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**To cite this article:** Ana Simão, Elias Ratinho & Cristina Nunes (02 Jun 2026): The Role of Coping Strategies, Social Support and Dark Triad Traits in the Psychological Adjustment of Adolescents in Residential Care, Residential Treatment for Children & Youth, DOI: [10.1080/0886571X.2026.2680878](https://doi.org/10.1080/0886571X.2026.2680878)

**To link to this article:** <https://doi.org/10.1080/0886571X.2026.2680878>



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Published online: 02 Jun 2026.



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# The Role of Coping Strategies, Social Support and Dark Triad Traits in the Psychological Adjustment of Adolescents in Residential Care

Ana Simão , Elias Ratinho , and Cristina Nunes 

University Research Center in Psychology (CUIP), Universidade do Algarve, Faro, Portugal

## ABSTRACT

Dark Triad traits have been increasingly studied due to their relevance for understanding emotional and behavioral adjustment. However, little is known about how these traits operate in vulnerable youth populations, particularly adolescents living in residential care. This study examined the direct and indirect effects of Dark Triad traits on psychological adjustment among institutionalized adolescents, considering the roles of coping strategies and social support. Participants were 433 adolescents aged 12 to 18 years ( $M = 15.33$ ; 45% boys and 55% girls) from 46 Portuguese residential care institutions. Adolescents completed self-report measures assessing Dark Triad traits, coping strategies, perceived social support, and psychological adjustment. Correlational analyses and path analysis were conducted to test relationships between variables, and sex differences were also explored. Results showed that psychopathy had the strongest association with psychological adjustment, mainly through avoidant coping strategies. Machiavellianism and narcissism presented weaker effects. Problem-focused coping and higher levels of social support were associated with better psychological adjustment, whereas avoidant coping was consistently related to greater difficulties. Some patterns varied by sex. These findings highlight the importance of promoting adaptive coping strategies and strengthening social support in residential care settings to improve psychological outcomes among at-risk youth.

## KEYWORDS

Coping strategies; Dark Triad traits; psychological adjustment; residential care; social support

## PRACTICE IMPLICATIONS

- Screen Dark Triad traits to identify adolescents at higher risk of psychological maladjustment.
- Target avoidant coping in interventions, as it strongly predicts adjustment difficulties in residential care.
- Promote problem-focused coping skills to support better psychological adjustment among institutionalized youth.
- Strengthen supportive relationships with staff and peers to enhance perceived social support.
- Develop gender-sensitive interventions addressing different coping and social support patterns.

**CONTACT** Ana Simão  a21331@ualg.pt  University Research Center in Psychology (CUIP), Universidade do Algarve, Campus de Gambelas, Faro 8005-135, Portugal

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## Introduction

Adolescence is a critical phase for developing psychological problems, often leading to significant mental health conditions. Anxiety and depression prevail during this stage (Polanczyk et al., 2015), with adolescents in residential care settings (RCS) often facing heightened problems (Pronk et al., 2021; Santos & Do Céu Salvador, 2021). Youth in RCS struggle with a loss of belonging and identity due to family separation and unstable placements, which can lead to potential negative consequences for both the young individuals and society (Lemos et al., 2021). However, some maltreated children show few mental health issues, indicating the influence of other factors. Positive peer relationships and social support play essential roles in psychological adjustment for those in out-of-home care (Simão et al., 2025). Social support is widely recognized as a critical resource for managing stressful situations, and individuals' social network is crucial for their mental health (Drageset, 2021).

### *Social Support and Psychological Adjustment of Adolescents in RCS*

Social support is defined as the presence or availability of reliable individuals who care for us (Sarason et al., 1983). It encompasses emotional, informational, and tangible components and is characterized by both structure (size and connectivity of social networks) and functionality (individual evaluation of support) (Drageset, 2021; Taylor, 2011). Social support can be informal, like from family and friends, or formal, from professionals. Researchers differentiate between perceived and received support (Taylor, 2011), with a consensus that perceived support – believing help is available if needed – links more strongly to positive health outcomes (Drageset, 2021).

