



Section: Medical Science

ADHD is a Risk Factor of Road Crashes: A Purposive Study of Finding Relation between ADHD and Road Traffic Accident in Bangladesh

Nusrat Shamima Nur¹, M. S. I. Mullick.², Ahmed Hossain³

¹Resident doctor of Child & Adolescent Psychiatry Department of Psychiatry Bangabandhu Sheikh Mujib Medical University Dhaka, Bangladesh

²Professor of Child & Adolescent Psychiatry Department of Psychiatry Bangabandhu Sheikh Mujib Medical University Dhaka, Bangladesh

³Resident doctor of Endocrinology Bangabandhu Sheikh Mujib Medical University Dhaka, Bangladesh

*Corresponding Author: Nusrat Shamima Nur

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Abstract

Background: In Bangladesh fatality rate due to road traffic accidents is rising sharply day by day. At least 2297 people were killed and 5480 were injured in road traffic accidents within 1st six months of 2017. Whereas in the previous year at 2016 at least 1941 people were killed and 4794 were injured within the 1st six months. No survey has been reported in Bangladesh yet correlating ADHD as a reason of impulsive driving which ends up in a road crash.

Objective: Find out the relation between road traffic accident and Attention Deficit Hyperactivity Disorder (ADHD).

Methods: Purposively selected 20 male drivers of heavy vehicle who had undergone road crashes aged below 30 years were clinically assessed. Clinical assessment of drivers was done in one of the central bus depots of Dhaka city in Bangladesh. The survey was done through clinical assessment by using DSM-5 diagnostic criteria of ADHD.

Results: Eight out of twenty drivers were fulfilling the criteria of having ADHD. Among them two were predominantly inattentive, four were predominantly hyperactive, two were both hyperactive and inattentive, four were dropped out from school at early age due to inattention and hyperactivity, all were chain smoker and four used to change their job frequently.

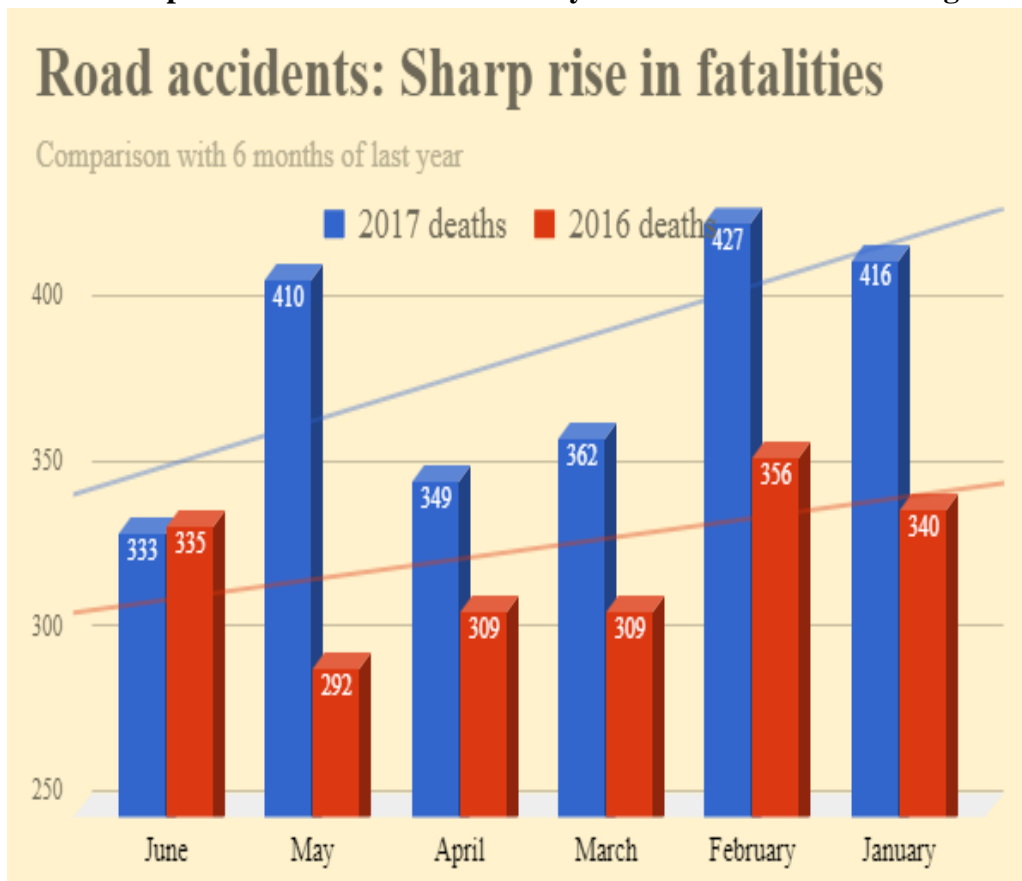
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Background: Attention-deficit/hyperactivity disorder (ADHD) is a neuropsychiatric condition affecting preschoolers, children, adolescents and adults around the world, characterized by a pattern of diminished sustained attention and increased impulsivity/hyperactivity. In untreated case ADHD may cause problems in performing jobs in which sustained attention is needed. Consequences of ADHD are not only impairing the social, occupational and other areas of functioning, but also this is related to threatening of other people’s life when the occupation is driving. Driving is a sensitive occupation. It needs sustained attention and patience during driving. In ADHD Impulsivity/hyperactivity is basic phenomenon. These behaviors cause difficulties in driving. So erroneous driving leads to accidents. In Bangladesh Health Injury Survey (BHIS)-2016 identifies road crash is a major causes of deaths from injuries. They reported that this occurs due to impulsive and reckless behavior of drivers.

