Impact of Mental Health on Academic Performance: A Study on the Risk of Failure in Higher Education

Juan Inquilla-Mamani[1], German Belizario Quispe[2], Fermín Francisco Chaiña-Chura[3], Emilio Flores-Mamani[4], Jorge Apaza-Ticona[5], Duverly Joao Incacutipa-Limachi[6]

Abstract

Building healthy spaces and adequate mental health in the university context is of vital importance for optimal, quality and warm academic development, both for students and teachers. The purpose of the research is to determine the state of mental health of students as a risk factor for academic failure in higher education. For the methodological procedure, the "GHQ-28 Mental Health Assessment Scale and Questionnaire" was applied and a socio-educational form was used to measure academic performance. The level of mental health of students was estimated by applying the principal component factor analysis (PCA). To determine the variance of the factor analysis, Bartlett's sphericity test was used, then the factorization process was carried out by the PCA method with a varimax rotation. They were selected for the sample by the simple random method, resulting in a total of 212 cases. The results obtained revealed that the "mental health status" variable has a significant effect on academic risk, with an estimated coefficient of -0.0878 and an associated p-value of 0.014. This indicates that as the mental health status of students decreases, an increase in the probability of repeating the academic semester is observed.

Keywords: *Mental Health, Risk Factor, Academic Performance, Academic Failure and Higher Education.*

Introduction

Since the emergence of the virus designated by the World Health Organization (WHO) as "Coronavirus SARS-CoV-2," it has profoundly disrupted various aspects of human life, including social, economic, cultural, political, and educational domains. During this period, many countries worldwide, particularly Peru, have implemented health strategies and measures aimed at addressing the emergency and mitigating further infections in the population (Huerta et al., 2020). National measures such as social distancing have been declared, which have exacerbated the emotional issues faced by the population (Llerena, R., & Narvaez, 2020). Since then, the pandemic has reconfigured social, labor, economic, and educational practices, significantly impacting individuals' mental health (Alonzi & Silverstein, 2020). In this regard, Jacobo-Galicia, Máynez-Guaderrama, and Cavazos-Arroyo (2021) conclude that fear of COVID-19, cynicism, and burnout have a direct and indirect influence on the intention to drop out of education.

Studies on mental health aim to demonstrate certain disorders linked to risk factors associated with both structural and non-structural variables (Lee et al., 2017), as well as protective factors related to educational level, social support, and family dynamics. Furthermore, various types of positive childhood experiences and adverse childhood experiences are directly associated with mental health (Xu et al., 2022), while those exposed to domestic violence risk exhibit deteriorating mental health (Carnero et al., 2022), particularly among women. Along similar lines, Villegas et al. (2021) found that predictive models of health issues identified sociocultural dimensions and functional autonomy as the most prominent factors. However, some studies highlight that levels of anxiety are directly correlated with levels of well-being (Luna et al., 2020), wherein students with higher anxiety levels demonstrate lower psychological well-being, negatively impacting their learning, quality of life, and professional performance (Incacutipa et al., 2024).

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[1] National University of the Altiplano, Puno, Peru, Email: jinquilla@unap.edu.pe, ORCID: https://orcid.org/0000-0003-2540-9091.
[2] National University of the Altiplano, Puno, Peru, Email: gbelizario@unap.edu.pe, ORCID: https://orcid.org/0000-0001-9805-3714
[3] National University of the Altiplano, Puno, Peru, Email: fchaina@unap.edu.pe, ORCID: https://orcid.org/0000-0003-0559-9748.
[4] National University of the Altiplano, Puno, Peru, E-mail: emilioflores@unap.edu.pe, ORCID: https://orcid.org/0000-0002-0317-6867
[5] National University of the Altiplano, Puno, Peru, E-mail: japazaticona@unap.edu.pe, ORCID: https://orcid.org/0000-0002-9085-4354
[6] National University of the Altiplano, Puno, Peru, Email: djincacutipa@unap.edu.pe, ORCID: https://orcid.org/0000-0002-0067-3147

In the context of higher education, a more critical process was observed regarding the response of authorities to the healthcare emergency. Higher education has not been immune to this situation and faced a challenging institutional and emotional metamorphosis, affecting institutional authorities, educators, and students alike. The abrupt transition experienced by students from traditional in-person modalities to virtual teaching and learning has impacted all educational actors and agents, including the fundamental conditions of technological infrastructure and educational engagement (Estrada-Araoz, 2020; García-Gil et al., 2022b). Academic failure in higher education is a complex issue that requires a multicausal approach. In recent years, the study of academic performance and failure among students has garnered attention (Fajardo et al., 2017), with multiple factors contributing to the phenomenon of academic failure due to its complex and multidimensional nature (Contreras, Caballero, Palacio & Pérez, 2008).

Research on the relationship between emotional aspects and academic performance is relevant to note that students with low academic performance exhibit greater emotional difficulties (García-Gil et al., 2022a; Pepe, Míguez & Arce, 2014), alongside limited access to adequate internet connectivity. Additionally, dimensions of mental health disturbances are directly associated with the students' adaptation to their university studies (Castillo-Díaz et al., 2022), with main challenges including the level of demandingness and interpersonal relationships (Sahão & Kienen, 2021), where anxiety, stress, and depression are the most prevalent symptoms among adolescents and young adults (Higueras et al., 2022; Castillo et al., 2021). This finding is corroborated by the results of Páez & Castaño (2015), indicating that emotional intelligence, anxiety, and academic performance are directly associated (Sañudo et al., 2007).

