

RISK RELATED TO CONSUMPTION OF TOBACCO AND ALCOHOL IN MEN METALLURGICAL WORKERS

Rodinei Romero da Silva*
Aroldo Gavioli**
Sônia Regina Marangoni***
Anai Adario Hungaro****
Cleiton José Santana*****
Magda Lúcia Félix de Oliveira*****

ABSTRACT

Objective: To describe the risk related to consumption of tobacco and alcohol in metallurgical workers. **Methods:** A cross-sectional study carried out with 180 workers from a large metallurgical company, who answered a questionnaire with sociodemographic variables and two instruments to track drug abuse. Descriptive statistics and multinomial logistic regression were used. **Results:** Most of the respondents were between 26 and 45 years of age, married, had children, catholic, white, with up to 11 years of schooling and lived with a family member user of alcohol or tobacco. The levels of moderate and high risk of tobacco and alcohol consumption were, respectively, 19.4 and 3.3% and 32.8% and 3.3%, being associated to: age range from 36 to 66 years, did not own a house, to be Catholic, absenteeism at work and to live with a user family member. **Conclusion:** The risk levels found in this study were similar to those of the general population of men. Most tobacco users were at risk levels that allowed tobacco cessation policy benefits. There was also a pattern of binge drinking in most alcohol users, representing a risk for morbidity and mortality for external causes.

Keywords: Substance-Related Disorders. Mass Screening. Primary Care Nursing. Occupational Health Nursing. Workers.

INTRODUCTION

Studies on the prevalence of drug use by individuals of professional categories are described in the literature⁽¹⁾. In a study carried out in Hong Kong, with 942 construction workers, prevalence of tobacco use 49.2%, and for alcohol the prevalence was 59.5%, stating that 6.8% showed pattern of problematic use⁽²⁾. In Brazil, a study with construction workers found a prevalence of tobacco use 38.2% and alcohol use 33.7%⁽³⁾.

The problem of the use of psychoactive substances associated to the demands of work deserves attention, since this type of consumption can be used as an escape valve to withstand the tough routine and stress, as well as the current crisis scenario in the economy⁽⁴⁾. Alcoholism can lead to social and occupational life shattering and to the emergence of

deleterious effects in the physical, family and economic environment, since smoking is known to be the leading cause of preventable death currently⁽⁵⁾.

Regarding to alcohol consumption among workers in a metallurgical industry, the consumption pattern was represented by male workers, with a mean age of 31 years and 9.8 years of schooling, 5 years of working time, married and on use of, on average, three to four servings of drink per occasion. It was concluded that 46.5% of the workers were dependent users, and the occurrence of health damage was observed in 55% of them⁽⁶⁾.

In our country nowadays, despite its great economic importance, the metallurgical industry is in recession status and, even by its nature, presents environmental risk factors for work accidents, such as noise, risks of fall, risks for the vision, work with heavy machinery, besides

*Nurse. Specialist in Urgency and Emergency, Hospital Maria Auxiliadora - Santa Casa of Maringá. Maringá, PR, Brazil. E-mail: rodinei_67@hotmail.com ORCID ID: <https://orcid.org/0000-0002-8136-9736>.

**Nurse. Doctorate student in Nursing - PSE/UEM, Regional University Hospital of Maringá, Researcher of the Center for Poison Control/HUM. Maringá, PR, Brazil. E-mail: gavioli.aroldo@gmail.com ORCID ID: <https://orcid.org/0000-0003-1454-1652>.

***Nurse. Doctorate student in Nursing - PSE/UEM, Regional University Hospital of Maringá, Researcher of the Center for Poison Control/HUM. Maringá, PR, Brazil. E-mail: sonia.marangoni@yahoo.com.br ORCID ID: <https://orcid.org/0000-0002-4143-3908>.

****Nurse. Doctorate student in Nursing - PSE/UEM, Researcher of the Center for Poison Control/HUM. Maringá, PR, Brazil. E-mail: hungaroanai@hotmail.com ORCID ID: <https://orcid.org/0000-0002-0914-5308>.

