

Article

Psychoactive Substance Effect on Mental Health and Well-Being Focusing on Student-Aged Lithuanian Cohort of Sexual Minorities

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Abstract: Mental health refers to cognitive, behavioral, and emotional well-being. However, significant research gaps are still found in disclosing the disparities in mental health outcomes between heterosexual and sexual minority (SM) individuals during the period of 20–24 years of age. Therefore, the aim of this study was to assess the association between the prevalence of psychoactive substance use and the severity of anxiety or depressive symptoms, and well-being across SM and non-SM student-aged populations (N = 1330). This cross-sectional study was conducted in Lithuania over the period of fifteen months following the beginning of the COVID-19 pandemic. This study concentrated on the mental health symptomatology, well-being status, and the prevalence of the psychoactive substance use, which were measured by three screening instruments. In terms of negative well-being, mental health problems, and health-risk behaviors, it was found that the SMs were potentially more exposed than the non-SMs. The current study also revealed a significant impact of substance use (alcohol consumption, cigarette smoking) on the symptoms of anxiety (adjusted odds ratios (AOR) 1.6 (95% confidence interval (CI): 1.0–2.6), AOR 1.5 (95% CI: 1.0–2.2)), and negative well-being (AOR 1.7 (95% CI: 1.0–2.8), AOR 1.7 (95% CI: 1.1–2.5)) across the SM student-aged group. The association between the increased self-administration of cannabis and positive mental health outcomes ascertained to milder anxiety symptoms amid SMs has been identified (AOR 0.5 (95% CI: 0.2–0.9)). Given that minority stressors could play an important part in mediating between the sexual orientation and negative outcomes of mental and behavioral health in student-aged populations, health strategies should focus on the development of effective substance abuse and drug prevention programs, both student-centered and SMs-centered, aimed to reduce health-risk behaviors in emerging adulthood.

Keywords: mental health; anxiety; depression; well-being; health-risk behaviors; psychoactive substance use; students; emerging adulthood; sexual minority

1. Introduction

From a holistic point of view, mental health refers to cognitive, behavioral, and emotional well-being [1]. However, mental disorders worldwide were related to 32% of the disability year, including 13% of disability-adjusted life years [2]. In addition, individuals suffering from mental disorders were more likely to develop a risk for morbidity triggered by general medical conditions [3–5] associated with premature mortality [6]. A new stage of individual development that has a potential impact on a person's mental health has been identified as emerging adulthood delineating adolescents and young adults between 18 and 29 years of age [7]. As long as the most common potential risk factor for the development of mental issues is described as a younger age associated with the instability of life structure, changes in lifestyle and place of residence, economic hardships, or worries about post-academic life [8,9], the target population in many of the research studies was attributed to

student-aged populations at risk of developing the symptoms of a higher level of severity of mental disorders [10–18].

Taking into account that students at the age of emerging adulthood face extensive demands in higher education schools leading to elevated psychosocial distress that tends to result in negative mental health outcomes [19], significant gaps remain to be filled by carrying out the research into the disparities of mental health outcomes between heterosexual and sexual minority (SM) individuals [20].

More specifically, multiple studies have revealed the disparities in mental health outcomes observed between heterosexual and SM individuals in accordance with the minority stress model [21–28], which defines psychological distress mediated by both internalized (i.e., internalized heterosexism) as well as external (i.e., discrimination, harassment, rejection by the family of origin) stressors [21,29]. Several studies have documented that individuals identifying themselves as a SM (bisexual, lesbian, gay, and transgender) reported higher levels of perceived psychological stress [30–33] along with negative outcomes related to severe symptoms of depression and anxiety or other mental disorders, when compared to heterosexual subjects [25,34–40].

Another promising theory is related to the mindsponge mechanism. The mindsponge mechanism suggests that a person's thinking and behaviors are influenced by his/her set of core values [41]. SMs tend to have different value systems from heterosexual people, so their thinking and behaviors are also different. However, if SM persons behave differently from heterosexual people in a social setting, they are more likely to face discrimination, verbal and physical assault, and other forms of harassment. Otherwise, SM people have to try to behave like other heterosexual people, preventing them from being their true selves. Such conflicting mental processes might result in anxiety (an emotion used by apprehension and the somatic symptoms of tension in which an individual anticipates impending danger, catastrophe, or misfortune) and depression (a negative affective state, ranging from unhappiness and discontent to an extreme feeling of sadness, pessimism, and despondency, that interferes with one's daily life). In addition, the SM people feel anxious because of their survival desire in society, while depression results from their prolonged anxiety [42].

The sexual-orientation-related differences could lead not only to negative health outcomes but also to a higher prevalence of psychoactive substances use [43–45]. Based on data derived from some studies, SMs were two times more likely to suffer from mental disorders [46] and two to five times more likely to have substance-use disorders [47] compared to heterosexual individuals. Negative health behaviors, namely, higher rates of tobacco [48], alcohol [49], and drugs [50] use were also associated with negative health outcomes in the cohorts of SMs.

