

Article

# Nighttime Fears and Coping Responses in School-Aged Children: A Latent Profile Analysis

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## ABSTRACT

**Background:** Nighttime fears are common among school-aged children and may be linked to psychological difficulties, while coping strategies may vary and affect their emotional well-being. This study aimed to identify patterns of nighttime fears and coping styles in school-aged children using Latent Profile Analysis. Subsequently, possible predictors of the latent profiles were tested through multinomial logistic regression analysis. **Method:** A sample of 786 Spanish-speaking children (aged 8 to 12;  $M_{age} = 9.66$ ,  $SD = 1.20$ ; 51.3% girls) participated and completed self-report measures of nighttime fears and coping responses. **Results:** The results revealed four latent profiles: (1) “low fears, low self-control” (24.2%), (2) “high fears (except for imaginary fears), maladaptive coping” (22.8%), (3) “moderate fears, adaptive coping” (44.9%), and (4) “high fears, maladaptive coping” (8.1%). The regression analysis revealed that sociodemographic characteristics and children’s perceived helpfulness of coping strategies were predictors of the latent profiles. **Conclusions:** These findings suggest the presence of distinct patterns and heterogeneous subgroups, which may emerge as higher or lower risk profiles. It highlights the need to consider the existing patterns to provide tailored interventions targeting nighttime fears.

## Miedos Nocturnos y Respuestas de Afrontamiento en Niños en Edad Escolar: un Análisis de Perfiles Latentes

## RESUMEN

**Antecedentes:** Los miedos nocturnos son frecuentes entre los niños en edad escolar y pueden estar relacionados con dificultades psicológicas, mientras que las estrategias de afrontamiento pueden variar y afectar a su bienestar emocional. El objetivo principal de este estudio fue identificar patrones de miedos nocturnos y estilos de afrontamiento en niños en edad escolar mediante el Análisis de Perfiles Latentes. Asimismo, se comprobaron los posibles predictores de los perfiles latentes mediante un análisis de regresión logística multinomial. **Método:** Una muestra de 786 niños hispanohablantes (8-12 años;  $M_{edad} = 9,66$ ,  $DT = 1,20$ ; 51,3% niñas) participaron completando medidas de autoinforme sobre miedos nocturnos y respuestas de afrontamiento. **Resultados:** Los resultados revelaron cuatro perfiles latentes: (1) “miedos bajos, autocontrol bajo” (24,2%), (2) “miedos altos (excepto miedos imaginarios), afrontamiento desadaptativo” (22,8%), (3) “miedos moderados, afrontamiento adaptativo” (44,9%), y (4) “miedos altos, afrontamiento desadaptativo” (8,1%). El análisis de regresión reveló que las características sociodemográficas y la utilidad percibida por los niños respecto a las estrategias de afrontamiento eran predictores de los perfiles latentes. **Conclusiones:** Estos hallazgos sugieren la presencia de patrones distintos y subgrupos heterogéneos, pudiendo emerger como perfiles de mayor o menor riesgo. Ello enfatiza la necesidad de considerar los patrones existentes para ofrecer intervenciones adaptadas dirigidas a los miedos nocturnos.

### Palabras clave:

Análisis de perfiles latentes  
Niños  
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Respuestas de afrontamiento  
Patrones

Nighttime fears in children are common and can interfere with the proper daily functioning of the child and family. These fears generally disappear over the course of development, although for a considerable number of children, they may persist beyond infancy and become a pathological problem (Lewis et al., 2021). The literature has shown that nighttime fears can encompass fear of different types of stimuli during the night (e.g., being alone, noises, thieves or intruders, darkness, thinking that something bad might happen to the child or their family among other frightening thoughts, or imaginary creatures such as monsters, ghosts, skeletons, and vampires), having a heterogeneous nature (Orgilés et al., 2021). Within childhood, research has found that they are more common in the age range from 7-8 years to 12 than in other older or younger age groups (Gordon et al., 2007a; Muris et al., 2001). These authors reported different results in terms of sex, with Gordon et al.'s (2007a) study finding a higher prevalence in girls, while Muris et al. (2001) reported that the results were similar in girls and boys.

The study of nighttime fears is critical, as they may be related to emotional and other difficulties in children, including internalizing and externalizing symptoms, sleep difficulties, and anxiety-specific symptoms (El Rafihi-Ferreira et al., 2019; Orgilés et al., 2021). In this regard, children who show nighttime fears are likely to experience anticipatory anxiety before going to bed, but also to meet the criteria for at least one anxiety disorder (e.g., specific phobia, generalized anxiety, separation anxiety; Lewis et al., 2021; Muris et al., 2001). Therefore, the need to consider the diagnostic status of children's nighttime fears and evaluate the possible presence of other anxiety disorders has been suggested (Gordon et al., 2007a). In addition, in line with Lewis et al. (2021), because anxiety disorders have considerable continuity and are often comorbid with or precede other mental disorders, understanding nighttime fears is important for assessing, diagnosing, and treating rates of subsequent mental health problems. In this line, the literature shows a growing interest over recent years in improving the assessment, diagnosis, and treatment of nighttime fears, ultimately highlighting the need to continue studying and understanding them better (see Gordon & King, 2002; Gordon et al., 2007b; King et al., 1997; Lewis et al., 2021).

