IJMS INTERNATIONAL JOURNAL of MEDICAL STUDENTS

Original Article

Insomnia Prevalence and Risk Factors Among Hispanic University Staff in Ecuador: A Cross-Sectional Study

Carlos Rodriguez-Alarcon,[1] Danny Japon-Cueva,[2] Linker Vinan-Paucar,[3] Presley Gruezo-Realpea,[4] Michelle Hidalgo,[4] Ricardo Moran,[4] Rocio Santibañez-Vasquez.[4]

Abstract

Background: Insomnia, characterized by difficulty initiating or maintaining sleep, is a common condition that adversely affects health, productivity, and overall well-being. This study aimed to determine the prevalence and associated risk factors of insomnia among Hispanic university staff at a higher education institution in Ecuador. **Methods:** A cross-sectional study was conducted between August 2023 and February 2024, including 385 university employees. Participants completed an anonymous survey collecting demographic, lifestyle, occupational, and sleep-related data. Sleep quality and insomnia severity were assessed using the Pittsburgh Sleep Quality Index (PSQI) and the Insomnia Severity Index (ISI). Data were analyzed using descriptive statistics, Spearman correlations, logistic regression, and Receiver Operating Characteristic (ROC) curve analysis to identify predictors of clinically significant insomnia (ISI > 14). **Results:** The prevalence of insomnia was 65.2%, with mean PSQI and ISI scores of 8.8 ± 5 and 11.5 ± 7, respectively. Severe insomnia affected 2.9% of participants. Higher insomnia scores were significantly correlated with workplace stress, workload, ethnicity, light exposure during sleep, and use of insomnia medication. Logistic regression identified workplace stress and light exposure as the strongest predictors of insomnia. ROC analysis indicated workplace stress had the greatest discriminative ability (AUC = 0.864), followed by light exposure (AUC = 0.789). **Conclusion:** A high prevalence of clinically significant insomnia was observed among university staff, primarily linked to workplace stress and nighttime light exposure. Targeted interventions addressing these factors could improve sleep health and overall well-being. Further studies in diverse populations are needed to validate these findings.

Introduction

Insomnia is a prevalent sleep disorder characterized by difficulties initiating or maintaining sleep, often resulting in significant distress and impairment in general health. It can be influenced by demographic characteristics, occupational stress, and lifestyle habits. In the university context, staff members are frequently exposed to high levels of work-related stress and varying work schedules, which may increase their risk of insomnia However, research on the prevalence and risk factors of insomnia among Hispanic university staff, particularly in Latin America, remains limited. Understanding these factors is crucial, to address the influence of cultural, economic, and occupational aspects on sleep habits and overall well-being.[1,3]

Quality sleep plays a fundamental role in cognitive functioning, emotional regulation, and productivity. For university employees, the demands of academic responsibilities, administrative duties, and research commitments can often disrupt sleep patterns, and lead to health problems. Exploring sleep quality within this context is particularly important, as cultural factors significantly influence sleep behaviors, perceptions, and coping mechanisms such as substance use. Moreover, recent studies have shown associations between light exposure, particularly from electronic devices, and sleep disturbances, as well as vaping and its potential role in sleep quality due to nicotine's known effects.[4,7] Examining the prevalence of sleep disorders in this population provides a comprehensive understanding of the unique challenges affecting their well-being.[8,9]

While research on sleep health in university settings has predominantly focused on North America and Europe, studies in Latin America and among Hispanic populations are scarce. Several studies have shown that Hispanic individuals often experience disparities in sleep health, including higher prevalence rates of sleep disorders and poorer sleep quality compared to their non-Hispanic counterparts. Grandner et al. highlighted that

[1] MD. University of Miami / Jackson Health System, Neurology Department, Florida, USA. *Co-first authors.

[2] MD. Catholic University of Santiago de Guayaquil, Guayaquil, Ecuador. *Co-first authors.

[3] Last Year Medical Student. Catholic University of Santiago de Guayaquil, Guayaquil, Ecuador.

[4] MD. Catholic University of Santiago de Guayaquil, Guayaquil, Ecuador.