*****Doctorate student in Nursing - PSE/UEM, Nurse of the Emergency Medical Assistance Service of Londrina (SAMU), Researcher of the Center for Poison Control/HUM. Maringá, PR, Brazil. E-mail: cleitonjsantana@hotmail.com ORCID ID: <https://orcid.org/0000-0002-8150-2357>.

*****Nurse. Doctorate in Collective Health, Professor of the Nursing Course at the State University of Maringá (DEN/UEM) and PSE/UEM, Coordinator of the Center for Poison Control/HUM. Maringá, Maringá, PR, Brazil. E-mail: mloliveira@uem.br ORCID ID: <https://orcid.org/0000-0003-4095-9382>

the technological and social determinants, which do not integrate classic investigations, but possibly justify the stress in the work, being able to be a risk factor for the use of drugs among the workers of this economic activity field⁽⁷⁾.

The study about alcohol and tobacco use by specific professional groups is still an open field, as in the case of workers in the metallurgical industry, which in Brazil plays an important role as an economic activity and employs many people. Such consumption has serious clinical repercussions and the quality of life of these professionals, related to the root of health problems, such as hypertension, cardiovascular diseases, alcoholism, smoking, lung cancer and external causes of morbidity and mortality, such as accidents and violence. The international literature is also lacking in studies about substance use by professionals in the metallurgical industry.

Thus, the objective of this research was to track the risk related to the consumption (RRC) of tobacco and alcohol in workers of a metallurgical industry.

METHODS

Cross-sectional design research. The study population consisted of workers from a metallurgical industry in the city of Sarandi (PR), which at the time of the study employed 788 workers, among employees of the administrative and labor sectors.

Sampling was defined in a non-probabilistic way, and subjects were selected for convenience. The sample calculation considered the total number of workers, with a sampling error of 5% and a confidence level of 95%, attributing a value of 20% to the percentage of drug abuse among workers. As verified in other reference works^(2,3), a sample of 189 people was defined as representative of this universe of workers.

The inclusion criteria were to be male and to work in the operational area, that is, directly in the manufacturing sector of the industry. The exclusion criteria were not to be male and to work in the administrative or non-operational area, because it generates outliers data of the majority of workers.

The participants responded to a structured interview script in two modules: a

sociodemographic questionnaire and the application of the Alcohol, Smoking and Substance Involvement Screening Test version 3.1 (ASSIST 3.1) aiming to assess the alcohol and tobacco RRC, and the Fagerström Test of Nicotine Dependence (FTND) in order to detect the level of nicotine dependence.

ASSIST 3.1 has been translated and validated into Brazilian Portuguese⁽⁸⁾ and designed for the tracking of tobacco and alcohol products as well as illicit drugs, obtaining information about substance use throughout life and especially problems associated with use in the last 3 months, classifying the user with low, moderate and high risk related to the consumption of the substance searched⁽⁹⁾. In this study, we opted for the specific RRC tracking of tobacco and alcohol, in order to avoid embarrassment to workers, considering that the research was developed within a company.

The Fagerström test of Nicotine Dependence (FTND) was translated and validated into Brazilian Portuguese in 2002⁽¹⁰⁾. It is a scale of easy understanding and rapid application that can be used for diverse populations and contexts. The FTND consists of six items. Its questions have different forms of answers: questions 1 and 4 are scored on a Likert scale from zero to 3, and the other items allow responses in zero (no) and 1 (yes), serving to track nicotine dependence and classifying the user in five levels: very low, low, moderate, high and very high⁽¹¹⁾.

The results of the screening tests were informed to each of the participants, and all the workers received a folder with the addresses and telephones of the Primary Care services directed to the smoking and alcoholic cessation.

