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Higher education: impact of substance use on self-esteem and well-being

Liliana Mendes[1], Levi Leonido[2], Bruna Soares[3], Tânia Guimarães[3], Cátia Romão[3], Mariana Guerra[3], Elsa Maria Gabriel Morgado[4,5*]

ABSTRACT

The consumption of psychoactive substances by university students is a subject that has been gaining more and more attention in the literature. However, there is still a lot of disagreement on this subject. This study aims to relate the impact of substance consumption habits (alcohol, tobacco and other psychoactive substances) with self-esteem and psychological well-being in university students, in order to gain a better understanding of this issue. This is a descriptive, cross-sectional, quantitative, correlational study with a quasi-experimental design. The sample consisted of 460 university students aged between 18 and 66 with internet access. Of these participants, 299 were female and 158 were male. The instruments used were a Sociodemographic Questionnaire, the Scale for the measurement of Manifestation of Psychological Well-being (EMMBEP) and the Rosenberg Self-Esteem Scale (RAS). The results showed no statistically significant differences in terms of self-esteem and psychological well-being according to substance use. In addition, only the consumption of other psychoactive substances was significantly higher in male participants than in female participants.
KEYWORDS: higher education; self-esteem; substance use; psychological well-being.

INTRODUCTION

Global alcohol and psychoactive substance consumption has risen, with regional variations. WHO (2018) notes that 43% of adults worldwide consume alcohol, averaging 6.4 litres per year. Europe has the highest consumption, while Eastern Mediterranean and Muslim-majority countries have the lowest. High-income countries show high consumption. A study on 2,191 European university students found varying patterns: 63% had harmful drinking scores, 30% were hazardous drinkers, 4% were hazardous, and 3% were likely addicted. England and Denmark had the highest scores, and Portugal had the lowest (Cooke et al., 2019).

The World Drug Report (United Nations Office on Drugs and Crime, 2021) reveals a 22% rise in drug use since 2010, projected to increase by 11% by 2030, with a 40% surge in Africa. New psychoactive poses challenges due to unclear effects and a disparity between public perception and real risks. While regulations succeed in some areas, low-income countries see more seizures of synthetic psychoactive. Cannabis, unlike cocaine and opioids, has the most global users, around 200 million. Cannabis potency has grown, Δ9-THC quadrupled in the US and doubled in Europe over 20 years. Despite this, teen belief in cannabis harm dropped up to 40%, potentially worsening the drug impact. Aggressive marketing and media promotion of high Δ9-THC cannabis products may exacerbate the issue (United Nations Office on Drugs and Crime, 2021).

In this way, the approach to this theme is quite pertinent in the area of Social Sciences since it is verified in the scientific literature the significant impact of the use of licit and/or illicit substances (e.g. alcohol, tobacco, cannabis) on mental health and the psychological well-being of university students (e.g. Baranauskas et al., 2022; Blows & Isaacs, 2022; Martínez-Vélez et al., 2021; Valentim et al., 2023).

[1]Instituto de Investigação em Imagem Biomédica e Investigação Translacional de Coimbra – Coimbra, Portugal.
[2]Universidade Católica Portuguesa, Centro de Investigação em Artes, Ciências e Tecnologias – Porto, Portugal.
[3]Universidade de Trás-os-Montes e Alto Douro – Vila Real, Portugal.
[4]Instituto Politécnico de Bragança – Bragança, Portugal.
[5]Centro de Estudos em Educação e Inovação – Viseu, Portugal.
*Corresponding author: Escola Superior de Educação, Campus de Santa Apolónia – 5300-253 – Bragança, Portugal. E-mail: elsagmorgado@ipb.pt

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THEORETICAL BACKGROUND

Patterns of consumption of alcohol and other substances at the University

Entering university brings diverse challenges, prompting students to adapt socially and personally. Emotional vulnerability during this transition can lead to substance use, particularly alcohol (Souza et al., 2021). Social factors, such as enhancing interactions and coping with stress, drive alcohol consumption (Pires et al., 2020; Shrestha et al., 2020). Academic stress and insecurity make students prone to peer pressure, driving them to excessive drinking and risky behaviours (Pires et al., 2020; Sheehama et al., 2022).

Demographic and social factors shape alcohol use, notes a systematic review (Khamis et al., 2022). Easy access to alcohol links to more frequent and harmful consumption. Family dynamics, age of exposure, socioeconomic status, and religious influences play roles. Family stability, parental authority, and maternal drinking during pregnancy impact alcohol dependence. Education, employment, and low-income correlate with consumption, while higher religiosity is tied to fewer alcohol-related issues.

