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Original Article

Pattern of Substance Abuse among Professional Drivers and Job Seekers in Bangladesh

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Abstract

Background: Drug abuse is a significant public health concern in Bangladesh, particularly among vulnerable populations such as professional drivers and job seekers. The high mobility and stress associated with these occupations may contribute to increased substance use, affecting their health, safety, and productivity. ***Objective:*** This objective of the study to assess the prevalence of drug abuse among professional drivers and job seekers in Bangladesh and identify associated factors influencing substance use patterns in these groups. ***Methodology:*** This cross-sectional study was conducted at the Department of Biochemistry at National Institute of Laboratory Medicine & Referral Centre (NILMRC), Dhaka, Bangladesh from July 2022 to December 2022. Urine samples (n = 91,745) were collected from professional drivers and job seekers and screened for drug metabolites using 5-panel rapid test cassettes. Positive samples were further analyzed quantitatively. ***Results:*** Among the positive cases, 3% tested positive for drug abuse. The most commonly detected substance was cannabinoids (90.89%), followed by benzodiazepines (5.8%), amphetamines (1.35%), opiates (1.13%), and alcohol (0.8%). Drug use was most prevalent in individuals aged 25-34 years (35.62%), followed by those aged 35-44 years (34%). A strong correlation was observed between drug use and gender, with 99.93% of positive cases being male. Significant associations were found between drug use and both age and gender ($p < 0.05$). ***Conclusion:*** This study underscores the high prevalence of cannabinoid use among younger male drivers in Bangladesh, highlighting the need for targeted interventions to reduce drug abuse and enhance road safety. Future research should investigate underlying causes and prevention strategies.

Key Words: Drug abuse; Professional drivers; Job seekers; Bangladesh

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Introduction:

The prevalence of drug abuse has become a critical global health issue, affecting both developed and developing countries. Numerous reports suggest that the rate of raddiction to psychoactive substances, including cocaine, amphetamine-like stimulants, and synthetic drugs is increasing worldwide. Among these substances, synthetic

cannabinoids, also referred to as designer or recreationaldrugs, have gained particular prominence due to their potent psychoactive effects and ease of access. This surge in substance abuse not only threatens public health but also endangers public safety, particularly in high-risk environments such as road transportation. In Bangladesh, where road traffic accidents are frequent and often fatal, the connection between drug abuse and impaired driving has raised significant concerns.

The relationship between drug abuse and road traffic accidents is well-established. Studies have shown that drivers under the influence of drugs are at a much higher risk of being involved in serious or fatal accidents compared to sober drivers. This is particularly alarming in Bangladesh, a nation experiencing rapid urbanization and population growth, where road safety has become a pressing issue. It is estimated that approximately 6 million people in Bangladesh are addicted to drugs, with 80% of these individuals being adolescents and young adults aged 15 to 30 years. This overlap between the demographic profile of drug addicts and the typical age of drivers raises serious safety concerns, as drug abuse is known to impair critical cognitive and motor functions necessary for safe driving.[1] Drug abuse, which includes the misuse of both illegal drugs and medically prescribed medications, significantly disrupts brain function, resulting in impaired judgment, slower reaction times, and reduced motor coordination all of which are crucial for driving and workplace. Commonly abused substances include amphetamines, cannabis, opioids, benzodiazepines, and alcohol. Cannabis, in particular, is the second most widely used drug globally after alcohol and is a leading cause of impaired driving. Despite the global data, there is little specific information about the number of drug-addicted drivers in Bangladesh. However, anecdotal evidence from the transport industry suggests that a large proportion of public transport drivers in Dhaka—who operate approximately 50,000 vehicles—may be using drugs. A recent survey conducted by private organizations found that nearly 80% of drivers tested positive for drug use, highlighting the severity of the issue.[2] Many drivers report that drug use helps them cope with the physical and psychological demands of their work. Long hours, high temperatures, and constant stress—combined with the chaotic traffic conditions in Dhaka—drive many of these individuals to use substances to maintain concentration and energy levels. The widespread belief among drivers is that drugs enhance their focus and enable them to endure the pressures of their jobs, despite the significant risks to their own safety and the safety of others on the road.[3]