Regarding the context established by educators in the educational process, the importance of autonomous motivation for fostering student well-being is highlighted (Zamarripa et al., 2016), as positive perception and satisfaction with academic life enhance levels of mental health and well-being (Fonte, 2020; de Oliveira, 2020). Conversely, the absence of content promoting skills for stress management, assertiveness, and self-control in educational processes is critical for developing mental and emotional health competencies (Marrero-Montelongo et al., 2020). However, the university context significantly influences the teacher-student relationship, underscoring the importance of promoting socio-emotional development among educators and its positive impact on student mental health (Ochoa & Arango, 2015; Villalobos et al., 2013; Micin & Bagladi, 2011; Alarcón, 2019). In this perspective, studies emphasize that the variable "educational level" is associated with various dimensions of health and subjective perceptions of well-being and mental health (Feu & Vizuete-Carrizosa, 2013).

Methodology

Design

A non-experimental cross-sectional design of a descriptive and correlational type was used, as there was no manipulation of variables or application of treatment. Its descriptive nature was to verify the characteristics of the mental health of the students, and the inferential aspect was to estimate the incidences of mental health as a risk factor for academic failure.

Participants

In the study, students enrolled in university studies at a public university located in the Peruvian highlands, in the Puno region, participated. A simple random sample was used from among the students who were in a situation of academic risk (with a second and third registration), since according to university law No. 30220, students who fail the same subject for the fourth time are permanently separated from the university (Law No. 30220, art. 102). The selected sample was 212, including both males and females.

Instruments

The participants responded to a set of items from two questionnaires - the GHQ-28 Questionnaire and the socioeducational questionnaire - the former to assess mental health issues among students and the latter to identify and estimate the socioeducational variables related to the risk of academic failure.

The GHQ-28 questionnaire evaluates areas such as anxiety, depression, sleep problems, and self-esteem. Each item seeks to find the presence of each symptom in individuals on a Likert-type response scale from 0 to 3 points. Each scale consists of seven items, and the total score is calculated by summing the items belonging to that scale, varying between 0 and 28 points (Goldberg & Hillier, 1979).

Table 1. Scores And Levels of Mental Health from the GHQ-28 Questionnaire

Score	Interpretation
0 - 3	Normal
4 - 6	Mild
7 - 9	Moderate
10 or more	Severe

Note: The table shows the scores and interpretations of the GHQ-28 questionnaire, adapted from Goldberg & Hillier, 1979.

Both the study sample and reliability were evaluated through internal consistency with Cronbach's alpha (0.937), obtaining positive and satisfactory results in the sample. This indicates that the internal consistency of the scale is high, suggesting that the items of the scale are consistently correlated with each other (Cronbach, 1951).

Table 2. Reliability Statistics of the Instrument - GHQ-28

Cronbach's alpha	Cronbach's alpha based on standardized items	N° of items
0.942	**0.937**	**28**

Note: The table shows the reliability values of the instrument – GHQ-28

While the socio-educational questionnaire was administered with the aim of collecting educational data such as year of enrollment, current semester, family background, and socioeconomic and health status, which allowed for the description of participants according to these characteristics, the risk of academic failure was assessed.

Procedure

The young participants took part voluntarily and anonymously, under informed consent, ensuring complete confidentiality of the data provided through the surveys via Google Forms. The surveys were sent out through the students' emails. Once the data were collected using the applied instruments, the information was coded into a database and analyzed using the SPSS v.22 and JAMOVI programs.

Los jóvenes participaron en forma voluntaria y anónima, bajo el consentimiento informado, asegurándoles la completa confidencialidad de los datos brindados a través de las encuestas, mediante el formato Google forms, las encuestas fueron enviadas a través de sus emails de los estudiantes. Una vez obtenidos los datos mediante los instrumentos aplicados, la información fue codificada en una base de datos y analizadas a través de los programas SPSS v.22 y JAMOVI.

Data Analysis

The data analysis process was carried out using Confirmatory Factor Analysis on the mental health of university students as a risk factor for academic failure, utilizing the GHQ-28 questionnaire. The following steps were undertaken:

Data collection: Information was gathered from university students at risk of academic failure through the GHQ-28 questionnaire, which is divided into four subscales and/or dimensions: somatic (questions 1-7), anxiety/insomnia (questions 8-14), social (questions 15-21), and depression (questions 22-28).

Data preparation: The collected data were cleaned and prepared for analysis, ensuring they were complete and in an appropriate format for processing. Model specification: The theoretical model intended for confirmation through Principal Component Analysis was defined to confirm the relationship between the latent variables of mental health and the symptoms evaluated in the GHQ-28 questionnaire as a risk factor for academic failure.

Parameter estimation: Statistical techniques were employed to estimate the parameters of the model using the maximum likelihood method to determine the relationship between the latent variables considered in the items of the questionnaire as factors of academic risk.

Model evaluation: The goodness-of-fit of the model was assessed through various statistics, such as the chi-square goodness-of-fit index.

Result interpretation: The level of mental health of the student body was estimated by applying Principal Component Analysis (PCA), where the score is a continuous value aimed at reducing the dimensionality of 28 variables and representing them in one or a few variables, depending on how high or low the correlation among the variables is. To determine the variance of the factor analysis, Bartlett's test of sphericity was utilized; then, the factorization process was conducted using the PCA method with a varimax rotation (R Core Team 2021), and finally, the internal consistency was evaluated using Cronbach's alpha statistic. The results obtained from the PCA method were interpreted to identify significant relationships between the latent mental health variables and the symptoms evaluated in the GHQ-28 questionnaire, which allowed for a better understanding of the mental health of university students at risk of academic failure.