A case control study of the adult emergency department of Bordeaux University Hospital, France reported that factors associated with responsibility for road crashes were distraction induced by an external event (adjusted OR (aOR) = 1.47; 95% confidence interval (CI) *1.06–2.05]), distraction induced by an internal thought (aOR = 2.38; CI: *1.50–3.77+) and ADHD (aOR = 2.18 CI: *1.22–3.88]). The combined effect of ADHD and external distractions was strongly associated with responsibility for the road crashes (aOR = 5.79 CI: *2.06–16.32]).

A recent study, “Serious Transport Accidents in Adults With Attention-Deficit/Hyperactivity Disorder and the Effect of Medication,” published in JAMA Psychiatry (online January 29, 2014) found that drivers with ADHD had a 45% to 47% increased rate of serious transport accidents (defined as serious injury or death) compared to drivers without ADHD, in both men and women.

Table1: Comparison with 6 months of last year of road crashes in Bangladesh.



In Bangladesh fatality rate due to road traffic accidents is rising sharply day by day. At least 2297 people were killed and 5480 were injured in road traffic accidents within 1st six months of 2017. Whereas in the previous year at 2016 at least 1941 people were killed and 4794 were injured within the 1st six months. No survey has been reported in Bangladesh yet correlating ADHD as a reason of impulsive driving which ends up in a road crash. Though it is difficult to mention that always ADHD causes road crashes but this study purpose is to find the clinical cause related to impulsive driving.

Methods: Purposively selected 20 male drivers of heavy vehicle who had undergone road crashes aged below 30 years (18-30) with inattentiveness, impulsiveness and hyperactive were clinically assessed. This survey was done on central bus depot of Dhaka city by taking informed written consent from the selected drivers about the objective of survey. Survey questions were clearly instructed to the drivers. Survey had started by taking consent followed by taking demographic data of the drivers

and asking questions for diagnosing ADHD. Questions were made by using Fifth Edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5).

