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SUBTYPES OF MENTAL HEALTH DIFFICULTIES AND LEVELS OF RESILIENCE IN SPANISH ADOLESCENTS

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Abstract

Emotional and behavioral difficulties are common among adolescents, and the role of psychological resilience in mitigating their impact needs further investigation. This study aimed to examine profiles of mental health difficulties combined with resilience levels in 1,425 Spanish adolescents at-risk. The participants were 1425 adolescents (59.9% girls). Mental health profiles were determined using the Strengths and Difficulties Questionnaire and the Connor-Davidson Resilience Scale (CD-RISC-10) via Latent Profile Analysis and compared for sociodemographic variables and mental health associated variables. Five profiles emerged: Subclinical (16%), Externalizing Problems (19%), Internalizing Problems (22%), Low Risk (32.5%), and Well-Adjusted (10%). Females had higher risk. Well-Adjusted and Low-Risk profiles differed significantly in all variables. Well-Adjusted profile had the lowest distress and psychosocial difficulties, and the highest quality of life; while the Subclinical profile showed the opposite pattern. Identifying and validating risk groups for emotional and behavioral difficulties, considering resilience, enables interventions promoting emotional well-being and preventing mental health challenges.
KEY WORDS: *mental health, behavioral difficulties, emotional difficulties, resilience*.

Resumen

Las dificultades emocionales y conductuales son comunes entre los adolescentes y el papel de la resiliencia psicológica en su impacto necesita más investigación. Este estudio pretende examinar los perfiles de dificultades de salud mental combinados con los niveles de resiliencia en 1.425 adolescentes españoles

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en situación de riesgo. Los perfiles de salud mental se determinaron mediante el "Cuestionario de fortalezas y dificultades" y la "Escala de resiliencia de Connor-Davidson" (CD-RISC-10) y se compararon para variables sociodemográficas y asociadas a la salud mental. Surgieron cinco perfiles: Subclínico (16%), Problemas exteriorizados (19%), Problemas interiorizados (22%), Bajo riesgo (32,5%) y Bien adaptado (10%). Las mujeres presentaban mayor riesgo. Los perfiles Bien adaptado y Bajo riesgo difirieron significativamente en todas las variables. El perfil Bien adaptado presentó la menor angustia y dificultades psicosociales y la mayor calidad de vida; mientras que el perfil Subclínico mostró el patrón opuesto. La identificación y validación de los grupos de riesgo de dificultades emocionales y conductuales, teniendo en cuenta la resiliencia, permite realizar intervenciones que promuevan el bienestar emocional y prevengan los problemas de salud mental.
PALABRAS CLAVE: *salud mental, dificultades conductuales, dificultades emocionales, resiliencia.*

Introduction

Mental health difficulties are common during adolescence (Bitsko et al., 2022; Canals et al., 2018, 2019; Patton et al., 2014; Polanczyk et al., 2015). Accordingly, the severity of mental health problems substantially increases from childhood to adolescence (Costello et al., 2003). Along these lines, psychological difficulties during adolescence may increase the risk of subsequent development of mental disorders in adulthood (Fergusson et al., 2005; Patton et al., 2014).

Thus, early detection of psychological difficulties is crucial to reduce their negative consequences (Bitsko et al., 2022). The Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) is one of the most widely used screening tools to explore mental health indicators among children and adolescents. The instrument encompasses four difficulty factors (emotional symptoms, conduct problems, hyperactivity, and peer problems) and a factor of strength consisting of prosocial behaviors. Its self-reported version has showed reasonably suitable psychometric properties among Spanish samples (Español-Martín et al., 2021).

Emotional and behavioral difficulties are usually comorbid and those adolescents with higher comorbidity tend to present more detrimental outcomes (Knappe et al., 2022). In order to treat this psychopathological heterogeneity in research across individuals, person-oriented methods, such as Latent Profile Analysis (LPA), are conceived to identify subtypes of profiles with distinctive patterns of characteristics (Nurius and Mac, 2008). Accordingly, some studies have explored the existence of different profiles through person-oriented methods using the SDQ in adolescents. In this line, Ortuño-Sierra et al. (2016) found a five-cluster solution among Spanish adolescents employing K-means iterative cluster analysis: "No difficulties and high prosocial scores", "high difficulties and low prosocial scores", "high on hyperactivity and low on the rest of the difficulties subscales, and high in prosocial capabilities", "high on emotional and peer problems, relatively low on conduct and hyperactivity, and high in prosocial capabilities", and finally "hyperactivity problems and average in the others difficulties subscales, and in

prosocial capabilities". In contrast, another study conducted among Spanish adolescents identified three homogenous mental health subgroups using LPA: Low risk group, with low scores in the difficulty variables and high in prosocial behavior, externalizing group, with high scores in behavior and hyperactivity problems, and internalizing group, with high scores in problems with classmates and emotional problems (Fonseca-Pedrero et al., 2020). Moreover, a Chinese study employing Latent Class Analysis (LCA), which assumed the SDQ scores as categorical variables, found three groups: "well-adjusted group" with low scores in problems and high ones in prosocial behavior, "high difficulties group" with high scores in all the problems and moderate levels of prosocial behavior, and "uncooperative group" with low scores in problems and prosocial behavior (Ling et al., 2016).

