

## CORRELATION BETWEEN ALCOHOL CONSUMPTION AND LEVELS OF VIOLENCE IN AN AMAZONIAN CITY ON THE BORDER WITH BOLIVIA

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**ABSTRACT:** Alcohol consumption is a prehistoric habit. There is archaeological evidence of its use in celebrations, rites, or simple crowds of individuals. With the civilizing process, the consumption of alcoholic beverages was incorporated into acceptable social standards. Several scholars have concluded that alcohol is the substance most linked to behavioral changes caused by psychopharmacological effects that result in violence. Empirical and scientific evidence reveals that alcohol is a significant substance in conjunction with different forms of violence. The focus of this work is to know the scenario of alcohol consumption (beer) and violence in a Brazilian city, in the Western Amazon, which borders the Republic of Bolivia. Thus, this work aims to analyze the correlation between the consumption of alcoholic beverages in

this city, through a survey of the volume sold by the existing distributors in the city, in relation to drug trafficking, robbery, traffic accidents and physical aggression. The research method was inductive. The methodology was based on primary research to collect field data at the level of the city's neighborhoods and secondary research to build the theoretical and methodological basis. The result shows a high positive correlation between the consumption of alcoholic beverages (beer) and some aspects of violence studied, which is consistent with other studies in this line of approach

**KEYWORDS:** Correlation. Alcoholic beverages. Urban violence. Western Amazon

## INTRODUCTION

North [1] points out that institutional models tend to reinforce themselves, even when they are socially inefficient. It is easier for individuals to adapt to existing rules than to try to change them. When development takes a certain direction, organizational culture, customs and mental models of the social world reinforce this trajectory, that is, push it to move in the same direction

To illustrate this thesis, North uses the example of piracy activity. According to North, the fact that in a society whose institutional matrix rewards piracy, pirate organizations will tend to prosper. As highlighted by Toyoshima [2], this example shows that developed institutions are not necessarily efficient for the economic development of countries, given that institutional arrangements are largely shaped by the interests of those who have bargaining power. If pirates have such power in society, institutions tend to primarily serve their interests

Thus, for North, if such self-reinforcing mechanisms work, the past history of institutions is important for the determination of the present institutional structure, and this, in turn, will influence the future institutional matrix. The connection of the past with the present and the future is given by history, which means that institutions have characteristics of path dependence [2]

When observing the work of Veblen [3] it is verified that the human history followed the line of the own history of the evolution of the social institutions. For him, only in a historical framework of specific institutional reference do the common patterns of human behavior acquire concrete, particular characteristics [4]. In this sense, Veblen [3] reveals that in economic life, as in other areas of human conduct, habitual modes of activity and relationships appeared and were, by convention, transformed into a web of institutions. These institutions [...] have a customary prescriptive force of their own [...]. If the opposite were true, if men universally acted not on the basis of the conventional foundations and values of the fabric of institutions, but only and directly on the basis and values of the unconventional propensities and aptitudes of hereditary human nature, there would be no institutions or culture. But the institutional structure of society subsists and men live within its limits

Current situations shape future institutions through a selective and coercive process, which acts on men's habitual view of things, and thus alters and strengthens a point of view or a mental attitude inherited from the past. The institutions - that is - the habits of thought-under whose guidance men live, are thus received from an earlier age. Institutions are the product of the past process, they are adapted to past circumstances and, therefore, they are never fully in accordance with the requirements of the present. At the same time, the current habits of men tend to persist indefinitely, except when circumstances force a change. These institutions, attitudes and mental aptitudes are therefore conservative factors. This is the factor of social inertia, psychological inertia, conservatism. The evolution of society is substantially a process of mental adaptation on the part of individuals under the influence of circumstances that will no longer tolerate habits of thought formed under and according to a different set of circumstances in the past. These are Veblen's observations [5]

This work seeks to analyze the level of civility in this border municipality, from the analysis of factors that portray criminality and other deviations of virtue that are being put as self-reinforcing mechanisms of an institutional design that, in principle, lacks change. It should be noted that the consumption of alcoholic beverages is a prehistoric habit. There is archaeological evidence of its use in celebrations, rites or simple gatherings of individuals. With the civilizing process, the consumption of alcoholic beverages was incorporated into acceptable social standards. However, the association of alcohol consumption with dependence, antisocial behavior and violence has left throughout history the perception that there is a fine line between acceptable consumption and its psychotropic effects [6]

