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Behavior and Academic Performance in Adolescents with ADHD in the Home Environment

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Abstract

Background: During the COVID pandemic, children and adolescents with ADHD had to struggle with a lack of structure and routine, resulting in an increase in irritability, oppositionality and challenging behaviours.

Aim: To assess the behaviour, academic performance, and problematic internet use in adolescents with ADHD in the home environment and stress coping strategies in their parents.

Methodology: A total of 96 adolescents with ADHD (11–17 years) were recruited after exclusion and inclusion criteria and were assessed either physically in the OPD or telephonically along with their parents for the purpose of assessing behaviour and academic performance, problematic internet use in the adolescents with ADHD in the home environment during Covid-19 pandemic lockdown and difficulties faced by their parents and stress coping strategies used by them using various assessment scales. **Results:** Twenty-three (24.0%) were diagnosed with Hyperactive/impulsive symptoms, 18 (18.8%) with inattentive symptoms and 55 (57.3%) with combined type ADHD. The SAICA showed that the problems were more prevalent in males under the 14-17 age group. The problematic internet use and excessive internet use in the home during lockdown were found in two-thirds of the adolescents with ADHD (67.7%). The maximum number of parents had active coping, which depicts their adaptive behaviour (22.14 ± 3.19), compared to the parents who had maladaptive behaviour (12.24 ± 1.65). **Conclusion:** From the current study, it was concluded that during the pandemic, the adolescents with ADHD faced many behavioural issues and problems in academic performance, which differed with socio-demographic data.

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Introduction

Attention-deficit hyperactivity disorder (ADHD) is a common childhood neurodevelopmental disorder with a prevalence of 5% according to the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5).[1] Clinically diagnosed childhood ADHD persists into adolescence in 50-80 % of cases and into adulthood in 30 to 50% of cases.[2] About 3 to 7% of the childhood population is affected by ADHD, with boys being overrepresented, on average, approximately in the proportion of 3:1.[3]

According to the DSM-5, ADHD is characterised by a persistent pattern of inattention and/or hyperactivity/impulsivity that interferes with functioning or

development. The symptoms should have persisted for at least 6 months to a degree that is inconsistent with the developmental level and negatively impacts social/academic/occupational activities. Three types of presentations of ADHD are combined, predominantly inattentive and predominantly hyperactive/impulsive.[1] ADHD is associated with substantially lower school performance, independent of socioeconomic background factors. According to the research, children and adolescents with ADHD generally have poor academic performance. There is an increased risk of lower scores on reading and arithmetic achievement tests, lower grade point average (GPA), grade repetition and placement in special education classes as compared to the controls. As compared to the test controls, the children and adolescents with ADHD fail more grades and their performance is worse on standardised academic achievement tests. The teacher assessment differs by ADHD status as evidenced by the lower test scores and the grade points in ADHD as compared to non-ADHD.[4] During the pandemic, all schools were closed and classes were suspended; however, online classes resumed in schools gradually. Hence, it became extremely difficult for the ADHD adolescents to spend time at home. Making these children sit beyond a certain timeframe can cause them significant distress.[5] As schools and the day care centres were closed, access to resource material, peer group interactions and chances of learning and developing important social and behavioural skills in due time were lacking, which could lead to relapse of their symptoms. Although before the pandemic, these adolescents did face difficulties while attending school, but in due course, they had learnt to develop a schedule to adhere to for most of the time of the day.[4] Due to the lack of professional expertise during the pandemic, it became difficult for parents to handle the children and adolescents on their own, as they were previously mostly relying on school and therapists to help them out. Sometimes it became difficult for the caregivers to engage these adolescents in meaningful activities, as due to being confined in one place, the chances of their hyperactivity increased along with the heightened impulses. These adolescents can become a constant source of disturbance to their family members, and it can become difficult for the families to manage them, adding significant distress to the parents. Usually, parents do not have time to supervise the ongoing online classes and to carry out behavioural intervention due to their work pressure and busy schedules.[5]

Substantial distress is reported by the parents of these children and adolescents with ADHD, reasons for the distress being difficulty of living with family and the societal judgements related to their child's diagnosis, behaviours and the use of medications. Hence, they feel "isolated" and „ostracised" as the society does not understand ADHD, its consequences and the value of the medication. Therefore, the parents attribute their high levels of stress to their children's behaviour and social difficulties, their unmet needs for support, and their experiences of social stigma. Adolescents with ADHD are more prone to becoming dependent on the internet, and in-home confinement, it is more likely that they tend to overuse it due to the lack of outdoor activities. Internet overuse leads to additional behavioural problems and becomes a matter of concern and adding to the stress of their parents.

