study.

**Table 1**, conveys the information regarding the Questions 22, 19, 8 and 3 had more than 60% among the Not True, Questions 25, 15, 10 and 7 had more than 50% among the Somewhat True and Questions 18, 11 and 5 had more than 40% among the Certainly True. From the Figure 2, we could observe there were certain questions which had responses more than 60% such as (Not True, Q3, Q8, Q19 and Q22) compared to all other questions in this study. Similarly some questions had responses more than 50% such as (somewhat true, Q7, Q10, Q15 and Q25) and more than 40% such as (Certainly True, Q5, Q11 and Q18) in the study. Over all comparison from all the questions in this study, it was noted that Question 22(80%) and Question 19(71.4%) had more percentages from the participants of this study.

**Table 1: Frequency Distribution of the Questions used in the study:**

|  | <i>Not True</i> |      | <i>Somewhat True</i> |      | <i>Certainly True</i> |      |
|--|-----------------|------|----------------------|------|-----------------------|------|
|  | N               | %    | N                    | %    | N                     | %    |
| <i>Often complains of headaches, stomach – aches</i>       | 8               | 22.8 | 17                   | 48.6 | 10                    | 28.6 |
| <i>Many worries, often seems worried</i>                   | 6               | 17.1 | 16                   | 45.7 | 13                    | 37.2 |
| <i>Often unhappy, downhearted or tearful</i>               | 24              | 68.6 | 10                   | 28.6 | 1.0                   | 2.8  |
| <i>Nervous or clingy in new situations ...</i>             | 10              | 28.6 | 14                   | 40.0 | 11                    | 31.4 |
| <i>Many fears, easy scared</i>                             | 5               | 14.3 | 16                   | 45.7 | 14                    | 40.0 |
| <i>Often has temper tantrums or hot tempers</i>            | 8               | 22.9 | 14                   | 40.0 | 13                    | 37.1 |
| <i>Generally obedient, usually does what ...</i>           | 9               | 25.7 | 19                   | 54.3 | 7                     | 20   |
| <i>Often fights with other children or bullies them</i>    | 24              | 68.6 | 9                    | 25.7 | 2                     | 5.7  |
| <i>Often lies or cheats</i>                                | 15              | 42.9 | 13                   | 37.1 | 7                     | 20   |
| <i>Steals from home, school or elsewhere</i>               | 9               | 25.7 | 19                   | 54.3 | 7                     | 20   |
| <i>Restless, overactive, cannot stay still for long</i>    | 6               | 17.1 | 14                   | 40.0 | 15                    | 42.9 |
| <i>Constantly fighting or squirming</i>                    | 18              | 51.4 | 9                    | 25.7 | 8                     | 22.9 |
| <i>Easily distracted, concentration wanders</i>            | 18              | 51.4 | 14                   | 40.0 | 3                     | 8.6  |
| <i>Thinks things out before acting</i>                     | 11              | 31.4 | 17                   | 48.6 | 7                     | 20   |
| <i>Sees tasks through to the end, good attention span</i>  | 11              | 31.4 | 18                   | 51.4 | 6                     | 17.2 |
| <i>Rather solitary, tends to play alone</i>                | 10              | 28.6 | 15                   | 42.8 | 10                    | 28.6 |
| <i>Has at least one good friend</i>                        | 14              | 40.0 | 13                   | 37.1 | 8                     | 22.9 |
| <i>Generally liked by other children</i>                   | 4               | 11.4 | 9                    | 25.7 | 22                    | 62.9 |
| <i>Picked on or bullied by other children</i>              | 25              | 71.4 | 5                    | 14.3 | 5                     | 14.3 |
| <i>Gets on better with adults than with other children</i> | 13              | 37.1 | 13                   | 37.1 | 9                     | 25.8 |
| <i>Considerate of other people's feelings</i>              | 18              | 51.4 | 15                   | 42.9 | 2                     | 5.7  |
| <i>Shares readily with other children</i>                  | 28              | 80.0 | 5                    | 14.3 | 2                     | 5.7  |
| <i>Helpful if someone is hurt, upset or feeling ill</i>    | 10              | 28.6 | 17                   | 48.6 | 8                     | 22.9 |
| <i>Kind to younger children</i>                            | 11              | 31.4 | 16                   | 45.7 | 8                     | 22.9 |
| <i>Often volunteers to help others</i>                     | 8               | 22.9 | 19                   | 54.2 | 8                     | 22.9 |

**Table 2: Association between Genders, Age groups with Category.**

|                 |        | <b>Gender</b> |      |        |      | <b>Age Groups</b> |      |             |      |
|-----------------|--------|---------------|------|--------|------|-------------------|------|-------------|------|
|                 |        | Male          |      | Female |      | 4 – 10 Yrs        |      | 11 – 15 Yrs |      |
|                 |        | N             | %    | N      | %    | N                 | %    | N           | %    |
| <b>Category</b> | ADHD   | 15            | 65.2 | 4      | 33.3 | 11                | 68.8 | 8           | 42.1 |
|                 | DOWN'S | 8             | 34.8 | 8      | 66.7 | 5                 | 31.3 | 11          | 57.9 |