Considering the fact that SMs in emerging adulthood are especially exposed to the situations with a risk of development of both mental disorders [25,34–40] and higher levels of psychoactive substances use [48–50], the gap in studies that have revealed specific differences across student-aged populations still relates to a shortage classifying individuals into sexual orientation categories, such as heterosexual, homosexual, and bisexual. The problem also exists in studies examining the condition of mental well-being in relation to psychoactive substance use among individuals who differ in sexual orientations. Importantly, if there are developmental differences in the onset and prevalence of mental health conditions, scholars [43–52] who have accumulated data across broad age ranges between 18 and 65 years may be underestimating the level of risk for negative health outcomes along with behavioral patterns in a sample of SM emerging adulthood individuals. Meanwhile, Lithuania has not made any progress yet in improving the situation of its LGBTQ+ people, ranking 34th among 49 countries in the latest edition of the ILGA-Europe Rainbow Europe Map and Index, which monitors queer rights across the continent [53]. Thus, this article examined the following research questions (RQ):

RQ1. *To what degree do disparities exist in the proportions of case-level symptoms of mental disorders and negative well-being status in the samples of SMs vs. non-SMs?*

RQ2. *To what extent do disparities exist in the rate of psychoactive substance use across the cohorts of SMs and non-SMs?*

RQ3. *Does psychoactive substance use have an association with mental health problems (the severity of anxiety and depressive symptoms) and well-being status in the samples of SMs vs. non-SMs?*

2. Materials and Methods

2.1. Data Collection and Respondents

This study, which was cross-sectional in its design, was conducted in Lithuania over the period of fifteen months after the beginning of the COVID-19 pandemic declared by the World Health Organization (WHO) on 11 March 2020 [54]. According to Kelsey's formula [55], the representative sample size was 714–1125 cases of the student-aged population, considering a 4% (z-score 1.96) margin of error, a 95% two-sided confidence interval (CI) was calculated. A total of 125,200 students of eligible population were selected from two major cities in Lithuania, namely, Vilnius and Kaunas, from September to November 2021. The simple random sampling was used to recruit the students from higher education institutions. Participants were recruited through the social media Facebook platform (the official 70 Facebook groups) in Lithuania. All Facebook groups were administrated by 21 higher education institutions in Lithuania. The questionnaire was designed as an online survey, and the web-based E-survey research application was applied to gather information (<https://apklausait/private/forms/> (accessed on 2 September 2021)). Depending on the website administration and social media moderation, a link to this survey was periodically submitted and updated in different Facebook groups of universities and colleges. The participation in the survey was provided to 125,200 student-aged individuals. If the students read the instruction detailing the current investigation and had an interest in participating in the survey, then they were sent a link to the website with an online questionnaire. In total, 1426 participants responded to the survey (the response rate in this research was 1.14%). Thus, 123,480 subjects were excluded from the study by reason of deficient entry criteria (without gender identity and/or treated psychiatrically) or declined to fill in the questionnaires. Finally, 18 foreign participants were excluded on the basis of their nationality, as the study was focused only on the Lithuanian students. The data of 1330 students aged 18 to 29 (21.7 ± 3.9 years) within February–June 2022 were included in the analysis. More detailed information on the study recruitment process is provided in Figure 1. The next phase of the present cross-sectional study data analysis was associated with the study population and included two cohorts: a target cohort included SM subjects with a bisexual and homosexual orientation ($N = 223$) and a comparison group was considered as heterosexual individuals ($N = 1107$).

2.2. Measures

The first section of the questionnaire contained questions on age (in years), income (euros per month), gender identity, sexual orientation, housing, and marital status. The gender identity of respondents was measured by the question, "How do you consider yourself?" (with response alternatives of "male", "female", "transgender", "transsexual", or "transvestite"). The sexual orientation of the participants was assessed with the question "What is your sexual orientation?" (with the response options "heterosexual", "bisexual", "homosexual", or "asexual"). Participants were categorized into two sexual groups, namely categories related to heterosexual or bisexual and homosexual orientations related to SMs. The type of housing of the subjects was evaluated by the question "Could you describe the residence you live in?" (with the response alternatives of "with parents", "in one's own apartment", "with friends", "with relatives", "in a rented apartment", or "in the dormitory"). The marital status of students was evaluated by the question "What is your marital status?" (with the response choices "married", "single", "divorced", or "widowed").

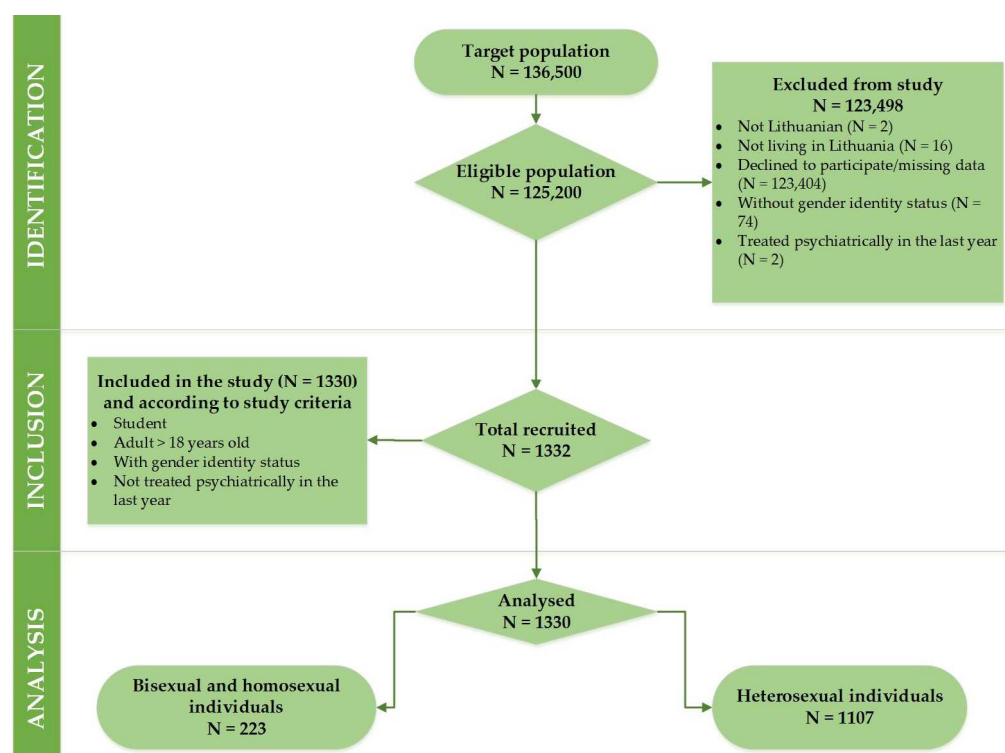


Figure 1. Flowchart of the enrollment of participants.

