

Article

## Suicidal Behavior, Mental Health, and Stressful Life Events Among Adolescents

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### ABSTRACT

**Background:** Adolescence is an important period for development, when psychological problems may appear, including suicidal behavior. Experiencing Stressful Life Events (SLEs) is associated with increased risk of such problems, although the impact of distinct types of SLEs has seldom been examined. This study aims to analyze associations between different SLEs, psychological problems, subjective well-being, and suicidal behavior in adolescents. A new instrument was developed—the Stressful Life Events Checklist for Adolescents (SLECA)—where SLEs were classified as: minor/major, dependent/independent, interpersonal/non-interpersonal, and chronic/episodic. **Method:** Two waves of data collection were included. Wave 1 involved 5,610 adolescents whereas wave 2 involved 2,312 adolescents. **Results:** Major dependent interpersonal episodic SLEs were strongly associated with externalizing problems. Major dependent non-interpersonal episodic SLEs showed the highest association with attention-deficit/hyperactivity problems. Major independent chronic SLEs were associated with low subjective well-being, and internalizing problems. Peer problems and academic SLEs were associated with psychological problems and low subjective-well-being. Controlling for mental health variables, suicidal behavior was related to major independent chronic SLEs and to those linked to victimization and sexuality-related problems. **Conclusions:** The SLECA is a useful instrument for assessing SLEs in adolescents, unravelling the interrelations between SLEs, mental health, and suicidal behavior.

## Conducta Suicida, Salud Mental y Acontecimientos Vitales Estresantes en Adolescentes

### RESUMEN

**Antecedentes:** La adolescencia es un periodo importante del desarrollo en el que pueden aparecer problemas psicológicos, incluyendo conducta suicida. Además, experimentar acontecimientos vitales estresantes (AVEs) puede contribuir a su aparición, aunque el impacto de distintos tipos de AVEs ha sido escasamente examinado. Este estudio pretende analizar asociaciones entre diferentes AVEs, problemas psicológicos, bienestar subjetivo y conducta suicida en adolescentes. Se desarrolló un nuevo instrumento —*Stressful Life Events Checklist for Adolescents* (SLECA)— donde los AVEs se clasificaron como: leves/graves, dependientes/independientes, interpersonales/no-interpersonales y crónicos/episódicos. **Método:** Se incluyeron dos oleadas. 5.610 adolescentes participaron en la primera y 2.312 en la segunda. **Resultados:** Los AVEs graves-dependientes-interpersonales-episódicos se asociaron fuertemente a problemas exteriorizados; los AVEs graves-dependientes-no-interpersonales-episódicos mostraron la más alta relación con problemas de atención e hiperactividad; y los AVEs graves-independientes-crónicos se asociaron tanto a bajo bienestar subjetivo como a problemas interiorizados. Los AVEs académicos y relacionados con problemas con los iguales se relacionaron con problemas psicológicos y bajo bienestar subjetivo. Controlando por variables de salud mental, la conducta suicida se asoció a AVEs graves-independientes-crónicos y a los relacionados con victimización y problemas con la sexualidad. **Conclusiones:** El SLECA es un instrumento útil para evaluar AVEs en adolescentes, desenredando las interrelaciones entre AVEs, salud mental y conducta suicida.

#### Palabras clave:

Acontecimientos vitales estresantes  
Problemas psicológicos  
Bienestar subjetivo  
Conducta suicida  
Adolescentes

In the transition from childhood to adolescence, the impact of stressors and affective sensitivity increases (Lee et al., 2014). Reductions in self-regulation (Denissen et al., 2013) and increases of social demands and conflicts, such as family conflicts (Eslava et al., 2023), makes this life stage a critical period for mental problems (Patton et al., 2014; Polanczyk et al., 2015). Accordingly, universal school-based prevention programs are developed for adolescents (e.g., González-Roz et al., 2023). The lifetime prevalence of mental disorders in children and adolescents is estimated at around 13% (Polanczyk et al., 2015). The World Health Organization's assertion that 50% of mental disorders begin before the age of 14 has recently been endorsed by a meta-analysis (Solmi et al., 2022). The severity of mental health problems also increases during adolescence: only 25% of children with a mental disorder are characterized as having a serious emotional disorder while the corresponding frequency among 17-year-olds is 70% (Costello et al., 2003). Furthermore, the onset of psychopathological problems in adolescence may be a risk factor for mental disorders in adulthood (Patton et al., 2014).

