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Article

Prevalence and Differential Profiles of People with Adverse Childhood Experiences in Treatment for Substance use Disorder

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Abstract

Adverse childhood experiences (ACEs) are prevalent in people with substance use disorder (SUD). The aims of this study were to determine the prevalence of ACEs in a specific sample of people with SUD and to analyze the specific characteristics of these patients according to gender. The studied sample consisted of 215 people seeking treatment for SUD in two clinical centers in Spain. Descriptive and comparison analyses were carried out, and a logistic regression analysis was conducted to identify the main variables related to ACEs. The prevalence of at least one ACE was 82.3%. Women reported a higher prevalence of family mental health problems ($p = .045$; $d = 0.14$) and sexual abuse ($p < .001$; $d = 0.43$) than men. The group with ≥3 ACEs showed a higher severity profile for the addiction severity and psychopathological variables than the groups with 0 ACEs and 1–2 ACEs. Logistic regression showed that problems related to the group with ≥3 ACEs in the total sample were psychiatric and legal problems and lifetime suicidal ideation (in men, family/social problems and lifetime suicidal ideation; in women, employment/support problems). This study supports the high prevalence of ACEs in people with SUD and the cumulative effect of ACEs. In addition, gender is a relevant factor. The implementation of assessments and treatment for ACEs is necessary in SUD treatment programs.

Keywords: adverse childhood experiences; differential profile; gender; prevalence; substance use disorder

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Introduction

ACEs are some of the most intense and frequent sources of stress that children can experience in the first years of their lives (World Health Organization, 2018). ACEs have been defined as potentially traumatic experiences that can cause negative consequences for people's health and well-being. This concept includes experiences of childhood maltreatment (physical, emotional and/or sexual), childhood neglect (physical and/or emotional) and parental household dysfunction (alcohol and/or drug abuse, prison, mental health problems, separation, death or violence) (Cronholm et al., 2015; Dube et al., 2003; Felitti et al., 1998; Kiburi et al., 2018; McKay et al., 2021).

Felitti et al. (1998) carried out a pioneering study of ACEs with a sample of people with obesity. This study reported a prevalence of at least one ACE of 52%. One of the most significant findings of this ACE study was that people who had a greater number of ACEs presented a higher risk of substance use problems, severe obesity, depression, and suicide attempts, among others. This reflects that these experiences have a cumulative effect, as other studies subsequently found (Choi et al., 2017; Kalmakis & Chandler, 2014; LeTendre & Reed, 2017; Merrick et al., 2017). In fact, these authors showed that ACEs rarely occurred alone and that their consequences could occur in the short, medium, and long term (Anda et al., 1999; Felitti et al., 1998). Since this pioneering study was carried out, the concept of ACEs and specifically the study of their possible consequences have gained importance in research.

In different countries, general population studies have reported a prevalence of ACEs ranging from 46.2% to 66.2% (Chang et al., 2019; Hughes et al., 2019; Merrick et al., 2017; Veleminsky et al., 2020). In a recent systematic review on the prevalence of ACEs in school-aged youth, of the 44 studies included, 13 were carried out in Europe. A single study was carried out with a Spanish sample, among other European participants (Carlson et al., 2020). Therefore, there are no specific studies on the prevalence of ACEs in general Spanish populations.

Research has shown that one of the consequences related to ACEs is problems related to substance use during adolescence and adulthood (Jaffee, 2017; Keyes et al., 2014). Continued exposure to ACEs during the first years of life affects the ability to regulate emotions. Substance use seems to be an emotional regulation mechanism and a way of alleviating the suffering caused by ACEs (Chandler et al., 2018; Ducci & Goldman, 2012). However, although substance use can reduce suffering and even alleviate it in the short term, in the long term, it increases the likelihood that substance use will evolve into SUD. Therefore, having a history of ACEs might increase the risk of developing SUD (Buckingham & Daniolos, 2013;

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Khoury et al., 2010; Wendland et al., 2017). Studies with specific SUD populations have shown a prevalence of ACEs ranging from 75% to 100% (Chandler et al., 2018; Martin et al., 2023; Philogene-Khalid et al., 2020). However, a recent scoping review about the relationship between ACEs and SUD showed that the evidence on this topic is scarce, and no studies have been carried out in Spain (Leza et al., 2021).

No studies have examined potential differences between SUD populations with and without ACEs (Leza et al., 2021). A recent study showed that the prevalence of ACEs differs by gender and by the substance motivating SUD treatment (Martin et al., 2023). Women reported a higher number of ACEs than men and, in particular, a higher prevalence of physical, emotional, and/or sexual abuse. In addition, cocaine and opiates were associated with a higher prevalence of ACEs than other substances. Another study also found a higher number of ACEs in women than in men with SUD (Stein et al., 2017). However, Kiburi et al. (2018) found the opposite, with a higher number of ACEs in men than in women. Finally, Chandler et al. (2018) could not find differences between individuals with and without ACEs, as the entire sample of SUD patients reported having at least one ACE.