The interface between alcohol consumption and violent or aggressive behavior has been the subject of intense research around the world. Although the direct association is difficult, it is possible to suggest that the inappropriate consumption of alcoholic beverages is related to violent crimes. However, other criminogenic factors must always be considered [7]

According to Chalub [8], the vast majority of studies focused on the relationship between drugs and crime prove that there is indeed a correlation between disorders developed by drug effects and crime. It is possible to verify that there is a large number of violent acts when alcohol or illicit drugs are present among aggressors, their victims or both. According to Laranjeiras; Dualibi; Pinski [9] the relationships are multiple and varied, but alcohol consumption is at least an important facilitator of situations of violence. There is no lack of scientific evidence of their participation in homicides, suicides, domestic violence, sexual crimes, being run over and accidents involving drunk drivers. In the border region of the Amazon, it is quite common for adolescents to have very early access to the use of illicit drugs and licit drugs, if we consider alcoholic beverages, especially the consumption of cachaça and beer

Therefore, alcohol is a depressant drug and the initial doses anesthetize the censoring mechanisms. The emergence of aggression is related to the basic personality of each one. People who have some degree of latent violence, when sober, under the influence of alcohol have this characteristic of the released personality. Censorship relaxes, and aggressiveness emerges [10]

Thus, as a way of illustrating the problem, the following questions were formulated: Does the consumption of alcoholic beverages in Guajará-Mirim present a statistical correlation in relation to drug trafficking, theft, robbery, traffic accidents and physical aggression? What is the average per capita alcohol consumption per year in this city? What problems can this consumption bring to the environment? Faced with these questions, the objective was to analyze the correlation between the consumption of alcoholic beverages and the levels of violence in the neighborhoods of the city of Guajará-Mirim, State of Rondônia, on the border with Bolivia

## **THEORETICAL FOUNDATION**

### **Use of alcoholic beverages: an approach**

The consumption of alcoholic beverages is a behavior adapted to most cultures, and its use is associated with celebrations, business and social situations, religious ceremonies and cultural events, and its use provides perceptions of pleasure for many users [11]; [12]. Studies on the history of alcohol consumption in classical antiquity report that Greeks and Romans drank wine at night, after meals as a way of stimulating sociability. At the time, drinking before the end of the day was considered an eccentricity. The wine was mixed with two parts water to one part wine. Drinking pure wine was seen as a non-citizen act. In Greece, drinking wine mixed with water was also a habit [13]. At the end of the 17th century, its consumption was seen as a social custom. At that time, drunkenness was not considered a drinking problem, but a drinker's problem. The drink was considered almost like divine nectar. Many differences in the context of the ancient world to the present day justify a change of conception [14]

At the end of the 18th century and the beginning of the Industrial Revolution, major demographic and behavioral changes took place. Associated with this, there was a greater diffusion of distillates and consequently greater consumption, leading to a considerable increase in the number of people with problems resulting from the use of the drink. In addition, with the advent of industrialization, the alcoholic beverage starts to be produced on a large scale, resulting in a reduction in consumer prices, which stimulated its commercialization. Social changes and the consequences of wars marked the 19th century, causing suffering and spreading the abusive consumption of alcohol and other drugs [15]; 16]

Alcohol is perhaps one of the most used psychoactive substances worldwide and, depending on the dose, frequency and circumstances, it can be consumed without problems [17]. However, the habit of drinking moderately or "socially", as they say, sometimes makes a person tolerant of drinking and that person can turn into a problem drinker or an alcoholic [15]. Studies indicate that an important fraction of the population replaces this recreational use with others, called risky or harmful, which can cause serious physical, psychological and social consequences [17]

In the Global Report on Alcohol and Health – 2018 [12] it is estimated that worldwide in just one year, more than half (57% of people) of the global population aged 15 years and over (44.5%) have never consumed alcohol and about 2.3 billion people are current drinkers (drinkers in the last 12 months). The world average per capita consumption was 6.4 L of pure alcohol. In Brazil, the estimated consumption in 2016 was 7.8 L of pure alcohol per capita. Brazilian consumption is below the average for the Americas region (8L of pure alcohol per capita); but higher than the world average (6.4 L)

