Revista Latinoamericana de Psicología

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ORIGINAL

Insomnia symptom patterns and their association with depressive symptoms in Chilean adults: A latent profile analysis

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Received 8 July 2024; ***accepted*** 17 September 2024

Abstract | **Introduction:** Insomnia is a highly prevalent disorder in Chilean adults. The literature suggests the existence of specific insomnia symptom patterns (ISPs). Although depression is an important antecedent of insomnia, few studies have assessed its relationship with ISPs in Chilean adults. The aim of this study was to identify ISPs and determine their association with depressive symptomatology in Chilean adults. **Method:** Participants were 523 Chilean adults selected by non-probabilistic convenience sampling. Variables were measured using self-report scales. Identification of ISPs was performed using latent profile analysis. **Results:** Five ISPs emerged, which were labelled as 'No insomnia', 'Infrequent insomnia', 'Non-restorative sleep with irregular awakening', 'Insomnia with regular awakening', and 'Recurrent insomnia'. Using the 'No insomnia' pattern as a reference, depressive symptoms significantly increased the likelihood of having each of the other ISPs. **Conclusion:** Depressive symptoms may play a key role in the heterogeneity of insomnia in Chilean adults. The findings could be an important contribution to the design of tailored interventions for the treatment of insomnia in this population.

Keywords: Insomnia, sleep disturbances, depressive symptoms, depression, depressive symptomatology.

Patrones de síntomas de insomnio y su asociación con los síntomas depresivos en adultos chilenos: un análisis de perfiles latentes

Resumen | **Introducción:** El insomnio es un trastorno altamente prevalente en adultos chilenos. La literatura sugiere la existencia de patrones de síntomas de insomnio (PSI) específicos. Aunque la depresión es un antecedente importante del insomnio, pocos estudios han evaluado su relación con PSI en adultos chilenos. El objetivo de este artículo es identificar PSI y determinar su asociación con la sintomatología depresiva en adultos chilenos. **Método:** Los participantes fueron 523 adultos chilenos seleccionados mediante un muestreo no probabilístico por conveniencia. Las variables fueron medidas con escalas de autorreporte. La identificación de PSI se llevó a cabo usando análisis de perfiles latentes. **Resultados:** Emergieron

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https://doi.org/10.14349/rlp.2024.v56.18

cinco PSI, los cuales fueron etiquetados como 'Sin insomnio', 'Insomnio poco frecuente', 'Sueño no reparador con despertar irregular', 'Insomnio con despertar regular', e 'Insomnio recurrente'. Usando el patrón de 'Sin insomnio' como referencia, los síntomas depresivos incrementaron de manera significativa la probabilidad de tener cada uno de los demás PSI. **Conclusión:** Los síntomas depresivos pueden cumplir un papel clave en la heterogeneidad del insomnio en adultos chilenos. Los hallazgos son una contribución importante para el diseño de intervenciones personalizadas en el tratamiento del insomnio en esta población.

Palabras clave: Insomnio, alteraciones del sueño, síntomas depresivos, depresión, sintomatología depresiva.

The International Classification of Sleep Disorders-3 (ICSD-3) defines insomnia as a disorder consisting of problems initiating or maintaining sleep with daytime consequences (Sateia, 2014). Meta-analytic evidence suggests that 22% of the general population is affected by insomnia (Zeng et al., 2020), a number that increased to 35% in Latin America during the COVID-19 pandemic (Zhang et al., 2022). High rates of insomnia have been reported in the Chilean adult population. In 2019, during a period of social outbreak with mass protests, 34.4% of Chilean adults experienced moderate to severe insomnia (Pizarro-Mena et al., 2022). A later study conducted among Chilean university students found that 32.6% had clinically relevant insomnia during the COVID-19 pandemic (Valdés et al., 2022). This is partly due to the high burden of mental health risk factors reported among Chilean adults, of whom 19.6% report feeling lonely (Duarte & Jiménez-Molina, 2022), 15.9% perceive a high level of psychological stress (Álamo et al., 2020), and 19.8% report excessive alcohol consumption (Servicio Nacional para la Prevención y Rehabilitación del Consumo de Drogas y Alcohol [SENDA], 2021). In addition, 27.4% of Chilean adults in higher education experience depressive symptoms, with higher rates among those from lower socioeconomic groups (Martínez et al., 2021). Similarly, 14.2% of Chilean adults have suicidal thoughts, which are more common among women (16.3%) than men (11.1%) (Jiménez-Molina et al., 2021). Given the impact of insomnia on mortality, the risk of developing chronic diseases and a poorer quality of life (Wu et al., 2023; Yang et al., 2021), it has become a public health threat in Chile, and it is vital that health services provide an evidence-based response.