Social support is a crucial protective factor in child development, protecting from psychopathology, promoting psychological adjustment to chronically stressful conditions, and decreasing internalizing and externalizing problems (Gundogdu & Eroglu, 2023; Weber et al., 2010). It serves as a buffer against negative psychological outcomes (Tandon et al., 2013). Positive and secure relationships are particularly protective for at-risk youth in the child protection system, helping them navigate significant changes like family separation and placement disruptions. Adolescents increasingly rely on social support from peers during early adolescence (Gundogdu & Eroglu, 2023), with males typically having larger social networks compared to females. Although girls report more informal support and available helpers, they also face greater psychological stress from these networks (Taylor, 2011).

Research with adolescents in RCS showed associations between both staff and parental support and reduced psychological difficulties. These adolescents identify both peers and educators as key support sources (Emond, 2003; Ferreira et al., 2020; Hoffnung Assouline & Attar-Schwartz, 2020; Magalhães

et al., 2018), with educators being recognized as important sources of trust and help, for providing essential emotional, instrumental, and informational support (Bravo & Del Valle, 2003; Ferreira et al., 2020) while moderating negative feelings about rules in the residential care context (Rauktis et al., 2011). Supportive staff are linked to fewer adjustment problems (Pinchover & Attar-Schwartz, 2014), while strong peer and family relationships can significantly protect adolescents' mental health (Erol et al., 2010).

### ***Coping Strategies and Psychological Adjustment of Adolescents in RCS***

Coping can be defined as an individual's cognitive, emotional, and behavioral response to manage internal and external demands arising from daily problems (Folkman, 1984). It serves two functions: emotion-focused coping, which regulates distress, and problem-focused coping, which addresses the source of distress (Folkman, 1984; Gundogdu & Eroglu, 2023). Coping strategies can be categorized as either negative avoidant or active approaches, with active strategies being linked to better health outcomes (Frydenberg & Lewis, 2009). Individuals select coping methods based on their perceived control over stressors, adjusting responses accordingly to avoid maladjustment (Lazarus & Folkman, 1984). Lazarus and Folkman's (1984) transactional model of coping emphasizes problem-focused and emotion-focused strategies, highlighting the role of personal beliefs and evaluations. Emotion-focused coping regulates distressing emotions like fear or anger but can be maladaptive if overused. Problem-focused coping involves defining problems and applying solutions, fostering control and positive outcomes. Later extensions of the model include avoidance strategies, which distract attention from stress. In sum, coping can target the stressor (problem-focused), regulate emotions (emotion-focused), or divert attention (avoidance).

Youth in RCS frequently experience maltreatment and chronic stress, which contribute to poorer mental health. Its impact varies by type, severity, duration, and frequency. Coping opportunities influence differences in internalizing and externalizing problems (Huffhines et al., 2020). Thus, coping styles may help explain mental health disparities among these adolescents. Beyond maltreatment itself, how youth regulate emotions and behaviors, along with perceived support, also shapes psychological adjustment. Effective coping not only supports adaptation to social contexts and group integration difficulties (Frydenberg & Lewis, 2009), but also mediates the link between adverse life experiences, available personal and social resources, and resulting mental health outcomes. Research further shows that coping strategies differ by sex, with variations in how individuals manage stress and its consequences (Eschenbeck et al., 2007; Tamres et al., 2002).

Starting in mid-adolescence, individuals gain a wider variety of coping strategies, becoming more independent in their approaches. As cognitive

strategies advance, the use of behavioral strategies such as escape and avoidance is expected; support seeking becomes more complex, and the ability to adapt to others' perspectives and recognize that different situations may demand different coping mechanisms develops. Peer support remains important, yet adolescents primarily rely on personal coping efforts, seeking social connections only when necessary (Compas et al., 2017).

According to Clarke (2006) and Compas et al. (2017), active coping strategies, like seeking social support and problem-solving, enhance social competence and functioning. Maladaptive coping leads to increased internalizing symptoms, whereas adaptive coping reduces externalizing symptoms. In typical populations, approach coping is associated with improved mental health, however, this association seems less clear in studies with maltreated youth. Notably, Huffhines et al. (2020) suggested that avoidance may protect those with chronic abuse and neglect experiences. On the other hand, youth who dealt with stressors alone had higher self-reported internalizing and externalizing symptoms.

