

Prevalence and Factors Associated with Psychoactive Substance Misuse among Heavy Goods Vehicle Drivers in Cotonou, Benin

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Abstract

Introduction: In Benin, Heavy Goods Vehicle (HGV) drivers play an essential role in the logistics chain, facilitating the transportation of goods within the country or between other countries in the sub-region. HGV drivers are professionals who experience adverse working conditions, exposing them to risky behaviours, including Psychoactive Substance (PAS) misuse, leading to particularly severe road accidents. This study aimed to determine the prevalence of PAS misuse among HGV drivers and identify associated factors in Cotonou, Benin. **Materials and Methods:** We conducted a cross-sectional survey involving HGV drivers at parking areas in Cotonou from 26 March to 10 April 2023. The dependent variable was the PAS misuse by HGV drivers, and the independent variables were related to their socio-demographic characteristics, health status and lifestyle habits, and professional characteristics. Data analysis involved determining the prevalence of PAS misuse with a 95% Confidence Interval (95% CI). Subsequently, we identified factors associated with PAS misuse among the participants using multivariate logistic regression. We presented the final regression results as adjusted odds ratios (aOR) with 95% CI. **Results:** The study included 425 HGV drivers. Among them, 53 (12.47%, 95% CI = 9.64 - 15.98) were misusing PAS. Compared to drivers aged 35 and older, those aged under 25 (aOR = 10.67, 95% CI = 3.56 - 32.03) and those aged 25 to 34 (aOR = 3.47, 95% CI = 1.37 - 8.82) had higher odds of PAS misuse. Drivers with a primary education were less likely (aOR = 0.43, 95% CI = 0.19 - 0.97) to misuse PAS than those with no formal education. Drivers suffering from cardiovascular diseases were also three times more likely

(aOR = 3.08, 95% CI = 1.08 - 8.81) to misuse PAS than others. The odds of PAS misuse were also higher among drivers who reported taking breaks than those claiming not to (aOR = 3.11, 95% CI = 1.57 - 6.18). **Conclusion:** Driving under the influence of PAS is a risk factor for road accidents, associated with other factors highlighted in this study. Addressing these factors in prevention strategies through integrated approaches could lead to more effective results.

Keywords

Transportation, Alcohol, Psychoactive Substance, Driver, Professional, Benin

1. Introduction

Psychoactive Substances (PAS) encompass a group of products that, when consumed by an individual, lead to modifications in brain function, affecting cognition, emotions, perception, or behaviour [1]. These substances include tobacco and its derivatives, alcoholic products, drugs (cannabis, cocaine, etc.), stimulants, sedatives and sleeping pills, hallucinogens, inhalants, opioids, etc. [2]. The consequences of PAS consumption are manifold and depend on the specific substance, quantity consumed, and frequency of use, ranging from temporary effects on mood and perception to social and health problems, including fatalities [3] [4] [5] [6] [7]. In 2019, globally, approximately 19% of Disability-Adjusted Life Years (DALYs) and 23% of deaths among individuals aged 20 and above were attributed to the consumption of PAS (tobacco, alcohol, and drugs) [8]. Despite the strategies adopted and implemented at both international and national levels (strengthening legislation, enforcement, WHO Framework Convention on Tobacco Control, MPOWER program, SDG 3, etc.), recent data suggest an upward trend in non-tobacco PAS consumption [9] [10] [11] [12].