Although insomnia is a risk factor for depression, a large body of literature indicates that a complex and bidirectional relationship exists between the two conditions (Yasugaki et al., 2023). This suggests that symptoms of depression may also be a precursor to insomnia. From the perspective of Harvey's (2002) cognitive model of insomnia, negative thoughts associated with depression can produce autonomic nervous system arousal and emotional distress, resulting in bodily sensations that are incompatible with sleep onset. Consistent with these approaches, individuals with depressive symptoms tend to experience more negative affect, rumination, and physiological arousal prior to sleep, increasing the risk of insomnia (Bar et al., 2020; Xiao et al., 2021). In addition, depressive symptomatology facilitates engagement in unhealthy behaviours that increase the likelihood of developing insomnia, such as a sedentary lifestyle and tobacco use (Morrell et al., 2010; Stubbs et al., 2018; Zhang et al., 2023). Longitudinal evidence shows that depressive symptoms are associated with higher levels of insomnia (Liu et al., 2022; Raman et al., 2022). Similarly, intra-individual changes in depressive symptomatology have been found to be associated with subsequent fluctuations in insomnia symptoms (Zhou et al., 2024). Consistent findings have been reported in Chile, where insomnia has been associated with indicators of psychological distress, including depressive symptoms (Barrera-Herrera et al., 2023).

The use of data-driven multivariate statistical techniques has allowed the identification of insomnia symptom patterns (ISPs, Crawford et al., 2017). For example, in patients with sleep apnea, Wallace and Wohlgemuth (2019) identified three ISPs, denominated 'asymptomatic', 'moderate insomnia' and 'severe insomnia' according to severity, which differed in a range of symptoms including dissatisfaction with sleep, worrying about sleep, interference with daily life, and difficulty initiating and maintaining sleep. However, although insomnia may be subclinical, few studies have investigated ISPs in the general non-clinical population. The available evidence in adults suggests that ISPs are characterised not only by their severity, but also by the exacerbation of individual symptoms such as low sleep efficiency or non-restorative sleep (Carpi et al., 2022; Sarsembayeva et al., 2024). These findings illustrate the heterogeneous nature of insomnia and may provide valuable information for designing tailored intervention strategies for individuals with specific combinations of symptoms (Poon et al., 2021).

Given that the composition of ISPs varies widely across populations (Carpi et al., 2022; Crawford et al., 2017; Sarsembayeva et al., 2024; Wallace & Wohlgemuth, 2019), it is essential to explore which of them emerge in groups where insomnia is highly prevalent. In this regard, the significant variability in measures of insomnia and sleep quality suggests that different ISPs may exist in the Chilean adult population (Durán et al., 2017; Masalan et al., 2018). Furthermore, an important aspect of the study of ISPs is the assessment of its associated factors. According to Benjamins et al. (2017), these patterns may be shaped by individual characteristics and psychological processes beyond sleep. Specific ISPs have been found to be differentially associated with gender, age and educational level (Carpi et al., 2022; Sarsembayeva et al., 2024). In addition, studies in

European adults have shown that ISPs differ systematically in their levels of depressive symptoms (Carpi et al., 2022; Sarsembayeva et al., 2024). However, although depressive symptoms have been associated with higher levels of insomnia in Chilean adults (Barrera-Herrera et al., 2023), evidence regarding their potential association with ISPs in this population is limited.

Based on the above, the aims of this study were (a) to identify ISPs and (b) determine their association with depressive symptoms in Chilean adults. It was hypothesised that (H1) different ISPs would emerge and that (H2) depressive symptoms will increase the likelihood of presenting higher-risk ISPs compared to lower-risk ISPs.

