Adult attention deficit/hyperactivity disorder: One year follow up

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Background & objective: This study aimed to find out phenomenology, stability of diagnosis, comorbidities, impairments and treatment status of the adults with ADHD one year follow up as there are no such data.

Methods: 20 subjects (all males, mean age 25.1±6.2 yr) with adult ADHD (DSM-IV-TR) were followed up at mean 1.3±0.2 yr after their diagnosis. Phenomenological assessments were done using ASRS v1.1, WMH-CIDI, ADHD-RS and clinical assessment where required. Diagnoses of ADHD and comorbidities were made using DSM-IV-TR. Global functioning was also assessed using GAF.

Results: 19 (95%) of the 20 subjects could be followed up. All (100%) of them could again be diagnosed having ADHD according to DSM-IV-TR criteria. However, the symptoms declined in severity over a period of one year. Diagnosis of 2 (10.5%) subjects of ADHD-CT was changed to ADHD-IA. 1 (5.3%) subject each of ADHD-IA and ADHD-NOS types went into partial remission. Substance abuse was increased at the follow up from 26.3 to 47.4 per cent. Rates of the other comorbidities did not change during the follow up. Only 3 (15.8%) subjects adhered to the prescribed treatment at the follow up. Global functioning of the adherent group improved significantly at the follow up (t = 6.000, P = 0.027).

Interpretation & conclusion: Adult ADHD has diagnostic stability at the one year follow up. The adult ADHD subjects remained highly comorbid with other psychiatric disorders including increased substance abuse at the follow up. Only 10.5 per cent subjects remained in the regular follow up. The above findings suggest that the patients with adult ADHD should be properly psycho-educated and regularly followed up.

Key words Adult ADHD - comorbidity - diagnostic stability - follow up - impairment

Longitudinal studies in children with attention-deficit/hyperactivity disorder (ADHD) and retrospective studies in adults with ADHD have shown that the disorder persists in to adulthood and is predictive of negative future outcome often with serious consequences. However, prevalence of the ADHD in adults and the rate of persistence of symptoms across the lifespan are heterogeneous, raising questions about the validity of the diagnosis. Adult ADHD is also characterized by controversy due to lack of agreement on appropriate diagnostic criteria and the realization that diagnosis is complicated by symptom overlap with a number of other disorders.

Studies of children and adolescent with ADHD have demonstrated stability of the diagnosis at follow up but the same information is not available for adults.
who have been diagnosed with ADHD using standard diagnostic procedures. Childhood ADHD has been studied in India and other Asian countries but not adult ADHD. Sitholey et al.\(^5\) have carried out an exploratory clinical phenomenological study of adult ADHD. To our knowledge, in India, there is no short or long term follow up research on adult ADHD as regards its phenomenology, diagnostic stability, comorbidity, impairment caused by it and need for treatment. Therefore this one year follow up study of adult ADHD aims to assess its phenomenology, course, stability of diagnosis, comorbidity and global functioning of the affected persons.

**Material & Methods**

This was a cross sectional follow up study where subjects were evaluated after one year of the initial assessment. The study was carried out at Department of Psychiatry, K.G. Medical University, Lucknow from August 2005 to September 2006. All the clinical assessments were jointly done by AT and PS or VA or by the all three except in 7 subjects visited at home by AT. In these cases, the findings were jointly discussed. The study was approved by the institutional ethics committee.

20 out of 25 subjects of the adult ADHD study\(^5\), all males, recruited from September 2004 to August 2005 were included in the follow up study. They were cross-sectionally followed up after one year of the initial intake. Their recruitment in the study and assessment of their phenomenology, diagnostic comorbidities and global functioning has been described\(^5\). 5 more cases recruited in the study\(^5\) after August 2005 were not followed up due to operational reason because the present study was time bound. There were no differences between these 5 cases and the rest of the sample except in the comorbidities which were significantly (\(P > 0.001\)) more in the rest of the sample.

The subjects in the regular follow up were given mutually convenient appointments for assessment. The subjects not in follow-up were contacted by phone, postal intimations and/or email. The evaluations were done either in the department, their homes, or telephonically.