Considering other strengths apart from prosocial behavior together with psychological problems when the group analyses are determined is mandatory to achieve a better picture of psychological adjustment. Thus, factors such as psychological resilience may help buffer the impact of these difficulties and promote better mental health outcomes. Resilience is the outcome of active and dynamic adaptations to adversity, as opposed to a passive response. While earlier perspectives framed resilience in a dichotomous manner, recent literature, such as the work by Kalisch et al. (2017), Masten et al. (2021), and Zhang et al. (2023), emphasizes that it involves both heightened positive outcomes and diminished negative outcomes in the face of challenges. In this manner, resilience is associated with higher levels of life satisfaction and positive affect and lower depression and anxiety symptoms (Bitsko et al., 2022; Hu et al., 2015). Accordingly, interventions focused on resilience lead to diminished levels of depression and stress (Ang et al., 2022). The differentiating capacity of this variable on mental health status has also been proved in a study that identified three profiles of levels of resilience based on aspects of perseverance and optimistic approach to life using LPA (Duan et al., 2020). The profiles extracted (Strength, Common, and Risk groups) presented significant differences between themselves in quality of peer relationships, mental well-being, loneliness, anxiety, depression, and stress. Numerous instruments have been developed to assess resilience, with the Connor-Davison Resilience Scale (CD-RISC; Connor and Davidson, 2003) being one of the most used and with better psychometric properties (Windle et al., 2011). In this sense, when the goodness of different CD-RISC models is tested in adolescents, the unidimensional CD-RISC-10 model (Campbell-Sills and Stein, 2007), rooted in hardiness and persistence features, emerges as the best (López-Fernández et al., 2024).

Previous research has examined the homogeneity of subgroups of adolescents with strengths and difficulties through the SDQ and identified subgroups with different levels of resilience using LPA. However, the relationship between psychological resilience and mental health difficulties in adolescents, employing person-oriented methods, and the subsequent impact on mental health outcomes has not been explored yet. This study aimed to investigate mental health risk profiles in Spanish adolescents based on their emotional and behavioral difficulties and levels of resilience and prosocial behavior. Furthermore, the differential relationships

between the profiles identified and socio-demographic variables (age and gender), and mental health indicators such as anxiety and depression symptoms, health-related quality of life, and psychosocial difficulties (social exclusion, fear of Covid-19, unhealthy lifestyle habits, weight and body image concerns, and parental relationship) will be examined. Psychosocial difficulties such as social exclusion, fear of Covid-19, unhealthy lifestyle habits, weight and body image concerns, and parental relationship have been previously considered as crucial potential risk factors, aiming to enhance the functioning and well-being of adolescents (Anniko et al., 2019; Loewen et al., 2019; Weitkamp and Seiffge-Krenke, 2019), and serving as a preventive measure against the progression to more severe clinical disorders (Caldas, 2023). It is expected to determine profiles according to the risk of severity and differentiated by externalizing and internalizing symptomatology (Duan et al., 2020; Fonseca-Pedrero et al., 2020; Ortuño-Sierra et al., 2016).

Method

Participants

The sample consisted of 1,425 Spanish adolescents aged 12-18 years (*M*= 14.34, *SD*= 1.76). Of these, 854 self-reported their gender as female (59.9%), 555 as male (38.9%) and 16 as non-binary gender (1.1%). More sociodemographic information can be found in Vivas-Fernandez et al. (2023).

Instruments

a) *Connor-Davidson Resilience Scale* (CD-RISC-10; Campbell-Sills & Stein, 2007). The CD-RISC-10 consists of ten items, rated on a Likert-type scale with response options ranging from 0 (not at all) to 4 (almost always). The total score is calculated by directly summing the scores, so a higher score corresponds to a greater degree of resilience. For this study, the Spanish version of the CD-RISC-10 was used, which has previously demonstrated solid psychometric properties with adolescents, including a robust single-factor structure, measurement invariance across sexes, high internal consistency (ω= .82), and strong criterion validity, confirming its reliability and validity as a tool for assessing resilience in this population (López-Fernández et al., 2024).
b) *Strengths and Difficulties Questionnaire*; SDQ; Goodman, 1997). The SDQ assesses emotional and behavioral problems in children and adolescents. For it items are grouped into 5 subscales: emotional symptoms, peer relationship problems, conduct problems, hyperactivity/inattention, and prosocial behavior. It consists of 25 items using a Likert-type response format ranging from 0 to 2 (from "not at all true" to "certainly true"). The first two subscales cover internalizing problems and the third and fourth subscales cover externalizing problems. The different subscales are calculated by directly summing the scores, so a higher score corresponds to a higher degree in each evaluated construct.