2.2.1. Mental Health Symptomatology

The hospital anxiety and depression scale (HADS) questionnaire first described in 1983 by Zigmond and Snaith was used to assess the symptoms of anxiety and depression in students [56]. A validated Lithuanian version of HADS [57] was administered. This instrument was widely used for research purposes in Lithuania [58,59]. HADS contains two subscales for measuring the symptoms of depression (HADS-D) and anxiety (HADS-A) experienced during the previous week. HADS questionnaire includes seven issues on each of the symptoms of mental health disorders, and each response consists of a four-point rating scale (scores range from 0 to 3). Sum scores for HADS subscales may range between 0 and 21. A score of 7 or less indicates asymptomatic anxiety or depression, a score between 8 and 10 points indicates borderline symptomatology of anxiety or depression, and a score of 11 and above stipulates that the symptoms of anxiety or depression may potentially point out a case of mental health disorder [59].

2.2.2. Well-Being

The incidence of various health complaints is an important indicator of the physical and psycho-emotional health of young people [60]. To evaluate the well-being index of students, the following questionnaire constructed by the Lithuanian University of Health Sciences (LSMU) was employed [61]. While conducting the study, the information was collected regarding the participants' symptoms and signs related to health concerns. Subjects were asked to indicate on a five-point Likert-type scale (from "very often" (1 score) to "never" (5 scores)) how often they had experienced 26 health-related symptoms that occurred over the last 12 months. According to the International Statistical Classification of Diseases and Related Health Problems (ICD-10) classification system, the symptoms and signs were classified into those that involve the cognition, perception, emotional state, and behavior; the respiratory system; the digestive system and abdomen; general sensations and perceptions; the circulatory system; the nervous and musculoskeletal systems [62]. The well-being index was calculated based on the frequency of self-reported symptoms by summing up the response scores [63]. The estimates of the well-being index ranged from 27 to 108 scores. The interpretation of the results assumed that higher well-being

scores reflected a positive well-being status while lower ones showed a negative state of well-being. In a further analysis, according to the 50th percentile, the total well-being scores were assigned to two groups, namely, the students with a negative well-being status (27–81 score) and the students with a positive well-being status (82–108 score). Additionally, as it was established in the previous study, the measure of Cronbach's alpha was equal to 0.846, and it was also related to a good internal consistency of this well-being scale [61].

2.2.3. The Prevalence of the Psychoactive Substance Use

To assess the prevalence and the patterns of the psychoactive substance use, a survey of 3 semi-open questions was designed to reveal the frequency of alcohol, tobacco, and drug use over the last 12 months (with response options of “never”, “2–3 times a month”, “2–6 times a week”, or “once a day or frequently”). Additionally, respondents were asked to indicate the types of drugs that have been self-administered and report the frequency of use of these drugs over the last 12 months. Psychotropic substances reported by respondents were classified into “cannabis (marijuana)”, “amphetamines”, “MDMA (ecstasy)”, “LSD (lysergic acid diethylamide)”, and “cocaine, heroin”.

2.3. Statistical Analysis

Statistical processing was conducted using SPSS Statistic v. 25 (IBM, Inc., Armonk, NY, USA) and visualization was performed using Microsoft Office Visio v. 16.0 (Standard, Professional, Office 365, Microsoft Corporation, Redmond, WA, USA). The descriptive statistical measures, including the mean and standard deviation (SD), were completed for evaluating the data. To conduct the univariate analysis aimed to compare the baseline demographic characteristics across sexual orientation groups (SMs vs. non-SMs), we used the Pearson's χ^2 test, including Cramer's V (V) correlation coefficients. The correlation coefficient of more than 0.4 indicating a relatively strong or strong correlation between the variables has been analyzed; the correlation coefficient of between 0.2 and 0.4 indicated a moderate correlation; the correlation coefficients of less than 0.2 identifying a weak correlation between the variables have been analyzed.

The Welch's *t*-test (for unequal variances) was used to compare the mean intensities of well-being status, anxiety, and depression symptomatology as well as self-reported administration of psychoactive substances between both of the groups of sexual orientation. In the light of independent *t*-test results, Cohen's *d* was also estimated for a further comparison of the effect size (*d*) of identifying sexual orientation. In consent with Cohen [64], the results were interpreted as follows: small effect size ($d \geq 0.2$ and $d < 0.5$), moderate effect size ($d \geq 0.5$ and $d < 0.8$), and large effect size ($d \geq 0.8$ and $d < 1.3$). The statistical significance level was set at $p < 0.05$.