The main motivations cited by consumers of these products include seeking performance enhancement, fatigue reduction, coping with stress, depression, and anxiety, enhancing social connections, seeking pleasure, and recreational purposes [13] [14] [15]. However, fatigue, stress, and loneliness are part of routine life for many professionals, including Heavy Goods Vehicle (HGV) drivers, making them particularly susceptible to consuming PAS. A systematic review across America, Europe, Asia, and Africa reported the following prevalence of PAS consumption among truck drivers: 21.3% for amphetamines, 5.9% for cannabis, 4.3% for opioids, 4.1% for stimulants, 2.2% for cocaine, and 1.0% for benzodiazepines [16]. Nevertheless, an HGV driver operating under the influence of PAS poses a substantial risk to himself and other road users [17] [18]. It is all the more worrying as road accidents involving HGVs are more lethal than those involving other types of vehicles. Factors determining PAS consumption among HGV drivers are related to their socio-demographic characteristics and the professional context in which they work [19] [20] [21] [22] [23]. Younger

and less experienced drivers appear more likely to consume PAS than older and experienced counterparts [20] [21] [23]. Similarly, drivers with longer working hours and distances covered, and those reporting sleep disturbances and night driving, seem to be at a higher risk of PAS use [19] [20] [21] [22].

In Benin, as in most countries with access to the sea and port infrastructure, HGV drivers play a crucial role in the logistics chain, facilitating the transportation of goods within the country or between other countries in the sub-region. In recent years, with the development of road infrastructure, there has been an increase in the number of registered and operating HGVs on Benin's roads [24] [25]. According to the Transport Statistics Yearbooks, 2962 HGVs were registered in Benin between 2010 and 2018 [24] [25]. A literature review suggests that besides the extent of PAS consumption among HGV drivers in Benin, the determinants of this behaviour are not well-documented. It constitutes a significant gap in the efforts to combat PAS consumption among HGV drivers. While road accidents involving HGV are less frequent than other road collisions in Benin, they are among the most severe and claim many victims [24] [25]. This study aimed to fill these gaps by estimating the prevalence of PAS misuse among HGV drivers and identifying associated factors. The results will aid in designing context-specific interventions and guide future research endeavours.

2. Materials and Methods

2.1. Study Setting

Benin is a country located in the West African sub-region, covering an area of 114,763 km² with a population of 12,535,929 inhabitants in 2021 [26]. Administratively, Benin has 12 departments and 77 communes, with Cotonou as the economic capital. Investment in the transport infrastructure sector led to the length of paved roads increasing from 2303 km in 2013 to 2972 km in 2018 [24] [25]. Cotonou's main economic activities are in the tertiary sector, with some support from manufacturing industries and port operations (Cotonou Autonomous Port), which generate a lot of HGV traffic.

2.2. Study Type, Study Population and Sampling

We conducted a cross-sectional study with data collection from 26 March to 10 April 2023 in HGV parking areas in Cotonou. These parking areas are an anchor point, stopover, rest area and base for this highly mobile profession. In this study, we included registered truck drivers, articulated vehicle drivers, or any other type of vehicle driver with an empty weight equal to or greater than 3.5 tons used for the road transport of goods. Only drivers who provided their consent to participate in the study were retained. Drivers who did not give their consent and those who were unable to answer the questions were excluded. The chosen parking areas included the Zongo parking area, the "Le Béliér" parking area, the SOBEMAP parking area, and the Akassato parking area. Participants were selected using a non-probability method with a convenience sampling technique.

In each parking area, any driver attending on the day of the investigator's visit and meeting the selection criteria was included in the study. The minimum sample size required for the study, using the Schwartz formula with a prevalence of 50% (due to the unavailability of an estimate of the prevalence of PAS consumption among HGV drivers in Benin), a 5% error rate, 5% precision, and a 10% margin of error, was 425 [27].