The self-reported version has shown adequate psychometric properties for Spanish adolescents with internal consistency values around ω= .70.

c) *Revised Child Anxiety and Depression Scale* (RCADS-30; Chorpita et al., 2020), Spanish version by Sandín et al. (2010). The RCADS-30 consists of 30 items that assess symptoms of anxiety and depression in children and adolescents. The global score, calculated as the sum of all items, serves as an indicator of general distress, interpreted such that higher scores reflect higher levels of general distress. It exhibits excellent psychometric properties, with high internal consistency values (α= .90) in Spanish population (Pineda et al., 2018).

d) *KIDSCREEN-10 Index* (Ravens-Sieberer et al., 2010). KIDSCREEN-10 measures the subjective health and psychological, mental, and social well-being of children and adolescents. The total score is calculated by summing the items, with a higher score indicating a better quality of life. Reliability indices (Cronbach's alpha) were around .82 in 13 participating European countries, including Spain (Ravens-Sieberer et al., 2010).

e) *Cyberbullying* (Garaigordobil, 2013). This scale measures the frequency in which the participant has been (cyber)victimized during the last year. This instrument uses a 4-point Likert-type response format, with higher scores indicating greater cybervictimization. The psychometric properties of the instrument are adequate, with Cronbach's alpha coefficients ranging from .70 to .91. Additionally, the ad-hoc question, "Have you ever felt discriminated against for any reason (e.g., being part of the LGBTIQ+ community, being a migrant, refugee, of another ethnicity, because of your religion or language)?" is included to evaluate the risk of social exclusion.

f) *Fear of COVID-19 Scale* (FCV-19S; Ahorsu et al., 2022). The FCV-19S was employed to assess the COVID-19-associated worry and stress. The scale consists of 7 items answered on a 5-point Likert scale, which are summed to obtain the total score. A higher score indicates greater fear of COVID-19. The psychometric properties of the instrument are excellent for Spanish samples (α= .86, ω= .86) (Piqueras et al., 2023).

g) *Ad-hoc Questionnaire of Health-Related Lifestyle Habits*. This 9-question questionnaire was designed to detect unhealthy lifestyle habits for health-related outcomes, such as regular consumption of substances (alcohol, tobacco, or cannabis), daily screen time exceeding four hours, sleep difficulties (such as trouble falling asleep, frequent awakenings during the night, or morning fatigue), and body dissatisfaction (concerns over physical appearance or weight, and physical appearance dissatisfaction). It is interpreted by considering the presence or absence of any of these risk factors. Cronbach's alpha in the previous study was .73 (Vivas-Fernandez et al., 2023).

h) *Structured Interview for the Assessment of Expressed Emotion: Child version* (*Entrevista estructurada para la evaluación de la emoción expresada: versión infantil*, E5cv; Muela-Martínez et al., 2021). The E5cv was used to assess the parental-child interaction in terms of expressed emotion: criticism, generalized hostility, hostile rejection, hopelessness, and self-sacrifice. It is a structured

interview with five items and five response options. Each item covers a dimension of Expressed Emotion mentioned. A higher score on the item indicates a higher degree of expressed emotion in each dimension. The scale has shown good psychometric properties in Spanish adolescents with anxiety symptoms (Cronbach's α= .81).

Procedure

The sample was recruited through advertisements to participate in a survey aimed at young people aged 12-18 in Spain, to detect and intervene early in those at risk of developing emotional problems. The time frame of the recruitment was during the 2020/2021 academic year which coincided in Spain with the return to face-to-face schooling after the first acute phase of the COVID-19 outbreak. During this period, there were still social restrictions (i.e., it was not possible to have meetings of more than 5 people). Informed consent of the adolescent and guardian was requested in accordance with the Declaration of Helsinki.

This study is under the framework of the PROCARE project, which received Institutional Review Board (IRB) approval and followed the American Psychological Association (APA) Standards and Guidelines for the Practice of Telepsychology (2013). This study was approved by the Bioethics Committee of the University; ID: GEN-3461-aab8-41a3-85c2-ca28-5102-cdda-8d53. Data is available on request from the corresponding author. More information on the complete procedure, such as recruitment and data collection, can be found in Vivas-Fernandez et al. (2023).

Data analysis

Internal consistency of the measures was evaluated using Cronbach's Alpha (α) and McDonald's Omega (ω) coefficients. These statistics were computed utilizing IBM SPSS v. 23 and Jamovi (The Jamovi Project, 2021). Subsequently, both Pearson's correlation coefficient (for continuous variables) and Spearman's rank correlation coefficient (for dichotomous variables) were employed to examine the associations between variables.