The data were compiled using the IBM Statistical Package for Social Science (SPSS), version 20, and treated by descriptive statistics. Independent variables were dichotomized and submitted to multinomial logistic regression analysis to investigate association with the outcome (RRC level) obtained from the low, moderate and high ASSIST score for tobacco and alcohol. For this, the low risk in the dependent variable was set as baseline, and the main effects method was used, at a significance level of 95%. For the significant variables in the final model, odds ratios and their respective confidence intervals were adopted as measures of association⁽¹²⁾.

Data collection took place from June to August 2015. After explaining the importance and the objectives of this research, all workers were invited to participate in the study. Those who agreed to participate signed a Free and Informed Consent Term (TCLE), resolution 466/2012. The research project was submitted and approved by the Research Ethics Committee (CEP) of Centro Universitário Ingá (Uningá), in Maringá (PR), according to opinion 1,065,716.

RESULTS

In total, 180 workers were interviewed, there were nine losses, five refused to participate in

the study, two did not show up and two were in an inaccessible place to the researcher, which could represent a risk for both.

The mean age was 36.2 years (standard deviation $SD \pm 10.8$ years), the youngest being 17 years and the oldest being 66 years. The majority were married and/or stable relationship (70.6%), 51.1% had one or two children, 61.1% lived in their own homes, 62.8% attended high school, 58, 3% were white color/race and 63,6% were catholic. The family income of the workers ranged from R \$ 1,100 to R \$ 8,000.00, an average of R \$ 2,697.00 ($SD \pm R \$ 1,153.67$) (Table 1).

Table 1. Socio-demographic variables of the 180 workers of a metallurgical industry. Sarandi (PR), Brazil, 2015

Variables	n (%)
Age group	
17-25	34 (18.9)
26-35	60 (33.3)
36-45	48 (26.7)
46-55	29 (16.1)
56-66	9 (5.0)
Marital status	
Married/Relationship	127 (70.6)
Single/without partner	53 (29.4)
Number of children	
None	53 (29.4)
1-2	92 (51.1)
More than 2	35 (19.4)
Housing	
Own	110 (61.1)
Rent	70 (38.9)
Schooling	
Elementary School	41 (22.8)
High School	113 (62.8)
Higher education	26 (14.4)
Race/color	
White	105 (58.3)
Brown	11 (6.1)
Black	60 (33.3)
Oriental	4 (2.2)
Religion	
Catholic	114 (63.3)
Evangelical	54 (30.0)
Without religion	12 (6.7)
Family user/abusive	
Father	95 (52.8)
Brother	16 (8.9)
Mother	8 (4.4)
None	42 (23.3)
Other	18 (10.0)
More than one Family member	1 (0.6)
Absenteeism for abusive consumption	
No	160 (88.9)
Yes	20 (11.1)

It was observed that 60% of the workers had already experienced tobacco. The mean age of the experimenting it was 16.4 years ($SD \pm 3.0$ years).

The earliest use was represented by a worker who began use at age 10. Regarding the use of alcoholic beverages, 90.6% had already done

some type of use, and the earliest use was represented by three workers who started at age 10. The mean age of experimentation was 17.3 years (SD \pm 2.7 years).

Regarding the RRC analysis of tobacco, 19.4% of the workers were classified as moderate

risk and 3.3% as high risk. When aggregating the two categories (moderate and high level), a total of 22.7% who had problematic use of this drug of abuse were obtained (Table 2).

Table 2. Level of risk related to the tobacco products and alcohol use, screened by Alcohol, Smoking and Substance Involvement Screening Test version 3.1 (ASSIST 3.1) of the 180 employees of a metallurgical industry. Sarandi (PR), Brazil, 2015

Drug of abuse	Related risk	n (%)
Tobacco	Low	139 (77.2)
	Moderate	35 (19.4)
	Elevated	6 (3.3)
Alcohol	Low	115 (63.9)
	Moderate	59 (32.8)
	Elevated	6 (3.3)

As for RRC alcoholic beverages, 32.8% of workers presented moderate risk and 3.3% high risk. By aggregating the two RRC categories of alcoholic beverages, we obtained 36.1% of workers who presented problems related to the consumption of these substances.