2.3. Variables and Measurements

The dependent variable was the PAS misuse by HGV drivers assessed by the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST) [2]. The ASSIST is a validated diagnostic tool developed by the World Health Organization (WHO) in collaboration with specialized researchers and clinicians [2]. The French-translated and validated version of the ASSIST was used in this study [28]. The ASSIST is a culturally neutral questionnaire designed for utilization in many contexts [2]. The PAS addressed by the ASSIST is tobacco, alcohol, cannabis, cocaine, amphetamine-type stimulants, sedatives and hypnotics (benzodiazepines), hallucinogens, inhalants, opioids, and others [2]. The tool consists of eight questions. Question 1 identifies the PAS that the individual has consumed during their lifetime. Question 2 identifies those consumed in the last three months. Questions 3 and 4 determine the extent of craving for the specified PAS and how many times they caused social, legal, or financial problems in the last three months. Question 5 assesses how many times the individual failed to perform expected activities due to their consumption in the last three months. Questions 6 and 7 explore whether someone close to the individual has been concerned about their PAS consumption and whether he has tried unsuccessfully to cut down. Finally, question 8 identifies drug use via injection. More details about the questions comprising the ASSIST and the response rating scale are available elsewhere [2]. The response to the ASSIST's questions determines a score indicative of the level of PAS consumption for each driver, categorized into three levels: "low" risk consumption (occasional or non-problematic consumption), "moderate" (more regular consumption), or "high" (frequent and high-risk consumption) [2]. Finally, we generated the dependent variable (PAS misuse) which took the value 1 if a driver had moderate or high-risk consumption of at least one PAS and 0 otherwise.

The independent variables included in the study and identified based on a literature review [19] [20] [21] [22] [23] [29] and empirical analysis of the context were:

- socio-demographic characteristics of the driver: age (<25, 25 - 34, ≥35), sex (male, female), level of education (no formal education, primary, secondary and higher), marital status (single, in a relationship), religion (Christian, Islam, traditional), child (yes, no), monthly income in Francs CFA (<50,000, ≥50,000);
- health status and lifestyle habits: history of cardiovascular diseases (yes, no),

perception of sleep quality (insufficient, moderate, sufficient), perception of stress (not at all/rarely, sometimes/always), sleep duration in hours (<7 , ≥ 7), regular physical activity (yes, no);

- professional characteristics: the practice of a rotation system—working with other drivers during driving—(yes, no), non-driving weekdays (yes, no), regular breaks while driving (yes, no), distance travelled per day in kilometres (<150 , ≥ 150), and age of driving licence (<5 , ≥ 5).

2.4. Data Collection and Processing

Data were collected through a structured questionnaire that was digitized using KoboToolBox. Before data collection, two-day training for the investigators took place, covering the study context, objectives, and methodological aspects such as sampling, questionnaire filling, data transmission, and ethical considerations. A pretest was conducted at the end of the training to finalize the tool.

2.5. Data Analysis

We performed data analysis in two phases: descriptive and analytical. In the descriptive phase, we described the variables using frequencies and percentages. Subsequently, we calculated the prevalence of low-, moderate-, and high-risk PAS consumption with 95% Confidence Intervals (95% CI). Additionally, we determined the prevalence of overall PAS misuse with a 95% CI. The goal of the analytical phase was to identify predictors of PAS misuse among participants. We used simple logistic regression to cross each independent variable with the dichotomized dependent variable. In the multivariate analysis, we only included variables with p less than 0.20 from the univariate analysis. Following a stepwise downward strategy, we progressively eliminated the less significant variables ($p > 0.05$) to have only variables with $p < 0.05$ in the final model. The Hosmer-Lemeshow test was used to evaluate the final model goodness of fit. The results were presented as crude or adjusted Odds Ratios (OR) with 95% CI. The significance level was set at 5%. Data analysis was performed with Stata 15.

2.6. Ethical and Deontological Considerations

The study received ethical approval from the institutional protocol review group of the Regional Institute of Public Health, University of Abomey-Calavi. We have also obtained administrative clearance from the relevant bodies before collecting the data. Before participation, the drivers received a briefing note on the study context, objectives, and expected outcomes. Data collected from the participants were anonymous, confidential, and obtained individually after obtaining written and informed consent from each surveyed driver.

3. Results

3.1. Basic Characteristics of Participants

Table 1 presents the basic characteristics of the participants. We included 425

Table 1. Basic characteristics of HGV drivers, Cotonou, 2022 (n = 425).