Therefore, based on the limited evidence found, the main objectives of this study are (1) to determine the prevalence of ACEs in a specific Spanish SUD population and (2) to analyze the differential profiles of people seeking treatment for SUD with and without ACEs according to gender. The primary hypotheses are as follows: (1) ACEs will be prevalent in people with SUD; (2) people who reported a higher number of ACEs will have a greater severity profile for addiction severity and psychopathological symptoms; and (3) women will have a higher number of ACEs and a higher severity profile related to ACEs than men. The results derived from this study will make it possible to propose and develop strategies for the prevention of SUD.

Methods

The ethics committees of the Universidad Publica de Navarra (PI-014/21), Proyecto Hombre Navarra Foundation (PHN2016–01) and ANTOX Association (AN2016–01) approved the protocol for this study. All participants signed informed consent forms.

Design

This is a descriptive, ex post facto, retrospective study carried out in Navarre, Spain, with SUD clinical patients.

Participants

The initial sample consisted of 225 consecutive people who voluntarily sought treatment for an SUD in the Proyecto Hombre Navarra Foundation and ANTOX Association (Spain) and who were consecutively recruited between 2021 and 2023. These addiction treatment programs are cognitive-behavioral interventions with two different modalities (outpatient and inpatient treatment) aimed at abstinence, which have been shown to be effective in treating addictions (Aguilar et al., 1998; Fernández-Montalvo et al., 2008; Fernández-Montalvo & López-Goñi, 2010). These programs are financed by public institutions and serve people older than 18 years from throughout the region. These patients are representative of Navarre people with addiction problems because these two programs attend the majority of the SUD population in this region.

The sample inclusion criteria were as follows: (a) individuals who met the DSM-5 diagnostic criteria for alcohol and/or SUD; (b) individuals aged ≥18 years; (c) individuals receiving treatment for SUD; (d) individuals who agreed to sign the informed consent form to participate in the study after being properly informed; and (e) individuals who were able to complete the assessments.

Following these admission criteria, 10 patients (4.4%) were excluded because they did not complete the assessment tools or they abandoned the treatment. Therefore, 215 (177 men, 82.3%, and 38 women, 17.7%) people were included in the prevalence data. The mean age was 42.5 (SD = 11.5) for the total sample (men = 41.6, SD = 11.4; women = 46.6, SD = 11.2). No statistically significant differences were found between those who were excluded and admitted.

For the comparison analyses of the variables studied, 15 more persons were excluded because they did not complete the EuropASI. Consequently, the sample for comparison analyses consisted of 200 participants (88.8%); 167 (83.5%) men and 33 (16.5%) women.

Assessment Measures

The Adverse Childhood Experiences International Questionnaire (ACE-IQ) (World Health Organization, 2011) is an interview used to assess the presence of adverse childhood experiences. This interview explores 13 different experiences classified into six categories during the first 18 years of life. These categories and the experiences that are included in each of them are as follows: (1) relationships with parents/guardians (emotional and physical neglect); (2) the family environment (household member abusing alcohol and/or drugs, incarcerated household member, household member who was chronically depressed, mentally ill, institutionalized or suicidal, household member who was treated violently, one or no parents, parental separation or divorce and parental death); (3) childhood maltreatment (physical, emotional and/or sexual abuse); (4) peer violence; (5) community violence; and (6) collective violence. This instrument was applied in an interview format. If respondents answered yes to any of the questions, additional questions were asked to (a) explore each ACE more in depth and (b) assess the presence of a significant emotional impact on the person's life. For example, if the answer to the question of whether parents ever hit you is "yes," the person was asked: *Was it sporadic or recurrent?* In either case, *did it have a negative emotional impact on your life?*

The EuropASI (Kokkevi & Hartgers, 1995) is the European version of the Addiction Severity Index scale (ASI) (McLellan et al., 1980). In this study, the Spanish version of this scale was used (Bobes et al., 1996). This interview assesses a patient's need for treatment based on seven different areas: (1) general medical condition; (2) employment and financial situation; (3) alcohol consumption; (4) use of other drugs; (5) legal problems; (6) family and social relationships; and (7) psychiatric state. After concluding the interview, the intervention team assesses the patient's need for treatment in each of these areas. The short-term test–retest reliabilities of the ASI severity ratings have been reported to be greater than or equal to .92 for all domains. The Interviewer Severity Ratings (ISR), which have shown good predictive validity in different studies conducted in the treatment context (López-Goñi et al., 2012), were used for this assessment. The ISR score is calculated based on a series of critical items in each of the areas to consider the patient's own self-evaluation and the interviewer's judgment (see Bobes et al., 2007). The score for each area ranges from 0 (*no problem*) to 9 (*extreme problem*). The higher the score is, the greater the addiction severity and the greater the need for treatment.

