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Post-pandemic psychosocial variables affecting academic dropout in a sample of Chilean higher-education students

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Introduction: University dropouts are a problem in the Chilean higher education system, which causes psychosocial and economic damage and requires further studies to understand it comprehensively. This study aimed to determine the psychosocial variables influencing the risk of dropping out of the higher education system in a sample of Chilean university students post-pandemic.

Methods: With a sample of 655 students from the Chilean higher education system and with a cross-sectional study design taken in November 2022, a questionnaire was applied with sociodemographic and other variables of interest, the Depression, Anxiety and Stress Scale DASS-21, the EAC-19 Coronavirus Affect Scale, the ECE Emotional Exhaustion Scale; the Okasha Suicide Scale, and the Insomnia Severity Index (ISI). We performed descriptive, bivariate, and multiple logistic regression analyses through SPSS version 25. Variables with a value of p <0.05 in the final model were declared statistically significant. Odds ratios (OR) were adjusted to 95% confidence intervals (95% CI), which were used to determine the independent predictor variables.

Results: Significant variables for the risk of dropping out of higher education were: failing four or more courses [AOR = 3.434; 95% CI: 1.272, 9.269], having depressive symptoms [AOR = 1.857; 95% CI: 1.214, 2.839], having suicidal ideation and thoughts [AOR = 2.169; 95% CI: 1.509, 3.118], having clinical insomnia [AOR = 2.024; 95% CI: 1.400, 2.927], low parental support [AOR = 1.459; 95% CI: 1.029, 2.069], impaired performance during the pandemic [AOR = 1.882; 95% CI: 1.317, 2.690], and impaired socioeconomic status during the pandemic [AOR = 1.649; 95% CI: 1.153, 2.357].

Conclusion: Chilean higher education institutions should pay attention to the risk factors resulting from this research, such as students with more than four failed courses during their career, depressive symptoms, suicidal thoughts, clinical insomnia, low parental support, and affectation in performance and socioeconomic level during the pandemic, which could contribute to improving academic retention indicators.

KEYWORDS

dropout, psychosocial factors, mental Mealth, Chilean students, higher education

1 Introduction

In recent decades, university student dropout causes and implications have been studied. However, its risk factors have not yet been established (Bardach et al., 2020), even less so in the Chilean higher education system and with students with a high prevalence of symptoms connected to anxiety, depression, and post-pandemic stress (Martínez-Líbano et al., 2023). Consequently, this study aimed to determine the psychosocial variables influencing the risk of dropping out of the higher education system in a sample of post-pandemic Chilean university students.

Dropout can be understood as the definitive termination of the higher education system without obtaining an academic degree (Heublein, 2014). It can also be considered students dropping out of higher education before completing their academic program (Croninger and Lee, 2001). More specific definitions explain that dropping out can be understood as "a student who is enrolled in public school, does not return to public school the following fall, is not expelled, and does not graduate, receive a General Educational Development (GED) certificate, continue school outside the public school system, begin college, or die" (Texas Education Agency, 2023). Therefore, a standard definition encompassing different educational systems, public and private, and at different educational levels would define dropout as the voluntary act of a student not returning to the educational system before completing their academic program.

In 2020, more than 300,000 university students worldwide dropped out of school. The university dropout rate reached 18.6% in 2020, an indicator six points higher than that recorded in 2019, equivalent to 12% (Vega et al., 2022). The dropout rate in some studies in the first and second year reaches 44.8, 15.9% in the third year, and 15.9% in the fourth year (Alban and Mauricio, 2019). A university dropout rate of over 40% in Latin America has been observed (Fonseca-Grandón, 2018). Attrition results from the interaction of factors that negatively influence students not completing their university studies (Casanova et al., 2023).

University dropouts in Chile present a series of indicators and problems that reflect the complexity of this phenomenon. In some studies in Chile that account for that in regular undergraduate programs, the dropout rate before the social outbreak in the first semester of 2019 was 3.97%, a reduction of 0.14% compared to the second semester of 2018. However, during the second semester of 2019, the attrition rate increased by 0.55%, ending the year at 4.52% (Tercera, 2023). A crucial aspect is the difference in dropout rates between public and private universities, which is higher in the former (Gutiérrez et al., 2021)). This indicator suggests challenges inherent to the management and resources of state institutions. In addition, dropout affects students and their families and significantly impacts the educational system and society in general, as it limits the development of qualified human capital and increases inequity in access to higher education.

