RESEARCH | PESQUISA

Morbidity and mortality and factors associated with death in hospitalized patients resulting from the impacts of alcohol and other drugs

Morbimortalidade e fatores associados ao óbito em internados por efeitos do álcool e outras drogas

Morbimortalidad y factores asociados a la muerte en hospitalizados por los efectos del alcohol y otras drogas

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ABSTRACT

Objective: To describe the hospitalizations resulting from the impacts of alcohol and other drug abuse and factors associated with death. **Methods:** Cross-sectional, observational, and retrospective study, with secondary data from 3,562 admissions recorded at the Center for Information and Toxicological Assistance of a teaching hospital in northwest Paraná, using epidemiological surveillance of active search, from 2009 to 2018. Data were processed using univariate analysis (Pearson's Chi-square test and Fisher's exact test). **Results:** Most were males (89.6%), and the mean age was 43.62 years (±16 years). Most hospitalizations resulted from traumatic events and other external causes (52.1%) associated with the use/abuse of alcoholic beverages (85.8%). The mean length of hospital stay was 34.6 days, and 6.0% died. There was an association between risk of death and endocrine/ metabolic, cardiovascular, gastrointestinal, and genitourinary diseases. **Conclusion:** Hospitalizations with greater severity increase the incidence of deaths, and evidencing the associated factors directs interventions to decrease hospitalizations, reducing complications and deaths. **Implications for practice:** The studies serve as a support for the development of prevention strategies, encouragement for improvement actions in the assistance network for users, strengthening and increasing public policies.

Keywords: Death; Epidemiological Monitoring; Hospitalization; Ilicit Drugs; Indicators of Morbidity and Mortality.

RESUMO

Objetivo: descrever as internações por efeitos do abuso de álcool e outras drogas e os fatores associados ao óbito. **Métodos:** estudo transversal, observacional e retrospectivo, com dados secundários de 3.562 internações registradas no Centro de Informação e Assistência Toxicológica de um hospital de ensino no noroeste do Paraná, por vigilância epidemiológica de busca ativa, entre os anos 2009 e 2018. Os dados foram tratados por análise univariada (teste do qui-quadrado de *Pearson* e teste exato de *Fisher*). **Resultados:** houve predomínio do sexo masculino (89,6%), e a média de idade foi de 43,62 anos (±16 anos). A maioria das internações foi por eventos traumáticos e outras causas externas (52,1%) associadas ao uso/abuso de bebida alcoólica (85,8%). O tempo médio de internação foi de 34,6 dias; 6,0% evoluíram a óbitos. Houve a associação entre o risco para óbitos e doenças endócrinas/metabólicas, cardiovasculares, gastrintestinais e geniturinárias. **Conclusão:** as internações com maior gravidade aumentam a incidência de óbitos, e a identificação dos fatores associados direcionou as intervenções para a redução de internações, minimizando as complicações e os óbitos. **Implicações para prática**: este estudo serve como subsídio para o desenvolvimento de estratégias de prevenção e estímulo para as ações de melhoria na rede assistencial aos usuários, fortalecendo e incrementando as políticas públicas.

Palavras-chaves: Drogas Ilícitas; Hospitalização; Indicadores de Morbimortalidade; Monitoramento Epidemiológico; Morte.

RESUMEN

Objetivo: describir las hospitalizaciones derivadas del abuso de alcohol y otras drogas y los factores asociados a la muerte. **Métodos:** estudio transversal, observacional y retrospectivo, con datos secundarios de 3.562 hospitalizaciones registradas en el Centro de Información y Asistencia Toxicológica de un hospital universitario al noroeste de Paraná, por vigilancia epidemiológica de búsqueda activa, entre los años 2009 y 2018. Los datos se procesaron mediante análisis univariado (prueba chi-cuadrado de *Pearson* y prueba exacta de *Fisher*). **Resultados:** la mayoría eran varones (89,6%) y la edad media fue de 43,62 años (±16 años). La mayoría de las hospitalizaciones se debieron a eventos traumáticos y otras causas externas (52,1%) asociadas al uso/ abuso de bebidas alcohólicas (85,8%). El tiempo de hospitalización media fue de 34,6 días y el 6,0% evolucionó a la muerte. Hubo una asociación entre el riesgo de muerte y las enfermedades endocrinas/metabólicas, cardiovasculares, gastrointestinales y genitourinarias. **Conclusión:** las hospitalizaciones con mayor gravedad aumentan la incidencia de muertes, y la identificación de los factores asociados orientó las intervenciones para disminuir las hospitalizaciones, reduciendo las complicaciones y las muertes. **Implicaciones para la práctica:** este estudio sirve de apoyo para el desarrollo de estrategias de prevención y estímulo para acciones de mejora en la red de atención a los usuarios, fortaleciendo y ampliando las políticas públicas.

