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Social influences on alcohol, e-cigarettes, and hookah use: a qualitative study exploring the perceptions and motivations among Brazilian university students

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ABSTRACT

Introduction: Studies have pointed out the influence of social interactions on the consumption of psychoactive substances among university students. **Objective:** The main objective of this present study was to analyze the influence of these interactions in the Brazilian context, with specific objectives being to explore perceptions, student motivations, and effects on psychological well-being. **Methodology:** A qualitative approach involved 18 participants recruited via email and social networks. Data were collected through an on-line questionnaire on sociodemographic information, frequency of use, motivations, social influences, and consequences of consumption. **Results:** The findings highlighted the intersectionality of sociodemographic factors, such as race, gender, and socioeconomic stratum, that influence the consumption of psychoactive substances. Social culture positively promoted the use of these substances, while pressure to integrate into social groups played a prominent role. In the context of alcohol, underlying motivations were identified, including sensation-seeking, disinhibition, and anxiety relief. In the case of e-cigarettes, several perspectives were observed, covering positive influences and social stigma. Regarding hookah use, motivations involved leisure activities, relaxation, and participation in more exclusive social events. The ways to deal with stress from academic life include various substances, where social interactions play a crucial role in both increasing the use of these substances and providing relief. **Conclusion:** The results highlight the complexity of social influences on substance use among university students, providing support for the development of effective actions and policies to promote the health and well-being of this population.

KEYWORDS

Cultural influence. Alcoholism. Smoking. University student.

Influência social e uso de álcool, cigarros eletrônicos e narguilé: um estudo das percepções e motivações de estudantes universitários brasileiros

RESUMO

Introdução: Estudos apontam a influência das interações sociais no consumo de substâncias psicoativas entre estudantes universitários. **Objetivo:** o objetivo geral do presente estudo foi analisar a influência dessas interações no contexto brasileiro, com objetivos específicos de explorar percepções, motivações dos estudantes e efeitos no bem-estar psicológico. **Metodologia:** uma abordagem qualitativa envolveu 18 participantes recrutados por e-mail e redes sociais. Os dados foram coletados por meio de um questionário on-line sobre informações sociodemográficas, frequência de uso, motivações, influências sociais e consequências do consumo. **Resultados:** os achados evidenciaram a interseccionalidade de fatores sociodemográficos, como raça, gênero e estrato socioeconômico, que influenciam o consumo de substâncias psicoativas. A cultura social projetou positivamente o uso dessas substâncias, enquanto a pressão para integração em grupos sociais desempenhou um papel de destaque. No contexto do álcool, foram identificadas motivações subjacentes, incluindo busca por sensações, desinibição e alívio da ansiedade. No caso dos cigarros eletrônicos, várias perspectivas foram observadas, abrangendo influências positivas e estigma social. Quanto ao uso de narguilé, as motivações envolveram atividades de lazer, relaxamento e participação em eventos sociais mais restritos. Os meios para enfrentar o estresse proveniente da vida acadêmica englobam uma variedade de substâncias, onde as interações sociais desempenham um papel fundamental tanto no aumento do consumo dessas substâncias quanto no alívio proporcionado. **Conclusão:** os resultados ressaltaram a complexidade das influências sociais no consumo de substâncias entre estudantes universitários, fornecendo subsídios para o desenvolvimento de ações e políticas eficazes para promover a saúde e o bem-estar desta população.

PALAVRAS-CHAVE

Influência cultural. Alcoolismo. Tabagismo. Estudante universitário

Influencia social y consumo de alcohol, cigarrillos electrónicos y shisha: estudio de las percepciones y motivaciones de estudiantes universitarios brasileños

RESUMEN

Introducción: Los estudios han destacado la influencia de las interacciones sociales en el consumo de sustancias psicoactivas entre los estudiantes universitarios. **Objetivos:** Este estudio busca analizar esta influencia en el contexto brasileño, explorando percepciones, motivaciones y efectos en el bienestar psicológico. **Metodología:** Se utilizó un enfoque cualitativo con 18 participantes reclutados por correo electrónico y redes sociales. Se recopilaron datos mediante un cuestionario en línea sobre información sociodemográfica, frecuencia de uso, motivaciones, influencias sociales y consecuencias del consumo. **Resultados:** Se destacó la intersección de factores sociodemográficos como raza, género y estrato socioeconómico en el consumo de sustancias. La cultura social y la presión para integrarse en grupos fueron influencias significativas. Se identificaron motivaciones para el consumo de alcohol, como búsqueda de sensaciones y alivio de ansiedad, y diversas perspectivas sobre el uso de cigarrillos electrónicos, incluyendo influencias positivas y estigma social. Las motivaciones para el narguilé estaban relacionadas con actividades de ocio y participación en eventos sociales más restringidos. Las interacciones sociales juegan un papel crucial tanto en aumentar el consumo de sustancias como en proporcionar alivio al estrés académico. **Conclusiones:** Los resultados resaltan la complejidad de estas influencias sociales, destacando la necesidad de políticas efectivas para promover la salud y el bienestar de los estudiantes universitarios.

PALABRAS CLAVE

Influencia cultural. Alcoholismo. Tabaquismo. Estudiante universitario.

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1 Introdução

Entry into higher education and subsequent adaptation to the university environment represents a critical developmental phase for university students. This phase is characterized by substantial lifestyle changes and an increase in psychosocial vulnerability. The transition to university life often implies insertion in a new scenario, which, in some circumstances, demands a readaptation of the students' subjective way of life (Moutinho et al., 2019; Lopes et al., 2021; Mata et al., 2021; Sheldon et al., 2021; Gallassi et al., 2022; Campbell et al., 2022; Borges et al., 2023).

It is pertinent to highlight that the period of admission to university is also shown to be a period of risk in relation to the use of psychoactive substances, as evidenced by previous research (Andrade et al., 2012; Lemos-Santos et al., 2019; Houvèssou et al., 2020; Camargo Júnior et al., 2023). The National Survey on the Use of Alcohol, Tobacco and Other Drugs among University Students in 27 Brazilian State Capitals (original title in Brazilian Portuguese: Levantamento Nacional sobre o Uso de Álcool, Tabaco e outras Drogas entre Universitários de 27 Capitais Brasileiras) revealed that alcohol was the most consumed substance among university students (Andrade; Duarte; Oliveira, 2010). In a more recent study involving 312 participants, it was found that 94.3% of the students used alcoholic beverages, 56.8% used tobacco products, and 89.9% used some other psychoactive substance during the undergraduate period (Rodrigues Júnior et al., 2020).

The underlying motivations for substance use among college students are diverse and may reflect both recreational aspects and coping issues. In the study by Rodrigues et al. (2020), the reasons reported by university students included fun, stress relief, socialization, curiosity, pleasure-seeking, improved emotional state, and escape from problems (Rodrigues Júnior et al., 2020). It is relevant to note that experimentation and consumption of psychoactive substances may be influenced by psychosocial factors, including social group pressure, peer influence, and the search for strategies to deal with emotional and academic challenges during university life (MATA et al., 2021; GALLASSI et al., 2022). Understanding these motivations is essential for the development of prevention and intervention strategies aimed at this population, aiming to promote healthy choices and mitigate the risks associated with substance use in the academic context.

The general objective of this study was to investigate the influence of social interactions on the pattern of psychoactive substance consumption among university students in Brazil, more specifically in the context of alcohol, e-cigarettes, and hookah use. To achieve this primary objective, specific objectives included: (1) to analyze how peer perceptions and behaviors influenced decisions related to alcohol, e-cigarettes, and hookah use; (2) examine students' motivations for psychoactive substance use, including recreational, coping, and pleasure-seeking factors; and (3) to assess the impacts of social interactions and individual motivations on the psychological well-being and quality of life of university students.

This study is significant in that it sheds light on the social and cultural factors that can influence substance consumption patterns in university environments. The findings of this research can be used to develop preventive strategies to address substance abuse among university students. The research you mentioned has the potential to provide important information to support the development of preventive strategies that can play a key role in mitigating the risks associated with the consumption of alcohol, e-cigarettes and hookah among university students, taking into account their individual needs and the particularities of the context in which they are inserted.