Several key elements have been identified regarding the specific factors of university dropout in Chile. Academic performance is a cross-cutting factor, particularly critical during the first year of studies (Gallegos et al., 2018). Other factors include region of origin, age, year of entry, and education funding, which play an essential role in student retention (Barrios, 2011). These results underscore the importance of effective university management and well-targeted funding policies to reduce dropout and promote equity in higher education.

The decision to drop out of the current curriculum can best be understood as a protracted, complex, and multifaceted process in which different influencing factors accumulate to create a constellation of problems that makes dropping out seem inevitable (Bardach et al., 2020). Specifically, researchers often distinguish between students' structural and individual characteristics (Heublein, 2014).

Possible college dropout factors include incompatibility between work and study time (Quinn, 2004; Behr et al., 2021), economic factors (Casanova et al., 2021; Aina et al., 2022), personal factors (Kemper et al., 2020; Tsai et al., 2020), vocational orientation (Schnettler et al., 2020; Casanova et al., 2021), motivational factors (Jiang et al., 2020; Kryshko et al., 2020), unmet expectations (Marôco et al., 2020; Aina et al., 2022), course quality (Perez et al., 2018; Del Bonifro et al., 2020), university environment (Suhlmann et al., 2018; Nicoletti and do Carmo., 2019) and absence of university services to solve problems in the course process (Coppari et al., 2019).

From an educational approach, according to the results of empirical studies, the inability to cope with the performance-related demands of the higher education institution, false expectations, and lower identification with the course, as well as problems in financing the studies, are considered the most important reasons for dropout (Heublein, 2014). Likewise, in online university education, dropout is due to previous academic performance, age, gender, personal circumstances, and self-learning and online learning skills (Orellana et al., 2020). In addition, the lack of technological tools, such as online support tools for students, both academic and psychological, and everything related to the digital environment, generates helplessness in students, becoming a key dropout factor (Saldarriaga et al., 2021).

On the other hand, other factors relevant to a student's tendency to drop out are the historical weighted average of their grades, the weighted average of their grades in the last cycle, or the number of credits passed in their courses (Vega et al., 2022). The critical problem for many tertiary-level students is learning how to learn. Learning can and should be learned, and the way to learn it is through guided-conscious learning (Kaschek, 2020).

In addition, the results show that the cost and burden on students, financial resources, qualitative and quantitative teacher characteristics, and university type/size significantly affect college dropout (Kim and Kim, 2018). From a social approach, other results indicate that graduates from more disadvantaged socioeconomic backgrounds experience difficulties completing their studies on time despite controlling for academic performance, educational behaviors, program characteristics, and institutional characteristics (Zarifa et al., 2018). Family situation and peer relationships correspond with students' dropout intentions; three main findings are revealed: (1) parents' educational aspirations negatively influence dropout tendency, (2) in general, students living in a couple have shown lower dropout intentions. However, a new association favors the tendency to drop out, and (3) the presence of close friends decreases students' dropout intentions (Baalmann et al., 2022).

Equally important is the fact that students face a variety of stressors, such as independent living, adapting to a new social environment, and academic pressure, making them particularly susceptible to mental health problems (Shu et al., 2022).

From a mental approach, epidemiological studies have indicated that one in three college students has experienced at least one mental disorder in the past twelve months, with anxiety and depression being the most frequent diagnoses. Depressive and anxiety symptoms burden students and society considerably because of their association with strained interpersonal relationships and poor functioning (Auerbach et al., 2018).

Common mental disorders, such as depression and anxiety, often appear in college students during the transition to early adulthood. Mental health problems can severely affect students' functioning, interpersonal relationships, and academic performance (Karyotaki et al., 2022).

College students experience higher rates of depression than the general population. Depression in students is often associated with risky behaviors, such as suicidal thoughts and attempts, non-suicidal self-injury, and substance abuse (Halicka and Kiejna, 2018; Mars et al., 2019). Early identification and treatment can improve depressive symptoms, increase academic performance, and prevent school dropout (Wang et al., 2021). However, most college students with mental health problems do not receive psychological care despite the counseling services available at many universities (Shu et al., 2022). If professionals could become familiar with the unique problems characteristic of the developmental stage and environment in which college students find themselves, they could better serve them, using technology to increase adherence (Karyotaki et al., 2022). As a result, students who drop out of college can suffer economic and psychological consequences if they do not complete a study program, affecting future job skills.

