FREQUENCY OF SYMPTOMS RELATED TO ATTENTION-DEFICIT HYPERACTIVITY DISORDER IN RELATION TO GENDER AMONG THE MEDICAL UNDERGRADUATES OF GAJJU KHAN MEDICAL COLLEGE SWABI

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ABSTRACT

Objective: The objective is to determine the frequency of attention-deficiency hyperactivity disorder among undergraduate medical students of Gajju Khan Medical College Swabi.

Methods: A descriptive cross-sectional study was conducted at Gajju Khan Medical College Swabi, Pakistan from 15 May 2023 to 1st August 2023 (10 weeks) with a sample size of 145. Data was collected through online questionnaire structured using the adult attention deficit hyperactivity disorder Self-report scale V1.1 screener. Behavioral patterns were assessed on the basis of the symptom's checklist of the scale. Data was analyzed using SPSS 25. Chi square test was used to find association between inattention and hyperactivity subscales of ADHD positive individuals with results significant at $p<0.05$.

Results: Of the 145 subjects, 88 (60.6%) were males and 57 (39.3%) were females. Overall, 4 or more symptoms were found in 45 (31%). Of these, 18 (20.4%) were males and 27 (47.3%) were females. Those who scored high showed higher levels of inattention and hyperactivity ($p<0.005$).

Conclusion: The result concludes majority of medical students of Gajju Khan Medical College, Swabi exhibited behavioral traits that were similar to attention deficit hyperactivity disorders.

Keywords: Adult ADHD, ADHD, Attention deficit hyperactivity, ASRS-V1.1, Pakistan.

INTRODUCTION

Attention Deficiency Hyperactivity Disorder (ADHD) is a neurodevelopmental condition that affects daily functioning and is frequently present from infancy into adulthood. It shows a mixed feature including inattention, hyperactivity, and impulsivity impacting day to day life [1].

A proper diagnosis of ADHD meets the following criteria: When symptoms start before the age of twelve, they last longer than six months, and they cause functional limitations in at least two contexts (like family, community, or school). Many studies have demonstrated that ADHD symptoms in children frequently remain into adulthood.

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ADHD impairs executive functioning, resulting in irritability, restlessness, sleep issues, occupational underachievement, and functional limitations. A recent study on adults found that 14.6% still had a full ADHD diagnosis according to Diagnostic and Statistical Manual of Mental Disorders, 5th ed, ADHD diagnosing criteria, resulting in clinically substantial long-term deficits [2].

Another meta-analysis estimated the prevalence of ADHD in children and adolescents to be 5.9-7.1% and 5% in young adults. There are three forms of ADHD: hyperactive, inattentive, and mixed. The inattentive kind is more common in girls than in boys. In general, the course of ADHD includes a reduction in hyperactivity and impulsive symptoms, whereas inattention persists throughout time. Detection and diagnosis are delayed and less frequent in females than in males, which is likely due to females' lower levels of extroversion and aggression. Girls with ADHD are also less likely than boys to be treated with medication. Clinical practitioners are frequently not fully aware that ADHD exists in adults [3].

Understanding the severity of adult ADHD symptoms is essential since, even in those who exhibit few symptoms, it can have a negative impact on a person's health and quality of life. An earlier study comparing people with self-

reported ADHD diagnoses to controls revealed considerable impairment in social functioning, interpersonal relationships, and self-organization, among other areas. Adult ADHD has also been linked to a number of psychiatric (such as substance misuse disorders and anxiety disorders) and somatic (such as obesity and asthma) comorbidities. Furthermore, because of issues with time management, organization, and job completion, people with ADHD frequently report decreased work productivity, implying that ADHD has economic ramifications [4].

This study will help us ascertain the mostly unexplored presence of ADHD in adults and will benefit both the clinicians and researchers in having a strong foundation for applying the substantial pediatric ADHD research literature to adult patients if they can show diagnostic consistency between ADHD in children and ADHD in adults [5].

The objective of this study was to determine the frequency of ADHD among medical students of Gajju Khan Medical College Swabi.

SUBJECTS AND METHODS

The descriptive cross-sectional study was conducted from 15 May 2023 to 1st August 2023 at Gajju Khan Medical College Swabi. After approval from the ethical review board, reference No. 6209/Ethical Board/GKMC, date: 2-May 2023. The sample size was calculated to be 145, using mean frequency (global rate & Pakistan rate) of adults ADHD of 22% [5,8,9] keeping the population size of 318 students in the whole college, with 5% margin of error & Confidence interval of 95%. Since out of 318 students currently enrolled, 193 are males while 125 are females. Keeping their population proportion in view, males make up 60% of the college population while females make 40%. dividing the sample size in the 60/40 ratio, males sample size was calculated to be 87 while female sample size became 58, making 145 as a whole. The sampling technique was stratified random sampling.