About the Author: *Dr. Carlos Rodriguez Alarcón (Co-first authors) is a Neurology Resident (PGY-1) at the University of Miami / Jackson Health System. He earned his Doctor of Medicine degree from Universidad Católica de Santiago de Guayaquil (UCSG) in Ecuador, where he also served as a faculty member in Neuroanatomy. In addition to his medical training, Dr. Rodriguez Alarcón holds a master's degree in educational technologies, reflecting his commitment to innovation in medical education and academic excellence. His professional interests include clinical neurology, neuroanatomical research, and the integration of technology into medical learning environments.*

Correspondence:

Danny Japon-Cueva

Address: Avenida Carlos Julio Arosemena Km 1½, Guayaquil, Ecuador

Email: crodriguezalarcon98@gmail.com

Submission: Jul 26, 2024
Revisions: Oct 31, Nov 18, 2024, Jul 11, 2025
Responses: Nov 17, Dec 17, 2024, Sep 27, 2025
Acceptance: Oct 20, 2025
Publication: Oct 20, 2025
Process: Peer-reviewed

perceived racial discrimination is an independent predictor of sleep disturbance and daytime fatigue among minorities, a factor that could be relevant for university staff in Ecuador, where social and cultural stressors may similarly influence sleep health in academic settings These findings, alongside cultural attitudes towards sleep, access to healthcare, and varying levels of awareness about sleep health, suggest that the Hispanic population may face unique sleep health challenges. [10,14]

This research aims to fill the gap in the literature by investigating the prevalence of insomnia and its associated risk factors among Hispanic university staff in Ecuador. By identifying key risk factors (demographic, lifestyle, and work-related) contributing to insomnia, this study seeks to inform targeted interventions to improve sleep health and overall well-being among university staff.

Methods

Study Desing and Setting

This study adheres to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines for observational studies. We conducted a cross-sectional study to assess the prevalence of insomnia and associated risk factors among the university staff of the Catholic University of Santiago de Guayaquil in Guayaquil, Ecuador. All participants were Hispanic individuals from Ecuador, although they self-identified with various ethnic subcategories, including mixed (a term commonly used to describe individuals of combined Indigenous, European, and/or African ancestry), white, Afro-Ecuadorian (an officially recognized ethnic group in Ecuador referring to descendants of African populations historically settled in the country), and others. The study period extended from August 2023 to February 2024.

Participants and Sampling

The inclusion criteria included all university staff members who were willing to participate voluntarily. We employed a quota-based stratified sampling strategy to ensure diverse representation across different departments and job areas, including faculty, administrative staff, and other roles. Faculty accounted for 47% of the total population and included teaching staff such as professors, lecturers, and instructors. Administrative staff, representing 32%, referred to employees involved in administrative and support functions such as secretaries, human resources personnel, and financial officers. Other roles, comprising 21% of the population, encompassed non-academic and non-administrative positions such as custodial staff, security personnel, and cleaning staff. These percentages were provided by the university as the official staff distribution, and they were used as quotas to approximate the proportional representation of each group in the study sample, even though the precise total population size was unavailable.

To determine the sample size, we targeted a 95% confidence level with a 5% margin of error. Given absence of exact population size, a sample size of 385 was selected, commonly recommended for sufficiently large populations to maintain statistical reliability. This sample size and the voluntary participation ensured alignment with the study's goals and inclusion criteria, achieving a response rate consistent with expectations for online surveys.

Data Collection

Participants were invited to complete an anonymous online survey, which was designed to collect comprehensive data on demographics, lifestyle habits, work-related factors, and sleep-related behaviors. The survey gathered information on several variables: job area, workload, gender, age, ethnicity, current and past use of insomnia medication, assistance received for insomnia, smoking and vaping use, high caffeine intake, physical activity, social level, and light exposure during light exposure during sleep, primarily reflecting the use of electronic devices (e.g., smartphones, tablets, televisions), categorized by the number of lights while sleeping.

Study Instruments

The survey also included standardized instruments to measure insomnia severity, sleep quality, alcohol use disorders, and workplace stress. The Pittsburgh Sleep Quality Index (PSQI) was used to assess overall sleep quality and identify sleep problems, categorized as no sleep problem (0-4), deserves medical attention (5-7), deserves medical attention and treatment (8-14), and severe sleep problem (15-21). The Insomnia Severity Index (ISI) measured the severity of insomnia symptoms, categorized as no clinically significant insomnia (0-7), subthreshold insomnia (8-14), clinical insomnia of moderate severity (15-21), and severe clinical insomnia (22-28). The Alcohol Use Disorders Identification Test (AUDIT) evaluated alcohol consumption patterns and potential addiction, categorized as low (0-7), medium (8-15), high (16-19), and possible addiction (20-40). The Workplace Stress Scale (WSS) assessed stress levels related to the work environment, categorized as none (0-15), low (16-20), moderate (21-25), severe (26-30), and highly dangerous (31-40). The cut-off points for all the scales were standardized according to the established norms for each test, which are widely used in various populations and do not vary significantly by cultural context.

