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# School absence of adolescents from single-parent families in Andalusia (Spain): exploring the mediating and moderating role of economic and social resources

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## Abstract

This study examines the relationship between growing up in single-parent families and school absence in Andalusia (Spain), considering differences according to adolescents' social background. Empirical analyses of data from the *Social Survey 2010: Education and Housing* show that adolescents growing up in single-parent families have, on average, a higher number of school absences than their peers in two-parent families. These disadvantages are greater for adolescents with low social backgrounds, regardless of whether this is measured by parental education or housing tenure. Both economic resources (lower household income) and social resources (poor relationship with absent parent) partially explain the differences in school absence rates amongst adolescents growing up in single-parent families. School environment (teacher–student relationship, atmosphere amongst students, experiences of school violence or ownership of educational institution) are not influential in explaining educational disadvantage amongst adolescents from different family structures, although they are strong predictors of school absence.

**Keywords:** Single-parent families, School absence, Economic resources, Social resources, Social background, Spain

## Introduction

Prolonged periods of school absence can have significant consequences in the lives of adolescents, in both the short and the long term. In the short term, children and adolescents who are frequently absent from school are at greater risk of dropping out of school, earning lower grades, engaging in risky sexual and drug behaviours, and even engaging in criminal activity (Balfanz et al., 2007; Gottfried, 2010; Hallfors et al., 2002; Liu et al., 2021; Morrissey et al., 2014; Wolf & Kupchik, 2017). In the long run, poor school attendance reduces the likelihood of entering university or finding a job, and increases the likelihood of economic deprivation in adulthood (Ansari et al., 2020; Cattani et al., 2023; Liu et al., 2021). Yet these disadvantages are not homogeneous; profound differences exist between adolescents from different social groups. Previous

studies have found that children from disadvantaged socioeconomic and minoritised ethnic backgrounds have higher rates of absenteeism than their counterparts from advantaged socioeconomic backgrounds (García & Weiss, 2020; Sosu et al., 2021). Although solid studies show patterns of inequality around school absence (Gubbels et al., 2019), little scholarly production has analysed family structure as an important factor in the configuration of school absence trajectories, either internationally or in the Spanish context.

In educational terms, strong evidence shows that growing up in unconventional families, such as single-parent or reconstituted families, is associated with greater academic disadvantage for adolescents (McLanahan & Sandefur, 1994). Although few studies analyse family changes and their relationship to educational outcomes in Spain, existing evidence shows that growing up in the absence of a parent is associated with poorer educational performance, in both the short term (Escapa, 2017) and the long term (Mejías-Leiva & Mínguez, 2023). To address this gap in the literature, this paper seeks to fulfil three goals: (1) to analyse whether growing up in single-parent families is associated with a higher number of unexcused absences from school for whole days; (2) to understand the main mechanisms that explain this association, such as economic and social resources; and (3) to analyse whether this association differs according to the social background of adolescents. To address these goals, we use data from the *Social Survey 2010: Education and Housing in Andalusia* (ESOC10), which provides a wide range of variables related to family structures and school absence.

Andalusia, and therefore Spain, is a relevant case study for several reasons. First, Spain has experienced profound transformations related to changes in family dynamics in recent decades, driven primarily by two factors: increase in divorce and expansion of cohabitation (Castro-Martin & Seiz, 2014). For example, the number of divorces in Andalusia increased from 5740 in 2000 to 18,337 in 2010, with a slight stabilisation in the following years (Instituto de Estadística y Cartografía de Andalucía, 2023). Second, Spain, and to a greater extent Andalusia, has one of the highest rates of school absenteeism amongst European countries (García & Weiss, 2020). These dynamics of absenteeism develop in an educational context characterised by a high concentration of educational disadvantage associated with grade retention and dropout amongst adolescents from working-class and ethnically minoritised families (Bernardi & Cebolla, 2014). Third, Spain also stands out in the European context for the significant influence of socioeconomic characteristics of the family of origin on educational inequalities (Brunori et al., 2018). We thus consider it essential to understand the relationship between growing up in single-parent families and school absence, as well as adolescents' heterogeneity by social background, to provide information for the scientific debate on educational inequalities and to design public policies to mitigate their incidence in certain social groups.

This study contributes to the literature on family structure and educational outcomes in three ways. First, we analyse a non-cognitive educational outcome, school absence, that has not been widely studied in the literature. Several studies have found a strong association between growing up in single-parent families and worse non-cognitive outcomes for children, especially in terms of their behaviour (Jarvis et al., 2023; Lee & McLanahan, 2015). Moreover, being absent from school has broad implications for

adolescents' life trajectories across multiple dimensions (Liu et al., 2021). Second, we use a rich database to try to observe the main mechanisms through which family structure influences school absence. Although ample scientific evidence exists from analysis of these mechanisms (McLanahan & Sandefur, 1994), the literature on this subject is much scarcer in the Spanish context. Third, we examine how family structure influences school absence according to adolescents' social background. As few studies have analysed how family structure influences educational outcomes across social groups in Spain (Bernardi & Comolli, 2019; Mejías-Leiva & Mínguez, 2023), this study aims to fill this gap in the literature. To our knowledge, it is the first study in the Spanish context, and one of the few internationally, that attempts systematically to analyse how the family structure in which adolescents grow up influences school absence.

### **Theoretical background**

Previous research has shown that adolescents growing up in unconventional family structures perform on average slightly worse in several dimensions of their well-being, including their educational development, than do adolescents growing up in families with both parents present (Amato, 2000, 2010; Härkönen et al., 2017). Several studies have debated whether these associations reflect a causal effect or simply capture the influence of other pre-existing socioeconomic disadvantages. For example, parents who separate might have different personality traits than those who do not separate. Other disadvantages—such as unemployment, deteriorating mental health, or substance abuse problems—may also influence both the decision to separate and the deterioration of children's educational outcomes (Härkönen et al., 2017). The analysis of possible selection effects in Piketty (2003) showed that it is not divorce per se but parental conflict prior to separation that explains children's lower educational achievements. Other studies conclude, however, that the effects of family structure on educational outcomes persist even after controlling for sources of endogeneity, although these effects are significantly reduced (McLanahan et al., 2013).

Extensive evidence exists on the relationship between growing up in single-parent families and educational outcomes, such as standardised test scores or college achievement, but evidence on the association between growing up in unconventional family forms and school absence is limited to a few studies. For example, Gubbels et al. (2019) showed that one risk factor associated with increased school absenteeism rates is growing up in single-parent families. In one of the few studies that directly address the relationship between family dynamics and school absence, Astone and McLanahan (1991) showed that growing up in single-parent or reconstituted families in the United States is associated with increased likelihood of being regularly absent from high school. Decrease in school attendance can manifest not only through prolonged absences, but also through occasional absences or tardiness. In an international study, Garriga and Martínez-Lucena (2018) found that children growing up in single-parent families were more likely to be late to school than their peers in two-parent families in 16 out of 17 countries analysed. Overall, the current evidence provides indications of a possible association between growing up in single-parent families and lower school absence.