Method

Participants

Participants were a community sample of 523 Chilean adults selected by non-probability convenience sampling. The study design was non-experimental and cross-sectional. Inclusion criteria were (a) age ≥ 18 years, (b) living in Chile, (c) having a device with Internet access, and (d) understanding Spanish.

Instruments

Insomnia symptoms. These were measured using five items from the Oviedo Sleep Questionnaire (OSQ, Bobes et al., 2000). These items assess the weekly frequency of problems with falling asleep, staying asleep, achieving restful sleep and waking up at the usual time, and excessive sleepiness. The response format has five points (0 = none, 4 = six to seven days per week). The OSQ has shown evidence of construct validity, concurrent validity and adequate reliability in Chilean adults (Barrera-Herrera et al., 2023). The selected items had adequate reliability in the present sample (α = .840).

Depressive symptoms. It was measured using the Patient Health Questionnaire 9 (Kroenke et al., 2001), with the exception of the third item regarding sleep problems to avoid overlap between this measure and the ISPs. This scale measures the frequency of depressive symptoms in the past two weeks with a five-point response format (0 = never, 4 = every day). An example item is '[In the past two weeks, how often have you experienced the following problems?] Have you felt sad, depressed or hopeless?'. Higher scores on this scale indicate higher levels of depressive symptomatology. This instrument has shown evidence of construct and predictive validity in the Chilean adult population, as well as high levels of reliability (Baader et al., 2012). The unidimensional structure of the selected items showed excellent fit to the data via confirmatory factor analysis [χ^2 (20) = 119.035, p < .001; CFI = 1.000, TLI = .999, RMSEA = .042 and SRMR = .052] and high internal consistency (α = .918).

Sociodemographic variables. Participants self-reported sex, age in years, marital status, educational level, residential area, health insurance and main occupation. Frequency of use of drugs or remedies to induce sleep (0 = none, 4 = six or seven days per week) was also measured using item 19 of the OSQ.

Procedures

Participants were recruited through social media and street advertisements distributed by research assistants in a city in southern Chile. A QR code was shared that led to an online survey with the measurement tools, where the first page contained a consent form that had to be authorised in order to participate. The survey was developed using the Google Forms platform. Informed consent assured anonymity and the scientific use of the responses. The survey took approximately 15 to 20 minutes to complete. The data were collected between May and June 2024. There was no direct compensation for participating.

All study procedures were approved by the Scientific Ethical Committee of the Santo Tomas University (N° 61-MZS).

Statistical analysis

Descriptive statistics were calculated for the quantitative and categorical variables of interest. Data loss was minimal (.1%).

ISPs were identified using Latent Profile Analysis (LPA). This multivariate technique classifies individuals from an assumed heterogeneous population into more homogeneous subgroups based on their response patterns to a set of numerical indicators (Berlin et al., 2014; Marcoulides & Schumacker, 2001). In LPA, these subgroups are referred to as latent profiles (Porcu & Giambona, 2017), in each of which a set of means is estimated for the analysed variables using the maximum likelihood method (Muthén & Muthén, 2017). The sample size was planned according to LPA guidelines, anticipating a minimum n of 500 cases (Ferguson et al., 2020).

The number of latent profiles to retain was decided by comparing the fit to the data of models with an increasing number of latent profiles (Ferguson et al., 2020). For this purpose, Akaike's information criterion (AIC), Bayesian information criterion (BIC) and sample size adjusted BIC (SABIC) values were examined. Smaller values of AIC, BIC and SABIC indicate a better fit (Kline, 2023). We also considered the result of the bootstrap likelihood ratio test (BLRT), which compares the fit to the data of a model with k classes versus a model with k - 1 classes (Wang & Wang, 2020). A significant result in this test (p < .05) suggests that the LPA model with k classes fits better than the one with k - 1 classes (Asparouhov & Muthén, 2012). The classification accuracy of the subjects in the latent profiles was assessed using the entropy statistic, with values greater than .80 indicating acceptable classification accuracy (Ram & Grimm, 2009). The minimum size for latent profiles was set at 5% of the sample (Weller et al., 2020). In addition, interpretability from a theoretical point of view was considered in determining the final model (Spurk et al., 2020). Variables were standardised (z-score) prior to entry into the LPA.