Results and Discussion

When analyzing the data, we can observe the following: In the Engineering area, the majority of students at academic risk have a normal mental health status (39.7%), followed by a mild status (32.8%), and only 10.3% have a severe mental health status (Table 3). Additionally, the distribution of students at academic risk according to their level of mental health status in different fields of study—Engineering, Biomedical Sciences, and Social Sciences—is shown. Each cell in Table 3 displays the count of students in a specific category, as well as the percentage within that level of mental health status.

However, in the Biomedical Sciences area, the situation is different, as the majority of students at academic risk present a moderate mental health status (31.9%), with the same proportion of students experiencing a severe status (31.9%), and a smaller percentage (18.1%) having normal or mild mental health status. Finally, in the Social Sciences area, students at academic risk show a more balanced distribution regarding their mental health status, with similar percentages in the normal and mild categories (28.0%), while the moderate (12.2%) and severe (31.7%) statuses represent a different distribution. Overall, it is observed that the level of mental health status of students at academic risk varies significantly across different fields of study. This could indicate the need for specific and personalized interventions to support the mental health of students based on their field of study.

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Table 3. Levels of Mental Health Among Students in Academic Risk Situations

Areas of study		Niveles de salud mental				Total
		Normal	Leve	Moderado	Severo	
Engineering		23	19	10	6	**58**
	%	39.7%	32.8%	17.2%	10.3%	100.0%
Biomedical		13	13	23	23	72
	%	18.1%	18.1%	31.9%	31.9%	100.0%
Social		23	23	10	26	82
	%	28.0%	28.0%	12.2%	31.7%	100.0%
Total		59	55	43	55	212
	%	27.8%	25.9%	20.3%	25.9%	100.0%

Note: The table presents the results of the relationship between the student's mental health and their academic risk situation

The values in Table4 analyze the relationship between the mental health status of students and their repetition in academic semesters. That is, the mental health status and the number of times students repeat a semester. Four categories of mental health are observed: Normal, Mild, Moderate, and Severe, and three categories of performance regarding semester repetition: Second time, Third time, and Fourth time. The mental health aspect is broken down into four categories: normal, mild, moderate, and severe.

The results revealed that24.1% of participants were in a mental health status considered 'Normal' in the second enrollment, while13.6% showed the same condition in the third enrollment. Similarly,20.3% and5.7% of students were classified with a 'Mild' mental health status and were at academic risk for the second and third enrollments, respectively. Regarding the mental health status classified as 'Moderate,' it was observed that5.2% and15.1% of students were in this condition for second and third enrollments, respectively.

On the other hand, in the group of students with a 'Severe' mental health status,0.5% were diagnosed in the second enrollment, while in the third enrollment, there was a significant increase, with18.4% of participants exhibiting a 'Severe' mental health status, and7.1% of students presenting a 'Severe' mental health status in the fourth enrollment. As for the levels of academic risk, the study shows that50.0% of students are at the risk level of second enrollment,42.9% are in the situation of third enrollment, and7.1% are in the condition of fourth enrollment.

These data demonstrate how academic risk varies according to the mental health status of students. A detailed analysis of these data provides valuable insight into the relationship between students' mental health and their academic performance. It can be inferred that students with severe mental health problems are more likely to repeat courses compared to those with mild or normal mental health issues.

In the analysis of statistical tests χ^2 and Likelihood Ratio. Regarding the χ^2 tests, a value of135 was observed with6 degrees of freedom, resulting in a significance level (p) less than0.001. On the other hand, in the case of the Likelihood Ratio, a value of153 was obtained with6 degrees of freedom, and again a significance level (p) less than0.001 was observed. These results indicate a high statistical significance between the mental health status of students and academic performance, along with the consequent academic risk.

Table 4. Academic Risk of The Student, According to Their Mental Health Status

Mental health status of the student		Level of academic risk			Total
		Second enrollment	Third enrollment	Fourth enrollment	
Normal	N°	51	8	0	59
	%	24.1	3.8	0.0	27.8

Mild	N°	43	12	0	55
	%	20.3	5.7	0.0	25.9
Moderate	N°	11	32	0	43
	%	5.2	15.1	0.0	20.3
Severe	N°	1	39	15	55
	%	0.5	18.4	7.1	25.9
Total	N°	106	91	15	212
	%	50.0	42.9	7.1	100.00

Chi-square tests: χ^2 =135 (df =6), p < .001 / Likelihood Ratio =153 (df =6), p < .001

Note: The table shows the relationship between the student's mental health status and academic performance during the study period.

Table5 presents the results of a linear regression model that examines the relationship between the mental health status of students at academic risk and the risk of repeating their studies. The predictors used were the student's mental health status and a constant. The coefficient for the constant is 3.0647, with a standard error of 0.0869. The associated t-value is35.28, indicating that the constant is statistically significant (p <0.001).

The estimated coefficient for the student's mental health status is -0.0878, with a standard error of0.0355. The corresponding t-value is -2.47, with a p-value of 0.014, suggesting that the student's mental health status has a significant effect on the risk of repeating their studies, placing the student in a situation of academic risk. A negative value in the coefficient indicates that as the mental health status worsens, the risk of repetition in studies increases. Therefore, the results of this model suggest that the mental health status of students at academic risk is significantly associated with the risk of repeating their studies, highlighting the importance of adequately addressing students' mental health to improve their academic performance.