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The Symptom Checklist-90-Revised (SCL-90-R) (Derogatis, 1992) is a self-administered questionnaire used for general psychopathological assessment. This questionnaire consists of 90 items and is scored using a five-point Likert scale ranging from 0 (*nothing*) to 4 (*extremely*). The questionnaire aims to reflect the current symptoms of psychological distress. The Symptom Checklist consists of nine primary symptom dimensions: somatization (12 items), obsession-compulsion (10 items), interpersonal sensitivity (9 items), depression (13 items), anxiety (10 items), hostility (6 items), phobic anxiety (7 items), paranoid ideation (6 items), and psychoticism (10 items). Additionally, this questionnaire offers three global indices that reflect the overall level of severity: the Global Severity Index (GSI), which reflects the overall symptom severity; the Positive Symptom Distress Index (PSDI), which indicates symptom intensity; and the Positive Symptom Total (PST), which includes the number of items answered with a score other than 0. In this study, the percentiles of each dimension according to the normative data were considered. The internal consistency ranges from .70 to .90.

The Maladjustment Scale (Echeburúa et al., 2000) reveals how each patient is affected in six different areas of everyday life: labor, social, leisure, partner, family, and general. Each area is scored using a six-point Likert scale ranging from 0 (*nothing*) to 5 (*extremely*). The total score ranges from 0–30. Higher scores indicate higher levels of maladjustment. The internal consistency is .94.

The Columbia-Suicide Severity Rating Scale (C-SSRS) (Posner et al., 2011) is a semi-structured interview used to identify individuals at risk for suicide. The C-SSRS assesses the occurrence, severity, and frequency of suicide-related thoughts and behaviors during the assessment period and across the lifespan. Questions are phrased for use in an interview format but can be completed as a self-report measure if necessary. In this study, this instrument was applied in an interview format. The interview consists of 15 items: 6 items to assess the severity of suicidal ideation, 5 items to assess the intensity of suicidal ideation, and 4 items to assess suicidal behavior. Each item is scored using a five- or six-point Likert scale. Only the prevalence of suicidal behavior was included in this study. The internal consistency ranges from .94 to .95.

Procedure

Regarding the sample recruitment process, all patients who consecutively sought treatment for an SUD in one of the two treatment centers were invited to participate in the study. The psychologist responsible for conducting the interviews provided patients with information regarding the objectives and characteristics of the study and addressed any queries or concerns they might have.

The assessment of the sample was performed in two one-hour individual sessions at the beginning of the SUD treatment program. All people were interviewed face-to-face by a clinical psychologist trained for this research. In the first session, sociodemographic, Maladjustment Scale, and EuropASI data were collected. In the second session, the ACE-IQ, Columbia Scale, and SCL-90-R were administered. After the assessment sessions, participants continued the standard treatment for SUD. All of them signed informed consent forms prior to the assessment sessions.

Data Analysis

Descriptive analyses were conducted for all variables, and the respective 95% confidence intervals ($CI_{95\%}$) were estimated. Bivariate analyses were performed using χ^2 tests for categorial variables. For continuous variables, Student's t was used as Levene's test showed homogeneity of variance between groups (Glass & Stanley, 1970). The statistical analyses were two-sided. Effect sizes (Cohen's d for continuous variables, Phi for 2x2 comparisons, and Cramer's V for 2x3 comparisons) for the analyses were provided. Cohen's d was interpreted following the considerations: $d < 0.20$ (no effect size), $0.2 \leq d < 0.5$ (small effect size), $0.5 \leq d < 0.80$ (medium effect size), and $d \geq 0.80$ (large effect size) (Cohen, 1988). The interpretation of Phi and Cramer's V was performed according to Rea and Parker's (1992) conventions: $V \leq 0.2$ (small effect); $0.2 < V \leq 0.6$ (medium effect); and $V > 0.6$ (large effect).

The sample was divided into the following three groups depending on the number of adverse childhood experiences reported: 0 ACEs, 1 or 2 ACEs, and ≥ 3 ACEs. The reasons for this division were as follows: (a) previous research has shown that the mere presence of an adverse experience increases the risk of developing different problems compared to no ACEs (group with 0 ACEs); and (b) given the assumed cumulative effect of ACEs (Choi et al., 2017; Dube et al., 2003; Jaffee, 2017; Kalmakis & Chandler, 2014; LeTendre & Reed, 2017; Merrick et al., 2017), the sample was divided into individuals with 1 or 2 ACEs (the median number of ACEs in the present sample was 3, similar to the mean) and those with ≥3 ACEs. Comparisons between groups were performed with ANOVAs, and the least significant difference (LSD) test was used for post hoc analyses. Moreover, the effect size (Eta value) was obtained for all analyses.