Regarding to tobacco dependence detected by the FTND, most workers (77.3%) were in the very low risk category or non-smokers, 15.5% were in the low level of dependence on tobacco, 5, 5% were classified as moderate, 1.1% at high level and 0.6% at very high level (Table 3).

Table 3. Results of the Fagerström Test for Nicotine Dependence (FTND) of 180 workers in a metallurgical industry. Sarandi (PR), Brazil, 2015

Fagerström Test	n (%)
Very low/non-smoker	139 (77.3)
Low	28 (15.5)
Medium	10 (5.5)
Elevated	2 (1.1)
Very elevated	1 (0.6)

The number of workers screened with RRC tobacco (at the moderate and high level) by the ASSIST 3.1 instrument was identical to that found in the FTND screening test (at the low, moderate, high and very high levels), that is,

22.7% of the total of metallurgists. Although specific statistical tests were not applied to assess the association between the ASSIST and FTND tests, the two instruments presented very similar results.

Table 4. Multivariate logistic regression analysis of the effect of sociodemographic variables on the level of risk related to the consumption of tobacco derivatives and alcoholic beverages in workers of a large metallurgical industry. Sarandi-PR, 2015.

Substance	Risk Level	Variables	Categories	p-val*	OR (CI95%)
Tobacco products	Moderate	Age	36 to 66 years	<0.001	1.8 (1.1-3.5)
		Housing	Notowner	0.029	2.2 (1.1- 4.7)
		Religion	Catholic	0.020	2.0 (1.0- 4.6)
	Elevated	Family member	User	0.048	1.6 (1.0-4.5)
		Absenteeism	Yes	0.002	2.4 (1.0-6.6)
		Age	36 to 66 years	0.037	1.5 (1.2-10.3)
Alcoholic beverages	Moderate	Housing	Notowner	0.028	3.6 (1.5-24.0)
	Elevated	Age	36 to 66 years	0.001	2.3 (1.1-5.1)
		Housing	Notowner	0.047	1.2 (1.1-1.5)
		Family member	User	0.021	5.0 (1.7-14.2)
		Absenteeism	Yes	0.017	3.2 (1.1-9.5)
		Age	36 to 66 years	<0.001	7.1 (1.7-17.1)

* Significant statistical association at 95% confidence level. OR: odds ratio; 95% CI:95% confidence interval.

The multinomial logistic regression showed that, at the moderate risk level related to the consumption of tobacco products, significant associations with the variables age, in the 36-66 age range, not being a homeowner, being

catholic, living with a drug user family member and absenteeism as a result of alcohol abuse (hangover), while for the high risk level related to tobacco consumption, there were significant

associations with age, age range from 36 to 66 years old and not being a homeowner (Table 4)

The analysis by multinomial logistic regression for RRC levels of alcohol evidenced that, in relation to the moderate risk level, there were significant associations with the variables age, range from 36 to 66 years old, not being a homeowner, living with a drug user family member and absenteeism as a result of alcohol abuse (hangover), while for the high risk level related to alcohol consumption, a significant association was observed with age, ranging from 36 to 66 years.

DISCUSSION

In this study, there was evidence of high use of tobacco and alcohol in life, with consumption beginning in adolescence or early in youth. The second finding was the RRC of tobacco, at moderate and high levels, of 22.7%. Also, the RRC of alcohol was moderate and high, and was 36.1%. The levels of moderate and high risk for tobacco use were statistically associated with age (age range 36-66 years), not being a homeowner, Catholic religion, presence of a tobacco or alcohol user family member, absenteeism as a consequence of alcohol abuse (hangover), and finally, moderate and high risk levels related to alcohol consumption were statistically related to age (age range 36-66 years), not being a homeowner, presence of a tobacco or alcohol user family member, and absenteeism in consequence of alcohol abuse (hangover).