A LPA was conducted to explore the distribution of adolescents in terms of mental health difficulties and strengths. For this purpose, the following variables were used to obtain the profiles: difficulties from SDQ subscales of symptoms (as indicator of mental health) and prosocial behavior (SDQ) and resilience (CDRISC-10) as psychological strengths. For this analysis, the statistical program MPLUS (version 8.7) was used. To mitigate the influence of measurement errors and account for the non-normal distribution of the study sample (Justice et al., 2011), the LPA was conducted using factor scores derived from the six variables. Subsequently, profiles were generated based on these calculated factor scores. To determine the optimal number of profiles, models ranging from 1 to 8 profiles were examined. Fit indices were computed for each model, and the combination of fit indices satisfying the following criteria was selected: Likelihood Ratio Test (LRT) values reaching a

significant level ($p \leq .05$), indicating a model's fit compared to the fit of the model with k-1 profiles; smaller values of Log-Likelihood (LL), Akaike Information Criteria (AIC), and Sample Size Adjusted Bayesian Information Criteria (SSA-BIC), which indicate superior model fit compared to higher values; and an entropy value approaching 1. Furthermore, considerations were given to ensure that the smallest subgroup within each model comprised a reasonable percentage of participants (greater than 5%), as an excessively small subgroup would not effectively represent a distinct profile (Marsh et al., 2009; Morin et al., 2016). Following the identification of the optimal profile model, logistic regression analysis employing the three-step method (R3STEP function) in MPLUS was utilized to estimate the probabilities (*odds ratios*) of belonging to specific profiles based on gender and age variables.

In addition, differences between the profiles obtained in terms of difficulties for social exclusion, stress-related situations, unhealthy lifestyle habits, and parental-child interaction, as well as general distress and adolescents' perceived quality of life were also analyzed. For this purpose, factor scores of these scales were calculated and a multivariate analysis of variance (MANOVA) was performed.

Results

The descriptive analyses, reliability indices, and bivariate correlations between all variables are shown in supplementary materials (Appendices 1 and 2).

The LPA resulted in models of one to eight profiles (Table 1). To make the decision as to which model would be optimal, firstly, the solutions with six, seven and eight profiles were rejected because the LRT value did not reach the significance level ($p > .05$). In addition, the seven- and eight-profile models presented clusters with a very small percentage of participants, which may not truly be presenting a singular latent profile (Marsh et al., 2009). Secondly, the fit indices of the remaining possible models (two to five profiles) were examined and the combination between the lowest values of LL, AIC and SS-BIC and the highest values of entropy was considered the best. Therefore, both the four- and five-profile solutions seemed to be the most advantageous. However, it should be noted that the four-profile model lacked any observed interactions between the profile variables, indicating that its statistical outcomes might not differ significantly from those attainable through a correlational analysis. Consequently, the five-profile model was ultimately deemed the optimal choice.

Table 1
Fit indices for each model of the latent profile analysis

Profiles	Parameters	LL	AIC	SSA-BIC	LRT p	Entropy	% smallest group
1	12	–	14901.923	14926.946	–	–	–
2	19	-7438.961	11869.259	11908.879	0	0.833	47.65%
3	26	-5915.629	10680.314	10734.531	0.00	0.848	23.38%
4	33	-5314.157	10156.984	10225.798	0.00	0.84	11.11%
5	40	-5045.492	9796.472	9879.883	0.05	0.818	10.14%
6	47	-4858.236	9548.869	9646.877	0.80	0.815	7.00%
7	54	-4727.434	9305.304	9417.909	0.21	0.819	4.90%
8	61	-4598.652	9137.175	9264.377	0.20	0.825	4.68%

Note: LL= log-likelihood; AIC= Akaike information criteria; SSA-BIC= sample size adjusted Bayesian information criteria; LRT= likelihood ratio test.

The following five profiles of the model were obtained: 1) a profile of adolescents characterized by having the highest scores on the resilience levels and on the prosocial behavior, and the lowest scores on the emotional and behavioral difficulties, hereafter referred to as the Well-Adjusted Profile (10.10% of the sample); 2) a profile characterized by having medium-high scores on the resilience levels, medium scores on the prosocial behavior, and medium-low scores on the emotional and behavioral difficulties, hereafter referred to as the Low-Risk Profile (32.50% of the sample); 3) a profile characterized by medium scores on the resilience levels, medium-low scores on the prosocial behavior, medium scores on the internalizing difficulties, and medium-high scores on the externalizing difficulties, hereafter referred to as the Risk for Externalizing Problems Profile (19.10% of the sample); 4) a profile characterized by medium-low scores on the resilience levels, medium scores on the prosocial behavior and on the externalizing symptoms, and medium-high scores on the internalizing symptoms, hereafter referred to as the Risk for Internalizing Problems Profile (21.80% of the sample); and 5) a profile characterized by the lowest scores on the resilience levels and on the prosocial behavior, and the highest scores on the emotional and behavioral difficulties, hereafter referred to as the Subclinical profile (16.40% of the sample). This distribution is shown in Figure 1 and its descriptive statistics can be found in the Table 2.

