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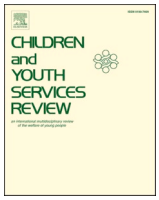

Profiles of protection trajectories among children in residential care

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ABSTRACT

Introduction: Children entering the child welfare system frequently present histories of Adverse Childhood Experiences (ACEs), which impact their well-being. Once in out-of-home care, factors such as placement length and stability are known to influence children's developmental outcomes. Identifying the distinct protection trajectory profiles is necessary to inform policy and optimize the care provided. However, research examining these trajectories specifically within residential care remains scarce.
Objectives: This study addresses that gap with two aims: (1) to identify patterns in the protection trajectories of children in residential care in Spain, and (2) to explore the association of initial factors with the different trajectories.
Method: The sample included 49 children who had been in residential care during childhood. Data was gathered from protection case-files and developmental and psychosocial adjustment assessments. A cluster analysis was conducted identifying three shared trajectory profiles.
Results: Profile 1 (trajectories ending in family-based care) included children who entered care at a younger age, spent less time in residential care homes, and presented fewer developmental difficulties. Profile 2 (unstable protection trajectories) was composed of children who experienced multiple placement changes, later entry into the child welfare system, a greater number of ACEs, and higher emotional difficulties. Profile 3 (prolonged and stable residential care trajectories) consisted of children with long but stable placements, many having diagnosed illnesses or disabilities.
Conclusions: These findings highlight the diversity of care experiences and offer insights for improving child protection practices and supporting decision-making within the child welfare system to promote stable and secure protection trajectories.

1. Introduction

Children and adolescents entering care have often experienced Adverse Childhood Experiences (ACEs) (Indias et al., 2019). They may have faced prenatal maltreatment, neglect, physical, sexual, or emotional abuse, as well as ongoing exposure to highly dysfunctional environments (Bellis et al., 2023; Griffith et al., 2009; Thompson et al., 2009). These experiences frequently require the temporary or permanent separation of children and adolescents from their family unit and their subsequent placement in alternative care arrangements.

Driven by the international consensus that an adequate family environment represents the optimal setting to ensure the development and well-being of children and youth (Dozier et al., 2014; Palacios et al., 2019), the United Nations General Assembly (2010) issued a set of guidelines for the alternative care of children, emphasizing the importance of stable family placements for promoting child well-being. Many countries have incorporated these principles into national legislation, prioritizing family care and limiting residential care placements.

Currently, the worldwide prevalence rate of children living in residential care placements is estimated at 96 per 100,000 children in 2024 (UNICEF, 2025). However, the use of residential care varies significantly across countries, remaining frequently employed in nations such as Portugal or Latin American countries like Argentina, while being sparsely used in countries such as Ireland, Australia, or the United States. Within the context of this study, Spain is considered a medium-use country for residential care, similarly to other countries such as Italy or France (Whittaker et al., 2023).

Data from Spain in 2023 indicate that 49% of all out-of-home care arrangements constituted residential care placements (Observatorio de la Infancia, 2024), despite the provisions established in current

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legislation (Ley 26/2015). Although the duration of stays in residential care varies, they often lead to extended periods. For example, del Valle et al. (2008) reported that 28.20% of participants had spent more than ten years in residential care, while Gullo (2021) found similar results, with 31.30% of care-leavers having remained in such placements for over nine years.

Research on the child welfare system indicates that children in residential care frequently present complex profiles, characterized by internalizing and externalizing difficulties (Fernández-Daza & Fernández-Parra, 2017; González- García et al., 2017; Jozefiak et al., 2016; Román et al., 2012; Soriano-Díaz et al., 2023). Furthermore, some studies suggest that these difficulties tend to increase over time (Delgado et al., 2012; Román et al., 2022; Shechory & Sommerfeld, 2007). However, findings are heterogeneous (Lee & Holmes, 2021). Several individual and contextual factors, including placement stability, quality of caregiving, and access to therapeutic interventions, can either buffer or exacerbate children's psychosocial outcomes (Costa et al., 2022; González-García et al., 2023; Lee & Holmes, 2021; McGuire et al., 2018).

Placement stability, in particular, is a key variable, and children's experiences within the child welfare system vary considerably depending on this factor, with children and adolescents occasionally experiencing placement changes that negatively impact their well-being (Fallesen, 2014; Havlicek, 2010; McGrath-Lone et al., 2020; McGuire et al., 2018). Moreover, several studies underscore the need to consider the timing, sequence, and duration of life events (Wulczyn, 2020), as well as their cumulative effects and the influence of early experiences on later outcomes (Brady & Gilligan, 2018; Jones et al., 2024). Consequently, research must shift focus on the variability of the longitudinal trajectory followed and the factors that contribute to these diverse trajectories. To this end, international research has successfully identified distinct protection trajectory groups in out-of-home care using administrative data (Fallesen, 2014; Havlicek, 2010; Jones et al., 2024; McGrath-Lone et al., 2020). These studies delineate trajectory groups spanning from stable, short-term placements to complex, long-term, and unstable care trajectories.

Regarding related factors documented in scientific literature, the study by Jiménez-Morago et al. (2015) points out that, compared to other protective measures, children in residential care have experienced more frequent and more intense child maltreatment. This heightened initial risk is consistently associated with complex trajectories in the broader out-of-home care system. Fallesen (2014) indicates that the accumulation of family-related risk factors increased the likelihood of children developing unstable care trajectories. Similarly, Jones et al. (2024) note that children with the longest and most unstable trajectories frequently presented extensive histories of prior reports and interventions with the child welfare system, suggesting a prolonged history of exposure to risk and maltreatment.