2 Methods

2.1 Participants

In the initial phase of the study, conventional sampling was used to select participants based on specific criteria related to the research object. The inclusion criteria previously stipulated for participation in the study included a minimum age of 18 years, active enrollment in an undergraduate university course, and regular use of at least one of the psychoactive substances targeted by this investigation. Initially, a total of fifty-three individuals accessed the proposed questionnaire, but only eighteen participants met all the previously stipulated inclusion criteria.

During the survey, participants were given the freedom to choose which specific sections of the questionnaire they would like to answer, based on their own assessment of relevance. This approach allowed them to select the fields to be filled in, ensuring their comfort while minimizing potential risks associated with participation. This method was adopted to ensure the integrity and safety of the participants throughout the study. Therefore, the variation in the number of responses at various stages of a survey can be attributed to the individual preferences and experiences of the participants. This demonstrates the flexibility adopted in this study, highlighting the respect for the autonomy of those involved.

2.2 Instrument

The instrument used for data collection was an online questionnaire created on the Google Forms platform. The questionnaire covered several aspects, including sociodemographic data, frequency of substance use, perceptions about motivations for use, social influence, perceived benefits, and risks associated with consumption, as well as challenges inherent to academic life.

2.3 Procedures

Participants were invited to participate through invitations sent by email and through virtual social networks. This approach was chosen to reach a sizable number of participants, with the goal of reaching the data saturation point, i.e., obtaining enough information to answer

the survey questions comprehensively. In addition, the recruitment strategy through virtual social networks also aimed to ensure demographic heterogeneity in the sample, to encompass perspectives of participants from diverse geographic regions.

2.4 Data analysis

The methodology used for content analysis in this study was composed of several sequential steps (Elo; Kyngäs, 2008; Bardin, 2016; Krippendorff, 2018). The participants' answers, which were already available in digital format due to collection through an online questionnaire, served as an accessible and manipulable database. The subsequent stage comprised the Initial Coding, in which the answers were submitted to a thorough reading and categorized based on emerging themes.

Subsequently, the Development of Codes and Categories was conducted, in which more specific codes were created within each primary category, based on the nuances present in the participants' answers. This allowed for a more in-depth understanding of students' perceptions.

To ensure the validity of the results, Cross-Coding and Triangulation were used, involving independent analysis by two or more qualified people. These techniques were applied to compare and verify the consistency of the assigned categories and codes, avoiding any interpretative influence.

The participants' responses were then submitted to Descriptive Analysis, in which the results of the content analysis were reported in a clear and concise manner. This included the description of the categories identified, presentation of examples of data that illustrate the themes identified, and discussion of the implications of the findings for the research conducted.

The final stage of the study involved a Comparative Analysis of the students' perceptions, which was conducted by analyzing the responses and categorizing them into specific codes and categories. This analysis allowed for the identification of common patterns and trends, as well as areas of divergence in the participants' responses.

2.5 Ethics

Regarding ethical aspects, the study strictly followed the guidelines and regulatory standards established for research involving human beings. All stages of the study were conducted in accordance with the recommendations of the National Health Council (CNS, acronym in Portuguese for *Conselho Nacional de Saúde*) and the National Research Ethics Commission (CONEP, acronym in Portuguese for *Comissão Nacional de Ética em Pesquisa*).

Participants were duly informed about the objectives of the research, as well as the possible risks and benefits of their participation. Confidentiality of data was assured to all participants. In addition, the participants voluntarily consented to participate in the study by filling out an Informed Consent Form (ICF).

It is noteworthy that the research project was submitted to the scrutiny and evaluation of the Research Ethics Committee of the Federal University of São Paulo (CEP/UNIFESP, acronym in Portuguese for *Comitê de Ética em Pesquisa da Universidade Federal de São Paulo*), receiving approval under protocol number 5.940.342.

In the description of the results, the identity of the participants was coded using the letter 'P' (for participant), followed by the access number to the online questionnaire. This practice was implemented based on ethical considerations to ensure confidentiality and protection of participants' identities. The use of codes instead of personal names helps protect the privacy of those involved in the research, mitigating the risk of involuntary disclosure of sensitive information, and contributing to compliance with ethical research principles.

3 Results

The results of this study were based on a sample of eighteen out of fifty-three participants who met specific inclusion criteria. These criteria included being 18 years or older, enrolled in an undergraduate university course, and regular use of at least one of the substances under analysis. The sample showed demographic diversity with a predominance of females (72.2%) compared to males (27.8%). The ages of the participants varied, with 16.7% between 18 and 20 years old, 50% between 21 and 24 years old, and 33.3% between 30 years old and older. Regarding geographic location, most participants lived in the Southeast (44.4%), followed by the South (27.8%), Northeast (16.7%) and Midwest (11.1%). Regarding the area of study, a heterogeneous distribution was observed. Most of the participants (55.6%) were enrolled in courses related to the biological/health areas, followed by humanities (27.8%), exact sciences (11.1%), and social sciences (5.6%). Regarding the type of institution attended, the participants were distributed in private (44.4%), community (33.3%), public (16.7%), and other (5.6%) institutions.

Table 1. Profile of the participants.

Variable	Category	%
Gender	Female	72.2%
	Male	27.8%
Age group	18-20 years	16.7%
	21-24 years	50.0%
	≥ 30 years	33.3%
Location	Southeast	44.4%
	South	27.8%
	Northeast	16.7%
	Midwest	11.1%
Field of studies	Biological/Health	55.6%
	Humanities	27.8%
	Exact Sciences	11.1%
	Social Sciences	5.6%
Institution	Private	44.4%
	Community	33.3%
	Public	16.7%
	Others	5.6%

Source: Authors' data.

3.1 Alcohol use

The results related to alcohol use were obtained from the answers of thirteen participants who chose to answer the specific section of the questionnaire related to this substance. Regarding the frequency of consumption, the majority (46.2%) reported weekly consumption of alcohol, while 15.4% indicated that they consumed it monthly, occasionally, or rarely, respectively. Notably, 7.7% of participants admitted to consuming alcohol daily, reflecting a diversity of drinking patterns within this group. Regarding the influence of social pressure on alcohol consumption, a considerable proportion of the participants agreed, either partially (23.1%) or fully (23.1%), with the influence exerted by friends and colleagues. On the other hand, 38.5% partially disagreed with this influence, while 15.4% completely disagreed. Regarding the personal experience of peer pressure to consume alcohol, the majority (46.2%) stated that they felt such pressure sometimes, while 30.8% stated that it occurs rarely. Only 23.1% of the participants said they had never experienced this pressure. The situations in which participants feel more pressured to consume alcohol include parties or social events (69.2%) and meetings with friends (53.8%). In addition, 23.1% of the participants mentioned academic stress and personal curiosity as influential factors, while 7.7% reported not feeling pressure in specific situations, and another 7.7% mentioned unspecified circumstances. Regarding the perception of alcohol use as a means of social integration in the university environment, 53.8%

of the participants partially agreed, 23.1% strongly agreed, 15.4% strongly disagreed, and 7.7% maintained a neutral position.

3.2 Use of e-cigarettes

The results regarding the consumption of e-cigarettes were obtained from the answers of seventeen participants who chose to answer the specific section of the questionnaire related to this substance. Regarding the frequency of use, most participants (64.7%) reported rare consumption, while 17.6% stated that they consumed them daily, 11.8% weekly and 5.9% occasionally. This frequency distribution demonstrates a notable variation in consumption patterns among participants. Regarding the influence of social pressure on the use of e-cigarettes, the data indicate a diversity of opinions. A significant group of participants disagreed with this influence in some way, with 41.2% strongly disagreeing and 17.6% partially disagreeing. On the other hand, 29.4% of the participants partially agreed, 17.6% strongly agreed, and 11.8% remained neutral regarding the influence of social pressure on the use of e-cigarettes. Regarding the personal experience of peer pressure to use e-cigarettes, the results indicate that 52.9% of the participants stated that they had never felt this pressure, while 29.4% reported having felt this pressure sometimes, and 17.6% rarely. The situations in which participants reported feeling more pressure to use e-cigarettes included parties or social events (58.8%), meetings with friends (41.2%), personal curiosity (41.2%), academic stress (23.5%) and other unspecified circumstances. In addition, 11.8% of the participants did not mention feeling pressure in specific situations. Finally, in relation to the perception of the use of e-cigarettes to socially integrate into the university environment, the results demonstrate a variety of perspectives. A considerable contingent (23.5%) remained neutral in relation to this idea, while 29.4% partially agreed and 11.8% strongly agreed. On the other hand, 23.5% strongly disagreed and 11.8% partially disagreed with this perception.

