

Original Article

Drug Abuse of Professional Drivers: Experience from Referral Dope Test

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**Abstract**

In Bangladesh, drug abuse is one of the dangerous problems among drivers that hamper road safety and make government worry. In that context, this cross-sectional study was conducted in National Institute of Laboratory Medicine and Referral Center (NILMRC) and aims to determine the proportion of drug abuser among professional drivers in Bangladesh. This study also addressed to recognize the various types of abused drugs, the pattern and the trend of drug abusers during study period. Data were collected from online data server of NILMRC during the period of July to December 2022. Bangladesh Road Transport Authority (BRTA) customarily refers urine samples of drivers to NILMRC for dope test. Dope tests were performed in immunochromatographic test (ICT) device and semi-auto analyzer. Dope results and demographic data of drivers were well-kept-up in online server for electronic transfer and use of data. Commonly abused drugs in Bangladesh such as, cannabinoids, amphetamines, opiates, benzodiazepines and alcohol were assessed. A total of 70866 drivers had been tested for six months of study period among them 2720 (3.81%) were found dope test positive.

Considering monthly trends from July to December 2022 the highest incidence were found in December where 473 (4.58%) of 10323 drivers were dope test positive; however in November 639 (4.56%) of 14,017, in September 682 (4.07%) of 16757, in October 551(3.62%) of 15221, in August 320 (3.42%) of 9348, then less incidence were found in July 55 (1.05%) of 5200 drivers had been tested positive. There was an increase number of test positive cases were detected during the period from July to December. The highest number drug abuser that is more than two-third (70%) of drivers were found among young adult age group (25-44) years. The five types of abused drugs were tested; among those the highest proportion (91.5%) of abused drug was Cannabinoids, then Benzodiazepines was 5.5%, Amphetamine was 1.3%, Opiates was 1% and Alcohol was 0.8%. No female drivers were found test positive. Cannabinoids was the most common drug of abuse among drivers referred by BRTA, Bangladesh. During this study, there was challenge to different kind illegal means. If the illegal means could be resolute then the data of positive finding would be higher than this finding. So implementation online registration, proper identification by finger print or retinal scanning and providing online reports may minimize the illegal means.

**Keywords:** Drug abuse; BRTA; drivers; cannabinoids; benzodiazepines NILMRC.

**INTRODUCTION**

Road traffic accident became common phenomenon in Bangladesh. It is well established that severe road traffic accidents are related with drug abused drivers.<sup>1,2</sup> The fact is estimated that near about 6 million people in Bangladesh are drug addicted and about 80 percent of the drug addicts are adolescents and young men of 15 to 30 years of age.<sup>3</sup> Drug or substance abuse refers to the using of any psychoactive substance, illicit or medically prescribed drugs.<sup>4</sup> These drugs such as: amphetamines, cannabis, opioids, benzodiazepines and alcohol. Drug abuse alters the brain functions which are necessary for harmless driving.<sup>5</sup>

Cannabis, the second most commonly used drug in the world after alcohol<sup>6</sup> is the major cause of impaired driving.

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Although no specific study is available about the number of drug-addicted drivers in Bangladesh, according to transport owners, a large number of Dhaka's drivers and their assistants, who operate around 50,000 public transport vehicles, are drug addicts. Private organizations have found the rate of drugged drivers stands around 80%. Drivers claim, they need drugs to maintain concentration through high temperatures, constant shouting by passengers, long working hours. Drugs help them tackle these pressures.<sup>7</sup> Proper strategies and planning should be developed to identify drug abused drivers and correct them for safe driving.

In this background, the prime minister of Bangladesh directed Bangladesh Road Transport Authority (BRTA) to have the DOPE test certificate mandatory for all the professional drivers prior to issuing or renewing their driving license. To implement that order, BRTA started advising dope test since 30 January'22 for drivers. No previous nation-wide study for BRTA drivers with large and representative samples of the population has been conducted yet in Bangladesh. So, with all of these relevant findings, this study aimed to determine the prevalence of drug abuse and notify the types of drug abuse in drivers of Bangladesh.

## MATERIALS AND METHODS

This cross sectional study was conducted at Department of Biochemistry, NILMRC, Sher-e-Bangla Nagar, Dhaka from July to December 2022. During that period 70866 drivers were referred from BRTA to NILMRC for dope test for the purpose of issuance of driving license. and attended in OPD We did not include people who came for Dope test for job purpose not referred from BRTA. All the referred drivers attended in out patients department (OPD) and after recorded their personal information at OPD they were then sent to laboratory for their dope test.

### Laboratory assay

All laboratory investigations were done in the department of Biochemistry, NILMRC, Dhaka and the procedure of dope test was done from urine sample using ICT method by semi-auto analyzer.