Regarding multivariate analyses, three logistic regression analyses (forward stepwise entry method) were conducted to determine which specific factors were the most important to differentiate: (1) individuals with ≥3 ACEs; (2) men with ≥3 ACEs; and (3) women with ≥3 ACEs. In the first analysis, the gender variable, EuropASI ISRs scores, the global scales of the SCL-90-R, the Maladjustment scale variables, and suicidal behavior variables were included. In the second and third analyses, gender was not included because the sample was composed of either men or women. Due to the preliminary character of the study, the variable entry criterion was set to 0.05, and the variable retention criterion was set to 0.10. The proportion of the variance explained was calculated as Nagelkerke's R^2. Moreover, the Hosmer–Lemeshow test was used to assess the goodness of fit of this model (Hosmer & Lemeshow, 2013).

A difference of $p < .05$ was considered significant. Statistical analyses were performed using SPSS software (version 27.0).

Results

Prevalence and Types of ACEs According to Gender

Thirty-eight participants (17.7%) informed not having suffered any ACE. Sixty participants (27.9%) reported one or two ACEs, and 117 (54.4%) reported three or more ACEs. Regarding gender, 51 (28.8%) men reported one or two ACEs, and 92 (52.0%) reported three or more ACEs. In women, 9 (23.7%) reported one or two ACEs, and 25 (65.8%) reported three or more ACEs. No statistically significant differences were found between men and women (Table 1).

Gender comparisons of the prevalence of each type of ACE and the mean of the total number of ACEs are shown in Table 2. The mean of the total number of ACEs in the total sample was 3.2 ($SD = 2.5$). The mean of the total number of ACEs was 3.0 ($SD = 2.5$)

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Table 1. Number of ACEs in the total sample, in men and in women

	Total sample (*N* = 215)			Men (*N* = 177)			Women (*N* = 38)					
	N	%	Cumulative %	*n*	%	Cumulative %	*n*	%	Cumulative %	χ^2 (*df*)	*p*	Phi
No. of ACEs												
0	38	17.7	17.7	34	19.2	19.2	4	10.5	10.5	16.64 (10)	.083	0.28
1	30	14.0	31.7	23	13.0	32.2	7	18.4	28.9			
2	30	14.0	45.7	28	15.8	48.0	2	5.3	34.2			
3	27	12.5	58.2	21	11.9	59.9	6	15.8	50.0			
4	25	11.5	69.7	23	13.0	72.9	2	5.3	55.3			
5	28	13.0	82.7	20	11.3	84.2	8	21.1	76.4			
6	14	6.5	89.2	10	5.6	89.8	4	10.5	86.9			
7	9	4.2	93.4	9	5.1	94.9	0	—	86.9			
8	4	1.9	95.3	3	1.7	96.6	1	2.6	89.5			
9	9	4.2	99.5	5	2.8	99.4	4	10.5	100.0			
10	1	0.5	100.0	1	0.6	100.0	0	—	100.0			

Note: χ^2 = chi-square; *df* = degree of freedom; *p* = probability value.

Table 2. Gender comparisons of the prevalence of each type of ACE

	Total sample (*N* = 215)		Men (*N* = 177)		Women (*N* = 38)				
	M	*(SD)*	*M*	*(SD)*	*M*	*(SD)*	t (df)	*p*	*d*
Number of ACEs	3.2	(2.5)	3.0	(2.5)	3.8	(2.8)	1.8 (213)	.291	0.30
	N	*(%)*	*N*	*(%)*	*N*	*(%)*	χ^2 (*df*)	*p*	Phi
Relationship with parents									
Emotional neglect	35	(16.3)	25	(14.1)	10	(26.3)	3.4 (1)	.065	0.13
Physical neglect	77	(35.8)	63	(35.6)	14	(36.8)	0.0 (1)	.884	0.01
Family environment									
Alcohol and/or drug problems	95	(44.2)	77	(43.5)	18	(47.4)	0.2 (1)	.663	0.03
Incarceration	32	(14.9)	30	(16.9)	2	(5.3)	3.4 (1)	.066	0.13
Mental health problems	52	(24.2)	38	(21.5)	14	(36.8)	4.0 (1)	.045	0.14
Family violence	75	(34.9)	59	(33.3)	16	(42.1)	1.1 (1)	.303	0.07
Parental divorce	36	(16.7)	28	(15.8)	8	(21.1)	0.6 (1)	.433	0.05
Parental death	26	(12.1)	15	(10.2)	8	(21.1)	3.5 (1)	.062	0.13
Maltreatment									
Physical abuse	51	(23.7)	42	(23.7)	9	(23.7)	0.0 (1)	.995	0.00
Emotional abuse	74	(34.4)	62	(35.0)	12	(31.6)	0.2 (1)	.685	0.03
Sexual abuse	41	(19.1)	20	(11.3)	21	(55.3)	39.2 (1)	<.001	0.43
Peer violence (Bullying)	38	(17.7)	31	(17.5)	7	(18.4)	0.0 (1)	.894	0.01
Community violence	34	(15.8)	28	(15.8)	6	(15.8)	0.0 (1)	.996	0.00
Collective violence	15	(7.0)	15	(8.5)	—	—	3.5 (1)	.063	0.13

Note: *t* = Student's t; χ^2 = chi-square; *df* = degree of freedom; *p* = probability value; *d* = Cohen's d.

in men and 3.8 (*SD* = 2.8) in women. No statistically significant differences were found between men and women.