Each sample's demographic data (age, sex, marital status), history of smoking, socio-economic condition and clinical assessment of ADHD were collected. Each symptom of inattention, hyperactivity and impulsivity were collected separately. Consequences related to ADHD such as history of substance use for any time, short frequency of changing job, dropped out from school due to inattention and hyperactivity were collected.

Statistical analysis: Eight out of twenty drivers were fulfilling the criteria of having ADHD. Among them two were predominantly inattentive, four were predominantly hyperactive, two were both hyperactive and inattentive, four were dropped out from school at early age due to inattention and hyperactivity, all were chain smoker and four used to change their job frequently. Twelve among twenty were married and no history of divorce among them.

Table2: Percentage of symptoms of inattention

| Symptoms of inattention in heavy vehicle drivers | Founded among 20 | Percentage of symptoms |
|--|------------------|------------------------|
| Often fails to give close attention to details | 12 | 60% |
| Often has difficulty sustaining attention in tasks(driving) | 11 | 55% |
| Often does not seem to listen when spoken to directly | 10 | 50% |
| Often does not follow through on instructions | 8 | 40% |
| Often has difficulty organizing tasks and activities | 10 | 50% |
| Often avoids engaging tasks that require sustained mental effort | 7 | 35% |
| Often loses things necessary for tasks or activities | 5 | 25% |
| Is often easily distracted by extraneous stimuli | 6 | 30% |
| Is often forgetful in daily activities | 7 | 35% |

Table3: Percentage of symptoms of hyperactivity and impulsivity

| Symptoms of hyperactivity and impulsivity | Founded among 20 | Percentage of symptoms |
|--|------------------|------------------------|
| Often fidgets with or taps hands or feet or squirms in seat | 12 | 60% |
| Often leaves seat in situations when remaining seated is expected | 11 | 55% |
| Often runs about or climbs in situations where it is inappropriate | 10 | 50% |
| Often unable to play or engage in leisure activities quietly | 9 | 45% |
| Is often “on the go,” acting as if “driven by a motor” | 11 | 55% |
| Often talks excessively | 8 | 40% |
| Often blurts out an answer before a question has been completed | 9 | 45% |
| Often has difficulty waiting his or her turn | 4 | 20% |
| Often interrupts or intrudes on others | 10 | 50% |

