

PERCEPTION OF STUDENTS OF A PUBLIC UNIVERSITY ON THE RISK AND DRIVING OF AN AUTOMOTIVE VEHICLE UNDER THE EFFECT OF ALCOHOL AND MARIJUANA

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ABSTRACT

Objectives: to investigate the relationship between risk perception and behaviors related to the driving of motor vehicle under the effect of alcohol and/or marijuana of students of a public university between 18 and 29 years; investigating the relationship between driving under influence, students' social network, and driving-related behaviors under the influence of alcohol and/or marijuana.

Method: a transversal questionnaire was applied to 383 students. Inferential and descriptive statistics were used for data analysis, processed by SPSS.

Results: are students who have used alcohol and marijuana; 37.1% presented problematic use of alcohol and 22.0% of marijuana. Regarding the correlations, the variables related to the use of marijuana were those that presented greater significance. The lower the perceived risk, the greater the possibility of hitchhiking with those who have used marijuana, that is, there is a strong association between taking a ride with someone who has driven under marijuana and the perception of risk of being detected, receiving sanction or suffer any harm ($p < 0.01$).

Conclusion: It is clear that in Brazil the emphasis on alcohol use prevention policies should also address issues related to marijuana use and student social networks.

DESCRIPTORS: Perception. Social networks. Students. Cannabis. Alcoholic beverages.

HOW CITED: Jacobina OMP, Ventura CAA. Perception of students of a public university on the risk and driving of an automotive vehicle under the effect of alcohol and marijuana. *Texto Contexto Enferm* [Internet]. 2019 [cited YEAR MONTH DAY]; 28(Spe):e2325. Available from: <http://dx.doi.org/10.1590/1980-265X-TCE-CICAD-23-25>

PERCEPÇÃO DE RISCO E CONDUÇÃO DE VEÍCULO AUTOMOTOR SOB EFEITO DE ÁLCOOL E MACONHA DE ESTUDANTES DE UMA UNIVERSIDADE PÚBLICA

RESUMO

Objetivos: investigar a relação entre percepção de risco e comportamentos relacionados à condução de veículo automotor sob o efeito de álcool e/ou maconha de estudantes de uma universidade pública entre 18 e 29 anos; investigar a relação entre dirigir sob influência, a rede social dos estudantes e comportamentos relacionados a dirigir sob influência de álcool e/ou maconha.

Método: aplicado um questionário transversal para 383 estudantes. Estatísticas inferencial e descritiva foram utilizadas para análise dos dados, processados pelo SPSS.

Resultados: em estudantes que já usaram álcool e maconha; 37,1% apresentaram uso problemático de álcool e 22,% de maconha. Sobre as correlações, as variáveis relacionadas ao uso de maconha foram as que apresentaram maior significância. Quanto menor a percepção de risco, maior a possibilidade de pegar carona com quem tenha feito uso de maconha, ou seja, há uma forte associação entre pegar carona com alguém que tenha dirigido sob efeito de maconha e a percepção de risco de ser detectado, receber sanção ou sofrer algum dano ($p < 0,01$).

Conclusão: Fica evidente que no Brasil, a ênfase dada às políticas de prevenção do uso do álcool ao dirigir devem também abarcar questões relacionadas ao uso de maconha e das redes sociais dos estudantes.

DESCRITORES: Percepção. Redes sociais. Estudantes. Cannabis. Bebidas alcoólicas.

PERCEPCIÓN DE RIESGOS Y CONDUCCIÓN DE VEHÍCULO AUTOMOTOR BAJO EFECTO DEL ALCOHOL Y LA MARIHUANA DE ESTUDIANTES DE UNA UNIVERSIDAD PÚBLICA

RESUMEN

Objetivos: investigar la relación entre la percepción de riesgo y las conductas relacionadas a la conducción de un vehículo automotor bajo efecto del alcohol y/o la marihuana de estudiantes de una universidad pública entre 18 y 29 años de edad; investigar la relación entre manejar bajo la influencia, la red social de los estudiantes y las conductas relacionadas al manejar bajo la influencia del alcohol y/o de la marihuana.