Sociological studies have investigated possible mechanisms to explain the relationship between growing up in a particular family structure and children's educational

performance. The predominant perspective, family resource theory, analyses how the resources necessary for children's growth and development differ significantly according to the type of family in which they grow up. Previous research suggests that family structure influences children's life chances through two distinct, but not mutually exclusive, pathways: economic resources and social resources, characterised as relationship with parents and parents' educational support for their children (Amato, 2010; Astone & McLanahan, 1991; Coleman, 1988; Mandemakers & Kalmijn, 2014; McLanahan & Percheski, 2008).

Economic explanations argue that much of the decline in educational achievement of adolescents growing up with an absent parent is due to loss of family income following separation or divorce (Bernardi & Boertien, 2016; Brand et al., 2019; Pong & Ju, 2000). Explanations focusing on social resources, in contrast, argue that adolescents living apart from a parent, usually the father, tend to receive less involvement from that parent in terms of education, supervision, and parent–child interaction (Astone & McLanahan, 1991; Fallesen & Gähler, 2020; Kalmijn, 2013; Spaan et al., 2022). These mechanisms are also reflected in studies on school absence. A recent meta-analysis of the most relevant risk factors associated with school absence revealed that both lower economic resources and lower parental involvement in children's education were significantly related to higher rates of school absence (Gubbels et al., 2019). In theoretical terms, it thus seems plausible that both economic and social resources play an important role in explaining the disadvantages associated with growing up in single-parent families and school absence.

In addition to these possible explanatory factors, a favourable school environment has been widely recognised as a factor associated with better educational performance in adolescents (Hendron & Kearney, 2016; Rahman et al., 2023). In addition, it has been found that a positive perception of the school environment can attenuate the negative effects of poverty on students' behaviour, allowing those from low-income households to behave similarly to their peers from more affluent households (Hopson & Lee, 2011). In relation to family structure, previous research suggests that a positive school environment can have a positive impact on the grades of adolescents residing in single-parent households, indicating that such an environment may function as a “protective factor” for these students (O'Malley et al., 2015). Therefore, a school environment that provides strong emotional and academic support from peers and teachers may be essential to compensate for the lack of resources or support from single-parent families.

The consequences of growing up in a single-parent family for children's educational outcomes may depend on the family's socioeconomic background and resources available (Bernardi & Comolli, 2019; Garriga & Martínez-Lucena, 2018; Martin, 2012). According to the theory of *compensatory advantage* proposed by Bernardi (2014), families with higher socioeconomic status can compensate for their children's educational disadvantages, ensuring that their children maintain or improve their social position despite possible academic obstacles. Having more and better economic, cultural, and social resources enables these households to counteract possible deficiencies in children's educational performance, protecting children from significant drops in socioeconomic status in the face of adverse events such as growing up without a parent. However, the literature relating these issues of social stratification in education

to family dynamics presents divergent results. Whilst some studies suggest that growing up without the presence of a parent is related to lower educational achievement in children from families with low socioeconomic status (Grätz, 2015), others show that this absence is more detrimental to children's educational performance in contexts where parents have high levels of education (Bernardi & Radl, 2014; Mejías-Leiva & Mínguez, 2023).

One possible explanation for these discrepant results lies in the different educational indicators used (Bernardi & Comolli, 2019; Guetto & Panichella, 2019). For example, Guetto and Panichella (2019) analysed the risk of dropping out of school in Italy and found that the negative impact of growing up with an absent parent is more pronounced for children of low-educated parents. Their examination of the likelihood of accessing the most prestigious tertiary education showed, however, that children of tertiary-educated parents are the most affected. Bernardi and Comolli (2019) attributed these results to a degree of selectivity depending on education level achieved. When analysing an educational achievement such as university access—a “less likely” event for adolescents of low socioeconomic status—the authors argue that family instability penalises more adolescents of high socioeconomic status than adolescents of low socioeconomic status (Mejías-Leiva & Mínguez, 2023). Studies of an educational outcome that is “unusual” amongst students from high socio-economic backgrounds, such as dropping out or repeating school, show, in contrast, that family instability affects adolescents from lower socioeconomic backgrounds more strongly (Grätz, 2015).

### **The Spanish context**

Spain and Andalusia have experienced significant changes in the family institution in recent decades, driven mainly by liberalisation of marriage and divorce laws, and the emergence of more egalitarian gender roles and acceptance of new family types (OECD, 2022). For example, 82.8% of children resided with both parents or in stepfamilies in 2018, 15.6% lived in single-parent households, and 1.6% in other forms of family structures. These figures represent significant changes compared to 2004. The proportion of children living with both married parents decreased by 7 percentage points, whilst the proportion of children living with only one parent increased by the same proportion (OECD, 2018).

The proportion of children growing up in single-parent families, on the other hand, varies with the child's age. Whilst the proportion is 1 in 10 and 1 in 7 in the 0–5 and 6–11 age groups, respectively, it rises to 1 in 5 for adolescent ages 12–17 growing up in single-parent families (OECD, 2022). One reason for this increase is the rise in the divorce rate in recent decades. The crude divorce rate showed an upward trend from the 1980s until 2000, with a considerable increase in 2005 after liberalisation of divorce law. Both Spain and Andalusia have reached a divorce rate similar to the European average but higher than that of other nearby countries such as Italy and Greece (Castro-Martin & Seiz, 2014; Instituto de Estadística y Cartografía de Andalucía, 2023; OECD, 2022).

The profile of mothers in single-parent families has also undergone significant changes. In 1991, the prevalence of single-parent families was higher amongst women with higher education. In 2011, however, the increase in single-parent families was concentrated especially amongst young women with a low education level (Garriga & Cortina, 2017).

Moreover, a prominent characteristic of single-parent families with minor children in Spain is high economic vulnerability. In 2022, 43.2% of single-parent households with children were at risk of poverty and social exclusion, in contrast to 22.3% of two-parent households (INE, 2022). In Andalusia, poverty and social exclusion are even more severe, affecting 56.6% of single-parent households with minor children (Instituto de Estadística y Cartografía de Andalucía, 2022).

The lack of data on school absence is notorious in the field of education, and the scarcity of studies linking this phenomenon to family dynamics is even more so. Spain has one of the highest absenteeism rates in the European Union, with 30% of students missing 1 day or more in the 2 weeks prior to the 2018 PISA test. Moreover, the percentage of students reporting school absences of 3 or more days in the previous 2 weeks rose from 3.8 to 6.5% between 2012 and 2018 (OECD, 2019). In Andalusia, these figures exceeded the national average, with 31.1% of students missing 1 day or more, and 7.9% absent 3 days or more in 2018 (García & Weiss, 2020). Absenteeism rates are even higher in socioeconomically disadvantaged schools and in public schools with a high concentration of immigrant students (OECD, 2019).

In Spain, Compulsory Secondary Education (ESO) is provided publicly and free of charge from 12 to 16 years of age and is a very academically demanding stage of education. Educational disadvantages, such as retention and dropout, are especially prevalent amongst working class and minoritised adolescents (Bernardi & Cebolla, 2014). Amongst the characteristics of the Spanish education system is the variety of schools that offer ESO: public, subsidised (*concertadas*), and private schools. The main distinction between these schools lies in level of resources available and composition of the student population. Public schools tend to have fewer resources and a higher proportion of students from less-privileged socioeconomic backgrounds, including immigrants. Private and subsidised schools tend to have more resources and to attract students from more affluent backgrounds.