Beyond initial risk, the age at which a child first enters the protection system is an important factor shaping both the trajectory and the overall impact of that experience (James et al., 2004; Shechory & Sommerfeld, 2007; Wulczyn, 2020). Children who enter care at older ages typically have limited access to family-based alternatives and follow trajectories dominated by residential care placements (López & del Valle, 2015).

Furthermore, while some studies (López & del Valle, 2015; Schofield et al., 2007) also identified differences in care trajectories based on gender (males had a higher likelihood of being in residential care), other research found no significant evidence in this regard (Jones et al., 2024). Conversely, long stays in residential care have been linked to the presence of disabilities and chronic diseases (James et al., 2012; López & del Valle, 2015; Schofield et al., 2007). Consistent with this finding, Sainero et al. (2013) found that children with intellectual disabilities also experienced more unstable stays in residential care compared to those without disabilities. Moreover, behavioral difficulties have been associated with increased placement instability (Aarons et al., 2010; Osborn et al., 2008; Rubin et al., 2007). It is worth noting, however, that Newton et al. (2000) indicated that behavioral problems can act both as a predictor and a consequence of placement changes.

Given the substantial impact that care trajectories can have on child development and well-being, further research is needed to better understand the factors that contribute to long-term or unstable placements. Crucially, to our knowledge, studies specifically addressing residential care trajectories and their associated factors are scarce. This study aims to address that gap, by focusing on aspects before, during, and after the initial residential care placement. Accordingly, the study has two descriptive objectives. First, to identify and classify common patterns in the trajectories of a sample of children placed in residential care. Second, to examine the association between distinct trajectory profiles and initial variables, such as the child's age at entry into the child welfare system, gender, the number of ACEs, and characteristics of development and psychosocial adjustment assessed after their arrival in residential care.

2. Method

2.1. Sample

The sample consisted of 49 children who had been in residential care in Andalusia (an autonomous region in southern Spain), of which 26 (53%) were girls and 23 (47%) were boys. All participants had been removed from their families after experiencing abuse and neglect and entered into the child welfare system with an average age of 5.40 years-old ($SD = 1.64$, *range* 2–8.58). Data for this study was obtained through the assessment of the professionals from residential care homes and the children themselves when they were in childhood ($M = 6.47$, $SD = 1.49$, *range* 4–8.92) and had been living in emergency residential care or in group homes for an average of 12.12 months ($SD = 12.62$, *range* 1–61). In addition, an in-depth analysis of the protection trajectory of each child was carried out through a retrospective review of the case-files.

At the time of the study all participants had reached adulthood and had exited the child welfare system. The average length of stay in residential care for the sample as a whole was 7.20 years ($SD = 4.88$, *range* 0.58–15.58), with an average of 3.08 placement changes ($SD = 2.53$ *range* 0–13). The adolescents were in the following protection measures immediately prior to their coming of age: 14.30% in family reunification, 20.40% in adoptive families, 6.10% in kinship foster care, 6.10% in non-kinship foster care and 53.10% remained in residential care.

2.2. Measures

2.2.1. Interview on the residential care process

This ad hoc interview aimed to explore key aspects of the child protection process and factors associated with residential care. Residential care professionals were asked structured questions to gather data on sociodemographic characteristics, the type of placement, the child's developmental status, and other relevant factors.

2.2.2. Structured data extraction form for child protection case-files

The research team developed this ad hoc form to systematically collect and synthesize information from the child protection case-files. Information was collected on the child's situation immediately prior to reaching adulthood, the total duration of residential care, and the total number of placement changes experienced. In this study, a placement change is defined as any change in the child's assigned residence, whether it involved a transition between different types of care (e.g., from residential to family foster care) or within the same type (e.g., from one residential care home to another).

Additionally, an index of accumulated ACEs was created based on the information extracted from these case-files. Following a cumulative risk framework (Rutter, 1985), this index was calculated by summing the number of distinct adversities each child experienced prior to their removal from the biological family. The index included the following nine types of adversity: neglect, physical abuse, psychological abuse,

prenatal exposure to alcohol or drugs, sexual abuse, exposure to domestic violence, parental substance abuse, parental mental illness, and incarceration of at least one parent. Each factor was coded as either present (1) or absent (0), resulting in a possible total score ranging from 0 to 9. This counting method is an epidemiological tool that, since its initial use in the study by Felitti et al. (1998), has been widely employed in studies worldwide (Bellis et al., 2023; Hughes et al., 2017).

2.2.3. Anthropometric measures

Physical development was assessed by measuring height, weight, and head circumference. Height and weight data were provided by professionals at the residential care homes, based on measurements taken at pharmacies. Head circumference was measured directly by the research team. These values were converted into standardized z-scores based on Spanish normative data, adjusted for the age and sex of each child.

2.2.4. Battelle Developmental Inventory (Newborg et al., 1988)

Cognitive development of children was assessed using the Battelle Developmental Inventory, a tool designed to evaluate psychological development from birth to age 8. For the purposes of this study, only the cognitive subscale of the Spanish version was used. The raw scores obtained were compared with norms provided by the instrument, consistent with the child's sex and age, to obtain a standardized z-scores. Battelle Developmental Inventory is considered a validated instrument in this field, having been previously utilized in research to assess the developmental status of children in protection measures (Palacios et al., 2025; Sattler et al., 2024).