**Results & Discussion**

Of the 20 subjects, 19 (95%) could be followed up after one year. One subject could not be followed up due to incomplete postal address which was excluded from the subsequent analysis. The diagnosis of the excluded patient was ADHD-IA type and he had no comorbidities. His GAF score of 56 indicated moderate functioning impairment.

The mean duration of follow up was 1.3 ± 0.2 yr. The mean age of 19 followed up subjects at the initial intake and follow up was 23.89 ± 6.0 and 25.14 ± 6.2 yr. At follow up 6 were students, 4 self-employed, 2 farmers, 1 each in service and helping others in work and 5 were unemployed. 10 were educated between grades 10-12, 8 more than 12 and 1 was less than 10. 14 each were urban and unmarried. No significant change was observed in sociodemographic variables from initial intake.

Only 2 (10.5%) subjects were in the regular follow up after the initial intake\(^5\). In the remaining 17 (89.5%) subjects, various methods like telephonic and postal reminders and email were used for follow up contact. 7 of these 17 subjects had changed their residence and therefore their erstwhile neighbours were contacted regarding the new location of these subjects. 12 of the above 17 were interviewed face to face. Of these 12 subjects, 5 came to the department after the above efforts. In other 7 subjects, evaluation was completed through home visits and telephonic interviews of the subjects and their family members. In the remaining 5, evaluation was completed through telephonic interview with the subjects and their family members and by obtaining response on Adult self report scale (ASRS v1.1) symptom checklist\(^6\) either through post or email. In study of ADHD subjects by Barkley et al.\(^4\), the follow up rates at mean age of 15 and 21 yr were 93 and 78 per cent of the initial cohort. In their study also, various strategies to locate the subjects like website search, information from government institutions tracking records of persons (like Department of Motor Vehicles), telephonic and postal reminders, and speaking to neighbours regarding the new location of subjects were used. We used all the possible methods appropriate to our study circumstances.

Seven (36.8%) subjects changed their residence during the follow up although their parents were still residing on the unchanged location. This relocation increased the difficulties of their follow up. Weiss and Hechtman\(^7\) showed that ADHD subjects make more residential changes as compared to normal controls. Their tendencies to relocation is one of the reasons for difficulty in following them up\(^5\).

At 1 yr follow up, all the 19 subjects could be diagnosed as having ADHD. A diagnostic shift was
seen in 4 subjects. 2 subjects with the initial diagnosis of ADHD-CT were diagnosed as ADHD-IA at follow up. Their symptoms of hyperactivity and impulsivity were decreased and below diagnostic threshold at the follow up. 1 subject each of ADHD-IA and ADHD-NOS improved and were diagnosed as ADHD in partial remission. Follow up studies of ADHD have shown that the number and severity of ADHD symptoms decline in the subjects with time\(^9\). Thus such remission is consistent with earlier studies\(^9\). Although these subjects reported reduction of their symptoms resulting into loss of full diagnostic criteria, one subject still reported continuing impairment from the symptoms. Studies have shown that remission rates are highly sensitive to remission definitions and are inconsistent across studies because of different definitions\(^10\). Mannuzza et al\(^11\) used probable (fewer than required number of symptoms and clinically significant impairment) and definite criteria in diagnosing adult ADHD. Barkley et al\(^12\) formed developmentally referenced (i.e., age based) criteria for ADHD by determining the mean number of DSM-III-R ADHD symptoms among age-matched adult controls, and increasing this number by 2 SDs. He suggested that a fixed threshold on the number of symptoms needed for diagnosis is inappropriate for adults as frequency of ADHD symptoms decreases with time. In our study, DSM-IV-TR criteria have been used. With adoption of any of above mentioned criteria the above subject might have been diagnosed as Adult ADHD and not in partial remission.

It has been earlier demonstrated that despite chronicity of ADHD, the symptoms show a relative context-dependence\(^12\). Variations in ADHD symptoms due to environmental context have been reported from various studies\(^12\). In our study, the other subject in the partial remission group left studies and started part time work in his relative’s shop. His work required him to perform only simple activities like supervision of the subordinates and to bring needed goods from a certain shop. The work did not pose any challenges to his attention or organization function nor did it require him to perform sedentary, attention demanding work in comparison to his earlier academic work. He, therefore, was much less impaired due to this change. So this adjustment can also be considered as the cause of apparent rapid decline of the symptoms rather than true reduction in symptoms. It is possible that this subject may again experience impairment from his ADHD symptoms if the demand on his attention is increased.