The intense use along life of tobacco and alcohol, verified in this study, was similar to that described in the literature⁽³⁾. In a study of construction workers, 72.4% of workers had used tobacco products, and 91% had used alcohol⁽³⁾. It is worth noting the average age of experimentation of 16 years for tobacco and 17 years for alcohol, and these substances are prohibited for children under 18 years.

Adolescents have free access to tobacco and alcohol and use them with the support of family and friends. The majority of minors who smoke and/or drink do not face any difficulty in acquiring such substances, even in view of their prohibition for those under 18 years of age^(13,14).

Adolescence and early youth are periods in which brain structures responsible for impulse

control are still maturing, and the use of these substances leads to impulsive behavior and immediacy characteristic of that age group. This, together with conflicts with the family and social environment, may exacerbate the vulnerability inherent to this specific population⁽¹⁵⁾, keeping an important relation with the prevalence of habitual use. However, the evolutionary course followed by drug experiments is unknown, indicating that active prevention of onset of consumption may be the only effective means of prevention⁽¹⁴⁾.

In a national survey on alcohol and other drug use, there was a prevalence of 20% of smokers in men in the Southern Region of Brazil, mainly in the 40-49 age group, with a mean age of 15.7 years⁽¹³⁾. Smoking is the most important preventable cause of many diseases, being considered a public health problem, and its control is part of a public policy agenda, aiming to reduce the prevalence of smokers and the consequent morbidity and mortality from related diseases⁽¹⁶⁾.

These actions have shown positive results, as demonstrated by the II National Survey of Alcohol and Drugs (II LEAD), in which there was a 19% decrease in the prevalence of smoking between both sexes and of 22% among men. In the screen study, the prevalence of smoking was very close to that found in the general population of Brazil and the prevalence found in men in the South Region, where approximately one fifth of them use tobacco⁽¹³⁾. These data demonstrate the importance of smoking cessation interventions in the workplace and in the general population. Health policies aimed at smoking cessation would result in a better quality of life for employees and, consequently, a greater return to companies and the country as a whole⁽¹⁷⁾.

If we compare the results of this study with one performed with construction workers in a municipality in the interior of Paraná state, we see that the levels of moderate and high risk related to smoking among workers in the metallurgical industry were smaller and much closer to those found in the general population. The study with construction workers⁽³⁾ showed different vulnerabilities, such as lower average income and educational level, and most of them were over 36 years old; whereas in metallurgical

workers, it was observed that the majority were less than 35 years old, with higher level of education and higher incomes.

A national survey found that 62% of Brazilian men are not abstinent, 47% of them use, on average, five standard doses of alcoholic beverage on the occasion, 63% of them do it at least once a week, 41% started using in the age group 15 to 17 years, and 35% in the age range of 18 years or more, and 66% of men had a binge drinking episode at least once in the last year, showing a tendency of increase in this type of use. The study classified as abuse 3.25% of men and as alcohol dependents 10.48% of the men under study⁽¹³⁾.

The present study corroborated these findings, evidencing that alcohol users in the moderate level were 32.8%, and in this range are the drinkers classified as binge drinking, consumption pattern involving use of five or more doses on a single occasion, being related to a set of biopsychosocial changes, which may present as a risk factor for accidents and violence, among others, and may occur sporadically or usually. Because of its severity, this type of user is the one that most benefits from policies to control and combat alcoholism⁽¹³⁾.

Binge drinking are associated with an increase in violent events, in the family, in the work environment and in traffic, raising the morbidity and mortality statistics by external causes, which is currently recognized as the main protagonist of traumatic pathologies. This results in high costs to the social security and health systems and is the main cause of potential years of life lost through accidents and violence. Binge drinking determines greater severity of injuries and fatality of accidents^(3,18).

Health professionals should actively participate in health promotion programs and projects (including within companies) to prevent drug use. The educational action in health involves professionals, institutions, clientele, family and community, and should focus not only on illicit drugs, but mainly on alcohol and tobacco, which, because they are lawful drugs, have their consumption favored and are largely responsible higher morbidity and mortality, and clinical, psychological, family and social complications^(19,20).