Once the final LPA model was selected, latent profile assignment data were used as the dependent variable in a multinomial logistic regression model to test the predictive role of depressive symptomatology on latent profile membership (Wang & Wang, 2020). This analysis

was controlled for gender, age and level of education. It was also adjusted for the use of sleep-inducing medications or remedies, as they may reduce insomnia despite the presence of depressive symptoms.

LPA was performed in R v4.3.1 using the *tidyLPA* library, while multinomial logistic regression analysis was performed in SPSS v25. An alpha of .05 was used for all analyses.

Results

Description of the sample

The characteristics of the participants are described on Table 1. The majority were female (59.85%), single (70.17%), residents of urban areas (81.80%), and affiliated to the public health system (82.60%). On average, participants experienced the different symptoms of insomnia one to two days per week. In addition, 29.3% used a drug or remedy to induce sleep during the week (n = 153).

Table 1. Characteristics of the participants

Variable	*n* (%)
Sex	
Male	210 (40.15)
Female	313 (59.85)
Age: M = 34.13, SD = 12.39, Min. = 18, Max. = 81	
Marital status	
Single	367 (70.17)
Married	113 (21.61)
Divorced	41 (7.84)
Widowed	2 (.38)
Zone of residence	
Urban	428 (81.80)
Rural	95 (18.20)
Education	
Secondary education or lower	119 (22.80)
Incomplete higher education	155 (29.69)
Completed higher education	248 (47.52)
Health insurance	
Public	432 (82.60)
Private	64 (12.24)
Other	27 (5.16)
Depressive symptoms: M = 8.10, SD = 6.97, Min. = 0, Max. = 32	
Difficulty, Falling asleep: M = 1.15, SD = 1.17, Min. = 0, Max. = 4	
Difficulty, Staying asleep: M = .98, SD = 1.11, Min. = 0, Max. = 4	
Difficulty, Restorative sleep: M = 1.47, SD = 1.27, Min. = 0, Max. = 4	
Difficulty, Wake up at usual time: M = 1.30, SD = 1.38, Min. = 0, Max. = 4	
Difficulty, Excessive sleepiness: M = 1.14, SD = 1.23, Min. = 0, Max. = 4	
Use of medication or sleep remedies: M = .61, SD = 1.18, Min. = 0, Max. = 4	

Note: M = Mean, SD = Standard deviation, Min. = Minimum, Max. = Maximum.

Identification of ISPs

Table 2 presents the results of the relative fit of the models with different numbers of latent profiles. In line with H1, the information criteria and BLRT suggested rejecting the homogeneity of insomnia symptoms represented by the one latent profile model and supporting the five latent profile model. The latter model had the lowest AIC, BIC and SABIC values, and an entropy value that indicated reasonable accuracy in classifying individuals into the profiles. The significant BLRT also indicated that the five-profile model fit the data better than the four-profile model. In contrast, models with more than five profiles resulted in insufficient class sizes, lower classification accuracy and higher AIC, BIC and SABIC values. In addition, the five-latent profile model showed greater interpretability than models with fewer profiles. In particular, it better separated conceptually distinct latent profiles and more accurately identified profiles characterised by insomnia symptom severity compared with others characterised by more complex symptom combinations.

Figure 1 and Table 3 show the estimated means for the five latent profile model. The first profile grouped 26.20% of the sample (n = 137). Individuals in this profile experienced the different insomnia symptoms with a frequency of about one or two days per week. This profile was termed 'Infrequent insomnia'. The second profile included 11.47% of the sample (n = 60) and was characterised by a relatively high level of all insomnia symptoms and was therefore termed 'Recurrent insomnia'. The third profile included 10.71% of the sample (n = 56) and showed a relatively high frequency of difficulties in achieving restful sleep and waking up at the usual time. Therefore, this profile was defined as 'Non-restorative sleep with irregular awakening'. The fourth profile consisted of 43.79% of the sample (n = 229) and showed relatively low scores on all indicators examined and was therefore termed 'No insomnia'. Finally, the fifth profile included 7.84% of the sample (n = 41) and was characterised by relatively high levels of the different insomnia symptoms, with the exception of difficulty waking up at the usual time. Accordingly, the profile was named 'Insomnia with regular awakening'.