The rest of the subjects (17) still met full diagnostic criteria for ADHD as per DSM-IV-TR criteria. This persistence of ADHD confirms and extends previous work\(^4-11\) and also denotes that ADHD is a stable diagnosis which can be confidently made cross culturally.

All the 19 adult ADHD subjects were advised pharmacological treatment. However, only 3 (15.8\%) subjects were adherent to the treatment at the 1 yr follow up. Pharmacological treatments advised to the subjects were atomoxetine in 17 (89.5\%), methylphenidate in 1 (5.3\%) and bupropion in 1 (5.3\%). In the adherent group, 2 subjects were on atomoxetine and 1 was on bupropion. In the nonadherent group, 2 subjects did not start treatment from the very beginning. 4 subjects stopped treatment in less than 2 wk, 9 subjects stopped treatment between 2 wk to 6 month, and 1 subject continued treatment for more than 6 month but was nonadherent to the medication at follow up. The common reasons for the noncompliance were expectation-improvement incongruence/no perceived benefit of the treatment in 13 (68.4\%), financial factors in 09 (47.36\%), unable to make a visit for follow up in 06 (31.57\%), side effect of the medications in 05 (26.31\%) and fear of side effects in 05 (26.31\%). For further analysis of the effect of treatment on the ADHD symptoms, the subjects were divided in the treatment adherent (n=3) and nonadherent (n=16) subgroups. There was no significant change in the symptoms of subjects in the nonadherent group at the follow up. Their mean ADHD-RS score at the intake and the follow up were 28.1 (± 3.6) and 26.8 (± 4.1) respectively (t = 1.784, \(P = .095\)). However, subjects in the adherent group showed significant reduction in mean ADHD-RS score at the follow up. Their mean ADHD-RS score at the intake and the follow up were 29.7 (± 2.5) and 15.3 (± 3.2) respectively (t = 7.069, \(P = .019\)).

At the follow up evaluation, 17 (89.5\%) subjects had one or more comorbid psychiatric disorder. Substance abuse and dependence were increased at the follow up. 9 (47.4\%) had this comorbidity at the follow up in comparison to the 6 (26.3\%) at the initial intake. The most common substance of abuse or dependence was nicotine followed by alcohol. Rates of the other comorbidities remained unchanged from the initial intake. In the previous studies also, alcohol abuse and other substance abuse have been found in 8-32 and 32-53 per cent subjects respectively\(^13\). The rates of individual comorbidities were similar to those found in the other previous studies\(^11,13\) with the exception.
of antisocial personality disorder which is less in our study as compared to the previous studies. The small sample size of our study can be a possible reason for this difference. Overall, the rate of comorbidities in our study is high.

At the initial intake, the adult ADHD subjects had moderate impairment in functioning (GAF score 58.8 ± 6.2). The nonadherent subjects, at the follow up, continued to have similar level of impairment in functioning. However, the adherent subjects were significantly improved at the one year follow up as compared to the initial intake. Their mean GAF scores at the initial intake and the follow up were 52.7 (± 3.1) and 64.7 (± 6.4) respectively (t = 6.000, P = 0.027). It has been established in the previous studies also that ADHD adults have significant impairment due to their symptoms\textsuperscript{14} and successful treatment produces significant improvement in overall functioning of these subjects\textsuperscript{15}. Our study also adds to this finding.

To our knowledge, this is the first follow up study of adult ADHD from Asia. Our study shows that adult ADHD is a stable diagnosis at one year follow up. The affected individuals continued to remain moderately impaired due to ADHD and highly comorbid with psychiatric disorders. Our study highlights the need for regular follow up of the ADHD subjects after the initial diagnosis and prescription. Psycho-education should be provided to the adult ADHD patients and their families about the importance of regular follow up and treatment to improve their functioning and outcome.

The study was conducted on a small, purposive, clinical sample and the assessments were not blinded.

References


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