The coping strategies used by the parents of the adolescents with ADHD showed that they used more avoidant-focused coping strategies, contrary to the parents of the typical children. The parents of the ADHD adolescents sought significantly more support and used indirect means than the mothers of typically developing children.[5]

There is a need to assess the behavioural problems that arise in adolescents with ADHD due to disturbance in the structured routine at home, which was earlier maintained in the school environment, changes in the academic performance due to the change in the study pattern (with the introduction of the online classes) and how parents coped with stress while managing their online academics and behaviour.

This study was planned with the objectives of assessing behaviour and academic performance, and problematic internet use in adolescents with ADHD in the home environment and assessing coping strategies in parents of these adolescents with ADHD.

Methods

Study Design

This was an observational, cross-sectional study. Institutional ethics committee clearance was obtained before initiating recruitment. Participants were assessed either in person or by telephone/via video conference with due consent and with prior appointment.

Participants

Adolescents enrolled in the child guidance clinic run by the Psychiatry department of a tertiary-care teaching hospital in North India were assessed for eligibility. Those with a DSM-5 diagnosis of ADHD who were enrolled in school, aged between 11 and 17 years, with either parent giving written informed consent, were included. Verbal (till 12 years) or written assent (12–17 years) was also taken for the study. Those with comorbid autism spectrum disorder, specific learning disability, intellectual disability or other psychiatric disorders, and those with medical illnesses preventing the participant from pursuing education for a period of at least 1 month out of the previous 6 months were excluded from the study. The parents who refused to consent were excluded along with their adolescent.

Assessment Parameters

A basic socio-demographic proforma and a clinical profile proforma were filled out for all participants. The tools used were the Vanderbilt ADHD diagnostic parent rating scale (VADPRS),[6] Strengths and Difficulties Questionnaire (SDQ)[7]- parent and adolescent versions, Social Adjustment Inventory for Children and Adolescents[8] (SAICA), Problematic Internet Use Scale in Adolescents[9] (PIUS), and Stress Coping Behaviour Scale, Indian adaptation by Janghel and Srivastava(2017) (SCBS).[10]

Sample Size

The sample size was calculated using the prevalence of behavioural difficulties in adolescents, which is

Table 1: Relationship of the type of ADHD with socio-demographic variables

		VADPRS				*Chi- Square*	*p-value*
		Hyperactive/ Impulsive n (%)	*Inattentive n (%)*	*Combined n (%)*	*Total n (%)*		
Age (Years)	11-13	16 (25.4%)	11 (17.5%)	36 (57.1%)	63 (65.6%)	0.322	0.851
	14-17	7 (21.2%)	7 (21.2%)	19 (57.6%)	33 (34.4%)		
Gender	Male	22 (26.5%)	16 (19.3%)	45 (54.2%)	83 (86.5%)	2.763	0.251
	Female	1 (7.7%)	2 (15.4%)	10(76.9%)	13 (13.5%)		
Education	Primary School	7 (21.2%)	5 (15.2%)	21(63.6%)	33 (34.4%)	1.308	0.860
	Middle School	7 (21.9%)	7 (21.9%)	18(56.3%)	32 (33.3%)		
	High School	9 (29.0%)	6 (19.4%)	16(51.6%)	31 (32.3%)		
Type of family	Nuclear	12 (19.0%)	16 (25.4%)	35(55.6%)	63 (65.6%)	6.345	0.175
	Joint	10 (33.3%)	2 (6.7%)	18(60.0%)	30 (31.3%)		
	Extended	1 (33.3%)	0 (0.0%)	2 (66.7%)	3 (3.1%)		
Family income	0-3500	0 (0.0%)	1 (20.0%)	4 (80.0%)	5 (5.2%)	1.770	0.778
	3501-7000	3 (27.3%)	2 (18.2%)	6 (54.5%)	11 (11.5%)		
	7001 & above	20 (25.0%)	15 (18.8%)	45(56.3%)	80 (80.3%)		
Locality	Rural	6 (15.4%)	10 (25.6%)	23(59.0%)	39 (40.6%)	3.711	0.156
	Urban	17 (29.8%)	8 (14.0%)	32(56.1%)	57 (59.4%)		
	Total	23 (24.0%)	18 (18.8%)	55(57.3%)	96 (100.0%)		