To establish the odds of risk for belonging to one profile or another according to socio-demographic variables, i.e., according to sex and age, *odds ratios* were obtained (Appendix 3 of the supplementary material). The data showed that being female could be a risk condition associated with profiles with a higher risk of suffering mental health difficulties (*odds ratios* between 2.66 and 5.91). More specifically, women have a probability between 3.77 and 5.91 times more likely to belong to Subclinical profile and between 2.66 and 4.16 times to belong to Risk Internalizing Problems profile compared to the Risk Externalizing Problems, Low-Risk, and Well-Adjusted profiles, respectively. As for age, the results showed that being older is another risk factor for being classified into higher risk profiles, although to a lesser extent (*odds ratios* between 1.16 and 1.35).

Figure 1
Latent profile analysis result: distribution of adolescents

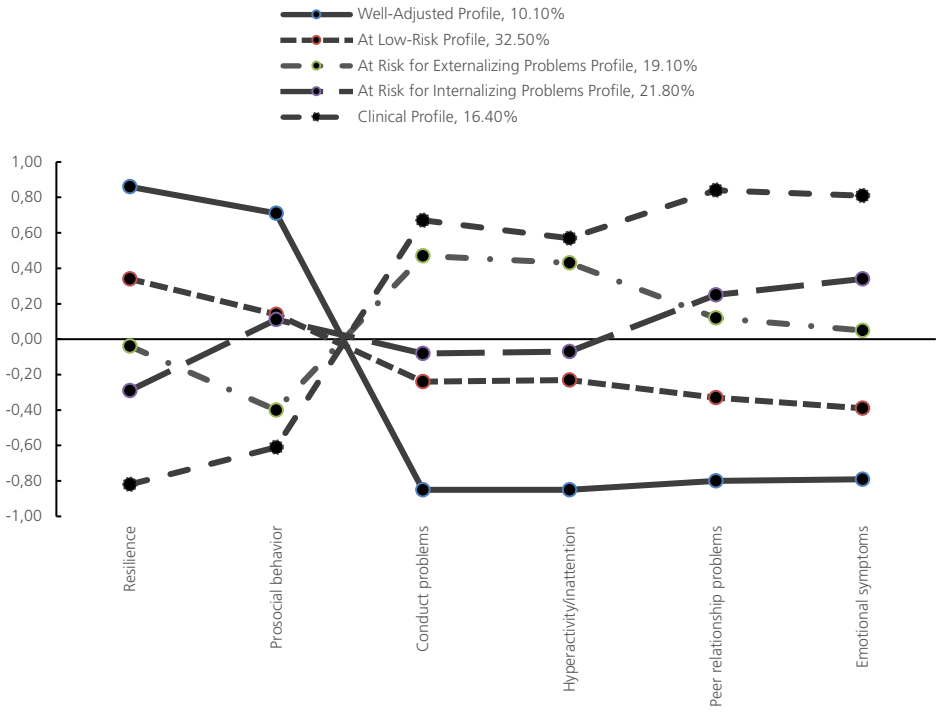

Table 2
Means and standard errors for the 5-latent profile analysis

Variables	Well-Adjusted Profile (*n*= 143)		Low-Risk Profile (*n*= 468)		Risk for Externalizing Problems Profile (*n*= 273)		Risk for Internalizing Problems Profile (*n*= 304)		Subclinical profile (*n*= 237)	
	M	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*
Resilience	0.86	0.06	0.34	0.04	-0.04	0.08	-0.29	0.05	-0.82	0.05
Prosocial behavior	0.71	0.06	0.14	0.05	-0.40	0.07	0.11	0.05	-0.61	0.07
Conduct problems	-0.85	0.06	-0.24	0.05	0.47	0.06	-0.08	0.06	0.67	0.05
Hyperactivity/ inattention	-0.85	0.07	-0.23	0.05	0.43	0.06	-0.07	0.07	0.57	0.04
Peer relationship problems	-0.80	0.04	-0.33	0.04	0.12	0.08	0.25	0.06	0.84	0.06
Emotional symptoms	-0.79	0.05	-0.39	0.04	0.05	0.09	0.34	0.06	0.81	0.05

Table 3
Means and standard errors of psychosocial difficulties and mental health associated variables for adolescents across latent profiles: MANOVA analyses