Statistical Analysis

Data were analyzed using IBM SPSS software. Descriptive statistics, including counts, percentages, means, and standard deviations, summarized the data. Spearman correlations were computed to examine associations between sleep quality measures and demographic, lifestyle, and environmental factors. Spearman correlation was chosen due to the ordinal nature of some variables, and because it is a non-parametric test that does not require assumptions of normality, making it more suitable for the data distribution in this study

A binary logistic regression analysis was conducted to identify independent predictors of clinically significant insomnia. Variables that were significantly associated with insomnia in the

univariate analysis ($p < 0.05$) were included in the multivariate logistic regression model. The enter method was applied to include all selected predictors simultaneously in the model. The dependent variable was binary, with clinically significant insomnia (ISI > 14) coded as 1 and the absence of insomnia (ISI ≤ 14) coded as 0. The results of the logistic regression were presented as adjusted odds ratios (OR) with corresponding 95% confidence intervals (CI) to quantify the strength and direction of associations.

Model performance was evaluated by using the Hosmer-Lemeshow goodness-of-fit test, with a p-value > 0.05 indicating that the model fits the observed data adequately. Additionally, Nagelkerke R^2 was calculated to assess the proportion of variance in insomnia that was explained by the model, providing an indication of the model's explanatory power.

To assess the discriminative ability of the predictors identified in the logistic regression analysis, Receiver Operating Characteristic (ROC) curve analysis was performed. The Area Under the Curve (AUC) was calculated for each predictor, with 95% confidence intervals to estimate the precision of the AUC values. The AUC values were interpreted as follows: 0.5 indicated no discriminative ability, 0.7–0.8 indicated acceptable discriminative ability, and values greater than 0.8 indicated excellent discriminative ability.

Ethical Considerations

Ethical approval was formally reviewed and waived] by the university's ethics committee, in accordance with local regulations, given that the survey was fully anonymous and participation was voluntary. Although written informed consent was not obtained], participants were provided with detailed information about the study's purpose, procedures, and confidentiality measures at the beginning of the survey. Their voluntary completion of the survey was considered implied consent, aligning with internationally accepted ethical guidelinesfor research involving human participants.

Results

Participant Characteristics

A total of 385 university employees participated in the study. Most participants were faculty members (46.8%), followed by administrative staff (31.7%) and other roles (21.6%). Most participants (84.4%) reported working 40 hours or more per week. The gender distribution was relatively balanced, with 45.5% male and 54.5% female participants. The mean age of the participants was 38.8±12 years.

Regarding ethnicity, most of the participants identified as mixed (79.2%), followed by white (14.8%), Afro-Ecuadorian (4.9%), and other ethnicities (1.0%). A small percentage of participants reported currently using insomnia medication (9.9%), while 7.0% had used it before, and 83.1% had never used it. Similarly, 6.0% of participants had received assistance for insomnia, 7.3% had used it before, and 86.8% had never received assistance.

In terms of lifestyle habits, 25.5% of participants were cigarette smokers, while 11.2% used vapes. High caffeine intake was reported by 7.8% of participants. Physical activity levels varied, with 4.9% engaging in more than 10 hours of physical activity per week, 21.3% engaging in 5-10 hours, 43.6% engaging in less than 5 hours, and 30.1% reporting no physical activity. The social level distribution indicated that 33.8% of participants considered themselves to have a low social level, 50.1% regular, and 16.1% high. Regarding sleep environment, 44.7% of participants reported sleeping with no lights on, 20.0% with one light, 16.6% with two lights, 11.7% with three lights, and 7.0% with more than three lights on as shown in ***Table 1.***

Sleep Quality and Insomnia Prevalence

The mean PSQI score was 8.8±5, with 15.1% of participants experiencing severe sleep problems, 39.0% deserving medical attention and treatment, 24.7% deserving medical attention, and 21.3% having no sleep problems. The mean ISI score was 11.5±7, with 2.9% of participants experiencing severe insomnia, 26.8% moderate insomnia, 35.6% threshold insomnia, and 34.8% no insomnia.

The mean score for the AUDIT was 8.9±9, with 20.3% of participants possibly addicted, 7.5% scoring high, 9.6% medium, and 62.6% low. The mean score for the Workplace Stress Scale WSS was 21.1±8, with 12.2% of participants experiencing highly dangerous levels of stress, 17.1% severe stress, 25.5% moderate stress, 19.0% low stress, and 26.2% no stress.