Table 05. Coefficients of the Linear Model Between Mental Health Status and Risk of Repetition in Students at Academic Risk.

Predictor	Estimator	EE	t	p
Constant	3.0647	0.0869	35.28	< 0.001
Mental health status of the student	-0.0878	0.0355	-2.47	0.014

Note: The table shows the linear regression values between the student's mental health status and the risk of repetition in studies.

Table 6 shows the results of an analysis of variance (ANOVA) that evaluates the relationship between mental health and academic performance of students. The overall model used in this analysis yields a sum of squares of 45.0, with3 degrees of freedom, resulting in a mean square of 15.006. The F value associated with this overall model is 84.5, with a p-value less than 0.001, indicating that the overall model is statistically significant.

Breaking down the analysis, it is observed that the mental health factor also shows a sum of squares of45.0, with3 degrees of freedom and a mean square of 15.006. The F value associated with the mental health factor is 84.5, with a p-value less than 0.001. Additionally, the coefficient of determination eta squared (η^2) and partial eta squared ($\eta^2 p$) associated with mental health status are both equal to 0.549. This suggests that

approximately 54.9% of the variability in academic performance can be explained by differences in students' mental health status.

On the other hand, the residuals of the model present a sum of squares of 36.9 and 208 degrees of freedom, resulting in a mean square of 0.177. The results from the table indicate that the model used is suitable for explaining the relationship between mental health and academic performance of students, with mental health being a significant factor in predicting academic performance.

Table 6. ANOVA Estimation Between Mental Health and Student Academic Performance

	Suma de Cuadrados	gl	Media Cuadrática	F	p	η^2	$\eta^2 p$	ω^2
Global model	45.0	3	15.006	84.5	<0.001			
Mental health status	45.0	3	15.006	84.5	<0.001	0.549	0.549	0.542
Waste	36.9	208	0.177					

Note: The table describes the results of the ANOVA estimation between the mental health variables and the academic performance of the students.

In particular, the results of table7 show four principal components, each with its respective loading, percentage of explained variance, and cumulative percentage of variance. The loading refers to the correlation between the original variable and the principal component, while the percentage of variance indicates how much variability in the data is explained by that particular component. In this case, the first component explains33.64% of the variance, the second18.36%, the third14.36%, and the fourth9.06%. Together, these four components explain75.4% of the total variance of the data. According to these results, the first component is the most important in terms of explaining the variability of the data, followed by the second and third. This implies that the original variables are significantly correlated with these first principal components.

Table 7. Principal Component Analysis: Its Loading, Variance, And Cumulative Variance

Component	SC Loadings	% of Variance	% Cumulative
1	9.42	33.64	33.6
2	5.14	18.36	52.0
3	4.02	14.36	66.4
4	2.54	9.06	75.4

Note: The table describes the results of the principal component analysis and its loading, variance, and cumulative variance.

The results of the Bartlett's Test of Sphericity show a χ^2 value of 8640 with 378 degrees of freedom and a significance level of p less than 0.001 (table 8). Generally, this test is used to determine if the variables in a factor analysis are intercorrelated, meaning that there is correlation among the variables. In this case, the significantly high χ^2 value and the very low significance level suggest that there is evidence to reject the null hypothesis that the variables are uncorrelated or not intercorrelated in the sample. In other words, the results indicate that there are significant associations among the variables analyzed in the study.

Table 8. Bartlett's Test of Sphericity

χ^2	gl	p
8640	378	<0.001

Note: the table presents the values of Bartlett's Test of Sphericity

The factor analysis conducted using the Principal Components method (PCA) on the GHQ-28 scale provides a comprehensive view of the underlying structure of the analyzed data. Table9 presents a total of 28 components, of which the first five exhibit eigenvalues greater than1, indicating that these factors are significant in explaining the variance in the data. The results show that the first component has an eigenvalue of 14.99521, explaining 53.5543% of the variance and accounting for a total of 53.6%.

As we move through the components, there is a gradual decrease in the eigenvalue and the percentage of explained variance, although each component continues to contribute significantly to the model. In total, the first four components explain 75.4% of the variance, suggesting that these aspects capture most of the relevant information contained in the GHQ-28 scale concerning the mental health status of university students at academic risk. As we progress through the components, we observe a decline in the eigenvalue and the percentage of explained variance, which is consistent with the distribution of variance in the factorial structure of the GHQ-28 scale.

**Table 9.** Factor Analysis Using PCA Method of the GHQ-28 Scale

Component	Eigenvalue	% of Variance	% Acumulative
1	14.99521	53.5543	53.6
2	2.37865	8.4952	62.0
3	2.01982	7.2136	69.3
4	1.72570	6.1632	75.4
5	1.22634	4.3798	79.8
6	0.99081	3.5386	83.3
7	0.74896	2.6748	86.0
8	0.59132	2.1118	88.1
9	0.49751	1.7768	89.9
10	0.44639	1.5942	91.5
11	0.41253	1.4733	93.0
12	0.31022	1.1079	94.1
13	0.28461	1.0164	95.1
14	0.25773	0.9205	96.0
15	0.22632	0.8083	96.8
16	0.19435	0.6941	97.5
17	0.13389	0.4782	98.0
18	0.11540	0.4121	98.4
19	0.10331	0.3689	98.8
20	0.08348	0.2981	99.1
21	0.07401	0.2643	99.3
22	0.04510	0.1611	99.5
23	0.03499	0.1250	99.6
24	0.03149	0.1125	99.7
25	0.02512	0.0897	99.8
26	0.02299	0.0821	99.9
27	0.01654	0.0591	100.0
28	0.00721	0.0257	100.0