10.1%.[11] The sample size was calculated as 96 subjects, with 5% confidence level and a margin of error of 1-unit standard deviation (SD).

Statistical Methods

Data was coded and analysed using SPSS version 20.0. Mean and SD for ordinal variables and frequency tabulation for categorical variables were carried out. An unpaired t-test was applied for ordinal variables, and a chi-square test was applied for categorical variables. In case of skewed data, non-parametric tests like the Kruskal-Wallis test were applied. Repeated measures ANOVA was applied to analyse repeated intra-group measurements. Baseline comparison of quantitative parameters was done using the Mann-Whitney U test.

Results

A total of 250 case files belonging to patients registered with the clinic since 2015 were screened, out of which 180 fulfilled the inclusion and exclusion criteria. 150 of these 180 could be contacted telephonically and were ready to participate. Out of the 150 contacted, 25 were completely assessed in OPD, 71 were assessed telephonically, and 54 could not complete the study and were excluded. Eventually, 96 patients were included in the completed study.

Sample Characteristics

A total of 96 participants completed the study, out of which 83 (86.5%) were males and 13 (13.5%) were females. 63 (65.6%) participants were aged between

Table 2: Relationship between the Domains of SAICA and age group of study sample

	Age (in years)				*t-value*	*p-value*
	11-13		*14-17*			
	n	*Mean ± SD*	*n*	*Mean ± SD*		
Academic performance	63	2.11 ± 0.41	33	2.36 ± 0.55	2.557	.012*
Attitude towards schoolwork	63	2.57 ± 0.53	33	2.70 ± 0.73	.966	.337
Attitude towards teachers	63	2.14 ± 0.47	33	2.39 ± 0.66	2.157	.034*
Teachers attitude towards child	63	2.32 ± 0.59	33	2.21 ± 0.60	.825	.411
Relationships with classmates	63	2.30 ± 0.59	33	2.39 ± 0.66	.703	.484
Problems at school	63	2.16 ± 0.45	33	2.18 ± 0.216	.216	.830
Spare time activities	63	22.33 ± 0.54	33	2.33 ± 0.65	0.000	1.000
Spare time spent mostly with others	63	2.35 ± 0.51	33	2.21 ± 0.48	1.267	.208
Spare time problems	63	2.24 ± 0.50	33	2.39 ± 0.61	1.346	.182
Peer relationships	63	2.25 ± 0.54	33	2.21 ± 0.60	.348	.729
Peer problems	63	2.17 ± 0.52	33	2.09 ± 0.68	.670	.505
Boy girl relationships	63	.92 ± 1.34	33	2.00 ± 1.12	3.968	.0001*
Boy girl problems	63	.83 ± 0.19	33	2.06 ± 0.93	5.198	.0001*
Sibling relationships	63	2.21 ± 0.63	33	2.21 ± 0.60	.044	.965
Siblings' problems	63	2.13 ± 0.71	33	2.18 ± 0.64	.373	.710
Relationship with mother	63	2.22 ± 0.68	33	2.21 ± 0.70	.068	.946
Relationship with father	63	2.14 ± 0.56	33	2.15 ± 0.89	.069	.945
Problems with parent	63	2.13 ± 33	33	2.09 ± 0.90	.289	.773