2.2.5. Strengths and Difficulties Questionnaire (SDQ)

Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) was used to gather information about psychosocial adjustment. The Spanish version for children and adolescents aged 4–17 was administered to the residential child care workers in the residential care homes. The instrument includes five subscales of five items each: emotional difficulties, behavioral difficulties, hyperactivity symptoms, peers difficulties, and prosocial behavior. Each subscale is scored from 0 to 10. Higher scores on the first four subscales reflect greater difficulties, while higher scores on the prosocial scale reflect strengths. A total difficulties score (ranging from 0 to 40) was calculated by summing the scores of the first four subscales. Internal consistency (Cronbach's alpha) for the total difficulties score in childhood was 0.78. The instrument has been employed in other studies for the exploration of psychosocial adjustment in children and adolescents within the child protection system (Rodrigues et al., 2019; Soriano-Díaz et al., 2023).

2.3. Procedure

The sample was part of the *Longitudinal Adoption and Institutionalization Study of the University of Seville* (LAIS.US), a broader study on the child welfare system in Spain. Between 2007 and 2008, residential care homes in Andalusia that housed children aged 4–8 were requested to participate. The age range was selected based on its suitability for the initial phase of the study. Specifically, emergency residential care and group homes were included; however, therapeutic residential care was excluded. For further reading on the residential care model in Spain see Bravo et al. (2023).

Recruitment was carried out in collaboration with the public child protection authority. This entity authorized access to 11 residential care homes, only one of which declined to participate despite meeting the inclusion criteria. Therefore, and considering the territorial and initial temporal scope of data collection, the sample can be considered representative of children aged 4–8 across the two types of residential care homes covered.

The initial assessment was conducted between 2007 and 2008 in the residential care homes, utilizing a mixed-method approach that incorporated both direct and indirect measures of the children. The direct assessment of the children included the Battelle Developmental Inventory, which was administered within their residential care homes by qualified psychologists who had undergone specialized training. This direct assessment also involved anthropometric measures. Specifically, head circumference was taken by the researchers in the residential care homes, while records for weight and height were obtained from pharmacy records. Indirect data was collected from the residential child care workers at the residential care homes, who completed the strengths and difficulties questionnaire and the interview on the residential care process.

Case-files review took place at two points in time. First, between 2017 and 2018, when participants were adolescents, analyzing the contexts of origin, the number of ACEs experienced prior to entering the child welfare system and the protection measures under which they had lived thus far. Second, between 2022 and 2023 when they were over 18 years old and their protection case-files were closed, assessing their situation immediately prior to reaching legal age. At both moments, the research team (with the prior authorization of the regional government) conducted a review of the existing documentation in the participants' cases-files. The most relevant information for the study was summarized using the ad hoc form.

2.4. Ethical procedures and data access

The study was approved by the Andalusian Coordinating Committee on the Ethics of Biomedical Research, which is governed by Spanish and European Union regulations, and by the Research Ethics Committee of the University of Seville. The study complies with the international requirements for human experimentation. All evaluation procedures and interactions with children adhered to stringent ethical standards. Furthermore, throughout the entire process, the confidentiality of information and the protection of personal data were strictly maintained, in compliance with the guidelines set forth in the Declaration of Helsinki concerning research involving human subjects.

During the initial 2007–2008 assessment, the regional government, acting as the children's legal guardian, provided the necessary authorization and consent for their participation. The residential child care workers also agreed to participate voluntarily. Access to the case-files for review was obtained with the authorization and mediation of the regional government, which holds custody of these records. Data collection was performed at the official headquarters of the competent public administration to ensure data integrity.

Due to the sensitive nature of the data and the evaluated population, the following measures were taken. First, the names of the youth were pseudonymized using alphanumeric codes. Second, all information derived from both the initial assessment and the protection case files was secured on hard drives stored in locked facilities.

2.5. Data analysis

All statistical analyses were performed in IBM SPSS Statistics version 26. To address the first objective, hierarchical cluster analysis using Ward's method (1963) and the squared Euclidean distance was used as a measure of similarity between observations. The variables considered for the clustering included total length of stay in residential care, total number of placement changes, and the situation immediately prior to reaching legal adulthood. Given the sample size, a range of solutions between two and three clusters was considered to ensure sufficient cases per cluster for reliable estimation. Outliers were considered (Osborne & Overbay, 2008), and dendrograms and agglomeration schedules were systematically examined during the clustering process. In addition, to confirm whether the grouping of cases is appropriate, a discriminant analysis was performed to validate the internal consistency of the solution and to check for significant differences between clusters with respect to the analyzed variables (Hagaman et al., 2010).

For the second objective, applying qualitative variables, chi-square statistical analysis and effect size test phi (ϕ) were used. For phi test, values based on the recommendations of Cohen (1988) were considered: 0.10 low effect, 0.30 moderate effect, and 0.50 high effect. To perform further exploration of nominal variables, the standardized adjusted residuals (z) were calculated in each cell, with values of ±1.96 considered significant. In the case of quantitative variables, tests with nonparametric statistics Kruskal-Wallis (statistic *H*) and effect size tests by eta squared ($\eta 2$) were conducted to observe for differences between clusters and children's characteristics. To interpret the results of the eta squared ($\eta 2$), the following reference values, based on the recommendations of Cohen (1988), were used: 0.01 low effect, 0.06 moderate effect, 0.14 high effect. Identified differences were analyzed with the Games-Howell post hoc analysis. Residual differences ($p = 0.06$) were considered indicators of significant trends.

