Revista Internacional de Investigación en Adicciones, 2026.12(2): e442
e-ISSN: 2448-6396, https://doi.org/10.28931/riiad.2026.442

ORIGINAL ARTICLE

Family Structure and Substance Use among Mexican Adolescents: The Mediating Role of Parental Monitoring Styles

Bertha L. Nuño-Gutiérrez[1], Gonzalo De la Isla-Arias[2]

[1] Centro de Estudios e Investigaciones en Comportamiento, Universidad de Guadalajara, Guadalajara, Jalisco, México.

[2] Escuela Normal para Educadoras de Guadalajara. Secretaría de Educación Jalisco. Guadalajara, Jalisco, México.

RESUMEN

Introducción: la estructura familiar y los estilos de supervisión parental se han identificado como factores relevantes asociados con el consumo de sustancias en la adolescencia. **Objetivo:** analizar las asociaciones entre la estructura familiar, los estilos de supervisión parental y el consumo de sustancias en adolescentes mexicanos, así como evaluar el papel mediador de la supervisión parental mediante un modelo de ecuaciones estructurales. **Método:** estudio transversal con una muestra no probabilística de 3,572 estudiantes de nivel medio superior de once ciudades mexicanas. Mediante un modelo de ecuaciones estructurales se examinaron las relaciones directas e indirectas entre la estructura familiar, los estilos de supervisión parental y el consumo de sustancias. La estructura familiar fue recodificada mediante variables dummy que utilizaron como categoría de referencia a las familias nucleares. **Resultados:** los adolescentes pertenecientes a familias monoparentales, reconstruidas y extendidas reportaron menores niveles en reglas parentales (β = -.25, β = -.41 y β = -.52, respectivamente) y supervisión parental (β = -.37, β = -.40 y β = -.76). Únicamente las familias monoparentales mostraron una asociación significativa con mayores niveles de frialdad-rechazo (β = .27, p < .001). La supervisión parental se asoció negativamente con el consumo de sustancias lícitas (β = -.03) e ilícitas (β = -.03), mientras que la frialdad-rechazo parental se asoció positivamente con el consumo de sustancias lícitas (β = .02) e ilícitas (β = .01). Los efectos indirectos sugirieron una mediación parcial de la supervisión parental en la asociación entre la estructura familiar y el consumo de sustancias. **Discusión y conclusiones:** los hallazgos destacan que ciertos estilos de supervisión parental se encuentran significativamente asociados con el consumo de sustancias en la adolescencia. Estos hallazgos subrayan la importancia de desarrollar estrategias preventivas centradas en la familia que promuevan supervisión consistente, establecimiento claro de normas y relaciones positivas afectivas entre padres-hijos.

Palabras clave: adolescente, características familiares, relaciones padres-hijos, trastornos relacionados con sustancias, factores de riesgo.

ABSTRACT

Introduction: family structure and parental monitoring styles have been identified as relevant factors associated with adolescent substance use. **Objective:** to examine the associations among family structure, parental monitoring styles, and substance use among Mexican adolescents, as well as to evaluate the mediating role of parental monitoring using structural equation modeling. **Method:** a cross-sectional study was conducted with a non-probabilistic sample of 3,572 upper secondary school students from eleven Mexican cities. Structural equation modeling was used to analyze the direct and indirect relationships among family structure, parental monitoring styles, and substance use. Family structure was recoded into dummy variables using nuclear families as the reference category. **Results:** adolescents from single-parent, reconstituted, and extended families reported lower levels of parental rule-setting (β = -.25, β = -.41, and β = -.52, respectively) and parental supervision (β = -.37, β = -.40, and β = -.76, respectively). Only single-parent families showed a significant association with higher levels of parental coldness–rejection (β = .27, p < .001). Parental supervision was negatively associated with both licit (β = -.03) and illicit substance use (β = -.03), whereas parental coldness–rejection was positively associated with licit (β = .02) and illicit substance use (β = .01). Indirect effects suggested a partial mediating role of parental monitoring in the association between family structure and adolescent substance use. **Discussion and conclusions:** the findings highlight that specific parental monitoring styles are significantly associated with adolescent substance use. These results underscore the importance of family–based prevention strategies aimed at promoting consistent supervision, clear rule-setting, and positive parent–adolescent relationships.

Keywords: adolescent, family characteristics, parent-child relations, substance-related disorders, risk factors.

Corresponding Author:
Bertha L. Nuño-Gutiérrez. Centro de Estudios e Investigaciones en Comportamiento, Universidad de Guadalajara. Francisco de Quevedo 180, col. Arcos Vallarta, C.P. 44130, Guadalajara, Jalisco, México. E-mail: bertha.nuno@academicos.udg.mx
Received on: March 17th, 2026
Accepted on: August 10th, 2026
Web publication on: September 4th, 2026

INTRODUCTION

Substance use among adolescents represents a major public health concern with significant individual, familial, and social consequences (Organización Panamericana de la Salud [OPS], 2021). Globally, substance-related disorders contribute significantly to the burden of disease and disability, affecting adolescents' psychological well-being, family relationships, and social development (World Health Organization [WHO], 2024).

Adolescence is a developmental stage characterized by increased exploration and a growing desire for autonomy. During this period, experimentation with alcohol, tobacco, and other substances is relatively common (Amara et al., 2023; Bozzini et al., 2023). Despite advances in prevention strategies, substance use among adolescents continues to pose a persistent challenge for public health systems worldwide (Pereira-Morales et al., 2025; Renny et al., 2025).

From a developmental perspective, adolescent behavior cannot be understood as an isolated phenomenon but rather as the result of interactions among individual, familial, and contextual factors (Cesarino et al., 2021; Mills et al., 2021). Several theoretical frameworks emphasize the role of the family as one of the most influential contexts shaping adolescent development. In particular, the ecological model of human development proposed by Bronfenbrenner (1979) and the transactional model of development proposed by Sameroff (2009) highlight how family environments are associated with behavioral regulation and the development of social norms during adolescence. In this context, both structural characteristics of the family and the quality of parent–child relationships may play a crucial role in the emergence of risk behaviors (Ordóñez et al., 2020).