Profiles	Social exclusion		Stress-related situations		Unhealthy lifestyle habits		Parental-child interaction		General distress		Quality of life	
	M	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*	*M*	*SE*
1-Well-Adjusted (*n*= 143)	$-0.75^{2,3,4,5}$	0.04	$-0.30^{2,3,4,5}$	0.05	$-0.50^{2,3,4,5}$	0.03	$-0.61^{2,3,4,5}$	0.04	$-0.78^{2,3,4,5}$	0.04	$0.81^{2,3,4,5}$	0.04
2- Low-Risk (*n*= 468)	$-0.28^{1,3,4,5}$	0.03	$-0.08^{1,4,5}$	0.03	$-0.18^{1,3,4,5}$	0.01	$-0.22^{1,3,4,5}$	0.02	$-0.34^{1,3,4,5}$	0.02	$0.35^{1,3,4,5}$	0.02
3-Risk for Externalizing Problems (*n*= 273)	$0.18^{1,2,5}$	0.03	$-0.02^{1,4}$	0.04	$0.03^{1,2,4,5}$	0.02	$0.19^{1,2,5}$	0.03	$0.03^{1,2,4,5}$	0.03	$-0.05^{1,2,4,5}$	0.03
4-Risk for Internalizing Problems (*n*= 304)	$0.27^{1,2,5}$	0.03	$0.24^{1,2,3}$	0.04	$0.15^{1,2,3,5}$	0.02	$0.11^{1,2,5}$	0.03	$0.31^{1,2,3,5}$	0.03	$-0.26^{1,2,3,5}$	0.02
5-Subclinical (*n*= 237)	$0.72^{1,2,3,4}$	0.04	$0.14^{1,2}$	0.04	$0.45^{1,2,3,4}$	0.02	$0.51^{1,2,3,4}$	0.03	$0.74^{1,2,3,4}$	0.03	$-0.78^{1,2,3,4}$	0.03
$F_{(4,\ 1425)}$	235.21***		24.60***		282.49***		136.84***		398.79***		458.28***	
η_p^2	.40		.07		.44		.28		.53		.56	

Notes: Numbers in superscript refer to profiles significantly different (CI= 95%). ***p< .001.

Regarding the comparison between the profiles obtained with the LPA and the mental health associated variables, the MANOVA analysis showed significant differences (see Table 3). Specifically, the data showed that the Well-Adjusted Profile was significantly different from the other profiles in all study variables. For the other profiles, differences were also found between them on most of the variables, with differences between all of them on the variables of unhealthy lifestyle habits, general distress, and quality of life.

Discussion

The present study aimed to investigate the profiles of mental health problems of adolescents at risk during the 2020/2021 academic year, which coincided in Spain with the return to face-to-face schooling after the first acute phase of the COVID-19 outbreak. The study examined the combination of adolescents' emotional and behavioral difficulties along with levels of resilience to identify distinct subgroups at risk for mental health.

The results revealed the presence of five distinct profiles of mental health risk among the participants: Well-Adjusted, At Low Risk, At Risk of Externalizing Problems, At Risk of Internalizing Problems and Subclinical. These profiles showed differential patterns in terms of mental health associated variables and psychosocial difficulties. Approximately 16% of participants showed profiles consistent with a "subclinical" mental disorder, while 41% of adolescents scored as risk in terms of mental health difficulties and low resilience. In contrast, 32.5% were classified as low risk, and only 10% showed high positive mental health, health-related quality of life, and strong resilience. The prevalence rate of subclinical mental disorders is consistent with global rates of clinical problems of around 10-15% such as those reported by Polanczyk et al. (2015) or Bitsko et al. (2022). Similarly, prevalence rates for risk of internalizing and externalizing problems are similar to those reported by Ortuño-Sierra et al. (2016) and Fonseca-Pedrero et al. (2020), whereas rates of participants with scores consistent with adequate adjustment are lower overall than those found in Ortuño-Sierra et al. (2016), Fonseca et al. (2020) or Ling et al. (2016), although the comparison data does not belong to exactly the same clusters and are therefore not directly comparable.

The identification of these distinct mental health risk profiles has important implications for preventive interventions. The results highlight the heterogeneity within the adolescent population in terms of symptomatologic profiles and degrees of resilience. Thus, other authors have also claimed the importance of early screening for mental disorders, and the importance of having resilience data (Bitsko et al., 2022). It is clear that a one-size-fits-all approach to mental health prevention may not be effective. Instead, preventive interventions should be tailored and personalized to address the specific needs and characteristics of each mental health subgroup (Nye et al., 2023). Furthermore, it is of special clinical relevance that the subclinical group has both an internalized and externalized profile, supporting the

comorbidity of both disorders as also related by many other authors (e.g., Canals et al., 2018, 2019; Knappe et al., 2022).

This Subclinical profile was more frequently observed in females and older adolescents. It was characterized by a combination of internalizing and externalizing problems, low resilience capacity, and increased psychosocial difficulties. These adolescents exhibit characteristics commonly associated with clinical mental disorders, necessitating immediate attention and specific interventions. Early identification and intervention of this subgroup can help prevent the escalation of mental health problems and provide appropriate support (Frick et al., 2020; Solmi et al., 2022). The findings of our study align with previous research in this field, further supporting the existence of diverse mental health profiles among at-risk adolescents (Duan et al., 2020; Fonseca-Pedrero et al., 2020; Ling et al., 2016; Ortuño-Sierra et al., 2016).