Método: se aplicó una encuesta transversal en 383 estudiantes. Se utilizaron las estadísticas inferencial y descriptiva para analizar los datos procesados por el SPSS.

Resultados: en estudiantes que ya consumieron alcohol y marihuana; 37,1% presentaron uso problemático del alcohol y 22% de marihuana. Sobre las correlaciones, las variables relacionadas al uso de marihuana presentaron mayor significancia. Cuanto menor sea la percepción de riesgo, mayor será la posibilidad de pedir aventón a quien tenga consumido marihuana; es decir, existe una fuerte asociación entre pedir aventón a alguien que esté en el volante bajo los efectos de la marihuana y la percepción de riesgo que puede detectarse, recibir sanción y con algún daño ($p < 0,01$).

Conclusión: Es evidente que, en Brasil, el énfasis dado a las políticas de prevención del uso de alcohol al manejar también deben abarcar cuestiones relacionadas al consumo de marihuana y de las redes sociales por parte de los estudiantes.

DESCRIPTORES: Percepción. Redes sociales. Estudiantes. Cannabis. Bebidas alcohólicas.

INTRODUCTION

Driving is a complex activity involving a range of cognitive, perceptual and psychomotor skills,¹⁻³ who may be negatively affected by the use of psychoactive drugs, including alcohol and marijuana. The use of such substances may decrease functions that are important for driving, such as alertness, attention and processing speed, reaction time and depth perception. Driving under the influence of psychoactive drugs is a factor that has been pointed out as an important risk for the occurrence of accidents involving automotive vehicles (AVA).⁴ Especially among young people between the ages of 16 and 29, auto accidents are the leading cause of death.⁵ Coupled with this, young people also have the highest rates of drug use.⁶

Alcohol and marijuana were the substances chosen for this research because prevalence data show that these drugs are among the two most commonly used substances within our hemisphere.⁷⁻⁸ Alcohol is known as the number one substance in terms of intoxication and consumption by people of all ages. In addition, young people and college students are at greater risk. Therefore, consumption by adolescents and young people is particularly worrisome, especially as they tend to be larger than in the general population.⁹

On the use of drugs in Brazil, a compilation of information from two editions of the Household Survey on the Use of Psychotropic Drugs in Brazil. 10 data were collected throughout the country between 2001 and 2007, which showed that approximately 70.0% of the population had consumed alcohol at least once in their lifetime, and that 40.0% reported lifetime use of tobacco. The most recent national research on drug use in national life revealed that men had a higher prevalence of marijuana use, solvents, cocaine, hallucinogens, crack, merla and steroids, while women had a higher consumption of benzodiazepines, stimulants, appetite suppressants and opiates. Regarding the use of alcohol, about 12.3% of the Brazilian population may be considered dependent on alcohol.¹¹

In the Brazilian Report on Drugs,¹² 74.6% of the sample had drunk alcohol at least once in their lifetime, and 65.2% of public elementary and high school students had consumed alcohol at least once. In relation to college students, 86.2% reported having consumed alcohol at least once. The results of this report suggest that the student population, especially the university student, presented a worrying pattern of alcohol consumption. These data are corroborated by the I National Survey on the Use of Alcohol, Tobacco and Other Drugs among University Students of the 27 Brazilian Capitals,¹⁰ which showed a prevalence of life use of 86.2% for alcohol and 26.1% for marijuana among university students.