Palabras clave: Drogas Ilícitas; Hospitalización; Indicadores de Morbimortalidad; Monitoreo Epidemiológico; Muerte.

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INTRODUCTION

Considered an emerging global social and health problem, alcohol and other drug abuse is a multidimensional phenomenon, which is related to socio-occupational, economic, cultural, and legal problems.[1-4] Due to the serious personal and community consequences and the high prevalence worldwide, facing the consequences of alcohol and other drug abuse interests the academic community and the public authorities, since Public Safety, Education, Health, Justice, and Social Assistance services are affected, as well as family spaces.[1,2]

The World Health Organization (WHO) estimates that 70% of the world's population over the age of 13 consumes alcoholic beverages, and between two and two and a half million people die from the consumption of alcohol.[3,5-7] The effects of alcohol and other drugs can be potentially harmful to health, regardless of the pattern of consumption (quantity and frequency), either by the direct effect of the drugs and/or by their secondary causes, such as non-transmissible chronic diseases, organic gastrointestinal diseases, neurological diseases, and physical trauma, which have an important role in overall morbidity and mortality.[8]

Acute effects are found, such as traffic accidents (acidogenic effect), interpersonal violence, assaults, and falls, and effects due to chronic use, such as the development of chronic non-communicable and infectious diseases (for example lung cancer in smokers, liver cirrhosis in alcoholics, and pulmonary fibrosis in crack users)[9,10] as well as mental and behavioral disorders.[5]

Even with public policies aimed at this problem, patients show high variability of response to interventions and equally high relapse rates, requiring hospitalization.[11,12] Alcohol consumption is directly associated with an increased risk of hospitalization in a large part of the Brazilian population, affecting about three million deaths (5.3%) annually, in addition to temporary or permanent sequelae.[13]

A study of 611 admissions to a general Intensive Care Unit in the United States reported that drugs accounted for 28% of hospital admissions and 39% of hospital costs. Of these admissions, 14% were tobacco-related and resulted in 16% of hospital costs; 9% were alcohol-related, with 13% of costs; and 5% of admissions were related to the effects of illicit drugs.[14]

The magnitude of hospitalizations for mental and behavioral disorders due to the use of alcohol and other drugs is also demonstrated in studies carried out in therapeutic communities; in specialized hospital health services (psychiatric hospitals) with voluntary, involuntary, and/or compulsory admissions; in the Alcohol and Other Drugs Psychosocial Care Centers (CAPSad) and in multi-professional outpatient services.[12,15]

The studies related to the incidence of hospitalization and the morbidity and mortality rate, associated with the effects of alcohol and other drug abuse, contribute to the qualification of the multi-professional team, stimulate epidemiological monitoring, and help managers to strengthen public policies.

This study aims to describe hospitalizations for the effects of alcohol and other drug abuse and the factors associated with death.

METHODS

This is a cross-sectional, observational, retrospective study, with analysis of hospitalizations for the effects of alcohol and other drugs in a teaching hospital in northwestern Paraná, contained in the Inpatient Database - Active Search, which was built from records of a Center for Information and Toxicological Assistance (CIAT), in the period from January 1, 2009, to December 31, 2018. For the reporting of this study, the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines were followed.[16]

The active search for cases was performed daily in medical charts and patient records in all sectors of the hospital, with subsequent completion of the Toxicological Occurrence of Alcohol Intoxication and/or Other Drugs of Abuse (TO/IA) epidemiological forms, which provide data on the identification of the intoxicated person, the toxicological occurrence, treatment, clinical evolution and outcome,[17] and the inclusion of cases in the CIAT database.

The study population was represented by 3,562 patients hospitalized for the effects of alcohol and other drugs, enrolled by the method of epidemiological surveillance of active search, and registered in CIAT in the observed period. The eligibility criteria were: individuals admitted to the Maringá Regional University Hospital, regardless of geographic origin, gender, age, and admission unit. Hospital admissions were considered as admission and stay in the hospital for a period longer than 24 hours.[18] Three records with a stay of less than 24 hours were excluded.