Other studies utilizing the Strengths and Difficulties Questionnaire (SDQ) have identified five risk clusters categorized by the severity of difficulties and differentiated by the externalizing and internalizing spectrum (Ortuño-Sierra et al., 2016). Our data emphasizes the importance of considering not only the risk of problems but also individual coping capacity, such as resilience, as indicated in other studies (Ang et al., 2022; Bitsko et al., 2022; Duan et al., 2020; Hu et al., 2015).

It is worth noting that this research was conducted during the academic year affected by the COVID-19 outbreak. The percentage of the "Clinical profile" in Ortuño-Sierra et al. (2016) prior to the pandemic was practically equal to our study (16%). However, the "well-adjusted profile" was more prevalent in their study compared to ours, reflecting possible increased levels of risk experienced during the uncertainty and global changes brought about by the COVID-19 pandemic.

Regarding similar research conducted in Spain, Fonseca et al. (2020) found that their Low-Risk profile exhibited higher levels of subjective well-being and positive affect, as well as diminished scores for suicidal behavior, negative affect, and psychotic experiences when compared to externalizing and internalizing clusters. In our study, problematic groups differed from each other in stress-related situations, unhealthy lifestyle habits, general distress, and quality of life, with a higher prevalence of internalizing problems. Similarly, Fonseca et al. (2020) found substantial differences between problematic groups, with the internalizing cluster showing stronger suicidal behavior and lesser degree of well-being and positive affect. Additionally, the Subclinical profile in our study, similar to that found in other studies (Ortuño-Sierra et al., 2016), presented more aggravated problems compared to other groups. These findings highlight the importance of considering various psychological problems and protective factors, along with severity levels, when grouping adolescents according to their mental health status.

Furthermore, our study revealed that girls were at a higher risk of being included in the At Risk of Internalizing Problems and Subclinical profiles, in line with previous studies (Fonseca-Pedrero et al., 2020; Ortuño-Sierra et al., 2016), although not all studies have found the same pattern (Ling et al., 2016). In contrast, older

adolescents were significantly more likely to be grouped in problematic profiles, which is consistent with existing literature (Kusters et al., 2021; Ling et al., 2016).

Several limitations should be acknowledged. Firstly, the employment of self-report measures subjected to response biases, especially for disruptive behaviors assessment (e.g., Devaux & Sassi, 2016). Further research could benefit from incorporating additional objective measures and multiple informants (e.g., parents, teachers) to enhance the reliability of the assessments. Furthermore, the findings may be influenced by unique factors associated the impact of the COVID-19 outbreak and the return to face-to-face schooling. Additionally, the study utilized a cross-sectional design, which limits the ability to establish causal relationships. Also, the sample used in this study consisted of not only at-risk adolescents, but also healthy controls, subthreshold, and subclinical/clinical participants, truly reflecting a good snapshot of the state of mental health of young Spaniards. Moreover, the studied population, although not probabilistically representative of young Spaniards, represents the largest number of adolescents in this society and the highest risk groups for mental difficulties, as they belong to the whole of Spain.

Despite these limitations, this study contributes to our understanding of the profiles of mental health problems among at-risk adolescents, specifically during the academic year affected by the COVID-19 outbreak. By adopting a personalized approach, mental health professionals and educators can effectively support and promote the well-being of at-risk adolescents.

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Appendix 1

Descriptive analyses and reliability indices of variables for measuring health outcomes

Variables	*M* (*SD*) or %	Cronbach's alpha	McDonald's Omega
Bullying	0.29 (0.48)	.81	.80
Cyberbullying	0.12 (0.23)	.86	.87
Social rejection	19.40%	—	—
Fear of COVID-19	0.97 (0.81)	.85	.86
Alcohol use-related problem	5.60%	—	—
Cannabis Use-related problem	4.40%	—	—
Tobacco Use-related problem	5.90%	—	—
Internet Use-related problem	45.20%	—	—
Difficulties falling asleep	26%	—	—
Problems waking up at night	25.50%	—	—
Unrefreshing sleep	43.20%	—	—
Concerns over physical appearance/weight	48.8%	—	—
Physical appearance dissatisfaction	34.04%	—	—
Family Expressed Emotion	1.81 (0.65)	.77	.79

Note: For the continuous scales, the mean score and standard deviation were calculated. For the dichotomous scales, the percentage of people who met the "yes" condition (presence of the variable) was calculated.