3.3 Use of hookah

The results regarding hookah consumption were obtained from the answers of eighteen participants who chose to answer the specific section of the questionnaire related to this substance. Regarding the frequency of hookah use, a variety was observed in the reported patterns. A minority of the participants (5.6%) reported consuming hookah daily or occasionally, while 8.8% reported doing so rarely. Regarding the influence of social pressure on hookah use, the data revealed a wide diversity of perspectives among the participants. About 44.4% strongly disagreed with the idea that social pressure exerted by friends and colleagues influences their use of hookah. In addition, 33.3% remained neutral, 11.1% partially agreed, and 5.6% strongly agreed with this influence. About the personal experience of pressure from friends or colleagues to use hookah, the results indicated that the significant majority (77.8%) stated that they had never felt this pressure, while 11.1% claimed to have felt it rarely, and a smaller portion, 5.6%, reported having felt pressure sometimes or frequently. Regarding the situations in which the participants feel more pressure to use hookah, the answers varied, with meetings with friends (27.8%) and personal curiosity (27.8%) emerging as situations frequently

associated with pressure to use hookah. Parties or social events (16.7%) and academic stress (11.1%) were also mentioned, while 44.7% of participants did not report feeling pressure in specific situations. Finally, regarding the perception of hookah use to integrate socially in the university environment, the results showed a diversity of opinions, with most participants (38.9%) strongly disagreeing with this idea, while 17.8% remained neutral. In addition, 16.7% partially agreed, 11.1% strongly agreed, and 5.6% partially disagreed with this perception.

3.4 Social influence and alcohol, e-cigarettes, and hookah use

Research on the social influences that may have led university students to experiment with or increase the consumption of psychoactive substances, such as alcohol, e-cigarettes, and hookah, has revealed a complex interplay of specific influences and situations. The analysis of the data revealed multiple categories of analysis that shed light on the factors linked to the increase in the use of psychoactive substances among university students. These categories included (1) the *intersectionality of social factors*, which encompassed variables such as race, gender, social class, and discrimination, all of which play interconnected roles in consumer behavior. In addition, the (2) *influence of the university environment* was highlighted, considering the lack of belonging, recognition, and representativeness, as well as the social and emotional interactions on the campuses. (3) *Cultural and social influence* was also evident, showing how culture and social norms portrayed the use of these substances in a positive way, influencing students' perceptions and choices. Another relevant point was (4) *peer pressure and social integration*, which addressed the influence of peers, the pressure to integrate into social groups, and the tendency to follow group behaviors and trends. Finally, (5) *academic stress and anxiety* were key categories, analyzing the academic pressures, stress, and anxieties faced in the university environment, which could drive substance use to cope with these challenges.

A significant aspect that emerged in the responses was the intersectionality of social factors, including race, gender, and social class. Some participants highlighted that when faced with discrimination based on these criteria, they resorted to the use of these substances to cope with the adversities experienced in university environments. The lack of belonging, recognition and representativeness was also mentioned as a factor that could have led to the use of these substances as a comfort mechanism in the face of these experiences.

P17: Due to several factors, intersectionalized, race-gender-social class. On several occasions, the use of the substance can be intensified because of violence (transphobia, racism, misogyny, among others) suffered within these spaces, the lack of belonging, recognition, and representation.

In addition, the cultural and social influence that favors the use of substances was noted, often portraying them positively and in an attractive way, influencing the decision to try or increase consumption. College party culture and peer influence have also played a role, especially among first-year students, who may feel the need to integrate into these groups and participate in social events where substance use is common. Finally, it was observed that the propensity to follow trends and the influence of dominant people could motivate students to

experiment with substances on the rise. The pressure to make friends and integrate into social groups at university was also highlighted as a motivating factor. In the context of alcohol consumption, most participants acknowledged the existence of social influence, albeit indirectly. Specifically, peer pressure and the underlying perception that alcohol consumption intensifies social experience were highlighted.

P3: I believe that the need for belonging leads students to submit to this type of consumption.

P7: I believe that alcohol makes people feel like they are enjoying the experience of the place more.

P7: This usage can be related in some way even to a status.

P8: There is a lot of influence from marketing, movies, and advertising on how drinking is cool and leads us to consumption without conscience.

P9: To integrate.

P10: A lot of people are influenced or pressured to use it to fit in a certain place.

P11: They end up seeing influential people doing it and they want to reproduce it.

P13: When it's the group that smokes and drinks, I do the same, but I have friends who don't like it, when I go out with them, I hardly use these substances.

P14: Yes, but not in a direct way. Amid friends, I feel like drinking because they are drinking.

P14: It is something that is inserted as a culture of parties and get-togethers.

P16: By pressure.

In the context of e-cigarettes, the responses revealed a remarkable diversity of viewpoints. While some participants cited the direct influence of the effervescence around e-cigarettes as a motivator for their experimentation, others emphasized the social stigma associated with these devices and the lack of social incentives, often shaped by negative narratives spread by the media.

P13: I started smoking because it became a fever, and everyone was smoking at parties, until the day I tried it.

P15: There is a lot of prejudice about use. In some situations, I was even told to go back to smoking cigarettes/tobacco. Because of misinformation and because of sensationalist TV reports.

Regarding hookah, the social influence was less evident in the participants' reports. Subjects who mentioned the use of this device often related it to the search for an image of detachment or to the preservation of cultural traditions. However, one group of participants stated that they did not perceive a significant social influence in the context of hookah, suggesting a relative autonomy in relation to social dynamics in their choice of consumption.

P11: Hookah is a very cultural thing, from very ancient cultures. The current generations don't know what it was invented for or by whom, I use it because I know History and I am interested and share the same thought... Now, most people use it as a fad.

In the context of academic life, the association between the use of psychoactive substances and social interaction among university students has been shown to be a topic of relevance, as reflected in the participants' perceptions and experiences in this study. It was highlighted that academic life often involved significant levels of stress, pressures, and anxiety, resulting both from the demands of the university environment and from the competitiveness among students. In this scenario, the use of psychoactive substances emerged as a strategy

adopted by some subjects to mitigate the stressful reality, making academic processes smoother and less tense. Importantly, this approach, depending on the unique relationship to the substance in question, could potentially lead to increased levels of productivity and creativity, according to reports.

P9: To de-stress.

P10: Many people use alcohol out of college frustration or stress.

P17: The university is a space of illness with the daily overload, many having the routine of studying-working, to even be able to have a permanence in teaching [...]. Substance use contributes to the need for focus, productivity, creativity, and staying active to cope.

Another relevant dimension was associated with students who moved from their origins to attend university. For this group, the use of psychoactive substances was a source of emotional stability, increased self-esteem, and a strategy to mitigate anxiety resulting from separation from family and friends. This dynamic suggests that the consumption of these substances would play a role in the social and emotional adaptation of these students.

P17: There are also female students who move from other states, and often the use of the substance generates self-security, self-esteem, and a decrease in anxiety about being away from loved ones. It also facilitates, in many cases, the bond between them, leisure, and the unraveling of the sensations that the university generates in students.

Social interaction was highlighted as an inherent element of these dynamics. Psychoactive substances, in some situations, have been described as facilitating communication and the establishment of connections among university students. In addition, the alteration of psychological state induced by these substances was characterized to make young people more receptive to experiencing new social interactions, contributing to social cohesion in university contexts.

P14: Certainly, if the person feels that they are going to be judged or rejected by peers, they may feel more likely to use it, especially for those students at the beginning of the course.

P19: I believe there is a connection between the two aspects. Since the use of these substances has become something socially accepted and desired, especially by university students, often causing pressure on students to feel like they belong and maintain themselves in a university social cycle.

P21: Integrated, kind of escape from everyday life and academic pressure.

It is relevant to note that social pressure played a significant role in this context. The consumption of these substances was often considered socially acceptable and, in some cases, even desirable among university students, generating implicit pressure for students to insert themselves in this academic social context, encompassing the practices associated with the use of these substances.

Several participants mentioned the pressure exerted by groups that used these substances, creating a dissonance between compliance with this standard and resistance to consumption. The feeling of social exclusion and isolation was also highlighted, demonstrating the weight of the influence of colleagues in the decision to consume or avoid the consumption of these substances.