One of the most widely studied structural dimensions of family life is family structure, understood as the configuration through which household members are organized and interact within the family system. Traditionally, the literature has distinguished among nuclear, single-parent, reconstituted, and extended families (Pinillos Guzmán, 2020; Puyana, 2019). In recent decades, however, this classification has expanded to recognize the growing diversity of family arrangements, including same-sex parent families, transnational families, and other emerging forms of cohabitation (Guatrochi, 2020).

Understanding this diversity is essential, as different family configurations may create distinct conditions for parental support, supervision, and behavioral regulation during adolescence.

Empirical evidence suggests that family structure is associated with several indicators of adolescent well-being and psychosocial adjustment. In general, adolescents raised in nuclear families with both parents present tend to report higher levels of parental support, better family communication, and lower levels of problem behaviors (Hayek et al., 2021; Ordóñez et al., 2020). In contrast, adolescents living in single-parent or reconstituted families may face greater challenges related to changes in family dynamics, the reorganization of parental roles, or limitations in the time available for supervision (Ceja, 2023; Herke et al., 2020). However, it is important to recognize that family structure itself does not necessarily determine family functioning or adolescent adjustment, as parenting practices, emotional support, and family cohesion may vary substantially within each family configuration.

Within this context, parental monitoring has been identified as one of the important processes associated with adolescent behavior. Parental monitoring refers to the set of practices through which parents or caregivers track their children's activities, friendships, and whereabouts, while also establishing behavioral rules and boundaries (Stattin & Kerr, 2003). Numerous studies have shown that higher levels of parental monitoring are associated with lower likelihood of alcohol, tobacco, and other substance use among adolescents (Mills et al., 2021; Sigal et al., 2021). A recent meta-analysis reported moderate associations between parental monitoring and reduced substance use in adolescence, further supporting its role as an important protective factor (Pinquart & Reeg, 2025).

However, the effectiveness of parental monitoring may vary depending on the structural conditions of the family. Some studies have found that adolescents from single-parent or reconstituted families may experience greater difficulties in maintaining consistent levels of parental supervision due to factors such as work overload, family role reorganization, or economic constraints (Clinchard et al., 2024).

Additionally, specific parenting practices, such as clear rule-setting and active monitoring, tend to be negatively associated with substance use, whereas parental coldness, rejection, or excessive control may be linked to higher levels of consumption (Nuño-Gutiérrez, 2025; Pelham et al., 2024).

Despite growing interest in understanding the relationship between family structure, parental monitoring styles, and adolescent substance use, several gaps remain in the literature, particularly in Latin American contexts. Many previous studies have

examined these variables in isolation or have relied on traditional statistical approaches such as correlations or linear regressions, which limits the ability to capture the complex relationships that may exist among them (Villanueva-Blasco et al., 2024). Furthermore, few studies in Mexico and Latin America have simultaneously examined multiple family structures, parental monitoring dimensions, and both licit and illicit substance use within a single analytical model using large multicity adolescent samples.

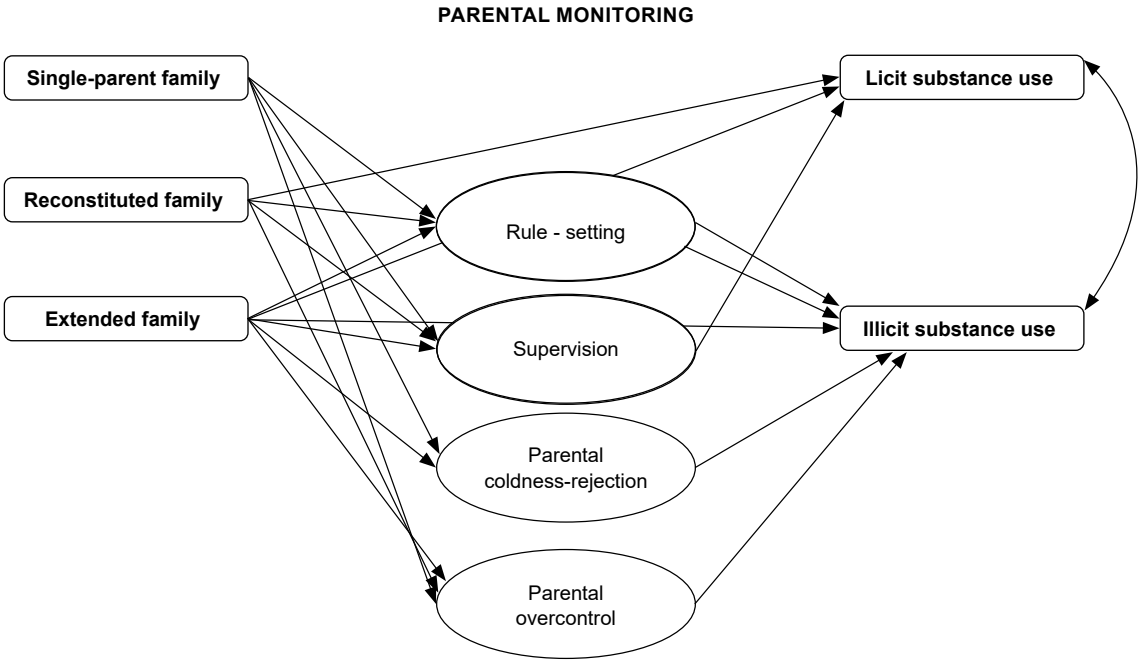
Structural equation modeling (SEM) provides a robust methodological approach for examining these complex relationships because it allows the simultaneous estimation of direct, indirect, and mediating effects (Bauer et al., 2025; Byrne, 2010). This approach is particularly useful for examining how family structure may be associated with adolescent substance use through intermediate mechanisms such as parental monitoring styles.