Although the Spanish education system is comprehensive and free in nature, it has specific characteristics that impact school absence rates. Previous research suggests that systems without early selection of educational pathways have higher rates of absenteeism (Keppens & Spruyt, 2018). This phenomenon may be explained by the nature of comprehensive education systems, where all students remain on a common educational pathway until the age of 16. Systems that separate students into different educational itineraries from an early stage, in contrast, may provide an education more tailored to individual skills and competencies from an early age. In Spain, the limited supply of Vocational Education and Training (*Formación Profesional*) and the absence of early pathways may contribute to disengagement of students interested in vocational training. This structural feature of the education system itself may influence absenteeism and early school leaving.

## Hypotheses

Previous international research has identified a relationship between growing up in single-parent families and a higher rate of school absence (Garriga & Martínez-Lucena, 2018; Gubbels et al., 2019). Although no systematic research has been performed in the specific context of Spain, this evidence leads us to hypothesise that growing up in



single-parent households correlates with an increase in rate of school absence (Hypothesis 1). The literature identifies two fundamental mechanisms by which family structures might influence the educational outcomes of children raised in single-parent families: lack of economic and of social resources (Astone & McLanahan, 1991). In addition to these mechanisms, previous studies have shown that a positive school environment has a positive impact on the grades of adolescents living in single-parent households (O'Malley et al., 2015). Based on this evidence, we propose that economic and social resources, as well as the school environment, play a mediating role in the relationship between growing up in single-parent families and school absence (Hypothesis 2).

Furthermore, the association between growing up in single-parent families and absenteeism considered is expected to manifest differently according to the adolescent's social background. Previous studies suggest that growing up in unconventional families penalises student educational outcomes—such as grade retention in Spain (Bernardi & Comolli, 2019) or the probability of not being enrolled in secondary school in Italy (Guetto & Panichella, 2019)—more for children from families with a lower social background. Since school absenteeism tends to be more prevalent in students from low social backgrounds (Sosu et al., 2021), we posit that the association between growing up in a single-parent family and higher school absence is stronger for adolescents with parents from low social backgrounds (Hypothesis 3).

## Method

### Data

The data used in this study were obtained from the ESOC10 conducted by the Statistical Institute of Andalusia.<sup>1</sup> This survey includes questionnaires addressed to students, parents, and households, as well as information from administrative records on unexcused school absences. These questionnaires are a rich source of information and contain variables that are rare in large-scale international assessment tests such as PISA. The survey was conducted with a total of 5032 students ages 10–11 to 14–15 years and their families. Of these, 2584 students were born in 1994 and 2448 in 1998. The information in the questionnaires refers to the time of the interview.

In the development of the ESOC10, the Department of Education of the Regional Government of Andalusia collaborated in providing access to a complementary auxiliary source to the survey: the SÉNECA information system. This system collects administrative information provided by different educational agents in public and subsidised schools (teachers, administrative staff, and management staff), and contains information on the monitoring of pupils in various aspects of their educational trajectory, such as the number of absences from school, behaviour, or competency tests. Moreover, the linkage of administrative data provided by SÉNECA with the survey was satisfactory: we have 2390 questionnaires of children from the 94-cohort linked to some information from SÉNECA and 2331 from the 98-cohort. Therefore, there are

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<sup>1</sup> The ESOC10 is a statistically representative sample of the household population in Andalusia. For each cohort a three-stage cluster sampling with stratification of the first stage units was applied. The primary sampling unit is the census sections, selected proportionally to the size of the section. The secondary sampling unit is households, selected by simple random sampling within the section. The third sampling unit is children, randomly selected within households. A mixed method involving computer-assisted personal interviews (CAPI) and web-based interviews (CAWI) was used.

194 questionnaires of children from 94 and 117 from 98 which do not have information linked to SÉNECA.

Several filters were applied to this original sample. First, to ensure relevance of the phenomenon of school absence to the sample, we applied a filter that selected only pupils born in 1994 who were in any year of ESO ( $N=2511$ ). This approach is justified because school absenteeism is more prevalent in ESO (which students generally attend between the ages of 12 and 16, unless they have repeated a grade) and less prevalent in primary education (Montalbán Castilla & Ruiz-Valenzuela, 2022).

Second, we used multiple imputation by chained equations to fill in missing values for the independent variables (van Buuren et al., 2023). We generated 20 plausible values for each missing data item, considering all variables included in the analysis (see Table 1). Although missing cases in the dependent variable were incorporated in the imputation process, they were not included in the primary statistical analyses (Johnson & Young, 2011). Following the imputation process, the initial sample of 2511 adolescents was adjusted to 2279 observations. This change in sample size occurred for two reasons: (1) we filtered the sample only for adolescents residing in single-parent or two-parent families; (2) we removed 160 observations with missing values for the dependent variable; whilst we retained all observations on the independent variables on which imputations were performed.

### Variables

The dependent variable used to assess school absences was constructed in several steps. First, we started from the original variable provided by the ESOC10 of unexcused school absences for full days coded into 11 categories (0; 1–9; 10–19; 20–29; 30–39; 40–49; 50–59; 60–69; 70–79; 80–89; 90 or more), and calculated the median point of each interval to obtain a numerical measure. The resulting variable ranges from 0 to 95 absences on a continuous scale. Second, we divide this continuous school absence variable by the number of school days in the 2009/2010 academic year, the period during which the survey was conducted. As a result, we obtain a metric indicating the percentage of full days that each student was absent without justification during the school year, which we use as the dependent variable. Although we assume that there is a loss of information when using this metric, we consider it to be reasonable for both theoretical and practical reasons. This metric is widely used in research on school absence (Klein & Sosu, 2024; Klein et al., 2020), which facilitates the comparability of results with studies conducted in other contexts. In addition, the original variable has important limitations because the number of people in the top school absence categories is very small, which could complicate statistical analyses. Nevertheless, we conducted additional analyses by replicating the results using a school absence variable defined in categories.

The main independent variable was family structure. We classified adolescents into two different family structures: (1) families composed of both biological parents present in the household ( $N=2044$ ); (2) families composed of a single biological parent (single-parent families) ( $N=235$ ). In additional analyses, the empirical strategy is replicated taking into account the different forms of entry into single-parenthood and using a more detailed measure of family structure.