The current global higher education scenario reveals a complex interplay of challenges and developments, in which student dropout emerges as a critical problem, aggravated by the COVID-19 pandemic and exacerbated by pre-existing inequalities (Anders et al., 2021; Farcnik et al., 2022). With approximately 235 million students enrolled in universities, there is a wide disparity in enrollment rates, representing only 40% of the college-age population, evidencing significant differences across regions and countries (Öztürk and Dayıoğlu, 2023). The pandemic has disproportionately affected the most vulnerable (Gaynor and Wilson, 2020; Yeomans Cabrera and Silva Fuentes, 2022), forcing a rapid transition to online education, a modality for which many institutions were not adequately prepared, leading to a deterioration in the quality of teaching and learning (Barbour et al., 2020). This scenario reflects an urgent need for reform and adaptation in higher education to address both dropout rates and intrinsic inequalities in access and quality of education globally (Vidal et al., 2022). Therefore, a better understanding of dropout factors in higher education can contribute to the well-being of individual students and is essential to reducing college dropout rates and improving job skills for future generations (Bardach et al., 2020).

The hypotheses of this study are:

> *H1*: Students with high mental health problems are likelier to drop out.
>
> *H2*: Students with low levels of personal and family support are likelier to drop out.
>
> *H3*: Students with higher involvement rates in the COVID-19 pandemic are likelier to drop out.

2 Materials and methods

The present study was a cross-sectional descriptive study with a sample of 655 Chilean higher education students, with a maximum error of 3.8% for a 95% confidence interval, using the STROBE cross-sectional reporting guidelines (Von Elm et al., 2007). This study aimed to determine the psychosocial variables influencing the risk of dropping out of the higher education system in a sample of post-pandemic Chilean university students.

The inclusion criteria for participants in the study included being of legal age, studying in a higher education institution when answering the survey, having internet access, answering in the survey language (Spanish), and approving informed consent before beginning to answer the questionnaires. The exclusion criteria were incomplete questionnaires. There were two cases where participants answered the whole questionnaire but did not approve the informed consent. Those cases were not included in the data analysis.

2.1 Sample

This study used a probability sample of higher education students from different institutions and disciplines. The selected sample consisted of 655 students—according to data from the Ministry of Education, in 2021, there were 1,204,414 students enrolled in Chilean universities (Subsecretaría de Educación Superior, and Servicio de Información de Educación Superior, 2021). The sample size was associated with a maximum observed error of ±3.8%, assuming maximum variance and a 95% confidence level. Finally, a bivariate analysis and multiple logistic regression were performed to confirm what was identified in the descriptive analysis.

A snowball sampling approach was adopted for this study; the questionnaire was distributed between October 2022 and November 2022 using social networking platforms, and we had the collaboration of volunteers from several Chilean universities. These initial participants helped us to recruit more participants among their networks. This methodology was chosen due to its effectiveness in reaching specific populations that are difficult to access using conventional sampling methods (Johnston and Sabin, 2010). Only one response was allowed per email account to avoid response duplication or fraud. Although this method may introduce selection and non-response bias and does not guarantee a random sample, it is useful in exploratory research where access to the target population is limited (Trotter, 2012). Regarding early vs. late bias, it is not possible to analyze it since, for the nature of the snowball method, we cannot know how long it took for someone to decide to answer the questionnaire (e.g., someone might have received the link to the last day that the questionnaire was available and decided to respond immediately).

The sample consisted of higher education students in Chile, selected initially through direct contacts and then through their networks. This approach allowed for a wide dissemination of the study questionnaire. Calculating the response rate in a study using the snowball method is not feasible because of the unknown total population reached, the continuous and nonlinear recruitment process, the lack of a clear starting point, and the voluntary and self-selected participation (Parker et al., 2020).

2.2 Data collection

A Google Form questionnaire was distributed among university students through the most popular social networks. In addition, respondents were asked if they could send the questionnaire to other co-workers who were also studying in higher education. Only questionnaires for which the student gave explicit and informed consent were considered, and all data were treated confidentially.

2.3 Measures and instruments

The following instruments were selected for this study since their objectives align with the primary objective of this research and are already validated instruments for the Chilean population, with good reliability indicators.

2.3.1 The depression anxiety stress scale

Lovibond and Lovibond (1995): the DASS-21 presents three subscales with self-report characteristics to assess the frequency and occurrence of symptoms. It has items for depression, anxiety, and stress (7 for each). Each item is scored from 0 (does not affect me at all) to 3 (affects me a lot or most of the time) during the previous week. The scale score is calculated by summing the scores of the relevant items, ranging from 0 to 21 (Parker et al., 2020), which would present an Alpha of.85 for the Chilean population (Antúnez and Vinet, 2012). This study's reliability was $\alpha = 0.950$, and $\omega = 0.951$.