In this context, the present study aimed to examine the relationship between family structure, parental monitoring styles, and licit and illicit substance use among Mexican adolescents using SEM. Understanding these relationships is particularly relevant in Latin American contexts, where family arrangements are diverse and empirical evidence remains limited.

Based on previous literature, three hypotheses were proposed. First, adolescents from single-parent, reconstituted, and extended families were expected to report lower levels of parental monitoring and rule-setting, as well as higher levels of parental coldness–rejection and overcontrol, compared with those from nuclear families (H1). Second, parental monitoring styles were expected to be associated with substance use, such that rule-setting and active monitoring would function as protective factors, whereas parental coldness–rejection and overcontrol would be associated with higher levels of substance use (H2). Finally, parental monitoring styles were expected to partially mediate the statistical association between family structure and adolescent substance use (H3) (Figure 1).

Figure 1

Hypothesized Structural Model Linking Family Structure, Parental Monitoring and Adolescent Substance Use.



Note: Nuclear family was used as the reference category.

METHOD

Design

An observational cross-sectional study was conducted between October 2024 and April 2025. Structural equation modeling (SEM) was subsequently used to examine the proposed relationships (Bauer et al., 2025; Byrne, 2010).

Participants

The sample consisted of 3,583 adolescents enrolled in upper secondary schools across eleven Mexican cities. A non-probabilistic quota sampling strategy by city was used, based on the participation of educational institutions that agreed to collaborate in the study.

The inclusion criteria were being between 15 and 19 years of age and being enrolled in one of the participating institutions at the time of data collection. Eleven adolescents who reported using a fictitious drug *(Neurox)* were excluded as a data quality control measure, resulting in a final sample of 3,572 participants.

The use of a non-probabilistic sampling strategy was primarily determined by institutional accessibility, voluntary school participation, and logistical feasibility across geographically dispersed regions of the country. Although this approach limits the representativeness of the findings, it allowed the inclusion of adolescents from diverse sociocultural contexts and multiple urban settings in Mexico.

The sample size was adequate for SEM analyses, exceeding commonly recommended thresholds for structural equation modeling studies, which suggest a minimum of approximately 200 participants or a ratio of at least 10 participants per estimated parameter.

Instruments

Data were collected using a self-administered digital questionnaire delivered through Google Forms wich, consisted of 24 items.

1. Sociodemographic variables. Participants reported their age (in years), biological sex (female/male), and city of residence.
2. Family structure. Family structure was assessed with the question: "Who do you live with most of the week?" Response options included: (a) both biological parents (married or cohabiting), (b) single mother, (c) single father, (d) mother and her new partner, (e) father and his new partner, (f) uncles and/or grandparents, and (g) other family situation (with space to specify). For analytical purposes, these categories were grouped into four types of family structure: nuclear, single-parent, reconstituted, and extended family. Family structure was subsequently recoded into k-1 dummy variables for SEM analyses, using nuclear family as the reference category. Accordingly, the estimated coefficients for single-parent, reconstituted, and extended families represent comparisons relative to adolescents from nuclear families.
3. Parental Supervision Inventory (ISP-13). The short version validated for Mexican adolescents was used (Nuño-Gutiérrez, 2025). The instrument includes 13 items rated on a five-point Likert scale (0 = never; 4 = always) and assesses four dimensions: rule-setting (three items; ω = .85), supervision (four items; ω = .80), coldness–rejection (three items; ω = .81), and perceived overcontrol (three items; ω = .81). The overall internal consistency of the scale in this study was adequate (ω = .88).
4. Substance use. Participants reported their use of tobacco, alcohol, heavy episodic drinking (five or more drinks per occasion), episodes of drunkenness, marijuana, inhalants, and other substances. Responses were dichotomous (yes/no), following the format used in the Mexican National Survey on Drug, Alcohol, and Tobacco Use (ENCODAT, for its acronym in Spanish; Villatoro-Velázquez et al., 2017).

Two composite indicators were created for the SEM analyses: licit substance use (alcohol, tobacco, binge drinking, and drunkenness) and illicit substance use (marijuana, inhalants, and other drugs). Higher scores indicated greater reported substance use.

Procedure

The questionnaire was administered in group sessions conducted in classrooms at the participating institutions, with groups of 20 to 30 students. Participants accessed the questionnaire through a printed QR code that directed them to a digital form created in Google Forms, which they completed using their mobile phones and the institution's Wi-Fi connection. Data collection was coordinated by local teachers who had been previously trained using an operational guide. Teachers were instructed not

to supervise participants' responses directly and to remain at a distance during questionnaire completion to reduce potential social desirability bias and perceived pressure. No personally identifiable information was collected, and students completed the questionnaire individually using anonymous digital access. The average completion time was approximately 30 minutes.

Data Analysis

Data analysis was conducted in three stages. The first two stages were performed using JASP version 0.19.1.0. Descriptive, comparative, and correlational analyses were conducted. Because the variables did not meet the assumption of normality, nonparametric tests were used. Group differences according to family structure were analyzed using the Kruskal–Wallis test, with a significance level set at $p < .05$.

Associations among variables were examined using Spearman's rank correlation coefficient.

When global Kruskal–Wallis tests reached statistical significance, pairwise comparisons were examined to identify differences between family structure groups. Effect sizes were estimated using eta squared (η^2) to assess the magnitude of group differences. The dataset contained no missing values; therefore, all cases were retained for the analyses.

In the third stage, a structural equation model was estimated using AMOS version 23 to examine the associations among family structure, parental monitoring styles, and substance use. The model was estimated using the maximum likelihood (ML) method.

Although some endogenous variables were dichotomous and deviated from multivariate normality, ML estimation was retained because previous methodological literature has suggested that ML may provide relatively stable parameter estimates in large samples and is frequently used in applied SEM research (Byrne, 2010). Nevertheless, this decision should be interpreted cautiously because ML estimation may produce biased standard errors and fit indices when categorical outcomes are analyzed. Therefore, the findings should be interpreted as statistical associations rather than definitive causal effects.

