International Journal of Spectrum Research in Medical and Clinical Practice (IJSRMC)
2(1), January-March, 2026, Pages 135-139

 ISSN: 3092-975X

https://doi.org/10.5281/zenodo.19059156

Alcohol Consumption Patterns and Hypertension Risk among Commercial Bus Drivers in Nigeria: A Narrative Review

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ABSTRACT

Hypertension and hazardous alcohol consumption are leading public health burdens in Nigeria, with commercial bus drivers recognised as a particularly vulnerable occupational group. The dose-dependent relationship between alcohol intake and elevated blood pressure is well-established, yet evidence specific to Nigerian commercial drivers remains fragmented. To synthesise evidence on the prevalence and patterns of alcohol consumption among commercial bus drivers in Nigeria, examine the physiological and epidemiological links between alcohol intake and hypertension, and identify the socio-occupational determinants driving both conditions in this population. A narrative review was conducted using PubMed, Google Scholar, and African Journals Online. Peer-reviewed articles, WHO and CDC reports, and government documents published between 2015 and 2025 were included. Search terms combined "alcohol consumption", "hypertension", "commercial drivers", and "Nigeria". Alcohol consumption prevalence among Nigerian commercial bus drivers ranges from 50.9% to 85.4% across studies, substantially exceeding the national adult average of 34.3%. Hypertension prevalence in this group ranges from 25.3% to 49.5%. Alcohol confers a threefold increase in hypertension risk through activation of the renin-angiotensin-aldosterone system, sympathetic nervous system stimulation, and endothelial dysfunction. Key drivers of alcohol use include long working hours, motor park social norms, alcohol availability, and stress-coping behaviour. Commercial bus drivers in Nigeria bear a disproportionate dual burden of alcohol misuse and hypertension. Targeted occupational health interventions combining health education, routine blood pressure screening, and motor park-level policy reform are urgently needed.

Keywords: *alcohol consumption; hypertension; commercial bus drivers; Nigeria; occupational health; cardiovascular risk*

INTRODUCTION

Hypertension — defined as a persistent blood pressure of ≥140/90 mmHg — is the leading global risk factor for cardiovascular disease, stroke, and premature mortality, affecting an estimated 1.28 billion adults worldwide.[1] In Nigeria, national estimates place hypertension prevalence between 28% and 38% of adults, with a substantial proportion remaining undiagnosed or inadequately managed.[2] Concurrently, the World Health Organization estimates that alcohol consumption causes approximately 3 million deaths annually and constitutes the seventh leading cause of disability-adjusted life years globally.[3]

Commercial bus drivers represent a high-risk occupational subgroup in which both conditions converge. Operating under chronic stressors — including long working hours, sedentary postures, sleep deprivation, and pervasive socio-cultural pressure to consume alcohol — this population demonstrates rates of alcohol misuse and hypertension that substantially exceed those of the general Nigerian population.[4] Despite this, the evidence base characterising the interplay between alcohol consumption and hypertension specifically in Nigerian commercial drivers remains fragmented and geographically limited. This narrative review synthesises the available evidence on the prevalence and determinants of alcohol use and hypertension in this occupational group, examines the biological mechanisms linking both conditions, and highlights gaps requiring further research.

RESEARCH METHODS

A narrative review was conducted using PubMed, Google Scholar, and African Journals Online. Peer-reviewed original articles, systematic reviews, and reports from WHO, the CDC, and the Nigerian Federal Ministry of Health published between 2015 and 2025 were included. The search terms used — in various combinations — were: "alcohol consumption", "hypertension", "commercial drivers", "bus drivers", "Nigeria", "Sub-Saharan Africa", "occupational health", "cardiovascular risk", and "blood pressure". Articles in English reporting on alcohol use, hypertension prevalence, associated risk factors, or physiological mechanisms in commercial drivers or comparable working populations in Africa were included. Grey literature and non-peer-reviewed sources were excluded.

RESULTS AND DISCUSSION

1. Global and Nigerian Epidemiology of Alcohol Consumption

Global per capita alcohol consumption declined marginally from 5.7 litres in 2010 to 5.5 litres in 2019, yet substantial regional variations persist, with the WHO European Region recording the highest per capita intake at 9.2 litres.[3] In 2019, alcohol accounted for 2.6 million deaths globally, with individuals aged 20–39 years disproportionately affected.[3] In Nigeria, per capita alcohol consumption among adults aged 15 and older was recorded at 13.4 litres of pure alcohol in 2016, more than double the global average.[5] The pooled crude prevalence of harmful alcohol use among Nigerian adults is estimated at 34.3%, with men overrepresented at 43.9% compared to 23.9% among women.[6] Alcohol-attributable deaths in Nigeria in 2016 included 42,120 from liver cirrhosis, 15,365 from road traffic injuries, and 4,687 from cancers.[6]

2. Alcohol Consumption Among Commercial Bus Drivers

Commercial bus drivers in Nigeria consistently report substantially higher rates of alcohol consumption than the general adult population. Prevalence estimates across studies range from 50.9% in the Lagos metropolis to 85.4% in specific sub-populations.[7,8] In Ogun State, 63.5% of drivers reported daily alcohol consumption, often citing the COVID-19 pandemic as a period of heightened use.[9] Among long-distance truck drivers in Edo State, 54.6% consumed alcohol regularly, with 79.0% exhibiting detectable blood alcohol levels and 65.7% exceeding the legal driving limit of 0.05%.[10] Nationally, alcohol is the most commonly misused substance among commercial drivers, with a lifetime prevalence of 57.9%.[11]