The use of alcohol is a concern in Brazil, especially when associated with the driving of a motor vehicle. The search Use of Alcoholic Beverages and Other Drugs on Brazilian Highways¹³ found that 58.0% of all respondents (n=3,998) reported driving after drinking an amount of alcohol that could be considered illegal to drive, data corroborated by other research.¹⁴⁻¹⁶

In Brazil, the use of illegal drugs, although small compared to alcohol and tobacco consumption, is alarming among specific populations, especially university students. The National Survey on the Use of Alcohol, Tobacco, and Other Drugs among University Students of the 27 Brazilian Capitals revealed that 26.1% had used marijuana (almost four times more than the general population) and 9.7% had used cocaine (almost three and a half times more than the general population). The study also found that 18% reported driving after consuming alcohol, and 30% reported having hitchhiking with a drunk driver.¹⁰

The number of road deaths has increased in Brazil. Over the past 10 years, traffic-related deaths have been responsible for an average of 37 deaths per 100,000 and the average growth rate is 3.7% per year.¹⁷ From 2000 to 2008, young people accounted for an average of 22 deaths

per 100,000. Between 2004 and 2008, the rate of traffic fatalities among young people increased by 15.0% compared to the non-young population.¹⁸

In 2012, 15% of road traffic deaths worldwide, and 23.2% in Brazil, were attributed to alcohol consumption.¹⁹ It is estimated that alcohol consumption is responsible for a third of all accidents on Brazilian roads.²⁰⁻²¹

The Brazilian Traffic Code considers a very serious driving violation under the influence of alcohol or any other substance that may lead to addiction. The penalties vary from suspension of license, fines to driver and even detention/imprisonment.

The strengthening of traffic laws with regard to driving a motor vehicle under the influence of alcohol can significantly change the behavior of drivers, specifically reducing by 21% the number of drivers who drink and drive.²²

In this perspective, although many studies have been done on driving a motor vehicle under the influence of alcohol or marijuana, few have been carried out in Brazil.²³ In addition, few have explored how the combined use of these two substances can affect the skills linked to the driving of a motor vehicle.²⁴

Thus, in addition to being in line with one of the post 2015 targets for sustainable development, which is to halve the number of global deaths and injuries resulting from traffic accidents,²³ the results of this study may be useful for the construction of public policies and legislation on the subject; may be used to assist in the development and modification of programs and policies aimed at preventing and reducing the occurrence of Vehicle Driving Under the Effect of Substance (CVE) in general, Driving Vehicle under Alcohol and Marijuana (CVEAM) in particular, among the target population, considered to be a particularly vulnerable group to CVE, injuries and associated deaths;⁶ can be used to guide legislative change, particularly in the participating countries. The purpose of this study was to investigate the relationship between risk perception and behavior related to CVEAM of students from a public university aged 18 to 29 (8); and also to investigate the relationship between CVEAM, the students' social network and behaviors related to CVEAM.

METHOD

A cross-sectional questionnaire was used to collect data from students between the ages of 18 and 29 enrolled in face-to-face courses at a Federal Public University in the Center-West region of Brazil. The sample size of 381 students was estimated from an online sample calculator (*SurveyMonkey*) which was based on the total number of students on campus, in case 41,588. However, the questionnaire was applied to 383 students.

To participate in the study, students were required to be between the ages of 18 and 29, enrolled in face-to-face courses at the university and to sign the Informed Consent Term. Students outside the established age range and *on-line* classes did not attend.

As instruments of data collection was used a self-administered questionnaire consisting of six sections and 59 items. To assess the dependent variable, behaviors related to CVEAM, items were adapted from the Ontario Student Health and Drug Use Survey.²⁵ These items question how often students have been driving a motor vehicle or have been passengers in a car driven by someone under the influence of alcohol and/or marijuana during the past year.

In order to evaluate the main independent variable, risk perception associated with driving a motor vehicle under the effect of alcohol and/or marijuana, the items were developed in the form of statements that can be divided into the following categories: risk of damages; risk of detection and risk of sanctions. Each item was classified according to the likelihood of an event occurring, using a Likert scale, ranging from very unlikely to very likely. A higher probability corresponds to a higher level of perceived risk.

