Research Article

iMedPub Journals
http://www.imedpub.com/

Medical & Clinical Reviews
ISSN 2471-299X

2016
Vol.2 No.1:1

DOI: 10.21767/2471-299X.1000010

Abusive Consumption of Psychoactive Substances by Truck drivers Consumo Abusivo De Substancias Psicoativas Por Caminhoneiros

Karina Valerim Teixeira Remor[1], Maria Tereza Mattos Monteiro[2], Vanessa da Rosa[2], Roniele Balvedi Iacovski[3], Thiago Mamôru Sakae[4], Dayani Galato[5*]

[1]University of Southern Santa Catarina, UNISUL. Research Center for Pharmaceutical Care and Medication Use (NAFEUM)–UNISUL, Brazil

[2]Pharmacy Undergraduate Students at UNISUL, Brazil

[3]Pharmacist at the Municipal Health Department in Florianópolis, State of Santa Catarina, Brazil

[4]Epidemiology Professor-UNISUL, PhD in Medical Sciences-UFSC, Brazil

[5]Pharmacy School, University of Brasilia, Brazil

[*]**Corresponding author:** Dayani Galato, Professor, Pharmacy School, University of Brasilia, Brazil, Tel: +55-61-3107-3300; E-mail: dayani.galato@unisul.br

Received date: Nov 26, 2015; **Accepted date:** Dec 17, 2015; **Published date:** Dec 21, 2015

Abstract

Reason and purpose of the study: To investigate the abusive consumption of psychoactive substances.

Methods: Questionnaires that addressed socio-demographic characteristics, professional information and use psychoactive substances were administered. The Chi-square test ($p<0.05$) was used to determine associated factors.

Results: In total, 320 truck drivers were surveyed, of which 48.8% reported using psychoactive, especially amphetamines (90.3%). The consumption was associated with age group below 32 years ($p=0.002$), had no steady partner ($p=0.047$), 10 or more years of occupation ($p<0.001$), workload over 15 hours a day ($p<0.001$), slept less than five hours ($p<0.001$), drove over 800 km a day ($p=0.001$), and believed that the psychoactive drugs were not addictive ($p<0.001$). Employment relationship, financial status, time away from home, and truck unloading time were not associated variables.

Conclusion: The use of these substances is a fact, and the results indicate the need for intervention, especially with the commercialization of these medications.

Keywords: Amphetamines; Truck drivers; Medication commercialization

Introduction

The indiscriminate use of psychoactive substances among truck drivers in Brazil has been increasing in recent years and is becoming a serious public health problem [1,2]. Some studies performed in Brazil have shown that the prevalence of use of these substances among truck drivers is usually greater than 50 percent [2,3].

The most widely used psychoactive substances include amphetamines [2-6] also known as "rebites" (stimulants) in Brazil. It is claimed that the use of these substances among truck drivers is linked to the need for long-distance driving in short time. In this context, these professionals frequently deprive themselves of sleep and stay awake for many hours [3-6]. In addition, they often drive after alcohol consumption. The use of amphetamines and alcohol, and the lack of sleep combined are responsible for the overwhelming majority of traffic accidents involving truck drivers [2,4]. In this context, the consumption of psychoactive drugs was considered abusive.

Taking these considerations into account, this study aimed to determine the prevalence and abuse of psychoactive substances among truck drivers in southern Santa Catarina. It was also intended to identify factors associated with the use of these substances.

Methods

This is an epidemiological study carried out with truck drivers in gasoline stations located in a city in southern Santa Catarina, along the BR-101 highway, one of the main north-south highways in Brazil.

The study included truckers who were driving long distances, meaning that they traveled more than 500 km per day [7].

The infinite population formula was used to calculate sample size, using a 95 percent confidence interval, 5 percent error, and an estimated prevalence of 70 percent [1] use of psychoactive substances, which totaled 320 truck drivers.

This study used a semi-structured questionnaire development for authors, having the abusive consumption of psychoactive substances as the outcome variable. The

independent variables included the socio-demographic characteristics (age, marital status and economic status according to the Brazilian Association of Research Companies (Associação Brasileira de Empresas de Pesquisa–ABEP) [8], and occupational information (length of time on the job, daily workload, employment relationship, daily mileage, hours of sleep, time away from home, and time spent on the delivery of goods). Furthermore, some related aspects were investigated such as the place where the substances were purchased, the symptoms reported by the motorists who used them and the respondents' perception of the reasons for the consumption, and the possibility of addiction.