Overall, 65.2% of participants reported experiencing insomnia, categorized as those scoring above the threshold on the ISI as shown in ***Table 2.***

Correlates of Insomnia

The study revealed several statistically significant correlations between sleep quality measures and various demographic, lifestyle, and environmental factors. Higher PSQI scores showed a significant positive correlation with job area (rho = 0.158, p = 0.002), Work load (rho = 0.167, p = 0.001), Ethnicity (rho = 0.102, p = 0.046), use of Insomnia Medication (rho = 0.245, p < 0.001), Assistance for Insomnia (rho = 0.191, p < 0.001), Cigarette use (rho = 0.320, p < 0.001), and vape use (rho = 0.154, p = 0.002). Likewise, significant moderate positive correlations were found between PSQI scores and light exposure (rho = 0.550, p < 0.001), AUDIT (rho = 0.586, p < 0.001), and WSS (rho = 0.669 p < 0.001).

Furthermore, we identified several statistically significant correlations involving the ISI score and various variables. Specifically, ISI scores demonstrated significant positive correlations with Job Area (rho = 0.119, p = 0.019), Work load (rho = 0.164, p = 0.001), Ethnicity (rho = 0.105, p = 0.039), use of Insomnia Medication (rho = 0.248, p < 0.001), Assistance for Insomnia (rho = 0.234, p < 0.001), Cigarette use (rho = 0.326, p < 0.001), and Vape use (rho = 0.162, p = 0.001). Moreover, significant moderate positive correlations were found between ISI

scores and AUDIT (rho = 0.606, p < 0.001), light exposure (rho = 0.624, p < 0.001), and WSS (rho = 0.717, p < 0.001) as Shown in table 3 and illustrated in Figure 1-2.

Table 1. Demographic and Lifestyle Characteristics of the Study Population.

Characteristic	Value
Total Participants	385
Occupational role	
Faculty Members	180 (46.8%)
Administrative Staff	122 (31.7%)
Other Roles	83 (21.6%)
Gender Distribution	
Male	175 (45.5%)
Female	210 (54.5%)
Mean Age	38.8 ± 12 years
Ethnicity	
Mixed	305 (79.2%)
White	57 (14.8%)
AfroEcuadorian	19 (4.9%)
Other	4 (1.0%)
Insomnia Medication Use	
Currently Using	38 (9.9%)
Used Before	27 (7.0%)
Never Used	319 (83.1%)
Assistance for Insomnia	
Currently Receiving	23 (6.0%)
Used Before	28 (7.3%)
Never Received	335 (86.8%)
Lifestyle Habits	
Cigarette Smokers	98 (25.5%)
Vape Users	43 (11.2%)
High Caffeine Intake	30 (7.8%)
Physical Activity	
>10 Hours per Week	19 (4.9%)
5-10 Hours per Week	82 (21.3%)
<5 Hours per Week	168 (43.6%)
No Physical Activity	116 (30.1%)
Social Level	
Low	130 (33.8%)
Regular	193 (50.1%)
High	62 (16.1%)
Sleep Environment	
No Lights	171 (44.7%)
One Light	77 (20.0%)
Two Lights	64 (16.6%)
Three Lights	45 (11.7%)
More than Three Lights	27 (7.0%)

Multivariate Analysis

A logistic regression analysis was performed to identify independent predictors of clinically significant insomnia. The model demonstrated good fit (Hosmer and Lemeshow Test: p = 0.837) and explained 66.8% of the variability in insomnia risk (Nagelkerke R^2 = 0.668). Significant predictors included the use of insomnia medication (OR = 6.734, 95% CI: 2.153–21.057, p = 0.001), the number of lights in the sleeping environment (OR = 1.872, 95% CI: 1.216–2.882, p = 0.004), workplace stress levels (OR = 2.740, 95% CI: 1.999–3.756, p < 0.001), and alcohol consumption (OR = 5.240, 95% CI: 1.702–16.132, p = 0.004). Other variables, such as job area, workload, ethnicity, assistance for insomnia, and smoking or vaping use, did not show statistically significant associations in the multivariate model (p > 0.05). These findings suggest that lifestyle and environmental factors, particularly light exposure, workplace stress, and substance use, play a crucial role in predicting insomnia risk among university staff. The results of the multivariate analysis are summarized in ***Table 4.***

Table 2. Results of Sleep, Insomnia, and Stress Assessments in the Study Population.

Variable	Mean ± SD	Category	Frequency	Percentage
PSQI Score	8.8 ± 5	Severe Sleep Problems	58	15.1%
		Medical Attention and Treatment	150	39.0%
		Medical Attention	95	24.7%
		No Sleep Problems	82	21.3%
ISI Score	11.5 ± 7	Severe Insomnia	11	2.9%
		Moderate Insomnia	103	26.8%
		Threshold Insomnia	137	35.6%
		No Insomnia	134	34.8%
AUDIT Score	8.9 ± 9	Possibly Addicted	78	20.3%
		High Score	29	7.5%
		Medium Score	37	9.6%
		Low Score	241	62.6%
WSS Score	21.1 ± 8	Highly Dangerous Stress	47	12.2%
		Severe Stress	66	17.1%
		Moderate Stress	98	25.5%
		Low Stress	73	19.0%
		No Stress	101	26.2%
Insomnia Prevalence		Insomnia (Above Threshold on ISI)	251	65.2%

Legend: PSQI Score: Pittsburgh Sleep Quality Index. ISI Score: Insomnia Severity Index. AUDIT Score: Alcohol Use Disorders Identification Test. WSS Score: Workplace Stress Scale.