Students from 1st year to final year MBBS of Gajju Khan Medical College Swabi were included in this study. Students with incomplete questionnaire and those taking medication for any psychological disease were excluded.

For the WHO World Mental Health beginning surveys in 2004, WHO created the Adult ADHD Self-Report Scale version 1.1 in combination with modification of the WHO Composite International Diagnostic Interview. It is a standardized and thoroughly validated instrument for evaluating current ADHD symptoms in people who are 18 years of age or above. This tool comes with two forms: a 6-question form and an 18-question form. In terms of sensitivity (68.7% vs. 56.3%), specificity (99.5% vs. 98.3%), overall classification accuracy (97.9% vs. 96.2%), and Cohen's kappa (0.76 vs. 0.58), the 6-question performed better than the 18-question [6].

ADHD self-report scale, version 1.1 is made up of eighteen questionnaires, further divided two parts, part-A is a six-item measure of ADHD symptoms that is an appropriate and reliable screening tool for people with ADHD and part-B which provides additional cues regarding patient symptoms [7]

This ADHD ASRS questionnaire was sent to the selected students according to sampling technique receiving responses of individual candidates through google forms. The questionnaire was explained to the students, and they were instructed to choose the responses that best described their actions over the past six months.

RESULTS

Out of 145, 45 (31.03%) candidates had symptoms related to ADHD the remaining 100 (68.97%) candidates did not show vulnerability to ADHD (Table-1). The results are calculated with a p-value (0.036) <0.05, and are therefore significant.

Table 1: IA=Inattention, HA=Hyperactivity

TABLE: 1	Among ADHD positives		Among ADHD negatives	
	Count	Percentage (%)	Count	Percentage (%)
Both IA and HA	33	73.3%	34	34%
Predominantly IA	11	24.4%	24	24%

Predominantly Hyperactive	0	0%	7	7%
Inclined to none but ADHD positive	1	2.20%	0	0
Inclined to none and ADHD negative	0		35	35%
Total Subjects	**45** 31%	100%	**100** 69%	100%

Table 1 shows relative symptoms of ADHD among ADHD positives & negatives. Among positives, 73% were having both IA & HA, 24% were predominantly IA & only 2% were not showing any predominant symptom. Among negatives, 35% didn't showed any symptom, 34% showed both IA & HA, 24% were predominantly IA & 7% were HA predominantly.

Table 2: Chi-square value, degree of freedom, critical value & conclusion

Chi-Square Test Results for Associations				
Association	**Chi-Square Value (χ^2)**	**Degrees of Freedom (df)**	**Critical Value (p = 0.05)**	**Conclusion**
Part A and Inattention Subscale	4.41	1	3.841	Significant Association
Part A and None but ADHD Positive	0.23	1	3.841	No Significant Association
Part A and Symptoms of Both Inattention and Hyperactivity	40.48	1	3.841	Significant Association

Table 3: Gender specific ADHD positivity

Gender-wise cross tabulation (TABLE 3)				
		Result		
		Positive	Negative	Total
Gender	Male	(20.4 %) 18	69	88
	Female	(47.3%) 27	31	57
Total		45	100	145

TABLE-4 (CLASS WISE DISTRIBUTION OF ADHD POSITIVE CASES)

Class	Year	Frequency of student's class-wise	Percentage of ADHD positive cases
MBBS	1 year	27	28.57 %

MBBS	2 year	34	37.14 %
MBBS	3 year	30	30.3 %
MBBS	4 year	23	25 %
MBBS	Final year	31	31.25 %
	Total	145	100%

DISCUSSION

Our result clearly showed 31% positivity of ADHD related symptoms among medical undergraduates as they scored 4 or higher on ASRS 6-item part-A screening scale. The frequency is almost same as medical undergraduates of Rawalpindi which was 29.6% 'Hamid A' et al [5]. Another comparative study was done on medical students in 2017 showing 28% students high on ASRS 'Galván-Molina JF' et al [8]. Chinese medical undergraduates demonstrated 8.45% positivity of ADHD symptoms 'Shi M' et al [9]. The results can vary depending on various psychological & biological factors, but our results showing almost similar frequency justifies previous results & provides further evidence about a significant positivity of ADHD among Adults, medical undergraduates especially, which can be due to severe academic burden & lack of social activities.