In response to the growing concern about drug-impaired driving, the Government of Bangladesh has implemented several measures to address the problem. As of January 30, 2022, the Bangladesh Road Transport Authority (BRTA) introduced mandatory drug testing, commonly referred to as the DOPE test, for all professional drivers prior to issuing or renewing their driving licenses. Drug test is also mandatory for all job candidates as a part of health check-up since 2021 as because, number of drug abusers are increasing due to various familial disharmony, lack of support and availability of drugs among civil population.[4] These initiatives are a part of a larger strategy aimed at reducing drug-related traffic accidents and improving overall road safety and reduce social crime, violence, and additional healthcare cost. However, despite these efforts, there has been no large-scale, nationwide study conducted to assess the prevalence of drug use among professional drivers in Bangladesh. Such data is vital for understanding the scope of the problem and developing targeted interventions to reduce drug use within these high-risk population.[5] The present study aims to investigate the prevalence of drug abuse among professional drivers and job seekers in Bangladesh.

Methodology

Study Settings and Population: This cross-sectional study was conducted at the Department of Biochemistry, National Institute of Laboratory Medicine and Referral Center (NILMRC), Sher-e-Bangla Nagar, Dhaka, from July 2022 to December 2022.

Sample Collection: A total of 91,745 urine samples were collected from February 2022 to December 2022. The majority were from professional drivers referred by the BRTA for mandatory drug testing as part of the government's road safety initiative. Government job seekers from the civilian population were also included in the data collection. Urine samples were collected at the Department of Biochemistry, NILMRC, where participants provided their national identification cards and BRTA reference documents for verification. Civil population and Drivers were instructed to provide urine samples in a secure, controlled environment devoid of potential adulterants.

Laboratory Assays: Urine samples were analyzed to detect a panel of commonly abused drugs, including amphetamines, benzodiazepines, cannabinoids, opioids,

and alcohol metabolites. Testing was performed using multi-drug 5-panel rapid test cassettes (urine), a rapid chromatographic immunoassay based on the principle of competitive binding. The test kits were sourced from Acro Biotech, Inc., China. The initial test was a qualitative screen to detect the presence of drug metabolites. For samples that returned positive results, a more precise quantitative analysis was performed using the Indiko Plus semi-automated analyzer. semi-automated analyzer uses homogeneous enzyme immunoassay methods to quantify drug metabolites in the urine. Positive samples were stored at -20°C for one month for potential re-testing or further analysis if required.

Specimen Processing and Laboratory Safety: All laboratory work was conducted in the Department of Biochemistry at NILMRC. Universal precautions were strictly followed throughout the specimen handling process. This included wearing appropriate personal protective equipment (PPE) such as gloves and laboratory coats when handling urine samples. Contaminated materials, including urine collection tubes and gloves, were disposed of in biohazard bags. All work surfaces were disinfected after each session, and thorough hand washing was carried out after the removal of PPE.

Statistical Analysis: Data were collected via the hospital's online server. Following data cleaning and editing, analysis was performed using the Statistical Package for the Social Sciences (SPSS), version 25. Descriptive statistics were used to summarize demographic data and prevalence rates. Inferential statistics, including chi-square tests, were used to assess the association between drug use and demographic characteristics such as age and gender. P-values less than 0.05 were considered statistically significant. Data were presented in tables and graphs where appropriate to enhance interpretability.

Ethical Consideration: This study is approved by Institutional Review Board of NILMRC (2024.0202).

Results

A total of 91,745 urine samples were collected and among these, 2,734 (3%) tested positive for drug abuse. The most commonly detected substance was cannabinoids, followed by benzodiazepines, amphetamines, opiates, and alcohol. The different substances were detected among the 2,734 positive cases. The most frequently abused substance was cannabinoids (90.89%), with benzodiazepines accounting for 5.8%, amphetamines for 1.35%, opiates for 1.13%, and alcohol for 0.8%. The results clearly indicate that cannabinoids were the most commonly abused drug among drivers, representing the majority of positive tests. Alcohol and opiates were the least detected substances (Table 1).