To estimate the use of alcohol and marijuana, the items were adapted from previous OAS/CICAD research conducted throughout Latin America and the Caribbean. These items use dichotomous response options - Yes/No - to evaluate alcohol and/or marijuana use in the last year and the last month. General drug use items are followed by items from the Alcohol Use Disorders Identification Test (AUDIT) and the Cannabis Abuse Screening Test (CAST).²⁶ These scales operationalize the variables type of alcohol use and type of marijuana use.

The questionnaire also included items to collect demographic information: age, sex, if you drive, if you have a driver's license. Finally, it included questions about the approval and engagement of family members and peers in behavioral research objects of this study (CVEAM or hitchhiking in a car driven by someone under the influence of alcohol and/or marijuana). These items operationalize the CVEAM variable by members of the students' social network. Data collection was done in the first half of 2016.

Data were analyzed using descriptive and inferential statistics. Descriptive statistics were used to determine the characteristics of the sample with respect to: age, sex, prevalence of use and type of use. The analyzes included frequency distributions as well as measures of central tendency and dispersion (mean, median, standard deviation) where appropriate. Inferential statistics were used to test the hypothesis of investigation. Initially, chi-square analyzes and cross-reference tables were used to evaluate the relationship between risk perception and CVEAM-related behaviors. Then, chi-square and cross-reference tables were used to investigate the relationship between CVEAM by members of the students' social network and perception of risk and behaviors related to CVEAM.

RESULTS

Table 1 shows the demographic profile (sex and age), to estimate the prevalence of alcohol and marijuana use in the last 12 months, and to evaluate the problematic and non-problematic use of these substances among the sample studied.

Table 1 – Demographic data and use of alcohol and marijuana. Brasília, DF, Brazil, 2016.

| Variable | N | % |
|---|-----|------|
| Age | | |
| 18-21 | 259 | 67.7 |
| 22-25 | 102 | 26.6 |
| 26-29 | 22 | 5.7 |
| Gender | | |
| Male | 117 | 30.5 |
| Female | 263 | 68.7 |
| Alcohol use in the last 12 months | | |
| Yes | 313 | 81.7 |
| No | 66 | 17.2 |
| Use of marijuana in 12 months | | |
| Yes | 171 | 44.6 |
| No | 203 | 53 |
| Alcohol and marijuana consumed together in the last 12 months | | |
| Yes | 129 | 33.7 |
| No | 240 | 62.7 |
| Problematic use of alcohol among alcohol users | 142 | 37.1 |
| Marijuana use among marijuana users | 85 | 22.2 |

The participants were predominantly female (68.7%) and aged 18-21 (67.7%). 81.7% of the students who participated in the research made use of alcohol in the last 12 months. Of these students, 37.1% presented problematic use of alcohol. Regarding marijuana, 44.6% of the students reported their use in the last 12 months, with 22.2% of them presenting problematic use of the substance (Table 1).

To analyze the perception of CVE risk and CVE behavior, Descriptive Statistics was also used. These data are presented in tables 2 and 3.

Table 2 – Perception of motor vehicle driving risk under alcohol and/or marijuana. Brasilia, DF, Brazil, 2016

| Perception of risk | Likely | | Unlikely | |
|--------------------|--------|------|----------|------|
| | N | % | N | % |
| Alcohol | | | | |
| Detection | 309 | 80.7 | 68 | 17.8 |
| Sanction | 311 | 81.2 | 66 | 17.2 |
| Damage | 368 | 96.1 | 9 | 2.3 |
| Marijuana | | | | |
| Detection | 84 | 21.9 | 294 | 76.8 |
| Sanction | 104 | 27.2 | 273 | 71.3 |
| Damage | 171 | 44.6 | 206 | 53.8 |
| Both | | | | |
| Detection | 262 | 68.4 | 108 | 28.2 |
| Sanction | 273 | 71.3 | 97 | 25.3 |
| Damage | 341 | 89 | 28 | 7.3 |

It is possible to observe that the great majority of the students who participated in the research consider it probable that the driver driving under the influence of alcohol is detected (80.7%), receives a sanction (81.2%) or suffers some damage (96.1%). Regarding marijuana, the perception of risk in relation to being detected (21.9%) and receiving sanction (27.2%) or suffering some damage (44.6%) is much lower when compared to alcohol.