A pilot study was conducted with five truck drivers, not included in this survey, to assess the readability and applicability of the questionnaire. As a result, the necessary changes were made.

Survey information was collected through a self-administered questionnaire, but when the respondents asked for clarification, the researchers helped them to fill in. Data were collected on different days of the week and various times of the day (always during daytime), between February and April 2011. The truck drivers were interviewed at three gas stations located along the BR-101 highway in the city of Tubarão, when they stopped over to refuel, eat or have their vehicles repaired. Authorization was granted by the gas station managers to interview the truck drivers there. Only the truckers that agreed to participate and signed in an informed consent form were included.

The data collected were entered into Epidata 3.1 database, and the Statistical Package for Social Sciences 19.0 (SPSS) was used for data analysis. The numeric variables were presented according to their central tendency measures, dispersion and amplitude variation. Nominal variables were described as absolute numbers and proportions. A 95 percent confidence interval was used to determine the prevalence of psychoactive substance abuse.

Chi-square test was performed, and the prevalence ratio (PR) was estimated with a confidence interval of 95 percent to determine the association between outcome (psychoactive substance use) and exposure variables. Statistical significance was set at 5 percent ($p<0.05$). Exposure factors included economic status, age, type of employment relationship, marital status, number of years as a truck driver, working time per day (hours), amount of kilometers driven daily, amount of sleep per day (hours), time away from home (days), and truck unloading time (days). Numerical variables were summarized using median and, when necessary, the nominal variables were reclassified as dichotomous.

Poisson Regression was included for the variables that reached $p<0.20$ during bivariate analysis, and the variables that reached $p<0.05$ or those that adjusted the model remained.

This study was approved by the Research Ethics Committee of the University of Southern Santa Catarina under code number 11.032.4.03.

Results

In total, 320 subjects aged between 20 and 66 years (34.1 ± 10.3) were interviewed; median age was 32 years. Their economic classification ranged between A and D, being divided into two categories that ranged from A2 and B2 (income between 14.9 and 4.3 wages minimum wages in 2011, according to the ABEP) to C1 and D (income between 2.6 and 1.3 minimum wages).

The participants had been working as truck drivers between two months and 45 years (11.8 ± 9.3 years), and the median was10 years. They reported that it took 2.1 (± 1.7) days on average to unload (median 2 days) and stayed 12.9 (± 21.0) days away from home (median 7 days). They worked 14.8 (± 3.9) hours a day on average (median 15 hours), slept 5.4 (± 2.0) hours a day (median 5 hours) and drove 772.5 (± 215.9) km a day (median 800 km).

The prevalence of psychoactive substance use was 48.8 percent (CI 95%: 43.3-54.2). **Table 1** shows the results of this outcome association with the study variables. The multivariate analysis showed that Age (p=0,016), Workload per day (p=0,010), Hours of sleep per day (p<0,001) and Addiction belief (p=0,007) were significantly associated with the Abusive consumption of psychoactive substances by truck drivers.

Table 1: Description of the association between the use of psychoactive substances and profile of the surveyed truckers.

Variables	n (%) total of truck drivers	n (%) use of psychoactive substances	Crude PR[1] (95% CI[2])	p
Job relationship (n=320)				
Freelance drivers	143 (44.7)	68 (43.6)	0.96 (0.76-1.20)	0.700
Contracted drivers	177 (55.3)	88 (56.4)	1	
Age (n=320)				
Up to 32 years	172 (53.8)	98 (57.0)	1.45 (1.14-1.85)	0.002*
Above 32 years	148 (46.3)	58 (39.2)	1	
Economic classification (n=320)				