The results of this study may be useful for companies in the metalworking and metallurgical sector, which employ many workers and wish to implement preventive programs that allow the evaluation of the impact of measures adopted for the control of smoking and alcoholism. For nursing, this study points out the need for the team to visualize the work environment as a whole, not only to focus on the classic occupational hazards or the health treatment of alcohol and tobacco users, but to turn their attention to the male population in the work environment and their actions, making it possible to reduce the use of these substances and increase safety and health, benefiting from preventive behaviors for their health^(3,20).

The limitation of this study was the fact that the interviews were carried out in the work environment. This may lead to some kind of evaluation or risk of injury to workers, leading to their lack of sincerity and resulting in undersized data, which, on the other hand, has the advantage of allowing the generation of data from a specific category of workers, the comparison of data and providing subsidies for the implementation of public policies, with a view to smoking cessation.

Metallurgical workers develop their work in an environment with situations of pressure for productivity, with technological and social determinants, which can justify physical and mental stress at work, and may represent a risk for substance use. These working conditions predispose to the search for "escape valves," and drug abuse can typify a risk to these people, worsening quality of life and leading to the development of chronic-degenerative diseases, as well as increasing the risk of accidental work and traffic, due to the depressant effects of the central nervous system, caused by alcohol.

The use of drugs of abuse is a multivariate phenomenon and, before any intervention, we must know the individual characteristics and consider the personal, familiar and environmental factors involved, in order to separate the subjects by them. The same professional approach cannot be offered equally or follow a single drug approach to treat them, since any drug user has a particular profile that must be taken into account.

CONCLUSION

The screening of risk related to tobacco and alcohol use in workers of a large metallurgical industry of a municipality in the State of Paraná showed that levels of risk related to the use of these drugs of abuse are similar to those found in the general population. Most tobacco users are in the low to moderate risk level, being able to benefit from smoking cessation policies, as well as the pattern of use of binge drinking type in the

majority of users of alcohol, representing risk for morbidity and mortality for causes external factors.

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RISCO RELACIONADO AO CONSUMO DE TABACO E ÁLCOOL EM HOMENS TRABALHADORES METALÚRGICOS

RESUMO

Objetivo: Descrever o risco relacionado ao consumo de tabaco e álcool em trabalhadores metalúrgicos. **Métodos:** Estudo transversal com 180 trabalhadores de uma metalúrgica de grande porte, que responderam um questionário que abrangia variáveis sociodemográficas e dois instrumentos para rastreamento do consumo de drogas de abuso. Utilizaram-se estatística descritiva e regressão logística multinomial. **Resultados:** A maioria dos respondedores tinha entre 26 aos 45 anos, era casada, com filhos, católica, branca, com até 11 anos de escolaridade e conviveu com familiar usuário de álcool ou tabaco. Os níveis de risco moderado e elevado de consumo de tabaco e álcool foram, respectivamente, 19,4 e 3,3% e de 32,8% e 3,3%, sendo associados a: faixa dos 36 aos 66 anos, moradia não própria, ser católico, apresentar absenteísmo e convívio com familiar usuário. **Conclusão:** Os níveis de risco encontrados neste estudo foram semelhantes aos da população geral de homens. A maioria dos usuários de tabaco se encontrava nos níveis de risco que permitiam benefícios de políticas de cessação tabágica. Verificou-se, ainda, padrão do tipo *binge drinking* na maioria dos usuários de álcool, representando risco para morbimortalidade para causas externas.

Palavras-chave: Transtornos relacionados ao uso de substâncias. Programas de rastreamento. Enfermagem de atenção primária. Enfermagem do trabalho. Trabalhadores.