Moreover, coping responses are another factor that has been related to child well-being and adjustment in school-aged children. Thus, it has been found that more adaptive coping responses to potentially distressing situations are related to lower levels of children's anxiety symptoms and other indicators (e.g., somatization, perceived stress), and vice versa (Quy et al., 2018, 2020). Furthermore, it has been observed that these strategies used by children tend to be stable over time, thus posing a key factor to address, identify, and treat maladaptive strategies that may favor the development of emotional problems (e.g., Garnefski et al., 2007; Quy et al., 2020). Concerning nighttime fears, research has also shown that children employ a range of responses to try to cope with them (Gordon et al., 2007a; Mooney et al., 1985; Muris et al., 2001). Findings like those of Muris et al. (2001) revealed that children's perceptions of their effectiveness in controlling anxiety generated by nighttime fears differed, with less effective coping strategies (i.e., related to avoidance) and more effective coping strategies (i.e., related to active control) being reported. A more recent study has also validated a specific self-report instrument for assessing coping responses in school-aged children when

experiencing nighttime fears (i.e., Nighttime Coping Response Scale; Fernández-Martínez et al., 2022). This scale has shown good psychometric properties (i.e., evidence of reliability, temporal stability, and validity) and measures coping responses across three subscales that were significantly related to measures of anxiety symptoms; two subscales involved coping responses theoretically considered less adaptive (i.e., related to social support-seeking and fear-avoidance responses) and another measuring more adaptive responses (related to self-control responses).

Despite increasing efforts to better understand nighttime fears and coping responses in children, to our knowledge, there has been no attempt to date to identify possible patterns, subtypes, or profiles considering the two aspects conjointly. This valuable approach, based on Latent Class Analysis (LCA) or Latent Profile Analysis (LPA), has aroused increasing interest and revealed encouraging results concerning emotional and behavioral problems in school-aged children and adolescents (e.g., Essau & de la Torre-Luque, 2019; Liao et al., 2019; Morales et al., 2021a, 2021b). LCA and LPA are similar statistical techniques, following a person-centered statistical approach, intended to identify different subgroups or subpopulations (classes or latent groups) within a population, based on the responses of the study participants to a set of indicators. LCA is used when the variables are categorical and LPA when the study includes continuous variables, with the assumption that latent class membership serves to explain the patterns of individuals' scores on the variables analyzed (Spurk et al., 2020; Weller et al., 2020). These methods are useful in shedding light for clinicians and researchers on the presence of distinct typologies or profile configurations of variables of interest, and to facilitate their identification. It can help to provide more information on existing patterns, to better understand which symptoms, coping strategies, or characteristics are relevant for diagnosis and interventions, and provide tailored support to enhance emotional well-being or prevent mental health problems (Fonseca-Pedrero et al., 2020; Rosato & Baer, 2012; Spurk et al., 2020).

In this line, research following this approach targeting both nighttime fears and coping strategies is promising as it could advance our understanding of profiles in this field, which might facilitate early detection and diagnosis of maladaptive as well as adaptive patterns. Thus, the main goal of the current research was to identify patterns of nighttime fears and coping styles in a sample of Spanish children aged 8 to 12 years, performing LPA. Subsequently, we also aimed to examine sociodemographic variables (i.e., sex, age, number of siblings) and children's perceived helpfulness of coping strategies as predictors of the latent profiles through multinomial logistic regression. A third objective was to explore possible differences between the profiles by comparing sociodemographic variables and the children's scores in the study measures (i.e., assessing nighttime fears, nighttime coping strategies, and perceived helpfulness of coping strategies).

## Method

### Participants

A total of 786 children from 8 to 12 years participated in the study ( $M_{age} = 9.66$ ,  $SD = 1.20$ ). Within the age range of 8-9 years, there was 46.1% ( $n = 362$ ) of the children, while 53.9% ( $n = 424$ ) was in the age range of 10-12 years. Concerning sex, 51.3% of the

participants ( $n = 403$ ) were girls. The distribution of the sample according to school years was as follows: 3rd grade ( $n = 189$ ; 24%), 4th grade ( $n = 196$ ; 24.9%), 5th grade ( $n = 198$ ; 25.2%) and 6th grade ( $n = 203$ ; 25.8%) based on the primary school years of the Spanish academic system. Most of the children were born in Spain (98.6%), and the rest were from Colombia ( $n = 2$ ), Ecuador ( $n = 1$ ), Greece ( $n = 1$ ), China ( $n = 2$ ), Chile ( $n = 1$ ), Romania ( $n = 1$ ), France ( $n = 1$ ) or other countries ( $n = 1$ ), but all of them were Spanish speakers. More than half of the children had one sibling (61.34%), with the mean number of siblings being 1.15 ( $SD = 0.81$ ).

## Instruments

### Measures for LPA

The Nighttime Fears Scale (NFS) is a self-report for assessing nighttime fears in school-aged children. It consists of 21 items measuring the presence and intensity level of some potentially fear-provoking stimuli at nighttime, distributed in four subscales: Nighttime Features and Distressing Experiences, Fear of Loss or Separation from the Family, Fear of Imaginary Stimuli, and Fear of Real Stimuli. Items (e.g., “Seeing shadows in my room”, “Hearing strange noises”) are scored on a 5-point Likert scale, ranging from 0 (*Not at all*) to 4 (*A lot*), where higher scores denote greater intensity of nighttime fears. The scale has been shown to have strong internal consistency and adequate test-retest reliability, and convergent and divergent validity with Spanish-speaking children (Orgilés et al., 2021). In this sample, ordinal alphas for the NFS subscales were as follows: Nighttime Features and Distressing Experiences ( $\alpha_{\text{ordinal}} = .89$ ), Fear of Loss or Separation from the Family ( $\alpha_{\text{ordinal}} = .89$ ), Fear of Imaginary Stimuli ( $\alpha_{\text{ordinal}} = .89$ ), and Fear of Real Stimuli ( $\alpha_{\text{ordinal}} = .87$ ).