### Laboratory Procedures

Specimen collection (Collection of urine): After checking national identification card (NID) and reference paper from BRTA, only drivers were allowed to enter into

guarded area for registration; other peoples such as dope test for job purpose or not referred from BRTA were excluded from this study. After registration one sterile urine tube was supplied for each driver and instruction was given for urine collection into urine tube. Urine samples of drivers were collected in a toilet without a sink, water flush, detergents, or any other potential adulterants.

**Test Procedure:** Urine specimens were screened for amphetamine, benzodiazepines, cannabinoids, opiates and alcohol using multi-drugs (5 drugs) rapid test cassette (urine). The multi-drugs 5 drugs rapid test cassette (urine) is a rapid chromatographic immunoassay for the qualitative detection of drugs and drug metabolites in urine. They are rapid urine screening test based on the principle of competitive binding. Positive samples were run into the Indico Plus Semi Auto analyzer machine for the quantitative assay. This is based on photometric method. Positive samples were kept preserved at twenty degree Celsius (20<sup>0</sup>C) refrigerator for one month for any kind of necessity. Universal precaution was obtained. gloves, laboratory coat were worn when handling urine sample. Contaminated urine tube, gloves were placed in a biohazard bag. Disinfection of all working surfaces was done. Washing hands thoroughly was done after removal of personal protective devices used in handling specimens and kit reagents.

### Statistical Analysis

Data was collected from hospital online server. Data editing, clearing and analysis were done by statistical package for social science (SPSS). Data and result were presented in the form of tables and graph where applicable.

### Ethical Consideration

This study is approved by Institutional Review Board (IRB) of NILMRC, Dhaka for ethical clearance.

## RESULTS

A total of 70866 drivers had been tested for dope at NILMRC from July to December 2022, and among them 2691 (3.80%) were found positive. Among these test, number of female drivers were 203 (0.28%), but there were no test positive female drivers.

Table I illustrates the monthly distribution of dope tests and positive cases from July to December 2022. In July, 5200 drivers had been tested among them 55 (1.05%) were positive; in August, September, October, November and December 9348, 16757, 15,221, 14,017 and 10,323 drivers had been tested; among them 320 (3.42%), 682 (4.06%), 551 (3.61%), 639 (4.55%) and 473 (4.58%) were positive respectively.

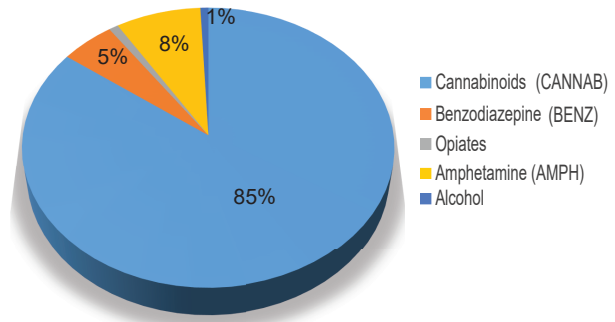
**Table- I: Monthly distribution of dope tests and positive cases from July to December 2022**

Month	Total Tests	Positive (%)	P value
July	5200	55 (1.05%)	
August	9348	320 (3.42%)	
September	16757	682 (4.07%)	<0.001*
October	15221	551(3.62%)	
November	14017	639 (4.56%)	
December	10323	473 (4.58%)	
<b>Total</b>	<b>70866</b>	<b>2720</b>	

Table II shows the age distribution of dope test positive drivers. Among them, 285 (10.60%), 952 (35.37%), 926 (34.41%), 390 (14.50%), 111 (4.12%) and 27 (1.00%) test positive drivers were found in age group <25, 25-34, 35-44, 45-54, 55-64 and >65 years respectively. The mean age of dope test positive drivers is 33.31±8.62 years.

**Table- II: Age group distribution with tested positive number (n= 2691)**

Age Group (years)	Number	Percent (%)
<25	285	10.60
25-34	952	35.37
35-44	926	34.41
45-54	390	14.50
55-64	111	4.12
>65	27	1.00
<b>Total</b>	<b>2691</b>	<b>100</b>



**Figure-1: Distribution of various types of drugs abused by drivers (n= 2691)**

Figure 1 states the distribution of various types of drugs abused by drivers; out of the 70866, 2691 drivers were dope test positive, among the dope positive drivers 2461 (91.5%) were positive to Cannabinoids (CANNAB); followed by 148 (5.5%) Benzodiazepine (BENZ), 34 (1.2%) Amphetamine (AMPH), 26 (1.0%) Opiates and 22 (0.8%) were positive to Alcohol.

Table III comprises the distribution of types of abused drug among age group of test positive drivers; the types of abused drug Cannabinoids (CANNAB), Benzodiazepine (BENZ), Opiates, Amphetamine (AMPH) and Alcohol were found among 2461 (91.5%), 148 (5.5%), 26 (1.00%), 34 (1.2%) and 22 (0.8%) drivers. Cannabinoids abused were found in 261 (9.70%), 871 (32.37%), 847 (31.48%), 357 (13.27%), 101 (3.75%) and 24 (0.89%) drivers among the age group of <25, 25-34, 35-44, 45-54, 55-64 and >65 years respectively.