P5: Social interaction. Be part of and identify with one of the groups.

P7: I believe that people don't actively ignore people who don't consume these substances, but if it's part of a group's pattern to consume, automatically, those who do it differently may feel excluded.

P10: They start to exclude the person from the group, and they feel obligated to use them.

P11: Many are afraid of losing their friendship because they don't share the same tastes.

P15: With alcoholic beverages, yes. If you don't go to the bar on Fridays, if you don't go to the barbecues at the end of the semesters, you end up being excluded from the room by some groups.

P17: In case of rejection, for instance, both because of the feeling of not belonging and of not wanting to be the reason for prejudiced speeches and notes and stigmas, they end up using them in unhealthy and less safe places, which can generate an intensification of use due to isolation.

Regarding alcohol consumption, it was identified that university parties were favorable environments for this practice. In addition, academic stress, and the pressures inherent to this context acted as motivators for alcohol consumption as a coping mechanism. Financial difficulties, lack of institutional support, poor academic performance, and other challenges related to the educational environment were also mentioned as contributors to alcohol use as a coping strategy.

P14: Alcohol is very present in university life because being a university student is linked to moments of relaxation and parties, where there are drinks. Often also the stress and pressure of the university makes many students use drinking as an outlet for the problems faced (financial difficulties, lack of support and help from the university, low grades, possibility of failure, institutional racism, moral harassment).

Regarding the consumption of e-cigarettes, it was noted that social influence, especially the influence of academic colleagues, played a relevant role in the adoption of this behavior. In addition, the university context, marked by an intense academic load, which includes exams and internships, as well as residential independence, has led to a propensity to use e-cigarettes as a mechanism to relieve stress. Some participants mentioned the pursuit of feelings of relaxation, reduced blood pressure, and appetite suppression as additional motivators for e-cigarette consumption. The practicality and absence of undesirable effects associated with this form of use were also cited as reasons that led some students to adopt this behavior to the detriment of other alternatives.

P13: At times when I'm stressed, especially at the end of the semester, when there are a lot of assignments and exams, I see that the frequency I smoke increases.

P13: People in my circle prefer e-cigarettes as they are more practical and smaller.

P14: People may start smoking because they want to join a group, to have some sensation (relaxation, lower blood pressure and have a feeling of relaxation, and increase or decrease appetite).

P19: Social influence, usually by university classmates, university social environments (parties, meetings, bars), as well as the stress generated by university life.

In the context of hookah use, although the connection with university life was not so explicitly manifested in the participants' reports, some students who already practiced this habit before entering college mentioned that academic stress intensified adoption. In addition, participation in social events held in places dedicated to hookah use was pointed out as a

facilitating factor of this behavior among university students. Although the relationship was not as clear as in the cases of alcohol and e-cigarettes, some participants also indicated that stress and anxiety could be related to hookah use.

P11: I've been using it long before I started college, but it has intensified with academic stress.

The reports revealed several motivations underlying the consumption of alcohol, e-cigarettes, and hookah among the participants. About alcohol, motivations such as the search for feelings of drunkenness, disinhibition and relaxation were highlighted, in addition to the social dimension, emphasizing the importance of sharing consumption experiences at social events and meetings with friends and family. Alcohol has also been linked to escape from reality, reduced anxiety, and the search for a more positive emotional state, including consumption at celebrations and special dates.

P3: Relaxation.

P5: Social phobia, shyness, anxiety.

P5: Meeting with people is celebrated with alcohol.

P8: Leisure, fun and relaxation.

P14: Feeling of drunkenness, consuming together with other people, feeling of disinhibition that alcohol brings.

P16: Being happy.

P17: Escape from reality, decreased anxiety, being happy.

P21: Emotional causes.

In relation to e-cigarettes, the motivations varied widely. Some participants started using them due to the influence of friends and curiosity to try something in vogue. However, many reported that the shift from conventional tobacco use to e-cigarettes was motivated by the perception of reducing harm to health. Additionally, e-cigarettes were considered a means of integration into a group, especially among young people, and anxiety relief was also cited as a motivation for their consumption.

P10: To fit in.

P13: In the beginning I smoked only at parties and clubs because it was something that everyone did, I tried it, I liked it, little by little I increased the frequency. Today, in addition to parties, I smoke in my daily life, and I am fully aware that this has become an addiction.

P14: The most possible is the influence of friends, seeing them using them and wanting to try it.

P15: Harm reduction. Being an ex-smoker, using e-cigarettes is what made me quit smoking and get rid of the evils of cigarettes/tobacco.

P18: Addiction and anxiety relief.

P19: Anxiety relief.

Hookah consumption was less frequent among participants, with reports of a decrease over time in favor of e-cigarettes. Motivations for hookah use included curiosity and a desire to try something distinct. Socialization in groups was highlighted as a relevant motive, like the experience of sharing other substances and products for collective use. In addition, hookah has been appreciated for providing leisure and relaxation, especially when used in a specific social context.

P5: Cultural. Use of the e-cigarettes that are in trend. Hookah, on the other hand, is very ritual. The location is different.

P11: Lazer.

Alcohol consumption was observed in social and entertainment contexts, especially at parties, musical events, and significant celebrations. In addition, the use was associated with leisure moments, such as days spent by the sea, and with meetings with friends and family. Consequently, a significant frequency of consumption was observed in public places of use, such as bars and restaurants. It is worth noting that alcohol consumption has been reported in situations of emotional exaltation, characterized by a state of euphoria, as well as in moments of melancholy, illustrating the diversity of underlying motivations.

P6: At home, parties, bars.

P7: Meeting with friends, parties, and bars.

P8: I usually consume alcohol at parties, concerts, important celebrations, a day at the beach, and in leisure time.

P9: Gatherings, parties and alone.

P17: Street bars, at home.

The use of e-cigarettes has proven to be highly versatile in terms of environments and circumstances. It was observed that individuals consumed this type of electronic tobacco in a variety of places, including homes, higher education institutions, professional internship places, public spaces, and closed environments, such as concert halls. According to reports, the flexibility perceived by the participants in this context would reside in the absence unpleasant odor of emission, characteristic of conventional smoking, making it possible to use them in different environments. In addition, the use of e-cigarettes was noted on festive occasions, moments of evening entertainment and in periods of loneliness, as well as during episodes of anxiety or stress.

P13: Parties, clubs, and when I'm alone, such as lunch and before bed.

P15: Everywhere. At home, college, internship, on the street, all locations. Since they don't stink like cigarettes, so I can use them wherever I feel like it.

P18: Any time of the day, no matter where I am.

P18: Many people I know have stopped using regular cigarettes and migrated to e-cigarettes because they don't have the bad smell and convenience of smoking at events, without having to go outside.

P19: Parties, gatherings of friends, moments of anxiety and stress.

The consumption of hookah showed a more restricted delimitation in relation to the environments. The practice was recorded in specific contexts, such as specialized tobacco establishments and in the homes of friends. Some additional comments refer to social gatherings held in private households. However, there was a lack of flexibility regarding hookah compared to e-cigarettes, due to the need to assemble and maintain the device, a factor that would limit its portability and, consequently, its suitability to varied environments.

P9: In my social circle they use them at parties.

P11: At home.

P14: To use the hookah, you need a large instrument, so one way to reduce the use of hookah is to increase the behavioral cost of use, for example by going to places that you can't take one, that many people will see, judge, etc.

P17: At a friend's house.

P20: Trips to the tobacconist or to a friend's house.

The analysis of the responses revealed a clear inclination to variations in alcohol consumption, intricately linked to specific scenarios and contexts. During the weekends, there was an increase in self-reported consumption, often associated with social events and festivities. On the other hand, throughout the week, consumption was more controlled, occurring, in some cases, only in situations of celebration.

P8: I tend to consume more alcoholic beverages the day before a holiday, and on vacation I consume more alcohol. At concerts I consume more alcohol as well.

P9: Yes, more on weekends.

P12: At parties, consumption is higher.

P14: During the weekends is when I use alcohol, during the week it is rarer, only when there is a special party or celebration.

P17: Out of the house I consume more if I can afford it.