The Nighttime Coping Response Scale (NCRS) is a self-report intended to assess the frequency of use of a range of coping strategies by school-aged children when faced with nighttime fears. It comprises 15 items (e.g., “I try to relax or calm down”, “I hug a pillow”) rated on a 5-point scale, ranging from 0 (*never*) to 4 (*always*), distributed in three subscales: Social Support-Seeking, Self-Control, and Fear-Avoidance. Higher scores indicate a higher use of such coping responses or strategies. The NCRS Self-Control subscale score is considered the only positive or adaptive strategy being measured, and it is reversed only to calculate the total score. Thus, the total NCRS score indicates the frequency of use of theoretically less adaptive or maladaptive strategies, but the total score was not used in the current research. The scale has been shown to have good psychometric properties (i.e., internal consistency, test-retest reliability, and convergent and divergent validity) with Spanish-speaking children (Fernández-Martínez et al., 2022). In this sample, ordinal alphas for the NFS subscales were as follows: Social Support-Seeking ( $\alpha_{\text{ordinal}} = .90$ ), Self-Control ( $\alpha_{\text{ordinal}} = .78$ ), and Fear-Avoidance ( $\alpha_{\text{ordinal}} = .76$ ).

### Measure Used as a Predictor of Latent Profiles

Perceived helpfulness of coping response. In addition to the NCRS, just after its completion, children were asked to respond to a single item intended to measure the perceived helpfulness or efficacy of the coping responses they had indicated in the NCRS. This single item asked the following question: *Do those things*

*you do help you to feel less afraid?* It was rated on a 5-point scale: 0 (*never*), 1 (*almost never*), 2 (*sometimes*), 3 (*most of the time*), and 4 (*always*).

## Procedure

The involved three primary schools were located in a southeastern region of Spain, in urban areas. First, permission was requested from the school principals, whose collaboration was sought to disseminate information about the study among the parents of children aged 8 to 12 years. Subsequently, written informed consent was requested and obtained from all parents interested in having their children participate. All the children completed the battery of paper-and-pencil questionnaires of this study in their classrooms and in groups, during school hours. A psychologist who administered the questionnaires was always present in the classrooms, ensuring that each child answered their questionnaires anonymously and resolving any doubts that might arise. The present research obtained ethical approval from the Board of Ethics of the authors' institution (Ref. DPS. MOA.01.20).

## Data Analysis

We performed LPA to identify patterns of nighttime fears and coping styles, using Mplus (version 7) (Muthén & Muthén, 1998-2017). For the analysis, all four subscales of nighttime fears (i.e., Nighttime Features, Fear of Loss/Separation, Fear of Imaginary Stimuli, Fear of Real Stimuli), as well as all three subscales of coping response (i.e., Social Support-Seeking, Fear-Avoidance, Self-Control), were included. Self-control was reversed such that higher values indicate lower self-control. We compared model fit criteria and content for two to six latent profiles.

The analysis used a robust maximum likelihood estimation (MLR in Mplus) with 500 initial random starts. To examine model fit, we inspected statistical indicators of goodness of fit, sparseness, and classification quality (Nylund et al., 2007; Tomczyk et al., 2016, 2018) and we checked interpretability and theoretical tenability of the classes as well. The bootstrapped likelihood ratio test (BLRT) and the Lo–Mendell–Rubin likelihood ratio test (LMRT) were used to measure overall fit by comparing the estimated model with  $k$  classes to a model with  $k-1$  classes using 50 random starts with 20 bootstrap draws for each comparison. If the test is significant, this indicates a preference of the model with  $k$  classes over the model with  $k-1$  classes. We report the Akaike Information Criterion (AIC) and the sample-size adjusted Bayes Information Criterion (SSABIC) as indicators of model sparseness. For both criteria, lower values indicate greater sparseness of the model. Classification quality was captured via the average latent profile probabilities (ALPP) and entropy of each model. ALPP and entropy range between 0 and 1, the closer to 1, the better the fit (Nylund et al., 2007), that is, the latent profiles are substantially different. In addition to statistical criteria, theoretical background and interpretability of the latent profiles also determined model selection. We carefully examined each model (two to six classes) and checked their tenability regarding the literature.

Following model selection, we compared the sociodemographic data and the raw scores of the subscales between the latent profiles of the chosen model. We used SPSS 27 to perform Fisher's exact tests for categorical data, and Kruskal-Wallis with Bonferroni's

post hoc analysis for continuous data. All analyses were based on  $\alpha = .05$ . In a multinomial regression model (r3step in Mplus), we tested sex (male vs. female), age (8-9 vs. 10-12), number of siblings (continuous), and perceived helpfulness of coping strategies (continuous) as predictors of latent profiles. For these models, we report relative prevalence ratios (RPR) and 95% confidence intervals for each predictor.

**Results**

**Latent Class Models**

Table 1 lists model fit criteria for models with two to six latent profiles. According to statistical criteria, the model with six latent classes was the best fitting model due to a significant BLRT, lowest AIC and SSABIC, and sufficiently high entropy and ALPP. However, the changes in these values were noticeably smaller for more than four latent classes (with a significant LMRT value), indicating only small changes in model fit. A closer look at the models with five and six latent profiles support this notion. Both models split profiles with “high fears” into small subgroups ( $n = 27-36$ ) that differ slightly in their extent of fearing imaginary stimuli, but do not provide any meaningful additional information. In the model with six latent profiles, children with moderate and low fears, but adaptive coping, were categorized into an additional group whose mean values lie between both groups, which makes it difficult to interpret (supplementary data available on request from the authors). Therefore, we chose the model with four latent classes for further analysis, as it provides similar profiles, sufficient statistical model fit, and it allows for more robust test results due to larger subgroups. Figure 1 displays mean scale values of fears and coping styles for each latent profile.