**Table- III: Distribution of types of abused drug among age group (n= 2691)**

Age Group	Cannabinoids (CANNAB)	Benzodiazepine (BENZ)	Opiates	Amphetamine (AMPH)	Alcohol
<25	261 (9.70%)	15 (0.56%)	2 (0.07%)	4 (0.15%)	3 (0.11%)
25-34	871 (32.37%)	53 (1.97%)	10 (0.37%)	13 (0.48%)	5 (0.19%)
35-44	847 (31.48%)	51 (1.90%)	9 (0.33%)	12 (0.45%)	7 (0.26%)
45-54	357 (13.27%)	21 (0.78%)	4 (0.15%)	4 (0.15%)	4 (0.15%)
55-64	101 (3.75%)	6 (0.22%)	1 (0.04%)	1 (0.04%)	2 (0.07%)
>65	24 (0.89%)	2 (0.07%)	0 (0.00%)	0 (0.00%)	1 (0.04%)
<b>Total</b>	<b>2461 (91.5%)</b>	<b>148 (5.5%)</b>	<b>26 (1.00%)</b>	<b>34 (1.2%)</b>	<b>22 (0.8%)</b>

## DISCUSSION

In the present study, our results revealed that 3.80% of the drivers in Bangladesh are drug abusers. Highest percentage of drug abuse are in the age group (25-34) years which is 35.37% followed by the age group of (35-44) which is 34.41%. This is an alarming sign because this age group is the most energetic and creative group of people who can contribute to the economy and development of Bangladesh.

This is in agreement with a study which revealed that the age range of 25-34 years of the commercial bus drivers are more subjected to drug abuse.<sup>8</sup> There is another study among 427 drivers admitted to Alexandria Main University Hospital after road traffic accidents. They revealed that the highest age group was 35-45 years old.<sup>9</sup> Moreover, a study was done in America in 2013 found that the high rate of drug abuse (about 30%) are in young adults.<sup>10</sup> While these results are incomparable to a study who have been showed that highest age group was 18-30 years.<sup>11</sup> This difference may be due to wide variation and large number of drivers used in our study.

The results of this study showed that cannabinoids were the most common drug of abuse among drivers referred from BRTA. This may be attributed to widespread of cannabis which it is easily gained and cheaper than the other drugs. Our findings correlate a study who reported that cannabis is the most common abused drug among the cab-drivers.<sup>12</sup> Another study revealed that the combination of cannabis and tramadol has higher prevalence than other combination.<sup>13</sup> The present results are at variance to a study who reported that the commercial bus drivers subjected to drug abuse with low-price and easily obtained to them such as tramadol.<sup>8</sup>

Another study recorded that opioids are the most frequently abused drug among the Iranian drivers followed by cannabinoids.<sup>13</sup> A study has concluded that alcohol abuse stands for the second most common drug abuse though its incidence is low.<sup>14</sup> It is consistent with the WHO report, where stated that, prevalence of the road traffic accidents increases with alcohol (above 0.04 g/dl BAC).<sup>15</sup> In our study, we have found alcohol as a least percentage which may not be the real picture of driver drug abuse habit. The reason behind this, urine test cannot detect alcohol 48 hours after consumption of alcohol.

In our study, no female drivers were found to be positive. This is consistent with other studies where no female drivers are recorded to be positive.

## CONCLUSIONS

In this first large-scale study on drug abuse among drivers in Bangladesh, a significant proportion of drivers were found to be abuser in Bangladesh. Cannabinoids was the most common drug of abuse among drivers referred by BRTA in Bangladesh. Number of positive drug abuser was increased during the period of study.

### Limitations:

The maximum number of tests procedure were ICT method due to the fixation of rate from government. Only the positive tests from ICT were reanalyzed in semi- auto analyzer; if all the tests could have done in auto-analyzer, then the report would have been more authentic but at the same time expensive. This study was conducted in only one center and among professional drivers which merely represents whole country.

### Recommendations:

This study observed that the proportion of alcohol abuser is very low, the fact behind it is, urine test could detect alcohol between 12 - 48 hours after drinking. So, road side breath test and tests for alcohol in hair, sweat, saliva or blood should be performed for alcohol abuser. It has also been observed that the number of positive drug abuser were increased in different months during the period of study and it may be due to manipulation of results for corruption. For authentic report production, this manipulation may be minimized by immediate implementation of online registration, biometric technique for identification and patient portal system. Nationwide large scale study among all categories drivers would reflect the real scenario and to take proper steps to identify them and reduce the incidence of road traffic accident.

**Conflict of interest:** There is no conflict of interest relevant to this paper to disclose.

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