Since ancient times, the effects of drinking are known, but only drunkenness was considered a disorder linked to the use of drinks. It was only in the second half of the 19th century that alcoholism was accepted as a disease [18]. The consumption of alcoholic beverages is a worldwide phenomenon that transcends national, cultural, social, political and economic borders, which can result in numerous complications that cover the physical, legal, professional, school, social and family areas [7]

## **Effects of Alcoholic Beverages**

Alcohol is a psychotropic drug whose consumption is admitted and even encouraged by society, despite its abusive consumption being an important public health problem, as it has been identified as responsible for a large number of traffic and work accidents, domestic violence and increased morbidity and mortality from cardiovascular disease, liver cirrhosis, stroke, and psychiatric disorders [19]. Corroborating, Brasil [20] highlights that the irregular and frequent use of drink is considered a public health problem, as it is the most used drug worldwide, legally commercialized and encouraged by society. And also for being one of the predominant risk factors for chronic non-communicable diseases (NCDs). For Toledo [21] inappropriate drinking is, if not the main reason, one of the causes of several health problems, such as hypertension, liver disease, dependence on illicit chemical substances, mental and psychological disorders. It is also one of the main causes of traffic accidents, homicides, domestic violence, unwanted pregnancy, transmission of sexual diseases, among others

Harmful consumption of alcoholic beverages is a serious public health problem that has progressively increased. Mortality and functional limitations caused by the abuse of alcoholic beverages entail high costs to the health system [22]. According to Mascarenhas et al [23] injuries from external causes attributed to the consumption of alcoholic beverages are increasing worldwide, being a more evident problem in care provided in emergency services. For the author, the evidence obtained in these scenarios constitutes an agile way of collecting useful information on the relationship between alcoholic beverages and external causes, enabling the elaboration of strategies and public policies aimed at more effective interventions on a large scale

In Costa's opinion; Pombo [24] alcoholic beverage is the substance most associated with crime, as its consumption can trigger impulsive disinhibitory effects. It can involve both the violent act itself and the victim. On the one hand, the state of intoxication can facilitate the situation of violence, on the other hand, it can be prevented from defending itself more effectively. For Souto et al [25] violence, as a socio-historical phenomenon accompanied by the experience of humanity, becomes a public health problem, as it affects individual and collective health, and for its prevention and treatment, it requires the policy formulation and organization of specific practices and services in the public health sector, public security, citizenship, among others. In addition, these authors emphasize that violence burdens the health system due to expenses with hospital care, the reduction of years of productive life, the possibility of leaving sequelae to the victims and the increase in mortality. Furthermore, it is clear that not only the victim suffers from the aggression; the family, caregivers and health professionals are also involved. The consequences of the use of alcoholic beverages also burden society, directly and indirectly, increasing costs in hospitals and other devices of the health system, judicial system, social security, loss of work productivity, absenteeism, unemployment, among others. In addition, worldwide, it is noted that the younger age groups (20-49 years) are the main affected in relation to deaths associated with the use of alcoholic beverages, translating into a greater loss of economically active people [26]

According to the Global Report on Alcohol and Health 2018 [12], in 2016, harmful use of alcohol resulted in about 3 million deaths (5.3% of all deaths) worldwide. In addition to 132.6 million disability-adjusted life years (DALYs) or 5.1% of all DALYs in that year. Mortality resulting from the consumption of alcoholic beverages is higher than that caused by diseases such as tuberculosis, HIV/AIDS and diabetes. This report also states that there has been a decrease in the global level of deaths and morbidity attributable to alcohol consumption (13.0% and 10.6%, respectively); however, the global burden of disease attributable to alcohol consumption is still very significant. The consumption of alcoholic beverages can cause dependence and the disorders resulting from irregular and abusive use negatively affect family members and massively contribute to domestic violence, interpersonal conflicts, separation from the couple, neglect of children, financial and legal difficulties, and clinical problems [27]

According to Monteiro [28] the consumption of alcoholic beverages represents a major social, economic and health challenge that affects millions of people around the world. For the author, there is no single solution to this complex problem, to which are added the specific difficulties of different governments in dealing with the issue of alcohol consumption and implementing the necessary measures to reduce it