The first profile (“low fears, low self-control”;  $n = 190$ ; 24.2%) shows overall low levels of nighttime fears and maladaptive coping but the lowest level of self-control (the scale is reversed, thus high values mean low self-control). The second profile (“high fears except for imaginary fears, maladaptive coping”;  $n = 179$ ; 22.8%) has high scores for nighttime fears (except for imaginary stimuli), and high scores of maladaptive coping responses. The third profile (“moderate fears, adaptive coping”;  $n = 353$ ; 44.9%) is the largest group and shows moderate levels of fear but low levels

of maladaptive coping strategies. The fourth profile (“high fears, maladaptive coping”;  $n = 64$ ; 8.1%) is characterized by the highest levels of fear and the second-highest values of maladaptive coping responses. This profile is similar to the second profile but with a much higher fear of imaginary stimuli. Overall, the third profile is considered normative, with moderate levels of fear but adaptive coping strategies, followed by the first profile with low levels of fear but a lack of self-control. Therefore, the third profile serves as the reference class for multinomial logistic regression.

**Table 1**  
*Model Fit Criteria for Two to Six Latent Profiles of Nighttime Fears and Coping Styles*

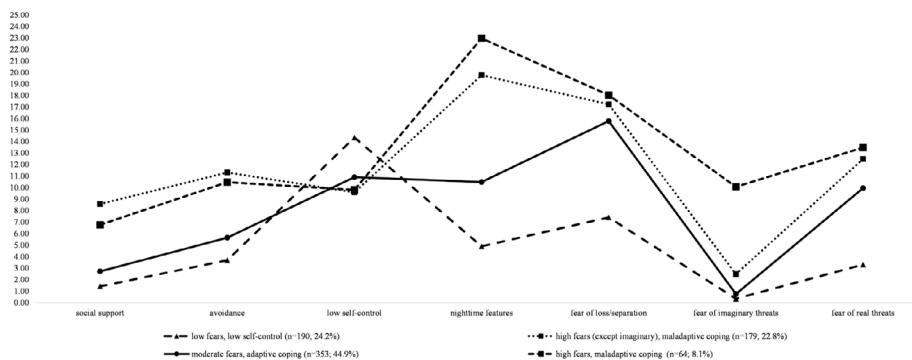
	2 classes	3 classes	4 classes	5 classes	6 classes
Loglikelihood	-16012.74	-15710.46	-15511.95	-15420.56	-15359.71
BLRT	1255.78***	604.57***	397.02***	182.78***	<b>121.70***</b>
LMRT	1232.66***	593.44*	<b>389.72*</b>	179.42	119.46
AIC	32069.49	31480.92	31099.90	30933.11	<b>30827.42</b>
SSABIC	32102.30	31525.66	31156.57	31001.72	<b>30907.96</b>
Entropy	0.82	0.85	0.84	<b>0.85</b>	0.82
ALPP	0.94	0.93	0.93	0.93	0.90
	0.95	0.93	0.89	0.89	0.86
		0.92	0.90	0.82	0.90
			0.93	0.98	0.84
				0.93	0.85
					0.97

Note. BLRT bootstrapped likelihood ratio test; LMRT Lo–Mendell–Rubin likelihood ratio test; AIC Akaike Information Criterion; SSABIC sample-size-adjusted Bayes Information Criterion; ALPP average latent profile probabilities; \*  $p < .05$ ; \*\*\*  $p < .001$ ; fit criteria indicating the best model are printed in bold.

**Multinomial Logistic Regression**

The multinomial logistic regression (Table 2) shows that, compared to the third profile (moderate fears, adaptive coping), boys were more likely to belong to the first profile (low fears, low self-control), whereas girls and younger children were more likely to belong to the second and fourth profile (high fears, maladaptive coping). Perceived helpfulness of coping responses was predictive of the second and the first profile, although in diametrically opposite directions (positive for Profile 2 and negative for Profile 1).

**Figure 1**  
*Estimated Mean Scale Values for Four Latent Profiles of Nighttime Fears (Nighttime Features, Loss/Separation, Imaginary or Real Stimuli) and Coping Styles (Social Support Seeking, Fear-Avoidance, Self-Control (Inverted)) in a Sample of Spanish Children*



**Description of Latent Classes**

Cross-tabulation analysis and Kruskal-Wallis analysis (Table 3) revealed differences in all variables across latent classes – including children’s sex and age, nighttime fears, and nighttime coping response –, except for the number of siblings and the perceived helpfulness of coping response. Boys were likely to belong to Profile 1 (compared to the rest) and Profile 3 (compared to Profiles 2 and 4). Children aged 8-9 years old were more likely to belong to Profile 4 (compared to the rest) and Profile 2 (compared to Profiles 1 and 3).

Children with a higher level of nighttime fears were more likely to belong to Profiles 2 and 4. Children with a higher level of fear of loss of separation were more likely to belong to Profiles 4, 2, and 3. Children with a higher level of fear of imaginary stimuli were more likely to belong to Profile 4; whereas children with a higher level of fear of real stimuli were more likely to belong to Profiles 4, 2, and 3.

The nighttime coping response of seeking social support was more likely in children belonging to Profiles 2, 4, and 3, compared to Profile 1. Avoidance responses were more common in children who belong to Profiles 2, 4, and 3, compared to Profile 1. Lastly,

low self-control was observed to a greater extent among children in Profile 1 (compared to the rest) and Profile 3 (compared to Profile 2).

**Table 2**  
Multinomial Logistic Regression Model of Latent Profiles of Nighttime Fears and Coping Responses in Spanish Children, With the Third Profile (Moderate Fears, Adaptive Coping) as a Reference Group

	Profile 1 (“low fears, low self-control”) vs. Profile 3	Profile 2 (“high fears (except imaginary), maladaptive coping”) vs. Profile 3	Profile 4 (“high fears, maladaptive coping”) vs. Profile 3
	RPR [95% CI]	RPR [95% CI]	RPR [95% CI]
Sex (ref. boys)	<b>0.46 [0.30, 0.71]</b>	<b>2.06 [1.28, 3.31]</b>	1.43 [.78, 2.65]
Age (ref. 8-9)	0.93 [0.61, 1.42]	<b>0.44 [0.28, 0.70]</b>	<b>0.26 [0.13, 0.50]</b>
No. of siblings	1.12 [0.88, 1.42]	1.10 [0.92, 1.46]	1.39 [0.98, 1.97]
Perceived helpfulness of coping response	<b>0.85 [0.72, 0.99]</b>	<b>1.23 [1.05, 1.44]</b>	1.15 [0.91, 1.45]

Note. ref = reference class; RPR = relative prevalence ratio; CI = confidence interval; significant results are printed in bold.