As a data source, the hospital records were used to prepare the structured digital form called Inpatient Database - Active Search.

Data collection occurred in the year 2019 in two moments: a) initially the hospital records were audited and the admissions for the effects of alcohol and other drug abuse, which occurred in the teaching hospital, were selected; b) subsequently the data were compiled in a structured form in Microsoft Office Excel 2016, called Hospitalized Patients - Active Search.

The Hospitalized Patient Database - Active Search is a digital form to be filled out monthly, and then grouped by year, composed of two modules: sociodemographic variables and hospitalization variables. The sociodemographic variables investigated were: sex (male and female), age in age group (13 to 17 years, 18 to 30 years, 31 to 59 years, 60 to 80 years, and older than 80 years), and labor market status (employed/formal contract, retired/household, unemployed/self-employed). The hospitalization variables were: year (2009 to 2018), date of hospitalization (day of hospitalization), reason for hospitalization (leading cause), causative agent (type of drug), circumstance of hospitalization (acute or chronic) medical diagnosis (international disease code, according to International Statistical Classification of Diseases and Health-Related Problems, 10th edition - ICD-10: (A00-B99, F10-F19, F00-F99, G00-G99, I00-I99, J00-J99, K00-K93, M00-M99, N00-N99, O00-O99, R00-R99, S00-T98, and V01-Y98), sector of hospitalization (Emergency Room, Internal Medicine, Surgery or Gynecology and Obstetrics and

Intensive Care Unit), duration of hospitalization in days and outcome (improved discharge, transferred discharge or death).

The data collected were processed using IBM Statistical Package for Social Sciences (SPSS) software. The dependent and independent variables were treated by descriptive statistics and univariate analysis, using Pearson's test and Fisher's exact test, to verify statistical associations. The strength of the associations was analyzed using the Relative Risk (RR) and its respective 95% Confidence Interval (95%CI).

The study complied with the national and international standards for ethics in research involving human beings and was approved by the Ethics Committee for Research with Human Beings of the State University of Maringá under Opinion No. 4.010.048/2020.

RESULTS

The monthly average of hospitalizations was 29.7 patients and the annual average was 356.2 patients. The years with the highest number of hospitalizations were 2011 and 2012, with a total of 911 hospitalizations (25.5%). From 2013 on, there was a decline in the annual number of hospitalizations in the database (Figure 1).

There were 213 deaths, with an annual average of 21.3. The year 2017 had the highest number of deaths (28; 13.1%), and the mortality rate was 7.9% of all inpatients.

The sociodemographic data selected for the hospitalized individuals and the circumstances of intoxication are presented in Table 1. In 81.4% of the hospitalizations, the evolution of intoxication was associated with the chronic effects of alcohol and other drugs.

It was observed that 89.6% of the inpatients were male, and the average age was 43.62 years (±16 years), with a predominance in the age range of 31 to 59 years. Most patients (6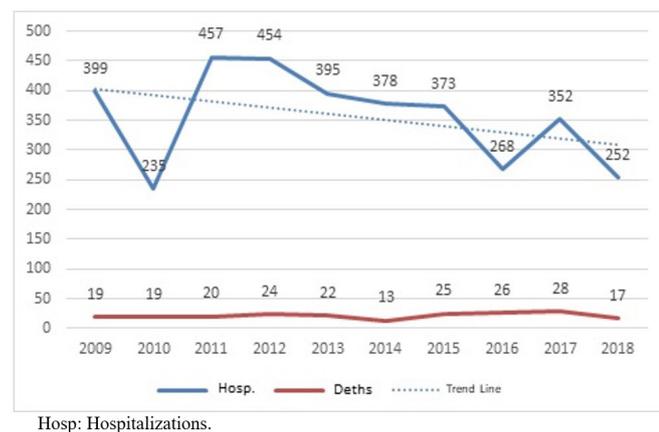4.4%) were employed, with a similar formal work contract for both genders, although this was verified in 66.0% of the cases. Regarding the distribution by sex, 83.2% were men. The male gender represented 88.3% of chronic hospitalizations in the 31 to 59 age group. Regarding the female gender, 43.3% were acute hospitalizations in the 18 to 30 age group.

