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CLINICAL THESIS

Prevalence and Gender Differences of Emotional and Behavioral Problems among Children with Down Syndrome

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ABSTRACT

This study aimed to shed some light on the emotional and behavioral issues faced by down syndrome children and their gender differences. Based on evidence gathered from past research following two hypotheses were formed: There will be emotional and behavioral problems among children with down syndrome; there will be significant gender differences in emotional and behavioral problems faced by children with down syndrome. A total of 18 down Syndrome children were through snowball sampling on whom the strength and difficulties questionnaire were used. The findings showed no significant gender differences in emotional and behavioral problems of children with down syndrome. However, comparatively, females were shown to have slightly elevated levels of conduct issues.

KEYWORDS

Down syndrome; Behavioral pattern; Behavioral problems; Emotional

INTRODUCTION

Down syndrome occurs due to a genetic condition that involves having 21 sets of chromosomes instead of 23 pairs. This change of chromosomes further alters the developmental course and leads to Down syndrome characteristics. Some of the typical physical features of Down syndrome are low muscle tone, short stature, an upward slant towards the eyes, and a single deep crease on the palm [1]. Unfortunately, there is a lack of data on Down syndrome in Pakistan as the country does not have a national screening program for diagnosing Down syndrome, except for private clinics where its expensive [2].

Along with genes, Down syndrome individuals are also characterized by their behavioral pattern. According to a study done by Coe et al. [3], one quarter to one-third of children and teenagers ranging from the age of 6 years to 15 years with Down syndrome have conduct and emotional problems resulting from non-compliance,

hyperactivity, and aggression. Children with Down syndrome have mental and physical impairments as well that leads them to have adverse cognitive reactions that may shape their possible future issues as well [4]. Talking about the issues, the behavioral problems in people with Down syndrome are so common that 1 in 3 has them that get diagnosed as reported by Stein [5].

One of the behavioral problems that they can face is having symptoms of conduct disorder. Conduct disorder is one of the behavioral issues that can be defined as any monotonous and persistent pattern of behavior that infringes the rights of others or that infringes general age-appropriate social norms or rules [6]. Consequently, another behavioral issue is known as Attention-deficit/hyperactivity disorder (ADHD) is a condition observed by an enduring pattern of inattention and hyperactivity [7].

Additionally, there have been researches on children with Down syndrome to check the prevalence of ADHD. In a survey-based study, a sample of 674 individuals aged 4 to 18 years with Down syndrome was assessed. Results on the Strength and Difficulties Questionnaire reported high peer problems followed by inattention/hyperactivity [8].

Subsequently, peer relations also have an impact on an individual's emotions and behaviors. It contributes to a child's social and emotional wellbeing. Bullying and being victimized by others, followed by other psychosocial issues are known to be the most common peer relation problems. These issues further lead to other problems like isolation, aggression, withdrawal, anxiety, depression, and academic difficulty [9].

To further inspect the social behavior of people with Down syndrome, a study was conducted on 63 adolescents having the disorder. It showed that there was a mental and social decline in the period of adolescence. The reason for this decline was probably less social contact and social acceptance [10].

Behavioral issues can be observed in further two types, externalizing and internalizing problems. Externalizing behaviors can be directed towards the environment, such as cheating, aggression, bullying, disobeying, and stealing. On the other hand, internalizing actions are mainly termed for negative behaviors that are directed towards the self, such as, bodily complaints, fearfulness, and social withdrawal [11].

To further figure out the adaptive functioning of children with Down syndrome along with their maladaptive behaviors, another study was carried out. Participants were frequently rated as having behavioral issues of inattention and social withdrawal [12].

Coming up to the gender differences seen in the children with Down syndrome, in a study conducted about the gender ratio in Down syndrome by Kovaleva, Butomo and Körblein [13], it was found that males were in the majority in Trisomy 21 unlike in Mosaic Down syndrome. In Down syndrome with cytogenetically confirmed Trisomy 21, the ratio was found out to be 731 males and 595 females. Most mothers of almost all ages had Down syndrome babies that were boys. However, it was the most predominant in mothers in the age bracket of 20 to 24 years.

However, there is a silver lining here. According to McCarthy [14], if the skills of people with Down syndrome are improved, there will be a reduction in the chances of them developing long-term behavior disorders. They can

also develop positive behaviors such as, prosocial behavior. The term prosocial behavior was developed by social scientists as an inverse of "antisocial." It is a social behavior that promotes helping behavior such as helping, sharing, donating, cooperating, philanthropy, and community service [15].