**Table 3**  
Results of the Chi-Square Associating Sociodemographic Variables, Main Variables, and Latent Class Memberships, N (%)

	Total (n = 786)	Profile 1 (“low fears, low self-control”)	Profile 2 (“high fears (except imaginary), maladaptive coping”)	Profile 3 (moderate fears, adaptive coping)	Profile 4 (“high fears, maladaptive coping”)	Chi-square / Wilcoxon	z	p	Effect size	Post Hoc
Sex										
Boys (= 0)	383 (48.7)	128 (67.4)	57 (31.8)	173 (49)	25 (39.1)	49.25	-	<.001	.25	1>2 1>3
Girls (= 1)	403 (51.3)	62 (32.6)	122 (68.2)	180 (51)	39 (60.9)					1>4 3>2 3>4
Age group										
8-9 (= 1)	362 (46.1)	77 (40.5)	101 (56.4)	140 (39.7)	44 (68.8)	29.16	-	<.001	.19	2>1 2>3
10-12 (= 2)	424 (53.9)	113 (59.5)	78 (43.6)	213 (60.3)	20 (31.2)					4>1 4>2 4>3
No. of siblings	1.15 (.81)	1.20 (.85)	1.13 (.81)	1.12 (.77)	1.27 (.91)	1.41	-	.70	-	-
Perceived helpfulness of coping response	2.39 (1.38)	2.05 (1.59)	2.70 (1.18)	2.39 (1.32)	2.54 (1.36)	.76	-	.38	-	-
Nighttime fears										
Nighttime fears	12.28 (7.97)	4.74 (4.80)	20.07 (5.09)	10.47 (5.01)	22.88 (5.69)	469.02		<.001		3>1 2>1 4>1 2>3 4>3
Fear of loss of separation	14.25 (5.17)	7.28 (4.29)	17.31 (2.93)	15.78 (2.83)	17.92 (3.02)	405.09		<.001		3>1 2>1 4>1 3>2 4>3
Fear of imaginary stimulus	1.80 (3.04)	.31 (.88)	2.53 (2.02)	.74 (1.36)	10.05 (2.73)	359.88		<.001		3>1 2>1 4>1 2>3 4>3 4>2

**Table 3***Results of the Chi-Square Associating Sociodemographic Variables, Main Variables, and Latent Class Memberships, N (%) (Continued)*

Fear of real stimulus	9.19 (4.67)	3.16 (2.74)	12.47 (3.22)	10.02 (3.07)	13.41 (2.39)	431.21	<.001	3>1 2>1 4>1 2>3 4>3
Nighttime coping response								
Social support	4.09 (4.38)	1.32 (2.29)	8.88 (4.14)	2.68 (2.87)	6.70 (4.73)	323.55	<.001	3>1 4>1 2>1 4>3 2>3 2>4
Avoidance	6.88 (5.02)	3.63 (3.56)	11.49 (4.30)	5.64 (3.82)	10.42 (5.34)	272.24	<.001	3>1 4>1 2>1 4>3 2>3
Low self-control	11.35 (5.91)	14.26 (6.03)	9.55 (5.22)	10.98 (5.54)	9.81 (6.28)	65.85	<.001	3>2 1>2 1>4 1>3

*Note.* In the pairwise comparisons of class, significance values have been adjusted by the Bonferroni correction for multiple tests. Effect size: Cramer's  $V$  (categorical variables) and  $\eta^2$  (continuous variables).

## Discussion

The present study mainly aimed to identify patterns of nighttime fears and coping styles in a sample of Spanish-speaking children aged 8 to 12 years through LPA. The analysis compared two to six latent profiles, in line with previous research on emotional and behavioral problems in children and adolescents (e.g., Basten et al., 2013; Essau & de la Torre, 2019; Fonseca-Pedrero et al., 2020; Liao et al., 2019; Morales et al., 2021a, 2021b). Although the model with six latent classes was the best fitting model (i.e., demonstrating a significant BLRT, lowest AIC and SSABIC, and sufficiently high entropy and ALPP), the changes in these statistical values were smaller for more than four latent classes, with only small changes in model fit and not providing meaningful additional information.

Thus, the model with four latent classes was chosen, denoting the existence of four different subgroups or latent profiles combining the nighttime fears and coping styles as measured in this study: (1) “low fears, low self-control” (24.2%), (2) “high fears (except for imaginary fears), maladaptive coping” (22.8%), (3) “moderate fears, adaptive coping” (44.9%), and (4) “high fears, maladaptive coping” (8.1%). Consequently, a four-class model emerged in this study, suggesting the presence of four distinct patterns and heterogeneous characteristics of children's nighttime fears and coping responses. This finding adds meaningful and novel data to this field, as previous research has mainly focused on the study of types of nighttime fears or coping strategies and their frequency of use (e.g., Gordon et al., 2007a; Muris et al., 2001), but not on examining patterns by considering both variables conjointly.