The predominance of hospitalizations was for alcohol abuse, representing (85.8%), followed by the association of alcoholic beverages and illicit drugs (marijuana, ecstasy/MDMA, cocaine, and crack). Crack abuse was reported in isolation in 5.7% of individuals and marijuana in 1.4% of patients.

A single hospitalization was recorded in 3,463 cases (88.7%), but of the total number of cases, 278 (7.8% of the hospitalizations) recorded 399 readmissions, ranging from two to seven readmissions, and 69.6% of them had two readmissions (Table 2).

The emergency care unit was the sector with the largest record of hospitalizations (81.0%), but 3.9% occurred in the Intensive Care Unit, indicating the clinical severity of the patients.

Hosp: Hospitalizations.

Figure 1. Number of hospitalizations and deaths from the effects of alcohol and other drug abuse, according to year of hospitalization. Maringá (PR), Brazil, 2009 to 2018.
Source: Research data.

Table 1. Sociodemographic characteristics of individuals hospitalized for effects of alcohol and other drugs, and evolution of intoxication. Maringá (PR), Brazil, 2009 to 2018.

Variable	Evolution of intoxication		Total
	AI	CI	
Sex			
Male	534 (16.8)	2,660 (83,2)	3,194 (89.6)
Female	130 (35.3)	238 (64.7)	368 (10.4)
Age, years			
13-17	43 (62.4)	26 (37.6)	69 (1.9)
18-30	346 (43.3)	452 (56.7)	798 (22.4)
31-59	243 (11.7)	1.834 (88.3)	2.077 (59.9)
60-80	29 (5.0)	543 (95.0)	572 (14.4)
>81	1 (2.0)	45 (98.0)	46 (1.2)
Situation in the labor market *			
Employed/formal contract	306 (13.0)	1.209 (51.4)	1,515 (64.4)
Retired/at-home	32 (1.3)	387 (16.4)	419 (17.8)
Unemployed/self-employed	69 (2.9)	349 (14.8)	418 (17.7)

Key: Results expressed by n (%). * n= 2,352 individuals with complete information. AI: Acute Intoxication; CI: Chronic Intoxication.
Source: Research data.

Table 2. Characteristics of individuals hospitalized for alcohol and other drugs effects (n=3,562). Maringá (PR), Brazil, 2009 to 2018.

Variable/Categories	n(%)
Sex	
Male	3.194 (89,6)
Female	368 (10,4)
Drug abuse	
Alcoholic beverage	3,058 (85.8)
Alcoholic beverage + ilicit drugs*	241 (6.7)
Cocaine/crack	205 (5.7)
Marijuana	46 (1.4)
Other drugs†	12 (0.4)
Number of hospitalizations	
Single	3,163 (88.7)
Multiple	399 (11.3)
Hospitalization Sector	
Emergency Room	2,883 (81.0)
Clinical/Surgical/GO	539 (15.1)
ICU	140 (3.9)
Hospitalization, days	
1-3	1,379 (38.7)
4-9	692 (19.4)
10-20	576 (16.1)
21-30	409 (11.4)
31-60	287 (8.0)
61-100	157 (4.5)
>100	62 (1.9)
Outcome	
Improved hospital discharge	3,057 (85.8)
Hospital Discharge by Transfer	292 (8.2)
Death	213 (6.0)

Key: Results expressed by n (%). * Alcohol + marijuana + ecstasy + cocaine and crack; † inhalants and solvents, ecstasy, and lysergic acid diethylamide, known by the acronym LSD.
Source: Research data.

The minimum length of stay was 24 hours/1 day and the maximum 246 days, with a mean of 34.6 days. In 41.9% of the inpatients, the hospitalization period was longer than 10 days.

Regarding medical diagnosis coded by ICD-10, the following pattern was observed: 35.5% with a diagnosis of external causes of morbidity and mortality (V01-Y98), 16.6% of injuries, poisoning, and other external causes (S00-T98), 16.1% of gastrointestinal diseases (K00-K93), and 11.3% of other symptoms not specified elsewhere (R00-R99). The data from the univariate association analysis are described in Table 3.

A significant association was observed, in the sense of risk, between deaths and endocrine and metabolic (E00-E99), cardiovascular (I00-I99), gastrointestinal (K00-K93), and genitourinary (N00-N99) diseases. The statistical association between the occurrence of deaths and injuries, poisoning, other and external causes (S00-T98), and external causes of morbidity and mortality (V01-Y98) was significant, however, the direction of the association was protective.