The multivariate logistic regression models were run to test the associations between the psychological symptoms of anxiety and depression along with the well-being status (dependent variables) and self-reported use of alcohol, tobacco, and cannabis (marijuana) (independent variables) in the samples of individuals with a different sexual orientation. The dependent variables, namely HADS-A ($11 > \text{score} \geq 11$), HADS-D ($11 > \text{score} \geq 11$), and well-being status ($82 > \text{score} \geq 82$), were adjusted to the dichotomous form (1—the absence and mild severity of a mental health problem or state related to the positive well-being (reference categories), 2—higher severity of the selected mental problems or states associated with the negative well-being). Logistic regression models were adjusted for age, income, marital status, and housing. Goodness-of-fit of logistic regression models was assessed using the Nagelkerke R^2 statistic.

3. Results

Figure 2 shows the distribution of anxiety and depressive symptoms along with well-being scores in the students according to sexual orientation disparities.

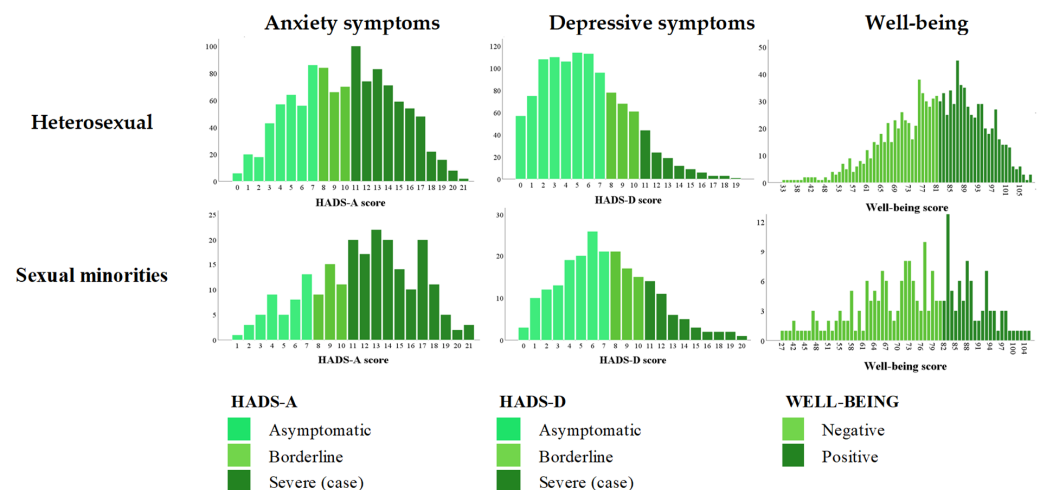


Figure 2. The distribution of HADS-A, HADS-D, and well-being scores in the groups of subjects with different sexual orientations (sexual minorities vs. heterosexual individuals).

Table 1 presents the cohort composition for the sociodemographic characteristics as well as the proportion of the most serious rates of mental health symptomatology and well-being status by sexual orientation of students during the COVID-19 pandemic.

Table 1. The categorization of individuals with different sexual orientations (sexual minorities vs. heterosexual individuals) according to the demographic characteristics, well-being status, and the symptomatology of anxiety and depression.

Variables	Sexual Minorities (N = 223)		Heterosexual (N = 1107)		V ^a /d ^{2,b}	Total (N = 1330)	
	N	%	N	%		N	%
Age (yr), mean ± SD	20.1 ± 2.3		21.9 ± 4.1		0.3 b,***	21.7 ± 3.9	
Gender identity							
Female	177	79.4	909	82.1		1086	81.7
Male	34	15.2	194	17.5		228	17.1
Transgender	7	3.1	3	0.3	0.2 a,***	10	0.8
Transsexual	4	1.8	0	0		4	0.3
Transvestite	1	0.1	1	0.4		2	0.2
Income (euros (€) per month)							
<200	96	43	390	35.3		486	36.6
200–500	88	39.5	391	35.4	0.2 b,***	479	36
>500	40	17.5	325	29.4		365	27.4
Marital status							
Married	8	3.6	54	4.9		62	4.7
Single	211	94.6	1044	94.3	0.05 ^a	1255	94.4
Divorced	4	1.8	9	0.7		13	0.9
Housing							
With parents	80	35.9	391	35.3		471	35.4
In one's own apartment	13	5.8	129	11.7		142	10.7
With friends	6	2.7	48	4.3		54	4.1
With relatives	3	1.3	16	1.4	0.09 ^a	19	1.4
In a rented apartment	73	32.7	283	25.6		356	26.8
In the dormitory	48	21.5	240	21.7		288	21.7
HADS-A score, mean ± SD	11.8 ± 5.7		10.1 ± 4.5			10.4 ± 4.6	
Asymptomatic (score ≤ 7)	44	19.7	350	31.6		394	29.6
Borderline (score: 8–10)	35	15.7	220	19.9	0.4 b,***	255	19.2
Severe (case) (score ≥ 11)	144	64.6	537	48.5		681	51.2
HADS-D score, mean ± SD	7.3 ± 3.9		5.7 ± 3.7			6 ± 3.8	
Asymptomatic (score ≤ 7)	124	55.6	779	70.4		903	67.9
Borderline (score: 8–10)	53	23.8	207	18.7	0.4 b,***	260	19.5
Severe (case) (score ≥ 11)	46	20.6	121	10.9		167	12.6
Well-being score, mean ± SD	80.8 ± 13.2		74.7 ± 14.8			79.8 ± 13.7	
Negative (score: 27–81)	141	63.2	539	48.7	0.5 b,***	680	51.1
Positive (score: 82–108)	82	36.8	586	51.3		650	48.9

^a—the Cramer's V correlation coefficient (V); ^b—the effect size (d); SD—standard deviation; ***—p-value < 0.001. Significant results are highlighted in bold.