Additionally, suicide is one of the world's leading causes of death among adolescents and young people (WHO, 2021). In Spain, suicide is the main cause of death between 15 and 29 years old with more than 300 deaths each year (Spanish Foundation for Suicide Prevention, 2022). Suicide is a complex phenomenon in which multiple biological, psychological, and social factors dynamically contribute to its etiology (Fonseca-Pedrero et al., 2022; Turecki & Brent, 2016). In this manner, despite methodological limits in research, such as the uncommon examination of multiple risk factors as a whole (Franklin et al., 2017), prior Suicidal Thoughts and Behaviors (STB) and Nonsuicidal Self-Injury (NSSI) are considered proximal risk factors related to suicide attempt (Franklin et al., 2017; Turecki & Brent, 2016). In this sense, NSSI increase the risk of STB regardless of mental problems (Kiekens et al., 2018). Recently, a study focused on Spanish adolescents found that STB and NSSI are very common, showing a lifetime prevalence of NSSI thoughts and behavior of 19.9% and 16.8% respectively, whereas, regarding the lifetime prevalence of STB, 28.5% of Spanish adolescents reported suicidal ideation, 27.8% suicide plan, and 6.3% suicide attempt (Faura-García et al., 2022). Accordingly, during the last 12-month, 19.5% of children and adolescents worldwide displayed NSSI, 14.2% suicidal ideation, 7.5% suicide plan, and 4.5% suicide attempt (Lim et al., 2019). Regardless of psychological problems, such as those englobed in the internalizing spectrum widely studied (Franklin et al., 2017; Turecki & Brent, 2016), the study of contextual variables influencing suicidal behavior may emerge as important targets for preventive and intervention programs (Al-Halabi & Fonseca-Pedrero, 2021; Fonseca-Pedrero et al., 2022; Turecki & Brent, 2016).

Thus, experiencing Stressful Life Events (SLEs) during adolescence has emerged as a crucial factor associated with suicide ideations and suicide risk (Howarth et al., 2020), externalizing and internalizing psychological problems (March-Llanes et al., 2017), and subjective well-being (Luhmann et al., 2012). A possible explanation is that experiencing SLEs leads to readjustment through behavioral and physiological responses to adapt to the new challenging situation (Cohen, 2016). The most influential

theoretical perspective of SLEs is the *threat or harm* approach (Cohen et al., 2019). According to this theoretical framework, an SLE is considered harmful or threatening based on the cumulative negative effects of SLEs and the degree of impact of each one (Cohen, 2016). Several self-report checklists exist and research in SLE assessment is characterized by heterogeneity (e.g., see Motrico et al., 2017), making it hard to unravel clear patterns among findings. In an effort to provide theory-based guidance on SLE assessment, SLEs have been categorized according to:

1. Severity, which refers to the degree of distress generated by the event (e.g., Moya-Higueras et al., 2020; Vrshek-Schallhorn et al., 2015).
2. Individual dependency, that is, whether the event occurs in part because of the individual's characteristics or behaviors or is mostly independent of the person (e.g., Hankin & Abramson, 2002; Kendler et al., 1999; Moya-Higueras et al., 2020; Rudolph et al., 2000; Vrshek-Schallhorn et al., 2015).
3. Interpersonal content, whether the event occurs in or affects social relationships or not (e.g., Mineka et al., 2020; Moya-Higueras et al., 2020; Rudolph et al., 2000; Vrshek-Schallhorn et al., 2015).
4. Temporality, that is, whether the event is more chronic/permanent or more sporadic (Hammen, 1987; Rudolph et al., 2000).

Unfortunately, few studies have examined the degree to which these factors are differentially related to mental health (March-Llanes et al., 2017). The exceptions have shown that major dependent non-interpersonal SLEs show the strongest associations with externalizing problems, whereas major independent non-interpersonal SLEs are more strongly associated with internalizing problems and low satisfaction with life among adolescents (Moya-Higueras et al., 2020). Accordingly, Rudolph et al. (2000), in a small clinical sample of youth, found that interpersonal (dependent and chronic) SLEs were associated with major depressive disorder, whereas non-interpersonal (dependent and chronic) SLEs were related to externalizing disorders. Research has especially focused on the link between SLEs and internalizing problems, mainly depression, with longitudinal research showing that dependent SLEs and to a lesser extent independent SLEs predict major depression in adults (Kendler et al., 1999). Accordingly, major independent and chronic interpersonal SLEs were consistent predictors of depression onset in two samples transitioning into emerging adulthood (Vrshek-Schallhorn et al., 2015). Similar findings have been found among adolescents, where interpersonal SLEs have consistently predicted subsequent internalizing symptoms, and vice versa. Thus, major interpersonal and non-interpersonal SLEs, as well as chronic interpersonal SLEs, display the largest effects on depression among adolescents (Mineka et al., 2020). Furthermore, in a study that employed multilevel modelling approaches, it was observed that SLEs increased depressive symptoms, whereas depressive symptoms, in turn, increased the risk of experiencing dependent interpersonal SLEs (Jenness et al., 2019). Similarly, dependent interpersonal stressors have been shown to predict physical and social anxiety in adolescence (Schneider et al., 2021). In terms of suicidal behavior, a study conducted among patients with alcohol use disorders found that major interpersonal SLEs recently occurred increased the risk for suicide attempt (Conner et al., 2012).