Table4: Variant of ADHD with some consequences

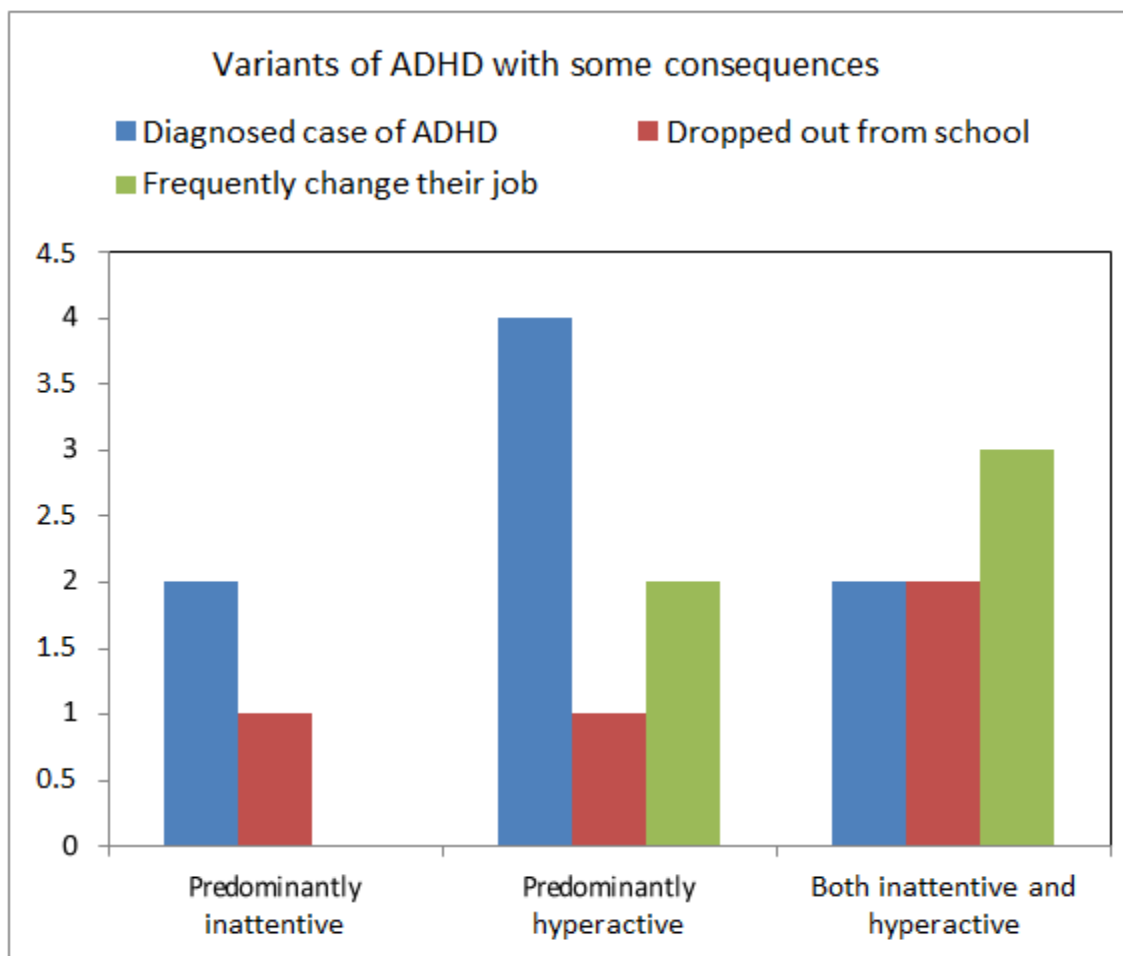


Table5: Consequences related to ADHD found among 20

| Consequences related to ADHD | Founded among 20 |
|--|-------------------|
| History of substance use for any time | Zero among twenty |
| Short frequency of changing job | Four among twenty |
| Dropped out from school due to inattention and hyperactivity | Four among twenty |

Discussion:

This study adds the understanding of the vulnerability of study group of having ADHD. In this study, a sensitive occupation is selected which is driving. ADHD can impair the occupational functioning specially it is noticeable in case of drivers with ADHD. In this study some information was obtained that ADHD is not rare among drivers in Bangladesh and it can cause job difficulties. Consequences of ADHD such as failure to sustain attention in work can cause mistakes. These mistakes are vulnerable to others in case of sensitive occupation such as driving. These mistakes lead to road crashes. So ADHD is a risk factor of road crashes. Difficulties in executive function and other symptoms related to ADHD, including poor judgment, risk-taking and thrill-seeking tendencies, all contribute to these increased risks. Inattention can lead to distraction and impulsivity can lead to poor reactions to other drivers or traffic conditions. This study was limited to find the whole scenario of ADHD but provides some information about the percentages of symptoms of ADHD among drivers in Bangladesh. Study shows that symptoms are common among drivers. Continued research is needed to identify the ADHD individual among study group. Media can also play a role to promote awareness program regarding ADHD.

Conclusions:

ADHD might be one of the risk factors of such intimidating statistics of road accidents in Bangladesh. No survey has been reported in Bangladesh related to ADHD as a reason of impulsive, inattentive and hyperactive behavior

related to driving. Broad-based and continued study should be carried out to find out ADHD individuals among drivers.

Declarations:

Ethics approval and consent to participate: Not applicable. Consent for publication: Not applicable.

Availability of data and material: All data presented in Table: 2, 3, 5. Competing interests: The author declares they have no competing interest. Funding: No funding was obtained for this study.

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Abbreviation:

ADHD (Attention Deficit Hyperactivity Disorder)

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