A gender difference has been known to exist regarding ADHD positivity, even among symptoms like attention and hyperactivity impairment. Female students of our sample showed a higher frequency (47.3%) compared to the males (20.6%) although in previous literatures, males are been shown more vulnerable globally to ADHD but still there is no distinct gender vulnerability globally However, compared to boys with ADHD, girls with ADHD are more frequently identified as being primarily inattentive 'Rucklidge JJ' et al [10]. A study done on college students concluded distinct behavioral patterns between males & females showing higher prevalence in females 'Fedele DA' et al [11]. ADHD positive females tend to have difficulties like social functioning, time perception, stress tackling, and mood disorders while men with ADHD show greater difficulty in working memory & educational functioning 'Faheem M' et al [12].Edward, who is a recognized psychologist says females have very low chances to be externally hyperactive and impulsive than men but their hyperactivity can represent internally in the form of overthinking, intrusive thoughts, and negative self-talks. As Females are not that much expressive, so they don't display those disruptive external symptoms linked with ADHD, hence they fail to receive required attention & medications & even if they do so, those symptoms are often linked to factors like spiritual, cultural, gender biasedness & expectations [13]. Moreover, comparing clinical samples of children & adolescents, the male-to-female ratio is lower in adult samples, suggesting Adult females are more prone than adult males to experience ADHD symptoms, underscoring the fact that the diagnostic process for males and females with ADHD symptoms differs. According to a different study, girls with ADHD had lower IQ and achievement levels, more impairment on tests of social, academic, and family functioning, and were more likely to have behavior, mood, and anxiety disorders than female controls 'Skoglund C' et al [14]. There was no prominent distinctive pattern of frequency of ADHD related symptoms among any particular class.

To analyze frequency of 2 main symptoms i.e., inattention &hyperactivity.18-questions of ASRS were divided in 2 parts, 9 specific for each

symptom where a score of 3 or more was equal to 1 while 2 or less was equal to 0 'Hamid A' et al [5].The studied data showed that a maximum ADHD-positives were having both IA & HA while inattention was also the main symptom being reported as proved in the above mention study too. High Part A performers also performed better on the inattention and hyperactivity subscales (p 0.005). Part A of the scale had a statistically significant positive correlation with the subscales measuring inattention and hyperactivity, indicating that people with high ASRS scores also had greater signs of both inattention and hyperactivity, these relations are in accordance with the study of Hamid A conducted in Rawalpindi 'Hamid A' et al [5]. Among ADHD-negatives, results varied: most reported no symptoms or both IA and HA, with some showing inattention only. Hyperactivity showed minimal association, while Part A significantly correlated with the inattention subscale.

CONCLUSION

A significant number of undergraduate students of Gajju Khan Medical College Swabi, reported ADHD related symptoms. Maximum students reported both inattention & hyperactivity also a significant number of students reported inattention. The female students reported comparatively higher frequency then male students

RECOMMENDATIONS

Proper counselling & medication should be considered for medical students of Gajju Khan Medical College Swabi with ADHD, as their frequency of ADHD is significantly higher than general population. It is important to establish the causal relationship between various risk factors and the development of ADHD-like symptoms in these individuals in order to take the necessary action to better understand and maybe solve the issue. Moreover, ADHD like disorders which were previously confined to childhood should get proper attention when they show in adults. Females should also be equally evaluated for ADHD as there is no gender-specificity for ADHD.

LIMITATIONS

The institution-based nature of the current study placed restrictions on it. Our findings cannot be applied to the entire population as a whole as there are some background realities like different students are facing different psychological challenges with each having its own strength of dealing with.

DECLARATIONS

This study was presented in National Annual Research Conferences in Khyber Medical College-Peshawar, Pakistan and Ayub Medical College-Abbottabad, Pakistan as a part of Academic curriculum.

Authors Contributions

Burhan Ali[1] = Topic selection, Literature review, Study Design, Methodology, Data Analysis, manuscript writing
Raja Umair Basharat[2] = Literature review, Data Collection, Data Analysis
Farhan Rasool[3] = Study design, Methodology, Data Analysis, Proof reading
Rehan Ali[4] = Literature review, Data Analysis
Sohail Ahmed[5] = Introduction writing
Dr. Muhammad Ijaz[6] = Supervision of the work

Conflict of interest: None to be reported.

Funding: The research, writing, and publication of the research article were all done without any financial assistance from any institution, organization, or individual.

Acknowledgement: In the name of Allah, the most Beneficent, the most Merciful, without whose help it would not have been possible for me to undertake and complete this dignified work of research. I dedicate this project to my parents, who enlightened my path with their physical & financial support & also to our alma mater, my institution, GKMC, which provided me with this opportunity. It is no doubt that I am indeed privileged to study at this honorable institution. It goes without saying that I owe a lot to my teachers, who educated me not only with regard to our fields of choice but also life in general.

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