A and B	170 (53.1)	90 (62.8)	1.20 (0.96 -1.51)	0.110
C and D	150 (46.9)	66 (37.2)	1	
Marital status (n=320)				
With a steady partner	220 (68.8)	99 (63.5)	0.79 (0.63-0.99)	0.047*
Without a steady partner	100 (31.2)	57 (36.5)	1	
Length of time on the job (n=320)				
Up to 10 years	178 (55.6)	104 (66.7)	1.60 (1.24- 2.05)	<0.001
Above 10 years	142 (44.4)	52 (33.3)	1	*
Workload per day (n=320)				
Up to15 hours	177 (55.3)	64 (41.0)	0.56 (0.45 -0.71)	<0.001
Less than 15 hours	143 (44.7)	92 (59.0)	1	*
Mileage per day (n=320)				
Up to 800 Km^3	214 (66.9)	90 (57.7)	1	0.001*
Less than 800 Km	106 (33.1)	66 (42.3)	0.68 (0.54- 0.84)	
Hours of sleep per day (n=320)				
Up to 5 hours	173 (54.1)	114 (73.1)	2.31 (1.75- 3.04)	<0.001
Less than 5 hours	147 (45.9)	42 (26.9)	1	*
Length of time away from home (n=320)				
Less than 7 days More than 7 days	176 (55.0) 144 (45.0)	79 (50.6) 77 (49.4)	0.84 (0.67- 1.05) 1	0.126
Cargo delivery deadlines (n=320)				
Up to 2 days	221 (69.1)	113 (72.4)	1.78 (0.91-1.52)	0.203
More than 2 days	99 (30.9)	43 (27.6)	1	
Addiction belief (n=319)				
Yes	220 (69.1)	92 (59.0)	0.65 (0.52-0.80)	<0.001
No	99 (30.9)	64 (41.0)	1	*

Table 2 shows the psychoactive substances used by truck drivers. They had been consumed for 6.0 (±6.4) years on average, a period which ranged from two months to 37 years.

Poisson regression model included variables that had association with p<0.20, it was observed that the variables independently associated with substance use in this population was age (p=0.016), duration of daily activity (p=0.010), the sleeping time (p<0.001) and the perception of being dependent (p=0.007) (**Table 3**).

Of the respondents who used any psychoactive substance, 148 (46.3%) reported feeling no symptoms when using these products, which is shown in **Figure 1**.

Cited reasons that induced them to use of these substances included the large workload of daily work (140; 43.8%), the need to make the trip more profitable (get more money) (80; 25.0%), pressure from bosses (52; 16.2%), to gain time and anticipate the journey (50, 15.6%), and meet delivery deadlines (43; 13.4%). They also mentioned the fear of losing their job and the lack of workload monitoring as causes of sleep deprivation.

Figure 2 presents a list of providers of the psychoactive substances. Of those who purchased them at pharmacies, 96.4% said that they had no medical prescription.

Discussion

The results found in this study show that the abusive consumption of psychoactive substances by truckers is a reality for almost half of them. Other studies in the Midwest and Southeast regions of Brazil showed an amphetamine consumption rate around 65 percent [2,3]. Even though the prevalence obtained in this study was smaller, these results indicate a need for intervention, because the abuse of these substances, in addition to generating damage to users, increases the likelihood of causing traffic accidents [9].

The use of amphetamines is highlighted in this study. They are usually found in anorectic drugs, used to aid in weight loss

[6], which could only be commercialized under prescription [3]. These substances are primarily used because they are potent stimulants, increasing mental alertness, confidence and physical strength.

They also prolong wakefulness, decrease appetite, cause euphoria and enthusiasm. With the emergence of these effects, there is performance improvement, but dexterity and motor coordination are impaired. When the stimulating effect ceases, there is an increase in fatigue and depression [9].

Psychoactive substances have high potential for abuse and addiction, generating a large public spending. The average consumption time in this study was about six years; however, the maximum time was 37 years, confirming the potential for addiction. As time passes by, larger doses are needed to get the same effect. It should be noted that the consumption of these substances is significantly higher among truck drivers who claimed that the psychoactive substances are not addictive.

Table 2: Description of psychoactive substances used by truckers.

Classes of substances	Absolute number n(%)	Substances	n(%)
Amphetamines	187 (90.3)	Femproporex	149 (71.9)
		Methylphenidate	3 (1.4)
		Anfepramone	23 (11.2)
		Mazindol	12 (5.8)
Manipulated (no description of the active compounds)	14 (6.8)	Not described	14 (6.8)
Others (Cocaine, Marijuana)	6 (2.9)	Cocaine	3 (1.45)
		Marijuana	3 (1.45)
Total	207 (100)	-	207 (100)

Table 3: Poisson regression of factors associated to substance use by truckers. *p<0.05.