*- significant

Table 3: Relationship between gender and the subdomains of SAICA

	Gender				*t-value*	*p-value*
	Male		Female			
	n	Mean ± SD	n	Mean ± SD		
Academic performance	83	2.19 ± 0.48	13	2.23 ± 0.44	.268	.789
Attitude towards schoolwork	83	2.65 ± 0.57	13	2.38 ± 0.77	1.484	.141
Attitude towards teachers	83	2.24 ± 0.55	13	2.15 ± 0.55	.527	.599
Teachers attitude towards child	83	2.29 ± 0.60	13	2.23 ± 0.60	.329	.743
Relationships with classmates	83	2.33 ± 0.59	13	2.38 ± 0.77	.325	.746
Problems at school	83	2.19 ± 0.48	13	2.00 ± 0.58	1.309	.194
Spare time activities	83	2.40 ± 0.56	13	1.92 ± 0.49	2.874	.005*
Spare time spent mostly with others	83	2.35 ± 0.50	13	2.00 ± 0.41	2.375	.020*
Spare time problems	83	2.30 ± 0.53	13	2.23 ± 0.60	.434	.665
Peer relationships	83	2.27 ± 0.54	13	2.08 ± 0.64	1.134	.260
Peer problems	83	2.14 ± 0.57	13	2.15 ± 0.69	.053	.958
Boy girl relationships	83	1.22 ± 1.37	13	1.77 ± 1.24	1.367	.175
Boy girl problems	83	1.17 ± 1.25	13	1.77 ± 1.17	1.627	.107
Sibling relationships	83	2.18 ± 0.63	13	2.38 ± 0.51	1.114	.268
Siblings problems	83	2.19 ± 0.67	13	1.85 ± 0.69	1.726	.088
Relationship with mother	83	2.28 ± 0.69	13	1.85 ± 0.55	2.153	.034*
Relationship with father	83	2.17 ± 0.60	13	2.00 ± 0.41	.975	.332
Problems with parent	83	2.13 ± 0.60	13	2.00 ± 0.41	.767	.445

*- significant

11 to 13 years and 33 (34.4%) were between 14 to 17 years. 57 (59.4%) belonged to urban areas and 39 (40.6%) were from rural areas. 68 (70.8%) participants were fluent in Hindi, followed by Punjabi (n = 25, 26%) and English (n = 3, 3.1%). Most of the participants lived in nuclear families (n = 63, 65.6%), followed by joint families (n = 30, 31.3%) and extended families (n = 3, 3.1%).

On VADPRS, 23 (24%) participants were found to have a hyperactive/impulsive type, 18 (18.8%) had an inattentive type, and 55 (57.3%) had a combined type of ADHD. Hyperactive/impulsive symptoms were more prevalent in the age group 11 to 13 years (n=16, 25.4%), inattentive symptoms were more prevalent in the age group 14 to 17 years (n=7, 21.2%) and combined type of ADHD had similar prevalence in both the age groups i.e 57.1% in 11 to 13 years and 57.6% in 14 to 17 years. Further correlating with gender, the hyperactive/impulsive and inattentive types were mostly seen in males (n=22, 26.5% and n=16, 19.3% respectively), and combined symptoms were more prevalent in females (n=10, 76.9%) (as depicted in Table 1).

On assessing the behavior and academic performance using SAICA scale and comparing with socio-demographic data; it was found that older age group, i.e., 14 to 17 years had more academic problems (2.36 ± 0.55), a negative attitude towards teachers (2.39 ± 0.66), boy girl relationship (2.00 ± 1.12) and boy girl problems (2.06 ± 0.93) than the younger age group i.e 11-13 years. (*p <0.05) (As depicted in Table 2).