Another typology of SLEs aggregates SLEs into psychosocial domains (often using factor analysis), such as romantic relationships, legal problems, or health issues (e.g., Motrico et al., 2013). Despite the theoretical flaws in employing this methodology to group SLEs, especially among some episodic SLEs (e.g., loss of a relative), the aggregation of SLEs by life domains can be useful when examining relations with mental health problems and other outcomes, facilitating, in turn, the development of guidelines for prevention and treatment programs, and providing a more parsimonious interpretation of data across SLEs research.

The aim of the present study was to examine the role of different subtypes of SLEs on suicidal behavior and other mental health outcomes in a large Spanish adolescent sample assessed in two waves. For this purpose, we developed and validated a new measure, the Stressful Life Events Checklist for Adolescents (SLECA), where SLEs were classified in terms of severity (major vs minor), individual dependency (dependent vs independent), interpersonal content (interpersonal vs non-interpersonal), and temporality (chronic vs episodic). Associations between each type of SLEs and psychological problems (externalizing, attention-deficit/hyperactivity, and internalizing problems), subjective well-being, and suicidal behavior were examined. The psychosocial domains where the SLEs occurred (e.g., peer problems, sexuality, victimization, ...) were also examined in relation to mental health.

## Method

### Participants

The sample at the first wave comprised 5,610 adolescents ( $M_{age} = 14.19$ ,  $SD = 1.53$ , aged from 12 to 18 years, 50.7% girls), whereas at second wave, 6 months later, a sample of 2,312 adolescents participated ( $M_{age} = 13.99$ ,  $SD = 1.40$ , aged from 12 to 19 years, 52% girls). The vast majority of participants at the second wave had participated at wave 1 (94.5%), whereas the rest were participants from the same secondary schools who did not attend the first wave. Both waves were conducted before the COVID-19 outbreak.

In terms of sociodemographic characteristics and mental health outcomes, no differences or very trivial differences were observed between waves (see the supplementary material Appendix S1).

### Instruments

*Stressful Life Events Checklist for Adolescents (SLECA)*. Based on a previous instrument which evaluates life events in different life domains (Sandin et al., 2008), the items of the SLECA were developed to apply to adolescents. The process conducted in the development of the SLECA and in items' categorization is depicted in the supplementary material Appendix S2. The categorization of the items from the SLECA is exhibited at supplementary Table S1. In order to simplify data for the subsequent analyses, the effect of minor SLEs on mental health outcomes while accounting for major events was examined (data available on request): minor SLEs presented a very small effect on psychopathological problems compared to major events, which is in line with previous research (Conner et al., 2012; Dohrenwend, 2006; Moya-Higueras et al., 2020; Vrshek-Schallhorn et al.,

2015). Therefore, only major SLEs were included but information for all other typologies were retained (i.e., dependent/independent, interpersonal/non-interpersonal, chronic/episodic). Additionally, the major SLEs were grouped into psychosocial domains according to exploratory factor analyses conducted on both waves (data presented in the supplementary material, see Tables S2 and S3) and prior life domains categorization during scale development; none of the major SLEs was deleted. The final SLEs included in analyses and their corresponding typologies are presented according to psychosocial domains in supplementary Table S4. In order to explore differential effects of SLEs according to temporary framework (i.e., whether the same SLEs have higher effects if they recently occur), at wave 1 it was asked for lifetime SLEs' occurrence, whereas at wave 2 SLEs during the last 12 months were reported.

*Pediatric Symptom Checklist-Youth Self-Report (PSC-17-Y; Gardner et al., 1999)*. The Spanish version (Piqueras et al., 2021) of the 17-item version of the *Pediatric Symptom Checklist-Youth Self-Report (PSC-17-Y; Gardner et al., 1999)* was used to assess mental health difficulties. The instrument lets respondents rate different symptoms using 3-point Likert scales (0 = *never*, 1 = *sometimes*, and 2 = *often*) across 3 factors of psychopathological problems: externalizing (7 items), attention-deficit/hyperactivity problems (4), and internalizing problems (5). Item 13, corresponding to externalizing problems was deleted due to its poor factor loading. Internal consistency of the items of the scales are presented in the supplementary material Table S5.

*Mental Health Continuum-Short Form (MHC-SF; Keyes et al., 2008)*. The MHC-SF measures subjective well-being during the last month across 3 subfactors: psychological, emotional, and social well-being, by 14 items on a 6-point Likert scale (from 1 = *never* to 6 = *always*). The psychometric properties of the scale have received support among Spanish adolescents (Piqueras et al., 2022). In the present study, the total score of subjective well-being was employed. Internal consistency is presented in the supplementary material Table S5.