**Table 1** Descriptive statistics by type of family structure

	Two-parent (N = 2044)		Single-parent (N = 235)		% missing values
	Mean; N	SD; %	Mean; N	SD; %	
Proportion of unexcused absences from school	0.03	0.07	0.06	0.11	6.51
Sex					0.00
Boy	1063	51.10	120	49.93	
Girl	981	48.90	115	50.07	
Adolescent's nationality					0.00
Spanish	1978	97.11	223	95.39	
Other nationalities	66	2.89	12	4.61	
Presence of siblings in the household					16.27
Yes	1858	90.70	189	80.44	
No	186	9.30	46	19.56	
Age of reference person					0.00
< 40	200	9.50	42	17.38	
40–49	1363	66.85	146	63.48	
≥ 50	481	23.66	47	19.14	
Highest level of parental education					0.04
Lower secondary education or below	1063	51.20	125	53.67	
Upper secondary	605	29.29	64	27.42	
University	376	19.52	46	18.91	
Net monthly household income					7.70
≤ 1000 €	531	25.51	142	61.34	
1001–1800 €	788	38.19	67	27.57	
1801–2700 €	483	23.68	18	7.85	
> 2700 €	242	12.61	8	3.24	
Employment status of reference person					0.00
Working full time	1572	76.53	114	46.73	
Working part-time	92	4.57	32	13.88	
Unemployed	250	12.03	61	27.01	
Inactive	130	6.87	28	12.38	
Housing tenure					0.00
Owned	1755	86.01	155	65.29	
Rented, leased, or free of charge	289	13.90	80	34.71	
Relationship with mother					0.46
Good/very good	1979	96.89	212	89.76	
Fair/poor/very poor	65	3.11	23	10.24	
Relationship with father					3.74
Good/very good	1922	94.25	141	57.55	
Fair/poor/very poor	122	5.75	94	42.45	
Mother's concern about homework					0.88
A lot/quite a lot	1589	77.68	179	75.41	
A little/none	455	22.32	56	24.59	
Mother's concern about grades					0.75
A lot/quite a lot	1891	92.54	195	82.79	
A little/none	153	7.46	40	17.21	
Father's concern about homework					7.73
A lot/quite a lot	1136	55.54	108	44.82	
A little/none	908	44.46	127	55.18	
Father's concern about grades					7.52

**Table 1** (continued)

	Two-parent (N = 2044)		Single-parent (N = 235)		% missing values
	Mean; N	SD; %	Mean; N	SD; %	
A lot/quite a lot	1680	82.34	133	55.00	
A little/none	364	17.66	102	45.00	
Student–teacher relationship	0.01	0.97	− 0.12	1.14	0.00
Atmosphere amongst students	0.03	0.94	− 0.19	1.22	0.00
School violence					2.85
Yes	1095	52.54	125	52.89	
Yes, against me	25	1.12	6	2.92	
No	924	46.35	104	44.19	
Ownership of school					0.00
Public	1620	78.20	190	79.85	
Private or subsidised	424	21.80	45	20.15	

All continuous variables are standardised with mean 0 and standard deviation 1

Descriptives for provinces of residence are not shown to simplify the information. Weights applied  
SD standard deviation

We then considered five sets of control variables. The first set included the sociodemographic characteristics and social background of the adolescents: gender (boy, girl), nationality (native, immigrant), province (Córdoba, Sevilla, Almería, Cádiz, Huelva, Granada, Málaga, Jaén), age of household reference person (< 40, 40–49, ≥ 50), presence of siblings in the household (yes, no), and social background of the adolescent, measured as the highest education level achieved by father or mother (lower secondary or less, upper secondary or university). The second set included variables related to household financial resources: net monthly household income (≤ 1000 €, 1001–1800 €, 1801–2700 €, ≥ 2700 €), employment status of reference person in household (working full-time, working part-time, unemployed, inactive), and housing tenure (owned, rented, leased, free of charge). The third set of variables referred to family-related social resources, considering adolescents' relationship with their father and mother (good/very good, fair/bad/very bad). The fourth set of variables referred to school-related social resources, including variables such as mother's and father's concern about children's homework (little/none, a lot/quite a lot), and mother's and father's concern about children's grades (little/none, a lot/quite a lot). The fifth set of variables included measures of students' school environment: teacher–student relationship (0 'very bad' and 10 'very good', standardised with mean 0 and standard deviation 1); atmosphere amongst students (0 'very bad' and 10 'very good', standardised with mean 0 and standard deviation 1); school violence (yes; yes, against me; no); and ownership of educational institution (public, private, subsidised).

### Empirical strategy

To evaluate Hypothesis 1, we applied linear regression models based on ordinary least squares (OLS) with robust standard errors. The main objective was to investigate the relationship between family structures and the school absence indicator, controlling for sociodemographic characteristics and the social background of the pupil (Step 1). These

variables were used to approximate the selection effect, as they are mainly considered antecedents and are therefore not influenced by family structure. For example, parental education level is a variable that allows us to estimate with a certain degree of accuracy the socioeconomic status prior to family formation. This is crucial to control for the selection effect based on social background. Similarly, the age of the reference person is identified as a key variable, given that different studies indicate that, in Spain, young women with lower educational attainment have a higher probability of forming a single-parent family (Garriga & Cortina, 2017). Furthermore, the literature suggests that the presence of siblings has a negative influence on educational attainment (Schmitt et al., 2014) and equal opportunities (Cabrera et al., 2021), which justifies controlling for them to understand how family dynamics affect the allocation of resources and educational opportunities.

Subsequently, we followed a step-by-step approach to test Hypothesis 2. First, we incorporated variables related to household income, type of housing, and employment status of reference person (Step 2). Divorce is associated with a decline in family income, and decades of social science research show that differences in family economic resources explain a substantial part of the differences in children's educational outcomes across family types (Lee & McLanahan, 2015; McLanahan & Sandefur, 1994). Second, we added family-related social resources, such as the relationship between parents and children (Step 3). Subsequently, we added school-related social resources, such as parental interest in children's academic responsibilities (Step 4). Previous research has shown that single parents spend less time supervising and caring for their children, provide less encouragement and support for their children's schooling (Astone & McLanahan, 1991), and spend less time on developmental activities such as talking, reading, and playing with the child (Fallesen & Gähler, 2020). Finally, we added variables related to school environment (Step 5). Previous studies have found that a positive perception of school environment can mitigate the negative effects of poverty on pupils' behaviour, allowing pupils from low-income households to behave similarly to their peers from more affluent households (Hopson & Lee, 2011). In this way, school environment may act as a protective element against the economic disadvantages experienced by single-parent families. The variables included in Steps 2 to 5 can be considered intervening variables, as they are often affected by changes in family structure and may thus explain some disadvantages of growing up in single-parent families.

The order in which the variables were introduced into the models was decided based on the literature, which indicates that loss of economic resources, rather than loss of social resources, is often the main mechanism by which parental absence affects children's educational outcomes (Brand et al., 2019; McLanahan & Sandefur, 1994). For example, economic constraints can quickly translate into difficulties in covering costs associated with school absence, such as transportation and materials, whereas the impact of social resources may be more mediated and less direct. Therefore, the models were constructed using a step-by-step logic to reflect this hierarchy of influences, allowing for a clearer interpretation of the independent role of each type of resource.

To test Hypothesis 3, we ran separate OLS models for adolescents whose parents had lower secondary education or less, and adolescents whose parents had university education (for single-parent families, we imputed education level of the parent living

in the same household as the adolescent). This approach aims to quantify whether the association between growing up in single-parent families and school absence differs amongst adolescents with different social backgrounds. In this paper, we use highest education level attained by the parent as an indicator of social background for several reasons. Parental education is one of the best predictors of children's educational trajectories, and this indicator enables better comparability across countries, cohorts, and studies than social class indicators based on occupational categories (Barone & Ruggera, 2018). However, previous research on school absence has identified a strong relationship between indicators such as housing tenure and patterns of absenteeism (Klein et al., 2020). Based on this evidence, we have decided to use housing tenure as an indicator that captures aspects other than parental educational level, such as residential segregation, to broaden our understanding of the varied socioeconomic characteristics of households and their relationship with school absence.