In general, subjects reported positive outcomes for severe anxiety (51.2%), severe depression (12.6%), and a negative well-being state (51.1%). Different distributions of the selected mental problems and negative well-being scores were observed in student cohorts according to the disparities in sexual orientation, namely, SMs vs. heterosexual individuals. In a sample of heterosexual students, 48.5% of subjects reported severe anxiety symptoms, 10.9% of subjects experienced severe depression, and 48.7% of individuals reported a negative well-being status. At the same time, in a sample of SMs, higher rates of mental health problems were identified in 64.6% of students with anxiety complaints, 20.6% of participants with depression, and 63.2% of individuals with a negative well-being status. In terms of effect size (d), it can be affirmed that higher rates for anxiety (HADS-A) and depression symptoms (HADS-D) were established in the SM category; therefore, these rates could be assigned to small effect sizes ($d = 0.4$ and $d = 0.4$). Lower rates of well-being scores were also found in SMs; thus, non-heterosexual populations could be attributed as a potential trigger for risking the development of a negative well-being status ($d = 0.5$).

Additionally, Table A1 (Appendix A) provides the results for signs and symptoms associated with the well-being status of students. Self-reported symptoms of the disorders in the nervous (cognition, perception, emotional state, and behavior), respiratory (cough), digestive, circulatory (precordial pain), and nervous as well as musculoskeletal (muscle spasms in the neck and shoulder) systems related to a negative well-being state were more likely to be experienced by the SMs.

Table 2 shows the results for the frequency of self-reported psychoactive substances administration among students. Overall, the most frequently used substances by students were tobacco (46%), alcohol (45.3%), and cannabis (marijuana) (7.5%). The proportion was found significantly lower among drugs, such as MDMA (ecstasy) (1.1%), amphetamines (0.7%), cocaine, heroin (0.7%), and LSD (lysergic acid diethylamide) (0.6%) users. The results for different frequencies of self-reported psychoactive substance use were revealed depending on sexual orientation types. In terms of effect size (d), it can be asserted that the higher rates for tobacco, alcohol, cannabis (marijuana), and amphetamines use were found in the SMs, consequently these rates could be assigned to small effect sizes ($d = 0.4$, $d = 0.3$, $d = 0.3$, and $d = 0.3$).

Table 2. The frequency of self-reported administration of psychoactive substances, such as alcohol, tobacco, cannabis (marijuana), amphetamines, cocaine, heroin, MDMA (ecstasy), and LSD (lysergic acid diethylamide) according to sexual orientation groups.

Variables	Sexual Minorities (N = 223)		Heterosexual (N = 1107)		d	Total (N = 1330)	
	N	%	N	%		N	%
Alcohol use							
Non-Users	100	44.8	628	56.7		728	54.7
2–3 times a month	54	24.2	263	23.8	0.3 ***	317	23.8
2–6 times a week	45	20.2	160	14.5		205	15.4
Once a day or more frequently	24	10.8	56	5.1		80	6
Cigarette (tobacco) smoking							
Non-Users	91	40.8	627	56.6		718	54
2–3 times a month	33	14.8	137	12.4	0.4 ***	170	12.8
2–6 times a week	37	16.6	153	13.8		190	14.3
Once a day or more frequently	62	27.8	190	17.2		252	18.9
Narcotic drugs use (total)							
Non-Users	177	79.4	1009	91.1		1186	89.2
2–3 times a month	20	13.3	59	5.3	0.5 ***	79	5.9
2–6 times a week	11	4.9	21	1.9		32	2.4
Once a day or more frequently	15	6.7	18	1.6		33	2.4
Cannabis (marijuana) use							
Non-Users	192	86.1	1038	93.8		1230	92.5
2–3 times a month	14	14.4	43	3.9	0.3 ***	57	4.3
2–6 times a week	8	1.1	13	1.2		21	1.6
Once a day or more frequently	9	4	13	1.2		22	1.7

Table 2. Cont.

Variables	Sexual Minorities (N = 223)		Heterosexual (N = 1107)		<i>d</i>	Total (N = 1330)	
	N	%	N	%		N	%
Amphetamines use							
Non-Users	216	96.9	1102	95.5		1321	99.3
2–3 times a month	3	0.3	1	0.4	0.3 ***	4	0.3
2–6 times a week	2	0.2	0	0		2	0.3
Once a day or more frequently	2	0.2	1	0.4		3	0.2
Cocaine and heroin use							
Non-Users	221	99.1	1100	99.4	0.003	1321	99.3
2–3 times a month	1	0.4	3	0.3		4	0.3
2–6 times a week	0	0	2	0.3		2	0.2
Once a day or more frequently	1	0.4	2	0.2		3	0.2
MDMA (ecstasy) use							
Non-Users	220	98.7	1095	99.4	0.007	1315	98.9
2–3 times a month	1	0.4	8	0.7		9	0.7
2–6 times a week	1	0.4	4	0.4		5	0.4
Once a day or more frequently	1	0.4	0	0		1	0.1
LSD (lysergic acid diethylamide) use							
Non-Users	220	98.7	1102	99.5	0.06	1322	99.4
2–3 times a month	2	0.9	2	0.2		4	0.3
2–6 times a week	1	0.4	1	0.1		2	0.2
Once a day or more frequently	0	0	2	0.2		2	0.2

d—the effect size; ***—*p*-value < 0.001. Significant results are highlighted in bold.

Figure 3 displays the multivariate logistic regression analysis of the models. The models showed the associations between the scales of anxiety, depression, well-being scores, and the self-reported administration of psychoactive substances, such as alcohol, tobacco, and cannabis (marijuana) in subjects allocated to two types of sexual orientation subgroups.