Information about suicidal behavior and self-harm was assessed by means of a self-report measure based on the suicidal behaviors and self-injury assessment instrument developed as part of the UNIVERSAL study (Blasco et al., 2016), which in turn was developed from the combination of the *C-SSRS (Posner et al., 2011)* and the *Self-Injurious Thoughts and Behaviors Interview (SITBI; Nock et al., 2007)*, and that has demonstrated validity in young Spanish university students (Blasco et al., 2016). We used the items related to NSSI: "Have you ever thought about trying to harm yourself without intending to die/take your life?", ideation: "Have you ever thought of taking your life?", detailed plans: "Have you ever thought of a detailed plan on how to take your life"?, and attempt: "Have you ever tried to kill yourself?"; at the first wave with the following response options: "yes", "no", and "I do not wish to answer" asking for the lifetime. At the second wave, the number of occurrence of these variables in the last 12 months were operationalized as dummy variables ("yes" and "no") and NSSI was asked as behavior ("Have you ever tried to harm yourself without intending to die/take your life?"). Due to the facts that NSSIs are at the same level as prior STBs when predicting suicide attempts (Franklin et al., 2017) and that a homogenous pattern of correlations is found between different NSSI and STB variables and SLEs (see

Table S6); a single factor of suicidal behavior considering all the suicidal and self-harm behaviors was examined and obtained in both waves by applying EFA with Varimax rotation (Marques-Feixa et al., 2021). The KMO statistic was 0.778 and .0752 for waves 1 and 2 respectively. The inspection of the eigenvalues and scree plots suggested the uniqueness of the factor.

## Procedure

The project was approved by the university's Project Evaluation Committee (DPS.JPR.02.17). A quota sampling was conducted in 2 areas of southeastern Spain: the province of Alicante (PA) belonging to the Valencian Community, and the Autonomous Community of Region of Murcia (RM). A random selection of secondary schools was performed based on ownership (public/non-public schools; secular/Catholic schools) and regional geographical areas (9 areas in PA and 21 in RM). After the directors of 100 centers had been contacted, 13 from PA and 21 from RM accepted to participate: 34 secondary schools (65.2/34.8% of public/non-public and 87/13% of secular/Catholic schools of the total number of centers). The quota sampling method and the large sample recruited ensured the representativeness of our sample concerning the universe population of adolescents aged 12-18 years in the regions where the study was conducted.

Data collection was self-reported through the online survey tool LimeSurvey (LimeSurvey GmbH, Hamburg, Germany) with the help and monitoring of research staff. There was no option to leave missing values. Participants took part in the research voluntarily without any incentive and the schools received a feedback report. The parents/legal guardians of the participants, as well as themselves, provided informed consent in accordance with the Declaration of Helsinki.

After the examination of variables' frequency distribution, no outliers were detected. In any case, the large sample size in both waves would mitigate the possible influence of outliers.

## Data Analysis

Data analysis was conducted with SPSS, version 28. McDonald's  $\omega$  was estimated through a macro for SPSS (Hayes & Coutts, 2020). The criterion validity of the SLECA was tested using Pearson correlations between SLEs (categorized in terms of severity, individual dependency, interpersonal content, and temporality) and mental health variables (externalizing, attention-deficit/hyperactivity, and internalizing problems, subjective well-being, and suicidal and self-harm behaviors) at both waves. Subsequently, multiple linear regression analyses were performed to examine the role of major SLEs according to their typology and separately to psychosocial domains on psychopathological problems and subjective well-being, controlling for gender and age. In addition, the role of major SLEs according to their typology and separately to psychosocial domains was examined on the suicidal behavior factor through multiple linear regression analyses controlling for gender, age, psychopathological problems, and subjective well-being in previous steps.

The supplementary material is openly available in Open Science Framework (OSF) at [https://osf.io/ba63n/?view\\_only=d659b1a1835d4ffc6ac5195035158e62](https://osf.io/ba63n/?view_only=d659b1a1835d4ffc6ac5195035158e62).

## Results

### SLECA's Validity Evidence Based on Relations to Other Variables

Pearson bivariate correlations between lifetime and recent (during the last 12 months) SLEs (totally and by typology) and psychological problems and subjective well-being at both waves are shown in the supplementary material Table S5. For externalizing and attention-deficit/hyperactivity problems, similar correlation coefficients were observed at both waves, reaching the highest magnitude with dependent SLEs. Conversely, stronger coefficients were found between lifetime SLEs and internalizing problems at the first wave, whereas the aggregate SLE score based on experiences during the last 12 months, in the second wave, was more strongly related to lower subjective well-being. Significant associations of SLEs were also observed with all the suicidal and self-harm behaviors (see supplementary material Table S6). Thus, the strongest relationships were found at first wave, asking for lifetime occurrences of SLEs and suicidal and self-harm behaviors, with chronic SLEs.

### Major SLEs and Mental Health

When the combination of major SLEs as a function of dependent/independent, interpersonal/non-interpersonal, and chronic/episodic typologies were simultaneously considered, regression analyses on psychological problems and subjective well-being (see Table 1) showed that major dependent interpersonal episodic SLEs (e.g., "Arguments with my group of friends") presented a moderate association with externalizing problems, and significant but smaller associations with attention-deficit/hyperactivity, internalizing problems, and low subjective well-being, especially when using SLEs during the last 12 months at the second wave. Apart from that, major dependent non-interpersonal episodic SLEs (consisted of one SLE "Failing an exam or getting lower grades than expected") showed the strongest association with attention-deficit/hyperactivity problems at both waves. On the other hand, major independent chronic—both interpersonal and non-interpersonal—(e.g., "Bullying or cyberbullying" or "Financial problems in my family") were associated with low subjective well-being and internalizing problems.