Finally, we present several additional analyses. First, we replicated the same empirical strategy for single-parent families considering marital status of the reference person (divorced, widowed, single). Second, we replicated the empirical strategy including a more detailed family structure variable (single-parent, reconstituted, and other family types). Third, we replicated the analyses using a school absence variable defined in categories, like the original variable provided by ESOC10 (see "Variables" section). We decided to recode this variable into the first three categories ([0], [1–9], [10 and more]) due to the small number of cases in the higher categories, which could affect the validity of the statistical analyses. Fourth, for each independent variable affected by missing values, we have introduced a new category "not available", to explicitly identify those cases with no information. This allows us to maintain the integrity of the dataset and to facilitate a more representative analysis of the population studied. The results are discussed in more depth in the additional analysis section.

## Results

### Descriptive analyses

Table 1 presents the characteristics of the analytical sample according to the family structure in which the adolescents grow up. Figures on school absence show that students from single-parent families have on average a school absenteeism rate of 6%, whereas adolescents growing up in two-parent families have a rate of 3%. The data also show substantial differences in the socioeconomic composition of households. Approximately 6 out of 10 single-parent households report a net income of less than 1000 euros per month, as opposed to 2 out of 10 for two-parent households. These findings highlight the greater economic vulnerability of single-parent households, of which around 8 out of 10 are headed by women.

The data on the relationship between parents and children indicate that about 3 out of 10 adolescents living in single-parent households describe the relationship with their father as fair, bad, or very bad. This proportion is 1 in 10 for adolescents growing up in two-parent families. As to parental involvement in school matters, we observe that the absent parent in single-parent tends to be less involved in worrying about his or her children's homework and grades than the parent of adolescents residing in two-parent

**Table 2** Proportion of unexcused absences from school by parental education and housing tenure status

	Mean	SD
Parental education		
Lower secondary education or below	0.05	1.02
Upper secondary	0.02	0.96
University	0.01	0.87
Housing tenure status		
Owned	0.03	0.95
Rented	0.06	1.11

families. In addition, adolescents from single-parent families often perceive the school environment, both between teachers and students and amongst peers, to be less favourable compared to adolescents growing up in families with both parents present at home.

Table 2 presents the proportion of school absences according to parental education level and housing tenure. The data show that adolescents from low-educated parents and rented households have a higher proportion of school absences. Overall, these descriptive results initially support our theoretical expectations: adolescents growing up in single-parent families tend to have more unexcused school absences than those from two-parent families, especially if they are from a low social background. These differences could be due to economic deprivation, relationship with parents (especially the absent parent), or school environment.

In the following sections, we present our findings on the effect of family structure on school absence rates and explore the mechanisms that might explain this relationship. We also examine differences in outcomes according to adolescents' social background, which is measured by parental educational level and household tenure.

#### Family structure and school absence: main mechanisms

Model 1 in Table 3 shows a statistically and substantially significant coefficient for single-parent families ( $\beta = 0.028$ ;  $p < 0.01$ ). This information indicates that growing up in single-parent families correlates, on average, with a 2.8 percentage point increase in unexcused school absences (corresponding to approximately 5 days of school absence on average per year) compared to adolescents residing in two-parent families. Expressed in absolute terms it could be perceived as a small effect, but in relative terms it is large. Considering that the average rate of absence in two-parent families is 0.03 (see Table 1), the coefficient of 0.028 represents a significant difference. This is equivalent to an increase of almost 50% in school absences for those that live in single-parent families. Furthermore, these results also suggest that, although social background may influence selection into single-parenthood, this influence is limited and does not significantly explain the differences in school absence rates observed between adolescents from single- and two-parent families. These selection estimates should be interpreted with caution, as they may be overestimated due to data limitations that do not allow us to control for other confounding factors, such as parental conflict. These factors may affect both single-parent family formation and adolescent school absence.

**Table 3** Multivariate linear regression models explaining proportion of unexcused absences from school

	Model 1	Model 2	Model 3	Model 4	Model 5
Family structure (ref. two-parent)					
Single-parent	0.028*** (0.008)	0.019** (0.008)	0.011 (0.007)	0.011 (0.007)	0.011 (0.007)
Sex (ref. girl)					
Boy	0.004 (0.003)	0.004 (0.003)	0.004 (0.003)	0.004 (0.003)	0.004 (0.003)
Nationality of adolescent (ref. Spanish)					
Other nationalities	0.003 (0.008)	−0.011 (0.008)	−0.010 (0.008)	−0.011 (0.008)	−0.014* (0.009)
Age of reference person (ref. ≥ 50)					
< 40	0.017** (0.007)	0.016** (0.007)	0.016** (0.007)	0.016** (0.007)	0.015** (0.007)
40–49	−0.001 (0.003)	0.000 (0.003)	−0.000 (0.003)	−0.000 (0.003)	0.000 (0.003)
Presence of siblings (ref. no)					
Yes	0.002 (0.005)	0.002 (0.005)	0.002 (0.005)	0.002 (0.005)	0.003 (0.005)
Highest level of parental education (ref. university)					
Lower secondary education or less	0.034*** (0.003)	0.023*** (0.003)	0.023*** (0.003)	0.024*** (0.003)	0.019*** (0.003)
Secondary or upper secondary	0.012*** (0.002)	0.006** (0.003)	0.006** (0.003)	0.007** (0.003)	0.003 (0.003)
Net monthly household income (ref. ≥ 2700 €)					
≤ 1000 €		0.013*** (0.005)	0.014*** (0.005)	0.014*** (0.005)	0.010** (0.005)
1001–1800 €		0.006* (0.003)	0.006* (0.003)	0.006* (0.003)	0.003 (0.003)
1801–2700 €		0.002 (0.003)	0.002 (0.003)	0.002 (0.003)	0.001 (0.003)
Employment status of reference person (ref. works full time)					
Working part-time		0.004 (0.008)	0.004 (0.008)	0.004 (0.008)	0.003 (0.008)
Unemployed		0.007 (0.006)	0.007 (0.006)	0.006 (0.006)	0.007 (0.006)
Inactive		0.009 (0.007)	0.008 (0.007)	0.007 (0.007)	0.006 (0.007)
Housing tenure (ref. owned)					
Rented, leased, or free of charge		0.022*** (0.006)	0.021*** (0.006)	0.021*** (0.006)	0.020*** (0.006)
Relationship with mother (ref. good or very good)					
Fair/poor/very poor			0.018 (0.011)	0.018 (0.011)	0.013 (0.012)
Relationship with father (ref. good or very good)					
Fair/poor/very poor			0.018** (0.008)	0.018** (0.008)	0.017** (0.008)
Mother's concern about homework (ref. a lot/quite a lot)					
Little/none				0.011*** (0.004)	0.012*** (0.004)
Mother's concern about grades (ref. a lot/quite a lot)					
Little/none				−0.001 (0.007)	−0.002 (0.007)
Father's concern about homework (ref. a lot/quite a lot)					
Little/none				−0.009*** (0.003)	−0.009*** (0.003)
Parent's concern about grades (ref. a lot/quite a lot)					
Little/none				0.002 (0.005)	0.001 (0.005)
Teacher–student relationship					
					−0.005** (0.002)
Student atmosphere					
					−0.003 (0.002)
School violence (ref. no)					
Yes					0.000 (0.003)
Yes, against me					0.039 (0.027)
Ownership of school (ref. private or subsidised)					
Public					0.016*** (0.003)