Note: the table describes the results of the factor analysis of the GHQ-28 scale

When estimating the results of the total explained variance, the sedimentation graph was obtained. It can be observed that the total number of factors is on the x-axis, and the value of each factor is on the y-axis. Figure1 shows the number of components that have been defined, identifying five main components in

this case. Based on this, the factors associated with students' mental health and their consequent academic performance risk were analyzed. In these results, the first five main components have eigenvalues greater than1. These five components explain 79.8% of the variance in the data. The sedimentation graph shows that the eigenvalues begin to form a straight line after the fifth main component.

Figure 1. Sedimentation Graph
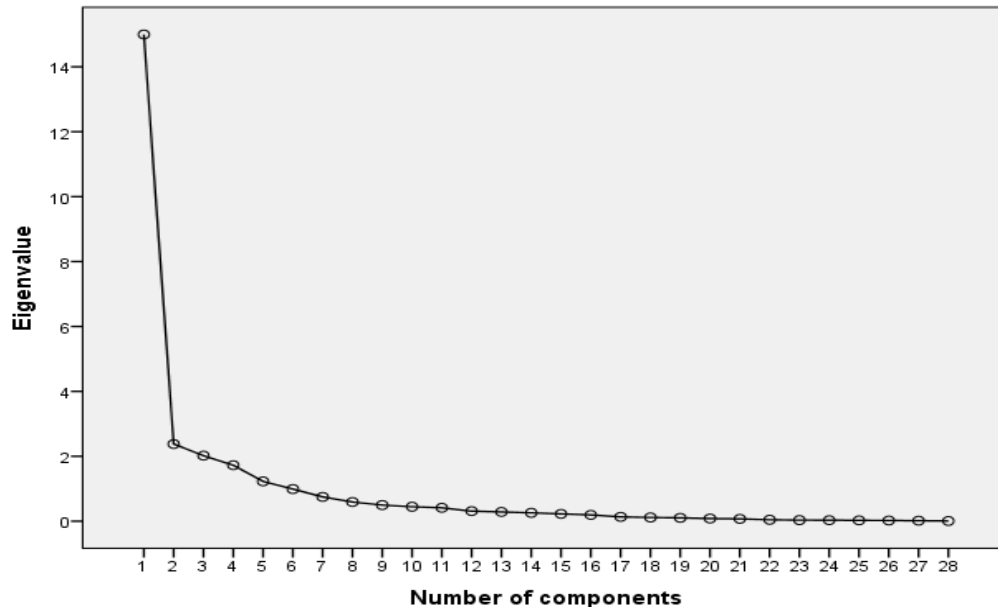
Note: The figure describes the relative importance of each component using the Principal Component Analysis (PCA) method.

Relevant results regarding the relationship between the mental health status of students and their academic performance, as well as their risk of repeating semesters, indicate that the level of mental health significantly varies among students from different fields of study. Additionally, it was found that students with severe mental health issues are more likely to fail courses compared to those with mild or normal issues. The statistical tests χ^2 and Likelihood Ratio showed a high significance in the relationship between mental health status and academic performance. These findings align with those of Sahão & Kienen (2021), highlighting the importance of mental health disturbances in students' adaptation to their university studies.

Linear regression indicated that mental health status has a significant effect on the risk of repeating a semester, with a negative coefficient suggesting that as mental health deteriorates, the probability of repeating increases. The analysis of variance (ANOVA) confirmed that there is a significant difference among at least two mental health states regarding their effect on academic failure. These results are reminiscent of those found by Zamarripa et al. (2016), Fonte (2020), and de Oliveira (2020). However, the lack of content that promotes stress management skills and the development of mental and emotional health competencies in educational processes is a point of agreement among Marrero-Montelongo et al. (2020) and Ochoa & Arango (2015).

Regarding the risk factors associated with the mental health of university students, there are discrepancies among the authors. While some, such as Xu et al. (2022), point out that positive and adverse childhood experiences are directly related to mental health, Carnero et al. (2022) emphasize that those at risk of domestic violence present a deterioration in their mental health, especially women. On the other hand, Villegas et al. (2021) highlight the importance of the socio-cultural dimension and functional autonomy as predictive factors for health problems, while Luna et al. (2020) suggest that anxiety is directly associated with the psychological well-being of students.

As for the role of teachers in the educational process, there is a consensus on the importance of autonomous motivation in promoting student well-being, as mentioned by Zamarripa et al. (2016), Fonte (2020), and de Oliveira (2020). However, the lack of content that promotes stress management skills and the development of mental and emotional health competencies in educational processes is a common point among Marrero-Montelongo et al. (2020) and Ochoa & Arango (2015).

Indeed, while the reviewed studies present differences regarding risk factors, protective factors, and the consequences of mental health on the academic performance of university students at academic risk, they all agree on the relevance of addressing this issue comprehensively, considering both individual and contextual aspects that influence the mental health of this population group.