NS - Not statistical significance association between Genders, age group with Category at 95% [ $p > 0.05$ ]

**Table 3: Comparison of behavioural problems between sub groups**

|                           |            |       | 4 – 10<br>Yrs | 11- 15<br>Yrs | Male     | Female  | ADHD     | DOWN'S   |
|---------------------------|------------|-------|---------------|---------------|----------|---------|----------|----------|
| <b>TDS Output</b>         | Normal     | N (%) | 4(66.7)       | 2(33.3)       | 3(50)    | 3(50)   | 3(50)    | 3(50)    |
|                           | Abnormal   | N (%) | 9(39.1)       | 14(60.9)      | 15(65.2) | 8(34.8) | 12(52.2) | 11(47.8) |
|                           | Borderline | N (%) | 3(50)         | 3(50)         | 5(83.3)  | 1(16.7) | 4(66.7)  | 2(33.3)  |
| <b>PPS Output</b>         | Normal     | N (%) | 5(38.5)       | 8(61.5)       | 8(61.5)  | 5(38.5) | 5(38.5)  | 8(61.5)  |
|                           | Abnormal   | N (%) | 9(50)         | 9(50)         | 12(66.7) | 6(33.3) | 12(66.7) | 6(33.3)  |
|                           | Borderline | N (%) | 2(50)         | 2(50)         | 3(75)    | 1(25)   | 2(50)    | 2(50)    |
| <b>IMS Output<br/>***</b> | Nil        | N (%) | 16(100)       | 0(0)          | 11(68.8) | 5(31.2) | 11(68.8) | 5(31.2)  |
|                           | Normal     | N (%) | 0(0)          | 1(100)        | 1(100)   | 0(0)    | 0(0)     | 1(100)   |
|                           | Abnormal   | N (%) | 0(0)          | 17(100)       | 10(58.8) | 7(41.2) | 7(41.2)  | 10(58.8) |
|                           | Borderline | N (%) | 0(0)          | 1(100)        | 1(100)   | 0(0)    | 1(100)   | 0(0)     |

\*\*\* - There is a very high statistical significance Association between IMS and Age group at 99.9% [P < 0.001]

From the **Table 2**, it was observed that male children had more ADHD (65.2%) compare to female children and female children had more DOWN'S (66.7%) compare to male children. At the same time statistically no association was observed between gender and category using chi square test. ADHD was more (68.8%) in the 4-10 years compared to 11-15 years and DOWN'S was more in the 11-15 years (57.9%) compare to 4-10 years, however there is no statistically significant association between Age group with category.

**Table 4: Association between the gender and TDS output, PPS output and IMS output among the 11-15 years.**

|                   | Gender     |       | Male     | Female  |
|-------------------|------------|-------|----------|---------|
|                   |            | N (%) |          |         |
| <b>TDS Output</b> | Normal     | N (%) | 1(50)    | 1(50)   |
|                   | Abnormal   | N (%) | 9(64.3)  | 5(35.7) |
|                   | Borderline | N (%) | 2(66.7)  | 1(33.3) |
| <b>PPS Output</b> | Normal     | N (%) | 1(100)   | 0(0)    |
|                   | Abnormal   | N (%) | 10(58.8) | 7(41.2) |
|                   | Borderline | N (%) | 1(100)   | 0(0)    |
| <b>IMS Output</b> | Nil        | N (%) | 0(0)     | 0(0)    |
|                   | Normal     | N (%) | 1(100)   | 0(0)    |

Not statistical association between gender with TDS, PPS and IMS output at 95% P > 0.05 using chi square test.

There was no statistical significant association between TDS and Age Group at 95% [P > 0.05] by using Chi Square Test. We can identify in this (**Table 3**), among the TDS output 4-10 years 66.7% children were normal and more compare to abnormal and borderline and among 11-15 years 60.9% children were abnormal and more compare to normal and borderline. Normal children were more in

the age group 11-15 years among the PPS output (61.5%) compared to abnormal and borderline. Among the IMS output there were 17 children abnormal, 16 children had nil option and normal and borderline group each had one child only. However they had statistical significance association between IMS output and age group at 95%. **Table 4**, shows gender and age group among the 11-15 years children in the IMS output. 10 male children had abnormality and 7 female children had the abnormality compared to all other categories in the IMS output. There is no statistical significance association between IMS output and gender among the 11-15 years age group at 95% ( $P > 0.05$ ) by using Chi Square test. No statistical significance difference was found between gender (male and female) and TDS output, PPS output and IMS output at 95% ( $P > 0.05$ ), which means there is not different effect among them in this study. Similarly, in the disease (ADHD and DOWN) and TDS output, PPS output and IMS output at 95% ( $P > 0.05$ ) there is no different effect among them in this study. But in the age group there was a very high statistical significant difference between the age groups and the IMS output at 99.9% ( $P < 0.001$ ) by using the student unpaired t test, which means there is different effect among them from **Table 5**.