Findings revealed that the most prevalent subgroup of children of the sample was the one included in the category “moderate fears,

adaptive coping” (44.9%). These children showed moderate levels of fear but low levels of maladaptive coping strategies. Thus, this profile was considered a normative profile, with moderate levels of fear but adaptive coping strategies. This may be indicating that a considerable percentage of children may experience moderate fears but if they could manage them adequately, presumably, this adaptive management would prevent the fears from becoming more intense over time, or even decreasing or disappearing. This, in turn, may help to support the arguments of some authors (Beesdo-Baum & Knappe, 2012; King et al., 1997) who state that nighttime fears are common but transient in many children, and specific childhood fears are part of the normative development and likely to be transient if they are not intense. Further, the “low fears, low self-control” subgroup was the second most prevalent, including 24.2% of the children. Overall, these children presented low levels of nighttime fears and maladaptive coping but the lowest level of self-control. This profile could be in line with prior research pointing out that the absence of maladaptive coping strategies, rather than the presence of adaptive ones, may be more relevant to children's emotional well-being, highlighting the particular importance of addressing them when designing interventions (Quy et al., 2018).

In addition, the subgroup “high fears (except for imaginary fears), maladaptive coping” included 22.8% of the children. These children's profile had high scores for nighttime fears (except for fears of imaginary stimuli at nighttime) and high scores of maladaptive coping strategies. Similarly, the least prevalent subgroup was the “high fears, maladaptive coping” (8.1%), which was characterized by the highest levels of nighttime fears and the second-highest values of maladaptive coping strategies. This was shown to be a similar profile as the previous one, but with a much higher fear of imaginary stimuli. Attending to

studies that reported associations between nighttime fears and maladaptive coping strategies with emotion-related problems and other difficulties, such as sleep problems (e.g., El Rafihi-Ferreira et al., 2019; Garnefski et al., 2007; Orgilés et al., 2021; Quy et al., 2018, 2020), our results suggest the existence of two possible risk patterns or profiles. They are characterized by presenting concurrently high levels of nighttime fears and maladaptive coping strategies and seem to have a lower but considerable prevalence. Also noteworthy is the existence of these two similar but differentiated profiles, with one more focused on the presence of fear of imaginary stimuli, showing that the specific assessment of this type of fear can be key to detecting possible risk profiles. In this line, the presence of fears of imaginary stimuli has been frequently reported in previous studies with children (Muris et al., 2000, 2001; Orgilés et al., 2021), and they have been found to be more frequent in school-aged children than in later years (Gordon et al., 2007a).

Similar to prior research focused on LPA (e.g., Ji et al., 2018; Liao et al., 2019), we conducted a multinomial logistic regression to predict the relationship between the latent profiles obtained and selected variables measured (i.e., sociodemographic variables and children's perceived helpfulness of coping strategies). We found some differences in class membership related to such variables. For instance, compared to the third profile, "moderate fears, adaptive coping," which serves as the reference class, boys were more likely to belong to the first profile, "low fears, low self-control," whereas girls and younger children were more likely to belong to the second, "high fears (except imaginary fears), maladaptive coping," and fourth profile, "high fears, maladaptive coping." These findings suggest that girls and younger children were significantly more likely to belong to groups characterized by high fears and maladaptive coping strategies, which, in turn, may be considered risk profiles. This is in keeping with other authors who reported a higher frequency of nighttime fears in girls than in boys (Gordon et al., 2007a; Orgilés et al., 2021) and higher nighttime fears in younger than in older school-aged children (Muris et al., 2001; Orgilés et al., 2021).

Moreover, children's perceived helpfulness of coping responses was positively associated with the second profile, "high fears (except for imaginary fears), maladaptive coping," and negatively with the first profile, "low fears, low self-control." This may indicate that the presence of a more negative perception of helpfulness of coping responses may make children more likely to belong to a higher risk group characterized by higher nighttime fears and maladaptive coping, whereas a more positive perception may favor belonging to a group with fewer nighttime fears and low maladaptive coping (presumably at less risk despite exercising low self-control coping). In this regard, it was found that children who used a maladaptive coping style had the highest levels of anxiety, whereas those who used an adaptive coping style reported the lowest levels of anxiety (Quy et al., 2018). Therefore, our findings suggest that perceived helpfulness of coping could play an important role in this field (e.g., acting as an indicator of the absence or presence of high fears or more or less negative coping, or as a protective or risk factor), and further research in this regard would be valuable.

In addition, cross-tabulation and Kruskal-Wallis analyses revealed differences in all variables across latent classes, except for the number of siblings and the perceived helpfulness of

coping response. It is noteworthy that boys were more likely to belong to Profiles 1 and 3, suggesting that they are likely to show patterns of low or moderate fears and more adaptive coping. However, this requires further investigation, as other factors may be acting (e.g., possible gender differences in the expression of internalizing emotions such as fear or anxiety and their coping due to socialization-related factors, which could be influencing boys' reported nighttime fears and coping strategies) (Chaplin, 2015; Gordon et al., 2007a). Concerning age, children in the lower range (8-9 years) were more likely to belong to Profiles 2 and 4 (high fears and maladaptive coping), presumably the most at-risk, showing younger school-aged children to be possibly more vulnerable and at risk. This is in line with findings that reported more nighttime fears in younger school-aged children (Muris et al., 2001; Orgilés et al., 2021). Similarly, children with higher levels of nighttime fears were more likely to belong to Profiles 2 and 4, suggesting that higher levels of nighttime fears may also involve patterns of higher maladaptive coping, and therefore may involve a higher risk of problems. In addition, some patterns were also observed in terms of the subtypes of nighttime fears assessed, highlighting the one that suggested a clearly distinct group (Profile 4) characterized by a greater presence of imaginary fears along with maladaptive coping. This suggests that, in the presence of this type of nighttime fears, which may be more present during childhood as the child's cognitive capacity matures (e.g., Beesdo-Baum & Knappe, 2012; Gordon et al., 2007a), one should be vigilant because there may be a maladaptive or risky pattern. With respect to Profiles 2 and 4, it could also be valuable to explore whether these profiles may be associated with persistent fears beyond childhood. Further research in this direction is therefore warranted. Lastly, the nighttime coping responses of avoidance and social support-seeking were more likely in children who belong to Profiles 2, 3, and 4, compared to Profile 1, including the avoidance response. Low self-control was observed to a greater extent among children who were in Profile 1. Although speculative, in keeping with the argument of Mooney (1985), this group (Profile 1) may generally have few experiences of nighttime fears and thus use coping strategies to a lesser extent.