Regarding e-cigarettes, the responses showed a more diverse variation. Some participants reported constant use throughout the day, every day of the week, regardless of the environment. On the other hand, others mentioned an increase in consumption on festive occasions and social gatherings. In addition, there was an increase in consumption at times that required concentration, suggesting the possibility of using them as a tool to improve focus. Also notable was the mention of health problems as a factor that triggered a reduction in the consumption of these substances.

P13: Yes, during the week I smoke at one or two times of the day only, at parties I smoke the whole party, I don't take the e-cigarette out of my hand.

P15: There are no changes. I use my e-cigarette all day, every day.

P18: At times when I need focus, I smoke more.

About hookah, variations in the pattern of use were intricately linked to specific social contexts. Most participants reported sporadic use daily, with an evident increase during social events or crowded situations in places of socializing, such as bars and similar establishments. This increase in consumption seemed to be intrinsically related to the social environment and to the more restricted festive and community context compared to the other substances.

P17: Only in occasional cases.

P20: Social events.

Many participants highlighted noticing benefits in the use of psychoactive substances, such as improved focus and academic productivity, as well as occasional relief from anxiety, depression, and insomnia. These perceived benefits have been shown to positively influence the decision to consume these substances as a strategy to address academic and psychological challenges. In addition, it was observed that the use of these substances could facilitate social integration, making participants more likely to engage in social interactions and to get closer to their peers, emphasizing the role of psychoactive substance consumption as a facilitator of social interaction and bonding among university students.

Several participants in the study highlighted some perceived benefits associated with alcohol consumption. These included improved sociability, reduced anxiety, a sense of disinhibition, as well as the promotion of more positive emotional states, such as feelings of

lightness and immediate happiness. In addition, alcohol has been identified as a facilitator of social integration, allowing for more fluent interactions and the creation of interpersonal bonds. These perceived benefits have been shown to exert a positive influence on the decision to consume alcohol as a strategy to cope with psychological challenges and promote social interaction among university students, thus highlighting their role in academic and social dynamics.

P7: I can feel lighter, less worried, and shy, looser.

P8: I become more sociable; I talk more easily. It also causes relaxation.

P9: Greater sociability.

P12: Fun.

P14: I feel a greater sense of social integration and the sense of disinhibition that drunkenness brings is a benefit.

P16: I feel happy right away.

P20: Decreased anxiety.

P21: Inhibition disappears.

However, it is important to note that there were participants who took a more cautious view. They acknowledged the perceived benefits, such as relaxation and reduced anxiety, but expressed concerns about the harms associated with prolonged or excessive use.

P13: No, apart from the immediate pleasure of being something that makes me feel good, I don't see any benefits, because I know it's bad for my health and it makes me spend money that could be used for something more productive.

About the use of e-cigarettes, there was a significant differentiation in relation to alcohol. Participants highlighted benefits related to the reduction of adverse effects to the use of conventional industrialized cigarettes, such as the reduction of coughing and the feeling of shortness of breath. The absence of the characteristic odor of traditional cigarettes was also emphasized as a relevant advantage, as well as the elimination of third-party exposure to toxic smoke. Some participants highlighted the immediate satisfaction provided using e-cigarettes, despite knowledge of the associated risks. In general, perceptions of the benefits of e-cigarettes were more related to minimizing the harmful effects of traditional smoking than to intrinsic benefits.

P10: The issue of not leaving a strong smell.

P15: I stopped coughing, I don't have phlegm anymore, I taste more when I eat, I don't pant easily anymore, I don't have cigarette marks on my fingers anymore, I don't smell of cigarettes, I don't put other people at risk by inhaling cigarette smoke, I don't bother other people with the bad smell of cigarette smoke.

In the context of hookah, perceptions varied. Some participants have identified relaxation and stress-relieving benefits associated with its use. Additionally, some responses mentioned a rapid induction of a mellow sensation and a curiosity for altered sensations as perceived benefits.

P17: Feel high faster (the original term used here in Brazilian Portuguese was *lombra*), curiosity.

P20: Decreased stress.

Facilitated accessibility to psychoactive substances, especially during the pandemic period, was a common perception. Some students emphasized that expanded access, due to the physical distance from face-to-face activities, intensified the use of these substances. This uncomplicated access proved to be an additional obstacle to the prevention/reduction of consumption.

P18: I've tried to quit smoking and drinking, but stress, college events, and easy access complicate things.

P19: Being in spaces where the vast majority use substances, seeing other people using them in common environments.

4 Discussion

Research on social influence and use of psychoactive substances among university students has revealed a complex intersectionality of social factors, such as race, gender, and social class, which may contribute to the consumption of these substances. In addition, cultural influences, such as the positive promotion of consumption and the culture of college parties, have been shown to play a key role, especially among first-year students seeking social integration.

These perspectives are consistently aligned with previous research, exemplified by the study by Halim, Hasking and Allen (2012), which emphasizes the interdependence between social variables and substance use, and by the study of Coskunpinar and Cyders (2012), which delves into the analysis of the influences of individual perceptions and social norms in relation to the use of psychoactive substances. The highlighted analysis unequivocally emphasizes the urgent need for a sensitive and contextualized approach, which addresses individual particularities, to achieve a comprehensive understanding of the dynamics underlying substance use in diverse contexts, with special attention to the university environment. In these studies, it was identified that the relationship between negative urgency and substance use was mediated by coping motives, and this relationship between coping motives and substance consumption was moderated by the perception of associated benefits.

These findings reveal connections to various theoretical models that contribute to understanding patterns of substance use. Self-determination theory, for example, highlights the relevance of intrinsic and extrinsic motivations in substance use (Chan et al., 2019; Moore; Hardy, 2020). This theory differentiates between intrinsic motivation, which stems from personal interest and satisfaction, and extrinsic motivation, which is associated with external factors, such as social academic pressures. Intrinsic motivation may be related to immediate pleasure or the search for sensations, while extrinsic motivation may involve social influences and the search for acceptance, such as integration into the university context (Patrick; Williams, 2012). Cognitive models, such as the Health Belief Model, consider beliefs, perceptions of risk and benefits, as well as attitudes that influence behavior related to substance use (Bonar; Rosenberg, 2011). In parallel, social learning theory focuses on how behavior is shaped through observation and interaction with others (Smith, 2021). These theoretical approaches can provide a broader understanding of the cognitive and social factors that are linked to patterns of

substance use among university students.

In the context of alcohol, social influence proved to be comprehensive, corroborating the hypothesis of peer pressure and highlighting the emphasis on valuing sociability associated with the consumption of this substance. In addition, structural influence, associated with social status and cultural acceptance, emerged as a preponderant factor. In addition, it is pertinent to highlight that several motivations related to alcohol consumption, such as hedonistic search, the use of the substance as a strategy to cope with adverse emotions, and the adoption of use as a strategy for evasion or relaxation, played a substantial role in understanding the motivations implicit to this behavior (adaptation).

Alcohol-related data can be contextualized considering previous research that investigated the reasons for alcohol consumption in different populations and cultural contexts. A study conducted by Kuntsche et al. (2014) in 13 European countries identified that social motives for drinking were frequently cited, followed by amelioration, and coping motives. These results suggest that, in a broader context, alcohol consumption is often associated with the search for social interactions, improvement of emotional state, and coping with challenging situations.

Davidson et al. (2022), in a study involving Australian academics, identified the influence of social norms, especially participation in university events where alcohol consumption is common, playing a significant role in alcohol consumption culture, which underscores indirect social influence. In a study conducted by Messina et al. (2021) with Italian students, motivations related to improvement and socialization were found to be drivers of alcohol consumption. Similarly, Mackinnon et al. (2017), in an intercultural study with university students in different countries, identified that social and improvement reasons were common among participants from diverse cultural backgrounds. At the same time, results of a study conducted in the United States by O'Hara et al. (2015) pointed to the persistence of external motivations for drinking, such as social and conformity motivations, at various levels of analysis, evidencing the robustness of these motivations in various consumption situations. These findings underscore the relevance of social and improvement motivations as influential factors in alcohol consumption among university students in a variety of cultural contexts.

The study by Bartel, Sherry, and Stewart (2022) complements this perspective by examining the social influences on alcohol consumption, highlighting that the reasons for consumption perceived on a social network can indirectly influence the participants' own reasons for consumption and alcohol use. This suggests that social influence plays a significant role in motivation and alcohol-related behavior, underscoring the complexity and relevance of these influences in broader university and social contexts.