2.3.2 Okasha suicide scale

Okasha et al. (1981) this questionnaire consists of five items, with responses on a Likert scale. The first four items explore suicidal ideas of different intensities; the fifth item asks about attempted suicide. Each item has four possible answers: never, rarely, sometimes, and many times. The answers refer to the last 12 months. This study's reliability was $\alpha = 0.892$, and $\omega = 0.905$.

2.3.3 Insomnia severity index

Morin (1993) is a brief self-report instrument that measures the perception of insomnia in terms of its nature, severity, and impact. It was developed to assess insomnia in the general population and is one of the most suitable instruments for clinical practice (Bastien et al., 2001). Seven items provide information on three factors (severity, impact, and satisfaction). Each item is answered with a Likert scale ranging from 0 (no problem) to 4 (many problems), forming a total score ranging from 0 to 28 (the higher the score, the greater the severity of insomnia). This study's reliability was $\alpha = 0.795$, and $\omega = 0.743$.

2.3.4 COVID-19 scale of affectation (EAC-19)

Martínez-Líbano (2023b) this self-administered questionnaire measures the degree to which university students have been affected by the pandemic, with 10 Likert-formatted items. The scale measures various areas of impact on the lives of university students, such as emotional state, socioeconomic status, social life, family life, academic performance, and mental health, among others. This study's reliability was $\alpha = 0.833$ and $\omega = 0.831$.

2.3.5 Emotional exhaustion scale

Ramos et al. (2005): this scale comprises 10 items in Likert format. The items are scored from 1 to 5 (rarely to always), considering the last 12 months of the student's life. The score obtained in the ECE ranges from 10 to 50 points. This scale is validated for Chile (Martínez-Líbano et al., 2022). This study's reliability was $\alpha = 0.903$, and $\omega = 0.905$.

2.3.6 Questionnaire on sociodemographic variables

This section comprises data such as age, sex, sexual orientation, marital status, children, academic program, and year of study.

2.3.7 Questionnaire research related variables

Questions were asked about dropping out of studies and the perception of support from the different strata concerning the mental health of university students. All these variables were dichotomized into Yes/No. For example, "I have thought about dropping out in the last few months"; I have the support of my parents; I have the support of my teachers, among others, etc.

2.4 Statistical analysis

SPSS version 25 (IBM, 2017) was used for the statistical analysis of this study. The first step was descriptive analysis (frequency and percentage). Next, a bivariate analysis was performed with the X^2 (Chi-square) test to determine the differences between the student's dropout risk and the independent variables. For variables with significant differences (less than 0.05), we applied a category analysis using 2×2 tables to determine X^2 and Odds Ratios. Finally, we performed a binary logistic regression to identify the psychosocial variables at risk of dropping out of college.

2.5 Ethics statement

This study was approved by the Central Bioethics Committee of the Universidad Andrés Bello under registry 024/2022. It should be noted that no compromising information was requested that could identify the students who participated in the research. Finally, all participants approved the informed consent at the beginning of the questionnaire, and none were compensated for participation.

3 Results

This study aimed to determine the psychosocial variables influencing the risk of dropping out of the higher education system in a sample of post-pandemic Chilean university students. The present study sample consisted of 655 students from the Chilean educational system. The ages ranged from 18 to 62 years with a mean of 22.12 years ($SD = 3.25$), 77.4% of the sample was female, 22.6% was male, 575 (87.8%) belonged to Chilean universities, and 80 (12.2%) belonged to Chilean institutes or technical training centers. The sample's characteristics and the description of the sociodemographic variables can be seen in Table 1.

The statistical association of the variables and the risk of dropping out was possible by performing a comparative statistical analysis

TABLE 1 Sociodemographic variables.