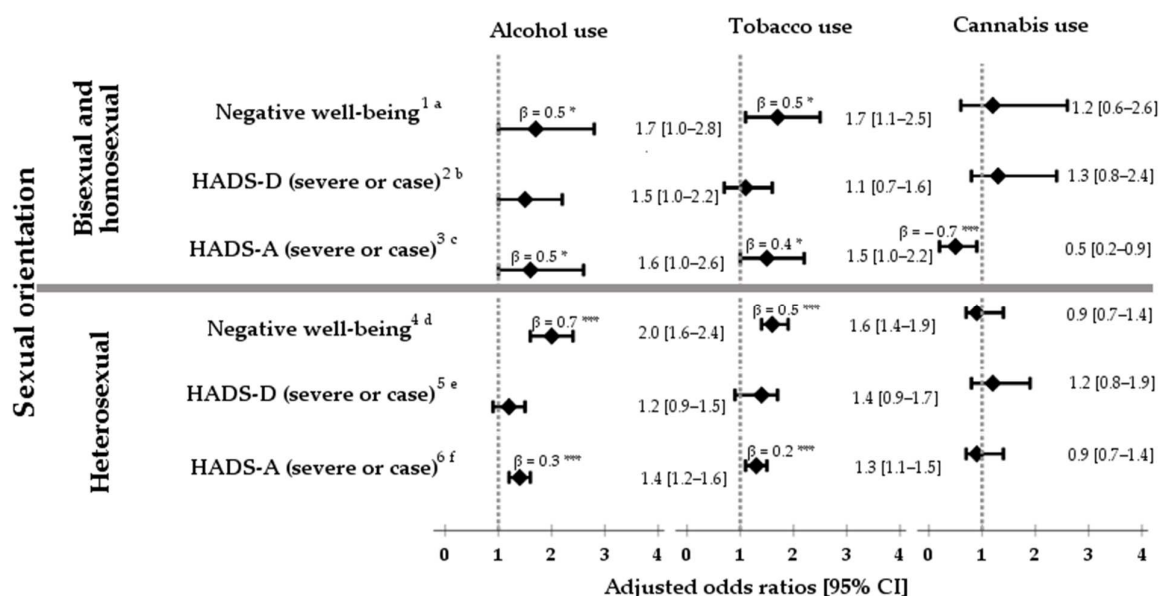


Figure 3. The forest plots summarizing the association between the HADS-A, HADS-D, well-being scores, and the frequency of self-reported use of alcohol, tobacco, and cannabis (marijuana) in the samples of individuals with different sexual orientations (multivariate analyses). AOR—adjusted odds ratio ($AOR = e^{\beta}$); 95% CI—95% confidence interval; *—*p*-value < 0.05, ***—*p*-value < 0.001. ¹—reference category (RC): well-being score: 82–108; ^a—Nagelkerke R^2 (R^2_N) = 0.6. ²—RC: HADS-D score ≤ 10 ; ^b— R^2_N = 0.4. ³—RC: HADS-A score ≤ 10 ; ^c— R^2_N = 0.5. ⁴—RC: well-being score: 82–108; ^d— R^2_N = 0.4. ⁵—RC: HADS-D score ≤ 10 ; ^e— R^2_N = 0.3. ⁶—RC: HADS-A score ≤ 10 ; ^f— R^2_N = 0.3. All logistic regression models were adjusted in terms of age, housing, income, and marital status of study participants.

In case-level HADS severe anxiety, the adjusted odds ratios (AORs) for increased alcohol along with tobacco use in the subgroups of SMs and heterosexual subjects were 1.6 (95% CI: 1–2.6); 1.5 (95% CI: 1–2.2) and 1.4 (95% CI: 1.2–1.6); and 1.3 (95% CI: 1.1–1.5), respectively. Similarly, in a negative well-being state, the AORs for increased alcohol along with tobacco use in the cohorts of SMs as well as heterosexual students were 1.7 (95% CI: 1–2.8); 1.7 (95% CI: 1.1–2.5) and 2 (95% CI: 1.6–2.4); and 1.6 (95% CI: 1.4–1.9), respectively. Meanwhile, milder symptoms of anxiety had an association with an increased administration of cannabis (marijuana) (AOR 0.5 (95% CI: 0.2–0.9)) in a sample of SMs.

4. Discussion

4.1. The Disparities in Mental Health, Well-Being and Behavioral Health

The relationship between the SM status and mental issues, such as depression and anxiety, are the strongest during the period of 20–24 years of age [65]. Hence, anxiety and depression are the most reported mental disorders by university students [66]. Our study found that the proportions of clinically relevant symptoms of anxiety and depression in the sample of Lithuanian higher education students, with an approximate 4:1 ratio, were 51.2 and 12.6%, respectively. According to the current study, the unevenness was observed between mental health outcomes when comparing the generalized prevalence of anxiety and depressive symptoms (24.5 and 26.1%), with an approximate 0.9:1 ratio, across student-aged populations in other countries [67]. In addition, the findings of population-based studies carried out over the last 20 years revealed an overall higher risk for mental health problems in SM people than in heterosexual individuals [68]. To test this hypothesis in Lithuania, our study examined mental health disparities among students identified in non-SM and SM groups. Taking into account the results of this study conducted during the COVID-19 pandemic, SM students reported a higher prevalence of both severe depressive and severe anxiety symptoms compared with heterosexual students. The findings of this study were in line with the report of the Fruehwirth et al. study [69], which revealed the more intense expression of severe symptoms of anxiety and depression in the SM students' cohort as well as the increased prevalence rates of these mental issues after the COVID-19 pandemic began. The current results from our study were empirically linked to the minority stress theory, which predicts the disparities in mental health outcomes for individuals with minority sexual orientations compared with heterosexual people in terms of the excessive minority stress potentially triggered by stigma-related experiences (i.e., discrimination, verbal and physical violence, microaggressions) [21,70–72].