In addition, it should be noted that these observations are in line with other studies that demonstrate that increased alcohol consumption is associated with a decrease in quality of life, health satisfaction, and psychosocial well-being among the university community. This echoes findings from studies such as that of Gallassi et al. (2022), which identified a negative

relationship between increased alcohol consumption and quality of life, as well as research that highlighted the impact of the COVID-19 pandemic on increased alcohol consumption and its negative effects on mental health, as evidenced by Firkey et al. (2021) and Wilson et al. (2022).

E-cigarettes were more susceptible to the influence of trends and fads, although they were also affected by the presence of social stigmatization and health concerns, reinforcing the complexity of social influence in this context. A variety of motivations were observed, including influence from friends, reduced risks compared to traditional tobacco, curiosity, and anxiety relief, along with a sense of belonging to groups. These results converge with the findings of the study by Arshad et al. (2019), which addresses individuals' perception that the use of e-cigarettes is a less harmful, less addictive, and more sociable alternative compared to the consumption of conventional cigarettes.

Studies on the motivations for e-cigarette use reveal a diverse range of reasons that influence this behavior. Regardless of smoking history, curiosity is consistently identified as a central reason for initiating e-cigarette use, as demonstrated in the study by Kinouani et al. (2020). This initial motivation is often backed up by several reasons to continue using e-cigarettes, highlighting that long-term use can serve both to replicate smoking habits and as a personalized way to inhale nicotine. Social influence also represents a significant factor, as evidenced by Maglalang et al. (2023), who identified the normalization and encouragement of the use of these devices among peer groups and in social gatherings.

Other studies, such as the one by Le et al. (2019), emphasize stress as a prominent reason for e-cigarette use in young adults. Al-Sawalha et al. (2021) and Katz et al. (2019) also highlighted motivations related to smoking cessation, curiosity, and perceptions of less harm to health. Hiler et al. (2020) investigated the transition from e-cigarette use to cigarette consumption and found several reasons, including sharing with others, psychological coping, and attraction to cigarettes. In summary, these studies collectively reveal that the motivations for e-cigarette use among young adults are multifaceted, involving individual, social, and contextual factors, with curiosity often acting as a starting point and social influence playing a significant role in the adoption and continuation of this behavior. Understanding this complexity is crucial for the development of effective prevention and intervention strategies related to e-cigarette use.

Finally, hookah proved to be a practice influenced by cultural issues and by the search for affiliation with specific social groups, demonstrating a more restricted delimitation in relation to environments. In other studies, there was a greater diversity in the motivations related to use (Berg et al., 2011; Ngahane et al., 2023). In the study conducted by Heinz et al. (2013), it was observed that approximately 15.4% of the sample had participated in hookah consumption, with 6% of participants reporting hookah use in the last 30 days prior to the survey. Among the motivating factors frequently associated with hookah consumption, socialization/attending parties (29%), peer influence (27%) and the search for relaxation (25%) stood out. These studies suggest that hookah is often used as a social activity, linked to the search for experiences and group relaxation, which aligns with the perception of the substance

as a practice valued for its group experience and relaxation.

Other studies on hookah consumption among university students have addressed its prevalence and associated perceptions. In Buraidah, Saudi Arabia, a survey revealed that a significant portion of students reported hookah use, with a higher prevalence than cigarettes, although knowledge about its harmful effects was limited (Muzammil et al., 2019). In Turkey, motivations for use included socialization, relaxation, and peer pressure. Participants were aware of the health risks but still viewed hookah as less harmful and socially acceptable (Karaman et al., 2022). In the USA, hookah consumption was related to lower perception of harm, higher social approval, and higher consumption of other substances, highlighting the co-occurrence of risk behaviors (Heinz et al., 2013). Finally, a study examining the influence of motives for drinking on the frequency of hookah use among individuals who used both alcohol and hookah (multiple substance users) found that hookah use was influenced by social and conformity reasons for drinking (Foster et al., 2016). Together, these studies highlight the complexity of hookah use among university students, underscoring the importance of attitudes, social norms, and risk perceptions to understand and address this behavior.

It is important to note that while there are some overlaps in motivations, each substance has its own particularities. In summary, alcohol was strongly associated with sensation seeking, such as drunkenness, disinhibition, and escape from anxiety, as well as being a popular choice for socializing. E-cigarettes presented a variety of motivations, including influence from friends, harm reduction over conventional tobacco use, curiosity, and anxiety relief. In addition, they were seen as a way of belonging to groups. Hookah has been shown to be less popular, with motivations centered on curiosity, experimentation, and socialization in specific social groups. It was also associated with a sense of leisure and relaxation, like the experience of sharing other substances used in groups. Individual motivations varied widely, reflecting the complexity of human behavior in relation to substance use.

However, a careful analysis of this study sample reveals the need for a broader approach to adequately represent the diversity of Brazilian university students. It is recognized that, despite the initial intention to encompass this diversity, the current sample may not fully reflect this variety. Therefore, for future research, a significant increase in sampling or focusing on specific subgroups will ensure more accurate and comprehensive representation.

A deeper understanding of the pressures and sufferings faced by university students is essential to understand the patterns of substance use, pointing to the need for a denser analysis of these aspects. Consideration of the sociopolitical impacts associated with class, race, gender, and sexual orientation markers is a fundamental aspect to be integrated into this research. Deepening the analysis and more comprehensively reviewing the specialized literature on these topics can contribute significantly to enriching the debate in question. Such approaches may offer multifaceted insights into the complex dynamics that permeate the stress and distress faced by university students, as well as provide a broader understanding of the interactions of these factors with their substance use.

In the meantime, it is relevant to initiate a reflection on the complex scenario faced by contemporary individuals immersed in the duality of 'coercive freedom.' In the academic environment, university students deal with incessant pressures to achieve elevated levels of performance, triggering an exhausting cycle of seeking to excel. This relentless pursuit of excellence often leads to physical and psychological exhaustion. Within this context of the 'performance society,' there is a fusion between identity, action, and work, resulting in a continuous 'total work time', which paradoxically refers to a 'totalitarian work environment' (Corbanezi, 2015, 2018). By relating these aspects to the consumption of substances by university students, it is perceived that the constant search for performance can directly impact stress and anxiety levels, leading some students to resort to these substances to cope with academic demands. Often, the consumption of these substances represents a temporary attempt to cope with academic and social pressures, serving as a palliative in the face of the constant demands imposed by this context.

5 Conclusions

The research revealed that social interactions exert a substantial influence on the pattern of psychoactive substance consumption among university students in the context of Brazil. The results show that the perceptions and behaviors of peers are factors of considerable relevance in decision-making and dynamics related to alcohol, e-cigarettes, and hookah use.

This study represents a significant contribution to scientific knowledge by emphasizing the influence of social interactions on the configuration of psychoactive substance consumption among university students in the Brazilian scenario. The results obtained provide a comprehensive understanding of the ways in which social influences can shape consumption decisions and, consequently, deepen the understanding of the factors and motivations underlying this behavior.

The practical implications of this research are of considerable magnitude since they provide crucial information for the formulation of prevention and intervention strategies aimed at university students.

It is necessary to highlight some limitations inherent to this study, such as the limitation of the sample restricted to university students, which may limit the generalization of the results to the Brazilian youth population. In addition, the research relied on self-reports, and was therefore subject to potential self-presentation biases. It is suggested that subsequent investigations address these limitations.

Despite the limitations related to sample size, the research has the potential to provide significant information to support the development of preventive strategies. These strategies may play an essential role in reducing the risks associated with the use of alcohol, e-cigarettes, and hookah among university students.

For future research, longitudinal studies are recommended to capture the evolutions

over time of social influences and patterns of substance use. In addition, more detailed investigations on effective prevention and intervention strategies in this context are necessary and may constitute a relevant next step in research.

The results of this study are important not only for the academic community, but also for health professionals, educators, and public policy makers, who aim to address the consumption of psychoactive substances among university students in Brazil. An in-depth understanding of social interactions is of critical relevance in promoting healthy behaviors and well-being in young people.

Based on the results obtained, it is recommended to develop educational and prevention programs with an emphasis on social and emotional support for university students.