Variables	Category	Frequency (*n*)	Percent (%)
Sex	Woman	507	77.4
	Male	148	22.6
Age	Adolescent (18–20 years old)	181	27.6
	Young Adult (21–40 years old)	471	71.9
	Adult (41 or older)	3	0.5
Sexual preference	Heterosexual	441	67.3
	Sexual Minority	214	32.7
Couple	With Partner	40	6.1
	Without Partner	615	93.9
Children	Yes Children	28	4.3
	No Children	627	95.7
	Large City	424	64.7
City	Small City	231	35.3
Nationality	Chilean	645	98.5
	Foreign	10	1.5
Study area	Arts and Communications	33	5.0
	Basic Sciences	31	4.7
	Social Sciences	195	29.8
	Education	54	8.2
	Engineering and Business	128	19.5
	Law	29	4.4
	Health	185	28.2
Student admission	Pre-Pandemic	275	42.0
	In Pandemic	275	42.0
	Post Pandemic	105	16.0
Activity	Only Study	474	72.4
	Work and Study	181	27.6
Type of school	University	575	87.8
	Institute	80	12.2
Grades average (1–7)	Less 5.0	120	18.3
	5.1 to 5.5	150	22.9
	5.6 to 6.0	342	52.2
	6.1 to 6.5	109	16.6
	6.6 to 7.0	19	2.9
	I have never failed a course	391	59.7
	I have failed one course	100	15.3
	I failed two courses	50	7.6
	I failed three courses	38	5.8
	I failed four courses	76	11.6
Academic progress in years	First Year	127	19.4
	Second year	145	22.1
	Third Year	158	24.1
	Fourth Year	146	22.3
	Fifth Year	214	32.7
	In the process of graduation	11	1.7
Monthly family income (in Chilean pesos)	300,000 or less per month	85	13.0
	300,001 to 500,000 per month	125	19.1
	500,001 to 800,000 per month	119	18.2
	800,001 to 1,000,000 per month	93	14.2
	1,000,001 to 1,500,000 per month	90	13.7
	1,500,001 to 2,000,000 per month	38	5.8
	2,000,001 to 2,500,000 per month	35	5.3
	2.500.000 a 3.000.000	19	2.9
	3,000,001 or more per month	48	7.3

through X2 between the students at risk of dropping out and those who were not. The details can be seen in Table 2.

To determine odds ratios relative to variables associated with dropout in higher education students, significantly associated variables in the categorical analysis were subjected to category analysis using 2 × 2 tables. Details can be found in Table 3.

From the logistic regression performed with the significant variables, we can see that the predictor variables of dropout risk in higher education students were failing four or more courses [AOR = 3.434; 95% CI: 1.272, 9.269], presenting depressive symptoms [AOR = 1.857; 95% CI: 1.214, 2.839], having suicidal ideation and thoughts [AOR = 2. 169; 95% CI: 1.509, 3. 118], having clinical insomnia [AOR = 2. 024; 95% CI: 1. 400, 2. 927], poor parental support [AOR = 1. 459; 95% CI: 1. 029, 2. 069], impaired performance [AOR = 1. 857; 95% CI: 1. 214, 2. 839], presenting suicidal ideation and thoughts [AOR = 2. 069], impaired performance during the pandemic [AOR = 1.882; 95% CI: 1.317, 2.690], and the impaired socioeconomic

TABLE 2 Analysis of psychosocial variables with contingency tables to determine statistically significant differences in the risk of academic attrition.

Measurement areas	Variables	X^2	df	*p*-value
Sociodemographic variables	Sex	2.347	1	0.126
	Sexual Tendency	5.214	1	**0.022**
	Age	15.792	20	0.729
	Children	0.45	1	0.502
	Relationship	3.115	1	0.078
	City	0.154	1	0.695
	Nationality	3.311	1	0.069
	Only Studying/ Working and Studying	2.384	1	0.123
	Program	6.626	8	0.578
	Institution	0.376	1	0.540
Academic performance	Grade Point Average < 5,0	6.239	1	**0.012**
	Grade Point Average 51–55	0.801	1	0.371
	Grade Point Average 56–60	0.925	1	0.336
	Grade Point Average > 61	0.938	1	0.333
	I have not failed courses	8.864	1	**0.003**
	I failed one course	0.389	1	0.533
	I failed two courses	0.386	1	0.534
	I failed three courses	1.743	1	0.187
	I failed four or more courses	3.914	1	**0.048**
Monthly family income (in Chilean pesos)	300,000 or less per month	10.212	1	**0.001**
	300,001 to 500,000 per month	0.44	1	0.507
	500,001 to 800,000 per month	0.208	1	0.648
	800,001 to 1,000,000 per month	0.226	1	0.634
	1,000,001 to 1,500,000 per month	0.097	1	0.756
	1,500,001 to 2,000,000 per month	0.413	1	0.521
	2,000,001 to 2,500,000 per month	0.69	1	0.406
	2.500.000 a 3.000.000	2.075	1	0.150
	3.000.001 or more per month	4.425	1	**0.035**
Study year	First Year	1.385	1	0.239
	Second Year	0.066	1	0.798
	Third Year	0.15	1	0.698
	Fourth Year	0.601	1	0.438
	Fifth Year	1.613	1	0.204
	In the process of graduation	2.186	1	0.139
Perceived support	Low support from university authorities	8.205	1	**0.004**
	Low teacher support	6.021	1	**0.014**
	Low parent support	11.523	1	**0.001**
	Low support from friends	1.753	1	0.185
	Low support from university systems	6.739	1	**0.009**
Psychological variables measured	Emotional exhaustion	41.313	1	**0.000**
	Depression	53.292	1	**0.000**
	Anxiety	31.245	1	**0.000**
	Stress	32.923	1	**0.000**
	Suicide attempt	9.563	1	**0.002**
	Suicidal risk	46.312	1	**0.000**
	Clinical insomnia	42.529	1	**0.000**
COVID-19 pandemic affectedness level	Emotional state	22.719	1	**0.000**
	Relationship with partner	9.684	1	**0.002**
	Socioeconomic status	24.984	1	**0.000**
	Social life	15.724	1	**0.000**
	Physical health	29.779	1	**0.000**
	Family life	20.192	1	**0.000**
	Academic performance	50.746	1	**0.000**
	Sexual life	12.571	1	**0.000**
	Mental health	44.322	1	**0.000**