This study is not exempt from limitations. One of them is that the study sample is mainly Spanish children, which limits the generalizability of the results. It is necessary to carry out future studies in this line with children of other origins to determine whether the results obtained can be replicated. Furthermore, our study relied solely on self-report measures. It would be interesting to further investigate whether the obtained patterns are supported or vary by also considering other informants (e.g., parents' reports). On another hand, given that, to date, we have found no similar research focused on nighttime fears and coping styles based on an LPA approach, we could not contrast our results with other equivalent studies. Nonetheless, this study may motivate the initiation of further research and contributions in this direction, for instance, by examining the relationship between presumably riskier patterns and the presence or development of psychological problems (e.g., anxiety-related problems), or the possible buffering effects of presumably more adaptive patterns.

Despite these limitations, our findings based on an LPA approach revealed initial support to the existence of four distinct patterns or profiles when combining both the nighttime fears and

coping styles, and raised the possible existence of higher and lower risk profiles, or protective and risk profiles. In addition, multinomial logistic regression revealed that sex, age, and perceived usefulness of coping strategies were predictors of latent profiles, showing that, as a function of these variables, children were more likely to belong to a specific profile. Overall, these results can provide meaningful information to clinicians and researchers in the field of nighttime fears and coping styles, by suggesting the importance of focusing on such variables conjointly, as they can help to describe and detect possible risk patterns to target for early interventions. This study also highlights the need to carefully consider and detect differences in nighttime fears and coping among school-aged children and to provide tailored interventions considering the existing heterogeneity. Identifying these latent profiles may also provide a further empirical basis for continuing efforts to develop more effective methods of prevention and intervention targeting children's nighttime fears, where further research is still required (see Lewis et al., 2021). Finally, to our knowledge, this is the first study on nighttime fears and coping styles based on LPA, so it may provide novel data of interest in this field and encourage future research.

#### Author Contributions

**Iván Fernández-Martínez:** Conceptualization, Data curation, Investigation, Writing – Original Draft. **Mireia Orgilés:** Investigation, Writing – Review & Editing. **José Pedro Espada:** Data Curation, Writing – Review & Editing. **Samuel Tomczyk:** Formal Analysis, Methodology. **Alexandra Morales:** Conceptualization, Formal Analysis, Investigation, Writing – Review & Editing.

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#### Declaration of Interests

The authors declare that they have no conflict of interest.

#### Data Availability Statement

The data from this study are not publicly available.

#### References

- Basten, M. M., Althoff, R. R., Tiemeier, H., Jaddoe, V. W., Hofman, A., Hudziak, J. J., Verhulst, F. C., & van der Ende, J. (2013). The dysregulation profile in young children: Empirically defined classes in the Generation R study. *Journal of the American Academy of Child and Adolescent Psychiatry*, 52(8), 841–850. <https://doi.org/10.1016/j.jaac.2013.05.007>
- Beesdo-Baum, K., & Knappe, S. (2012). Developmental epidemiology of anxiety disorders. *Child and Adolescent Psychiatric Clinics of North America*, 21, 457–478. <https://doi.org/10.1016/j.chc.2012.05.001>
- Chaplin T. M. (2015). Gender and emotion expression: A developmental contextual perspective. *Emotion Review*, 7(1), 14–21. <https://doi.org/10.1177/1754073914544408>
- El Rafihi-Ferreira, R., Lewis, K. M., McFayden, T., & Ollendick, T. H. (2019). Predictors of nighttime fears and sleep problems in young children. *Journal of Child and Family Studies*, 28, 941–949. <https://doi.org/10.1007/s10826-019-01332-9>
- Essau, C. A., & de la Torre-Luque, A. (2019). Comorbidity profile of mental disorders among adolescents: A latent class analysis. *Psychiatry Research*, 278, 228–234. <https://doi.org/10.1016/j.psychres.2019.06.007>
- Fernández-Martínez, I., Morales, A., Espada, J. P., & Orgilés, M. (2022). Nighttime coping response in children: Development and validation of a new scale. *Journal of Anxiety Disorders*, 88, Article 102572. <https://doi.org/10.1016/j.janxdis.2022.102572>
- Fonseca-Pedrero, E., Ortuño-Sierra, J., & Pérez-Albéniz, A. (2020). Emotional and behavioural difficulties and prosocial behaviour in adolescents: A latent profile analysis. *Revista de Psiquiatría y Salud Mental*, 13, 202–212. <https://doi.org/10.1016/j.rpsm.2020.01.002>
- Garnefski, N., Rieffe, C., Jellesma, F., Terwogt, M. M., & Kraaij, V. (2007). Cognitive emotion regulation strategies and emotional problems in 9-11-year-old children: The development of an instrument. *European Child & Adolescent Psychiatry*, 16, 1–9. <https://doi.org/10.1007/s00787-006-0562-3>
- Gordon, J., & King, N. (2002). Children's night-time fears: An overview. *Counselling Psychology Quarterly*, 15(2), 121–132. <https://doi.org/10.1080/09515070110104097>
- Gordon, J., King, N. J., Gullone, E., Muris, P., & Ollendick, T. H. (2007b). Treatment of children's nighttime fears: The need for a modern randomised controlled trial. *Clinical Psychology Review*, 27(1), 98–113. <https://doi.org/10.1016/j.cpr.2006.07.002>
- Gordon, J., King, N., Gullone, E., Muris, P., & Ollendick, T. H. (2007a). Nighttime fears of children and adolescents: Frequency, content, severity, harm, expectations, disclosure, and coping behaviours. *Behaviour Research and Therapy*, 45(10), 2464–2472. <https://doi.org/10.1016/j.brat.2007.03.013>
- Ji, Y., Xu, H., Zhang, Y., & Liu, Q. (2018). Heterogeneity of adolescent health risk behaviors in rural western China: A latent class analysis. *Plos One*, 13(6), Article e0199286. <https://doi.org/10.1371/journal.pone.0199286>
- King, N., Ollendick, T. H., & Tonge, B. J. (1997). Children's nighttime fears. *Clinical Psychology Review*, 17(4), 431–443. [https://doi.org/10.1016/s0272-7358\(97\)00014-7](https://doi.org/10.1016/s0272-7358(97)00014-7)
- Lewis, K. M., Rafihi-Ferreira, R. E., Freitag, G. F., Coffman, M., & Ollendick, T. H. (2021). A 25-year review of nighttime fears in children: Past, present, and future. *Clinical Child and Family Psychology Review*, 24(3), 391–413. <https://doi.org/10.1007/s10567-021-00354-4>
- Liao, H., Pan, M., Li, W., Lin, C., Zhu, X., Li, X., Li, J., & Zhou, S. (2019). Latent profile analysis of anxiety disorder among left-behind children in rural Southern China: A cross-sectional study. *BMJ Open*, 9(6), Article e029331. <https://doi.org/10.1136/bmjopen-2019-029331>
- Mooney, K. C. (1985). Children's nighttime fears: Ratings of content and coping behaviors. *Cognitive Therapy and Research*, 9, 309–319.
- Mooney, K. C., Graziano, A. M., & Katz, J. N. (1985). A factor analytic investigation of children's nighttime fear and coping responses. *The Journal of Genetic Psychology*, 146, 205–215.