Regarding major SLEs according to different psychosocial domains (see Table 2), peer problem SLEs presented associations with all the psychopathological problems and subjective well-being, especially when using SLEs during the last 12 months at the second wave, where the strongest associations were found in relation to externalizing and internalizing problems. In addition, academic SLEs also showed relevant associations with all the psychopathological problems, and with subjective well-being negatively. A particularly strong association was observed with attention-deficit/hyperactivity problems (with  $\beta$  values around .30 at both waves). Furthermore, both lifetime and recent health related SLEs (e.g., "Physical and/or mental health problems that I suffer from", or "Physical and/or mental health problems that someone important to me suffer from") displayed a significant association with internalizing problems. Additionally, abortion SLEs ("Abortion mine or of my partner/ex-partner") showed positive associations with all the mental health outcomes using SLEs during the last 12 months (see Table 2).

**Major SLEs, Mental Health, and Suicidal Behavior**

Specific typologies of major SLEs together with mental health indicators were related to suicidal behavior (see Table 3). Accordingly, suicidal behavior consistently presented, at both waves, associations with internalizing problems, low subjective well-being, female gender (this last to a lesser extent), and major

independent chronic SLEs (including interpersonal and non-interpersonal SLEs).

As for SLEs aggregated into psychosocial domains, suicidal behavior was consistently related to victimization SLEs (e.g., “Sexual harassment, abuse, and/or aggression”), and sexuality SLEs (e.g., “Sexual orientation-related problems”), controlling for gender, age, psychopathological problems, and subjective well-being (see Table 4).

**Table 1**  
Regression Analyses of Major SLEs According to Different Typologies on Psychological Problems and Subjective Well-Being

		Externalizing problems				Attention-deficit/hyperactivity problems				Internalizing problems				Subjective well-being			
		Wave 1	p	Wave 2	p	Wave 1	p	Wave 2	p	Wave 1	p	Wave 2	p	Wave 1	p	Wave 2	p
Step 1	Gender	-.07	<.001	-.06	.002	.04	.020	.10	<.001	.18	<.001	.26	<.001	-.04	.007	-.13	<.001
	Age	.14	<.001	.04	.051	.18	<.001	.09	<.001	.25	<.001	.15	<.001	-.17	<.001	-.12	<.001
	R <sup>2</sup> change	.03	<.001	.01	.002	.03	<.001	.02	<.001	.10	<.001	.09	<.001	.03	<.001	.03	<.001
Step 2	M D In C	.04	.010	-.01	.581	.01	.432	.02	.452	.03	.109	-.07	.004	-.02	.290	.09	<.001
	M D In EP	.24	<.001	.37	<.001	.10	<.001	.15	<.001	.14	<.001	.18	<.001	-.11	<.001	-.15	<.001
	M D NIn C	.02	.139	.01	.733	.03	.110	-.02	.392	-.03	.023	-.11	<.001	.01	.730	.04	.092
	M D NIn EP	.11	<.001	.09	<.001	.20	<.001	.22	<.001	.05	.004	.07	.002	-.06	.001	-.09	<.001
	M I In C	.07	.001	.06	.036	.02	.354	.03	.333	.14	<.001	.12	<.001	-.08	<.001	-.14	<.001
	M I In EP	-.03	.096	-.10	<.001	.00	.827	-.01	.667	.05	.003	.05	.065	.02	.328	-.01	.673
	M I NIn C	.04	.012	.01	.570	.07	<.001	.05	.029	.14	<.001	.13	<.001	-.15	<.001	-.15	<.001
	M I NIn EP	.10	<.001	.05	.039	.16	<.001	.12	<.001	.10	<.001	.04	.072	-.12	<.001	-.08	<.001
	R <sup>2</sup> change	.14	<.001	.16	<.001	.14	<.001	.17	<.001	.16	<.001	.14	<.001	.11	<.001	.15	<.001
	R <sup>2</sup> total	.17		.17		.17		.19		.26		.23		.14		.18	

Note. Wave 1: Lifetime SLEs. Wave 2: SLEs during the last 12 months.  
M = major, D = dependent, I = independent, In = interpersonal, NIn = non-interpersonal, C = Chronic, EP = Episodic.  
1 = boys, 2 = girls.  
Standardized beta coefficients are reported.