status during the pandemic [AOR = 1.649; 95% CI: 1.153, 2.357]. Details can be found in Table 4.

4 Discussion

This study aimed to determine the psychosocial variables influencing the risk of dropping out of the higher education system in a sample of post-pandemic Chilean university students. The present investigation reported the main risk factors in Chilean higher education students. The discussion is divided into three macro sections corresponding to the study's hypotheses.

TABLE 3 Odds ratios by category for each variable associated with academic dropout.

Variables	Category	Attrition risk		COR (95%CI)
		Yes (%)	No (%)	
Sexual tendency	Heterosexual	243 (63.8%)	198 (72.3%)	1
	Sexual minority	138 (36.2%)	76 (27.7%)	1.480 (1.056, 2.073)*
Grades <5.0	YES	82 (21.5%)	38 (13.9%)	1
	NO	299 (78.5%)	236 (86.1%)	1.703 (1.118, 2.594)*
I have never failed a course	YES	209 (54.9%)	182 (66.4%)	1
	NO	172 (45.1%)	92 (33.6%)	0.614 (0.455, 0.847)*
Failed more than four courses.	YES	20 (5.2%)	6 (2.2%)	1
	NO	361 (94.8%)	268 (97.8%)	2.475 (0.980, 6.246)*
Income less than or equal to 300.000 monthly	YES	63 (16.5%)	22 (8%)	1
	NO	318 (83.5%)	252 (92%)	2.269 (1.359, 3.789)**
3,000,001 or more per month	YES	21 (5.5%)	360 (94.5%)	1
	NO	27 (9.9%)	247 (90.1%)	0.534 (0.295, 0.965)*
Low support from university authorities	YES	330 (86.6%)	214 (78.1%)	1
	NO	51 (13.4%)	60 (21.9%)	1.814 (1.203, 2.736)*
Low support from teachers	YES	262 (68.8%)	163 (59.5%)	1
	NO	119 (31.2%)	111 (40.5%)	1.499 (1.084, 2.073)*
Low parental support	YES	229 (60.1%)	128 (46.7%)	1
	NO	152 (39.9%)	146 (53.3%)	1.718 (1.256, 2.352)**
Low university support systems	YES	313 (82.2%)	202 (73.7%)	1
	NO	68 (17.8%)	72 (26.3%)	1.641 (1.127, 2.398)*
Emotional exhaustion	YES	275 (72.2%)	130 (47.4%)	1
	NO	106 (27.8%)	144 (52.6%)	2.874 (2.074, 3.982)**
Depressive symptoms	YES	321 (84,3%)	161 (58.8%)	1
	NO	60 (15.7%)	113 (41.2%)	3.755 (2.604, 5.414)**
Anxious symptoms	YES	329 (86.4%)	187 (68.2%)	1
	NO	52 (13.6%)	87 (31.8%)	2.944 (1.998, 4.337)**
Stress	YES	306 (80.3%)	164 (59.9%)	1
	NO	75 (19.7%)	110 (40.1%)	2,737 (1,929, 3.881)**
Suicide attempt	YES	116 (30.4%)	54 (19.7%)	1
	NO	265 (69.9%)	220 (80.3%)	1.783 (1.266, 2.579)**
Suicidal risk	YES	243 (63.8%)	101 (36.9%)	1
	NO	138 (36.2%)	173 (63.1%)	3.016 (2.185, 4.163)**
Clinical insomnia	YES	203 (5.3.3%)	76 (27.7%)	1
	NO	178 (46.7%)	198 (72.3%)	2.971 (2.131, 4.142)**
COVID-19 affect	YES	319 (83.7%)	164 (59.9%)	1
	NO	62 (16.3%)	110 (40.1%)	0.290 (0.201, 0.417)**

*$p < 0.005$.
**$p < 0.001$ and 1: constant.