**Table 3** (continued)

	Model 1	Model 2	Model 3	Model 4	Model 5
Intercept	0.011 (0.008)	0.011 (0.008)	0.010 (0.008)	0.010 (0.009)	0.003 (0.009)
<i>N</i>	2279	2279	2279	2279	2279
<i>R</i> <sup>2</sup>	0.073	0.093	0.102	0.106	0.127

Robust standard errors in parentheses

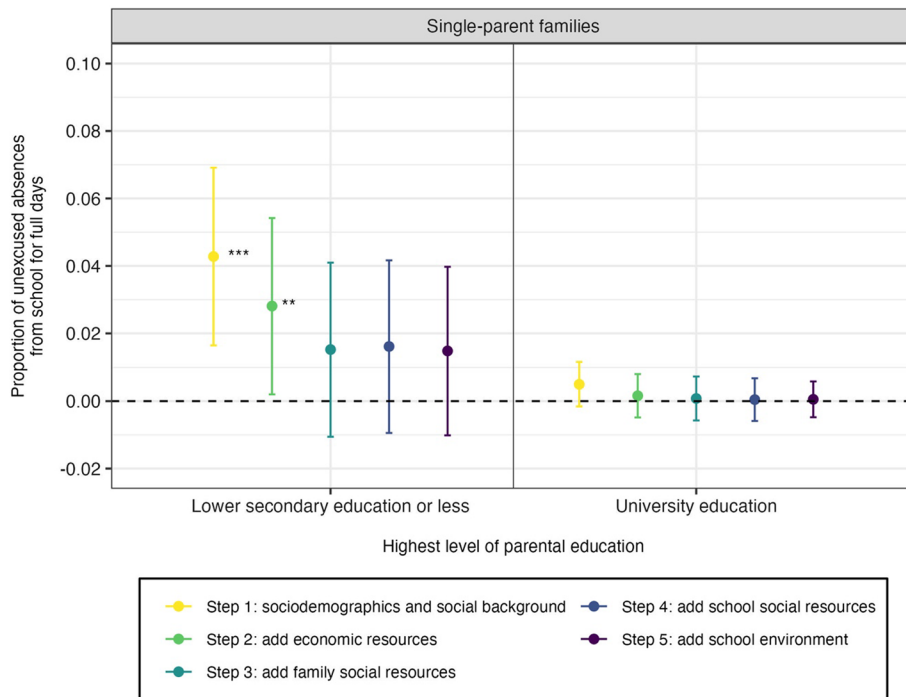
\*\*\* $p < 0.01$ ; \*\* $p < 0.05$ ; \* $p < 0.1$

When the independent variables of main interest are added stepwise in the next models, the coefficient on single-parent families is reduced, indicating that these factors contribute to the relationship between growing up in single-parent families and unexcused school absences. In the Model 2, economic resources are added, which reduces the coefficient for single-parents by almost 1 percentage point ( $\beta = 0.019$ ;  $p < 0.05$ ). After several tests, we found that household income is the variable that most significantly reduces the coefficient associated with single-parent families. This finding suggests that economic deprivation partially explains the high school absence rates observed amongst adolescents growing up in single-parent households. Greater economic deprivation in these households may motivate adolescents to be absent from school, even acting as a precursor to early school leaving, to bring additional income into the household.

Model 3 incorporates variables related to family social resources. Including these variables reduces the coefficient associated with single-parent families to 0.011 ( $\beta = 0.011$ ; not significant). After several tests, we found that poor relationship with the absent parent is the major factor reducing the coefficient associated with single-parent families in this step, these results indicate that a good relationship with the absent parent is an important explanatory factor mitigating educational disadvantages in terms of absenteeism amongst adolescents from different family structures. The loss of social capital related to the departure of a parent or to a conflictual relationship may decrease the involvement and support in school activities of adolescents, as well as the motivation and transmission of the cultural capital necessary for adequate academic development.

Furthermore, in Model 4, when incorporating variables related to social resources linked to school, the coefficient associated with single-parent families remains similar, with a magnitude of 0.011. This indicates that family-related social resources have a more significant influence on school absence than those social resources related to adolescents' school support.

Finally, with the incorporation of variables related to the school environment in Model 5, the coefficient corresponding to single-parent families does not change ( $\beta = 0.011$ ; not significant). These results indicate that experience of an adverse school environment play a smaller role in differences in school absence between adolescents from single-parent and two-parent families than do economic or family social resources. Although the latter do not explain disadvantages between family types, educational environment coefficients such as teacher–student relationship or school ownership are good predictors of school absence.



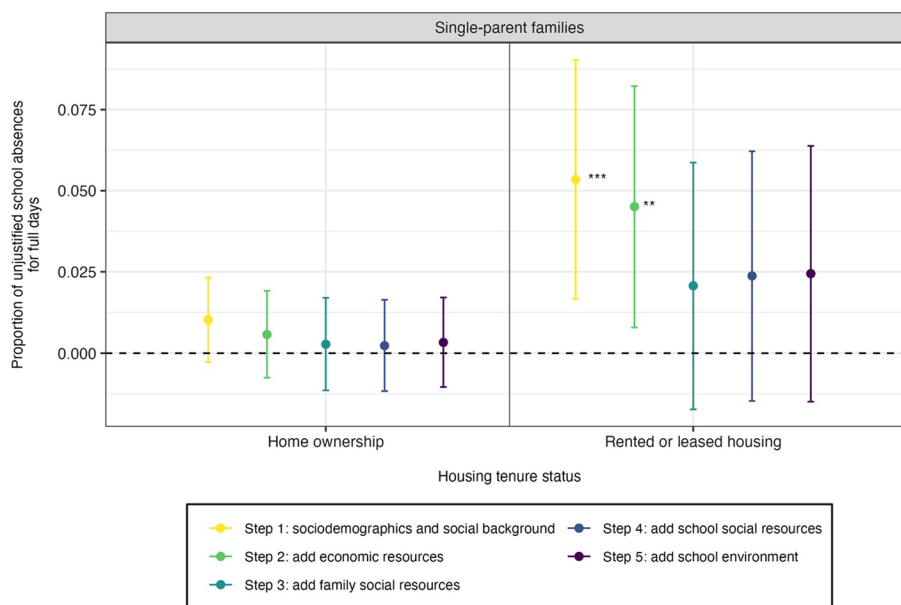
**Fig. 1** Effect of family structure on proportion of unexcused school absences by parental education. Reference category: two-parent families. \*\*\* $p < 0.01$ ; \*\* $p < 0.05$ ; \* $p < 0.1$

**Heterogeneity in the effects of family structure**

Figure 1 presents the results for the effect of growing up in single-parent families on proportion of full-day absences, according to the adolescents’ social background. In Step 1, we observe that adolescents from single-parent families with parents with lower secondary education have on average 4.3 percentage points more unexcused absences (more than 7 days of unexcused absences from school per year on average) compared to those from two-parent families. For adolescents from parents with university education, in contrast, the increase is 0.4 percentage points. These results suggest that, even after controlling for possible selection factors, adolescents with low-educated parents and growing up in single-parent families have a higher proportion of school absences than their counterparts residing in two-parent families. For the group of adolescents with university-educated parents, the differences by family structure are practically null.