Cultural and gender factors influence alcohol susceptibility. Several studies highlight higher alcohol consumption among male university students (Newman et al., 2017; O'Malley & Johnston, 2002; Sahu et al., 2022; Sheehama et al., 2022; Tse, 2011). Rising "ladette culture" and targeted marketing contribute to similar consumption patterns between genders (Davoren et al., 2016) despite women's biological vulnerability to alcohol's harmful effects (Khamis et al., 2022). Still, caution is needed in interpreting results showing female-majority drinkers, possibly due to increased female university attendance (Costa et al., 2020; Galvão et al., 2021; Pires et al., 2020; Silva et al., 2019; Tam et al., 2020).

Psychoactive substance consumption among academics is driven by various factors. Peer influence, energy enhancement for exams, excessive alcohol consumption, pleasure-seeking, frustration, fatigue reduction, stress relief, parties, lack of emotional support, psychological issues, family history of drug use are reported reasons (Admasu Basha et al., 2023; Arora et al., 2016; De Soto & Tajalli, 2020; Kassa et al., 2014; Pordanjani et al., 2018; Reshetnikov et al., 2020; Shrestha et al., 2020; Welsh et al., 2019).

Negative university attitude, parental encouragement of substance use, and living arrangements (alone or with friends) predict substance consumption (El Ansari et al., 2020; Houvèssou et al., 2020; Karimirad et al., 2020; Rabelo et al., 2020; Taremian et al., 2018). Conversely, protection against consumption includes living with non-substance abusing parents, parental supervision, university residence, and strong religious beliefs (De Soto & Tajalli, 2020; El Ansari et al., 2020; Musyoka et al., 2020; Reshetnikov et al., 2020).

Various studies confirm that besides alcohol and tobacco, marijuana, hashish, hallucinogens, synthetics, cocaine, and amphetamines are commonly consumed by university students (Araujo et al., 2018; Blows & Isaacs, 2022; Costa et al., 2020; Galvão et al., 2021; Houvèssou et al., 2020; Kabbash et al., 2022; Khafagy et al., 2021; Musyoka et al., 2020; Pires et al., 2020; Reshetnikov et al., 2020; Roba et al., 2021; Santos et al., 2019; Silva et al., 2019). Other research explores polydrug patterns and factors. Gunn et al. (2018) and White et al. (2019) associate marijuana use with higher alcohol consumption. Schilling et al. (2017), studying eight German Universities (n = 4,387), link illicit substance use to alcohol, tobacco, and marijuana consumption.

Similar to alcohol, gender influences psychoactive substance consumption. Men tend to smoke marijuana more than women (Araujo et al., 2018; El Ansari et al., 2020). Female university students use stimulants to enhance academics or consume recreationally (e.g., marijuana), while amphetamine use may relate to body image (De Soto & Tajalli, 2020; Rabelo et al., 2020). Males show higher cocaine and inhalant use. Caution is advised when interpreting female-prevalent consumption, as some studies primarily feature female samples (Santos et al., 2019; Silva et al., 2019).

Rising consumption of cannabis, stimulants, and illicit drugs within academic circles has led to lower academic performance, enrollment interruption, unemployment, and increased sexual assault risks (Arria et al., 2013; Welsh et al., 2019). Addressing these consequences is crucial within academic contexts, necessitating interventions to counter excessive substance consumption and dispel stereotypes. Substance misuse and easy access are widespread among university students, not only during events (Kahsay et al., 2022). Substance variety and normalization of drug attitudes grow among students, yet limited published evidence exists on harm prevention or intervention (Boden & Day, 2023). Proactive interventions face challenges like confidentiality, financial constraints, and university involvement (e.g., restricting substance use during academic events).

Alcohol consumption and other substances and relationship with self-esteem

Self-esteem involves an individual's feelings and thoughts about their competence and worth (Rosenberg, 1965). A 2016 study by Blank et al. (2016) explored alcohol's

connection to self-esteem, psychological well-being, and self-efficacy in 5,082 university students. Moderate/excessive alcohol use is associated with lower well-being in both genders. High male self-esteem correlates with excessive alcohol consumption, while females with higher consumption exhibit lower self-esteem (Blank et al., 2016), supported by Agante et al. (2010). Low self-esteem females might succumb to peer pressure to drink alcohol, while high self-esteem individuals adopt protective strategies like water consumption, resulting in lower alcohol intake (Schick et al., 2022). A systematic review of 115 studies (Arsandaux et al., 2020) reveals higher self-esteem links to healthier behaviours, in contrast to alcohol abuse reducing self-esteem among academics. High self-esteem is associated with lower alcohol risk (González & Nieto, 2019), yet Costa et al. (2020) suggest no significant self-esteem differences between drinking and non-drinking students. Gierski et al. (2020) caution against solely attributing problematic alcohol use to low self-esteem due to the acceptance of alcohol (as well as other substances) in social settings for students with high self-esteem.