According to Jorge et al [29] social capital is increasingly studied for its contextual influence on health, with emphasis on the characteristics of the social environment, based on the idea that relationships have an important impact on health and in well-being, as the ability of a community to engage in collective action through the existence of cohesive

relationships. For the authors, social capital can be considered a determinant of the health of a population, as health is influenced by demographic, socioeconomic and behavioral factors, as well as by the ability to deal with problems. Therefore, the authors developed a study to assess the prevalence of alcohol consumption and association with social capital and socioeconomic factors in adolescent students. They concluded that adolescents with better socioeconomic status and lower perception of social capital were more likely to present a behavior of abusive consumption of alcoholic beverages. According to Moraes et al [30] alcoholism, when compared to other health problems, is responsible for generating three times more sick leaves, five times increasing the chances of accidents at work, eight times increasing the use of daily hospitals and also lead families to use medical and social assistance three times more. For the authors, the impact of the social cost generated by the abuse of alcoholic beverages and the investments made are notable to significantly reduce the problems arising from this practice, such as crime, accidents, domestic violence, absenteeism, unemployment and others

### **Harmful use of alcoholic beverages and sustainable development**

The concept of sustainable development results from a relatively long historical process of critical reassessment of the relationship between civil society and its natural environment [31]. To be sustainable, development needs to be socially inclusive and ecologically balanced. Sustainable development, within this perspective, could only be achieved through a set of efficient policies that could guarantee increased income, access to social rights and reduced impacts on the environment [32]. According to Muchagata; Campos [33] protection of the environment, promotion of human rights and sustainable development, themes that are increasingly intertwined, have come to occupy a prominent place in national and international agendas in recent years. In the report “Our Common Future”, better known as the Brundtland Report, prepared by the World Commission on Environment and Development, created in 1983 by the UN General Assembly, defined sustainable development as: “Sustainable development is development that meets needs of the present without compromising the ability of future generations to meet their own needs” [34]. The definition of sustainable development contained in that report became the most used concept, having also emerged with the purpose of making economic growth developed so that poverty in developed and developing countries could be overcome [35]

The literature considers that the Brundtland Report represents a milestone in global society’s discussions and concerns about the environment and development. For Souza; Garcia [36] consisted of a “global agenda for change” as there was an urgent call from the United Nations General Assembly to establish long-term environmental strategies to achieve sustainable development from the year 2000 onwards. In the search for the implementation of the proposals presented in the report, the world witnessed, in the years

that followed, the holding of several United Nations summits, setting goals to be met in a given time, so that sustainable development could become a reality [36]. In 2015, the United Nations Summit on Sustainable Development was held in New York, which resulted in the formalization of a new agenda for sustainable development, entitled “Transforming Our World: the 2030 Agenda for Sustainable Development”, in which established 17 Sustainable Development Goals (SDGs) and 169 targets to be achieved by 2030 by the countries that participated in their approval [37]. The agenda has five dimensions (the five Ps of the 2030 Agenda) [38], namely: a) People: We are determined to end poverty and hunger, in all its forms and dimensions, and ensure that all human beings can fulfill their potential in dignity and equality, in a healthy environment; b) Prosperity: We are determined to ensure that all human beings can enjoy a prosperous life and full personal fulfilment, and that economic, social and technological progress occurs in harmony with nature; c) Peace: We are determined to promote peaceful, just and inclusive societies that are free from fear and violence. There can be no sustainable development without peace and no peace without sustainable development; d) Partnerships: We are determined to mobilize the necessary means to implement this Agenda through a revitalized Global Partnership for Sustainable Development, based on a spirit of strengthened global solidarity, focused in particular on the needs of the poorest and most vulnerable and with the participation of all countries, all stakeholders and all people; e) Planet: We are determined to protect the planet from degradation, particularly through sustainable consumption and production, sustainable management of its natural resources and taking urgent action on climate change so that it can support the needs of present and future generations