4.1 H1 Students with high mental health problems are likelier to drop out

Failing four or more courses was associated with the risk of dropping out. This can be understood given that students with low grades tend to have a higher tendency to drop out of college (Casanova et al., 2018). By having low grades, they lose motivation (Contini et al., 2018), mainly generating a lower tendency to self-efficacy (Diaz Mujica et al., 2019; Gorson and O'Rourke, 2020) and lower frustration tolerance (Marengo et al., 2019), triggering voluntary dropout from higher education.

TABLE 4 Odds ratios for predictors of academic dropout.

Variables	*B*	Standard error	Wald	gl	Sig.	Exp (B)	95% C.I. para EXP (B)	
							Inferior	Superior
Failing four or more courses	1.234	0.507	5.928	1	**0.015**	3.434	1.272	9.269
Depressive symptoms	0.619	0.217	8.160	1	**0.004**	1.857	1.214	2.839
Suicidal risk	0.774	0.185	17.483	1	**0.000**	2.169	1.509	3.118
Clinical insomnia	0.705	0.188	14.036	1	**0.000**	2.024	1.400	2.927
Low parental support	0.378	0.178	4.506	1	**0.034**	1.459	1.029	2.069
Academic performance affect	0.632	0.182	12.036	1	**0.001**	1.882	1.317	2.690
Affecting socioeconomic status	0.500	0.182	7.517	1	**0.006**	1.649	1.153	2.357
Constant	−1.598	0.216	54.590	1	0.000	0.202		

4.1.1 Correlation between desertion and depression

Depressive symptoms have increased in Chilean higher education students after the pandemic (Martínez-Líbano et al., 2023), which may be due to the stressful characteristics of the pandemic, restrictions and online study may have affected students (Seetan et al., 2021). Depressive symptoms may affect higher education students, as low mood and loss of pleasure may affect students' motivation (Schmits et al., 2021). Similarly, depression affects students' concentration (Liu et al., 2021), as a lack of motivation can cause them to skip classes (Lawrence et al., 2019) and lead to social isolation, leading to a lack of support networks within the place of study (Xu and Webber, 2018).

4.1.2 Correlation between desertion and suicidal thoughts

Depressive symptoms can lead to self-destructive behaviors in college youth, especially during the pandemic, where a systematic review found that about 20% of higher education students exhibited suicidal thoughts (Martínez-Líbano and Cabrera, 2021) for such reasons that another risk found in this study of attrition was the incidence of suicidal ideation and thoughts. The presentation of suicidal ideation has been correlated with feelings of academic failure in students (Bahmani et al., 2018; Bakken, 2021). The above can be explained given that students may present low performance, difficulties in accomplishing tasks, and lack of motivation with studies (Kwon et al., 2018; Pitman et al., 2018), thus generating a sense of continuous hopelessness that leads them to produce more suicidal thoughts (Burr et al., 2018; Tucker et al., 2018).

4.1.3 Correlation between attrition and insomnia

Insomnia is another risk factor. This can affect the ability to concentrate and the cognitive performance of university students (Brownlow et al., 2020). The above can be explained given that people with sleep problems present concentration and information retention problems affecting their academic performance (Son et al., 2020), given that lack of sleep can cause tiredness and chronic fatigue (Chattu et al., 2018; Sandler and Lloyd, 2020).

Based on the above, we can affirm that our first hypothesis was fulfilled, given that students with high mental health problems, such as depression, suicidal ideation, and clinical insomnia, tended to present a higher risk of dropping out.

4.2 H2 Students with low levels of personal and family support are likelier to drop out

Another risk factor found in our study was low parental support. The above can be explained given that emotional support from parental figures is fundamental and helps students feel secure to cope with university academic demands (Lucas and James, 2018). Students may feel lonely and distressed when parental support is lacking (O'Sullivan et al., 2021; Martínez-Líbano, 2023a). Likewise, it has been seen that the lack of family and parental support is reflected in the absence of economic support for students, generating financial pressure that impacts the need to work to stay in college (Azevedo et al., 2021). Lack of parental support can make students feel isolated and unmotivated, increasing the likelihood of dropping out of college (Wu et al., 2020).

Based on the above, we can affirm that our second hypothesis was fulfilled, given that students who perceived low parental support tended to present a higher risk of dropping out.