The relationship between substance use and self-esteem is a contentious topic in the scientific literature. A longitudinal study spanning 6 years investigated self-esteem's connection to substance use (alcohol, cannabis, cocaine) from adolescence to adulthood. The study found a strong link between self-esteem and substance use in adolescence, which weakens in adulthood, particularly for alcohol and cannabis, possibly due to legalization and normalization of consumption. However, the relationship between high self-esteem and reduced substance use endures, except for cocaine (Lee et al., 2018). Costa et al. (2020) support this by revealing no significant link between self-esteem and cannabis consumption among cannabis-consuming students vs. non-consumers. Conversely, Szinay et al. (2019) found that low self-esteem positively correlates with excessive alcohol and tobacco consumption in adults based on research spanning from 2009 to 2013 involving 187,398 participants. These results suggest that self-esteem acts as a protective factor against psychoactive substance use in adolescence, highlighting the importance of prevention programs to educate adolescents about potential consequences (Lee et al., 2018).

Relationship between psychological well-being and the consumption of alcohol and other substances in university students

Psychological well-being encompasses both positive and negative emotions, reflecting effective functioning and life satisfaction (Huppert, 2009). Ryff (1995) identifies six dimensions of well-being: autonomy, life goals, self-acceptance, positive relationships, mastery, and personal growth. The World Health Organization (WHO, 2022) defines mental health as psychological well-being, enabling stress management, skills recognition, and positive contributions to society. University students face mental health factors like stress, family issues, and substance use that can compromise psychological well-being (Sheldon et al., 2021).

Regarding substance use's link with psychological well-being, varying conclusions exist in the literature. Sofie Plum Christensen et al. (2022) studied 25,910 students aged 15-25 and found non-drinkers, occasional, and heavy drinkers had reduced well-being compared to those consuming 1-7 units weekly. Excessive alcohol use predicted lower self-efficacy in women and reduced social inclusion, loneliness, and self-esteem in men (Sofie Plum Christensen et al., 2022). Other studies (Blank et al., 2016; Jensen et al., 2021) corroborated that moderate or excessive alcohol consumption is related to lower psychological well-being in both genders. However, alcohol's harmful use could lead to reduced life satisfaction, mental health issues, distress, and academic performance (Jensen et al., 2021; Tembo et al., 2017). Conversely, Chang et al. (2022) found a significant link between alcohol and high psychological distress, particularly a 54% higher risk of moderate to severe mental disorder in females. Rosenthal et al. (2018) countered the assumption that alcohol quantity predicted depression; instead, they found alcohol-related consequences increased depression risk among female university students. Another study suggested that alcohol-consuming students were more susceptible to depression and anxiety, adversely affecting psychological well-being (Hossain et al., 2019). Souza et al. (2021) highlighted a negligible connection between subjective well-being, self-efficacy, and alcohol use among students.

Tobacco consumption and being a female student appear to be linked to higher levels of depression, stress, or anxiety, indicating reduced mental health (Kulsoom & Afsar, 2015; Velten et al., 2018). Conversely, a systematic review and meta-analysis show that quitting smoking for 7 weeks to 9 years significantly reduces depression, stress, and anxiety and improves positive mood and quality of life, leading to better mental health compared to smokers (Taylor et al., 2014). However, a systematic review of longitudinal studies reveals variations in results, indicating that smoking causes depression and anxiety, and these mental health issues lead to increased smoking behaviour (Fluharty et al., 2017).

In the case of cannabis use and psychological well-being, inconsistencies exist in the literature. Rhew et al. (2021) found that a higher frequency of cannabis consumption, as

opposed to alcohol, is associated with greater loneliness, psychological distress, and reduced positive psychological and social functioning among young adults. Another study by Allen and Holder (2014) suggests that among male university students, it is not the frequency of cannabis consumption but the negative consequences of its use that correlate positively with negative well-being and negatively with positive well-being.

Since at the top of the research on the mental health and psychological well-being of this population are the themes of substance abuse and alcohol consumption (Dietz et al., 2020; Hernández-Torrano et al., 2020), and the interferences/consequences more or less significant, higher education institutions have the opportunity to raise awareness of these issues and promote responsible consumption of licit and/or illicit substances among students.