Indirect effects were additionally examined using bootstrap procedures with 5,000 resamples and 95% confidence intervals in order to evaluate the statistical significance of the proposed mediating associations.

Model fit was evaluated using the chi-square statistic (χ^2), the Comparative Fit Index (CFI), the Tucker–Lewis Index (TLI), the Goodness-of-Fit Index (GFI), the Adjusted Goodness-of-Fit Index (AGFI), the Standardized Root Mean Square Residual (SRMR), and the Root Mean Square Error of Approximation (RMSEA). Model fit was considered acceptable when CFI and TLI values were ≥ .90 and RMSEA values were ≤ .08. Standardized coefficients (β), statistical significance levels (p), and coefficients of determination (R^2) were reported.

Because participants were recruited from multiple schools and cities, the analyses may be affected by clustering effects associated with shared educational or contextual environments. However, multilevel analyses were not conducted, and this limitation should be considered when interpreting the findings.

Ethical Considerations

The study was conducted in accordance with the provisions established in the Mexican General Health Law for research involving human subjects.

The research protocol was approved by the Research Ethics Committee of the University of Guadalajara (Approval No. CINV-C/067/2024) and authorized by the participating educational institutions.

Parents or legal guardians were informed about the objectives of the study during school meetings, and a passive consent procedure was implemented. Parents who did not wish their children to participate could register them on a non-participation list; however, no such cases were reported. Passive consent was approved by the institutional ethics committee because the study involved minimal risk, anonymous self-report measures, and no collection of personally identifiable information.

Students provided electronic informed assent before beginning the questionnaire. Participation was voluntary and anonymous, and no personally identifiable information was collected. Participants were also informed that they could withdraw from the study at any time without academic consequences.

RESULTS

Sample Characteristics

The final sample consisted of 3,572 adolescents from eleven public schools located in different cities across Mexico. Participants were distributed across four types of family structure: nuclear (62%), single-parent (23.2%), reconstituted (8.7%), and extended families (6.1%). The "other" category was selected in only one case, without specifying the corresponding family structure.

Participants' ages ranged from 15 to 19 years, with a mean age of 17 years (*SD* = 1.28), with the highest concentration between 16 and 17 years of age. Regarding geographic distribution, participants were drawn from eleven cities across the country with relatively similar proportions: Macuspana, Tabasco (9.3%); Tampico, Tamaulipas (9.2%); Guadalajara, Jalisco (9.4%); Zamora, Michoacán (9.3%); Ciudad Juárez, Chihuahua (9.1%); Colima, Colima (9.1%); León, Guanajuato (9%); Monterrey, Nuevo León (8.9%); Mexicali, Baja California (8.9%); Pachuca, Hidalgo (8.9%); and Culiacán, Sinaloa (8.9%).

Substance Use by Family Structure

The prevalence of licit substance use was higher among adolescents from extended families (41.9%) (H = 14.517, $p < .001$, $\eta^2 = .05$, small effect) and reconstituted families (35.6%) (H = 4.321, $p = .03$, $\eta^2 = .03$, small effect), compared with adolescents from single-parent (32.3%) (H = 1.890, $p = .16$, $\eta^2 = .10$) and nuclear families (27.8%) (H = 18.317, $p < .001$, $\eta^2 = .06$).

Kruskal-Wallis analyses indicated statistically significant differences in licit substance use according to family structure (H = 18.317, $p < .001$, $\eta^2 = .06$, small effect). Pairwise comparisons suggested that adolescents from extended and reconstituted families reported higher levels of licit substance use relative to adolescents from nuclear families.

Similarly, illicit substance use was more prevalent among adolescents from extended families (17.5%) (H = 14.081, $p < .001$, $\eta^2 = .06$, small effect) and reconstituted families (15.1%) (H = 9.374, $p = .002$, $\eta^2 = .06$, small effect), compared with those from single-parent families (11%) (H = .962, $p = .32$) and nuclear families (8.3%) (H = 20.072, $p < .001$, $\eta^2 = .06$ small effect). Post hoc comparisons indicated that adolescents from extended and reconstituted families reported higher illicit substance use than adolescents from nuclear families (Table 1).

Correlation Analysis

Spearman correlation analyses indicated that belonging to a nuclear family was positively and significantly associated with higher levels of parental rule-setting and supervision, and negatively associated with parental coldness–rejection as well as licit and illicit substance use.

In contrast, single-parent and reconstituted families were significantly associated with lower levels of rule-setting and supervision, higher levels of parental coldness–rejection, and greater substance use. Extended families were significantly associated with lower levels of rule-setting and supervision and higher levels of both licit and illicit substance use.

Finally, a moderate positive correlation was observed between licit and illicit substance use ($r = .277$, $p < .01$), indicating the co-occurrence of both risk behaviors (Table 2).

Table 1

Sociodemographic, Family, and Substance Use Characteristics of Adolescents by Family Structure.

	Nuclear family n = 2214		*Single-parent family n = 829*		*Reconstituted family n = 312*		*Extended family n = 217*	
Characteristics	*F*	*%*	*F*	*%*	*F*	*%*	*F*	*%*
Sex								
Female	1271	57.4	515	62.1	179	57.4	132	60.8
Male	943	42.6	314	37.9	133	42.6	85	39.2
Age								
15	283	12.8	96	11.6	31	9.9	21	9.7
16	577	26.1	194	23.4	79	25.3	36	16.6
17	649	29.3	240	29	94	30.1	57	26.3
18	318	14.4	126	15.2	52	16.7	39	18
19	387	17.5	173	20.9	56	17.9	64	29.5
Licit substance use								
No	1598	72.2	561	67.7	201	64.4	126	58.1
Yes	616	27.8	268	32.3	111	35.6	91	41.9
Illicit substance use								
No	2030	91.7	738	89	265	84.9	179	82.5
Yes	184	8.3	91	11	47	15.1	38	17.5

Note: F = frequency; % = percentage. Family structure categories were mutually exclusive.