Table 1: Distribution of Drug Abuse by Substance Type

Drug/ Substance Type	Frequency	Percent	P value
Cannabinoids	2,485	90.9	< 0.001
Benzodiazepines	159	5.8	0.004
Amphetamines	37	1.3	0.021
Opiates	31	1.1	0.045
Alcohol	22	0.8	0.053

The majority of cases were found among individuals aged 25-34 years (35.62%), followed by those in the 35 to 44 years age group (34%). Younger individuals (below 25 years) accounted for 10.91% of positive cases. Drug use was most prevalent among younger individuals, particularly those aged 25-34 years, indicating a concentration of drug abuse in younger demographics. The lowest prevalence was observed in individuals over 65 years of age (0.99%) (Table 2).

Table 2: Distribution of Drug Abuse by Age Group

Age Group	Frequency	Percent	P value
<25 Years	298	10.9	0.032
25 to 34 Years	974	35.6	< 0.001
35 to 44 Years	930	34.0	< 0.001
45 to 54 Years	390	14.3	0.011
55 to 64 Years	115	4.2	0.045
>65 Years	27	1.0	0.078
Total	2734	100.0	-

Of the 2,734 cases, 2,732 (99.93%) were male drivers, while only two female cases tested positive for drug use, both of whom were part of the civil population. The overwhelming majority of positive cases were male, suggesting that men are at a much higher risk of drug abuse, particularly among professional drivers. This pattern underscores the need for male-targeted interventions in addressing drug use. The Pearson correlation analysis also demonstrated a strong positive correlation between gender and drug use ($r = 0.62$, $p < 0.001$), indicating that males are significantly more likely to test positive for drug abuse than females. The strong correlation between male gender and drug use highlights that drug prevention programs should prioritize male drivers, especially in high-risk categories such as professional drivers. A Pearson correlation analysis was conducted to assess the relationship between age and substance use. The results revealed a moderate positive correlation between age and cannabinoid use

($r = 0.45$, $p < 0.01$). However, no significant correlation was observed for other substances. The data suggest a significant correlation between younger age and cannabinoid abuse (Table 3).

Table 3: Pearson Correlation of Age and Drug Abuse

Variable	Correlation Coefficient (r)	P value
Age vs. Cannabinoids	0.45	<0.01
Age vs. Benzodiazepines	0.12	0.13
Age vs. Amphetamines	-0.03	0.72
Age vs. Opiates	0.05	0.60
Age vs. Alcohol	-0.02	0.82

Discussion

The results indicate that cannabinoids were the most frequently abused substance, accounting for 90.89% of positive cases. This finding aligns with previous studies that identified cannabinoids as a dominant drug of abuse, particularly among younger populations.[6,7] Benzodiazepines were the second most common, but their prevalence (5.8%) was significantly lower than that of cannabinoids. Amphetamines, opiates, and alcohol were the least detected substances, contrasting with findings from other regions, where alcohol is often a leading substance in driver-related drug abuse.[8,9] The high prevalence of cannabinoids suggests the need for targeted interventions. Cannabis abuse among drivers is associated with impaired driving skills, slower reaction times, and a heightened risk of accidents, as reported in prior research[10,11]. Therefore, focusing on cannabis in awareness campaigns and implementing stricter regulations could significantly impact reducing drug-related driving incidents. This study found that drug abuse was most prevalent among individuals aged 25-34 years (35.62%), closely followed by those in the 35-44 years age group (34%). These findings are consistent with other studies that have reported higher drug use rates in younger adults, particularly those aged 20-40 years.[12] The correlation between younger age and substance use, especially cannabinoids ($r = 0.45$, $p < 0.01$), emphasizes the importance of focusing prevention programs on this demographic. Studies from various regions have similarly highlighted that younger drivers are more likely to engage in risky behaviors, including drug use.[13,14] In contrast, drug abuse was less common in individuals aged 55 years and above, consistent with global trends indicating lower drug consumption rates in older populations.[15] This age-based pattern could be attributed to increased responsibilities, lifestyle changes, and reduced peer pressure as individuals age. The data reveal a striking gender disparity in drug abuse, with 99.93% of positive cases occurring in males. This finding aligns with several other studies reporting higher rates of drug abuse among men, particularly in high-risk professions such as driving.[16] The strong correlation between male gender and drug abuse ($r = 0.62$, $p < 0.001$) underscores the need for gender-specific interventions, particularly among male drivers who may be at higher risk of substance abuse due to the stresses and demands of their occupation.[17,18] Moreover, the fact that the two female cases identified were part of the civil population, and not from the BRTA-referred drivers, suggests that professional female drivers might either be less likely to engage in drug use or underrepresented in this sector. Studies from other regions have also found lower drug abuse rates among females in the transport industry.[19,20]