Variables	n	%
Age		
<25	44	10.35
25 - 34	210	49.41
≥35	171	40.24
Sex		
Male	425	100.00
Female	0	0.00
Level of education		
No formal education	79	18.59
Primary	222	52.24
Secondary and higher	124	29.18
Marital status		
Single	160	37.65
In a relationship	265	62.35
Religion		
Christian	312	73.41
Islam	102	24.00
Traditional	11	2.59
Child		
No	128	30.12
Yes	297	69.88
Monthly income (Francs CFA)		
<50,000	95	22.35
≥50,000	330	77.65
History of CVD		
No	399	93.88
Yes	26	6.12
Perception of sleep quality		
Insufficient	40	9.41
Moderate	134	31.53
Sufficient	251	59.06
Perception of stress		
Not at all/rarely	254	65.30
Sometimes/always	135	34.70

Continued

Sleep duration (hours)		
<7	2	0.47
≥7	423	99.53
Regular physical activity		
No	358	84.24
Yes	67	15.76
Practice of a rotation system		
No	376	88.47
Yes	49	11.53
Non-driving weekdays		
No	133	31.29
Yes	292	68.71
Regular breaks while driving		
No	270	63.53
Yes	155	36.47
Distance travelled per day (km)		
<150	179	42.32
≥150	244	57.68
Age of driving licence		
<5	135	31.76
≥5	290	68.24

HGV drivers in the study. Their mean age was 33.36 ± 7.74 , with a minimum of 18 and a maximum of 60. There were no female drivers in the study. Over half (52.24%) of the drivers had primary education. Nearly one-fifth of the drivers reported not having received formal education. Most of the drivers were in a relationship (62.35%), Christian (73.41%) and had children (69.88%). Concerning professional status, about eight out of ten drivers had a monthly income equal to or greater than 50,000 Francs CFA (about 84 USD). Approximately 6% of drivers reported a history of cardiovascular diseases. About six out of ten drivers reported having sufficient sleep quality. When asked about feeling frequently stressed, 34.70% of the drivers answered affirmatively. Among the participants, 15.76% engaged in regular physical activity. Less than half of the drivers (11.53%) practised a rotation system, sharing driving duties with other drivers. Also, 31.29% worked every day of the week, and 36.47% said they usually took breaks while driving. Two hundred and forty-four HGV drivers, equivalent to 57.68%, usually reported covering at least 150 kilometres per day. About seven out of ten drivers obtained their driving licenses at least five years ago.

3.2. Level of PAS Consumption

Table 2 highlights the level of consumption risk for each of the studied PAS. Among the surveyed drivers, 2.82% (95% CI = 1.61 - 4.92), 4.47% (95% CI = 2.86 - 6.91), and 6.35% (95% CI = 4.39 - 9.12) had a moderate risk of amphetamines, alcohol and tobacco consumption, respectively. High consumption risk was observed for alcohol (0.47%; 95% CI = 0.12 - 1.87), amphetamines (0.24%; 95% CI = 0.03 - 1.66), and opioids (0.24%; 95% CI = 0.03 - 1.66). Overall, 53 drivers, corresponding to 12.47% (95% CI = 9.64 - 15.98), had moderate or high-risk consumption of at least one PAS (misuse).

3.3. Factors Associated with PAS Misuse

Table 3 reports results from univariate analysis. The PAS misuse was significantly higher among drivers under 35 years compared to those aged 35 and above (38.64% vs 3.51%, $p < 0.001$ and 14.29% vs 3.51%, $p = 0.001$). It was also higher among those with no formal education compared to those with primary education (17.72% vs 8.11%, $p = 0.020$), those of single versus couple status (21.25% vs 7.17%, $p < 0.001$), as well as among those without children (4.38% vs

Table 2. Level of PAS consumption among HGV drivers, Cotonou, 2022 (n = 425).