Conclusions

There is a clear variability in the mental health status of students at academic risk according to their field of study, suggesting the need for tailored interventions to specifically support their mental health in each academic discipline. The findings show a significant relationship between students' mental health status and their academic performance, demonstrating that students with severe mental health issues are more likely to repeat courses compared to those with mild or normal issues.The statistical analyses conducted, such as χ^2 tests and the Likelihood Ratio, as well as linear regression and ANOVA, confirm the importance and relevance of mental health as a determining factor in the academic risk of students, providing valuable insight into this relationship. The relationship between mental health states and academic risk is highly significant, with a partial coefficient of determination η^2 of 0.549. This suggests that approximately 54.9% of the variability in course repetition can be explained by the different mental health states considered in the study.

Factor analysis using Principal Component Analysis reveals that the four main components explain 75.4% of the total variance in the data. This suggests that these aspects capture most of the relevant information contained in the GHQ-28 scale regarding the mental health status of university students at academic risk. The Bartlett's Test of Sphericity indicates that there are significant associations among the variables analyzed in the study.

Gratitude

References

Abades-Porcel, M., & Sirvent-Angulo, M. (2017). Registro de prácticas discentes: Instrumento reflexivo para el estudiante en salud mental y geriatría. Revista Electronica Educare, 21(1). https://doi.org/10.15359/ree.21-1.10

Ajduković, D., Rezo Bagarić, I., Bakić, H., Stevanović, A., Frančišković, T., & Ajduković, M. (2021). Mental health status and risk factors during Covid-19 pandemic in the Croatia's adult population. European Journal of Psychotraumatology, 12(1). https://doi.org/10.1080/20008198.2021.1984050

Alarcón, R. D. (2019). La Salud Mental de los estudiantes universitarios. Revista Médica Herediana, 30((4),), 219-221. https://doi.org/https://10.20453/rmh.v30i4.3655

Alonzi, S., La Torre, A. y Silverstein, M. (2020). The psychological impact of preexisting mental and physical health conditions during the COVID-19 pandemic. Psychol

ogical Trauma: Theory, Research, Practice, and Policy, 12, S236-S238. https://doi.org/10.1037/TRA0000840

Baader, T., Rojas, C., Molina, J. L., Gotelli, M., Alamo, C., Fierro, C., ... & Dittus, P. (2014). Diagnóstico de la prevalencia de trastornos de la salud mental en estudiantes universitarios y los factores de riesgo emocionales asociados. Revista chilena de neuro-psiquiatría, 52((3),), 167-176. https://www.scielo.cl/scielo.php?pid=S0717-92272014000300004&script=sci_arttext&tlng=pt

Carnero, B. A. M., Carnero, R. E. M., & Márquez, E. G. L. (2022). Mental health and risk of recidivism of violence in women and elderly victims of violence. Enfermeria Global, 21(4), 323-335. https://doi.org/10.6018/eglobal.512101

Castillo-Díaz, M. A., Mendoza-Aly, J. L., Martínez-Martínez, C. V., & Martínez-Gonzales, L. E. (2022). Alteraciones de salud mental y adaptación universitaria en estudiantes Hondureños: un análisis de grupos con rendimiento académico

diferenciado. REOP - Revista Española de Orientación y Psicopedagogía, 33(3), 144-161. https://doi.org/10.5944/REOP.VOL.33.NUM.3.2022.36466

Castillo Riquelme, V., Cabezas Maureira, N., Vera Navarro, C., & Toledo Puente, C. (2021). Ansiedad al aprendizaje en línea: relación con actitud, género, entorno y salud mental en universitarios. Revista Digital de Investigación en Docencia Universitaria, 15((1)). http://www.scielo.org.pe/scielo.php?pid=S2223-25162021000100004&script=sci_arttext

Colizzi, M., Peghin, M., De Martino, M., Bontempo, G., Gerussi, V., Palese, A., Isola, M., Tascini, C., & Balestrieri, M. (2022). Mental health symptoms one year after acute COVID-19 infection: Prevalence and risk factors. Revista de Psiquiatria y Salud Mental. https://doi.org/10.1016/j.rpsm.2022.05.008

Contreras, K., Caballero, C., Palacio, J., & Pérez, A. M. (2008). Factores asociados al fracaso académico en estudiantes universitarios de Barranquilla (Colombia). Psicología desde el Caribe. http://www.scielo.org.co/scielo.php?script=sci_arttext&pid=S0123-417X2008000200008

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. psychometrika, 16(3), 297-334. http://cda.psych.uiuc.edu/psychometrika_highly_cited_articles/cronbach_1951.pdf

de Oliveira Campos, I., & Magalhães, Y. B. (2020). Mental health and education: Schooling trajectory of users of a psychosocial care center. Revista Baiana de Enfermagem, 34. https://doi.org/10.18471/rbe.v34.34925

Demontigny, F., Verdon, C., Meunier, S., Gervais, C., & Coté, I. (2020). Protective and risk factors for women's mental health after a spontaneous abortion. Revista Latino-Americana de Enfermagem, 28, 1-11. https://doi.org/10.1590/1518-8345.3382.3350

Echávarri, O., Morales, S., Barros, J., Armijo, I., Larraza, D., Longo, A., Martin, C., Maino, M. P., Núñez, C., Fischman, R., Moya, C., Szmulewicz, M., & Tomicic, A. (2018). Validation of the reasons for living inventory in mental health patients in the Metropolitan Region of Chile. Psykhe, 27(2). https://doi.org/10.7764/PSYKHE.27.1.1153