On correlating the SAICA score with gender, it was seen that males tend to participate more in

Table 4: Strength and Difficulty Questionnaires (Adolescent version)

		Frequency (n)	*Percent (%)*
SDQA (total)	Clinically sig. problems in this area are unlikely	4	4.2%
	Score is slightly raised, which may reflect clinically sig. problems	7	7.3%
	This score is high – there is a substantial risk of clinically. Significant problem in this area.	85	88.5%
Emotional symptoms	Clinically sig. problems in this area are unlikely	62	64.6%
	Score is slightly raised, which may reflect clinically sig. problems	22	22.9%
	This score is high – there is a substantial risk of a clinically significant problem in this area.	12	12.5%
Conduct problem	Clinically sig. problems in this area are unlikely	5	5.2%
	Score is slightly raised, which may reflect clinically sig. problems	11	11.5%
	This score is high – there is a substantial risk of a clinically significant problem in this area.	80	83.3%
Hyperactivity	Clinically sig. problems in this area are unlikely	62	64.6%
	Score is slightly raised, which may reflect clinically sig. problems	21	21.9%
	This score is high – there is a substantial risk of a clinically significant problem in this area.	13	13.5%
Peer problem	Clinically sig. problems in this area are unlikely	11	11.5%
	Score is slightly raised, which may reflect clinically sig. problems	15	15.6%
	This score is slightly raised, which may reflect clinically	70	72.9%
Pro Social Behaviour	Clinically sig. problems in this area are unlikely	35	36.5%
	The score is slightly raised, which may reflect clinically significant problems	28	29.2%
	This score is high – there is a substantial risk of clinically. significant problem in this area.	33	34.4%
	Total	96	100.0%

spare-time activities, and spare time was mostly spent with others. Also, the relationship with the mother was more disturbed in the case of males as compared to females (*p = 0.05). (As depicted in Table 3).

When the total SDQ- adolescent version was compared with socio-demographic variables, it was found that substantial risk of clinically significant problems was significantly associated with gender, education and locality and was found higher in the males (n=75, 90.4%), those studying in the primary school (n=33, 100%) and belonging to urban areas (n=52, 91.2%). (Table 4)

The total SDQ (parent version) depicts that the maximum number of parents of participants facing difficulties fell under the category of substantial risk of clinically significant problems (n=94, 97.7%), with significant problems in domains of emotions (68.8%), conduct problems (90.6%) and peer problems (85.4%). (as depicted in Table 5).

Problematic internet use is more prevalent in the older age group (75.8%), participants going to high school (n=22, 71.0%), belonging to extended family (n=3, 100.0%) with family income of 3501-7000 (n=10, 90.9%) belonging to the urban area (n=57, 100.0%) than in the corresponding groups, and comparable in females and males (69.2 and 67.5%, respectively) using problematic internet use scale (As depicted in Table 6).

The stress coping behaviour scale comprises adaptive and maladaptive behaviour domains. Under the adaptive behaviour domain, the participants with adaptive behaviour were more (22.34 ± 3.16) than the participants with maladaptive behaviour (12.07 ± 1.67). (As depicted in Table 7)

Table 5: Relationship between the total SDQ score of the adolescents and the socio-demographic variables.

		SDQA					
		Clinicallysig. problems in this area are unlikely n (%)	*Score is slightly raised which may reflect clinically sig. problems n (%)*	*This score is high – there is a substantial risk of clinically significant problem in this area n (%)*	*Total*	*Chi-Square*	*p-value*
Age	11-13	1 (1.6%)	6 (9.5%)	56 (88.9%)	63 (65.6%)	4.181	.124
	14-17	3 (9.1%)	1 (3.0%)	29 (87.9%)	33 (34.4%)		
Gender	Male	1 (1.2%)	7 (8.4%)	75 (90.4%)	83 (86.5%)	14.230	.001*
	Female	3 (23.1%)	0 (0.0%)	10 (76.9%)	13 (13.5%)		
Education	Primary School	0 (0.0%)	0 (0.0%)	33 (100.0%)	33 (34.4%)	9.959	.041*
	Middle School	1 (3.1%)	5 (15.6%)	26 (81.3%)	32 (33.3%)		
	High School	3 (9.7%)	2 (6.5%)	26 (83.9%)	31 (32.3%)		
Type of family	Nuclear	3 (4.8%)	4 (6.3%)	56 (88.9%)	63 (65.6%)	0.883	0.927
	Joint	1 (3.3%)	3 (10.0%)	26 (86.7%)	30 (31.3%)		
	Extended	0 (0.0%)	0 (0.0%)	3 (100.0%)	3 (3.1%)		
Family income	0-3500	0 (0.0%)	0 (0.0%)	5 (100.0%)	5 (5.2%)	1.309	0.86
	3501-7000	0 (0.0%)	1 (9.1%)	10 (90.9%)	11 (11.5%)		
	7001 & above	4 (5.0%)	6 (7.5%)	70 (87.5%)	80 (80.3%)		
Locality	Rural	4 (10.3%)	2 (5.1%)	33 (84.6%)	39 (40.6%)	6.382	.041*
	Urban	0 (0.0%)	5 (8.8%)	52 (91.2%)	57 (59.4%)		
	Total	4 (4.2%)	7 (7.3%)	85 (88.5%)	96 (100.0%)		