Table 3 – Driving behavior of motor vehicle under the influence of alcohol and/or marijuana. Brasília, DF, Brazil, 2016.

| Behavior of vehicle driving under the effect of substance | Yes | | No | |
|---|-----|------|-----|------|
| | N | % | N | % |
| Vehicle driving under the influence of alcohol | | | | |
| Driver* | 87 | 22.7 | 201 | 52.5 |
| Passenger (ride) | 305 | 79.6 | 72 | 18.8 |
| Vehicle driving under marijuana effect | | | | |
| Driver* | 47 | 12.3 | 110 | 28.7 |
| Passenger (ride) | 161 | 42 | 197 | 51.4 |
| Vehicle driving under the effect of substance of both | | | | |
| Driver* | 27 | 7 | 95 | 24.8 |
| Passenger (ride) | 129 | 33.7 | 239 | 62.4 |

*Data only for users of alcohol, marijuana and both together

Regarding the behavior of CVE, although the minority of students who use alcohol and marijuana report driving under the effect of these substances, 22.7% and 12.3% respectively and 7% both substances, a significantly higher percentage “pick up a ride” with someone who used alcohol (79.6%), marijuana (42%) and both together (33.7%).

To investigate the relationship between CVEAM by members of the students’ social network and risk perception and behaviors related to CVEA were performed cross-referenced bivariate analyzes between two variables, with chi-square tests. Correlations are presented through tables 4 and 5, showing which variables are related to the extent to which they are dependent on each other, that is, they have a chi-square less than 0.05.

Table 4 – Perception of risk of driving motor vehicle under effect and Driving behavior of motor vehicle under effect. Brasilia, DF, Brazil, 2016

| | CVE Alcohol % | | χ^2 | CVE Marijuana % | | χ^2 | CVE Both % | | χ^2 |
|-----------|---------------|------|----------|-----------------|------|----------|------------|------|----------|
| | Yes | No | | Yes | No | | Yes | No | |
| Driver* | | | | | | | | | |
| Detection | | | 0.18 | | | 3.22 | | | 0.46 |
| Likely | 31.1 | 68.9 | | 15.4 | 84.6 | | 20.7 | 79.3 | |
| Unlikely | 28.0 | 72.0 | | 33.1 | 66.9 | | 26.3 | 73.7 | |
| Sanction | | | 0.39 | | | 6.44† | | | 0.29 |
| Likely | 31.4 | 68.6 | | 12.1 | 87.9 | | 21.2 | 78.8 | |
| Unlikely | 26.7 | 73.3 | | 35.0 | 65.0 | | 25.7 | 74.3 | |
| Damage | | | 0.50 | | | 0.97 | | | 0.001 |
| Likely | 30.3 | 69.7 | | 24.4 | 75.6 | | 22.6 | 77.4 | |
| Unlikely | 42.9 | 57.1 | | 32.4 | 67.6 | | 23.1 | 76.9 | |
| Passenger | | | | | | | | | |
| Detection | | | 0.78 | | | 9.47‡ | | | 0.01 |
| Likely | 80.1 | 19.9 | | 30.0 | 70.0 | | 34.3 | 65.7 | |
| Unlikely | 84.8 | 15.2 | | 49.5 | 50.5 | | 34.9 | 65.1 | |
| Sanction | | | 0.008 | | | 9.87‡ | | | 0.43 |
| Likely | 80.8 | 19.2 | | 31.6 | 68.4 | | 33.5 | 66.5 | |
| Unlikely | 80.3 | 19.7 | | 50.2 | 49.8 | | 37.2 | 64.8 | |
| Damage | | | 3.74 | | | 30.61§ | | | 0.002 |
| Likely | 81.3 | 18.7 | | 28.7 | 71.3 | | 34.2 | 65.8 | |
| Unlikely | 55.6 | 44.4 | | 58.1 | 41.9 | | 34.6 | 65.4 | |