When economic resources are introduced in Step 2, the coefficient for single-parent families is reduced to 2.8 percentage points for the group of adolescents with parents with lower secondary education. When we add family social resources in Step 3, the coefficient for the lower education group again decreases to 1.5 percentage point, suggesting that both economic and social resources—mainly poor relationship with the father—partially explain the higher rates of school absence amongst adolescents from single-parent families with lower social backgrounds.

Finally, the coefficient remains stable after incorporation of school social resources (Step 4) and school characteristics (Step 5), indicating that elements such as father’s concern about homework or grades, and student–teacher relationship or ownership of school have a minimal impact on the difference in school absence amongst adolescents



**Fig. 2** Effect of family structure on proportion of unexcused school absences by form of housing tenure. Reference category: two-parent families. \*\*\* $p < 0.01$ ; \*\* $p < 0.05$ ; \* $p < 0.1$

from different family structures. In sum, given equal economic and social resources, living in a single-parent household is not necessarily a determinant of school absence amongst adolescents with parents from low social backgrounds.

Another indicator that is closely related to school absence trajectories is the form of housing tenure. This indicator may capture other dimensions of household socio-economic status, such as poverty risk or residential segregation. Figure 2 presents the results of the effect of growing up in single-parent families on the proportion of school absences, as a function of tenure status. In Step 1, when we control for demographic characteristics and social background, we observe that adolescents growing up in single-parent families residing in rented housing have 5.3 percentage points more school absences compared to their peers growing up in families with both parents present in the household. In contrast, for adolescents in single-parent households residing in ownership housing, the increase in the proportion of school absences was 1 percentage point. These results show that there are no differences between adolescents in single-parent and two-parent families when living in home ownership.

When we add the economic resources variable block (Step 2), the coefficient for single-parent families residing in rented housing is reduced to 4.5 percentage points, whilst the coefficient associated with single-parent families residing in owner-occupied housing is practically zero. These results suggest that, in the case of adolescents in single-parent households living in rented accommodation, differences in the proportion of school absences are partially explained by lower economic resources. Furthermore, when adding family-related social resources (Step 3), the coefficient for single-parent families is reduced to 2 percentage points. Finally, when we control for school-related social resources (Step 4) and school environment (Step 5), the coefficient for single-parent families remains the same.

In summary, growing up in a single-parent household is associated with higher school absence, with these differences being substantial in both absolute and relative terms. This disadvantage is due partly to economic factors and a poor relationship with the absent parent. We also find that these disadvantages are more pronounced in adolescents whose parents have a low level of education or live in rented accommodation.

#### **Additional analysis**

The patterns described above held in most of the robustness checks conducted (see Additional file 1). First, we replicated the empirical strategy using an alternative definition of family structure, identifying three subtypes of single-parent structure according to marital status of the reference person: (1) single-parent families in which reference person in the household reports being divorced ( $N=143$ ); (2) single-parent families in which reference person identifies as single ( $N=36$ ); and (3) single-parent families in which reference person reports being widowed ( $N=56$ ). The findings are consistent with those presented above: adolescents in single-parent families have more unexcused absences (see Additional file 1: Table S1), although the effect is more pronounced in single-parent families where the reference person identifies as single. Likewise, economic and social resources are the main mediators that partially explain the differences in absence rates. The trend for heterogeneity by social background follows the same line as in the primary analyses (see Additional file 1: Fig. S1), although educational environment seems to have slightly more weight in explaining school absence amongst adolescents from single-parent and widowed families with a low social background. Due to the small number of cases in the single-parent and widowed categories, however, our results may overestimate the association and should be interpreted with caution.

Second, we replicate the empirical strategy using a more detailed definition of family structure. Although the results are consistent, we observe some variations: growing up in single-parent families and in other structures is associated with higher absenteeism (see Additional file 1: Table S2) but growing up in reconstituted families is not associated with higher school absence. Moreover, sociodemographic characteristics and social background, together with economic and social resources, slightly reduce the differences in absenteeism rates in both reconstituted families and other family types. It is possible that this result suggests a partial contribution of selection to explaining these differences, although we cannot conclude its influence definitively. We detect a trend for heterogeneity by social background like that observed in the main analyses for category of other family types but do not perceive a clear pattern in the case of reconstituted families (see Additional file 1: Fig. S2). Note that both reconstituted families and other family types present a low number of cases, potentially affecting statistical precision. It is thus advisable to interpret these results with caution.

Finally, we replicated the analyses by assigning missing cases in each independent variable to a category called “not available”. This was done to preserve the integrity of the dataset and to facilitate a more representative analysis of the population studied (see Additional file 1: Table S3 and Fig. S3). Furthermore, we replicated the analyses by estimating ordered logistic models applied to the school absence variable defined in categories (see Additional file 1: Table S4 and Fig. S4). This approach aims to minimise the loss of information that could arise from transforming the dependent variable

of school absence, used in the main analyses, into a numerical variable. The findings derived from these robustness tests support the main conclusions set out in the main body of the paper.

## Discussion

The present study examined the relationship between growing up in single-parent families and school absence in Andalusia (Spain), and whether this association varies according to the family's social background, as measured by parental education and housing tenure status. Andalusia, like Spain, is an especially relevant setting for study because both region and country have witnessed significant transformations in family structures in recent decades (Castro-Martin & Seiz, 2014), have secondary school absenteeism rates above the European average (García & Weiss, 2020), and stand out for the striking influence that family of origin's resources have on children's lifetime educational trajectories (Brunori et al., 2018).

Analyses show that adolescents growing up in single-parent families have, on average, a higher proportion of school absences than their counterparts growing up in two-parent families. These results corroborate our Hypothesis 1 and confirm previous research findings showing that children raised in single-parent families are at higher risk of not attending school regularly (Astone & McLanahan, 1991; Gubbels et al., 2019). This result has important implications for adolescents' lifetime outcomes. For example, some studies suggest that school absences have negative cumulative effects that reduce human capital over time and lead to poorer labour market outcomes in adulthood (Cattan et al., 2023).

According to our study findings, belonging to a single-parent family is a relevant variable in understanding school absence, and interacts with other factors such as economic and social resources. The results thus partially support Hypothesis 2, which postulates that economic resources (income and housing tenure) and social resources (mainly relationship with father) contribute to explaining the differences in school absence rates observed between adolescents growing up in single-parent and two-parent families. The characteristics of the school environment have no explanatory influence on differences in school absence rates. This evidence aligns with classic studies analysing the educational disadvantages experienced by children and adolescents in non-conventional families. These studies argue that loss of economic and social resources explains part of these educational disadvantages (Mandemakers & Kalmijn, 2014; Martin, 2012; McLanahan & Sandefur, 1994).