Psychoactive Substances	Risk level of consumption (% , 95% CI)		
	Low	Moderate	High
Tobacco	93.65	6.35	0.00
	90.88 - 95.61	4.39 - 9.12	-
Alcohol	95.06	4.47	0.47
	92.53 - 96.76	2.86 - 6.91	0.12 - 1.87
Cannabis	99.53	0.47	0.00
	98.13 - 99.88	0.12 - 1.87	-
Cocaine	99.76	0.24	0.00
	98.34 - 99.97	0.03 - 1.66	-
Amphetamine	96.94	2.82	0.24
	94.79 - 98.22	1.61 - 4.92	0.03 - 1.66
Inhalants	99.76	0.24	0.00
	98.34 - 99.97	0.03 - 1.66	-
Sedatives	99.06	0.94	0.00
	97.51 - 99.65	0.35 - 2.49	-
Hallucinogenic	99.76	0.24	0.00
	98.34 - 99.97	0.03 - 1.66	-
Opioids	99.76	0.00	0.24
	98.34 - 99.97	-	0.03 - 1.66

Table 3. Univariate analysis of PAS misuse among HGV drivers, Cotonou, 2022.

Variables	Misuse		Univariate analysis		
	n	%	cOR	95% CI	p
Age					
<25	17	38.64	17.31	6.27 - 47.81	<0.001
25 - 34	30	14.29	4.58	1.86 - 11.29	0.001
≥35	6	3.51	1.00		
Sex					
Male	53	12.47			
Female	0	0.00			
Level of education					
No formal education	14	17.72	1.00		
Primary	18	8.11	0.41	0.19 - 0.87	0.020
Secondary and higher	21	16.94	0.95	0.45 - 1.99	0.885
Marital status					
Single	34	21.25	3.49	1.92 - 6.37	<0.001
In a relationship	19	7.17	1.00		
Religion					
Christian	45	14.42	1.00		
Islam	8	7.84	0.50	0.23 - 1.11	0.089
Traditional	0	0.00	1.00		
Child					
No	32	25.00	4.38	2.41 - 7.96	<0.001
Yes	21	7.07	1.00		
Monthly income (Francs CFA)					
<50,000	15	15.79	1.44	0.75 - 2.75	0.268
≥50,000	38	11.52	1.00		
History of CVD					
No	46	11.53	1.00		
Yes	7	26.92	2.83	1.13 - 7.09	0.027
Perception of sleep quality					
Insufficient	6	15.00	1.30	0.50 - 3.35	0.588
Moderate	17	12.69	1.07	0.57 - 2.02	0.834
Sufficient	30	11.95	1.00		
Perception of stress					
Not at all/rarely	34	13.39	1.00		

Continued

Sometimes/always	14	10.37	0.75	0.39 - 1.45	0.391
Sleep duration (hours)					
<7	1	50.00	7.13	0.44 - 115.81	0.167
≥7	52	12.29	1.00		
Regular physical activity					
No	43	12.01	1.00		
Yes	10	14.93	1.29	0.61 - 2.70	0.508
Practice of a rotation system					
No	48	12.77	1.29	0.49 - 3.41	0.611
Yes	5	10.20	1.00		
Non-driving weekdays					
No	10	7.52	1.00		
Yes	43	14.73	2.12	1.03 - 4.37	0.041
Regular breaks while driving					
No	15	5.56	1.00		
Yes	38	24.52	5.52	2.92 - 10.43	<0.001
Distance travelled per day (km)					
<150	29	16.20	1.00	0.32 - 1.01	0.053
≥150	24	9.84	0.56		
Age of driving licence					
<5	34	25.19	4.80	2.62 - 8.80	<0.001
≥5	19	6.55	1.00		

1.00%, $p < 0.001$) and those with a history of cardiovascular disease (25.00% vs 7.07%, $p < 0.001$). Additionally, PAS misuse was more common among drivers who reported taking breaks during their journeys (24.52% vs 5.56%, $p < 0.041$) and those who observed days without driving weekly (14.73% vs 7.73%, $p = 0.041$). Following the univariate analysis, the following variables considered in the multivariate analysis ($p < 0.20$) were: age, level of education, marital status, religion, child, history of cardiovascular diseases, sleep duration, non-driving weekdays, regular breaks while driving, and age of driving license.