Table 2

Spearman Correlation Matrix Between Family Structure, Parental Monitoring, and Adolescent Substance Use.

	1	2	3	4	5	6	7	8	9	10
1 Nuclear family	-									
2 Single-parent family	-.702**	-								
3 Reconstituted	-.395**	-.17**	-							
4 Extended family	-.325**	-.140**	-.079**	-						
5 Rule-setting	.077**	-.035*	-.045**	-.041*	-					
6 Supervision	.099**	-.050**	-.037*	-.068**	.365**	-				
7 Parental coldness–rejection	-.040*	.051**	-.008	.001	.098**	-.134**	-			
8 Parental overcontrol	.011	-.006	-.001	-.009	.24**	-.066**	.481**	-		
9 Licit substance use	-.077**	.027	.035*	.069**	-.112**	-.145**	.077**	.013	-	
10 Illicit substance use	-.075**	.017	.052**	.063**	-.099**	-.159**	.106**	.084**	.277**	-

Note: n = 3,572; Spearman's rho coefficients are presented, nuclear family was used as the reference category; * $p < .05$; ** $p < .01$.

Structural Equation Model

The structural equation model showed an adequate fit to the data. The chi-square statistic was significant (χ^2 = 15,195.71, df = 41, $p < .001$), which was expected given the large sample size. Therefore, additional fit indices were considered. The model demonstrated good overall fit (CFI = .95, GFI = .99, TLI = .94, AGFI = .99; RMSEA = .04, 90% CI [.02, .06]; SRMR = .04), indicating a satisfactory correspondence between the observed and estimated covariance matrices.

Figure 2 presents the standardized regression coefficients for the relationships specified in the model.

Nuclear family was used as the reference category when estimating the effects of family structure.

Results indicated that, compared with nuclear families, adolescents from single-parent, reconstituted, and extended families reported lower levels of parental rule-setting (β = -.25, p = .003; β = -.41, p = .001; β = -.52, $p < .001$, respectively) and lower levels of parental supervision (β = -.37, $p < .001$; β = -.40, p = .002; β = -.76, $p < .001$).

Single-parent families showed a positive association with coldness–rejection (β = .27, $p < .001$), whereas the association for reconstituted families was not statistically significant (β = .03, p = .80). Similarly, the relationship for extended families was not statistically significant (β = .19, p = .16).

Regarding the direct effects of family structure on substance use, reconstituted families were associated with higher levels of illicit substance use (β = .09, $p < .001$), while extended families were associated with higher levels of both licit (β = .14, p = .01) and illicit substance use (β = .13, p = .01).

With respect to the mediating variables, parental rule-setting was negatively associated with licit (β = -.02, p = .009) and illicit substance use (β = -.03, $p < .001$). Similarly, parental supervision showed negative associations with both licit (β = -.03, $p < .001$) and illicit substance use (β = -.03, $p < .001$).

In contrast, parental coldness–rejection was positively associated with licit (β = .02, $p < .001$) and illicit substance use (β = .01, p = .03). Perceived parental overcontrol was also positively associated with illicit substance use (β = .02, $p < .001$).

Bootstrap analyses of indirect effects supported the presence of partial mediating associations between family structure, parental monitoring dimensions, and substance use. Indirect effects were statistically significant when the 95% confidence intervals did not include zero (Table 3).

The model explained 11% of the variance in parental rule-setting, 15% in parental supervision, 7% in coldness-rejection, and 4% in parental overcontrol. Additionally, it explained 15% of the variance in licit substance use, and 16% of the variance in illicit substance use (Figure 2).

Overall, the structural model supported the proposed hypotheses. Adolescents from non-nuclear family structures reported lower levels of parental rule-setting and supervision, partially confirming H1. Consistent with H2, parental monitoring practices were significantly associated with substance use, with rule-setting and supervision showing protective associations, whereas parental coldness–rejection and overcontrol were associated with higher levels of substance use. Finally, the results provided evidence of partial mediation, supporting H3 and indicating that parental monitoring may represent an important pathway linking family structure to adolescent substance use.

Table 3

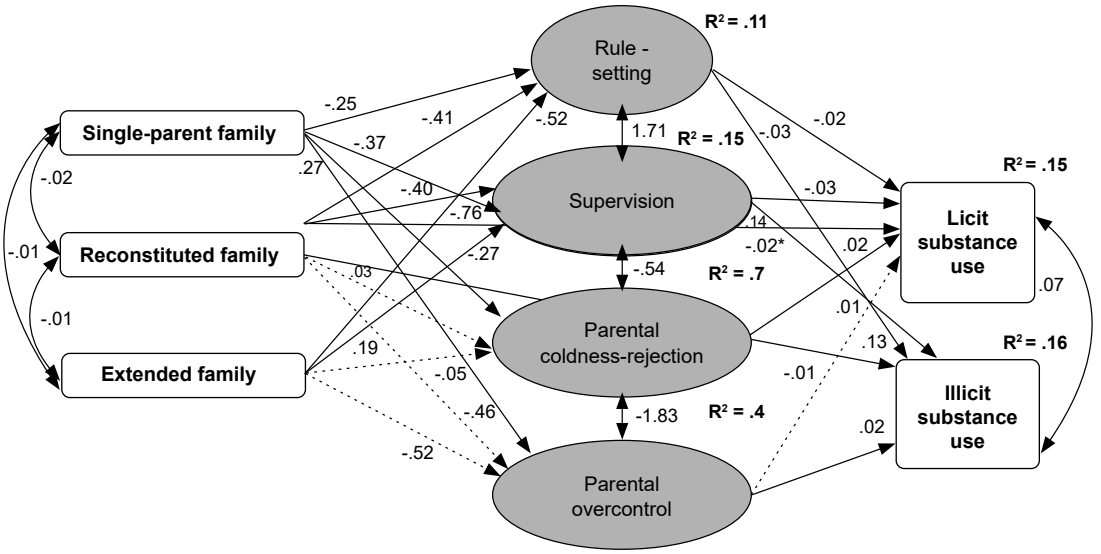
Direct, Indirect, and Total Effects of Family Structure on Substance Use through Parental Monitoring Dimensions.