Based on the above literature, the following hypotheses have been formulated:

- H1: There will be emotional and behavioral problems among children with Down syndrome.
- H2: There will be significant gender differences in emotional and behavioral problems faced by children with Down syndrome.

METHOD

The data was collected online using google forms due to the current pandemic situation, where parents of children with Down syndrome were also approached through the children with special needs Facebook groups. The level of severity of Down syndrome was taken as predetermined by the institute as all of them were enrolled in one of them, and a question of the IQ level was also asked in the demographic form from the parents of Down syndrome children. Only the children who met the inclusion criteria were a part of this study, and their parents were asked to fill the informed consent form, demographic form, and Strengths and Difficulties Questionnaire online. A sample of 18 participants of children with Down syndrome (boys = 10, girls = 8) aged 11 years - 17 years was chosen on which the SDQ questionnaire was assessed. The demographic information form was used to note down the pertaining family and prenatal history concerning children with Down syndrome. The SDQ scale was used to assess emotional symptoms, conduct problems, hyperactivity-inattention, peer relationship problems, and prosocial behaviors.

RESULTS

To test the hypotheses of the study SPSS software (Version 20) was used in which the data collected was compiled and analyzed. Demographic information is provided in Table 1. Cronbach alpha has been provided for the overall scale formed of the strengths and difficulties questionnaire. Finally, the hypotheses were tested using an independent sample t-test which includes the prevalence rate and the gender differences in emotional and behavioral problems in children with down syndrome (Table 2 - Table 4). The results are provided below:

Table 1: Demographic information of children with down syndrome (N=18).

	Variables	f	%
Gender	Male	10	55.6
	Female	8	44.4
Birth Order	Firstborn	5	27.8
	Second born	3	16.7
	Last born	6	33.3
	Only born	2	11.1
	Other	2	11.1
Family System	Joint	8	44.4
	Nuclear	10	55.6
Mother's Information			
Education	No Education	3	16.66
	Matric	1	5.55
	Intermediate	3	16.66
	Graduate	7	38.88
	Postgraduate	4	22.22
Occupation	Housewife	13	72.22
	Doctor	1	5.55
	Fashion Designer	1	5.55
	Teacher	2	11.11

	Computer Hardware Engineer	1	5.55
Father's Information			
Education	No Education	1	5.55
	Matric	1	5.55
	Graduate	10	55.55
	Postgraduate	5	27.22
	P.hd	1	5.55
Occupation	Businessman	9	50
	Armed forces	1	5.55
	Lawyer	1	5.55
	Professor	1	5.55
	Job	5	27.77
	Mechanic	1	5.55

Table 1 represents the main demographic variables of the present study.

Table 2: Showing cronbach alpha of the scale and subscales.

Scales	A
SDQ	0.584
Emotional Symptoms	0.231
Conduct Problems	-0.015
Hyperactivity-Inattentive	0.398
Peer Problems	0.443
Prosocial Behavior	0.798

Note: SDQ: Strengths and Difficulties Questionnaire

Table 3: Percentages (%) of the strengths and difficulties experienced by down syndrome children.

		f	%
SDQ			
	No	4	22.2
	Moderate	5	27.8
	Yes	9	50
Emotional Symptoms			
	No	4	22.2
	Moderate	5	27.8
	Yes	9	50
Conduct Problems			
	No	4	22.2
	Moderate	5	27.8
	Yes	9	50
Hyperactivity-Inattention			
	No	13	72.2
	Moderate	1	5.6
	Yes	4	22.2
Prosocial Behavior			
	No	11	61.1
	Moderate	4	22.3
	Yes	3	16.7

Table 4: Showing gender differences between all the facets of strengths and difficulties questionnaire.

Scales	Gender	n	M	SD	SEM
SDQ	Male	10	18.3	5.03433	1.59199
	Female	8	15.25	3.7321	1.3195
Emotional Symptoms	Male	10	3.8	2.14994	0.67987
	Female	8	2.675	1.3562	0.47949
Conduct Problems	Male	10	2.6	1.50555	0.4761
	Female	8	2.75	1.16496	0.41188
Hyperactivity-Inattention	Male	10	4.6	3.09839	0.9798
	Female	8	3.25	1.28174	0.45316
Peer Problem	Male	10	3.4	1.64655	0.52068
	Female	8	3	1.41421	0.5
Prosocial Behavior	Male	10	6.5	2.22361	0.70317
	Female	8	6.125	2.10017	0.74252

Out of 18 participants, 10 were boys while the other 8 were girls. Overall, in the SDQ, there were not any prominent differences shown between males and females. Whereas, on the other sub-scales, the scores were quite similar in both (Table 5).