3. Results

The results are presented in two sections, aligning with the study's aims. Cluster analysis results are presented first. Secondly, the relationships of the variables gender, presence of illnesses or disabilities, ACEs index, age at entry into the child welfare system, physical, cognitive development, and psychological adjustment in childhood with the different profiles of trajectories are reported.

3.1. Cluster analysis

The determination of the optimal number of clusters was based on a combination of statistical criteria and theoretical interpretability. Interpretation of the dendrograms and analysis of the agglomeration schedules indicated that a three-cluster solution ($k = 3$) was the most appropriate.

Statistically, the $k = 3$ solution is strongly supported by the change in the agglomeration coefficient. The largest increment in the coefficient occurred when fusing the two-cluster solution into a single cluster ($\Delta = 2.41$). However, the second largest increment, registered when merging the three-cluster solution into two, was also significant ($\Delta = 1$). These results suggest that the three-cluster solution provides an optimal balance between within-group homogeneity and between-group heterogeneity.

From a theoretical perspective, this solution enhances cluster interpretability, as it clearly distinguishes trajectories based on the primary placement setting (family care versus residential care). Moreover, it also revealed two distinct trajectories among children with long stays in residential care: those who experienced stable placements within residential care homes and those who underwent high levels of placement instability. These distinct stability profiles in child protection trajectories align with patterns previously identified in other international studies (Fallesen, 2014; Havlicek, 2010; Jones et al., 2024; McGrath-Lone et al., 2020).

The discriminant analysis conducted on the quantitative variables confirmed that the three-cluster solution was appropriate, yielding an overall correct classification rate of 87.80%. This indicated that the analysis effectively differentiated between groups, and that the three clusters were distinct and well-defined. Examination of the canonical discriminant functions revealed that the first function, primarily associated with the variable length of stay in residential care, significantly differentiated the clusters and explained a substantial proportion of the variance among them ($\lambda = 0.13$, $\chi^2 = 91.98$, $p < 0.001$, canonical $R^2 = 0.85$). The second function, related to the number of placement changes, also contributed meaningfully to group differentiation ($\lambda = 0.48$, $\chi^2 = 33.36$, $p < 0.001$, canonical $R^2 = 0.72$).

The three trajectory clusters and a prototypical chronological profile for each are presented below. Table 1 displays the frequencies, main characteristics, and comparative analysis of the three groups according to the clustering variables.

Table 1
Frequencies, characteristics, and comparative analysis of the three profiles.

	Profile 1	Profile 2	Profile 3	*H* (*p*)	$\eta 2$
n (%)	22 (45)	11 (22)	16 (33)		
Length of stay in RC (years)	$M = 2.97$ [a] $SD = 2.86$	$M = 8.54$ [b] $SD = 3.55$	$M = 12.11$[b] $SD = 1.73$	32.69 (<.001) ***	0.67
Number of placement changes	$M = 2.32$[a] $SD = 1.52$	$M = 6.45$[b] $SD = 2.73$	$M = 1.81$[a] $SD = 1.17$	21.50 (<.001) ***	0.42
Situation prior to turned 18	Family context	RC	RC		

Note. Abbreviations: RC = Residential care. Profile 1= Participants with trajectories concluding in family-based care, Profile 2 = Participants with unstable protection trajectories, Profile 3 = Participants with prolonged stable residential care trajectories.*** $p < 0.001$. The superscripts ([a], [b]) indicate significant differences between groups. Groups with the same superscript are not significantly different.

Profile 1: Participants with Trajectories Concluding in Family-based Care

This profile included 45% of the participants ($n = 22$). The group's trajectory was characterized by having lived in residential care an average of 2.97 years ($SD = 2.86$) before being placed in a family protection measure (adoption or foster care) or family reunification with the biological family, where they remained until the age of 18. These children experienced an average of 2.32 changes ($SD = 1.52$) during their protection trajectory (see Table 1 and Fig. 1).

Profile 2: Participants with Unstable Protection Trajectories

This profile included 22% of the participants ($n = 11$). The group's trajectory was characterized by having entered residential care and subsequently experiencing numerous placement changes throughout their time in the child welfare system, with a mean of 6.45 changes ($SD = 2.73$). They had lived in different protective measures during childhood and adolescence and were in residential care homes when they turned 18, having lived 8.54 years in residential care ($SD = 3.55$) (see Table 1 and Fig. 2).

To clarify the analytical levels used in this study, while placement instability is operationalized as the total number of individual placement changes (as defined in the methodology), unstable protection trajectories refer to the longitudinal pattern resulting from the accumulation and frequency of these events over time.

Profile 3: Participants with Prolonged Stable Residential Care Trajectories

This profile included 33% of the participants ($n = 16$). The group's trajectory was characterized by having lived in residential care throughout their entire experience in the child welfare system, with an average of 12.11 years ($SD = 1.73$). Although this was a very extended period, the trajectory in residential care had been quite stable, with a mean of 1.81 changes ($SD = 1.17$) (see Table 1 and Fig. 3).

3.2. Clusters comparison

Once the clusters were identified, comparisons were conducted to examine significant differences among the following variables: gender, presence of illnesses or disabilities, ACEs index, age at entry into the child welfare system, and physical, cognitive, and psychosocial adjustment domains during childhood.