		Direct effect			*Indirect effect*			*Total effect*		
Family structure	*Outcome variable*	*(β)*	*p*	*95% CI*	*(β)*	*p*	*95% CI*	*(β)*	*p*	*95% CI*
Single-parent family	Licit substance use	.05	.050	[.002, .089]	.02	< .001	[.012, .030]	.06	.005	[.019, .112]
Single-parent family	Illicit substance use	.01	.420	[-.024, .052]	.02	< .001	[.009, .029]	.03	.090	[-.006, .073]
Reconstituted family	Licit substance use	.08	.020	[.012, .147]	.02	.001	[.009, .033]	.09	< .001	[.025, .167]
Reconstituted family	Illicit substance use	.09	< .001	[.021, .166]	.02	.002	[.010, .037]	.11	< .001	[.040, .195]
Extended family	Licit substance use	.14	.010	[.070, .241]	.03	< .001	[.019, .051]	.17	< .001	[.104, .278]
Extended family	Illicit substance use	.13	.010	[.020, .189]	.03	< .001	[.019, .055]	.16	< .001	[.052, .229]

Note: Nuclear family was used as the reference category; indirect effects were estimated through parental monitoring dimensions (rule-setting, supervision, coldness–rejection, and perceived overcontrol) using bootstrap procedures with 5,000 resamples and bias-corrected 95% confidence intervals. CI = confidence interval, *p* = *p* value.

Figure 2

Structural Equation Model of the Association Between Family Structure and Substance Use Mediated by Parental Monitoring Styles.



Note: Standardized coefficients are presented; the nuclear family was used as the reference category for the family structure variable; solid lines represent statistically significant relationships ($p < .05$), whereas dashed lines indicate non-significant relationships; correlations among exogenous variables and among error terms are also shown.

DISCUSSION AND CONCLUSIONS

The results of the structural equation model indicated that family structure and parental monitoring styles were significantly associated with substance use during adolescence. In addition, parental monitoring practices were linked to the use of both licit and illicit substances. Adolescents from single-parent, reconstituted, and extended families—that is, households without the presence of both biological parents—reported lower levels of parental rule-setting and supervision, compared with adolescents from nuclear families. However, only adolescents from single-parent families showed significantly higher levels of parental coldness–rejection. These findings are consistent with ecological perspectives of adolescent development, which suggest that family environments constitute a relevant context associated with behavioral regulation and psychosocial adjustment during adolescence (Bronfenbrenner, 1979).

The findings partially supported the first hypothesis. Adolescents living in non-nuclear family structures reported lower levels of parental rule-setting and supervision compared with adolescents

from nuclear families. These differences may reflect variations in caregiving responsibilities, availability of parental figures, economic demands, or family role reorganization frequently observed in some family contexts (Clinchard et al., 2024; Ordóñez et al., 2020). Nevertheless, it is important to emphasize that family structure itself should not be interpreted as inherently dysfunctional, since parenting practices and emotional climate may vary considerably within each family configuration.

Regarding the second hypothesis, the results showed that different parental monitoring styles were significantly associated with substance use. In particular, the presence of clear rules and active supervision was related to lower levels of substance use, whereas parental coldness–rejection and perceived overcontrol were associated with higher levels of consumption, particularly of illicit substances. This pattern is consistent with previous research emphasizing the protective role of warm and structured parental monitoring in preventing risk behaviors (Stattin & Kerr, 2003; Mills et al., 2021; Sigal et al., 2021). Similarly, several studies have identified parental monitoring as an important protective factor against adolescent substance use (Nuño-Gutiérrez, 2025; Pelham et al., 2024).

An important finding was that parental coldness–rejection showed consistent positive associations with substance use outcomes. This result suggests that the emotional quality of parent–adolescent relationships may represent an important contextual factor associated with adolescent risk behaviors.

Previous studies have similarly documented that parenting characterized by emotional distance, rejection, or hostility tends to be associated with higher levels of adolescent substance use and psychosocial maladjustment (Nuño-Gutiérrez, 2025; Pelham et al., 2024). However, these associations should not be interpreted causally given the cross-sectional nature of the study.

With respect to the third hypothesis, the results indicated a partial mediation effect of parental monitoring in the relationship between family structure and substance use. In other words, structural characteristics of the family are associated with adolescents' risk behaviors partly through their associations with parental monitoring practices. This finding supports the idea that parenting practices may represent one pathway through which family contextual characteristics are associated with adolescent behavioral outcomes (Pelham et al., 2024; Stattin & Kerr, 2003).

The results of this study are consistent with previous research documenting higher levels of substance use among adolescents from non-nuclear family structures (Clinchard et al., 2024; Hayek et al., 2021). In particular, the higher risk observed among adolescents from extended and reconstituted families aligns with findings reported by Herke et al. (2020), who suggested that the presence of multiple adult figures and potential inconsistencies in parenting styles may generate less predictable normative environments. Likewise, the positive association between parental coldness–rejection and substance use has been previously documented (Nuño-Gutiérrez, 2025; Pelham et al., 2023), as has the co-occurrence of licit and illicit substance use (Reynales-Shigematsu et al., 2024; Villatoro-Velázquez et al., 2017).

This study presents several strengths. Among them, the large sample size and the inclusion of participants from eleven Mexican cities provide statistical robustness and contextual relevance to the findings. In addition, the use of structural equation modeling allowed the examination of complex relationships among variables and the evaluation of mediating effects, providing a more comprehensive understanding of family processes associated with substance use. The use of instruments validated for the Mexican adolescent population also contributes to the cultural and methodological relevance of the study.