Due to the inconsistencies of the findings on the associations between substance use, self-esteem and psychological well-being, we consider relevant the study of this topic in university students since more and more young people are consumers of alcohol and drugs and, being this a context conducive to the adoption of these habits, in particular the consumption of alcohol and tobacco, due to their social acceptability (Pires et al., 2020). Furthermore, this study assumes added importance because, in addition to revealing the patterns of alcohol consumption in this population, we encourage reflection on the need for prevention programs and public self-care policies.

This study, therefore, intends to relate the impact of consumption habits of different substances (alcohol, tobacco and psychoactive substances) with self-esteem and psychological well-being in university students in order to acquire better knowledge about the problem, thus allowing the development of adequate prevention and intervention policies.

In relation to the specific mains, it is intended: (1) to characterize the sample under study in terms of gender, age and year of education attended; (2) to analyze the association between sex and substance use; (3) to analyze differences in self-esteem and psychological well-being according to gender; (4) determine which psychoactive substance is most consumed by college students; (5) understand which ages are most susceptible to the occurrence of the first consumption of psychoactive substances; (6) to analyze the frequency of consumption episodes in which the individual is alone or accompanied; (7) to analyze the relationship between the consumption of different substances and self-esteem in university students; and (8) compare the relationship between the consumption of different substances and psychological well-being in college students.

METHODS

Study type

This is a descriptive, quantitative, cross-sectional and correlational study (Coolican, 2014), which seeks to understand the habits of substance consumption, including alcohol, tobacco and other psychoactive substances, in university students and its relationship with self-esteem and psychological well-being.

Sampling and sampling techniques

The sample collected from this study is intentional and non-probabilistic. For each instrument applied, 460 individuals responded. The participants were between 18 and 66 years old (M = 21.63; SD = 5.83) and were university students. Of the participants, 299 are biologically female (65.0%), 158 are biologically male (34.3%), and 3 do not identify with any of these categories (0.7%). In terms of the teaching year, 39.6% (n = 182) attend the 2nd year of the degree, 33.3% (n = 153) the 1st year of the degree, 17.6% (n = 81) attend the 3rd year of graduation and 2.0% (n = 9) the 4th year of graduation. 7.6% of the sample (n = 35) attend a master's degree (5.2%; n = 24, in the 1st year and 2.4%; n = 11 in the 2nd year).

Inclusion criteria were: age greater than or equal to 18 years up to 70 years; knowing how to read and write in Portuguese; being a user of the social media Facebook, and/or Instagram, and/or WhatsApp, and/or Messenger; voluntarily agreeing to participate in the investigation; and be able to give their consent. At the end of data collection, incomplete forms, dropouts or participants who do not meet the defined inclusion criteria will be automatically excluded. These criteria were chosen given the importance of the sample being made up of university students.

Instruments

Data were collected using a sociodemographic questionnaire, the Psychological Well-Being Manifestation Measure Scale (EMMBEP) and the Rosenberg Self-Esteem Scale (EAR).

Sociodemographic questionnaire: a questionnaire with 16 items, with the aim of collecting information about the participants' data, such as gender, age, year of higher education attended, and consumption habits of alcohol, tobacco or psychoactive substances. Regarding alcohol consumption routines, the questions asked were "Have you ever consumed an alcoholic beverage?" and "In the last 30 days, how often did you consume alcohol?". These are associated with a five-level Likert scale, with 1 corresponding to "every day" and 5 corresponding to "never". Participants were also asked to indicate the age of first consumption and the most frequent

company on these occasions, with the same items elaborated regarding the consumption of tobacco and psychoactive substances. The questionnaire also has an open-ended question, "If you have consumed any psychoactive substance other than alcohol or tobacco, which one do you consume more often?", aiming to identify the existence of consumption patterns in the university context.

Psychological Well-being Manifestation Measure Scale (EMMBEP): this scale, which aims to measure psychological well-being, was initially developed by Massé et al. (1998), using individuals with an average age of 40 years, having been validated and adapted for the Portuguese population by Monteiro et al. (2012), using a sample of individuals aged between 18 and 34 years. This scale consists of 25 items, divided into 6 subscales, namely: self-esteem (4 items), "I felt that others liked and appreciated me"; balance (4 items), "My life was well balanced, between my family, personal and academic activities"; social involvement (4 items), "I had goals and ambitions"; sociability (4 items), "I related easily with the people around me"; control of self and events (4 items), "I was able to face difficult situations in a positive way"; and happiness (5 items), "I felt good, at peace with myself". The higher the value achieved through the combination of all the items that constitute it, the higher the perceived psychological well-being. The questions are associated with a 5-point Likert scale, where 1 corresponds to "never" and 5 to "almost always". The scale's total score ranges from 25 to 125, and the corrected item-total correlation ranges from .36 to .78, with homogeneity among the items that make up the scale. Most Cronbach's alpha values obtained are appropriate, being between .67 (social involvement) and .89 (happiness) (Monteiro et al., 2012). In the present study, the scale total revealed good internal consistency, with a Cronbach's alpha value of .96.