When analyzing the outcome of the cases, 94% were discharged from the hospital, gastrointestinal diseases (K00-K93) had the highest rate of total deaths (42.7%), but hospitalizations classified by ICD-10 category (gastrointestinal diseases - K00-K93) were recorded in 576 individuals, which represents 16.1% of total hospitalizations.

DISCUSSION

The identification of factors associated with hospitalization for the effects of alcohol and other drug abuse is important for the development of actions and strategies to prevent hospitalizations and measures to monitor drug-related diseases.[1,2,13,14]

The findings of sociodemographic characterization corroborated the results of the literature,[19-21] which show a male predominance in the consumption of alcohol and other drugs, and drug use disorders.

Sex-specific differences in drug use are related to biological, psychological, and social factors, which can directly affect the clinical picture, stabilization, and outcomes. The lower the education, the greater the sex differences in the prevalence of drug use, due to different patterns of consumption in men and women. Sex itself is not a predictor of retention, completion, or outcome of treatment.[22,23]

The average age of first use of alcohol and other drugs in Brazil is 12.5 years old. Half of the adolescents aged 13 to 15 years have drunk at some point in their lives. Studies suggest that the earlier the onset of alcohol and other drug use, the greater the likelihood of developing harmful patterns, such as dependence and drug-related problems, such as accidents, chronic diseases, hospitalizations, sequelae, or even death.[24,25]

Drug use turns out to be normative in young people, and this may have an important association with the prevalence of habitual use in adulthood, and constitute sustained and long-lasting consumption. However, it is known that the evolutionary course followed by experiences with alcohol and drugs is unknown, indicating that active prevention at the onset of consumption may be the only effective means of prevention.[10,12]

The age profile found in this study corresponds to the economically active age since most cases were reported in individuals who reported being employed - despite the precariousness of work contracts and the high informality. However, the situation in the labor market was the variable with the highest number of unrecorded information, possibly justified by the patient's refusal of

Table 3. Univariate analysis between medical diagnoses, according to the International Statistical Classification of Diseases and Health-Related Problems, 10th edition, and outcome of 213 deaths that occurred in individuals hospitalized for the effects of alcohol and other drugs, at the University Hospital of Maringá. Maringá, Paraná, Brazil, 2009-2018.

Categories (ICD-10)	n (%)	Outcome		Total	X^2*	P value†	RR (RI95%)
		Discharge	Death				
External causes of morbidity and mortality (V01-Y98)	1,268 (35.5)	1,246	19	1,265	68.96	<0.001‡	0.2 (0.27-0.12)
Injuries, poisoning and other external causes (S00-T98)	593 (16.6)	570	12	582	18.13	<0.001‡	0.3 (0.52-0.18)
Gastrointestinal Diseases (K00-K93)	576 (16.1)	485	91	576	115.94	<0.001‡	3.9 (3.03-4.94)
Other NEOP symptoms (R00-R99)	404 (11.3)	371	33	404	3.47	0.062	1.4 (1.00-2.05)
Drug Use Disorders (F10-F19)	216 (6.0)	208	8	216	2.11	0.191	0.6 (1.19 - 031)
Cardiovascular Diseases (I00-I99)	187 (5.2)	168	19	187	5.39	0.020‡	1.8 (1.13 -2.78)
Respiratory Diseases (J00-J99)	131 (3.7)	119	12	131	1.90	0.167	1.6 (0.89 -2.74)
Infectious and Parasitic Diseases (A00-B99)	61 (1.7)	54	7	61	3.34	0.067	2.0 (0.95 − 4.00)
Pregnancy, childbirth and puerperium (O00-O99)	47 (1.3)	47	-	47	-	-	0.0 (0.00-0.00)
Genitourinary Diseases (N00-N99)	31 (0.9)	27	4	31	1.57	0.209§	2.2 (0.86-5.56)
Endocrinological and metabolic diseases (E00-E99)	27 (0.8)	22	5	27	7.62	0.005‡	3.1 (1.39 − 7.11)
Nervous System Diseases (G00-G99)	21 (0.6)	18	3	21	1.32	0.250	2.4 (0.83-7.03)
Osteomuscular diseases (M00-M99)	8 (0.2)	8	-	8	-	-	0.0 (0.00-0.00)
Other mental disorders (F00-F99)	6 (0.2)	6	-	6	-	-	0.0 (0.00-0.00)

Key: * Value of the chi-square statistic; † Value of significance; ‡ Significant association at the 0.05 level, § Significant association in Fisher's exact test. ICD-10 International Statistical Classification of Diseases and Health Problems, 10th edition; RR: Relative Risk; 95%CI: 95% Confidence Interval; NEOP: Not Elsewhere Specified.
Source: Survey data.

information during the data collection approach to hospitalization or by the absence of this questioning to the patient.