In addition, sexual orientation disparities were empirically associated with the experiences of minority stressors; therefore, disparities in well-being status between SMs and heterosexual individuals were also earlier detected by scholars [44,45]. Still, our findings demonstrated the higher rate of well-being indexes identifying more negative well-being outcomes referred to self-reported complaints of disorders in the nervous, respiratory, digestive, circulatory, nervous, and musculoskeletal systems in a group of SM students compared with heterosexual students during the COVID-19 pandemic. These results of our study not only appertained to the negative SMs well-being status but were also consistent with the currently published work of Fish et al. [73], who observed similar sexual identity disparities revealed by several indicators of well-being during the COVID-19 crisis between adult bisexual vs. heterosexual subgroups in the United States.

When assessing health-related behavior across student-age populations, including SMs, it is necessary to highlight that research conducted over the past 20 years has reliably revealed that SMs were more likely to be involved in hazardous drinking and experience alcohol use disorders or abuse and become dependent on illicit drugs compared to heterosexual individuals [74]. Furthermore, SMs were more likely to use tobacco products than heterosexual individuals of their same age and sex [75–78]. In the light of this data, the current study first of all clarified the health-risk behaviors allied to the largest proportions of tobacco, alcohol, and cannabis (marijuana) users corresponding to 46, 45.3, and 7.5% of the Lithuanian higher education students. When comparing our survey data

associated with the mid-pandemic report derived by the national drug, tobacco, and alcohol department [79], it was found that students aged 18–29 years were less likely to consume alcohol; nevertheless, they were more likely to engage in cigarette and cannabis (marijuana) smoking compared with the proportions of alcohol, tobacco, and marijuana consumers (62, 34.9, and 4.3%, respectively) representing the Lithuanian residents of the age group within the range of 15–64 years. Secondly, the current study also disclosed higher proportions of student-aged users of tobacco, alcohol, cannabis (marijuana), and amphetamines found in a category of SMs compared to a group of heterosexuals. The less frequent use of alcohol and the increase in cigarette smoking in students compared to the general population can be explained by the fact that, overall, the rates of alcohol and drug use peak in early adulthood (ages 18–20) and decrease as individuals age [80]. Meanwhile, SMs have a greater likelihood of tobacco use disorder in emerging adulthood (aged 18–28) and the disparity declines with age [65]. Thus, a potential driver of smoking status amid SMs may be related to SM stressors and discrimination [81], which has been also reported at the highest rates during emerging adulthood [65].

4.2. Association between the Mental Health Symptomology, Well-Being Index, and the Health-Risk Behaviors

Another important issue of this study is linked to the relationship between the health-risk behaviors and the negative consequences triggered by psychoactive substances on mental health and well-being status across the groups of both SMs and heterosexuals. This study demonstrated that alcohol- and tobacco-related consequences were associated with an increased severity of anxiety symptoms along with negative outcomes of well-being indices in both cohorts identified in SMs and heterosexual individuals. These results were consistent with the data published by scholars, namely Smith et al. [82], Johnson et al. [83], and Kcomt et al. [84], and unveiled that anxiety can result from alcohol- and tobacco-related disturbances in both the general population and SMs. However, the current study did not detect any significant association between the increased severity of depressive symptoms and alcohol abuse or cigarette smoking. Apart from that, our findings were similar to the previously published data [85] identifying the absence of correlation between alcohol consumption and depression symptomatology among SMs.

This study also found results concerning an inverse relationship between the increased rates in the frequency of cannabis (marijuana) administration and the decreased severity of anxiety symptoms suffered by SMs. These study findings were still consistent with the data reported by some experimental [86,87] and population-based studies [88–90] on the benefits of cannabis use for mental health (in terms of the positive outcomes of anxiety or depression). However, the subjects recruited into this study were illicit non-medical cannabis (marijuana) users. It remains unclear on the doses of non-medical cannabis (marijuana) used by SMs in Lithuania, which is a country that has not yet legalized the recreational use of cannabis. In addition, chronic exposure to tetrahydrocannabinol (THC) can cause cannabis-related neurotoxic effects along with cognitive impairment [91], panic disorder [92], increased risk for developing depression [93], and other unwanted physical health problems [91]. While the long-term consequences of using medical or non-medical cannabis, perhaps as a form of self-medication or for anxiety, still remain unclear, the current study highlights the need for both randomized controlled trials along with longitudinal studies examining the symptom improvement and safety of medical cannabis use with average doses of 2.5 g/d [86] in SMs with anxiety disorder.

4.3. Limitations of the Study

This study has several limitations. First, it is widely admitted that the SM population is heterogeneous. Health disparities, for example, have been identified to vary by biological sex [43,51] and sexual identity (i.e., bisexual vs. lesbian) [46,94]. Other scholars have analyzed disparities related to SMs health across different cohorts, such as racial or ethnic [95]. In the current analysis, we did not analyze the differences within SMs, but instead high-

lighted more broadly the developmental disparities observed in well-being, mental health, and health-risk behaviors in student-aged emerging adulthood individuals identified in different sexual orientations. Second, the survey we have conducted included measures of gender identity; however, we were unable to examine the disparities by gender-identity due to the relatively small sample size of the Lithuanian SMs. Therefore, it would be rational in the future to conduct empirical research in all Baltic States, namely Lithuania, Latvia, and Estonia. Third, other limitations of our study were associated with the self-report nature of data collection instead of clinical diagnoses. Finally, another limitation of this study was related to the fact that the causal association between the psychoactive substances use and mental issues along with well-being status should be elucidated with caution as this national survey was based on a cross-sectional design.