Rosenberg Self-Esteem Scale (EAR): this scale was adapted and validated by Pechorro et al. (2011) for the Portuguese population, having been initially developed by Rosenberg (1989). To validate the adaptation of the scale, a sample of both sexes aged between 12 and 20 years old was used, comprising people from different social statuses. This scale assesses the self-esteem of adolescents and adults, and answers are given according to a 4-point Likert scale, ranging from 0 - "strongly disagree" to 3 - "strongly agree". The results obtained in the total score range from 0 to 30; therefore, high scores on the self-esteem scale point to greater self-esteem and lower scores point to lower self-esteem. The scale has a total score of 30 points, and the item-total correlation values range between .27 and .62, with Cronbach's alpha value corresponding to .79 (Pechorro et al., 2011). The scale showed good internal consistency in the present study, with a Cronbach's alpha value of .87.

Procedures

After consenting to the authorisation via e-mail by the respective authors for the use of each scale and after the favourable opinion of the Ethics Committee of the Universidade de Trás-os-Montes e Alto Douro (Ref. Doc19-CE-UTAD -2023), these were placed in full on Google Forms. The link corresponding to the previously defined questionnaires and scales was later shared through the social media WhatsApp, Facebook Messenger and Instagram. When filling them out, the participants were initially required to fill in the informed consent form, in which the main objectives of the investigation were described, and anonymity was guaranteed since no identifying data was requested. The answers were encrypted, and only the research team had access to them, with the commitment to destroy them five years after the study was carried out. The participants were also informed that the collected data would be used exclusively for the investigation. Data collection occurred between March and May 2023 and was carried out online through the Google Forms platform.

Along with the instruments, contact information for the researchers was made available in case there were doubts on the part of the participants. The three instruments were self-administered, taking about 10 minutes to complete. It is also important to mention that there was no compensation or bonus to individuals who agreed to participate in this study other than acknowledging their contribution. After all these steps, there was no withdrawal. The collected data was analysed using the IBM SPSS Software version 23.

Data analysis

For the descriptive analysis of the variables, absolute (n) and relative (%) frequencies were used for qualitative variables, and mean (M) and standard deviation (SD) were used for quantitative variables.

Then, in order to verify whether the data followed a normal distribution, the values of skewness and kurtosis were calculated for each variable, verifying that all variables had values between -1.96 and 1.96, thus indicating a normal distribution (Field, 2009; Marôco, 2014). Thus, a statistical analysis was carried out through the application of parametric tests when applicable.

To analyse the association between two qualitative variables, in particular sex and substance use, the χ^2 test was used, and it was found that the percentage of cells with an expected count of less than five was less than 20%. The phi (Φ) was presented as a measure of effect size.

To analyse differences in terms of quantitative variables (self-esteem and psychological well-being) according to substance use, the t-test for independent samples was used. Cohen's d (d) was calculated as a measure of effect size (Cohen, 1988).

To analyse the correlation between self-esteem and well-being and the frequency of substance use in the last 30 days, Spearman's Ró correlation coefficient was used when one of the variables is quantitative, and the other is ordinal (Silvestre & Araújo, 2012).

RESULTS

Prevalence of substance use

Table 1 presents the descriptive measures related to the consumption of alcohol, tobacco and other psychoactive substances. Alcohol consumption was declared by 435 individuals (94.6%), and only 25 (5.4%) people who agreed to participate in this research reported never having consumed alcohol. When asked about consumption habits in the last 30 days, most participants reported consuming less than once a week (n = 192; 41.7%). Regarding the age of the first consumption of alcohol, it varied between 8 and 28 years, with an average of 15.74 years (SD = 2.12). When asked about the occasions on which alcohol consumption is more frequent, most participants (n = 382; 89.3%) reported being with friends and 8.2% (n = 35) with family. Only 1.9% (n = 8) say it is when they are alone, and .7% (n = 3) when they are with strangers.