In the multivariate analysis, the factors associated with PAS misuse were age, level of education, history of cardiovascular diseases, and taking breaks (**Table 4**). Compared to drivers aged 35 and above, those aged below 25 (aOR = 10.67, 95% CI = 3.56 - 32.03, $p < 0.001$) and those aged 25 to 34 (aOR = 3.47, 95% CI = 1.37 - 8.82, $p = 0.009$) had higher odds of PAS misuse. Drivers with a primary education were less likely (aOR = 0.43, 95% CI = 0.19 - 0.97, $p = 0.043$) to misuse PAS than those with no formal education. Drivers with cardiovascular diseases

Table 4. Multivariate analysis of factors associated with PAS misuse among HGV drivers, Cotonou, 2022.

Variables	aOR	95% CI	p
Age			
<25	10.67	3.56 - 32.03	<0.001
25 - 34	3.47	1.37 - 8.82	0.009
≥35	1.00		
Level of education			
No formal education	1.00		
Primary	0.43	0.19 - 0.97	0.043
Secondary and higher	0.68	0.29 - 1.57	0.367
History of CVD			
No	1.00		
Yes	3.08	1.08 - 8.81	0.035
Regular breaks while driving			
No	1.00		
Yes	3.11	1.57 - 6.18	0.001

were three times more likely to misuse PAS than others (aOR = 3.08; 95% CI = 1.08 - 8.81, $p = 0.035$). The odds of PAS misuse were also higher among drivers who reported taking breaks than those claiming not to (aOR = 3.11; 95% CI = 1.57 - 6.18, $p = 0.001$).

4. Discussion

Investigating the level of PAS misuse among HGV drivers is part of an effort to improve their living and working conditions. It is a professional group exposed to lifestyles and working conditions that are not conducive to good health [19] [30] [31].

In the scientific literature, two approaches are generally adopted to assess PAS consumption among HGV drivers. The first one involves evaluating recent consumption based on drivers' self-reports using questionnaires or conducting urine or blood tests. The second one aims to determine past consumption (over the previous weeks or months), which better accounts for the social and health consequences. Besides, there is variability in the range of substances considered from one study to another, with some focusing on a particular one, typically alcohol, while others examine multiple ones. As a result, the opportunities for comparing the level of PAS misuse among HGV drivers, as highlighted by different studies on the subject, are limited. It emphasizes the need for standardization of data collection methods to facilitate comparisons. We assessed PAS misuse using the ASSIST, which considers the three months preceding the survey

date. As a screening tool, the ASSIST offers the advantage of easy administration and comprehensive coverage of most PAS categories. We included the following PAS: tobacco, alcohol, cannabis, cocaine, amphetamine-type stimulants, sedatives and sleeping pills (benzodiazepines), hallucinogens, inhalants, and opioids. Among the surveyed drivers, we observed that 12.47 were experiencing PAS misuse. Besides, high-risk consumption was observed for alcohol, amphetamines, and opioids in 0.24% to 0.47% of drivers. A study in Brazil in 2022, using the same screening tool, reported a prevalence of high-risk consumption of at least one PAS at 23% [19]. This difference could be explained by greater accessibility to illicit drugs in that geographical area compared to Benin.