In a study on factors associated with alcohol use in men, it was found that the risk of developing alcohol use disorders peaked at 30 years of age, with a higher risk in older men than in young men, and a higher prevalence was observed in married, unemployed men with no mental comorbidities.[13,26]

Worldwide, alcohol use disorders are known to be the most prevalent of all substance use disorders, resulting in high potential years of life lost to disability. In studies of drug users, men with lower educational levels have been found to have higher prevalences of binge drinking and heavy substance use than those with higher educational levels. In this sense, unemployment was also associated with heavy drug use.[22,25]

The use of alcohol and drugs is related to an increase in the prevalence of traumatic injuries, both to users and to others, and the victims are mainly women and young people. In a study conducted in New Zealand, it was observed that most of the available data describe assault and crime, as well as unintentional injuries due to traffic accidents, falls, fires, and others, which are acute effects of alcohol and other drug abuse.[27]

More than half of the Brazilian population between 12 and 65 years of age declared having consumed alcoholic beverages at some point in their lives. Approximately 14% of Brazilian men have driven after consuming alcohol; among women, this estimate was 1.8%. The percentage of people who were involved in traffic accidents while under the influence of alcohol was 0.7%.[9]

Alcohol use as the main reason for hospitalizations may be related to the constant, uncontrolled and progressive use of alcoholic beverages, which can seriously compromise the proper functioning of the body and lead to irreversible consequences. The alcohol-dependent person, besides harming his own life, affects his family, friends, and work colleagues.[12,28] The greater the consumption of alcoholic beverages, the greater the risk for chronic and infectious diseases, in addition to hospital admissions.[29]

Binge drinking was the main reason for emergency room visits and hospital admissions. Many users had coexisting psychiatric comorbidities. Alcohol and other drug-related hospitalizations

were due to acute or chronic complications related to substance abuse, and are directly associated with cost and mortality.[9,30]

Currently, polydrug use (or simultaneous use of different drugs)[9] is mainly associated with young people. This type of use is a potential cause of damage and injuries that require care in urgency and emergency services, requiring that general hospitals make adjustments and implement protocols that meet this demand, strengthening and articulating periodic strategies and updates with professionals from urgency and emergency services.[31,32]

The consumption of alcohol and other drugs is also directly related to organic diseases and dysfunctions. According to the WHO, there is a causal relationship between the consumption of alcohol and other drugs, and more than 60 types of diseases, including cardiovascular, gastrointestinal, neuropsychiatric conditions, and a variety of neoplasms.[5] The main factors associated with gravity are related to the type and quantity of drugs consumed. The combination of alcohol abuse and the use of other drugs can have a synergistic effect, increasing the probability of injury, either intentional (for example: self-inflicted or related to violence) or unintentional (for example, automobile accidents, poisonings, falls, fires, and others), causing incapacity and increasing the number of cases around the world, with a high number of deaths.[31]

Although the emergency room is a convenient place to study the association between drug use and injuries, individuals with a high prevalence of alcohol and other drug use go to the emergency room due to acute conditions such as trauma and self-injury, and/or chronic and acute conditions such as liver and gastrointestinal diseases.[13,30] The urgency and emergency services, especially the general emergency rooms, are not prepared structurally or with qualified professionals to deal with mental disorders associated with alcohol and other drug abuse.