The adoption of the Sustainable Development Goals (SDGs) is the result of a recommendation by the United Nations Conference on Sustainable Development in 2012 (Rio+20). Recognizing the successes of the MDGs, countries agreed on “The Future We Want” – the Rio+20 outcome document – to establish an open working group to develop a set of sustainable development goals for consideration and appropriate action [39]. The new sustainable development agenda builds on the outcome of the 2002 World Summit on Sustainable Development, the 2010 Summit on the MDGs, the outcome of the 2012 United Nations Conference on Sustainable Development (Rio+20) and the of people around the world [39]. The SDGs are integrated, indivisible and balance the three dimensions of sustainable development: economic, social and environmental. They will stimulate action for the coming years (from 1 January 2016) in areas of crucial importance to humanity and the planet and cover a broader set of issues than the MDGs [40]. The document emphasizes that “Sustainable development cannot be achieved without peace and security; and peace and security will be at risk without sustainable development”. The 2030 Agenda recognizes the need to build peaceful, just and inclusive societies that provide equal access to justice and are based on respect for human rights (including the right to development), effective rule of law and good governance in all areas, and in transparent, effective and accountable



institutions. The agenda addresses factors that give rise to violence, insecurity and injustice, such as inequality, corruption, poor governance and illegal financial and arms flows [38]

Among the objectives of the 2030 Agenda, it has: “Goal 3. Ensure healthy lives and promote well-being for all, at all ages”, recognizing that health is an inalienable and fundamental right for human development and an indispensable contributor to the growth and development of communities and societies [41]. This objective has 13 goals, of which 3.5 refers to the harmful use of alcoholic beverages, namely: “Reinforce the prevention and treatment of substance abuse, including the abuse of narcotic drugs and harmful use of alcohol”. The Agenda is unique in its call for action to all countries – poor, rich and middle-income. It recognizes that ending poverty must go hand in hand with a plan that promotes economic growth and responds to a range of social needs, including education, health, social protection and job opportunities, while also addressing climate change and at environmental protection. It also addresses issues such as inequality, infrastructure, energy, consumption, biodiversity, oceans and industrialization [39]. The 2030 Agenda is not limited to proposing the SDGs, but also dealing with the means of implementation that will allow the achievement of these objectives and their goals. This debate encompasses issues of systemic scope, such as financing for development, technology transfer, technical capacity building and international trade [42]. The Sustainable Development Goals and their targets challenge all countries to be ambitious and innovative to seek multidimensional solutions to multidimensional challenges, as well as to establish inclusive, efficient and transparent means of implementation to make this complex development agenda a reality. From the global level to the subnational level [41]. The 63rd World Health Assembly, held in 2010, recognized the close links that exist between harmful use of alcohol and socioeconomic development. The strategy to reduce the harmful use of alcohol represents the commitment approved by the WHO World Health Assembly to the various other global and regional initiatives and strategies for the prevention and control of noncommunicable diseases, in particular the plan of action of the global prevention strategy and control of noncommunicable diseases [43]. The Millennium Development Goals consisted of an international effort to achieve development in sectors and themes such as: environment, human and women’s rights, social and racial equality. Eight objectives were established, with 21 targets, measured and compared across countries using 60 indicators [44]

## METHODOLOGY

This research was structured based on aspects of interdisciplinary research given the complexity involved in the topic. The model of the study followed the logic of field research in which the researcher assumes the role of observer and explorer, directly collecting data in the place where the phenomena occurred or appeared [45]. According to Prestes [46] field research developed mainly in the social sciences is characterized by data collection using techniques such as questionnaires, interviews, observations, etc. The research method was inductive

The tabulation of qualitative and quantitative data was worked on via Excel (2010) and their treatment for the purpose of building performance indices were calculated following the factor analysis techniques presented by Hair et al [47], Santana [48]; [49] and Cavalcante [50]. The correlation analysis process was based on the statistical program Microsoft Office Excel 2010

Questionnaires were used to calculate the commercial outlets for the sale of beverages and their volume, through an on-site visit, on each street in the neighborhoods, covering the entire city. The focus of the drinks surveyed was in relation to beers, where each establishment was consulted and the questionnaire was applied in this regard. On the issue of disposal of beer cans resulting from the sale and consumption of beer drinks, sectors that deal directly and indirectly with the collection of these materials were surveyed, such as the association of collectors of recycled materials and the company located in the municipality that works with this same type of product. Data on violence were obtained by consulting the records of the 6th Military Police Battalion, in Guajar-Mirim

### Study area

Fifteen neighborhoods in the city of Guajar-Mirim were surveyed, namely: Planalto; Jardim das Esmeralda; Serraria; Dez de abril; Nossa Senhora de Ftima; Prspero; Santo Antnio; So Jos; Tamandar; Santa Luzia; Liberdade; Centro; Tringulo; Caetano and Cristo Rei