Gender distribution did not differ significantly across profiles, indicating a relatively balanced representation of boys and girls in each group (see Table 2). However, 56.30% of children in Profile 3 (characterized by prolonged and stable residential care trajectories) were reported to have some diagnosis of illness or disability. This proportion was notably higher than in the other profiles, as indicated by the analysis of standardized adjusted residuals (see Table 2). The difference was

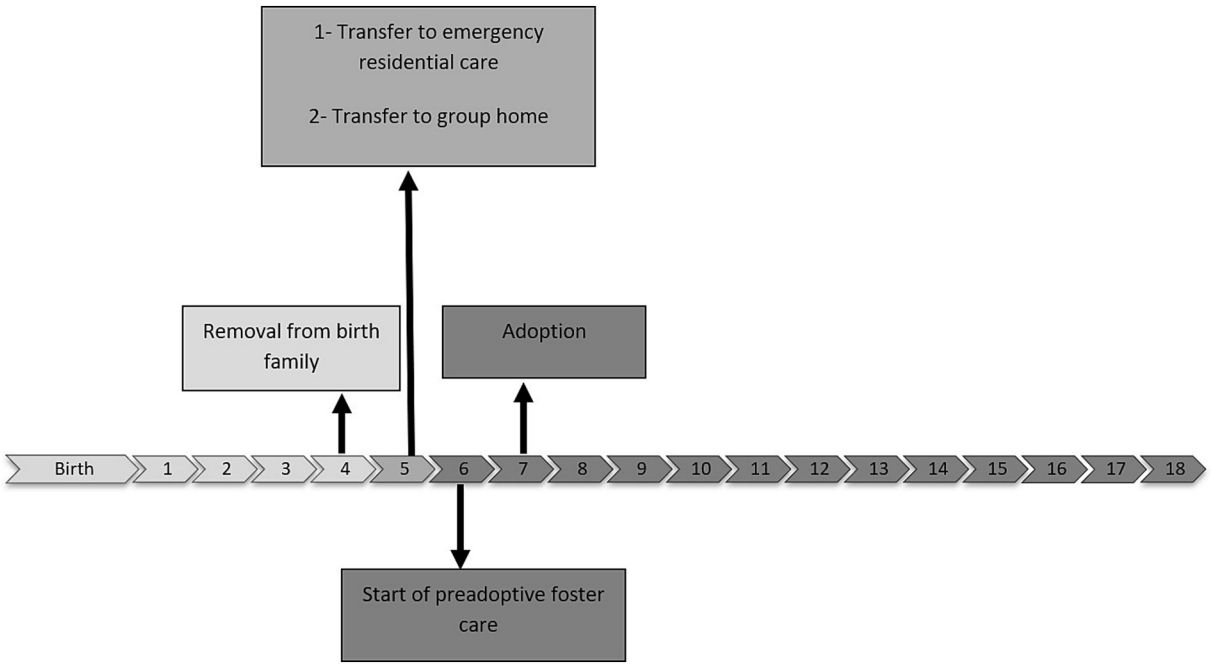

Fig. 1. Timeline of an example case from Profile 1. The horizontal line represents years, from birth to 18 years of age. Each square describes the most important events experienced by the child in specific years. The figure shows the child's entry into a short period of residential care, after which the participant was adopted and remained with the adoptive family until reaching the age of 18.

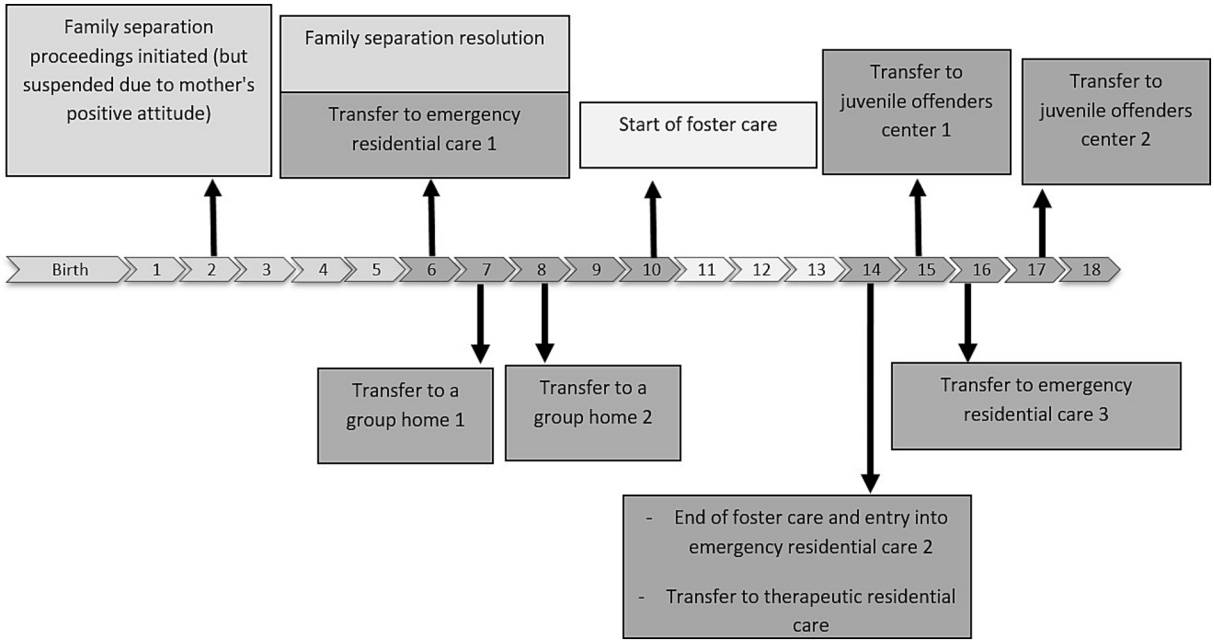

Fig. 2. Timeline of an example case from Profile 2. The horizontal line represents years, from birth to 18 years of age. Each square describes the most important events experienced by the child in specific years. This case was selected as representative of Profile 2 as it effectively illustrates the characteristic high frequency of placement instability, including changes between foster and residential care, as well as transitions across different types of residential facilities. Additionally, it exemplifies the extended duration of these trajectories, which typically continue until the youth ages out of the care system.

statistically significant ($\chi^2 = 7.35$, $p = 0.03$), with a moderate effect size ($\phi = 0.39$).