In terms of the most prevalent experiences in the total sample, 44.2% reported having been exposed to parental alcohol and/or drug problems. This was followed by experiences of family violence (34.9%) and emotional abuse (34.4%).

The most prevalent ACE in men was exposure to parental alcohol and/or drug problems, followed by physical neglect and

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emotional abuse. Women reported the highest prevalence of sexual abuse, followed by exposure to parental alcohol and/or drug problems and family violence.

Only two statistically significant differences were found between men and women regarding the type of ACE. Women reported a higher prevalence of family mental health problems (36.8% versus 21.5%; $p = .045$, Phi = 0.14) and sexual abuse (55.3% versus 11.3%; $p < .001$, Phi = 0.43) than men.

Comparison of Sociodemographic Data and Substance Motivating Treatment

Regarding sociodemographic variables, statistically significant differences between groups were found regarding employment ($p = .038$, Phi = 0.16) and a previous psychiatric history ($p = .019$, Phi = 0.22) (Table 3). No statistically significant differences between groups were found in the rest of the variables.

The group with 0 ACEs reported higher employment rates than the other two groups (1 or 2 ACEs and ≥ 3 ACEs). The group with 1 or 2 ACEs reported higher retirement rates than the group with ≥3 ACEs. Finally, the group with ≥3 ACEs reported higher unemployment rates and was more likely to have a previous psychiatric history than the group with 0 ACEs.

Comparison of Addiction Severity and Psychopathological Symptoms

The comparisons of addiction severity (EuropASI) and psychopathological symptoms (SCL-90-R, Maladjustment Scale and Columbia Scale) are shown in Table 4. Regarding the severity of addiction, statistically significant differences between groups were found in three areas of the EuropASI: Employment/Support ($p < .001$, Eta = 0.07), Psychiatric ($p < .001$, Eta = 0.08), and Family/Social area ($p = .01$, Eta = 0.05). The group with ≥3 ACEs showed significantly

Table 3. Comparisons of sociodemographic variables and substance motivating treatment

	Total sample (*N* = 200)		0 ACEs (a) (*n* = 36)		1 or 2 ACEs (b) (*n* = 57)		≥ 3 ACEs (c) (*n* = 107)					
	M	(*SD*)	*M*	(*SD*)	*M*	(*SD*)	*M*	(*SD*)	*F*[a]	*p*	Eta[b]	
Age	42.5	(11.5)	45.6	(10.7)	43.7	(12.6)	40.9	(10.9)	2.6	.075	0.03	
	N	(%)	*n*	(%)	*n*	(%)	*n*	(%)	χ^2 (*df*)	*p*	Cramer's V	One-to-one comparisons
Gender												
Male	167	(83.5)	32	(88.9)	50	(87.7)	85	(79.4)	2.8 (2)	.250	0.12	
Female	33	(16.5)	4	(11.1)	7	(12.3)	22	(20.6)				
Marital status												
Married/In a couple	63	(31.5)	12	(33.3)	21	(36.8)	30	(28.0)	6.1 (6)	.415	0.17	
Single	101	(50.5)	14	(38.9)	27	(47.4)	60	(56.1)				
Divorced	34	(17.0)	9	(25.0)	9	(15.8)	16	(15.0)				
Widowed	2	(1.0)	1	(2.8)	--	--	1	(0.9)				
Education level												
No studies	5	(2.5)	--	--	1	(1.8)	4	(3.7)	4.7 (6)	.579	0.15	
Primary	57	(28.5)	8	(22.2)	17	(29.8)	32	(29.9)				
Secondary	110	(55.0)	20	(55.6)	33	(57.9)	57	(53.3)				
University	28	(14.0)	8	(22.2)	6	(10.5)	14	(13.1)				
Employment situation												
Employed	66	(33.0)	18	(50.0)	16	(28.1)	32	(29.9)	10.2 (4)	.038	0.16	a > (b, c)*
Unemployed	111	(55.5)	15	(41.7)	30	(52.6)	66	(61.7)				c > a*
Retired	23	(11.5)	3	(8.3)	11	(19.3)	9	(8.4)				b > c*
Previous psychiatric history	95	(47.5)	11	(30.6)	24	(42.1)	60	(56.1)	8.0 (2)	.019	0.22	c > a*
Substance motivating treatment												
Alcohol	94	(47.0)	20	(55.6)	24	(42.1)	50	(46.7)	6.9 (6)	.326	0.19	
Cocaine	52	(26.0)	8	(22.2)	20	(35.1)	24	(22.4)				
Gambling	10	(5.0)	2	(5.6)	4	(7.0)	4	(3.7)				
Other	44	(22.0)	6	(16.7)	9	(15.8)	29	(27.1)				

Note: χ^2 = chi-square; *df* = degree of freedom; *p* = probability value.
[a]*F* = ANOVA;
[b]*Eta* = Effect Size;
*$p < .05$.