**Table 5: Difference between gender, age and Disease with three outputs**

|                   | t Test    | Male       | Female     | 4-10 Yrs   | 11-15 Yrs  | ADHD       | DOWN       |
|-------------------|-----------|------------|------------|------------|------------|------------|------------|
| <b>TDS Output</b> | Mean ± SD | 17.61±3.73 | 16.08±3.73 | 16.88±4.35 | 17.26±3.26 | 17.21±3.54 | 16.94±4.09 |
|                   | Unpaired  | 1.15       | 33 df      | 0.3        | 33 df      | 0.21       | 33 df      |
|                   | P Value   | 0.259      | ns         | 0.765      | ns         | 0.834      | ns         |
| <b>PPS Output</b> | Mean ± SD | 4.26±2.20  | 5.17±1.75  | 4.19±2.07  | 4.89±2.08  | 4.11±2.23  | 5.13±1.78  |
|                   | Unpaired  | 1.23       | 33 df      | 1          | 33 df      | 1.47       | 33 df      |
|                   | P Value   | 0.226      | ns         | 0.323      | ns         | 0.15       | ns         |
| <b>IMS Output</b> | Mean±SD   | 2.70±3.46  | 2.83±2.69  | 0.0±0.0    | 5.05±2.59  | 2.21±3.03  | 3.38±3.32  |
|                   | Unpaired  | 0.12       | 33 df      | 7.78       | 33 df      | 1.08       | 33 df      |
|                   | P Value   | 0.905ns    |            | 0.000***   |            | 0.286ns    |            |

*NS-Not statistical significance difference between gender with TDS, PPS and IMS output at 95%  $P > 0.05$  using Independent t test.*

*\*\*\*- There is a very high statistical significance difference between age and IMS output at 99.9% ( $P < 0.001$ )*

#### 4. DISCUSSION

From the study subject we can selected the people of ADHD is 19(54.3%) and Down's syndrome is 16(45.7%) We can also have male 23(65.7%) and female 12(34.3%). The age group of children 4-10 years 16(45.7) and 11-15 years 19(54.3) children were selected for this study. Female and 11-15 Years are more percentage compare to others. Selection of the subjects are divided into ADHD syndrome (54.3%) and DOWN'S syndrome (45.7%), out of the 100% the ADHD syndrome



more compare to DOWN'S syndrome of this category in this study. Compare between male (65.7%) and female (34.3%), here male children participated more compare to female children of the present study. We are also look into the age group, we have two age group out of the one age group 11-15 years 54.3% is more compare to 4-10 years of age group.

We can find the age group **Table 2**, ADHD have more (68.8%) in the 4-10 years compare to 11-15 years and DOWN'S have more in the 11-15 years (57.9%) compare to 4-10 years, there is not statistical significant association between Gender, Age group with category at 95%. We can identify among the TDS output 4-10 years 66.7% children normal are more compare to abnormal and borderline and 11-15 years 60.9% children abnormal are more compare to normal and borderline. Normal children are more in the age group 11-15 years among the PPS output 61.5% compare to abnormal and borderline. Among the IMS output there are 17 children abnormal, 16 children have nil option and normal and borderline each have one children only, at the same time they have statistical significance association between IMS output and age group at 95%. \*\*\* - There is a very high statistical significance Association between IMS and Age group at 99.9% [ $P < 0.001$ ]. Disease (ADHD and DOWN) with TDS output, PPS output and IMS output at 95% ( $P > 0.05$ ) that means there is not different effect among them in this study. But in the age group there is a very high statistical significance effect difference between the age groups and the IMS output at 99.9% ( $P < 0.001$ ) that means there is different effect among them in this study by using the student unpaired t test. Previous researches and studies have shown that behavioral problems are exhibited by children with Attention deficit hyperactivity disorder<sup>18</sup> and also with Down syndrome<sup>19</sup>. Addressing challenging behavior in children with Down syndrome), Do children with ADHD and DOWN syndrome show more behavioral problems in the age group of 11-15 compare to the age group of 4-10 years in this study.

## 5. CONCLUSION

According to this study, Down syndrome is a chromosomal disorder in which there is a remarkable presence of behavioral problem that could impede the course of intervention. According to this study, Attention Deficit Hyperactivity Disorder is a disorder identified with increased behavioral problems increased inattention, hyperactivity.



## **Recommendations**

Therefore the need for this study is to compare the level of behavioral problems in children with ADHD and Down syndrome (between the age's 4-10 and 11-15) in the community and more age group level also for better understanding the children growth.

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