In some countries, screening for alcohol and other drugs is often performed on patients admitted to the emergency room when drug intoxication is suspected. However, this practice is often questionable, since such tests are expensive and can lead to false-negative results when such drugs are used at low doses. Despite some evidence that toxicological screening may be unnecessary or unproven cost-effective, it appears to be one way, in conjunction with taking a clinical history, to promote better identification of such cases in the emergency room.[7,31]

Alcohol causes a higher number of accidents and traumas in relation to clinical diseases, but the mortality rate in the analyzed public is higher in metabolic clinical diseases. A high percentage of those injured in alcohol-related traffic accidents were not responsible for their drinking, and this represented about one in eight of all those injured, similar to what was observed in unintentional residential fire deaths that affected innocent victims of alcohol-related fires.[6,27]

Gastrointestinal diseases, especially digestive bleeding and liver cirrhosis, are the main diseases associated with alcohol consumption and deserve emphasis because of their high

incidence of morbidity and mortality due to the chronic effects of alcohol. It is estimated that 48% of deaths and 47% of days of life lost by disability (DALYs) are associated with alcoholic cirrhosis, and liver cancer is the one with the highest incidence and mortality.[29]

The high number of hospitalizations due to the effects of alcoholic beverages, classified as injuries and external causes of morbidity and mortality, showed low mortality when compared to endocrine and metabolic, cardiovascular, and gastrointestinal diseases. These factors may be related to the worsening of chronic diseases, due to the effects of alcohol, leading to complications in other organ systems, frequent readmissions, and higher mortality rates, when compared to trauma and external causes.

The severity of the cases causes temporary and/or permanent disability and death, being related to the excessive consumption of alcoholic beverages and generating several health problems, such as cirrhosis, pancreatitis, esophageal varices, dementia, polyneuropathy, myocarditis, malnutrition, hypertension, heart attack, certain types of cancers, and musculoskeletal injuries related to external causes, such as trauma and violence.[33,34]

Hospital readmissions due to the effects of alcohol and other drugs are associated with the chronic evolution of intoxication and a higher probability of death, with a longer period of hospitalization and higher costs, compared to hospitalizations not related to drugs of abuse.[35] Long-term hospitalizations cause absence from work and social activities, with a higher incidence for the development of other comorbidities and sequelae.

Individuals who seek care early have a better chance of treatment and recovery. This opens a window of opportunity for intervention, trying to reduce morbidity and mortality indicators. In addition, it can help identify the severity factors early by proposing rehabilitation actions and avoiding the most severe form of addiction, clinical illnesses, and associated traumatic events.[3,6,7]

The disease-related consequences attributable to the use of alcohol and other drugs vary substantially in different geographic locations, being greatest in countries with a low and medium-high Human Development Index (HDI), such as Brazil. Much of this burden is due to the effect of substance use on other health outcomes, such as risky sexual behavior, increased mortality from violence, and external causes. This results in overburdened health services for the treatment of these people, with long periods of hospitalization. Furthermore, the chronic non-communicable diseases, directly caused by the effects of substances, such as psychiatric disorders and chronic liver disease, cannot be forgotten.[6]

It is noteworthy that alcohol abuse is associated with clinical severity and mortality. Estimates indicate that about 3.3 million people die each year due to the harmful use of alcohol, that is, almost 6% of deaths are attributed totally or partially to alcohol. Young age groups (20 to 49 years old) are the most affected by alcohol-related deaths, representing a significant loss of economically active persons.[5]

CONCLUSION AND IMPLICATIONS FOR PRACTICE

Most hospitalizations were for alcohol use disorders (alcoholic beverages), and the main causes of hospitalizations were external morbidity and mortality. Severity factors increased the incidence of deaths. The outcome death was statistically associated with endocrine and metabolic, cardiovascular, gastrointestinal, and genitourinary diseases, with the association in the sense of risk and with injuries, poisoning, and others, besides external causes of morbidity and mortality, but the sense of the association was of protection, for its reference of medium complexity for trauma.

The findings show relevance for the identification of factors associated with the severity and death of hospitalizations for the effects of alcohol and other drugs, aiming at the development of interventions to reduce the number of hospitalizations, minimizing sequelae and deaths.

The limitations of the study are related to the research with secondary data and, because it is a local macro-regional reference scenario, it demonstrates the reality of hospitalizations in a general hospital, and with signs and symptoms associated with the direct and indirect effects related, in turn, to the consumption of alcohol and other drugs.

The study reinforces the importance of identifying factors associated with signs of severity in individuals hospitalized for drug effects. Research related to alcohol and other drug abuse is important and serves as a subsidy for the development of prevention strategies, as well as a stimulus for actions to improve the care network for users, strengthening and increasing public policies and health management.

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AUTHOR'S CONTRIBUTIONS

Study design. Cleiton José Santana. Magda Lucia Félix de Oliveira.

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