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Table 4. Comparisons of addiction severity and psychopathological symptoms

	Total sample (*N* = 200)		0 ACEs (*n* = 36)		1 or 2 ACEs (*n* = 57)		≥ 3 ACEs (*n* = 107)					
	M	(*SD*)	*M*	(*SD*)	*M*	(*SD*)	*M*	(*SD*)	*F*[a]	*p*	Eta[b]	One-to-one comparisons
EuropASI												
Medical	2.2	(1.7)	2.4	(1.8)	1.9	(1.4)	2.4	(1.9)	1.6	.208	0.02	
Employment/support	3.3	(1.9)	2.6	(1.9)	2.9	(1.8)	3.8	(1.8)	7.5	<.001	0.07	c > a,b**
Alcohol	4.0	(2.1)	3.8	(2.1)	4.1	(2.0)	4.2	(2.1)	2.3	.106	0.02	
Drug	4.0	(2.4)	3.5	(2.2)	3.8	(2.2)	4.3	(2.6)	1.9	.151	0.02	
Legal	2.1	(1.9)	1.8	(1.5)	1.8	(2.0)	2.4	(2.0)	2.3	.102	0.02	
Family/social	4.7	(1.9)	4.0	(2.2)	4.5	(1.9)	5.0	(1.8)	4.7	.010	0.05	c > a**
Psychiatric	4.2	(1.9)	3.5	(1.9)	3.7	(1.9)	4.7	(1.8)	8.6	<.001	0.08	c > a,b**
SCL–90-R												
GSI	69.4	(30.2)	54.1	(29.0)	67.3	(29.7)	75.7	(29.0)	7.6	<.001	0.07	b > a*; c > a**
PSDI	56.2	(28.4)	46.8	(25.6)	52.7	(29.8)	61.1	(27.7)	4.1	.017	0.04	c > a**
PST	71.6	(28.7)	57.7	(29.3)	70.2	(28.3)	77.0	(27.3)	6.5	.002	0.06	b > a*; c > a**
Somatisation	61.4	(31.5)	47.9	(29.7)	59.1	(31.3)	67.2	(30.9)	5.5	.005	0.05	c > a**
Obsession-compulsion	64.1	(31.4)	49.2	(29.5)	64.2	(30.0)	69.0	(31.4)	5.6	.004	0.05	b > a*; c > a**
Interpersonal sensibility	66.4	(31.4)	51.4	(29.7)	64.9	(31.2)	72.2	(30.5)	6.3	.002	0.06	b > a*; c > a**
Depression	68.6	(29.7)	56.6	(28.7)	67.7	(28.0)	73.1	(30.0)	4.4	.014	0.04	c > a**
Anxiety	64.6	(31.1)	47.6	(29.9)	62.4	(31.1)	71.5	(29.4)	8.8	<.001	0.08	b > a*; c > a**
Hostility	51.4	(31.9)	42.5	(29.8)	50.6	(31.3)	54.8	(32.6)	2.0	.133	0.02	
Phobic anxiety	48.7	(38.0)	33.0	(32.6)	46.9	(35.6)	54.9	(39.6)	4.7	.010	0.05	c > a**
Paranoid ideation	62.4	(34.6)	47.2	(33.9)	59.2	(34.1)	69.1	(33.4)	6.1	.003	0.06	c > a**
Psychoticism	66.5	(34.2)	51.4	(36.3)	62.8	(34.0)	73.5	(31.8)	6.5	.002	0.06	c > a**
Maladjustment												
Labour	2.7	(1.6)	2.1	(1.3)	2.4	(1.7)	3.0	(1.5)	4.4	.013	0.04	c > a**, b*
Social	3.0	(1.5)	2.6	(1.4)	2.9	(1.6)	3.2	(1.5)	2.8	.062	0.03	
Leisure	3.2	(1.6)	3.1	(1.5)	3.0	(1.8)	3.4	(1.6)	1.4	.251	0.01	
Partner	3.2	(1.7)	2.8	(1.7)	3.2	(1.7)	3.4	(1.7)	1.9	.148	0.02	
Family	3.3	(1.7)	2.7	(1.9)	3.0	(1.8)	3.6	(1.5)	4.4	.013	0.04	c > a**, b*
General	4.0	(1.1)	3.8	(1.2)	3.9	(1.2)	4.1	(1.0)	1.5	.218	0.02	
Total maladjustment	19.4	(6.8)	17.1	(6.6)	18.4	(7.2)	21.0	(6.4)	4.8	.009	0.05	c > a**, b*
	N	*(%)*	*n*	*(%)*	*n*	*(%)*	*n*	*(%)*	χ^2 (*df*)	*p*	Cramer's V	One-to-one comparisons
Columbia												
Suicidal ideation	111	(55.5)	12	(33.3)	24	(42.1)	75	(70.1)	20.5 (2)	<.001	0.32	c > a, b**
Suicide attempts	43	(21.5)	1	(2.8)	10	(17.5)	32	(29.9)	12.5 (2)	.002	0.25	c, b > a**

Note: χ^2 = chi-square; *df* = degree of freedom; *p* = probability value.
[a]*F* = ANOVA;
[b]Eta = Effect Size.
*$p < .05$;
**$p < .01$;

higher mean scores in the Employment/Support and Psychiatric areas than the other two groups. Compared to the group with 0 ACEs, the group with ≥3 ACEs reported higher mean scores in the Family/Social area.