Key socio-occupational determinants of alcohol use in this group include long daily working hours (commonly 10–14 hours), the structural availability of alcohol within motor parks, peer-driven social norms, perceived ergogenic benefits, and the use of alcohol as a coping mechanism for occupational stress and fatigue.[12,13] Socio-demographic predictors include younger age, male sex, unmarried status, lower educational attainment, and lower socioeconomic status.[11] Religious affiliation is also significant: Christian drivers demonstrate higher odds of alcohol consumption compared to Muslim drivers, who may substitute other substances owing to Islamic prohibitions.[14]

3. Epidemiology of Hypertension Among Commercial Bus Drivers

Hypertension prevalence among commercial drivers in Sub-Saharan Africa is estimated at 32% in a systematic review and meta-analysis of 20 studies.[4] In Nigerian-specific studies, prevalence estimates range widely: from 22.5% in Abuja to 39% in a separate Abuja cohort, and reaching 49.5% in a Chennai study of metropolitan bus drivers.[15,16] Ethiopian long-distance truck drivers demonstrated a prevalence of 34.7%, with 76.9% of cases newly diagnosed at the time of study.[17] In South Africa, hypertension rates among commercial taxi drivers were found to be comparable to those in developed nations such as Hong Kong and Taiwan.[18] The most consistently identified risk factors across studies are advancing age, overweight and obesity, prolonged sedentary driving, smoking, and alcohol consumption.[4]

4. Mechanisms Linking Alcohol Consumption to Hypertension

The dose-dependent relationship between alcohol intake and blood pressure is underpinned by several interrelated physiological mechanisms. Acutely, alcohol induces systemic vasodilation, producing a transient reduction in blood pressure; however, high doses elicit a biphasic response, with blood pressure rebounding above baseline after 13 hours and heart rate elevation persisting for up to 24 hours.[19]

Chronically, sustained consumption exceeding 30 grams per day significantly elevates hypertension risk through: activation of the renin-angiotensin-aldosterone system (RAAS) causing sodium retention and vasoconstriction; heightened sympathetic nervous system activity; endothelial dysfunction and impaired nitric oxide-mediated vasodilation; intracellular calcium mobilisation; and increased oxidative stress.[20,21]

A meta-analysis of 20 cohort studies (n > 350,000) demonstrated progressive relative risks for incident hypertension in men of 1.19 at 1–2 drinks/day, 1.51 at 3–4 drinks/day, and 1.74 at ≥5 drinks/day, compared to abstainers.[22] Women demonstrated significantly elevated risk at consumption levels exceeding two drinks per day.[22] Ethnic differences are also reported, with stronger associations between alcohol and hypertension observed in Asian and Black populations relative to White populations.[23,24] Importantly, reductions in alcohol intake produce clinically meaningful decreases in blood pressure, especially among those consuming two or more drinks per day.[25]

5. Public Health Significance and Intervention Evidence

The convergence of high alcohol use and elevated hypertension prevalence among commercial bus drivers creates a compounded public health burden with implications for both occupational and road safety. Alcohol-impaired driving contributes substantially to Nigeria's road traffic injury burden; alcohol was responsible for 15,365 road traffic injury deaths in Nigeria in 2016 alone.[6] Hypertension further compounds this through increased risk of acute cardiovascular events, including stroke and myocardial infarction, during driving.

Evidence from intervention studies supports several approaches. Willingness to reduce alcohol use is high among drivers in Lagos when workload and educational status are addressed, suggesting that motor park-based health education campaigns could be effective.[26] Engagement of motor park union leaders, religious community figures, and transport sector regulators has been identified as important for reach and cultural acceptability.[26] Policy-level measures — including restrictions on alcohol sales within motor park environments, regulatory limits on daily driving hours, and the integration of occupational health services into transport sector governance — are also indicated by the evidence.[27]

Discussion

This review confirms that commercial bus drivers in Nigeria bear a disproportionate dual burden of hazardous alcohol consumption and hypertension, driven by a convergence of occupational, socio-cultural, and environmental factors. Alcohol prevalence estimates of 50–85% among this group substantially exceed the national adult average of 34.3%,[6] while hypertension rates reaching 49.5% are nearly double the national estimate of 28–38%.[2] The well-established dose-dependent physiological pathways — particularly RAAS activation, sympathetic nervous system stimulation, and endothelial dysfunction — provide a robust mechanistic basis for this epidemiological association.[20,21]

Several important gaps in the literature were identified. Most existing studies rely on cross-sectional designs, precluding causal inference. Geographic coverage is uneven, with Lagos, Edo, and Abuja overrepresented and many states unstudied. Female commercial drivers are almost entirely absent from the evidence base. Inconsistent operational definitions of both alcohol consumption and hypertension across studies impede comparative analysis. Objective alcohol measurement (e.g., blood alcohol concentration or biomarker assays) is rarely employed, and self-report methods introduce recall and social desirability biases. Future research should prioritise longitudinal designs, standardised measurement protocols, and inclusion of female drivers.

CONCLUSIONS

Commercial bus drivers in Nigeria constitute a high-risk occupational group in whom alcohol misuse and hypertension co-occur at rates that far exceed population averages. The physiological mechanisms linking alcohol consumption to elevated blood pressure are well-characterised and clinically significant. Despite this, targeted evidence-based interventions for this population remain limited and poorly evaluated. Urgent priorities include motor park-based blood pressure screening programmes, culturally tailored alcohol reduction campaigns delivered through union and community networks, and policy reform to restrict alcohol availability in transport environments. Primary research is needed —

particularly cross-sectional and ultimately longitudinal studies from understudied regions — to establish causal estimates and to guide the scale-up of occupational health interventions for this critical and underserved group.

Acknowledgements

The authors wish to thank the Department of Public Health, Adeleke University, Ede, Osun State, for institutional support. No funding was received for this review.

Conflict of Interest

The authors declare no conflicts of interest.

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