We observed that the odds of PAS misuse were significantly higher among young drivers, especially those under 35. This finding corroborates the conclusions of other studies [20] [21]. In Brazil (2015), drivers under 40 were 2.11 times more likely to consume PAS than their counterparts aged 40 and above [21]. Similarly, in Ethiopia in 2021, drivers aged 38 and above were 60% less likely to consume PAS than their counterparts under 38 [20]. Young individuals may be more inclined to work longer hours and irregular schedules than their older or married colleagues, which increases the risk of higher workloads and consequent use of products to maintain good performance [21]. In contrast, older individuals are more likely to have family responsibilities, which leads them to be more responsible in their behaviour and lead a healthy lifestyle [21]. It is well-known that most people who consume PAS start during adolescence [32].

The findings suggest a significant negative relationship between educational level and PAS misuse. Drivers with a primary education were less likely to misuse PAS than those with no formal education. Educational level is a social determinant of health that influences individuals' ability to make health-favorable decisions for themselves and their loved ones [33]. Well-educated drivers would be more aware of the health, social, legal, or financial issues associated with PAS. In the present study, just over half of the surveyed drivers had a primary education, and nearly one in five drivers had received no formal education. For this group, whose educational level may not be significantly improved at an advanced age, implementing information, education, and communication campaigns on PAS with peer support is a promising approach [34]. The requirement for HGV drivers to hold a specific driving license provides the opportunity to focus on PAS prevention by reinforcing their knowledge during the training phase. In a study conducted in Ethiopia in 2021, which reported a contrary relationship to what we found, the authors emphasized that the consumption of PAS may be seen as a manifestation of modernity and success, leading to higher consumption rates among groups with relatively higher educational levels [20].

We also observed PAS misuse among drivers who reported taking breaks during driving. These drivers were three times more likely to misuse PAS than others. Similarly, a study conducted in Ethiopia in 2021 found that truck drivers

who took breaks between trips were twice as likely to consume PAS than those who did not take breaks between trips [20]. It could be explained by the fact that after long hours of driving, some drivers experience a decline in performance (reduced attention and reactivity, drowsiness, accumulated fatigue) and decide to take a rest during which they may be tempted to consume PAS to accelerate the recovery process [20] [31]. For other drivers, it could signify a progression towards dependence, where they develop a need to take regular breaks to be able to consume PAS.

We found that PAS misuse was more prevalent among individuals with cardiovascular diseases. Those with cardiovascular diseases were three times more likely to have PAS misuse than non-affected individuals. Having a history of cardiovascular illness can be a source of stress and anxiety for some drivers, which creates a conducive environment for PAS consumption. Additionally, in the context of Benin, self-medication and the use of traditional remedies passed down by elders or based on rumours are widespread practices. Some HGV drivers may be motivated to consume PAS based on the belief or perception that these substances are effective in treating ailments. Further research is needed to document why people with chronic illnesses misuse PAS.

We can identify some limitations of this study. The cross-sectional design does not allow for establishing a causal relationship between the considered exposures and the dependent variable. As previously mentioned, we assessed PAS misuse using the ASSIST. The responses to the ASSIST's questions were self-reported by participants, which could introduce desirability bias, leading to an underestimation of the prevalence of their risk behaviours. Besides, the retrospective nature of the ASSIST's questions (covering the past three months) relying on memory could introduce recall bias. Despite these limitations, the findings of this study remain of great interest in a professional sector with significant individual and population risks, which has been somewhat sidelined in public health terms in Benin.

5. Conclusion

We found that a significant proportion of HGV drivers misused PAS. Therefore, addressing the issue of PAS consumption among HGV drivers should receive greater attention from public authorities. Driving under the influence of PAS is recognized as a primary risk factor for the occurrence and severity of road accidents. This study also suggests that this behaviour is associated with other factors. The PAS misuse among HGV drivers varied according to their socio-demographic characteristics, health status and professional characteristics. Considering all these factors in prevention strategies based on an integrated approach would likely yield more effective results. Special attention should be given to implementing interventions targeting young HGV drivers, those without formal education, those who take regular breaks while driving, and those with a history of cardiovascular conditions.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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