4.3 H3 Students with higher involvement rates in the COVID-19 pandemic are likelier to drop out

College students with affected academic performance and socioeconomic status during the pandemic also appear as a possible risk factor for dropping out, which can be understood given that the pandemic generated problems in various domains of life for everyone worldwide (McGorry et al., 2022). Concerning

performance, several studies correlate the pandemic with poor academic performance during the pandemic (Oducado and Estoque, 2021; Spitzer et al., 2021), and students whose academic lives were affected had a higher prevalence of anxiety and depression (Liu et al., 2022).

Finally, students whose socioeconomic status was affected during the pandemic also presented a high possibility of dropping out of college, which may be because economic hardship generates stress and uncertainty in university students (Hung et al., 2021), causing distress and hopelessness (Araújo et al., 2020). Likewise, economic difficulties do not allow for covering education-related expenses, generating a substantial psychological burden (Achdut and Refaeli, 2020).

Therefore, we can state that our final hypothesis was confirmed since students with academic and socioeconomic problems during the COVID-19 pandemic presented higher risks of post-pandemic dropout.

These outcomes should draw the attention of academic and political authorities since, if dropout prevention strategies are not implemented, we could face severe psychosocial and economic problems, which could impact the indicators of higher education institutions and the country's economy.

5 Conclusion

Regarding our first hypothesis (students with high mental health problems are likelier to drop out), we confirmed that students with high mental health problems, such as depression, suicidal ideation, and clinical insomnia, tended to present a higher risk of dropping out.

Regarding our second hypothesis (students with low levels of personal and family support are likelier to drop out), we confirmed that students who perceived low parental support tended to present a higher risk of dropping out.

Regarding our third hypothesis (students with higher involvement rates in the COVID-19 pandemic are likelier to drop out), we confirmed that students with academic and socioeconomic problems during the COVID-19 pandemic presented higher risks of post-pandemic dropout.

Finally, regarding our main objective, we can state that the psychosocial variables influencing the risk of dropping out of the higher education system in a sample of post-pandemic Chilean university students are failing four or more courses, having depressive symptoms, having suicidal ideation thoughts, having clinical insomnia, low parental support, impaired performance during the pandemic and impaired socioeconomic status during the pandemic.

5.1 Practical applications

The results of our research highlight the urgent need for academic and university authorities to adopt concrete measures to mitigate college dropout. Developing comprehensive support programs for students at risk of failing several courses is essential. These programs should include personalized tutoring, academic counseling, and specific psychological support tailored to the individual needs of each student. In addition, incorporating counseling services by more advanced students can provide a valuable, up-close perspective for students facing academic challenges.

Parallel to this, it is essential to implement student wellness workshops that address issues such as sleep hygiene and stress management, providing students with practical tools to improve their quality of life and academic performance. These workshops should be complemented by programs aimed at parents and guardians, offering them resources and strategies to support their children in the university environment effectively.

Financially, creating specific scholarships for students significantly affected by the pandemic is crucial. These scholarships can ease the financial burden and allow students to focus on their studies without additional financial worry.

In addition, educational institutions must develop flexible policies and practices capable of adapting to crises such as the pandemic. These policies should focus on minimizing the negative impact on students' academic performance and well-being, ensuring continuity and quality of education in adverse circumstances.

5.2 Limitations

It is essential to recognize that snowball sampling has limitations regarding representativeness and generalization of results (Bengtsson, 2016). However, for this study, which focused on exploring specific psychosocial variables related to academic dropout, it provided valuable information.

Another limitation of this study is that the sample is small (655 students); however, the reliability criteria are met. Further progress is needed in studies with more extensive measures to achieve better reliability indicators. In addition, it is necessary to move forward with longitudinal studies to follow up with students at risk of dropping out and verify whether these factors were determinants in the dropout of these students.

Data availability statement

The datasets presented in this study can be found in online repositories. The names of the repository/repositories and accession number (s) can be found at: https://drive.google.com/drive/folders/1AbHPvEYNEq5oX5Q_dvWpQ7cf5VAupCFM?usp=sharing.

Ethics statement

The studies involving humans were approved by Central Bioethics Committee of the Universidad Andrés Bello, Registration No 024/2022. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study. Written informed consent was obtained from the individual (s) for the publication of any potentially identifiable images or data included in this article.

Author contributions

JM-L: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Software, Validation, Writing – original draft. M-MY-C: Conceptualization, Formal analysis, Funding acquisition, Investigation, Methodology, Resources, Supervision, Visualization, Writing – original draft, Writing – review & editing.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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