References

- AL-SAWALHA, Nour et al. E-cigarettes use among university students in Jordan: perception and related knowledge. **PLOS ONE**, v. 16, n. 12, 2021. Available on: <https://doi.org/10.1371/journal.pone.0262090>. Accessed on: May 15, 2023.
- ANDRADE, Arthur Guerra; DUARTE, Paulina do Carmo Arruda Vieira; OLIVEIRA, Lúcio Garcia de. **Levantamento nacional sobre o uso de álcool, tabaco e outras drogas entre universitários de 27 capitais brasileiras**. Brasília: Secretaria Nacional de Políticas sobre Drogas, 2010. ISBN: 978-85-60662-37-1.
- ANDRADE, Arthur Guerra et al. Use of alcohol and other drugs among Brazilian college students: effects of gender and age. **Revista Brasileira de Psiquiatria**, v. 34, n. 3, p. 294–305, 2012. Available on: <https://doi.org/10.1016/j.rbp.2012.02.002>. Accessed on: Dec. 18, 2023.
- ARSHAD, Adam et al. Knowledge, attitudes, and perceptions towards waterpipe tobacco smoking amongst college or university students: a systematic review. **BMC Public Health**, v. 19, n. 1, 2019. Available on: <https://doi.org/10.1186/s12889-019-6680-x>. Accessed on: Feb. 8, 2023.
- BARDIN, Laurence. **Análise de conteúdo**. São Paulo: Edições 70, 2016. ISBN: 978-85-62938-04-7.
- BARTEL, Sara; SHERRY, Simon; STEWART, Sherry. Examining social influences on why we drink: perceived drinking motives in the social network impact individuals' own drinking motives and alcohol use. **Substance Use & Misuse**, v. 57, n. 13, 2022. Available on: <https://doi.org/10.1080/10826084.2022.2120364>. Accessed on: July 21, 2023.
- BERG, Carla et al. Psychosocial factors and health-risk behaviors associated with hookah use among college students. **Journal of Addiction Research & Therapy**, Suppl 2, 2011. Available on: <https://doi.org/10.4172/2155-6105.S2-001>. Accessed on: Apr. 5, 2023.
- BONAR, Erin; ROSENBERG, Harold. Using the health belief model to predict injecting drug users' intentions to employ harm reduction strategies. **Addictive Behaviors**, v. 36, n. 11, p.

1038–1044, 2011. Available on: <https://doi.org/10.1016/j.addbeh.2011.06.010>. Accessed on: Dec. 19, 2023.

BORGES, Livia de Oliveira et al. Working conditions and mental health in a Brazilian university. **International Journal of Environmental Research and Public Health**, v. 20, n. 2, 2023. Available on: <https://doi.org/10.3390/ijerph20021536>. Accessed on: May 27, 2023.

CAMARGO JÚNIOR, Elton Brás et al. Depression and Substance Use Among Brazilian University Students During the COVID-19 Pandemic. **Journal of Psychoactive Drugs**, 2023. Advance online publication. Available on: <https://doi.org/10.1080/02791072.2023.2244499>. Accessed on: Dec. 18, 2023.

CAMPBELL, Fiona. Factors that influence mental health of university and college students in the UK: a systematic review. **BMC Public Health**, v. 22, n. 1, 2022. Available on: <https://doi.org/10.1186/s12889-022-13943-x>. Accessed on: July 7, 2023.

CHAN, Gloria et al. Intrinsic Motivation and Psychological Connectedness to Drug Abuse and Rehabilitation: The Perspective of Self-Determination. **International Journal of Environmental Research and Public Health**, v. 16, n. 11, p. 1934, 2019. DOI: Available on: <https://doi.org/10.3390/ijerph16111934>. Accessed on: Dec. 19, 2023.

CORBANEZI, Elton. **Saúde mental e depressão: a função política de concepções científicas contemporâneas**. Campinas: Instituto de Filosofia e Ciências Humanas, Universidade Estadual de Campinas, 2015. Tese de doutorado. Available on: <https://repositorio.unicamp.br/Busca/Download?codigoArquivo=496565>. Accessed on: Dec. 19, 2023.

CORBANEZI, Elton. Sociedade do cansaço. **Tempo Social**, São Paulo, v. 30, n. 3, p. 335-342, set.-dez. 2018. Available on: <https://doi.org/10.11606/0103-2070.ts.2018.141124>. Accessed on: Dec. 19, 2023.

COSKUNPINAR, Ayca; CYDERS, Melissa. Mediation-moderation analysis of problematic alcohol use: the roles of urgency, drinking motives, and risk/benefit perception. **Addictive Behaviors**, v. 37, n. 7, 2012. Available on: <https://doi.org/10.1016/j.addbeh.2012.03.014>. Accessed on: Mar. 10, 2023.

DAVIDSON, Lily et al. Student perceptions of the current drinking culture in three Australian residential colleges: drinking motives, consequences and recommendations for harm minimisation strategies. **Drug and Alcohol Review**, v. 42, n. 1, 2022. Available on: <https://doi.org/10.1111/dar.13540>. Accessed on: Apr. 5, 2023.

ELO, Satu; KYNGÄS, Helvi. The qualitative content analysis process. **Journal of Advanced Nursing**, v. 62, n. 1, 2008. Available on: <https://doi.org/10.1111/j.1365-2648.2007.04569.x>. Accessed on: Feb. 15, 2023.

FIRKEY, Madison; SHEINFIL, Alan; WOOLF-KING, Sarah. Substance use, sexual behavior, and general well-being of U.S. college students during the COVID-19 pandemic: a brief report. **Journal of American College Health**, v. 70, n. 8, 2022. Available on: <https://doi.org/10.1080/07448481.2020.1869750>. Accessed on: July 20, 2023.

FOSTER, Dawn et al. The influence of drinking motives on hookah use frequency among young multi-substance users. **International Journal of Mental Health and Addiction**, v. 14, n. 5, 2016. Available on: <https://doi.org/10.1007/s11469-016-9633-y>. Accessed on: May 12, 2023.

GALLASSI, Andrea Donatti et al. The increased alcohol and marijuana use associated with the quality of life and psychosocial aspects: a study during the COVID-19 pandemic in a Brazilian university community. **International Journal of Mental Health and Addiction**, 2022. Available on: <https://doi.org/10.1007/s11469-022-00937-4>. Accessed on: Mar. 3, 2023.

GBD 2016 Alcohol Collaborators. Alcohol use and burden for 195 countries and territories, 1990-2016: a systematic analysis for the Global Burden of Disease Study 2016. **Lancet (London, England)**, v. 392, n. 10152, 2018. Available on: [https://doi.org/10.1016/S0140-6736\(18\)31310-2](https://doi.org/10.1016/S0140-6736(18)31310-2). Accessed on: June 7, 2023.

HALIM, Andrew; HASKING, Penelope; ALLEN, Felicity. The role of social drinking motives in the relationship between social norms and alcohol consumption. **Addictive Behaviors**, v. 37, n. 12, 2012. Available on: <https://doi.org/10.1016/j.addbeh.2012.07.004>. Accessed on: Apr. 18, 2023.

HOUVÈSSOU, Gbènkpon Mathias et al. Illicit drug use among students of a university in Southern Brazil. **Revista de Saúde Pública**, v. 54, p. 57, 2020. Available on: <https://doi.org/10.11606/s1518-8787.2020054002176>. Accessed on: Dec. 18, 2023.

HEINZ, Adrienne et al. A comprehensive examination of hookah smoking in college students: use patterns and contexts, social norms and attitudes, harm perception, psychological correlates and co-occurring substance use. **Addictive Behaviors**, v. 38, n. 11, 2013. Available on: <https://doi.org/10.1016/j.addbeh.2013.07.009>. Accessed on: Jan. 25, 2023.

HILER, Marzena et al. Reasons for transition from electronic cigarette use to cigarette smoking among young adult college students. **The Journal of Adolescent Health**, v. 66, n. 1, 2020. Available on: <https://doi.org/10.1016/j.jadohealth.2019.09.003>. Accessed on: Apr. 8, 2023.

JERZYŃSKI, Tomasz et al. Estimation of the global number of e-cigarette users in 2020. **Harm Reduction Journal**, v. 18, n. 1, 2021. Available on: <https://doi.org/10.1186/s12954-021-00556-7>. Accessed on: May 14, 2023.