Variable	RR(adj)	CI95%	p
Age>32 years old	0.92	0.85-0.98	0.016*
Economic class (A+B)	0.97	0.92-1.04	0.492
Marital status (steady partner)	1.03	0.95-1.11	0.376
Workload per day>15 hours	1.11	1.02-1.21	0.010*
Sleeping time>5 hours	0.83	0.77-0.89	<0.001*
Mileage per day>800 km	1.04	0.95-1.13	0.354
Cargo delivery>2 days	0.98	0.91-1.05	0.616
Addiction belief	1.11	1.03-1.20	0.007*

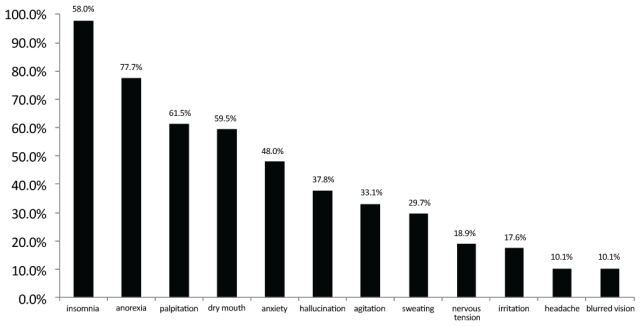

Figure 1: Truckers' reported symptoms on the psychoactive substance use.

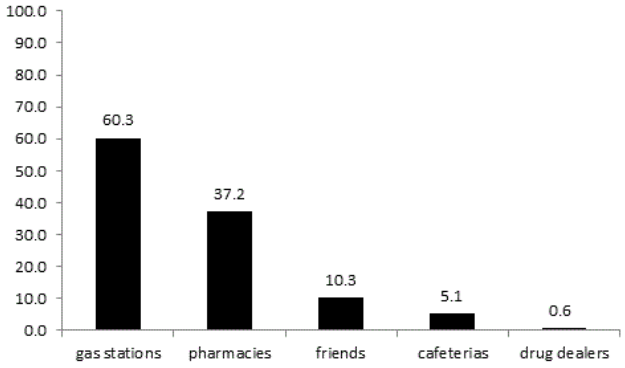

Figure 2: Providers of psychoactive substances to truck drivers.

This may be due to the lack of understanding of the situation in which they are involved, which deserves further investigation.

One of the reasons most often cited by truckers to use of psychoactive substances indiscriminately was the workload. The consumption of these substances was significantly higher among those who had extensive working hours, more than 15 hours per day, driving more than 800 km a day. Driving for long hours is exhausting and harmful to truckers' health, and thus can cause traffic accidents [6,7].

Another reason cited was the delivery deadlines, which showed no association with the use of psychoactive substances in this study. However, in a study by Moreira and Gadani [3], in the city of Dourados, state of Mato Grosso do Sul, delivery deadline was an important factor influencing the consumption of psychoactive substances.

It was identified that the smaller the amount of daily sleep, the higher prevalence of consumption of these substances. In other words, the consumption of these substances is associated with the lack of sleep, which confirms truckers' purpose of taking them. It is worth noting that, according to Wendler et al. [10], sleep-deprived drivers are more likely to be involved in traffic accidents.

On the other hand, no association was found between length of time away from home and the use of psychoactive substances. A possible explanation for this is that during the period that truckers are away from home, they have to perform various tasks, such as truck loading and unloading, and choosing a new destination each time they travel.

As for the employment relationship, no significant difference was found between those who work under a company's contract and freelance drivers with regard to the psychoactive substance abuse. Both groups had the same level of consumption. Thus, the interviewed drivers' perception that their bosses influenced the consumption of these substances was not confirmed. This may have occurred because of the two different contexts. Freelance drivers may use the substances to compensate for the low price of freight [3], while truckers working under a company's contract may be using them because the deadlines set by the companies are too short.

Another point worth mentioning refers to the truck drivers' age. The consumption level is higher in the age group under 32 years than in the age group above 32 years. Similarly, truckers that have been working at this job for less than ten years consume significantly more than those who have been working for more than ten years. Perhaps the reason for the higher abuse is due to the fact that younger people do not feel the side effects immediately and are not so concerned about their health status. As they get older, other diseases can be aggravated by the consumption of these substances, leading them to fear its use. The increased consumption may also be related to the marital status, since having a steady partner is a protective factor for the outcome studied. Truck drivers are concerned about their family. Younger truckers are usually single.

The relationship between the abuse of psychoactive drugs and economic classification was not significant. This result may be associated with ease of access to these substances. A study carried out by Leyton et al. [6] showed that two of the most popular amphetamines are illegally imported from Paraguay, fueling the points of sale at a cost of approximately BRL 10 a pack with 20 tablets.

With regard to places where the psychoactive drugs were purchased, most of the interviewed truckers reported that they bought them at the gas stations. Pharmaceutical establishments were the second most cited places where they acquired amphetamines, mostly without a prescription. This fact requires the health authorities' attention, since amphetamines are prescription drugs [9]. According to Brazilian law, the commercialization of amphetamines requires notification through "B2" prescriptions [11]. Even so, illegal commercialization of amphetamines still occurs. Thus, more intense surveillance and monitoring of pharmaceutical establishments and gas stations are required.