Table 6: Relationship between internet use and the socio-demographic variables

		PIUS			*Chi-Square*	*p-value*
		No problematic internet n(%)	*Problematic internet n(%)*	*Total*		
Age	11-13	23 (36.5%)	40 (63.5%)	63 (65.6%)	1.490	.222
	14-17	8 (24.2%)	25 (75.8%)	33 (34.4%)		
Gender	Male	27 (32.5%)	56 (67.5%)	83 (86.5%)	.016	0.9
	Female	4 (30.8%)	9 (69.2%)	13 (13.5%)		
Education	Primary School	12 (36.4%)	21 (63.6%)	33 (34.4%)		
	Middle School	10 (31.3%)	22 (68.8%)	32 (33.3%)	.417	.812
	High School	9 (29.0%)	22 (71.0%)	31 (32.3%)		
Type of family	Nuclear	22 (34.9%)	41 (65.1%)	63 (65.6%)		
	Joint	9 (30.0%)	21 (70.0%)	30 (31.3%)	1.702	0.427
	Extended	0 (0.0%)	3 (100.0%)	3 (3.1%)		
Family income	0-3500	2 (40.0%)	3 (60.0%)	5 (5.2%)		
	3501-7000	1 (9.1%)	10 (90.9%)	11 (11.5%)	3.112	0.211
	7001 & above	28 (35.0%)	52 (65.0%)	80 (80.3%)		
Locality	Rural	13 (33.3%)	26 (66.7%)	39 (40.6%)		
	Urban	18 (31.6%)	39 (68.4%)	57 (59.4%)	.033	.857
	Total	31 (32.3%)	65 (67.7%)	96 (100.0%)		

Table 7: Stress coping behaviour scale

	N	*Mean ± SD*	*Minimum*	*Maximum*
Active coping	96	3.27 ± 0.62	2.00	4.00
Use of emotional support	96	2.81 ± .73	2.00	4.00
Use of instrumental support	96	1.51 ± .50	1.00	2.00
Positive refraining	96	3.07 ± .80	2.00	4.00
Planning	96	2.96 ± 0.71	2.00	4.00
Humour	96	2.81 ± 0.71	2.00	4.00
Acceptance	96	2.95 ± 0.70	2.00	4.00
Religion	96	2.96 ± 0.89	2.00	4.00
Adaptive Behaviour	96	22.34 ± 3.16	16.00	29.00
	N	*Mean ± SD*	*Minimum*	*Maximum*
Self-distraction	96	3.46 ± 0.58	2.00	4.00
Denial	96	1.63 ± 0.59	1.00	2.00
Substance use	96	1.15 ± 0.35	1.00	2.00
Behavioural disengagement	96	1.44 ± 0.50	1.00	2.00
Venting	96	2.93 ± 0.76	2.00	4.00
Self-blame	96	1.48 ± 0.50	1.00	2.00
Maladaptive behaviour	96	12.07 ± 0.50	9.00	15.00