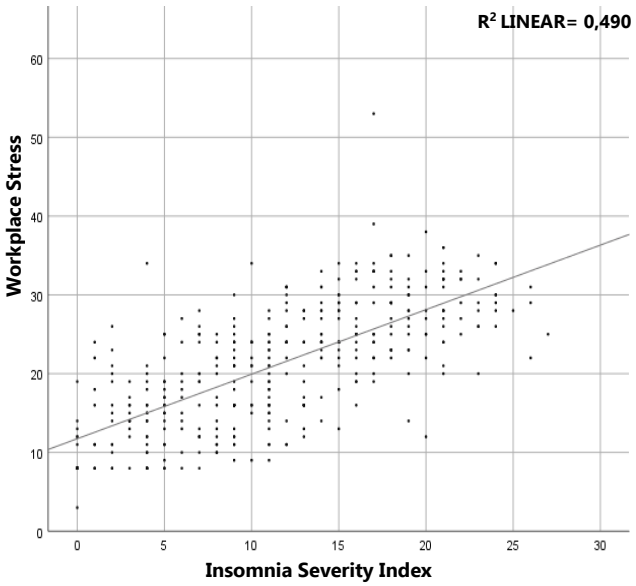
ROC Curve Analysis

Receiver Operating Characteristic (ROC) curve analysis was conducted to evaluate the diagnostic performance of variables in predicting clinically significant insomnia. The Area Under the Curve (AUC) was calculated for each predictor to determine its discriminative ability. Variables with an AUC > 0.7 were considered to have acceptable discriminative power, while those with an AUC > 0.8 demonstrated excellent predictive ability. The

results showed that workplace stress had the highest AUC (0.864, 95% CI: 0.826–0.902, p < 0.001), indicating excellent discriminative performance. Other variables with strong predictive power included: Number of lights in the sleeping environment (AUC = 0.789, 95% CI: 0.745–0.833, p < 0.001) and Alcohol consumption (AUC = 0.770, 95% CI: 0.725–0.816, p < 0.001). Variables with moderate predictive power included cigarette use (AUC = 0.615, 95% CI: 0.559–0.672, p < 0.001) and use of insomnia medication (AUC = 0.599, 95% CI: 0.542–0.655, p = 0.001). Other factors, such as job area, workload, ethnicity, assistance for insomnia, and vape use, had AUC values closer to 0.5, indicating limited discriminative ability for predicting insomnia. These findings confirm that workplace stress and environmental factors, particularly light exposure, are critical predictors of insomnia among university staff. The strong discriminative performance of these variables underscores their importance in identifying individuals at high risk for clinically significant insomnia.

The ROC curves for these variables are presented in Figure 3, and the corresponding AUC values, along with 95% confidence intervals and p-values, are summarized in ***Table 5.***

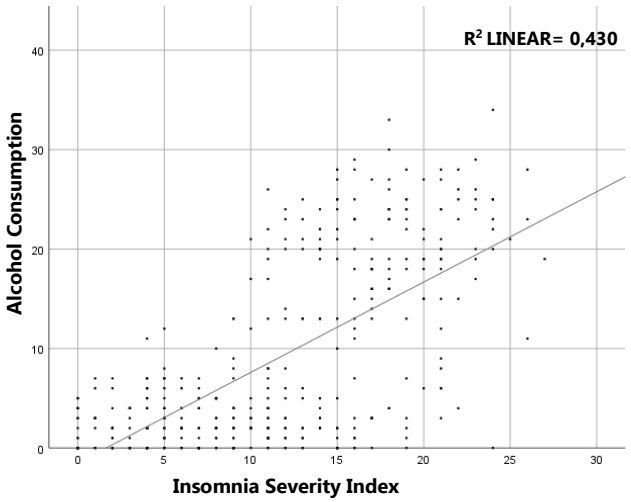
Figure 1. Scatter plot between Insomnia Severity Index (ISI) Scores and Workplace Stress Scale (WSS) Scores.