* Data only for users of alcohol, marijuana or both combined; †p<.05, ‡p<.01, §p<.001

In this scenario, correlation analyzes related to marijuana use were significant. Regarding this consumption, it is noteworthy that the variable on driving a motor vehicle 2 hours after using marijuana in the last dose did not present p <0.05 in relation to any other variable, since the perception about taking a ride with someone who was using or had used in the last 2 hours before driving, correlated with the perception about the police detecting the driver driving under marijuana (70%); on receiving a sanction (for example, being: arrested, imprisoned, fined, warned) for driving under effect (68.4%); and be involved in a motor vehicle accident and have used it (71.3%).

Table 5 – Social network and Behavior driving a motor vehicle under the influence of alcohol and/or marijuana. Brasilia, DF, Brazil, 2016

| CVE behavior* | Driver %† | | | Passenger (ride) % | | |
|---|-----------|-------|----------------|--------------------|------|----------------|
| | Yes | No | x ² | Yes | No | x ² |
| Alcohol | | | | | | |
| Social network - "alright" for CVE | | | 0.26 | | | 13.21‡ |
| Yes | 30.5 | 69.5 | | 82.9 | 17.1 | |
| No | 25.0 | 75.0 | | 55.2 | 44.8 | |
| Social network - CVE | | | 1.21 | | | 14.69‡ |
| Yes | 30.6 | 69.4 | | 82.4 | 17.6 | |
| No | 12.5 | 87.5 | | 43.8 | 56.3 | |
| Social network - pick up a ride with a driver CVE | | | 0.24 | | | 18.94‡ |
| Yes | 30.3 | 69.7 | | 82.5 | 17.5 | |
| No | 20.0 | 80.0 | | 35.7 | 64.3 | |
| Marijuana | | | | | | |
| Social network - "alright" for CVE | | | 3.18 | | | 59.71‡ |
| Yes | 31.7 | 68.3 | | 54.8 | 45.2 | |
| No | 0 | 100.0 | | 1.6 | 98.4 | |
| Social network - CVE | | | 6.23§ | | | 81.50‡ |
| Yes | 33.3 | 66.7 | | 59.2 | 40.8 | |
| No | 0.0 | 100.0 | | 4.4 | 95.6 | |
| Social network - pick up a ride with a driver CVE | | | 5.14§ | | | 63.22‡ |
| Yes | 32.6 | 67.4 | | 56.3 | 47.7 | |
| No | 0.0 | 100.0 | | 5.2 | 94.8 | |
| Both | | | | | | |
| Social network - "alright" for CVE | | | 1.02 | | | 31.08‡ |
| Yes | 24.5 | 14.3 | | 43.9 | 56.1 | |
| No | 75.5 | 85.7 | | 13.2 | 86.8 | |
| Social network - CVE | | | 3.91 | | | 47.53‡ |
| Yes | 25.2 | 74.8 | | 46.1 | 53.9 | |
| No | 0.0 | 100.0 | | 8.3 | 91.7 | |
| Social network - pick up a ride with a driver CVE | | | 3.55 | | | 43.93‡ |
| Yes | 25.0 | 75.0 | | 44.4 | 55.6 | |
| No | 0.0 | 100.0 | | 6.5 | 93.5 | |

* CVE=Vehicle driving under effect of substance; † Data only for users of alcohol, marijuana or both combined; §p<.05, ‡p<.001,

With regard to CVEAM by members of the students' social network and CVEAM's behavior, it is possible to identify a significant association between the "pick-up a ride" behavior with those who have used alcohol, marijuana and both combined and the perception of risk and behavior of members of the students' social network.