Estrada-Araoz, E. G., Gallegos-Ramos, N. ., Mamani-Uchasara, H. ., & Huaypar-Loayza, K. (2020). Actitud de los estudiantes universitarios frente a la educación virtual en tiempos de la pandemia de COVID-19. Revista Brasileira de Educação do Campo, 5, e10237-e10237. https://doi.org/10.20873/UFT.RBEC.E10237

Fajardo Bullón, F., Maestre Campos, M., Felipe Castaño, E., León del Barco, B., & Polo del Río, M. I. (2017). Análisis del rendimiento académico de los alumnos de educación secundaria obligatoria según las variables familiares. Educación XXI: revista de la Facultad de Educación, 20(1), 209-232. https://doi.org/10.5944/EDUCXX1.17509

Feu, S., & Vizuete-Carrizosa, M. (2013). Educational level as a member of the subjective well-being and mental health in the spanish population. Universitas Psychologica, 12(1), 31-40. https://doi.org/10.11144/javeriana.upsy12-1.efab

Fonte, C., & Macedo, I. (2020). Academic experiences perception and mental health in university education adaptation: What relationships? Revista Lusofona de Educacao, 49(49), 199-213. https://doi.org/10.24140/issn.1645-7250.rle49.13

García-Gil, M. Á., Fajardo-Bullón, F., & Felipe-Castaño, E. (2022a). Analysis of academic performance and mental health of secondary school students by access to technological resources. Educacion XX1, 25(2), 243-270. https://doi.org/10.5944/EDUCXX1.31833

García-Gil, M. Á., Fajardo-Bullón, F., & Felipe-Castaño, E. (2022b). Analysis of academic performance and mental health of secondary school students by access to technological resources. Educacion XX1, 25(2), 243-270. https://doi.org/10.5944/educxx1.31833

Goldberg, D. P., & Hillier, V. F. (1979). A scaled version of the General Health Questionnaire. Psychological medicine, 9(1), 139-145. https://doi.org/10.1017/S0033291700021644

Hairston, T. R., Laux, J. M., O'Hara, C., Roseman, C. P., & Gore, S. (2018). Counselor Education Students' Perceptions of Wellness and Mental Health in African American Men: The Effects of Colorism. Journal of Multicultural Counseling and Development, 46(3), 171-185. https://doi.org/10.1002/jmcd.12100

Higueras, P. H., Navarro, M. M. G., Fernández, A. M. M., Mascaraque, P. S., & Lauffer, J. C. (2022). Mental health in adolescence (I). Anxiety and depression. Medicine (Spain), 13(61), 3581-3589. https://doi.org/10.1016/j.med.2022.08.001

Huerta Saenz, I. H., Elías Estrada, J. C., Campos Del Castillo, K., Muñoz Taya, R., & Coronado, J. C. (2020). Características materno perinatales de gestantes COVID-19 en un hospital nacional de Lima, Perú. Revista Peruana de Ginecología y Obstetricia, 66(2), 1. https://doi.org/10.31403/RPGO.V66I2245

Incacutipa-Limachi, D. J., Velasquez-Velasquez, V., Esteves-Villanueva, A. R., & Sucapuca-Cancapa, A. (2024). Influence of the Mentis Plus+ program on the mental health of university students from a public university in Puno, Peru. Journal of Ecohumanism, 3(6), 375–383. https://doi.org/10.62754/joe.v3i6.4010

Jacobo-Galicia, G. ., Máynez-Guaderrama, A. I. ., & Cavazos-Arroyo, J. (2021). Miedo al Covid, agotamiento y cinismo: su efecto en la intención de abandono universitario. European Journal of Education and Psychology, 14(1), 1-18. https://doi.org/10.32457/EJEP.V14I1.1432

Jiménez-Macías, I. U., Vázquez-González, G. C., Juárez-Hernández, L. G., & Bracamontes-Ceballos, E. (2021). Inventory of socioemotional skills and mental health for professors in higher education: Validity of content. Revista Fuentes, 2(23), 204-220. https://doi.org/10.12795/REVISTAFUENTES.2021.12052

Lazarevich, I., Camacho, M. E. I., Sokolova, A. V., & Gutiérrez, H. J. D. (2013). Violencia en el noviazgo y salud mental en estudiantes universitarios mexicanos. Global Health Promotion, 20(3), 94-103. https://doi.org/10.1177/1757975913499032

Lee, Y., Lee, M., & Park, S. (2017). Mental health status of North Korean refugees in South Korea and risk and protective factors: a 10-year review of the literature. European Journal of Psychotraumatology, 8(sup2). https://doi.org/10.1080/20008198.2017.1369833

Llerena, R., & Narvaez, C. S. (2020). Emergencia, gestión, vulnerabilidad y respuestas al impacto de la pandemia del COVID-19 en el Perú. Preprints. https://doi.org/10.1590/SCIELOPREPRINTS.94

Luna, D., Urquiza-Flores, D. I., Figuerola-Escoto, R. P., Carreño-Morales, C., & Meneses-González, F. (2020). Predictores académicos y sociodemográficos de ansiedad y bienestar psicológico en estudiantes mexicanos de medicina. Estudio transversal. Gaceta medica de Mexico, 156(1), 40-46. https://doi.org/10.24875/GMM.19005143

Marrero-Montelongo, M., Torres-García, M., & Catalán, V. G. (2020). Emotional and mental health competences in spanish textbooks in primary education. Revista Complutense de Educacion, 31(4), 435-447. https://doi.org/10.5209/rced.65491