## DATA ANALYSIS AND DISCUSSION

Table 1 shows that the main types of violence in the city of Guajar-Mirim, for the base year (equivalent to one year), were motivated, in the following descending order: theft (476), traffic-accidents (377), threat (117), drug possession (91), robbery (66), rape (11), murder and suicide (11). In the specific case of theft in the city, the frequency was approximately 1.30 cases per day and in the case of traffic accidents this figure reaches 1.03 cases per day, that is, in a city of approximately 42 thousand inhabitants, the practice of theft and the number of traffic accidents is very worrying

Urban Violence (Occurrences) in Guajar-Mirim	Fa
theft	476
traffic-accidents	377
threat	117
drug possession	91
robbery	66
rape	11
murder	7
suicide	4
assault with death	0

Table 1: Urban violence - Occurrences (base year)

Source: Own elaboration based on research. Legend: Fa = Absolute frequency

The most violent neighborhoods in the urban area of the city of Guajar-Mirim were, in descending order, the neighborhoods Jardim das Esmeraldas (162) occurrences, Dez de Abril (159) occurrences, Centro (126) occurrences, Tamandar (122) occurrences, Serraria (103) occurrences, Santa Luzia (88) occurrences, Liberdade (77) occurrences, Tringulo (68) occurrences and Planalto (61) occurrences. The least violent neighborhoods were observed in the neighborhoods of Santo Antnio (15) occurrences, Cristo Rei (20) occurrences, Caetano (28) occurrences, So Jos (37) occurrences, Prspero (43) occurrences and Nossa Senhora de Ftima (51) occurrences (Table 2)

Regarding the consumption of beverages (beer) in the city of Guajar-Mirim, it was observed that the highest consumption of the drink was practiced in the Dez de Abril neighborhood (48.69) thousand liters, followed by the Santa Luzia neighborhoods (31.84 ) thousand liters, Centro (25.62) thousand liters, Tamandar (21.90) thousand liters, Jardim das Esmeraldas (15.18) thousand liters, Planalto (15.16) thousand liters, Nossa Senhora de Ftima (14.11 ) thousand liters and Prospero (1.41) thousand liters. The other neighborhoods had an average consumption of less than 6,200 liters per year (Table 2)

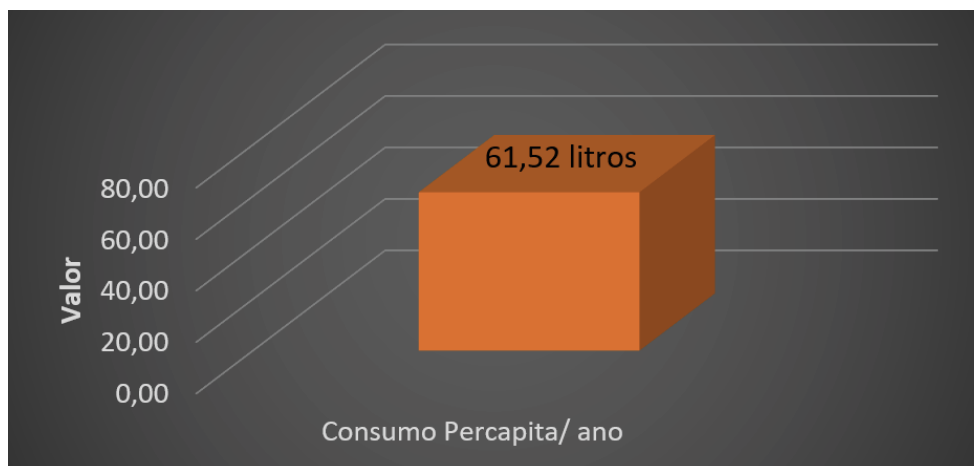
Regarding the number of commercialization points, it was found that Santa Luzia (13), Jardim das Esmeraldas (12) and Dez de Abril (10) neighborhoods have the highest absolute frequencies of beer points of sale in relation to the number total number of establishments, with these three neighborhoods reaching the equivalent of 35% of the commercialization points in the city's urban perimeter (Table 2)