Prediction of latent profile membership

The prediction of latent profile membership based on depressive symptomatology was performed using the 'No insomnia' profile as the reference category. Confirming H2, higher levels of depressive symptoms were associated with a higher likelihood of having the profile 'Infrequent insomnia' (OR = 1.186, 95% CI [1.125 – 1.251],

Table 2. Statistics and fit indices of LPA models with different number of latent profiles

Profiles	Entropy	Min. Size	AIC	BIC	SABIC	BLRT (*p*)
1	1	1	8516.000	8559.000	8527.000	NA
2	.890	.264	7637.001	7705.154	7654.366	.010
3	.811	.136	7448.761	7542.472	7472.638	.010
4	.845	.055	7369.228	7488.496	7399.617	.010
5	.836	.078	7250.021	7394.847	7286.923	.010
6	.740	< .001	7262.026	7432.409	7305.44	1
7	.750	< .001	7215.108	7411.049	7265.034	.010

Note: Min. Size = Proportion of individuals in the least prevalent profile; NA = Not applicable.

Table 3. Estimated means for insomnia symptom patterns

Profile	Problems falling asleep	Problems maintaining sleep	Non-restorative sleep	Irregular awakening	Excessive sleepiness
Infrequent insomnia	.076	.052	-.032	-.104	.161
Recurrent insomnia	1.250	1.470	1.250	1.590	1.71
Non-restorative sleep with irregular awakening	-.079	-.247	.486	1.560	-.254
No insomnia	-.604	-.606	-.690	-.748	-.666
Insomnia with regular awakening	1.200	1.210	1.220	-.093	.861

p < .001), 'Recurrent insomnia' (OR = 1.356, 95% CI [1.272 – 1.446], p < .001), 'Non-restorative sleep with irregular awakening' (OR = 1.177, 95% CI [1.104 – 1.255], p < .001), and 'Insomnia with regular awakening' (OR = 1.315, 95% CI [1.230 – 1.406], p < .001). The use of sleep inducers was associated with the profiles of 'Insomnia with regular awakening' (OR = 1.563, 95% CI [1.166 – 2.096], p = .003) and 'Recurrent insomnia' (OR = 1.479, 95% CI [1.114 – 1.962], p = .007). The predictive effect of none of the other covariates was significant (ps > .05).

Discussion

The aim of this study was to identify ISPs and assess their association with depressive symptoms in Chilean