**Table 2**  
Regression Analyses of Major SLEs According to Different Psychosocial Domains on Psychological Problems and Subjective Well-Being

		Externalizing problems				Attention-deficit/ hyperactivity problems				Internalizing problems				Subjective well-being			
		Wave 1	p	Wave 2	p	Wave 1	p	Wave 2	p	Wave 1	p	Wave 2	p	Wave 1	p	Wave 2	p
Step 1	Gender	-.07	<.001	-.06	.002	.04	.020	.10	<.001	.18	<.001	.26	<.001	-.04	.007	-.13	<.001
	Age	.14	<.001	.04	.051	.18	<.001	.09	<.001	.25	<.001	.15	<.001	-.17	<.001	-.12	<.001
	R <sup>2</sup> change	.03	<.001	.01	.002	.03	<.001	.02	<.001	.10	<.001	.09	<.001	.03	<.001	.03	<.001
Step 2	Peer problems	.20	<.001	.30	<.001	.07	<.001	.14	<.001	.22	<.001	.26	<.001	-.15	<.001	-.20	<.001
	Victimization	.02	.423	.07	.009	-.01	.534	-.02	.331	.08	<.001	.05	.058	-.04	.036	-.12	<.001
	Love relationship	.05	.001	.04	.104	.03	.115	.07	.004	.03	.032	.01	.789	-.02	.313	.05	.056
	Sexuality	.04	.014	.06	.025	.02	.321	.04	.099	.05	<.001	.04	.122	-.07	<.001	-.05	.061
	Abortion	.02	.178	-.13	<.001	.03	.058	-.10	<.001	.00	.904	-.16	<.001	-.02	.273	.10	<.001
	Death	-.01	.409	-.04	.087	.01	.624	-.01	.690	-.03	.046	-.03	.096	.06	<.001	.04	.046
	Health	.07	<.001	.02	.455	.08	<.001	.10	<.001	.11	<.001	.14	<.001	-.06	.001	-.09	<.001
	Academic	.17	<.001	.13	<.001	.32	<.001	.31	<.001	.13	<.001	.11	<.001	-.17	<.001	-.16	<.001
	Legal	.05	.004	.01	.791	.04	.020	.03	.211	.04	.015	.03	.118	-.07	<.001	-.08	<.001
	R <sup>2</sup> change	.14	<.001	.16	<.001	.15	<.001	.19	<.001	.16	<.001	.16	<.001	.11	<.001	.16	<.001
R <sup>2</sup> total	.17		.17		.18		.21		.26		.25		.14		.19		

Note. Wave 1: Lifetime SLEs. Wave 2: SLEs during the last 12 months.  
1 = boys, 2 = girls.  
Standardized beta coefficients are reported.

**Table 3**

*Regression Analyses of Major SLEs According to Different Typologies on Suicidal Behavior Controlled for Psychological Problems and Subjective Well-Being*

		Suicidal Behavior			
		Wave 1	p	Wave 2	p
Step 1	Gender	.09	< .001	.12	< .001
	Age	.13	< .001	-.02	.369
	R <sup>2</sup> change	.03	< .001	.02	< .001
Step 2	EXT	.02	.308	.09	< .001
	ADH	-.01	.662	-.01	.808
	INT	.32	< .001	.24	< .001
	SW	-.15	< .001	-.21	< .001
	R <sup>2</sup> change	.16	< .001	.18	< .001
Step 3	M D In C	.09	< .001	-.02	.321
	M D In EP	.04	.040	-.01	.694
	M D NIn C	-.01	.571	.02	.254
	M D NIn EP	-.01	.650	-.01	.759
	M I In C	.20	< .001	.17	< .001
	M I In EP	.00	.909	-.03	.340
	M I NIn C	.19	< .001	.07	.004
	M I NIn EP	-.02	.164	-.07	.002
	R <sup>2</sup> change	.10	< .001	.03	< .001
	R <sup>2</sup> total	.29		.23	

Note. Wave 1: Lifetime SLEs and suicidal behavior. Wave 2: SLEs and suicidal behavior during the last 12 months.

EXT = Externalizing problems, ADH = Attention-deficit/hyperactivity problems, INT = Internalizing problems, SW = Subjective well-being, M = major, D = dependent, I = independent, In = interpersonal, NIn = non-interpersonal, C = Chronic, EP = Episodic. 1 = boys, 2 = girls.

Standardized beta coefficients are reported.

**Table 4**

*Regression Analyses of Major SLEs According to Different Psychosocial Domains on Suicidal Behavior Controlled for Psychological Problems and Subjective Well-Being*

		Suicidal Behavior			
		Wave 1	p	Wave 2	p
Step 1	Gender	.09	< .001	.12	< .001
	Age	.13	< .001	-.02	.369
	R <sup>2</sup> change	.03	< .001	.02	< .001
Step 2	EXT	.02	.309	.09	< .001
	ADH	-.01	.662	-.01	.808
	INT	.32	< .001	.24	< .001
	SW	-.15	< .001	-.21	< .001
	R <sup>2</sup> change	.16	< .001	.18	< .001
Step 3	Peer problems	.11	< .001	.03	.257
	Victimization	.18	< .001	.13	< .001
	Love relationship	.08	< .001	.04	.134
	Sexuality	.11	< .001	.13	< .001
	Abortion	-.03	.021	-.20	< .001
	Death	-.05	.002	.00	.849
	Health	.04	.012	.07	.002
	Academic	-.01	.570	-.05	.012
	Legal	.05	.001	.01	.579
	R <sup>2</sup> change	.10	< .001	.05	< .001
	R <sup>2</sup> total	.29		.25	

Note. Wave 1: Lifetime SLEs and suicidal behavior. Wave 2: SLEs and suicidal behavior during the last 12 months.