Table 1. Descriptive measures related to substance use and frequency in the last 30 days.

	n	%
Alcohol consumption	435	94.6
Frequency in the last 30 days		
Never	125	27.2
Less than once/week	192	41.7
More than once/week	105	22.8
Once/day	18	3.9
More than once/day	20	4.3
Tobacco consumption	261	56.7
Frequency in the last 30 days		
Never	309	67.2
Less than once/week	44	9.6
More than once/week	18	3.9
Once/day	15	3.3
More than once/day	74	16.1
Consumption of other psychoactive substances	169	36.7
Frequency in the last 30 days		
Never	372	80.9
Less than once/week	51	11.1
More than once/week	16	3.5
Once/day	4	0.9
More than once/day	17	3.7

Regarding tobacco consumption, it was declared by 261 (56.7%) people in this sample, while 199 (43.3%) participants who agreed to participate in this investigation reported that they had never consumed tobacco. When asked about consumption habits in the last 30 days, more than half of the sample reported never having consumed (n = 309, 67.2%). With regard to age at first tobacco consumption, it ranged between 9 and 24 years old, with an average of 16.13 years old (SD = 2.34). Regarding the occasions on which tobacco consumption is more frequent, most participants (n = 190; 79.2%) say it is when they meet friends, 17.5% (n = 42) when they are alone and only 2.1% (n = 5) with family and 1.3% (n = 3) with strangers.

The consumption of other psychoactive substances was found in 169 (36.7%) people in this sample, while 291 (63.3%) participants reported that they never consumed other types of psychoactive substances. As for the frequency of consumption of psychoactive substances in the last 30 days, the majority of the sample reported never having done so (n = 372; 80.9%). Furthermore, it was verified that the psychoactive substance most consumed by the participants is cannabis, used by 165 individuals (97.6%), also mentioned only by one participant, hashish, escitalopram, pastilles and Xanax. With regard to the age of the first consumption of other psychoactive substances, it varied between 13 and 26 years old, with an average of 17.37 years old (SD = 2.18). When asked about the occasions on which the consumption of these substances is more frequent, the majority of the sample (n = 150; 88.8%) stated that it was when they were with friends and 10.1% (n = 17) when they were alone; only 1.2% (n = 2) when they are with family.

Prevalence of self-esteem

In the analysed sample, the levels of self-esteem vary between 3 and 30, with an average of 18.54 (SD = 5.20), also verifying that 379 (82.4%) individuals in the sample had a score equal to or higher than 15 points. In the total sample, 423 individuals (92.0%) had values equal to or greater than 12 points, while 37 individuals (8.0%) had self-esteem levels lower than this score.

Prevalence of psychological well-being

In the analysed sample, the levels of psychological well-being vary between 42 and 125, with an average of 88.33 (*SD* = 17.07). In the total sample, 31 individuals (6.7%) have a score on the Psychological Well-Being Manifestation Measure Scale lower than 62, while 429 (93.3%) have scores equal to or greater than this value.

Association between sex and substance use

Regarding alcohol consumption, there is no statistically significant association with the gender of the participants, χ^2 (1) = .02, p = 1.000, Φ = .01. It is observed that 94.6% of female participants and 94.3% of male participants reported consuming alcohol. Similar results were obtained in relation to tobacco consumption, which also proved not to be significantly associated with the gender of the participants, χ^2 (1) = 2.40, p = .137, Φ = -.07. However, it is observed that they are more male participants (61.4%) than female participants and (53.8%) who report consuming tobacco.

Regarding the consumption of other psychoactive substances, there was a statistically significant association with the gender of the participants, χ^2 (1) = 10.19, p =.002, Φ = -.15. It is observed that significantly more male participants report consuming other psychoactive substances (46.2%) than female participants (31.1%).

Differences in self-esteem and psychological well-being according to gender

Statistically significant differences were found between male and female participants in psychological well-being, t (455) = -2.24; p = .025. Male participants have higher well-being scores (M = 90.72; SD = 16.47) than female participants (M = 86.98; SD = 17.22). On the other hand, there are no statistically significant differences between genders in terms of self-esteem, t (455) = -1.52; p = .129, although a higher mean score was observed for male participants (M = 19.08; SD = 5.10) than female participants (M = 18.31; SD = 5.21).

Habit of consuming different substances and self-esteem

Table 2 presents the results of the analyses of differences in self-esteem according to substance use.

As can be seen, no statistically significant differences were found in self-esteem according to consumption of alcohol, tobacco or other psychoactive substances (all p > .05). Likewise, no statistically significant correlations were found between self-esteem and frequency of consumption, in the last 30 days, of alcohol, rs = -.08, p = .103, tobacco, rs = -.01, p = .831, and other psychoactive substances, rs = -.06, p = .242.

Consumption of different substances and psychological well-being

The results of the analyses of differences in psychological well-being as a function of substance use are shown in Table 3.