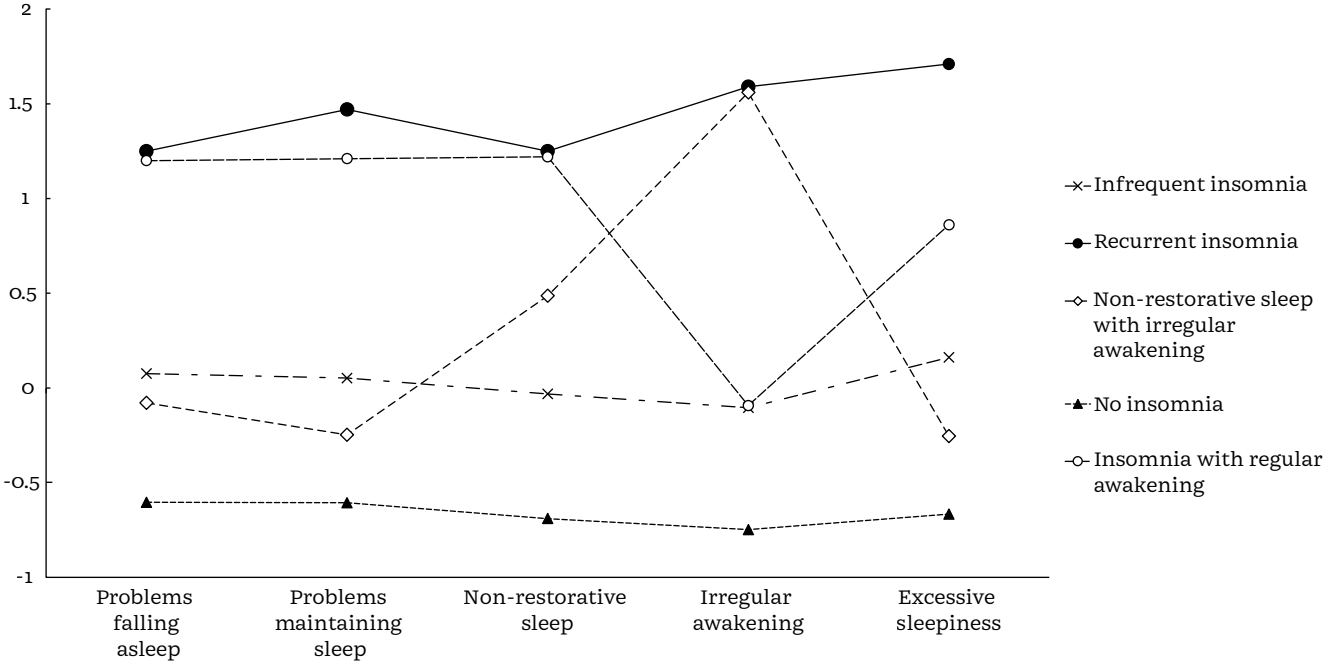

Figure 1. Estimated means for the five insomnia symptom profiles

adults. Confirming the first hypothesis, five ISPs emerged: (a) 'Recurrent insomnia', characterised by relatively high levels of all insomnia symptoms assessed; (b) 'Infrequent insomnia', with insomnia symptom levels close to the sample mean, consistent with difficulties on one or two days of the week; (c) 'No insomnia', with relatively low levels of all insomnia symptoms assessed; (d) 'Non-restorative sleep with irregular awakening', which included marked problems with achieving restorative sleep and waking at the usual time; and (e) 'Insomnia with regular awakening', which was characterised by relatively high levels of most symptoms, with the exception of difficulty waking at the usual time.

The ISPs found are partially consistent with previous literature. The 'Recurrent insomnia' and 'No insomnia' profiles were similar to the patterns 'Sleepless doves' and 'Healthy larks' found by Sarsembayeva et al. (2024) in Dutch adults, respectively. Similarly, in adults from Italy, Carpi et al. (2022) observed more complex ISPs with increased problems with sleep duration or sleep latency, and another pattern with few problems with sleep latency. In this sense, the 'Non-restorative sleep with irregular awakening' profile showed marked difficulty in only two symptoms, whereas individuals in the 'Insomnia with regular awakening' profile had relatively few problems waking up at the usual time. The 'Non-restorative sleep with irregular awakening' pattern suggests a relatively low degree of regularity in sleep schedules, particularly with respect to waking, which has been associated with adverse health outcomes such as cardiometabolic risk and cognitive decline (Chaput et al., 2020). These findings suggest the importance of studying ISPs in Chilean adults, given their variability with respect to other populations.

The second hypothesis of the study was sustained. Regardless of gender, age, education and use of sleep inducers, depressive symptoms increased the risk of having less favourable ISPs compared to the 'No insomnia' pattern, with a superior predictive effect for the 'Recurrent insomnia' profile. These findings are consistent with systematic differences in depressive symptoms observed in European adults with different ISPs (Carpi et al., 2022; Sarsembayeva et al., 2024). Also, the use of sleep-inducing remedies or medications was positively associated with 'Insomnia with regular awakening' and 'Recurrent insomnia' profiles, which is to be expected as the use of sleep inducers is more common among individuals with sleep disturbances (Gordon et al., 2022).