Group comparison analysis revealed significant differences in ACEs index ($H = 5.85$, $p = 0.05$), with a moderate effect size ($\eta^2 = 0.08$) (see Table 3). Post hoc comparisons showed significant differences only between Profile 1 (trajectories concluded in family-based care) and Profile 2 (unstable protection trajectories), with the former having experienced significantly fewer adverse childhood experiences ($p = 0.02$).

Significant differences were also found regarding age at entry into the child welfare system ($H = 9.78$, $p = 0.01$), with a large effect size ($\eta^2 = 0.17$) (see Table 3). Post hoc analyses revealed that children in Profile 1 (trajectories concluded in family-based care) entered the protection system at a significantly younger age than those in Profile 2 (unstable protection trajectories) ($p = 0.02$). A marginally significant difference was also observed between Profile 1 and Profile 3 (prolonged and stable residential care trajectories) ($p = 0.06$). No significant differences were

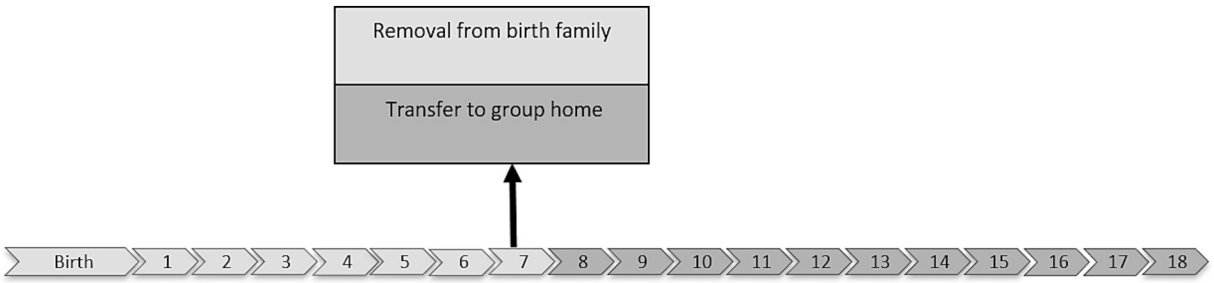

Fig. 3. Timeline of an example case from Profile 3. The horizontal line represents years, from birth to 18 years of age. Each square describes the most important events experienced by the child in specific years. The figure shows how the participant entered a child protection center following the family separation and remained in the same residential care home until reaching the age of 18.

Table 2
Comparisons of the three profiles based on participants' gender and the presence of illness or disability.

		Profile 1		Profile 2		Profile 3		χ^2 (*p*)	ϕ
		n (%)	*z*	*n* (%)	*z*	*n* (%)	*z*		
Gender	M	11 (50)	0.4	5 (45.50)	−0.1	7(43.80)	−0.3	0.16	0.06
	F	11 (50)	−0.4	6 (54.50)	0.1	9 (56.30)	0.3	(0.92)	
Illness or disability	No	18 (81.80)[a]	1.7	9 (81.80)[a]	1	7 (43.80)[b]	−2.7	7.35 (0.03)*	0.39
	Yes	4 (18.20)[a]	−1.7	2 (18.20)[a]	−1	9 (56.30)[b]	2.7		

Note. Abbreviations: Profile 1 = Participants with trajectories concluding in family-based care; Profile 2 = Participants with unstable protection trajectories; Profile 3 = Participants with prolonged and stable residential care trajectories. M = Male; F = Female. * $p < 0.05$. The superscripts ([a], [b]) indicate significant differences between groups. Groups with the same superscript are not significantly different.

Table 3
Comparisons between profiles regarding the ACEs index, age of entry into the child welfare system, and domains of development and adjustment.