With regard to the psychopathological symptoms, statistically significant differences between groups were found in all of the SCL-90-R dimensions, except in hostility. Compared to the group with 0 ACEs, the group with 1 or 2 ACEs and the group with ≥3

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ACEs reported higher mean scores for the GSI, PST, obsession-compulsion, interpersonal sensibility, and anxiety dimensions. Finally, the group with ≥3 ACEs showed higher mean scores in the PSDI, somatization, depression, phobic anxiety, paranoid ideation, and psychoticism dimensions than the group with 0 ACEs.

Regarding maladjustment, statistically significant differences were found between groups in two areas: labor (p = .013, Eta = 0.04) and family (p = .013, Eta = 0.04). The group with ≥3 ACEs reported higher mean scores in the labor and family areas and showed higher scores in total maladjustment compared to the other two groups.

Statistically significant differences were found in the Columbia Scale (suicidal ideation: $p < .001$, $V = 0.32$; suicide attempts: $p = .002$, $V = 0.25$). The group with ≥3 ACEs reported higher scores for lifetime suicidal ideation and suicide attempts than the other two groups.

Variables Related to the Group with 3 or More ACEs

Three logistic regression analyses (total sample, men and women) were conducted to identify the variables related to ≥3 ACEs (Table 5). In the total sample, the variables related to the group with ≥3 ACEs were higher severity in the Psychiatric and Legal areas of the EuropASI and the presence of lifetime suicidal ideation.

In men, two variables were related to ≥3 ACEs: higher severity in the Family/Social area of the EuropASI and the presence of lifetime suicidal ideation. In women, the variable related to ≥3 ACEs was a higher severity in the Employment/Support area of the EuropASI.

Table 5. Variables related to 3 or more ACEs

Logistic regression (Total sample)			
Dependent variable = Total Number of ACEs; 0 = 0–2 ACEs; 1 = ≥ 3 ACEs			
(n = 200)			
Variable	**OR**	***p***	**95% CI**
Psychiatric area (EuropASI, ISR)	1.2	.030	(1.0–1.5)
Legal area (EuropASI, ISR)	1.2	.021	(1.0–1.5)
Lifetime suicidal ideation	3.1	<.001	(1.6–6.0)
Constant	0.1	<.001	
Adjusted R^2 = .237			
67.7% correctly classified			
Logistic regression (men)			
Dependent variable = Total Number of ACEs; 0 = 0–2 ACEs; 1 = ≥ 3 ACEs			
(n = 167)			
Variable	**OR**	***p***	**95% CI**
Family/social area (EuropASI, ISR)	1.2	.026	(1.0–1.5)
Lifetime suicidal ideation	3.5	<.001	(1.8–6.8)
Constant	0.2	.002	
Adjusted R^2 = .160			
64.8% correctly classified			
Logistic regression (women)			
Dependent variable = Total Number of ACEs; 0 = 0–2 ACEs; 1 = ≥ 3 ACEs			
(n = 33)			
Variable	**OR**	***p***	**95% CI**
Employment/support area (EuropASI, ISR)	1.7	.019	(1.1–2.7)
Constant	0.1	.021	
Adjusted R^2 = .470			
75.8% correctly classified			

Note: EuropASI = European version of the Addiction Severity Index scale; ISR = Interviewer Severity Rate

Discussion

This study had two objectives. First, to determine the prevalence of ACEs in a specific Spanish SUD population and, second, to analyze the differential profiles of people seeking treatment for SUD with and without ACEs according to gender. The figures obtained show the high prevalence of ACEs among people in treatment for SUD and the greater severity in addiction and psychopathological variables for people with ≥3 ACEs compared to those with a lower number of ACEs. Therefore, these findings support the first and second hypotheses of the study.

In this study, the prevalence of at least one ACE was 82.3%. This is consistent with prevalence data from other studies in the same population, which range from 75% to 100% (Chandler et al., 2018; Martin et al., 2023; Naal et al., 2018; Philogene-Khalid et al., 2020; Stein et al., 2017), and supports the relationship between ACEs and SUD (Leza et al., 2021). In addition, more than half of the sample (54.4%) reported 3 or more ACEs, while 14.0% reported only one ACE. These figures are similar to those obtained in previous studies (LeTendre & Reed, 2017; Meadows et al., 2023; Poulsen et al., 2025). Therefore, ACEs are common and prevalent in this specific population.