The Pearson correlation analysis between age and cannabinoid abuse ($r = 0.45$, $p < 0.01$) indicates a moderate positive relationship, confirming that younger individuals are more likely to abuse cannabinoids. This finding is supported by existing literature identifying youth as a major risk factor for cannabis use.[21,22] In contrast, no significant correlations were found between age and other substances such as benzodiazepines, amphetamines, or opiates, suggesting these substances may be used more uniformly across age groups or may not be as prevalent among younger individuals in this population. The gender correlation analysis ($r = 0.62$, $p < 0.001$) further highlights the disproportionate impact of drug abuse among males, particularly in driving professions. These findings are consistent with global data on gender and substance abuse, which frequently show higher usage rates among males.[23] The findings of this study are largely consistent with other regional studies, although notable differences exist. For instance, a study conducted in South Asia reported alcohol as one of the most commonly abused substances among drivers, contrasting with our finding that alcohol was the least detected substance.[24] This discrepancy may be attributed to cultural and religious factors in Bangladesh, where alcohol consumption is less socially accepted compared to other regions.[25] In terms of age distribution, our results echo studies from Western countries, where younger adults are more likely to engage in substance use.[26] However, the specific dominance of cannabinoids may reflect a more localized trend in Bangladesh that warrants further exploration through longitudinal studies.

Conclusion

In summary, this study highlights the high prevalence of cannabinoid abuse among professional drivers and job seekers in Bangladesh, particularly in younger males. The findings emphasize the need for targeted interventions that address the specific risks associated with drug abuse in this population. Future research should explore the underlying factors driving these trends and develop strategies to mitigate the impact of drug abuse on road and social safety. The findings of this study have several important implications for policy and public health interventions. First, the dominance of cannabinoids suggests that targeted prevention programs focusing on cannabis use should be prioritized. These could include public awareness campaigns aimed particularly at younger drivers and regular screening programs for professional drivers. Additionally, the stark gender disparity points to the need for male-targeted interventions. Educational initiatives that address the risks of drug abuse, particularly in high-stress professions such as driving, should be a key component of future prevention efforts. Finally, the strong age and gender correlations suggest that risk factors for drug abuse are not evenly distributed across the population. This calls for tailored interventions that address specific demographic groups, focusing on younger males who are most at risk.

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References

1. Merz F. United Nations Office on Drugs and Crime: World Drug Report 2017. 2017. SIRIUS-Zeitschrift für Strategische Analysen. 2018;14;2(1):85-6.

2. Fatema K, Halim KS, Rahman S, Hamid S, Sarke K, Akram A, Rahman A. Drug Abuse of Professional Drivers: Experience from Referral Dope Test. Bangladesh Medical Journal. 2023;52(1):1-5.

3. World Health Organization. World health statistics 2016: monitoring health for the sustainable development goals (SDGs). Geneva: World Health Organization; 2016. p. 8.

4. Alhammad M, Aljedani R, Alsaleh M, Atyia N, Alsmakh M, Alfaraj A, Alkhunaizi A, Alwabari J, Alzaidi M. Family, individual, and other risk factors contributing to risk of substance abuse in young adults: A narrative review. Cureus. 2022;14(12).

5. Hossain SZ, Hoq AA, Islam MN, Nawaj MM, Sadique MA, Khan T, Siddique MF. Role of Media in Promoting Road Safety in Bangladesh.

6. Akande RO, Akande JO, Babatunde OA, Ajayi AO, Ajayi AA, Ige RO, Saliu AS, Akande A, Olatunji MB. Psychoactive substance abuse among commercial bus drivers in Umuahia, Abia State, South-Eastern Nigeria: an uncontrolled "epidemic" with attendant road traffic crashes. BMC public health. 2023;6;23(1):250.