Neighborhoods	Urban Violence (Fa%)	Consumption of Beers (thousand liters)	Beer Trading Points (Fa%)
Jardim das Esmeraldas	162	15,18	12
Dez de Abril	149	48,69	10
Centro	126	25,62	8
Tamandaré	122	21,90	8
Serraria	103	3,68	3
Santa Luzia	88	31,84	13
Liberdade	77	4,72	7
Triângulo	68	5,34	5
Planalto	61	15,16	3
Nossa Senhora de Fátima	51	14,11	8
Próspero	43	10,41	6
São José	37	6,56	4
Caetano	28	2,83	5
Cristo Rei	20	6,17	6
Santo Antônio	15	1,33	3

Table 2: Urban Violence, Beer Consumption and Sales Points (base year)

Source: Own elaboration based on research. Legend: Fa= Absolute frequency

Thus, based on what has already been presented, the average consumption per capita/year in Guajar-Mirim was 61.52 liters, as shown in graph 1. This result is perfectly consistent with the average consumption in Brazil, which is 62 liters per person/year



Graph 1: Per capita consumption/year of beer in Guajar-Mirim

However, such consumption is almost 6 times greater than that presented in the State of Rondônia in the 70's and 80's, which was a little more than 10.00 liters/person/year. With this, it was found that the high consumption of beer in Guajará-Mirim may have repercussions in the historical context, since the consumption of this drink per person/year was higher than the consumption presented by the States and Territories of the time, such as Amazonas and Roraima, Pará and Amapá, Maranhão, Goiás, Mato Grosso and Acre, which demonstrates a close relationship with the "path dependence" aspects [1]. Thus, the historical roots may indicate a consolidated trajectory of beer consumption in the Region, which may explain the growth trend of this market in the municipality of Guajará-Mirim. Thus, the next step was to correlate the data in order to obtain pertinent information about the object of the present study. With this, the correlation procedure was performed adopting the Excel data analysis model, based on the results and parameters presented in Table 2

Adopting the same criterion of the performance scale presented above, however, following the following description (very weak, weak, regular, strong and very strong) the results pointed to a strong positive correlation between the points of sale and beer consumption in the city (0.689274), that is, they evolve in the same direction, indicating that a positive change in one is accompanied by a positive change in the other and vice versa. In addition, there was also a strong and positive correlation between drinking and urban violence (0.662065), demonstrating that an increase in consumption is correlated with an increase in violence in the city. In the same way that violence also presented a positive correlation (0.632064) with the commercialization points existing in the urban perimeter of Guajará-Mirim. Therefore, it is evident in this research that the more points of sale, the more consumption per drink is generated and, consequently, the more urban violence is observed (Table 3)

	<i>Column 1</i>	<i>Column 2</i>	<i>Column 3</i>	<i>Column 4</i>
Column 1	1			
Column 2	0,662065	1		
Column 3	0,632064	0,689274	1	
Column 4	0,201083	0,103569	0,195954	1

Table 3: Correlation: urban violence, beer consumption, points of sale

Source: Excel Data Analysis

Correlation between the consumption of alcoholic beverages and the types of urban violence tabulated in this research (Table 4). The results are presented in Table 5

nei-ghborhoods	beer consumption (liters)	Robbery	theft	drug possession	traffic-accidents	threat	murder	suicide	rape	assault with death
Planalto	15,16	7	29	1	19	5	0	0	0	0
Jardim das Esmeraldas	15,18	7	106	11	12	22	2	1	1	0
Serraria	3,68	3	25	10	62	2	0	0	1	0
Dez de Abril	48,69	6	43	7	78	15	0	0	0	0
Nossa Senhora de Fátima	14,11	1	16	8	16	7	0	1	2	0
Próspero	10,41	4	13	5	9	11	0	0	1	0
Santo Antonio	1,33	0	8	0	5	2	0	0	0	0
São José	6,56	3	15	2	9	6	1	0	1	0
Tamandaré	21,9	8	53	10	39	9	1	0	2	0
Santa Luzia	31,84	4	37	9	22	14	1	0	1	0
Liberdade	4,72	12	32	5	18	7	0	2	1	0
Centro	25,62	3	45	10	63	3	1	0	0	0
Triangulo	5,34	6	31	9	13	8	1	0	0	0
Caetano	2,83	2	15	0	10	0	0	0	1	0
Cristo Rei	6,17	0	8	4	2	6	0	0	0	0