5. Conclusions

The present study demonstrated that the prevalence rate of consequences related to a negative well-being state, the severity of both anxiety and depressive symptoms, health-risk behaviors were relatively high among higher education students during emerging adulthood.

In terms of negative well-being, mental health problems, and health-risk behaviors, it can be declared that the sexual minority group was potentially more exposed than the heterosexual-identified student cohort. Sexual minority individuals were at a higher risk for the development of severity anxiety or depressive symptoms, a negative well-being state, as well as health-risk behaviors related to an increased use of alcohol, tobacco, and drugs, such as cannabis (marijuana) and amphetamines.

Regardless of sexual minority status, this study revealed the association between clinically relevant anxiety symptoms, a negative well-being, and the health-risk behaviors involved both the frequency of alcohol consumption measure along with cigarette smoking rate across student-aged populations. The findings of the current study also identified the relationship between the increased self-administration of cannabis (marijuana), and positive mental health outcomes appertained to milder anxiety symptoms among student-aged sexual minorities. However, this study did not support the association between the higher levels of the most common psychoactive substance use and the elevated prevalence of clinically relevant depressive symptoms.

Given that minority stressors could play a significant role in mediating between the sexual orientation and the negative outcomes of mental health and behavioral health in student-aged populations, health strategies should focus on the necessary monitoring of anxiety and depression together with routine evaluation of changes to sexual minorities' mental health and health-risk behaviors. The study also highlights the importance of developing both student-centered and sexual minorities-centered effective substance abuse prevention programs coupled with drug prevention programs for reducing health-risk behaviors in emerging adulthood individuals.

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Appendix A

Table A1. Mean scores of self-reported symptoms and signs related to the well-being in students with different sexual orientations (sexual minorities vs. heterosexual individuals).

Symptoms and Signs	Sexual Minorities (N = 223)	Heterosexual (N = 1107)	<i>d</i>
	Score (Mean ± SD)	Score (Mean ± SD)	
Symptoms and signs of the disorders in the nervous system (cognition, perception, emotional state, and behavior)			
Nervous tension	1.8 ± 0.8	2.1 ± 0.9	0.3 ***
Exhaustion after only a minimal effort	2.4 ± 0.9	2.7 ± 0.9	0.3 ***
Neurasthenia	1.7 ± 0.7	2.0 ± 0.8	0.3 ***
Irritability and anger	2.1 ± 0.8	2.2 ± 0.7	0.2 **
Demoralization and apathy	2.3 ± 1.0	2.8 ± 0.9	0.4 ***
Mental fatiguability	2.6 ± 1.0	2.9 ± 1.0	0.3 ***
Dizziness and giddiness	2.6 ± 0.9	2.8 ± 0.9	0.2 **
Tension headaches	2.6 ± 0.9	2.8 ± 0.9	0.2 *
Nonorganic insomnia	2.1 ± 0.9	2.3 ± 0.9	0.2 **
Exhaustion due to excessive exertion	2.4 ± 1.0	2.8 ± 2.1	0.4 ***
Alcohol craving	3.3 ± 0.9	3.0 ± 1.0	0.3 ***
Tobacco craving	2.7 ± 1.2	3.1 ± 1.2	0.3 ***
Drug craving	3.5 ± 0.9	3.8 ± 0.6	0.5 ***
Symptoms and signs of the disorders in the respiratory system			
Nasal catarrh	3.3 ± 0.8	3.4 ± 0.9	0.1
Cough	3.4 ± 0.8	3.6 ± 0.7	0.3 **
Symptoms and signs of the disorders in the digestive system and abdomen			
Nausea	3.3 ± 0.8	3.5 ± 0.8	0.2 *
Digestive problems, stomach pain	2.9 ± 0.9	3.2 ± 0.8	0.3 ***
Psychogenic loss of appetite	2.7 ± 1.1	2.9 ± 0.9	0.2 ***
Difficulties with defecation	3.2 ± 1.0	3.4 ± 0.9	0.2 **
Symptoms and signs of the disorders in the nervous system (general sensations and perceptions)			
Subjective visual disturbances ¹	3.0 ± 0.6	3.2 ± 1.1	0.1
Auditory hallucinations ²	3.7 ± 0.7	3.7 ± 0.6	0.1
Symptoms and signs of the disorders in the circulatory system			
Precordial pain	3.2 ± 0.8	3.4 ± 0.8	0.2 **
Elevated blood-pressure reading ³	3.4 ± 0.8	3.5 ± 0.8	0.1
Symptoms and signs of the disorders in the nervous and musculoskeletal systems			
Psychogenic backache	2.6 ± 1.1	2.7 ± 1.0	0.1
Muscle weakness and fatigue	2.8 ± 1.1	2.9 ± 1.0	0.1
Muscle spasms in the neck and shoulder	2.7 ± 1.1	2.9 ± 1.0	0.2 **

¹—asthenopia; ²—paracusia; ³—elevated blood-pressure reading without hypertension. *d*—the effect size; *—*p*-Value < 0.05, **—*p*-Value < 0.01, ***—*p*-Value < 0.001. Significant results are highlighted in bold.

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