The model explained 11% of the variance in parental rule-setting, 15% in parental monitoring, 7% in parental coldness-rejection, and 4% in perceived parental overcontrol. It also explained 15% and 16% of the variance in substance use. Although these values indicate that the model accounted for a meaningful proportion of the variance, adolescent substance use is a multidetermined phenomenon influenced by multiple individual, family, school, and social factors that were not included in the present study (Matthay et al., 2021).

Based on these findings, the development of family-based substance use prevention programs is recommended, particularly those that promote warm, consistent, and culturally sensitive parental monitoring practices, especially in households with non-traditional family structures. Future research could employ longitudinal designs to examine causal trajectories between family structure, parental monitoring, and substance use, as well as incorporate mixed-method approaches to better understand family functioning and contextual factors that influence parenting practices.

Overall, the findings suggest that parental monitoring styles are significantly associated with adolescent substance use and that these associations vary according to family structure. In particular,

parental supervision and rule-setting were associated with lower substance use, whereas parental coldness–rejection and overcontrol were associated with higher levels of substance use. These findings underscore the relevance of family-based prevention strategies aimed at strengthening supportive parent–adolescent relationships, consistent supervision, and clear behavioral expectations during adolescence.

Limitations of the Study

Despite these strengths, several limitations should be acknowledged. First, the cross-sectional design does not allow causal inferences regarding the observed associations. Second, substance use was assessed through self-report measures, which may be affected by social desirability bias or underreporting. Third, the non-probabilistic sampling strategy and inclusion of students exclusively from public educational institutions limit the generalizability of the findings. Fourth, although the SEM demonstrated acceptable fit indices, the use of maximum likelihood estimation with dichotomous outcomes may have introduced bias in standard errors and parameter estimation. Additionally, clustering effects associated with schools and cities were not modeled statistically and should be considered when interpreting the findings.

FUNDING

No external funding was received in order to conduct this research.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest. They also declare that they did not use any artificial intelligence assistance in the writing and/or production of the document. All contents were verified and edited by the authors, who assume full responsibility for the final version of the article.

AUTHORS CONTRIBUTIONS

Bertha L. Nuño-Gutiérrez: conceptualization, methodology, formal analysis, data curation, original draft writing, manuscript review and editing.
Gonzalo De la Isla-Arias: investigation, supervision, manuscript review and editing.

REFERENCES

Amara, A., Omri, N., Sahli, J., Zedini, C., El Ouni, T., Mtiraoui, A., Mallouli, M., & Ghardalou, M. (2023). Prevalence and predictors of tobacco, alcohol and illicit drug experimentation among Tunisian middle and high school-adolescents. *International Journal of Adolescent Medicine and Health*, *35*(4), 363–373. https://doi.org/10.1515/ijamh-2022-0117

Bauer, J., Mayer, A., Fuchs, C., & Schamberger, T. (2025). *Misspecifications in structural equation modeling: The choice of latent variables, causal-formative constructs or composites*. arXiv. https://doi.org/10.48550/arXiv.2507.21998

Bozzini, A. B., Maruyama, J. M., Santos, I. S., Murray, J., Tovo-Rodrigues, L., Munhoz, T. N., & Matijasevich, A. (2023). Prevalence of adolescent risk behaviors at 11 and 15 years of age: data from the 2004 Pelotas birth cohort. *Revista Brasileira de Psiquiatria*, *45*(2), 93–101. https://doi.org/10.47626/1516-4446-2022-2753

Bronfenbrenner, U. (1979). *The Ecology of Human Development: Experiments by Nature and Design*. Harvard University Press.

Byrne, B. M. (2010). *Structural Equation Modeling With AMOS: Basic Concepts, Applications, and Programming*. Routledge.

Ceja, A. C. (2023). *Relación de la disfunción familiar con la presencia de trastorno de ansiedad generalizada en familias monoparentales* (Tesis de especialización). Universidad Autónoma de Querétaro. https://ri-ng.uaq.mx/handle/123456789/11415

Cesarino, M., Granville-Garcia, A. F., Barbosa, E. T., da Costa, L., Morais, F., & Martins, S. (2021). Family and contextual factors associated with licit drug use in adolescence. *Revista de Saúde Pública*, *55*(95). https://doi.org/10.11606/s1518-8787.2021055003531

Clinchard, C., Lee, T. H., Lindenmuth, M., Brieant, A., Deater-Deckard, K., Noble, K. G., Casas, B., & Kim-Spoon, J. (2024). Family socioeconomic status and adolescent substance use: The role of parent–adolescent brain similarity and parental monitoring. *Journal of Family Psychology*, *38*(4), 677–684. https://doi.org/10.1037/fam0001223

Guatrochi, M. (2020). Nuevas configuraciones familiares: tipos de familia, funciones y estructura familiar. REDES. *Revista de Psicoterapia Relacional e Intervenciones Sociales*, (41), 11–18. https://www.redesdigital.com/index.php/redes/article/view/44

Hayek, J., Tueni, M., Schneider, F., & de Vries, H. (2021). Parenting style as longitudinal predictor of adolescents' health behaviors in Lebanon. *Health Education Research*, *36*(1), 100–115. https://doi.org/10.1093/her/cyaa045

Herke, M., Knöchelmann, A., & Richter, M. (2020). Health and Well-Being of Adolescents in Different Family Structures in Germany and the Importance of Family Climate. *International Journal of Environmental Research and Public Health*, *17*(18). https://doi.org/10.3390/ijerph17186470

Matthay, E. C., Hagan, E., Gottlieb, L. M., Tan, M. L., Vlahov, D., Adler, N., & Glymour, M. M. (2021). *Powering population health research: Considerations for plausible and actionable effect sizes*. arXiv. https://arxiv.org/abs/2101.07392

Mills, R., Mann, M. J., Smith, M. L., & Kristjansoon, A. L. (2021). Parental support and monitoring as associated with adolescent alcohol and tobacco use by gender and age. *BMC Public Health*, *21*(1). https://doi.org/10.1186/s12889-021-12119-3