The most prevalent type of ACE in the whole sample was alcohol and/or drug abuse in the family (44.2%), followed by physical neglect (35.8%) and family violence (34.9%). However, previous studies found that the most common ACEs in this population were parental divorce, having one or no parents, or unspecified household dysfunction (Chandler et al., 2018; Kiburi et al., 2018; Martin et al., 2023). Furthermore, these results indicate that the experience of violence is frequent in people with SUD. These findings are consistent with previous studies that have shown a relationship between violence and addiction (Fernández-Montalvo et al., 2015). Therefore, our figures are important because they allow us to focus on different childhood-specific areas of prevention, such as promoting healthy parenting styles for people with substance use problems.

From a gender perspective (second objective), in this study women did not present a higher number of ACEs or a higher severity profile than men. Therefore, these results did not support the third hypothesis of the study.

The comparisons of the prevalence of each type of ACE between men and women, two specific differences were found. Women reported a higher prevalence of sexual abuse and family mental health problems than men. The first finding is similar to other studies that have found that a history of sexual abuse and/or other types of maltreatment is more common in women than in men (Daigre et al., 2015; Fernández-Montalvo et al., 2015; Haro et al., 2021; Pereira-Morales et al., 2017). The second finding is also similar to that found in a specific study on the presence of mental health problems in the family in people with SUD (López-Goñi et al., 2023). These experiences can make it difficult to seek help and may be related to the lower presence of women in addiction treatment programs (Agterberg et al., 2020). Furthermore, although

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the percentage of women is lower than that of men, women have been found to present a more severe profile, both in terms of addiction and associated psychopathological symptoms (Fernández-Montalvo et al., 2014), and to drop out of treatment at a higher rate than men (Fernández-Montalvo et al., 2017). Therefore, gender is an important factor to consider because of the differences between men and women with SUD.

Patients with a greater number of ACEs showed greater severity in several of the variables studied. Specifically, they showed a greater need for treatment in the Employment/Support, Family/Social, and Psychiatric areas of the EuropASI, higher scores in all psychopathological symptoms except hostility, greater problems of maladjustment in the labor and family areas, and higher rates of lifetime suicidal ideation and suicide attempts. Currently, there are no studies that have explored the differences between patients with and without ACEs in SUD populations. However, studies have shown that people with ACEs are more likely to develop both physical (Afifi et al., 2016; Campbell et al., 2016; Felitti et al., 1998; Hughes et al., 2017; Mersky et al., 2013) and mental health problems (Cicchetti & Handley, 2019; Goodman et al., 2022; Mersky et al., 2018; Stern & Thayer, 2019) than those without ACEs. In addition, a recent general population study showed that men and women present different patterns of ACEs, with women having a more complex and varied history of ACEs than men (Haahr-Pedersen et al., 2020). As a result, our findings are consistent with the consequences of ACEs in different domains.

Not all children exposed to ACEs at an early age will develop mental health problems. In fact, research has shown that individual characteristics and family, social, and community support can mitigate long-term negative effects (Lopez et al., 2021). The analysis of these protective factors can guide ACE prevention policies. In the area of SUD, certain ACEs may be associated with poorer therapeutic evolution. The study of these relationships can contribute to the development of more accurate, tailored interventions for improving treatment outcomes.

The results of this study should be interpreted with caution. Due to the nature of the study, causal associations cannot be established. Nevertheless, the associations found are relevant for developing ACE prevention strategies and show results that fill a research gap. The configuration of the sample itself is another issue that should be considered. Because few women were included in the sample, the results obtained can mainly be generalized to male-addicted patients. It is true that almost all studies about SUD include largely male samples, but it should nevertheless be considered when generalizing the obtained results. Another limitation is that the assessment of ACEs should take into account the age of onset and cessation, frequency (e.g., chronic/transient), severity, gender, and the co-occurrence of different ACEs. These aspects should be considered in future research. In addition, a promising line of research is the study of the therapeutic evolution of patients with ACEs in SUD treatment, taking gender into account.

Despite these limitations, this study presents two main strengths. First, this is the second study on the prevalence of ACEs conducted in Spain (Carlson et al., 2020) and the first including people with SUD (Leza et al., 2021). Second, the face-to-face interviews increase the accuracy of the results found because the therapist can explore more deeply relevant aspects showed by the patient. According to the scoping review of Leza et al. (2021), most of the previous studies have assessed ACEs through self-reported instruments. Thus, our findings are novel and relevant for the field and provide information that has not been addressed before.

Conclusion

In conclusion, the specific assessment of ACEs carried out in this study confirms the high relevance of these experiences and the great impact they have on the lives of people with SUD. Therefore, this study supports the need to continue addressing ACEs in SUD treatment programs and/or childhood prevention programs to improve tailored interventions.

Data availability statement. Data not available due to privacy/ethical restrictions.

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