Discussion

The VADPRS scale was used to assess the type of ADHD (Hyperactive/Impulsive, Inattentive or Combined). In this study, 57% of participants had a combined type of ADHD, 24% had predominantly hyperactive/impulsive symptoms and 19% predominantly inattentive type of ADHD. Earlier research describes that the inattentive type of ADHD is present in 20 to 30% of cases, the hyperactive-impulsive type has a prevalence of less than 15% of cases, and the most common type is the combined type, present in 50 to 75% of cases.[12] Hyperactive symptoms were more prevalent than inattentive symptoms, with a slight difference in the percentage between the two (5%). The reason that the current study showed a high prevalence in the hyperactivity/impulsive subtype of ADHD could be due to disturbance in the structured routine attributed to the home environment and online classes. There is no significant difference in the prevalence of ADHD type when compared with studies carried out in the past.[13] Some studies show that, on average, inattention declines, while others show stable or rising inattention.[13,14] Comparison of subdomains of Social adjustment inventory with socio-demographic parameters showed that academic performance, attitude towards teachers, boy-girl relationship and boy-girl problems subdomains were significantly more prevalent in the 14 to 17 years age group. The subdomains of spare time activities and spare time spent with others showed higher scores in males than in females. In past studies, the t-tests of difference in mean SAICA subscale and overall scores of children ages 6 through 11, and those 12 through 18 years, by mothers' and children's reports had significant differences ($p < 0.05$) on more subscales and overall scores.[15] When compared with socio-demographic variables, it was found that the total score on SDQ- SDQ-adolescent showed a significant association with gender, education and locality. Clinically significant problems were more likely to be found in males studying in primary school and belonging to an urban area. When comparing the subdomains with socio-demographic variables, no significant association was found between the subdomains and the socio-demographic variables, except that the prosocial behavior problems were found to have a significant association with the locality. SDQ-parent version showed that emotional symptoms were more prevalent in the age group 14 to 17 years. There were no significant differences between the community sample and clinical sample with respect to gender differences, missing information about the gender, mean age of the boys and girls, and missing information about age.[16] Though there were no significant differences between the ages, it showed that a higher number of participants with problematic internet use fall under the category of the older age group, i.e, 14 to 17 years (75.8%), than the younger age group, i.e., 11 to 13 years (65.5%). This finding is consistent with previous research, which showed that no significant differences were found by sex, but there was significantly higher problematic internet use in the older age group.[17] Our results showed that a greater number of parents had active coping, which depicts their adaptive behaviour (22.14 ± 3.19), than the parents who had maladaptive behaviour (12.24 ± 1.65). In previous studies, some parents of adolescents with ADHD reported worsening of general well-being in their children, and this manifested as oppositional/defiant attitudes and emotional outbursts. Parents also cited sleep problems and anxiety in this context.[18,19]

The objectives of this study were to assess the behavioural and academic performance in adolescents with ADHD in the home environment; to assess the problematic internet use in these adolescents, parental stress associated with it and the coping strategies used by them. The various strengths of this study include both online and physical data collection, which minimised dropout due to fear of getting infected; it included adolescents along with their parents to provide a multidimensional view of the problems faced by the adolescents through the comparison of the self-reported symptoms and those reported by the parents. The parents were also assessed for adaptive or maladaptive coping skills in response to the problems encountered during lockdown. Standardised scales were used for assessment. However, this study is not without its limitations. The study design was cross-sectional; hence, a temporal link between the exposure and the outcome cannot be determined. Recall bias could be there as some assessment scales required reporting of behaviour or academic performance of the adolescent during the previous 6 months.

Conclusion

The current study found that adolescents with ADHD faced many behavioural issues and problems in academic performance during the pandemic. These issues differed with socio-demographic parameters. ADHD was more prevalent in males of younger age belonging to lower socioeconomic status, and significant problems were found in these groups. Assessment of strengths and difficulties of adolescents and parents found that adolescents reported fewer problems faced by themselves than what their parents reported of them. Problematic internet use was also highly prevalent during lockdown and was more common in adolescent males. The parents of these adolescents faced significant stress due to disturbance in structured routine, and most parents showed adaptive coping behaviour in dealing with the stress associated with this.

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