Micin, S., & Bagladi, V. (2011). Salud mental en estudiantes universitarios: Incidencia de psicopatología y antecedentes de conducta suicida en población que acude a un servicio de salud. Terapia psicológica, 29((1),), 53-64. https://www.scielo.cl/scielo.php?pid=s0718-48082011000100006&script=sci_arttext

Ni, C. F., Harrington, C. E., & Wilkins-Turner, F. (2017). Mental Health Conditions and Substance Use Among American Indians From Eastern Tribes. Journal of Multicultural Counseling and Development, 45(1), 20-36. https://doi.org/10.1002/jmcd.12061

Ochoa, A. M. M., & Arango, A. C. G. (2015). Salud mental, función docente y mentalización en la educación preescolar. Psicologia Escolar e Educacional, 19(1), 117-125. https://doi.org/10.1590/2175-3539/2015/0191811

Ojembarrena Martínez, E., Fernández de Pinedo Montoya, R., Gorostiza Garay, E., Lafuente Mesanza, P., & Lizarraga Azparren, M. A. (2002). Fracaso escolar en adolescentes y factores sociosanitarios asociados. Anales Espanoles de Pediatria, 56(5), 416-424. https://doi.org/10.1016/s1695-4033(02)77838-7

Páez Cala, M. L., & Castaño Castrillón, J. J. (2015). Inteligencia emocional y rendimiento académico en estudiantes universitarios. Psicología desde el Caribe, 32((2),), 268-285. http://www.scielo.org.co/scielo.php?script=sci_arttext&pid=S0123-417X2015000200006

Peña, E. B., & Pérez-de-Guzmán, V. (2017). Education, health and poverty. Program caixaproinfancia in murcia: Case studies. Health and Addictions / Salud y Drogas, 17(2), 179-188. https://doi.org/10.21134/haaj.v17i2.328

Pepe-Nakamura, A., Míguez, C., & Arce, R. (2014). Equilibrio psicológico y burnout académico. CONTEXTOS EDUCATIVOS, 20, 11-26. https://doi.org/10.18172/con.2996

Quintanilla Montoya, R., Patricia Haro Jiménez, L., César Vega Miranda, J., Manuel González Mendoza, J. DE, & Elena Ramírez Flores, L. (2004). Education and mental health. Revista de educación y desarrollo, (3), 61-64. https://www.cucs.udg.mx/revistas/edu_desarrollo/anteriores/3/003_Quintanilla.pdf

Rückert, B., Machado, A. R., Alves E Santos, C. C., & De Brito, P. C. D. (2014). Dialogues between the Field Health and the Mental Health: The experience of the "Popular Education on Mental Health of MST Workshop" in ESP MG. Interface: Communication, Health, Education, 18, 1537-1545. https://doi.org/10.1590/1807-57622013.0470

R Core Team (2021). R: A Language and environment for statistical computing. (Version 4.1) [Computer software]. Retrieved from https://cran.r-project.org. (R packages retrieved from MRAN snapshot 2022-01-01).

Sahão, F. T., & Kienen, N. (2021). UNIVERSITY STUDENT ADAPTATION AND MENTAL HEALTH: A SYSTEMATIC REVIEW OF LITERATURE. Psicologia Escolar e Educacional, 25, 1-13. https://doi.org/10.1590/2175-35392021224238

Sañudo, J. E. P., De Biava, Y. M., Ochoa, N. L., & Muñoz, E. T. (2007). Relación del rendimiento académico con la salud mental en jóvenes universitarios. Psicogente, 10(18), 113-128. https://www.redalyc.org/pdf/4975/497552352003.pdf

The jamovi project (2022). jamovi. (Version 2.3) [Computer Software]. Retrieved from https://www.jamovi.org.

Travers, Á., Armour, C., Hansen, M., Cunningham, T., Lagdon, S., Hyland, P., Vallières, F., McCarthy, A., & Walshe, C. (2020). Lesbian, gay or bisexual identity as a risk factor for trauma and mental health problems in Northern Irish students and the protective role of social support. European Journal of Psychotraumatology, 11(1). https://doi.org/10.1080/20008198.2019.1708144

Villalobos, C. P., García, P. M., Aguilar, C. A., & Pérez, M. A. (2013). Clima educativo y su relación con la salud mental de alumnos universitarios chilenos. Revista Argentina de Clinica Psicologica, 22(3), 257-268.

Villegas, C., Ibabe, I., & Arnoso, A. (2021). People at risk of social exclusion: mental health, structural-economic factors and sociocultural factors (Personas en riesgo de exclusión social: salud mental, factores económico-estructurales y socio-culturales). Revista de Psicologia Social, 36(1), 122-148. https://doi.org/10.1080/02134748.2020.1840235

Xu, Z., Zhang, D., Ding, H., Zheng, X., Lee, R. C. M., Yang, Z., Mo, P. K. H., Lee, E. K. P., & Wong, S. Y. S. (2022). Association of positive and adverse childhood experiences with risky behaviours and mental health indicators among Chinese university students in Hong Kong: an exploratory study. European Journal of Psychotraumatology, 13(1). https://doi.org/10.1080/20008198.2022.2065429

Zamarripa, J., Castillo, I., Tomás, I., Tristán, J., & Álvarez, O. (2016). The teacher's role in motivation and mental health of students in physical education. Salud Mental, 39(4), 221-227. https://doi.org/10.17711/SM.0185-3325.2016.026.