- Morales, A., Melero, S., Tomczyk, S., Espada, J. P., & Orgilés, M. (2021a). Subtyping of strengths and difficulties in a Spanish children sample: A latent class analysis. *Journal of Affective Disorders, 280*, 272–278. <https://doi.org/10.1016/j.jad.2020.11.047>
- Morales, A., Rodríguez-Menchón, M., Tomczyk, S., Fernández-Martínez, I., Orgilés, M., & Espada, J. P. (2021b). Internalizing and externalizing symptoms in Spanish children aged 6–8: Results of a latent profile analysis. *Journal of Affective Disorders, 279*, 617–623. <https://doi.org/10.1016/j.jad.2020.10.066>
- Muris, P., Merckelbach, H., Gadet, B., & Moulart, V. (2000). Fears, worries, and scary dreams in 4- to 12-year-old children: Their content, developmental pattern, and origins. *Journal of Clinical Child Psychology, 29*, 43–52. [https://doi.org/10.1207/S15374424jccp2901\\_5](https://doi.org/10.1207/S15374424jccp2901_5)
- Muris, P., Merckelbach, H., Ollendick, T. H., King, N. J., & Bogie, N. (2001). Children's nighttime fears: Parent-child ratings of frequency, content, origins, coping behaviors and severity. *Behaviour Research and Therapy, 39*(1), 13–28. [https://doi.org/10.1016/S0005-7967\(99\)00155-2](https://doi.org/10.1016/S0005-7967(99)00155-2)
- Muthén, L. K., & Muthén, B. O. (1998–2017). *Mplus User's Guide* (7th ed.). Muthén & Muthén.
- Nylund, K. L., Asparouhov, T., & Muthén, B. O. (2007). Deciding on the number of classes in latent class analysis and growth mixture modeling: A Monte Carlo simulation study. *Structural Equation Modeling, 14*(4), 535–569. <https://doi.org/10.1080/10705510701575396>
- Orgilés, M., Fernández-Martínez, I., Espada, J. P., & Morales, A. (2021). The Nighttime Fears Scale: Development and psychometric evidence of a standardized self-report scale to assess nighttime fears in children. *Journal of Anxiety Disorders, 79*, Article 102369. <https://doi.org/10.1016/j.janxdis.2021.102369>
- Quy, K., Gibb, J., Neil, J., Owen, C., & Smith, M. (2018). Dimensions of coping and anxiety symptoms in a community sample of young children. *Emotional and Behavioural Difficulties, 23*, 230–244. <https://doi.org/10.1080/13632752.2018.1461456>
- Quy, K., Gibb, J., Neil, L., & Smith, M. (2020). Development and preliminary validation of a self-report coping response measure in a community sample of children in middle childhood. *Journal of Personality Assessment, 102*(5), 628–640. <https://doi.org/10.1080/00223891.2019.1606003>
- Rosato, N. S., & Baer, J. C. (2012). Latent class analysis: A method for capturing heterogeneity. *Social Work Research, 36*, 61–69. <https://doi.org/10.1093/swr/svs006>
- Spurk, D., Hirschi, A., Wang, M., Valero, D., & Kauffeld, S. (2020). Latent profile analysis: A review and “how to” guide of its application within vocational behavior research. *Journal of Vocational Behavior, 120*, Article 103445. <https://doi.org/10.1016/j.jvb.2020.103445>
- Tomczyk, S., Isensee, B., & Hanewinkel, R. (2016). Latent classes of polysubstance use among adolescents—a systematic review. *Drug and Alcohol Dependence, 160*, 12–29. <https://doi.org/10.1016/j.drugalcdep.2015.11.035>
- Tomczyk, S., Schomerus, G., Stolzenburg, S., Muehlan, H., & Schmidt, S. (2018). Who is seeking whom? A person-centred approach to help-seeking in adults with untreated mental health problems via latent class analysis. *Social Psychiatry and Psychiatric Epidemiology, 53*(8), 773–783. <https://doi.org/10.1007/s00127-018-1537-7>
- Weller, B. E., Bowen, N. K., & Faubert, S. J. (2020). Latent class analysis: A guide to best practice. *Journal of Black Psychology, 46*(4), 287–311. <https://doi.org/10.1177/0095798420930932>