Nuño-Gutiérrez, B. L. (2025). Evidencias de validez y precisión del Inventario de Supervisión Parental en adolescentes mexicanos y su asociación con el consumo de sustancias. *Revista Internacional de Investigación en Adicciones*, *11*(1), 45–59. https://doi.org/10.28931/riiad.2025.387

Ordóñez, Y., Gutiérrez, R. F., Méndez, E. Álvarez, N. A., López, D., & de la Cruz, C. (2020). Asociación de tipología familiar y disfuncionalidad en familias con adolescentes de una población mexicana. *Atención Primaria*, *52*(10), 680–689. https://doi.org/10.1016/j.aprim.2020.02.011

Organización Panamericana de la Salud. (2021). *Políticas de salud pública sobre el consumo de sustancias psicoactivas. Manual para la planificación en el ámbito de la salud*. OPS. https://www.paho.org/es/documentos/politicas-salud-publica-sobre-consumo-sustancias-psicoactivas-manual-para-planificacion

Pelham, W. E., III, Tapert, S. F., Gonzalez, M. R., Wade, N. E., Lisdahl, K. M., Guillaume, M., Marshall, A. T., Van Rinsveld, A., Dick, A. S., Baker, F. C., Breslin, F. J., Baskin-Sommers, A., Sheth, C. S., & Brown, S. A. (2023). Parental knowledge/monitoring and adolescent substance use: A causal relationship? *Health Psychology*, *42*(12), 913–923. https://doi.org/10.1037/hea0001245

Pelham, W. E., Tapert, S. F., Gonzalez, M. R., Ahiarakwe, U., Patel, H., Davis, I. S., Meruelo, A. D., Van Rinsveld, A. M., Marshall, A. T., Dick, A. S., Guillaume, M., Dowling, G. J., Baskin-Sommers, A., & Brown, S. A. (2024). How Does Parental Monitoring Reduce Adolescent Substance Use? Preliminary Tests of Two Potential Mechanisms. *Journal of Studies on Alcohol and Drugs*, *85*(3), 389–394. https://doi.org/10.15288/jsad.23-00297

Pereira-Morales, A. J., Redondo, M. F., Ramírez-Cortázar, F., & Eslava-Schmalbach, J. H. (2025). A Systematic Review of Randomized Controlled Trials for Behavioral Interventions Targeting Alcohol and Cannabis Use in Young Adults. *Revista Colombiana de Psicología*, *34*(2), 59–78. https://doi.org/10.15446/rcp.v34n2.113988

Pinillos Guzmán, M. A. (2020). Configuración de la familia en su diversidad. *El Ágora USB*, *20*(1), 275–288. https://doi.org/10.21500/16578031.4197

Pinquart, M., & Reeg, A. (2025). Associations of Parental Monitoring and Behavioral Control with Substance Use in Adolescents and Emerging Adults: A Meta-Analysis. *Substance Use & Misuse*, *60*(10), 1497–1505. https://doi.org/10.1080/10826084.2025.2505142

Puyana, Y. (2019). El familismo, sus fuentes y su articulación con la legislación colombiana. *Revista Palobra, Palabra Que Obra*, *19*(1), 42–61. https://doi.org/10.32997/2346-2884-vol.19-num.1-2019-2466

Renny, M. H., Stecher, Y., Vargas-Torres, C., Zebrowski, A. M., & Merchant, R. C. (2025). Trends in substance use-related emergency department visits by youth, 2018–2023. *The American Journal of Emergency Medicine*, *92*, 1–9. https://doi.org/10.1016/j.ajem.2025.02.035

Reynales-Shigematsu, L. M., Rivera Rivera, L., Séris Martínez, M., & Saenz de Miera, B. (2024). A Cross Sectional Analysis of Parental Behavior and Adolescent Mental Health in Mexico: Insights into Excessive Alcohol Intake, Tobacco Use, Suicidal Behavior, and Depressive Symptomatology. *Healthcare*, *12*(6). https://doi.org/10.3390/healthcare12060641

Sameroff, A. J. (2009). *The transactional model of development: How children and contexts shape each other*. American Psychological Association.

Sigal, M., Ross, B. J., Behnke, A. O., & Plunkett, S. W. (2021). Neighborhood, Peer, and Parental Influences on Minor and Major Substance Use of Latino and Black Adolescents. *Children*, *8*(4). https://doi.org/10.3390/children8040267

Stattin, H., & Kerr, M. (2003). Parental Monitoring: A Reinterpretation. *Child Development*, *71*(4), 1072–1085. https://doi.org/10.1111/1467-8624.00210

Villanueva-Blasco, V. J., González, A., Colomo, E., & Puig Perez, S. (2024). Model of structural equations on the perception of aspects of school life and substance consumption as predictors of problem behavior in adolescents. *Frontiers in Psychiatry*, *15*. https://doi.org/10.3389/fpsyt.2024.1386927

Villatoro-Velázquez, J. A., Resendiz-Escobar, E., Mujica-Salazar, A., Bretón-Cirett, M., Cañas-Martínez, V., Soto-Hernández, I., Fregoso-Ito, D., Fleiz-Bautista, C., Medina-Mora, M. E., Gutiérrez-Reyes, J., Franco-Núñez, A., Romero-Martínez, M., & Mendoza-Alvarado, L. (2017). *Encuesta Nacional de Consumo de Drogas, Alcohol y Tabaco 2016-2017: Reporte de drogas*. Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz, Instituto Nacional de Salud Pública, Comisión Nacional contra las Adicciones, Secretaría de Salud. https://encuestas.insp.mx/repositorio/encuestas/ENCODAT2016/doctos/informes/reporte_encodat_drogas_2016_2017.pdf

World Health Organization (WHO). (2024). *A focus on adolescent substance use in Europe, central Asia and Canada: Health Behaviour in School-aged Children international report from the 2021/2022 survey* (Vol. 3). WHO Regional Office for Europe. https://www.who.int/europe/publications/i/item/9789289060936