Table 4: Parameters adopted for correlation: beer consumption, robbery, theft, drug possession, traffic-accidents, threat, murder, suicide, rape and assault with death – base year

Source: 6th Military Police Battalion – database

Therefore, based on the results (Table 5), it was possible to observe a strong positive correlation between the parameters “theft” and “homicide” (0.7294) and between “theft” and “threat” (0.7294). It was also possible to verify a strong positive correlation between “beer consumption” and “traffic accidents” (0.6575), indicating that in Guajará-Mirim most traffic accidents result from the consumption of alcoholic beverages

In addition, the strong positive correlation between “theft” and “drug possession” indicates another serious social problem in the city, since theft is the most evident parameter of urban violence in Guajará-Mirim, with 476 cases registered by the Military Police. However, this index is strongly correlated with drug possession, which proves that a large part of the thefts in the city is related to addiction to illicit drug consumption. Therefore, this aspect serves as an indicator of public policies, since this work proves the correlation between the highlighted parameters. Other correlations were positive, however, as they reached a condition level of “regular correlation” they were not analyzed here

	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10
Column 1	1									
Column 2	0,2074	1								
Column 3	0,4013	0,5275	1							
Column 4	0,4180	0,2748	<b>0,6351</b>	1						
Column 5	<b>0,6575</b>	0,1767	0,2618	0,4995	1					
Column 6	0,5357	0,4052	<b>0,7294</b>	0,5101	0,0400	1				
Column 7	0,1871	0,2442	<b>0,7678</b>	0,5564	-0,0278	0,5661	1			
Column 8	-0,1673	0,5266	0,2861	0,1454	-0,1842	0,2450	0,0251	1		
Column 9	-0,0725	0,1419	0,1305	0,2919	-0,1041	0,1436	0,1375	0,3534	1	
Column 10	0	0	0	0	0	0	0	0	0	1

Tabela 5: Correlation: beer consumption, robbery, theft, drug possession, traffic-accidents, threat, murder, suicide, rape and assault with death – base year

Source: Excel Data Analysis

One year after this study, the authors of the research, together with a group of researchers from the Higher Institute of Health and Environmental Sciences of the Amazon and the Federal University of Rondônia, carried out new investigations, using the same instruments and procedures, and found proportionally similar results, which corroborates the results presented in the present study

This same group of researchers, under the coordination of researcher Paraguassú-Chaves, extended the research to the city of Nova Mamoré, also on the border with Bolivia, and the results found are of extreme social concern. The study pointed out that adolescents and adults use alcohol (and other illicit drugs) with very high frequency and consequently the correlation with violence is close, especially fights, traffic accidents, drug possession, theft, among other crimes

## FINAL CONSIDERATIONS

A strong positive correlation between “theft” and “drug possession” was observed, indicating that a large part of the theft problems in the city is directly correlated to the addiction to illicit drugs, which is quite serious considering that “theft” is the parameter of urban violence in Guajará-Mirim that stands out the most, thus revealing the serious social problem that needs to be attended by the government and society as a whole, since “theft” was also positively correlated with other parameters such as “threat” and “murder”. The strong positive correlation between the number of beverage sales outlets, beverage consumption and the increase in urban violence in Guajará-Mirim was also confirmed, indicating that an increase in one of the parameters is also accompanied by an increase in the other parameters, which shows that the neighborhoods that have more commercialization points tend to consume more drinks and, consequently, present more problems of urban violence

It was evidenced that the city of Guajará-Mirim suffers from serious social problems and that most of the problems are correlated with the increase in the sale of alcoholic beverages in the city and with the possession of narcotics. However, it was not evidenced how the institutional arrangements are dealing with this problem, that is, how public bodies are relating in order to discuss actions in favor of concrete solutions to this evil that plagues a large part of the population of Guajará-Mirim, mainly the young teenagers. In the neighboring city, the same situation was evidenced, which led the local government and social institutions to defend a policy of safeguarding these young adolescents addicted to alcohol and other illicit drugs (marijuana and cocaine)

Considering the millennium goals, which are strategies for sustainable development, where the issue of alcohol consumption is one of the aspects to be observed, it is therefore clear the need to rescue the values of society that demonstrates a worrying scenario. This strategy proves necessary

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