Discussion

This study aimed to evaluate insomnia prevalence and associated risk factors among Hispanic university staff. A substantial proportion of participants reported clinically significant insomnia, with higher severity correlated with job role, workload, and ethnic background. Lifestyle factors, including tobacco use, and excessive light exposure during sleep, were significantly associated with impaired sleep quality. Furthermore, elevated workplace stress levels demonstrated a strong correlation with increased insomnia severity.

Figure 2. Scatter plot between Insomnia Severity Index (ISI) Scores and Alcohol Consumption (AUDIT) Scores.

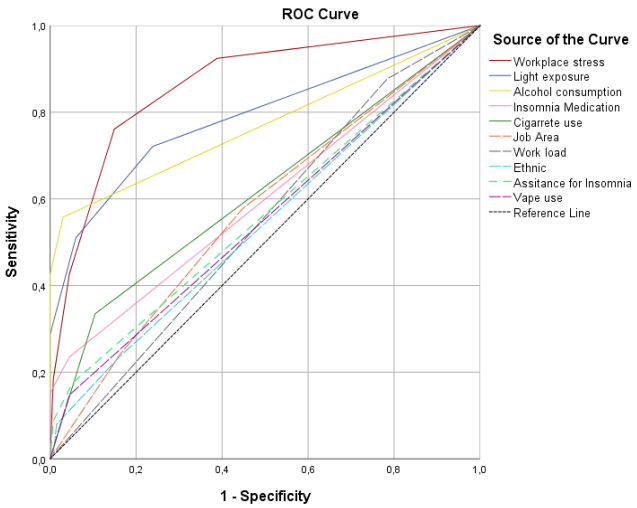


In this study, we employed the ISI to measure insomnia severity due to its greater specificity in assessing clinically significant insomnia compared to the PSQI. While both scales assess sleep disturbances, the ISI is considered a more precise tool for categorizing insomnia severity, as it is specifically designed to evaluate the frequency and intensity of insomnia symptoms, providing a clearer delineation between different levels of severity. The ISI categorizes insomnia as subthreshold insomnia, moderate insomnia, and severe insomnia, offering a detailed understanding of insomnia symptoms that is more aligned with clinical practice. In contrast, the PSQI, while useful for evaluating overall sleep quality, has broader categorizations that may not fully capture the nuanced differences between varying levels of insomnia severity. For instance, a PSQI score of 5 or higher indicates the need for medical attention, but it does not differentiate between moderate and severe insomnia as effectively as the ISI. Given the focus of this study on identifying clinically significant insomnia, the ISI was the preferred measure due to its more targeted approach, allowing for a better understanding of insomnia severity and its relationship with lifestyle and environmental factors. This distinction in operationalizing insomnia severity between the ISI and PSQI helps to clarify the findings in this study, particularly regarding the prevalence and impact of insomnia among university staff.

While the study did not directly assess cultural factors, some environmental and lifestyle characteristics observed in the results may reflect cultural influences on sleep. In the Hispanic population of this study, which belongs to Western culture, factors such as alcohol consumption, smoking, and environmental conditions (e.g., the number of lights in the room) may be shaped by cultural perceptions and social norms. Recent meta-analyses have found that the association between electronic media use and sleep quality was significantly stronger in Eastern cultures.[4,5] This difference has been speculated to arise from cultural variations in social media use patterns, perceptions of social norms and expectations, bedtime routines, and coping mechanisms for stress. These findings highlight the potential role

of cultural factors in shaping sleep behaviors. However, as our study did not include populations from Eastern cultures, we are unable to draw direct comparisons. Nonetheless, it is important to speculate on the possible factors that may influence sleep quality within the Hispanic population studied. Cultural norms related to social activities, stress management, and bedtime habits, as well as exposure to environmental conditions such as artificial light, may interact to mediate the relationship between lifestyle behaviors and insomnia. These speculations warrant further investigation to better understand the cultural underpinnings of sleep disturbances and their implications in diverse populations.

Figure 3. ROC Curve for Variables in Predicting Clinically Significant Insomnia.



There are several studies on the prevalence of insomnia in different populations; however, this study, conducted within a university community, encompasses various populations with different work areas. A study conducted in Portugal among schoolteachers found a prevalence of insomnia symptoms at 40.6%, compared to the 60.6% prevalence found in our study. 15 The difference in prevalence may be attributed to the fact that our study included not only teaching staff. Furthermore, the categorization methods differed; our study utilized standardized scales, whereas the Portuguese study applied diagnostic criteria. These variations underscore the need for future research to establish a consistent diagnostic approach for insomnia.