RIESGO RELACIONADO AL CONSUMO DE TABACO Y ALCOHOL EN HOMBRES TRABAJADORES METALÚRGICOS

RESUMEN

Objetivo: Describir el riesgo relacionado al consumo de tabaco y alcohol en trabajadores metalúrgicos. **Métodos:** Estudio transversal con 180 trabajadores de una metalúrgica de gran tamaño, que respondieron un cuestionario que trataba de variables sociodemográficas y dos instrumentos para rastreo del consumo de drogas de abuso. Se utilizaron estadística descriptiva y regresión logística multinomial. **Resultados:** La mayoría de los participantes tenía entre 26 y 45 años, era casada, con hijos, católica, blanca, tenía hasta 11 años de escolaridad y convivió con familiar usuario de alcohol o tabaco. Los niveles de riesgo moderado y elevado de consumo de tabaco y alcohol fueron, respectivamente, 19,4 y 3,3% y de 32,8% y 3,3%, asociados a: franja de edad entre 36 y 66 años, vivienda no propia, ser católico, presentar absentismo y convivir con familiar usuario. **Conclusión:** Los niveles de riesgo encontrados en este estudio fueron semejantes a los de la población general de hombres. La mayoría de los usuarios de tabaco se encontraba en los niveles de riesgo que permitían beneficios de políticas para dejar de fumar. Se verificó, aun, estándar del tipo *binge drinking* en la mayoría de los usuarios de alcohol, representando riesgo para morbimortalidad para causas externas.

Palabras clave: Trastornos relacionados al uso de sustancias. Programa de rastreo. Enfermería de atención primaria. Enfermería del trabajo. Trabajadores.

REFERENCES

1. Roche A, Pidd K, Kostadinov V. Alcohol- and drug-related absenteeism: a costly problem. Aust NZ J Public Health. 2016; 40(3):236-238. doi: <http://doi.org/10.1111/1753-6405.12414>.
2. Yi W, Chan A. Health Profile of Construction Workers in Hong Kong. Int. J. Environ. Res. Public Health. 2016;13(12):1232. doi: <https://doi.org/10.3390/ijerph13121232>.
3. Gavioli A, Mathias TA, Rossi RM, Oliveira ML. Risks related to drug use among male construction workers. Acta Paul. Enferm. 2014; 27(5):471-478. doi: <http://dx.doi.org/10.1590/1982-0194201400077>.
4. Félix Junior II, Schlindwein VL, Calheiros PR. A relação entre o uso de drogas e o trabalho: uma revisão de literatura PSI. Estud. e Pesqui. em Psicol. 2016;16(1):104-122. Disponível em: <https://www.e-publicacoes.uerj.br/index.php/revispsi/article/view/24834/17788>.
5. Phillips E, Wang TW, Husten CG, Corey CG, Apelberg BJ, Jamal A, et al. Tobacco product use among adults — United States, 2015. MMWR Morb. Mortal Wkly. Rep. 2017; 66(44):1209-1215. doi: <http://dx.doi.org/10.15585/mmwr.mm6644a2>.
6. Battaues MR, Monteiro MI. Perfil sociodemográfico e estilo de vida de trabalhadores de uma indústria metalúrgica. Rev. Bras. Enferm. 2013; 66(1):52-58. doi: <http://dx.doi.org/10.1590/S0034-71672013000100008>.
7. Ferreira ML, Albertoni MR, Silva NB, Sartes LM. Avaliação da Efetividade da Intervenção Breve para a Prevenção do Uso de Álcool no Trabalho. Rev. Psicol. em Pesqui. 2016;10(1):34-43. doi:

<http://dx.doi.org/10.24879/201600100010045>.