The dynamics of absenteeism are not homogeneous, however, for all adolescents. Large disparities occur according to social background (Klein et al., 2020). The results of this study show that adolescents who grow up in single-parent families and have parents with low education levels have more school absences than their counterparts with university-educated parents. Moreover, we observe the same pattern when using housing tenure as an indicator of social origin: adolescents from single-parent families living in rented housing have a higher percentage of school absences than their counterparts from two-parent families; however, there are no differences between adolescents from single-parent and two-parent families when living in owner-occupied housing. Much of this disadvantage experienced by adolescents from low social backgrounds is explained

by economic deprivation and poorer social resources. Our findings thus fully support Hypothesis 3, in line with other studies showing that growing up in single-parent families has more negative educational consequences for adolescents from low social backgrounds in terms of school dropout or grade retention (Guetto & Panichella, 2019). This finding could be explained by the greater ability of parents with greater economic, social, and cultural resources to mitigate the negative effects associated with divorce or absence of a parent (Bernardi, 2014), supporting the theory of *compensatory advantage*. Furthermore, these results support the argument found by other studies that school absence is disproportionately concentrated amongst the most disadvantaged social backgrounds (Klein & Sosu, 2024; Klein et al., 2020).

Since school absenteeism is detrimental to children's school performance (Gottfried, 2010), school absences could be considered as an influential factor in explaining both school dropout trajectories and the lower educational outcomes observed in children from single-parent families. Amongst the main mechanisms that may explain this association are the difficulties parents heading single-parent households face in reconciling their work and family responsibilities, which could result in less supervision of their children's regular school attendance. Difficulties associated with housing tenure also appear to play a significant role. Given their limited economic capacity, these families are more likely to live in rented accommodations and thus to experience housing instability or eviction<sup>2</sup> (Valiño, 2015). Becoming homeless can trigger processes of stress and deprivation that may be closely related to a range of social and educational disadvantages. The tenure of rented housing may capture other dynamics of residential segregation that shape both certain family types and the problem of absenteeism. In other words, it is likely that this socioeconomic characteristic captures realities such as areas with a high presence of immigrants or minoritised ethnic groups and thus high levels of school absenteeism (Río Ruiz & Benítez Martínez, 2009).

Another mechanism that could help explain the increase in absenteeism amongst adolescents growing up in single-parent households with limited economic resources is the possibility of becoming independent early or seeking employment to supplement family income. These factors may explain why the association between family structure and school absence is concentrated entirely in disadvantaged backgrounds. Research shows that adolescents from single-parent households become financially independent at younger ages, due primarily to the need to bring additional income into the household because of the economic deprivation they experience at home (van den Berg et al., 2018).

Relationship with the absent parent also plays a role in the regularity with which the student attends school. Previous studies have shown that parental divorce worsens the relationship between children and the absent parent (Kalmijn, 2013). Factors such as level of conflict between parents both before and after the divorce are characteristic elements of the break-up that have a significant impact on the relationship between the absent parent and the child (Spaan et al., 2022). Thus, lack of a good relationship with the absent parent could aggravate school behaviour problems in adolescents, whilst

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<sup>2</sup> The ESOC10 survey covers the period 2009–2010, which coincides with the rise in evictions of vulnerable households due to the 2008 economic-financial crisis. This period is characterised by marked exacerbation of housing-related problems, especially among the most disadvantaged groups, including low-income single-parent households. This period may plausibly explain the significant influence of housing tenure on school absence, as well as mediation of the experience of growing up in single-parent family structures in relation to school absence.



at the same time depriving them of substantial sources of support (e.g., economic and cultural resources) essential for their academic development and motivation. With this evidence in mind, we must consider the complexity and diversity of family dynamics when analysing school absence. These dynamics, together with the dynamics of social stratification in education, interfere with school absence, especially amongst the most vulnerable socioeconomic groups.

This article has several limitations that must be considered when interpreting the results. First, our findings cannot be interpreted as causal. It could be that part of the association between growing up in single-parent families and unexcused school absences is due to unobserved characteristics, such as parental conflict or the extent to which divorce is widespread at the regional level. These factors could influence both the likelihood of growing up in the absence of a parent and adolescents' school absence. For instance, studies that have controlled for possible selection effects suggest that it is not so much the absence of a parent *per se*, but parental conflict prior to separation that negatively affects children's educational attainment (Piketty, 2003). Furthermore, the negative effects of parental absence on children's educational development may be attenuated as new family structures gain social acceptance, although studies have found mixed results on this issue (Kalmijn, 2023).

Second, due to the cross-sectional nature of the data, it is not possible to test whether the variables we use to measure social resources can be considered intervening variables in the causal chain between family structure and school absence. That is, we understand that social resources such as the relationship with parents, parental involvement in homework and school characteristics may not only influence school absence, but they may also be influenced by children's behaviour. This limitation could be mitigated by replicating our empirical strategy with panel data that include a set of variables prior to the formation of single-parent families. This type of data allows the application of more sophisticated analytical designs that better address the problem of causality, such as fixed effects models, which allow us to observe whether the experience of an event such as marital breakdown increases school absence if a deterioration in economic and social resources is observed.

Finally, more qualitative studies are needed to explore the reasons for school absence and to better understand this phenomenon and its relationship to family trajectories. For instance, the higher absences of children growing up in single-parent families could be attributed to the child needing to help their parents at home, either for economic reasons or to help care for siblings.

## Conclusion

This study shows that growing up in single-parent families in Andalusia, the most densely populated region in Spain, is associated with an increase in school absences, especially amongst adolescents from low social backgrounds. A considerable proportion of the observed difference in school absence rates between adolescents from single-parent and from two-parent families can be attributed to greater economic vulnerability, as well as to deterioration in the quality of the parent–child relationship, especially with the father figure, the parent who is usually absent from the home.

From a public policy perspective, these findings underline the need to formulate strategies to improve the material living conditions of single-parent families, as well as to consider policies that favour co-responsibility in raising children. This study makes a novel contribution to the Spanish academic context as the first to examine how changes in family structures are related to school absence, and how these patterns are linked to previous dynamics of social stratification in the sphere of education.

### Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s41118-024-00214-3>.

**Additional file 1: Table S1.** Multivariate linear regression models explaining the proportion of unexcused absences from school by reference person's marital status. **Figure S1.** Effect of reasons for entry into single parenthood on the proportion of unexcused school absences, by highest level of parental education. **Table S2.** Multivariate linear regression models explaining the proportion of unexcused absences from school for different family structures. **Figure S2.** Effect of different family structures on the proportion of unexcused school absences, by highest level of parental education. **Table S3.** Multivariate linear regression models explaining the proportion of unexcused absences from school for single-parent families. No imputed missing data. **Figure S3.** Effect of family structure on proportion of unexcused school absences by parental education. No imputed missing data. **Table S4.** Predicted probabilities of school absence from ordinal regression models. **Figure S4.** Effect of family structure on the probability of school absences by parental education. Ordinal regression models.

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### Author contributions

MM: contribution to conception of the study, literature review, data analysis and management, interpretation, drafting of the initial text, and revision. AM: contribution to conception of the study, literature review, interpretation. Both authors approved the final version.

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### Availability of data and materials

The dataset supporting the conclusions of this article is available in the Portal de datos abiertos—Junta de Andalucía repository [<https://www.juntadeandalucia.es/datosabiertos/portal/dataset/encuesta-social-2010-educacion-y-hogares-andalucia>].

### Declarations

#### Competing interests

The authors declare that they have no competing interests.

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