Depressive symptoms could lead to different ISPs due to their influence on unhealthy behaviours (Morrell et al., 2010; Stubbs et al., 2018; Zhang et al., 2023) as well as their consequences on rumination, negative affect and pre-sleep arousal, which is consistent with Harvey's (2002) cognitive model of insomnia. However, it is important to note that Harvey's (2002) model and other theories of insomnia, such as models of psychological inhibition or unwanted intrusive thoughts (Tang et al., 2023), do not explicitly consider ISPs or how depressive symptomatology might lead to different ISPs. Although these approximations may be useful for understanding ISPs membership with different degrees of severity based on depressive symptoms, they do not allow us to anticipate the existence of profiles with complex combinations of insomnia symptoms. In this sense, and taking into account their variability among populations, complex ISPs could be shaped by contextual modulatory factors that inhibit or exacerbate particular symptoms in a group of individuals. For example, it is possible that the use of alarms contributes to regularity in awakening even in the presence of problems in falling and maintaining sleep derived from depressive symptoms (McFarlane et al., 2020), as observed in the profile 'Insomnia with regular awakening'. Similarly, the lack of association between sociodemographic characteristics and ISPs seems to indicate the role of context in shaping insomnia symptoms, as these relationships have indeed been observed in Anglo-Saxon samples (Crawford et al., 2017; Sarsembayeva et al., 2024). In this sense, specificities of the Chilean context could help to explain the results obtained. For example, 84.8% of adults in Chile exceed the recommendations for sedentary time (Riquelme et al., 2022), which may delay sleep onset and disrupt the regularity of awakenings in a manner consistent with the pattern of 'Insomnia with regular awakening'. Therefore, despite the fact that ISPs are detected by data-driven exploratory techniques, the results found suggest that it is necessary to consider them in the explanation of insomnia once they are known, providing an understanding of this problem more in line with the singularities of a given population.

The results have practical implications for reducing insomnia in Chilean adults. The ISPs identified may require differentiated intervention strategies. Guidelines for the management of insomnia state that the first-line treatment should be cognitive behavioural therapy (CBT), which includes relaxation techniques, psychoeducation and cognitive control (Riemann et al., 2023). Following the stepped-care model for insomnia (Carpi et al., 2022; Riemann et al., 2022), standardised group interventions or online CBT may be useful for less severe ISPs, such as 'Infrequent insomnia'. This group may also benefit from other non-pharmacological interventions for insomnia, such as exercise programmes. The early or late nature of wake irregularity in the 'Non-restorative sleep with irregular awakening' pattern is unclear from the wording of the item used to measure it, and further research into the specific insomnia management needs of this group is required. In any case, the irregularity found may require stimulus control interventions to establish a consistent sleep routine (Edinger et al., 2021). Finally, people with 'Recurrent insomnia' and 'Insomnia with regular awakening' patterns may need specialised care that integrates different components of CBT and possible comorbidity with other physical or psychiatric disorders (Carpi et al., 2022). Thus, it is possible that taking ISPs into account may optimise the effectiveness of interventions to reduce insomnia in Chilean adults, avoiding the assumption that the same intervention will be equally useful for all individuals.

To our knowledge, this is the first study to examine ISPs and their association with depressive symptoms in Chilean adults, providing a benchmark against

which to compare what has been found in samples of Anglo-Saxon adults. However, some limitations should be noted. First, the use of convenience sampling does not allow us to guarantee the generalisability of the findings to the entire Chilean adult population. In this sense, the use of online surveys may have introduced sampling bias. Second, the cross-sectional design used does not allow us to establish direction or causality in the association between depressive symptoms and ISPs, nor does it allow us to analyse changes in ISPs over time. Third, the measurement of insomnia symptoms was self-reported, which may be subject to recall bias. In light of these limitations, it should be noted that the instrument used to measure insomnia symptoms has shown validity with respect to indicators of insomnia measured with actigraphy (Ibáñez-del Valle et al., 2018), and furthermore that the sample size used complies with recommendations for the implementation of LPA (Spurk et al., 2020). Therefore, it is recommended that future research delve deeper into the link of depressive symptoms with ISPs using representative stratified samples, longitudinal panel designs that allow capturing eventual transitions of ISPs based on depressive symptoms, and objective and subjective measures of insomnia symptoms. Furthermore, given the well-established link between insomnia and other mental health problems, future research could explore, for example, the relationship between ISPs and symptoms of anxiety or psychological stress in Chilean adults.

Conflict of interest

The authors report no conflict of interest.

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