DISCUSSION

From the analysis of the data it is possible to perceive that the characteristics of the sample present some differences in relation to the findings of the I National Survey on the Use of Alcohol, Tobacco and Other Drugs among University Students of the 27 Brazilian Capitals carried out in

2010.¹⁰ Regarding the prevalence of alcohol use among university students in the last 12 months, this percentage increased from 86.2% to 81.7%, showing a slight decrease. Regarding driving behavior after drinking alcohol, this number rose from 18% to 22.7% of the students responding. Regarding the use of marijuana, the prevalence of use in the last 12 months increased from 26.1% to 44.6%. It is important to emphasize that this value of 26.1% also included hashish and skank. Thus, it is noted that from 2010 to 2016, the year of this research, there was a significant increase in the prevalence of marijuana use among university students. This is a relevant fact, since the data analysis of this study showed a greater correlation between several variables to the use of marijuana.

The analysis of tables 2 and 3 shows that the perception of risk and behavior in relation to driving under the influence of alcohol is much greater when compared to marijuana. However, there was only one significant association related to alcohol use, in the case of carpooling behavior with those who have used the substance and the perception of CVEAM risk and behavior of members of the students' social network ($p < 0.001$). Regarding the relationship between risk perception and CVEAM behavior, the data showed a strong association between "pick up a ride" with someone driving under marijuana and perceived risk of being detected, sanctioned or injured ($p < 0.01$). Whoever does not "pick up a ride" with a driver who drives a marijuana vehicle has a higher risk perception (detection, sanction, damage) than whoever picks up. It is assumed that this perception of greater risk may influence the behavior of the student not "picking up a ride" with someone who has just used marijuana.

As with alcohol, the perceived risk of marijuana-driven social network members hitchhiking to people who use it and think that it is "alright" under marijuana is less likely to be detected, receive penalty or suffer damage by CVE. That is, the lower the perception of risk, the greater the possibility of hitchhiking with those who have used marijuana.

More than 80% of the members of the social networks of students who "pick up a ride" with those who used alcohol, think that it is "alright" CVE (82.9%), drive under the influence of alcohol (82.4%) and "pick up a ride" with a driver who drives under the influence of alcohol (82.5%). In relation to marijuana, members of the social networks of students who do not "pick up a ride" with a person who used the substance do not consider that it is "alright" to drive under marijuana (98.4%), do not drive under marijuana (95.6%), and do not "pick up a ride" with those who drive under marijuana (94.8%), that is, the perception of the behavior or acceptance of peers, also contributes to the increase of risk of CVEM or be a passenger in this situation. The data on the combined use of alcohol and marijuana are similar: the members of the social networks of students who do not take a ride with those who used both substances do not consider that it is "alright" to drive under marijuana (86, 8%), do not drive under marijuana (91.7%) and do not "pick up a ride" with those who drive under the effect of marijuana (93.5%).

Among a series of epidemiological and experimental evidence on CVE, one concluded that the concentration of 7-10 ng/mL THC was associated with injury/damage, which is relevant for the ability to drive safely.²⁷ Also noteworthy was the study which concluded that the concentration of 3.8 ng/mL of THC in the blood affects/impairs motorists at an equivalent level of blood alcohol concentration of 0.5g/L. This data is relevant when compared to the findings of this research, since it points to an equivalence of marijuana to alcohol with respect to the injury to drive safely.

In addition, the use of marijuana significantly affects the ability to drive a motor vehicle, increasing the risk of crash collisions.²⁸ Marijuana consumption and motor vehicle driving within one hour after consumption is strongly associated with the occurrence of accidents due to significant changes in cognitive abilities,²⁹ such as those described above. This makes the use of marijuana associated with the driving of motor vehicles an important public health problem that, in the absence of means to detect CVEM, as in the case of Brazil, leads to an underreporting of traffic accidents related to its use.