Regarding the analysis of risk factors, a study among Indian corporate employees investigated personal habits like those in our study and found comparable results for alcohol consumption and cigarette use.16 However, this study did not include vaping as a variable and assessed alcohol use through a simple count of drinks rather than using the standardized AUDIT scale, which we employed. The use of the AUDIT scale in our study adds robustness to our findings regarding the significant relationship between alcohol consumption and sleep quality. Additionally, other studies conducted in other countries have demonstrated that higher alcohol intake correlates with decreased sleep quality, and these studies also utilized the AUDIT scale, which supports the validity of our methodological approach.[17,19] Furthermore, our study uniquely analyzed the relationship between workplace stress and insomnia, identifying a significant correlation that aligns with international research identifying workplace stress as a factor associated with insomnia.[20,21]

Table 3. Correlations Between Variables and Sleep Quality (PSQI) and Insomnia (ISI).

Variable	Sleep Quality		Insomnia	
	Correlation (Rho)	p-Value	Correlation (Rho)	p-Value
Job Area	0.158	0.002	0.119	0.019
Workload	0.167	0.001	0.164	0.001
Ethnicity	0.102	0.046	0.105	0.039
Insomnia Medication Use	0.245	< 0.001	0.248	< 0.001
Assistance for Insomnia	0.191	< 0.001	0.234	< 0.001
Cigarette Use	0.320	< 0.001	0.326	< 0.001
Vape Use	0.154	0.002	0.162	0.001
Lights in Sleeping Environment	0.550	< 0.001	0.624	< 0.001
Alcohol Consumption	0.586	< 0.001	0.606	< 0.001
Workplace Stress	0.669	< 0.001	0.717	< 0.001

Legend: p-values considered significant at <0.05

A particularly novel aspect of our study is the analysis of the relationship between workplace stress and insomnia. While several studies have established a link between workplace stress and poor sleep quality, most of these studies focus on corporate or healthcare settings. Our study specifically explores this relationship in university staff, an occupational group that has not been as widely studied in this context. International research has shown that workplace stress is significantly correlated with sleep disturbances, with studies in diverse settings reporting consistent associations. However, few have specifically examined how the unique stressors in academic environments—such as workload, job role, and institutional pressures—interact with insomnia symptoms in university staff.15,20,21 Our findings reveal a strong and significant correlation between elevated workplace stress levels and increased insomnia severity (rho = 0.669, p < 0.001 for PSQI; rho = 0.717, p < 0.001 for ISI), indicating a robust relationship between these variables. These findings underscore the need for further longitudinal studies to better understand the temporal and causal dynamics between workplace stress and insomnia in academic settings.

Moreover, our study identifies a novel and relatively underexplored risk factor: the impact of the number of lights in the sleeping environment on sleep quality. Specifically, we investigated how the presence of lights, which often reflects the use of electronic devices, correlates with worsened sleep quality and increased insomnia symptoms. Our findings reveal a significant association between light exposure before sleep and

deterioration in sleep quality, which aligns with the known pathophysiological mechanism where light exposure suppresses melatonin production, thereby disrupting sleep. Although our study's population differs from those in previous research, such as studies in younger cohorts, the observed relationship between light exposure and sleep disturbances is consistent with existing literature.[22] Interventions aimed at reducing light exposure before sleep could be particularly beneficial. These may include promoting awareness of the negative effects of electronic devices before bedtime and encouraging environmental changes such as dimming lights or using blackout curtains to improve sleep quality. Such practical strategies could be more effective when tailored to the specific habits and preferences of the target population, fostering better acceptance and adherence to sleep improvement recommendations.

Table 4. Multivariate Analysis of Predictors of Clinically Significant Insomnia.

Variable	Exp(B)	95% CI for Exp(B)	p-value
Insomnia Medication	6.734	2.153 – 21.057	0.001
Workplace Stress	2.740	1.999 – 3.756	0.000
Alcohol Consumption	5.240	1.702 – 16.132	0.004
Number of Lights	1.872	1.216 – 2.882	0.004
Cigarette Use	1.623	0.591 – 4.461	0.348
Job Area	1.451	0.950 – 2.216	0.085
Workload	2.178	0.854 – 5.554	0.103
Assistance for Insomnia	0.880	0.289 – 2.679	0.822
Ethnicity	1.129	0.610 – 2.092	0.699
Vape Use	0.923	0.157 – 5.439	0.929