EXT = Externalizing problems, ADH = Attention-deficit/hyperactivity problems, INT = Internalizing problems, SW = Subjective wellbeing. 1 = boys, 2 = girls.

Standardized beta coefficients are reported.

**Discussion**

The aim of the current study was to examine how different subtypes of SLEs, assessed using a novel measure, were associated with suicidal behavior and other mental health outcomes among Spanish adolescents. Importantly, SLEs were classified according to several theory-informed typologies: dependent/independent, interpersonal/non-interpersonal, and episodic/chronic— and across different psychosocial domains (e.g., peer problems, victimization, academic problems, ...).

The properties of the SLECA were first examined. In reference to criterion-related validity, the SLECA SLEs showed similar associations with externalizing and internalizing problems and well-being as have been observed in previous studies on recently occurring SLEs in adolescents (March-Llanes et al., 2017; Moya-Higueras et al., 2020). In addition, moderate associations were found with risk of suicidal and self-harm behaviors, also in line with research (Marques-Feixa et al., 2021). Further, we showed that distressing SLEs were most strongly associated with mental health indicators.

We explored the role of major SLEs according to individual dependence/independence, interpersonal content, and chronicity on mental health. Despite substantial heterogeneity in the literature, some findings were partially replicated. First, internalizing problems were related to major independent chronic SLEs. Similar SLEs have been linked to depression in previous studies (Mineka et al., 2020; Moya-Higueras et al., 2020; Vrshek-Schallhorn et al., 2015). In addition, we found that major dependent interpersonal episodic SLEs had the strongest associations with internalizing problems. This is in line with previous research where dependent interpersonal SLEs have been shown to predict internalizing problems (Jennes et al., 2019; Kendler et al., 1999; Moya-Higueras et al., 2020; Rudolph et al., 2000; Schneider et al., 2021). The relations between major SLEs and subjective well-being showed a similar but inverse pattern (i.e., more SLEs, poorer well-being), which is in line with a previous study regarding life satisfaction (Moya-Higueras et al., 2020). In terms of externalizing problems, a moderate association was found with major dependent interpersonal episodic SLEs, especially SLEs during the last 12 months. This is in line with previous research showing that major dependent SLEs are associated with externalizing symptoms in adolescents, with no association for major independent SLEs (Moya-Higueras et al., 2020). However, in Moya-Higueras and colleagues (2020), in contrast with our findings, externalizing symptoms was most strongly associated with major dependent non-interpersonal SLEs, which is in line with another study among youth (Rudolph et al., 2000). This discrepancy could be partly explained by that Moya-Higueras et al. (2020) included attention problems under their externalizing symptom score, and attention problems were highly associated with major dependent non-interpersonal SLEs in our sample. Similarly, Rudolph et al. (2000) included attention-deficit hyperactivity disorder as an externalizing disorder. In the present study, we found that attention-deficit/hyperactivity problems were related to major dependent episodic SLEs —interpersonal and non-interpersonal. The occurrence of SLEs in childhood has been associated with higher attention-deficit/hyperactivity symptoms through structural brain changes in response to stress (Humphreys et al., 2019), which can suggest a reciprocal link between SLEs and attention-deficit/hyperactivity problems.

Regarding major SLEs grouped by psychosocial domains, peer and academic problems were most strongly associated with psychological problems and subjective well-being. Peer problem SLEs were highly related to externalizing and internalizing problems, as well as to poor subjective well-being, especially recent (last 12 months) peer SLEs. Previous research has shown that poor social integration, including bullying, during adolescence is robustly linked to internalizing and externalizing problems (Fisher et al., 2016; Gorrese, 2016). During adolescence, peers become important in fulfilling attachment functions for the individual (Markiewicz et al., 2006). An individual with behavioral problems may have difficulties with social relationships, which in turn can cause emotional problems and worse life satisfaction (D'Urso & Symonds, 2022). In addition, internalizing problems can also cause externalizing problems, especially in girls, suggesting a transactional effect in which internalizing and externalizing problems mutually reinforce each other (D'Urso & Symonds, 2022). Further, in the present study, academic SLEs were strongly associated with attention-deficit/hyperactivity problems at both waves. The temporary stability in this association may indicate that academic impairments are driven by attention-deficit/hyperactivity symptoms. Research has shown that when attention-deficit/hyperactivity problems are medically treated, academic performance tends to improve (Prasad et al., 2013). Moreover, a small to medium association was found between academic SLEs and subjective well-being, replicating data from previous research (Bücker et al., 2018). Thus, poor academic achievement may substantially impact mental health and well-being in adolescence, and vice versa. A small positive association between having conducted an abortion during the last year and mental health was found. Research points out that there is no evidence that abortion increases the risk of mental health problems among adult women (Major et al., 2009) and adolescents (Warren et al., 2010). It may be that deciding to conduct an abortion during adolescence can be an expression of emotional maturity. Apart from that, recent SLEs related to health were associated with internalizing problems. When individuals need to cope with severe diseases, such as cancer, affecting themselves or their loved ones, this can lead to depression and other internalizing problems (Alacacioglu et al., 2013).