	Profile 1			Profile 2			Profile 3				
	n	*M* (*SD*)	*Min.* −*Max.*	*n*	*M* (*SD*)	*Min.* −*Max.*	*n*	*M* (*SD*)	*Min.* −*Max.*	*H* (*p*)	$\eta 2$
ACEs index	22	4.18 (1.53) [a]	1–7	11	5.64 (1.96) [b]	2–7	16	4.50 (1.75) [ab]	1–7	5.85 (0.05) *	0.08
Age at entry	22	4.64 (1.37) [a]	2–8	11	6.27 (1.54) [b]	4.08–8.58	16	5.84 (1.66) [b]	2.33–8.33	9.78 (0.01) *	0.17
Z weight	15	−0.40 (1.39)	−2.68–1.88	11	−0.02 (1.06)	−1.33–2.01	12	−1.08 (1.44)	−3.80–1.46	3.18 (0.20)	0.03
Z height	15	−1.60 (1.91)	−4.47–2.03	11	−0.49 (0.89)	−2.44–0.78	12	−1.72 (1.93)	−4.75–1.34	2.34 (0.31)	0.01
Z head circumference	16	−0.06 (1.12)	−2.15–1.89	10	−0.38 (0.53)	−1.26–0.57	14	−0.70 (1.95)	−5.48–2.41	1.46 (0.48)	0.02
Z cognitive development	22	−1.22 (1.06)	−2.33–0.95	11	−0.94 (0.72)	−2.33–0.10	16	−1.45 (0.84)	−2.33–0.84	2.89 (0.24)	0.02
Emotional difficulties	21	3.14 (2.22) [ab]	0–9	11	4.55 (2.42) [a]	0–7	14	2.43 (1.55) [b]	0–5	5.53 (0.06)	0.07
Peers difficulties	21	2.19 (1.63)	0–6	11	3.09(2.30)	1–7	14	2.21 (2.08)	0–6	1.23 (0.54)	0.02
Behavioral difficulties	21	4.10 (2.55)	0–9	11	4.36 (2.80)	1–10	14	5.36 (2.27)	1–8	2.43 (0.30)	0.01
Hyperactivity symptoms	21	4.86 (2.52)	1–10	11	4.91 (1.97)	2–8	14	6.50 (2.17)	3–10	4.66 (0.10)	0.06
Total of difficulties	21	14.29 (5.71)	1–27	11	16.91 (5.58)	10–27	14	16.50 (5.65)	5–23	2 (0.37)	0
Prosocial behavior	21	6.14 (1.98)	2–10	11	6.91 (2.62)	1–10	14	5.79 (2.80)	0–9	1.45 (0.48)	0.01

Note. Abbreviations: Profile 1 = Participants with trajectories concluding in family-based care; Profile 2 = Participants with unstable protection trajectories; Profile 3 = Participants with prolonged and stable residential care trajectories. * $p < 0.05$. The superscripts ([a], [b]) indicate significant differences between the profiles. Profiles with the same superscript are not significantly different.

found between Profiles 2 and 3.

No significant differences were found between groups in participants' cognitive or physical development during childhood, as measured by weight, height, and head circumference (see Table 3). Regarding psychosocial adjustment, marginally significant differences emerged only on the emotional difficulties subscale ($H = 5.53$, $p = 0.06$), with a moderate effect size ($\eta^2 = 0.08$). Post hoc analyses indicated that participants in Profile 2 (unstable protection trajectories) showed higher levels of emotional difficulties compared to those in Profile 3 (prolonged and stable residential care trajectories) ($p = 0.06$).

4. Discussion

This study addresses a relatively underexplored area within the child welfare system: the longitudinal protection trajectories of children and adolescents placed in residential care. The first aim was to identify common patterns of care based on the length and stability of placements, as well as the situation preceding legal adulthood. The second aim was to examine whether initial factors were associated with these different protection trajectories.

Regarding the first objective, the cluster analysis successfully identified three distinct profiles, despite all participants in the sample having initially entered residential care following removal from their birth families due to abuse and or neglect. These three profiles were: (1) trajectories ending in family-based care (45%), (2) unstable protection trajectories (22%), and (3) prolonged and stable residential care trajectories (33%). Specifically, Profile 1 (trajectories ending in family-based care), characterized by the shortest duration in residential care and a trajectory with moderate stability that concluded in family care, represents the most favorable trajectory within the child welfare system, aligning with the international consensus that prioritizes family environments as optimal for well-being (Dozier et al., 2014; Palacios et al., 2019; United Nations General Assembly, 2010). Conversely, Profile 2 (unstable protection trajectories) presents the highest rate of placement instability ($M = 6.45$ changes), characterized by a prolonged duration in the child welfare system marked by frequent exits from and re-entries

into residential care. The high degree of placement instability is a variable consistently analyzed and documented in research (Fallesen, 2014; Havlicek, 2010; McGrath-Lone et al., 2020). Profile 3 (prolonged and stable residential care trajectories) is defined by the longest duration in residential care ($M = 12.11$ years), with participants remaining stable stays from their entry until reaching the age of 18. Similar cases have been previously documented in Spain (del Valle et al., 2008; Gullo, 2021).

The classification derived from the cluster analysis shows that even within an apparently homogeneous and relatively small group of children in residential care, there are distinct subgroups with different experiences and needs. This finding is highly consistent with previous international findings in larger samples within the broader out-of-home care system (Fallesen, 2014; Havlicek, 2010; Jones et al., 2024; McGrath-Lone et al., 2020). Although differences in sample size, care measures, time periods examined, and country-specific practices preclude direct comparison, the observed heterogeneity of trajectories (a finding validated by cited international research) highlights the continuing relevance of moving toward individualized care that effectively addresses children's varied experiences.

Addressing the second objective, the findings demonstrate that the identified trajectories are closely associated with age at entry into the child welfare system, the ACEs index and some developmental and adjustment characteristics in childhood. It is worth noting that the developmental and psychosocial adjustment indicators were collected shortly after the children's entry into residential care. Although this timing establishes a baseline assessment of the child's status within the system, the measurement inherently reflects a complex blend of pre-placement adversity and initial post-placement response. Therefore, associations between the child's baseline condition at evaluation and their subsequent longitudinal trajectory must be interpreted cautiously.

The findings reinforce existing evidence that age at entry plays an important role in shaping care trajectories (James et al., 2004; López & del Valle, 2015; Wulczyn, 2020). Children who entered care at younger ages were more likely to transition to stable, family-based placements (Profile 1, trajectories ending in family-based care), while those entering at older ages (Profiles 2, unstable protection trajectories and 3, prolonged and stable residential care trajectories) tended to encounter greater instability and were more likely to remain in residential care over time. Furthermore, the ACEs index seem to be related to subsequent protection trajectories. Accordingly, the ACEs index was significantly higher in Profile 2 (unstable protection trajectories) compared to Profile 1 (trajectories ending in family-based care). This finding, observed within the context of residential care, reinforces the established scientific literature on the broader out-of-home care system, suggesting that a greater accumulation of risk factors before entry may also be related to more complex trajectories (Fallesen, 2014; Jones et al., 2024).