There are no statistically significant differences in psychological well-being according to the consumption of alcohol, tobacco or other psychoactive substances (all p > .05). Similar results were obtained regarding the frequency of consumption in the last 30 days, which proved not to be significantly correlated with psychological well-being in the case of alcohol, rs = -.03, p = .464, tobacco, rs = .03, p = .558 or other psychoactive substances, rs = .01, p = .793.

Table 2. Differences in self-esteem due to substance use.

	Self-esteem *M* (*DP*)	*t*(458)	*p-value*	*d*
Alcohol consumption		.30	.768	.06
Yes (*n* = 435)	18.56 (5.21)			
No (*n* = 25)	18.24 (5.08)			
Tobacco consumption		-1.14	.257	.11
Yes (*n* = 261)	18.30 (5.22)			
No (*n* = 199)	18.85 (5.17)			
Consumption of other psychoactive substances		-1.10	.272	.11
Yes (*n* = 169)	18.19 (5.21)			
No (*n* = 291)	18.74 (5.19)			

Table 3. Differences in psychological well-being as a function of substance use.

	Psychological well-being *M* (*DP*)	*t* (458)	*p-value*	*d*
Alcohol consumption		-.08	.935	.02
Yes (*n* = 435)	88.31 (16.97)			
No (*n* = 25)	88.60 (19.24)			
Tobacco consumption		.58	0,561	.06
Yes (*n* = 261)	88.74 (17.24)			
No (*n* = 199)	87.80 (16.89)			
Consumption of other psychoactive substances		-0,01	.996	.00
Yes (*n* = 169)	88.33 (17.55)			
No (*n* = 291)	88.33 (16.82)			

DISCUSSION

This investigation aimed to relate the consumption habits of different substances, including alcohol, tobacco and other psychoactive substances, with self-esteem and psychological well-being in college students. Thus, it was found that the most consumed substances among university students are alcohol, tobacco and, as an illegal psychoactive substance, cannabis, in line with the publications of several authors (Araujo et al., 2018; Blows & Isaacs, 2022; Costa et al., 2020; Galvão et al., 2021; Houvèssou et al., 2020; Musyoka et al., 2020; Pires et al., 2020; Reshetnikov et al., 2020; Santos et al., 2019; Silva et al., 2019). As for the age of the first consumption of alcohol, tobacco and the consumption of other psychoactive substances, our results reveal that it happened during adolescence, and most participants recognised that substance consumption occurs among peers, corroborating the results of other studies (Alves & Precioso, 2022; Khamis et al., 2022; Welsh et al., 2019).

Regarding the relationship between gender and substance use, this was statistically significant only with regard to the consumption of other psychoactive substances, which was higher in male participants, with a greater tendency to use cannabis, corroborating the results of previous studies (Araujo et al., 2018; Costa et al., 2020; El Ansari et al., 2020). The relationship between gender and alcohol and tobacco consumption showed a strong disagreement with the existing literature since no statistically significant associations were verified, contrary to several studies whose results report that male students consume more alcohol compared to female students (Newman et al., 2017; O'Malley & Johnston, 2002; Sahu et al., 2022; Sheehama et al., 2022; Tse, 2011) and also, in the case of tobacco (Araujo et al., 2018; Musyoka et al., 2020; Reshetnikov et al., 2020). However, this discrepancy can be understood by the fact that alcohol consumption patterns among male and female students are becoming more similar (Davoren et al., 2016), as evidenced by the results obtained with the percentage of drinkers among very similar sexes.

Although the sample of this study does not present a similar characterisation in terms of gender, the present research is in line with the research by Costa et al. (2020), which states that a statistically significant relationship is not detected between the variables gender and alcohol consumption and, similarly to the present study, higher consumption of psychoactive substances by males was also observed. These results contradict the findings of other studies, congruent with a mostly female sample distribution (Pires et al., 2020; Rabelo et al., 2020). Despite these differences in the sample distribution in the present study, our results confirm high scores of psychological well-being in men, compared to women, contrary to self-esteem, which did not register statistically significant differences between genders. The results of our study contradict the study by Blank et al. (2016), which reveals that moderate or excessive consumption patterns are associated with lower psychological well-being in men and women and, in the case of self-esteem, high self-esteem in males is associated with excessive alcohol consumption, unlike women who drink more, who have lower self-esteem. This discrepancy in results can be explained by the fact that, in the present study, consumption patterns were not distinguished between excessive, moderate or low.