This study did not investigate the concomitant use of alcohol. However, it should be noted that the concomitant use of alcohol with anorectics is strictly contraindicated, with the premise that alcohol increases even more the drug effects on the central nervous system (CNS) [12]. The consumption of alcohol and psychoactive drugs by truckers correlates directly with the high incidence of traffic accidents [7,10,13]. Souza et al. [4] conducted a study in Brazil and Portugal, whose results showed that the majority of traffic accidents are related to the concomitant use of these substances.

A limitation of this study is related to how the research was conducted. In the questionnaire administration, some truck drivers were interviewed face-to-face instead of filling it in anonymously, which may have caused an underestimated prevalence for use of psychoactive drugs. Greater attention to these methodological issues is suggested in further research, which should also include the investigation of traffic accident occurrence. Another limitation of this study is that it neither investigated the possible involvement of truckers in traffic accidents, nor the concomitant use of alcohol.

It was found that the abuse of psychoactive drugs by truckers is prevalent, especially in younger drivers, without a steady partner, who work long hours and travel long distances a day, deprive themselves of sleep and believe that these substances are not addictive.

Thus, it is expected that the results of this study will serve as a tool to enable health authorities to halt the commercialization of these products, especially in gas stations and pharmacies, and therefore effectively collaborate to improve quality of life of truck drivers and road safety. In addition, educational campaigns aimed at public consumption where it is most prevalent should be carried out.

Acknowledgement

We thank the managers and employees of gas stations for their support to carry out this study, and the truck drivers for accepting to participate in this research. We also thank Professor Marizete Rocha's collaboration in revising this article.

Conflict of Interest

Author declared there are no conflicts of interest.

References

1. Masson VA, Monteiro MI (2010) [Vulnerability to sexually transmitted diseases/AIDS and use of psychoactive drugs by truck drivers]. Rev Bras Enferm 63: 79-83.
2. Nascimento EC, Nascimento E, Silva Jde P (2007) [Alcohol and amphetamines use among long-distance truck drivers]. Rev Saude Publica 41: 290-293.
3. Moreira RS, Gadani JAAB (2009) A prevalência do uso de anfetaminas por caminhoneiros que passam pela cidade de Dourados-MS. Interbio 3: 27-34.
4. Souza JC, Paiva T, Reimão R (2005) Sleep habits, sleepiness and accidents among truck drivers. Arq Neuropsiquiatr 63: 925-930.
5. Ruas A, Paini JFP, Zago VLP (2010) Detecção dos fatores de risco para o desenvolvimento de doenças cardiovasculares dos

profissionais caminhoneiros: prevenção, reflexão e conhecimento. Perspectiva 34: 147-158.

6. Leyton V, Carvalho DG, Jesus MGS, Muñoz DR (2002) Uso de anfetamínicos por motoristas profissionais brasileiros: aspectos gerais. Saúde, Ética & Justiça 7: 32-36.
7. Cavagioni LC, Pierin AMG, Batista KM, Bianchi ERF, Costa ALS (2009) Agravos à saúde, hipertensão arterial e predisposição ao estresse em motoristas de caminhão. Rev Esc Enferm USP 43: 1267-1271.
8. Abep-Associação Brasileira de Empresas de Pesquisas (2010) Critério Classificação Econômica Brasil.
9. Freitas BM, Silva FAB (2006) Anfetaminas: suas promessas e seus riscos. Um estudo de caso na cidade de Luziânia - Goiás. Sena Aires 2-12.
10. Wendler EA, Busato CR, Miyoshi E (2003) Uso de anfetaminas por motoristas de caminhão para reduzir o sono. Publ UEPG 4: 7-14.
11. Brasil. Agencia Nacional de Vigilância de Medicamentos. Resolução n. 58 de 5 de setembro de 2007. Aprova sobre o aperfeiçoamento do controle e fiscalização de substâncias psicotrópicas e anorexígenas. Diário oficial da união, Brasília, DF, 06 de dezembro de.
12. Lacy CF, Armstrong LL, Goldman MP, Lance LL (2007) Drug Information handbook. (15th edn) Ohio: Lexi-Comp pp: 2445.
13. Ponce JC, Leyton V (2008) Drogas ilícitas e trânsito: problema pouco discutido no Brasil. Rev Psiq Clín 35: 65-69.