Legend: p-values considered significant at <0.05

Despite efforts to minimize methodological biases, several limitations persist. The cross-sectional design of the study prevents establishing causality between insomnia and the identified risk factors. The reliance on self-reported data, particularly for variables like alcohol and caffeine intake, may introduce biases such as recall bias and social desirability bias, potentially affecting the accuracy of reported sleep behaviors and lifestyle factors. In addition, unmeasured stressors and health comorbidities, such as depression, anxiety disorders, or undiagnosed sleep disorders (e.g., sleep apnea), could contribute to residual confounding. Furthermore, environmental factors like noise, temperature, and housing conditions may also play a role in mediating sleep disturbances, but were not assessed in this study, which could partially explain the observed relationships. The study was conducted at a single university in Ecuador, which may limit the generalizability of the findings to other Hispanic university staff, especially those in different geographical regions or cultural contexts. The sample predominantly consisted of individuals with mixed ethnicity, which, while reflective of many Hispanic populations, may not fully represent the diversity within broader Hispanic communities, such as indigenous or Afro-Hispanic groups. These subgroups may experience unique cultural, socioeconomic, and environmental influences on sleep behaviors. Moreover, Hispanic populations in different regions may have varying work environments, health behaviors, and access to resources, all of which could influence the prevalence and risk factors for insomnia. Future research should consider longitudinal designs and include more diverse university settings, incorporating Hispanic populations from different ethnic, socioeconomic, and geographic contexts. It should also aim to incorporate a broader range of health-related and environmental factors to provide a more comprehensive understanding of the determinants of insomnia in this population.

Table 5. Receiver Operating Characteristic Curve (ROC) Analysis for Predicting Clinically Significant Insomnia.

Variable	Area Under the Curve (AUC)	95% CI	p-value
Workplace Stress	0.864	0.826–0.902	<0.001
Light Exposure	0.789	0.745–0.833	<0.001
Alcohol Consumption	0.770	0.725–0.816	<0.001
Insomnia Medication	0.599	0.542–0.655	0.001
Cigarette Use	0.615	0.559–0.672	<0.001
Job Area	0.572	0.512–0.632	0.020
Workload	0.546	0.485–0.608	0.133
Ethnicity	0.541	0.482–0.601	0.180
Assistance for Insomnia	0.563	0.505–0.621	0.041
Vape Use	0.551	0.493–0.610	0.097

Legend: The association is significant at the level 0.05.

In conclusion, this study provides valuable insights into the prevalence of insomnia and its associated risk factors among Hispanic university staff. Our findings highlight the multifaceted nature of insomnia in this population, underscoring the need for targeted interventions that address both lifestyle factors and work-related stressors. Given the significant impact of insomnia on staff well-being, it is crucial for university administrations to consider implementing workplace policies that promote better sleep health. This could include stress management programs, flexible work hours, and educational initiatives on sleep hygiene. By improving sleep health, universities can not only enhance the quality of life for their staff but also improve productivity and job satisfaction. These findings contribute to a growing body of evidence and provide a basis for informing public health policies aimed at addressing insomnia-related issues within academic settings.

Summary – Accelerating Translation

Insomnia Prevalence and Risk Factors Among Hispanic University Staff: A Cross-Sectional Study

This study aimed to determine how common insomnia is among Hispanic university staff at the Catholic University of Santiago de Guayaquil in Ecuador and identify its risk factors. From August 2023 to February 2024, 385 university employees took part in an anonymous online survey. The survey asked about their personal details, lifestyle, work-related factors, and sleep habits. We used two tools, the Pittsburgh Sleep Quality Index (PSQI) and Insomnia Severity Index (ISI), to measure sleep quality and insomnia severity.

We found that 65.2% of participants had insomnia. On average, their PSQI score was 8.8, with 15.1% experiencing severe sleep problems, and their ISI score was 11.5, with 2.9% having severe insomnia. Higher PSQI scores were linked to job area, workload, ethnicity, use of insomnia medication, smoking, and light exposure in the sleeping environment. ISI scores were related to workload, and ethnicity. Increased workplace stress was strongly associated with more severe insomnia.

Overall, a significant number of Hispanic university staff reported significant insomnia. Key factors included job role, workload, lifestyle habits, and environmental conditions. Addressing these factors through targeted interventions is important for improving sleep health and well-being among university staff.

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Acknowledgments

None.

Conflict of Interest Statement & Funding

The Authors have no funding, financial relationships or conflicts of interest to disclose.

Author Contributions

Conceptualization: RS-V. Data Curation: CR-A, DJ-C, LV-P, PG-R, MH, RM. Methodology: CR-A, DJ-C. Supervision: RS-V. Writing - Original Draft: CR-A, DJ-C.

Cite as

Rodriguez C. A., Japon D. C, Vinan L. P, Gruezo P. R. Hidalgo M, Moran R, et al. Insomnia Prevalence and Risk Factors Among Hispanic University Staff in Ecuador: A Cross-Sectional Study. Int J Med Stud. 2025 Oct-Dec;13(4): 376-383.

ISSN 2076-6327

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