Unsurprisingly, strong associations were observed between suicidal behavior and internalizing problems, together with low subjective well-being (Franklin et al., 2017; Turecki & Brent, 2016). More importantly, regardless of mental health status, some SLEs showed strong and recurrent relationships with suicidal behavior. In this manner, major independent chronic SLEs—interpersonal and non-interpersonal—were associated with suicidal behavior, with major interpersonal SLEs presenting the highest relationship, in line with a study conducted among patients with alcohol use disorder (Conner et al., 2012). Previous research has also shown that chronic SLEs are associated with suicidal ideation in girls (Adams et al., 1994). It is possible that severe SLEs that are uncontrollable and permanent give rise to helplessness in some individuals which in turn can increase the risk of suicidal and self-harm behaviors.

Victimization, whose SLEs were almost entirely comprised of events related to having experienced physical or psychological violence (including sexual abuse and discrimination) were significantly associated with suicidal behavior. These results are in

line with previous reviews showing that exposure to interpersonal violence is a key socio-environmental risk factor for suicide behaviors (Castellví et al., 2016). Non-heterosexual adolescents are more than two times more likely to attempt suicide (Miranda-Mendizábal et al., 2017), which is consistent with our data. Accordingly, twin studies have demonstrated that homosexual twins are 6.5 times more likely to have attempted suicide compared to their non-homosexual cotwins, and this relationship remains significant after controlling for psychological problems (Herrell et al., 1999). Thus, the factors underlying the link between non-heterosexual orientation and suicidal behaviors among adolescents may be represented by peer and family rejections (Bridge et al., 2006). Hence, due to rejection and lack of social support (Markiewicz et al., 2016), non-heterosexual adolescents may experience an increased risk of emotional distress and internal conflicts which in some cases may increase the risk of suicidal and self-harm behaviors. Furthermore, the nature of SLEs psychosocial domains may impact on suicide risk differently according to life stage (Blasco-Fontecilla et al., 2012; Madge et al., 2011).

Those therapeutic approaches addressing suicidal behavior focused on depression and anxiety problems, as well as well-being, provide a limited effectiveness (Meerwijk et al., 2016). Therefore, a comprehensive evaluation considering contextual experiences such as SLEs is essential to understand, prevent, and treat suicidal behaviors. Particularly during adolescence, some therapy components are highlighted by their effectiveness. Those are: family-centered approaches, with the aim of improving family functioning which may reduce, in turn, adolescent suicidal behavior; and skills training, including tolerating stress (Glenn et al., 2019).

The findings of the present study should be interpreted in the light of some limitations. First, due to the different temporary formulations of SLEs between waves, we were not able to explore longitudinal associations between SLEs domains and mental health variables. Secondly, the use of a convenience and non-representative sample of Spanish adolescents that prevents the generalization of the results. And finally, the employment of self-report instruments subjected to biases like social desirability and memory recall.

In conclusion, the current study explored how distinct SLEs were differentially related to mental health indicators, through the development of a new checklist to assess SLEs among adolescents according to distinct typologies and grouped by psychosocial domains. The present research provides support for that SLECA is a useful measure to assess SLEs in adolescents and can help unravel the complex relations between SLEs, mental health, and suicidal behavior during this critical life period.

#### Author Contributions

**Francisco J. López-Fernández:** Conceptualization, Methodology, Formal Analysis, Writing - Original Draft. **Beatriz Moreno-Amador:** Resources, Investigation, Data Curation, Project Administration, Writing - Review & Editing. **Raquel Falcó:** Resources, Investigation, Data Curation, Project Administration, Writing - Review & Editing. **Victoria Soto-Sanz:** Writing - Review & Editing. **Juan C. Marzo:** Resources, Investigation, Funding Acquisition, Project Administration, Writing - Review & Editing. **Manuel I. Ibáñez:** Conceptualization, Writing - Review

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### Declaration of Interests

The authors declare that there is no conflict of interest.

### Data Availability Statement

Data is openly available in Open Science Framework (OSF) at [https://osf.io/r4w83/?view\\_only=85481f8ab5464844862fa4f03780e1cd](https://osf.io/r4w83/?view_only=85481f8ab5464844862fa4f03780e1cd)

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