Appendix 2

Correlations among adolescent variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1. Resilience	--																				
2. Prosocial behavior	.25**	--																			
3. Conduct problems	-.33**	-.33**	--																		
4. Hyperactivity/ inattention	-.35**	-.21**	.53**	--																	
5. Peer relationship problems	-.45**	-.28**	.29**	.22**	--																
6. Emotional symptoms	-.61**	-.11**	.33**	.35**	.46**	--															
7. Bullying	-.27**	-.05*	.28**	.23**	.43**	.31**	--														
8. Cyberbullying	-.25**	-.07**	.55**	.19**	.37**	.25**	.35**	--													
9. Social rejection	-.26**	-.06*	.20**	.17**	.33**	.32**	.28**	.33**	--												
10. Fear of COVID-19	-.12**	.14**	-.01	.05	.12**	.28**	.16**	.10**	.08**	--											
11. Alcohol use-related problem	-.12**	-.04	.17**	.13**	.05*	.13**	.17**	.17**	.09**	.03	--										
12. Cannabis Use-related problem	-.07**	-.04	.16**	.13**	.02	.11**	.13**	.13**	.07**	.01	.43**	--									
13. Tobacco Use-related problem	-.14**	-.02	.14**	.17**	.05	.13**	.12**	.15**	.08**	.02	.38**	.52**	--								
14. Internet Use-related problem	-.17**	-.14**	.15**	.16**	.15**	.16**	.16**	.15**	.11**	.00	.09**	.06*	.05*	--							
15. Difficulties falling asleep	-.12**	-.04	.12**	.12*	.09**	.20**	.08**	.06*	.08**	.03	.05	.05*	.04	.07**	--						
16. Problems waking up at night	-.26**	-.04	.11**	.14**	.23**	.29**	.17**	.16**	.10**	.09**	.11**	.10**	.09**	.09**	.19**	--					
17. Unrefreshing sleep	-.25**	-.07**	.14**	.16**	.21**	.33**	.14**	.15**	.17**	.09**	.08**	.08**	.09**	.13**	.17**	.33**	--				
18. Concerns over physical appearance/weight	-.35**	-.07**	.20**	.20**	.34**	.45**	.23**	.26**	.23**	.16**	.11**	.09**	.10**	.19**	.13**	.26**	.30**	--			
19. Physical appearance dissatisfaction	-.42**	-.10**	.23**	.24**	.35**	.47**	.23**	.25**	.27**	.11**	.14**	.12**	.14**	.18**	.10**	.26**	.31**	.64**	--		
20. Family Expressed Emotion	-.19**	-.14**	.26**	.22**	.17**	.26**	.19**	.13**	.17**	.12**	.14**	.13**	.13**	.11**	.20**	.23**	.17**	.25**	.21**	--	
21. General distress	-.42**	-.10**	.33**	.38**	.50**	.81**	.33**	.17**	.21**	.37**	.11**	.08**	.09**	.17**	.14**	.22**	.25**	.27**	.46**	.47**	--
22. Quality of life	.64**	.25**	-.34**	-.37**	-.50**	-.71**	-.31**	-.28**	-.31**	-.17**	-.18**	-.16**	-.19**	-.19**	-.19**	-.32**	-.39**	-.34**	-.48**	-.54**	-.66**

Note: *$p < .05$; **$p < .01$.

Appendix 3

Odds ratio of the association between the profiles of mental health difficulties and levels of resilience and sociodemographic variables

Predictors	Profile		OR	95% CI
Gender	1-Well-Adjusted	2-Low-Risk	0.71	[0.46, 1.09]
	1-Well-Adjusted	3-Risk for Externalizing Problems	0.64	[0.40, 1.02]
	1-Well-Adjusted	4-Risk for Internalizing Problems	2.66	[1.60, 4.42]
	1-Well-Adjusted	5-Clinical	3.77	[2.19, 6.48]
	2-Low-Risk	3-Risk for Externalizing Problems	0.91	[0.62, 1.32]
	2-Low-Risk	4-Risk for Internalizing Problems	3.77	[2.45, 5.81]
	2-Low-Risk	5-Clinical	5.35	[3.41, 8.39]
	3-Risk for Externalizing Problems	4-Risk for Internalizing Problems	4.16	[2.50, 6.94]
	3-Risk for Externalizing Problems	5-Clinical	5.91	[3.50, 9.96]
	4-Risk for Internalizing Problems	5-Clinical	1.42	[0.82, 2.47]
Age	1-Well-Adjusted	2-Low-Risk	1.16	[1.02, 1.32]
	1-Well-Adjusted	3-Risk for Externalizing Problems	1.10	[0.96, 1.27]
	1-Well-Adjusted	4-Risk for Internalizing Problems	1.35	[1.17, 1.55]
	1-Well-Adjusted	5-Clinical	1.25	[1.09, 1.43]
	2-Low-Risk	3-Risk for Externalizing Problems	0.96	[0.86, 1.06]
	2-Low-Risk	4-Risk for Internalizing Problems	1.17	[1.04, 1.31]
	2-Low-Risk	5-Clinical	1.08	[0.97, 1.18]
	3-Risk for Externalizing Problems	4-Risk for Internalizing Problems	1.22	[1.07, 1.40]
	3-Risk for Externalizing Problems	5-Clinical	1.13	[1, 1.28]
	4-Risk for Internalizing Problems	5-Clinical	0.92	[0.82, 1.04]

Note: OR= odds ratio (OR significant when the CI does not contain 1). Gender was code as 1=Male / 2=Female; Age ranges 12 to 18 year.