Table 5: Showing independent sample t-test results between genders.

	Gender	n	M	SD	T	P
	Male	10	18.3	5.03	1.425	0.173
SDQ	Female	8	15.2	3.73		
	Male	10	3.8	2.14		
Emotional Symptoms	Female	8	2.87	1.35	1.057	0.306
	Male	10	2.6	1.5		
Conduct Problems	Female	8	2.75	1.16	-0.231	0.82
	Male	10	4.6	3.09		
Hyperactivity-Inattentive	Female	8	3.25	1.28	1.251	0.234
	Male	10	3.4	1.64		
Peer Pressure	Female	8	3	1.41	0.544	0.594
Prosocial Behavior	Male	10	6.5	2.22		
	Female	8	6.12	2.1	0.364	0.719

Note: df = 16

Table 5 showing an independent sample t-test. No significant results were found between genders.

DISCUSSION

This study aimed to explore the emotional and behavioral issues that exist among children with Down syndrome and then discussing it further based on gender differences. As discussed above, there are several kinds of research present that throw light on these issues, but there is scarce research work done on Down syndrome children in Pakistan. The current study was carried out to see how prevalent these issues are in children with Down syndrome and how they are differentiated by gender.

Discussing the prevalence of Down syndrome as hypothesis 1, it has been found out that the occurrence of Down syndrome is related to gender, birth order, maternal, and paternal age. In a study of 4000 cases, it was confirmed that maternal age is highly associated with having a Down syndrome child. Unlikely paternal age is less significant in the study [16-18].

In the present study, the data suggested that out of 18 participants, ten were psychologically assessed. 17 participants out of 18 were full-term; they were not pre-mature when delivered. Additionally, the results showed that most of the children were diagnosed immediately after birth, and most of the mothers were facing complications such as heart issues, low blood pressure, and lack of oxygen [19]. The results showed that 9 participants out of 18 displayed observable emotional and behavioral challenges. According to demographic information collected from parents of children with Down syndrome children for the current research, the behaviors reported are aggression, lack of patience, self-injurious behavior, and throwing of things. Likewise, emotional, and observable behaviors, physical issues were also reported by half of the parents, and those issues are gross motor issues, gastric issues, speech problems, and slow developmental milestones [20].

Another element that was explored in the study was gender differences (hypothesis 2). It was observed that there was not much difference in the emotional and behavioral issues found out by the strengths and difficulties Questionnaire between both the genders. It may be because children having some sort of disability are looked after very cautiously, whether it is a male or a female. In Pakistan, parents are usually quite considerate about

their children having a disability, no matter the gender. Along with their households being extra protective about them, their institutes also provide an ample amount of attention to all their daily activities. Due to this reason, both genders may be getting an equal amount of care and consideration from their parents and academia, as all are going to an institute for physical training along with them providing children with emotional support. A similar environment induces similar traits, due to which there were not any prominent differences in the results [21].

Unfortunately, the generalizability of this research is low. Several factors contributed to low generalizability. One of the main reasons is the lack of participants during the pandemic and the emotional distress caused by it. Institutions were closed, so gathering in-person data was not possible. Collecting a viable sample size became more difficult as in personal data collection could not be an option, and people did not want to disclose information online due to the lack of a rapport formation [22].

CONCLUSION

To conclude, the current study found no significant gender differences in emotional and behavioral issues among children with Down. Overall, no significant difference was found. Future research on the same topic with a larger sample size is suggested to deal with the limitations posed in the current study. Also, culture appropriate tools must be developed and used to tap the issues aptly.

RECOMMENDATIONS AND LIMITATIONS

Since the given study mainly targeted a specific age that is adolescents with an age bracket of 11 years to 17 years, more age groups could be added in future research. Moreover, the sudden encounter of the pandemic hindered the process of data collection, due to which the sample size in the present study is small, and it was challenging to gather data which was a significant limitation to this study. It may also decrease the generalizability, however considering this, research could be conducted with more sample size and from different institutions, using other platforms to increase the generalizability of the study in the future. Another restriction was that this study was quantitative only, so it was confined to a few variables. Future investigations may elicit qualitative variables as a result of social or environmental effects. A study could also be conducted with a blend of data from multi-cultures.

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