7. Marcotte TD, Umlauf A, Grelotti DJ, Sones EG, Sobolesky PM, Smith BE, Hoffman MA, Hubbard JA, Severson J, Huestis MA, Grant I. Driving performance and cannabis users' perception of safety: a randomized clinical trial. JAMA psychiatry. 2022;1;79(3):201-9.

8. Athauda LK, Peiris-John R, Ameratunga S, McCool J, Wickremasinghe R. Factors influencing alcohol use among adolescents in south Asia: a systematic review. Journal of studies on alcohol and drugs. 2020;81(5):529-42.

9. Brands B, Di Ciano P, Mann RE. Cannabis, impaired driving, and road safety: an overview of key questions and issues. Frontiers in psychiatry. 2021;19;12:641549.

10. Lipari RN, Van Horn SL. Trends in substance use disorders among adults aged 18 or older.

11. Egan KL, Cox MJ, Suerken CK, Reboussin BA, Song EY, Wagoner KG, Wolfson M. More drugs, more problems? Simultaneous use of alcohol and marijuana at parties among youth and young adults. Drug and alcohol dependence. 2019;1;202:69-75.

12. Beynon CM. Drug use and ageing: older people do take drugs!. Age and ageing. 2009;1;38(1):8-10.

13. Frem Y, Torrens M, Domingo-Salvany A, Gilchrist G. Gender differences in lifetime psychiatric and substance use disorders among people who use substances in Barcelona, Spain. Advances in Dual Diagnosis. 2017;15;10(2):45-56.

14. Leadbeater B, Ames ME, Contreras A. Male-dominated occupations and substance use disorders in young adulthood. American journal of men's health. 2020;14(2):1557988320908105.

15. Useche SA, Cendales B, Montoro L, Esteban C. Work stress and health problems of professional drivers: a hazardous formula for their safety outcomes. PeerJ. 2018;20;6:e6249.

16. Meyer JP, Isaacs K, El-Shahawy O, Burlew AK, Wechsberg W. Research on women with substance use disorders: Reviewing progress and developing a research and implementation roadmap. Drug and alcohol dependence. 2019; 1;197:158-63.

17. Maniglio R. Association between peer victimization in adolescence and cannabis use: A systematic review. Aggression and violent behavior. 2015;1;25:252-8.

18. Wickersham JA, Loeliger KB, Marcus R, Pillai V, Kamarulzaman A, Altice FL. Patterns of substance use and correlates of lifetime and active injection drug use among women in Malaysia. The American journal of drug and alcohol abuse. 2016;2;42(1):98-110.

19. McHugh RK, Votaw VR, Sugarman DE, Greenfield SF. Sex and gender differences in substance use disorders. Clinical psychology review.2018;1;66:12-23.

20. Negussie Y, Geller A, Teutsch SM, National Academies of Sciences, Engineering, and Medicine. Current environment: Alcohol, driving, and drinking and driving. InGetting to Zero Alcohol-Impaired Driving Fatalities: A Comprehensive Approach to a Persistent Problem 2018 Jan 17. National Academies Press (US).

21. Lelevich V, Vinitskaya H, Sarana Y, Tischenko E. Age differences in psychoactive substance abuse in population of the republic of belarus. Central European Journal of Sport Sciences and Medicine. 2016;15(3):85-94.

22. Chun TH, Spirito A, Hernández L, Fairlie AM, Sindelar-Manning H, Eaton CA, Lewander WJ. The significance of marijuana use among alcohol-using adolescent emergency department patients. Academic emergency medicine. 2010;17(1):63-71.

23. Brady KT, Randall CL. Gender differences in substance use disorders. Psychiatric Clinics of North America. 1999;1;22(2):241-52.

24. Nadkarni A, Tu A, Garg A, Gupta D, Gupta S, Bhatia U, Tiwari N, Heath A, Wen K, Fernandes G, Velleman R. Alcohol use among adolescents in India: a systematic review. Global Mental Health. 2022;9:1-25.

25. Burlew AK, Copeland VC, Ahuama-Jonas C, Calsyn DA. Does cultural adaptation have a role in substance abuse treatment?. Social work in public health. 2013;1;28(3-4):440-60.

26. Qadeer RA, Georgiades K, Boyle MH, Ferro MA. An epidemiological study of substance use disorders among emerging and young adults. The Canadian Journal of Psychiatry. 2019;64(5):313-22.