With regard to the association between the consumption of different substances and self-esteem, in the present study, no statistically significant differences were found in self-esteem as a function of substance consumption or found a relationship with the frequency of this consumption in the last 30 days. This means that compared to non-consumers, the higher frequency of consumption of the substances under study is not associated with reduced levels of self-esteem. Our results

were partially confirmed by the study by Costa et al. (2020) on the variables alcohol and cannabis. However, in different investigations (Agante et al., 2010; Arsandaux et al., 2020; Blank et al., 2016), very contradictory results were found to those of the present study, which reveal, for example, the relationship between excessive alcohol consumption, especially by female students and low self-esteem. Similar to the relationship between high self-esteem and lower consumption of other substances (Lee et al., 2018) and low self-esteem with increased tobacco consumption (Szinay et al., 2019). This heterogeneity of results must be analysed with caution since we cannot assume the relationship between consumption habits of different substances with low or high self-esteem (Gierski et al., 2020) since, for example, college students with higher self-esteem, who often have social gatherings typical of university life, may more frequently consume different substances, whose consumption is influenced by peers (Alves & Precioso, 2022) and accessible to these academic groups.

In addition, this study has not yet found an association between the consumption of any type of psychoactive substance and psychological well-being, nor has a relationship been established with the frequency of this consumption in the last 30 days. This also means that when compared to non-consumers of alcohol, tobacco and other psychoactive substances, a higher frequency of consumption of these substances is not associated with a reduction in psychological well-being. We detected several conclusions in the literature inconsistent with these findings (e.g. Blank et al., 2016; Jensen et al., 2021; Rhew et al., 2021; Sofie Plum Christensen et al., 2022; Souza et al., 2021). These results can also be explained by the same reasons in relation to self-esteem, i.e., the high perceived well-being can arouse interest in academic and social life, implying a higher frequency of consumption of different substances, resulting in a high contradiction between several studies reported in the literature.

The university has a fundamental role in the emotional and psychological support of students who may be consumers of any licit or illicit substance. Promote initiatives to inform students about the consequences, risks and dangers of substance use, such as workshops, sports, art and/or music classes, and the development of educational programs in order to create a stress-free environment for students can be effective approaches to preventing this type of self-injurious behaviour.

The present investigation is not without limitations; it is important to mention them and to leave some indications for future studies regarding this theme. Thus, some of the limitations found in carrying out this investigation were the fact that it was a cross-sectional study, not being possible to infer causality; the consumption of alcohol, as well as other types of psychoactive substances, can vary depending on the year of higher education attended, so it would be interesting and necessary to have a longitudinal study with the aim of understanding whether this change really exists or not. The sample used for the preparation of this study consists of a greater number of female participants than males, which is a very common limitation in investigations on this topic. In this way, it would be relevant to understand the reason for the existence of a greater number of female participants than males, trying to counteract this trend, and there is also a need to carry out studies with a larger sample and with a more heterogeneous characterisation of the participants, with the aim of generalising the data to the entire population. The fact that this study had to resort to the memory of the participants regarding the frequency and type of consumption of the studied substances may still be a limitation, as the memory may be subject to errors.

Furthermore, it is possible that some individuals understood the concept of "consumer" as "frequent consumer", declaring that they had already consumed some psychoactive substance other than alcohol or tobacco but identifying the most consumed substance as "none". Consequently, the prevalence of cannabis as the preferred substance of college students may be more pronounced or reduced than the data revealed in the study since it was not possible to consider the substances used by non-regular consumers. We also consider it pertinent to carry out this study considering the number of units consumed and distinguishing consumption episodes between excessive, moderate, or low since they can lead to different consequences. It is also important to mention that the possibility of the social desirability effect being present in this investigation is considered since this topic still presents high stigmatisation. However, this effect may have been reduced by the fact that the responses provided were anonymous.

CONCLUSIONS

The consumption of psychoactive substances is a subject that has gained great relevance in the literature, and it is therefore important to study this topic in various contexts. Thus, this investigation focused on the academic context, more specifically university students, since the consumption of psychoactive substances has increased over the years. Although this study is a pioneer in comparing the associations between self-esteem and psychological well-being with the consumption of psychoactive substances for the same sample, and the main results point to the absence of

statistically significant differences in the same variables, we consider the same study to be very relevant, as it allowed us to reflect on which of these factors has a greater impact on consumption habits. However, there is still a need for more investigations on this topic to have a greater understanding and greater prevention, which is considered relevant for the entire population, particularly for university students and in earlier age groups. The present investigation contributes with a new perspective since it investigates the consumption of each substance not only by the existence of habits but also by its frequency, allowing the understanding of the existence (or non-existence) of the effectiveness of the factor(s) protector(s) in frequent and occasional consumers.

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