To aggravate the situation, despite the contradictions of the studies investigating CVEAM, some researchers point out that the risk of driving under the effect of combined alcohol and marijuana is much greater than the risk of driving under the effect of one of the substances alone.²⁹⁻³⁰

In summary, the findings of this research corroborate results found in other studies, in which sense: the driver's perception of the probability of being caught driving under the influence of alcohol will have an impact on whether or not he engages in this behavior;³¹ that an individual who uses alcohol and/or marijuana is more prone to the risk of hitchhiking in a vehicle driven by an intoxicated driver;³² that people with lower levels of risk perception are more prone to CVEM;³³ and that normative beliefs, defined as perceived peer behavior or peer acceptance of particular behavior, also contribute to an increased risk of CVEM or to being a passenger in a CVEM situation.³⁴⁻³⁶ Therefore, it is suggested as a possible way to prevent CVEAM, and therefore, to reduce the incidence of alcohol and marijuana accidents, to promote actions that increase the perception of risk in relation to CVEAM, also bringing marijuana to the focus of attention, since the data of this research showed a significant association between risk perception and behavior of CVE, especially marijuana. In addition, it is important that these actions also turn their attention to the members of the students' social network, since they can function as protection against CVEM.

The limitations of this study can be identified in three points: the first refers to access to participants who completed the questionnaire. It was intended to apply the questionnaire in the context of the classroom, however, to reach the estimated sample, it was necessary to apply also in students who were in the corridors of the university. Contact between students may have influenced their responses. The second point is about the participants' fears that they may have had to respond to a questionnaire on the use of illicit drugs. Even with the reading of the Free and Informed Consent Term, they may not have been inclined to state that they had already used illicit substances. And the third and last point is the lack of research in this area in Brazil, which makes it difficult to construct a historical line and analysis that covers all the specificities of the phenomenon in this country.

CONCLUSION

Considering that the purpose of the study was to investigate the relationship between risk perception and behavior related to CVEAM of students from a public university aged 18 to 29 years, as well as the relationship between CVEAM, students' social network and behaviors related to CVEAM, we can conclude that there is a relation between perception of risk and behaviors related to the driving of motor vehicle, mainly under marijuana effect. And that conducting vehicle under the influence of alcohol and marijuana by members of the students' social networks is associated with the perception of risk and behaviors related to CVEAM.

Therefore, it is important that the policy aimed at reducing the driving of motor vehicles under the influence of alcohol that exists in Brazil, turn your attention also to the behavior of driving under the marijuana effect or both combined substances, since this behavior can affect the safety of the steering in an important way, aggravating the rates of accidents and fatalities involved with CVEAM. Consequently, the campaigns related to the prevention of the driving of motor vehicles under the effect of psychoactive substances should also focus on the use of marijuana, and not only on the use of alcohol.

And what special attention should be paid to Brazilian youth, since the prevalence of marijuana use has increased considerably, as well as the behavior of driving under the influence of alcohol, resulting in increased involvement with traffic accidents with irreparable damage to whole nation.

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NOTES

CONTRIBUTION OF AUTHORITY

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Data collect: Jacobina OMP.

Data analysis and interpretation: Jacobina OMP, Ventura CAA.

Discussion of the results: Jacobina OMP, Ventura CAA.

Writing and / or critical review of content: Jacobina OMP, Ventura CAA.

Review and final approval of the final version: Jacobina OMP.

ETHICS COMMITTEE IN RESEARCH

Approved by the Ethics Committee for the Human Sciences of the University of Brasília (Opinion no.1,482,590) and by the Ethics Committee of the Centre for Addiction and Mental Health (Reference Protocol #98/2015).

CONFLICT OF INTEREST

There is no conflict of interest.

HISTORICAL

Received: September 25, 2018.

Approved: May 20, 2019.

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