8. Henrique IF, De Micheli D, Lacerda RB, Lacerda LA, Formigoni ML. Validação da versão brasileira do teste de triagem do envolvimento com álcool, cigarro e outras substâncias (ASSIST). *Rev. Assoc. Med. Bras.* 2004; 50(2):199-206. doi: <http://dx.doi.org/10.1590/S0104-42302004000200039>.
9. Humeniuk R, Ali R, Babor TF, Farrel M, Formigoni ML, Jittiwutikam J, et al. Validation of the alcohol, smoking and substance involvement screening test (ASSIST). *Addiction.* 2008; 103(6):1039-1047. doi: <https://doi.org/10.1111/j.1360-0443.2007.02114.x>.
10. Carmo JT, Pueyo AA. A adaptação ao português do Fagerström test for nicotine dependence (FTND) para avaliar a dependência e tolerância à nicotina em fumantes brasileiros. *RBM Rev Bras Med.* 2002; 59(1/2):73-80. Disponível em: <http://bases.bireme.br/cgi-bin/wxislnd.exe/iah/online/?IsisScript=iah/iah.xis&src=google&base=LILACS&lang=p&nextAction=lnk&exprSearch=319174&indexSearch=ID>.
11. Gaya CM, Osório FL, Crippa JA. Teste de dependência à nicotina de Fagerström (FTND). In: Gorenstein C, Wang YP, Hungerbühler I. Instrumentos de avaliação em saúde mental. Porto Alegre: Artmed; 2016. p. 242-246.
12. Agresti A. An introduction to categorical data analysis. 3. ed. Hoboken, NJ, USA: John Wiley & Sons Inc.; 2019.
13. Laranjeira R, org. II LENAD. Levantamento Nacional de Álcool e Drogas. São Paulo: Instituto Nacional de Ciência e Tecnologia para Políticas Públicas de álcool e Outras Drogas (INPAD)/Universidade Federal de São Paulo (UNIFESP), 2014. Disponível em: <https://inpad.org.br/wp-content/uploads/2014/03/Lenad-II-Relat%C3%B3rio.pdf>.

14. Mendes LR, Teixeira ML. Preventive dialogue with adolescents on their knowledge and practices of alcohol consumption. *Cienc. Cuid. Saude.* 2014; 13(1):64-73. Available from: <http://www.periodicos.uem.br/ojs/index.php/CiencCuidSaude/article/view/17943>.
15. Bittencourt AL, França LG, Goldim JR. Vulnerable adolescence: bio-psychosocial factors related to drug use. *Rev.Bioét.* 2015; 23(2):311-319. doi: <http://dx.doi.org/10.1590/1983-80422015232070>.
16. Collins SE. Associations Between Socioeconomic Factors and Alcohol Outcomes. *Alcohol Res.* 2016; 38(1):83-94. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4872618/>.
17. Correa-Fernández V, Wilson WT, Shedrick DA, Kyburz BL, Samaha H, Stacey T, et al. Implementation of a tobacco-free work place program at a local mental health authority. *Transl Behav Med.* 2017; 7(2):204-211. doi: <https://doi.org/10.1007/s13142-017-0476-2>.
18. Andrade SS, Mello-Jorge MH. Mortality and potential years of life lost by road traffic injuries in Brazil, 2013. *Rev.Saúde Pública.* 2016; 50(0):59. doi: <http://dx.doi.org/10.1590/S1518-8787.2016050006465>.
19. Manguera SO, Guimarães FJ, Manguera JO, Fernandes AF, Lopes MV, Manguera SO, et al. Promoção da saúde e políticas públicas do álcool no Brasil: revisão integrativa da literatura. *Psicol. Soc.* 2015; 27(1):157-168. doi: <http://dx.doi.org/10.1590/1807-03102015v27n1p157>.
20. Sajjadi H, Ghaedamini Harouni G, Sharifian Sani M. Personal, Familial and Environmental Determinants of Drug Abuse: A Causal-Comparative Study. *Glob. J. Health Sci.* 2015; 7(4):367-374. doi: <http://dx.doi.org/10.5539/gjhs.v7n4p367>.

Corresponding author: Aroldo Gavioli, Avenida Mandacarú, 1590, Parque da Laranjeiras, CEP 87083-240, Maringá, PR, Brasil. E-mail: gavioli.aroldo@gmail.com.

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