Regarding psychosocial adjustment, the analyses yielded nuanced results. Only marginally significant differences were identified between groups on the emotional difficulties subscale, with a moderate effect size. Profile 2 (unstable protection trajectories) showed higher levels of difficulties compared to Profile 3 (prolonged and stable residential care trajectories). Notably, no significant association was found between externalizing problems and placement instability, in contrast to previous findings (Aarons et al., 2010; Newton et al., 2000; Rubin et al., 2007). Although these data must be interpreted with caution due to limitations in statistical power stemming from the small sample size, the evidence that emotional difficulties in childhood are associated with more unstable trajectories suggests that internalizing difficulties can be easily overlooked in residential care due to their lower visibility. Therefore, inadequate treatment or failure to detect these emotional needs could be a factor contributing to the instability of protection measures. In this sense, the study advocates for the implementation of enhanced screening protocols to ensure that children and adolescents in residential care can access appropriate interventions that contribute to fostering their psychosocial adjustment and promote their adaptation to established measures (González- García et al., 2017).

A finding of great relevance is that 56.30% of participants in Profile 3 (prolonged and stable residential care trajectories) were diagnosed with a disability or chronic illness. This is consistent with previous studies reporting longer stays in residential care among this population (James et al., 2012; López & del Valle, 2015; Schofield et al., 2007). However, in contrast to Sainero et al. (2013), which compared residential care trajectories of children with and without disabilities, observing greater placement instability among those with disabilities, the present study found that children with disabilities experienced fewer placement changes. Nevertheless, both studies highlight the particular challenges these children face in accessing family-based placements that adequately meet their specific needs. These findings underscore the importance of strengthening family-based care to ensure that residential care is not the only viable solution.

4.1. Limitations and directions for future studies

This research offers a comprehensive description of longitudinal protection trajectories for a cohort of children in residential care, drawing on administrative data. Crucially, this study incorporated variables associated with these trajectories, derived from a mixed-method assessment in childhood, providing deep contextualization.

However, some limitations should be acknowledged. First, the relatively small sample size limited the possibility of conducting more advanced statistical analyses. Furthermore, the constraint of statistical power inherent in the reduced size of Profile 2 (unstable protection trajectories) must be considered. Consequently, the findings derived therefrom should be regarded as exploratory.

Second, the fundamentally descriptive and exploratory design of the study does not permit causal inferences, meaning the results should be considered with caution. Nevertheless, this study lays a significative foundation for future research on protection trajectories in residential care. Future research with larger, more representative samples is needed to validate and extend these findings. It would also be of interest to consider how policy-related factors at the time of entry may contribute to the results. In this regard, the cohort in our study entered the protection system before the national regulation (Ley 26/2015) established family foster care as a priority measure, making it valuable to replicate the study with children who entered after that legal mandate.

Finally, at the territorial level, the inclusion of a single Spanish region limits the generalizability of the results. Nevertheless, the general conclusions generated may be relevant and applicable in other close contexts, especially other regions of Spain or Southern European countries with similar child welfare system characteristics. While we recognize the need for a comparative discussion with non-Southern European systems to enhance international relevance, we propose this cross-cultural comparison as a key direction for future research.

4.2. Conclusions and practical implications

While this study spans a broad timeframe, the observed patterns largely reflect system dynamics prior to Spain's 2015 legislative reforms. Although policies have changed substantially since then, the present study provides longitudinal evidence and yields three fundamental ideas that remain highly applicable to the current child welfare system.

First, efforts must be enhanced towards transitioning to a child protection model focused on family-based care (Dozier et al., 2014; Palacios et al., 2019). Proposed strategies to achieve this involve recruiting and supporting foster families willing to care for older children and adolescents and enhancing specialized foster care options for children with special needs.

Second, given that a high number of children and adolescents continue to stay in residential care for many years, the quality of care offered in the residential care homes must be optimized and guided by measurable quality indicators (del Valle et al., 2012). This optimization

also requires the adoption of shared working models and the implementation of evidence-based programs that are periodically evaluated (Pulgar et al., 2025). This approach should integrate flexible, less rule-based educational strategies and trauma-informed interventions focused on promoting secure relationships, which are key principles of intervention models such as the Children and Residential Experiences (CARE) model (Holden, 2023; Pulgar et al., 2025).

Third, stability must be promoted as a fundamental requirement for good practice within the protection system (United Nations General Assembly, 2010). Furthermore, when placement changes are necessary, transitions should be carefully planned and emotionally supported, ideally maintaining contact with previous caregivers or attachment figures when appropriate (Román & Palacios, 2024).

Finally, strengthening the collaboration between professional practice and academic research is essential. A deeper understanding of child protection trajectories is crucial not only for informing child welfare policies but also for guiding and enhancing day-to-day practice. Experience within the child protection system provides rich, empirical insights that are highly valuable for refining and shaping research questions. Therefore, it is a shared responsibility to build a strong empirical foundation that supports innovative approaches to foster and residential care, as well as the development of tailored interventions that effectively address the complex needs of children in out-of-home care.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Data availability

Data will be made available on request.

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