KARAMAN, Neslihan Güney; ÇEBER, Çiğdem Ünlü; ERASLAN, Serife. Waterpipe tobacco smoking among university students in Turkey. **Addictive Behaviors Reports**, v. 15, 2022. Available on: <https://doi.org/10.1016/j.abrep.2022.100409>. Accessed on: June 25, 2023.

KATZ, Sherri Jean et al. Beliefs about e-cigarettes: a focus group study with college students. **American Journal of Health Behavior**, v. 43, n. 1, 2019. Available on: <https://doi.org/10.5993/ajhb.43.1.7>. Accessed on: Feb. 3, 2023.

KINOUBANI, Shérazade et al. Motivations for using electronic cigarettes in young adults: a systematic review. **Substance Abuse**, v. 41, n. 3, 2020. Available on: <https://doi.org/10.1080/08897077.2019.1671937>. Accessed on: Mar. 17, 2023.

KRIPPENDORFF, Klaus. **Content analysis: an introduction to its methodology** (4th ed.). New York: Sage Publications, 2018. ISBN: 978-15-06395-66-1.

KUNSTCHE, Emmanuel et al. Drinking motives and links to alcohol use in 13 European countries. **Journal of Studies on Alcohol and Drugs**, v. 75, n. 3, 2014. Available on: <https://doi.org/10.15288/jsad.2014.75.428>. Accessed on: Aug. 9, 2023.

LE, Daisy et al. E-cigarette use, tobacco product polyuse, and motivations for use among Baltimore young adults. **Health Behavior and Policy Review**, v. 6, n. 5, 2019. Available on: <https://doi.org/10.14485/hbpr.6.5.2>. Accessed on: July 12, 2023.

LEMOS-SANTOS, Pedro et al. Drug use among medical students in São Paulo, Brazil: a cross-sectional study during the coronavirus disease 2019 pandemic. **Revista Paulista de Medicina**, v. 142, n. 2, e2022493, 2023. Available on: <https://doi.org/10.1590/1516-3180.2022.0493.R1.150623>. Accessed on: Dec. 18, 2023.

LOPES, Fernanda Machado et al. Transtornos mentais comuns em estudantes universitários: uma revisão sistemática da literatura. **Revista Psicologia em Pesquisa**, v. 16, n. 1, 2021. Available on: <https://doi.org/10.34019/1982-1247.2022.v16.31105>. Accessed on: Mar. 14, 2023.

MACKINNON, Sean et al. Cross-cultural comparisons of drinking motives in 10 countries: data from the DRINC project. **Drug and Alcohol Review**, v. 36, n. 6, 2017. Available on: <https://doi.org/10.1111/dar.12464>. Accessed on: Apr. 5, 2023.

MAGLALANG, Dale Dagar et al. Social influence of e-cigarette use among Asian Americans in California. **American Journal of Health Behavior**, v. 47, n. 1, 2023. Available on: <https://doi.org/10.5993/ajhb.47.1.18>. Accessed on: Feb. 23, 2023.

MATA, Luciana Regina Ferreira et al. Daily lives of university students in the health area during the beginning of the COVID-19 pandemic in Brazil. **Investigacion y Educacion en Enfermeria**, v. 39, n. 3, 2021. Available on: <https://doi.org/10.17533/udea.iee.v39n3e07>. Accessed on: June 7, de 2023.

MAZIAK, Wasin. The global epidemic of waterpipe smoking. **Addictive Behaviors**, v. 36, n. 1-2, 2011. Available on: <https://doi.org/10.1016/j.addbeh.2010.08.030>. Accessed on: Mar. 15, 2023.

MAZIAK, Wasin et al. The global epidemiology of waterpipe smoking. **Tobacco Control**, v. 24, 2015. Available on: <https://doi.org/10.1136/tobaccocontrol-2014-051903>. Accessed on: Apr. 8, 2023.

MESSINA, Marisa Patrizia et al. Knowledge and practice towards alcohol consumption in a sample of university students. **International Journal of Environmental Research and Public Health**, v. 18, n. 18, 2021. Available on: <https://doi.org/10.3390/ijerph18189528>. Accessed on: Aug. 3, 2023.

MOORE, Joseph Paul; HARDY, Sam. Longitudinal relations between substance use abstinence motivations and substance use behaviors in adolescence: A self-determination theory

approach. **Journal of Personality**, v. 88, n. 4, p. 735–747, 2020. Available on: <https://doi.org/10.1111/jopy.12522>. Accessed on: Dec. 19, 2023.

MOUTINHO, Ivana Lúcia Damásio et al. Mental health and quality of life of Brazilian medical students: incidence, prevalence, and associated factors within two years of follow-up. **Psychiatry Research**, v. 274, 2019. Available on: <https://doi.org/10.1016/j.psychres.2019.02.041>. Accessed on: Apr. 10, 2023.

MUZAMMIL, Dhafer et al. Prevalence and perception of shisha smoking among university students: a cross-sectional study. **Journal of International Society of Preventive and Community Dentistry**, v. 9, n. 3, 2019. Available on: https://doi.org/10.4103/jispcd.jispcd_407_18. Accessed on: June 12, 2023.

NGAHANE, Bertrand Hugo Mbatchou et al. Prevalence, knowledge and factors associated with shisha smoking among university students in Cameroon. **The International Journal of Tuberculosis and Lung Disease**, v. 27, n. 8, 2023. Available on: <https://doi.org/10.5588/ijtld.22.0683>. Accessed on: Aug. 19, 2023.

O'HARA, Ross; ARMELI, Stephen; TENNEN, Howard. College students' drinking motives and social-contextual factors: comparing associations across levels of analysis. **Psychology of Addictive**, v. 29, n. 2, 2015. Available on: <https://doi.org/10.1037/adb0000046>. Accessed on: July 7, 2023.

OPALEYE, Emérita Sátiro et al. **II Relatório Brasileiro sobre Drogas**. Brasília: Secretaria Nacional de Políticas sobre Drogas, 2021. ISBN: 978-65-87762-13-5.

PATRICK, Heather; WILLIAMS, Geoffrey. Self-determination theory: its application to health behavior and complementarity with motivational interviewing. **The International Journal of Behavioral Nutrition and Physical Activity**, v. 9, 2012, p. 18. Available on: <https://doi.org/10.1186/1479-5868-9-18>. Accessed on: Dec. 19, 2023.

RODRIGUES JÚNIOR, Gerson Alves et al. Fatores associados ao uso de substâncias psicoativas em estudantes de uma universidade pública do sul do Maranhão. **Revista de Medicina**, v. 99, n. 3, 2020. Available on: <https://doi.org/10.11606/issn.1679-9836.v99i3p220-229>. Accessed on: Aug. 13, 2023.

SHELDON, Elena et al. Prevalence and risk factors for mental health problems in university undergraduate students: a systematic review with meta-analysis. **Journal of Affective Disorders**, v. 287, 2021. Available on: <https://doi.org/10.1016/j.jad.2021.03.054>. Accessed on: Aug. 18, 2023.

SHIELD, Kevin et al. Global alcohol exposure estimates by country, territory and region for 2005: a contribution to the comparative risk assessment for the 2010 Global Burden of Disease Study. **Addiction (Abingdon, England)**, v. 108, n. 5, 2013. Available on: <https://doi.org/10.1111/add.12112>. Accessed on: Apr. 22, 2023.

SMITH, Mark. Social Learning and Addiction. **Behavioural Brain Research**, v. 398, 2021, p. 112954. Available on: <https://doi.org/10.1016/j.bbr.2020.112954>. Accessed on: Dec. 19, 2023.

SUTFIN, Erin et al. Electronic cigarette use by college students. **Drug and Alcohol Dependence**, v. 131, n. 3, 2013. Available on: <https://doi.org/10.1016/j.drugalcdep.2013.05.001>. Accessed on: Mar. 11, 2023.

TEHRANI, Hadi et al. The prevalence of electronic cigarettes vaping globally: a systematic review and meta-analysis. **Archives of Public Health**, v. 80, n. 1, 2022. Available on: <https://doi.org/10.1186/s13690-022-00998-w>. Accessed on: Jan. 4, 2023.

WILSON, Sayre et al. Comparing alcohol use of pre-COVID-era and COVID-era cohorts of mandated college student drinkers. **Journal of Studies on Alcohol and Drugs**, v. 83, n. 4, 2022. Available on: <https://doi.org/10.15288/jsad.2022.83.480>. Accessed on: Set. 28, 2023.