### ***Dark Triad Traits and Psychological Adjustment of Adolescents in RCS***

The Dark Triad (DT) framework encompasses malevolent traits: Machiavellianism, subclinical psychopathy, and subclinical narcissism. Though these are interrelated personality constructs that share traits, each represents a distinct aspect of dark personality (Furnham et al., 2013; Paulhus & Williams, 2002). Research indicates that such maladaptive traits may influence coping strategies and psychological health (Birkás et al., 2016), with consistent sex differences (Muris et al., 2017). Maladaptive personality traits were associated with avoidant and emotional coping and psychological distress (Ireland et al., 2006) suggesting that maladaptive or socially negative personality traits associated with specific coping strategies influence psychological adjustment (Pechorro, Curtis, et al., 2022; Tandon et al., 2013).

All three DT traits exhibit significant genetic influences. However, Machiavellianism is more affected by environmental factors (Vernon et al., 2008). Each trait elicits distinct stress responses: Machiavellianism is linked to a hostile-submissive approach and low self-control, while narcissism features a friendly dominant style and higher self-control. Psychopathy, conversely, aligns with a hostile dominant style and low self-control (Birkás et al., 2016; Yang et al., 2024). These differences in self-control, dominance, and hostility are associated with distinctive coping strategies (Birkás et al., 2016, 2020), resulting in distinct coping preferences and defense mechanisms (Richardson & Boag, 2016). Research shows that maladaptive coping strategies mediate the link between DT traits and negative health outcomes, with high scores in narcissism and Machiavellianism correlating with increased stress, anxiety, and depression (Mojsa-Kaja et al., 2021). Grandiose narcissism may enhance

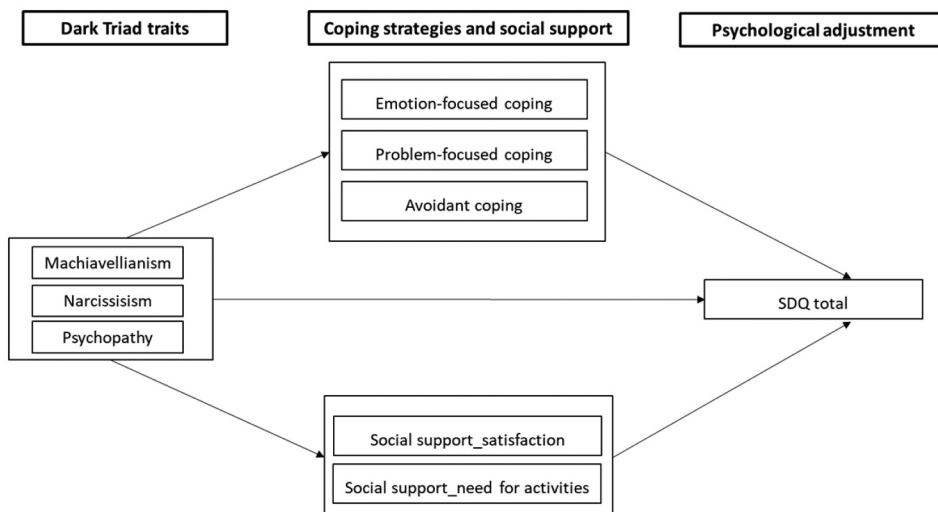
life satisfaction by fostering adaptive coping, whereas Machiavellianism views stress negatively, preferring emotional coping strategies (Rim, 1992). Narcissism relates positively to problem-solving coping, unlike psychopathy, which shows no correlation with stress perception or adaptive coping (Richardson & Boag, 2016). Birkás et al. (2020) linked early-life adversities to perceived lack of coping abilities. They also found that DT traits can contribute to predicting higher levels of perceived stress and lower levels of coping ability.

### **Current Study**

Adolescents in RCS are often overlooked in coping research, raising concerns due to their heightened risk for maladjustment (Huffhines et al., 2020). Varying levels of acute stressors may influence coping and support patterns (Tandon et al., 2013), therefore is crucial to understand adolescents coping strategies and social support as protective factors for mental health given that they face more childhood adversities than their peers (Maneiro et al., 2023).

Previous studies highlight the potential influence of DT traits on coping strategies (Birkás et al., 2016), yet specific coping characteristics associated with each trait in adolescents remain unclear. Existing research has either focused on individual personality traits (e.g., Fernie et al., 2016) or coping styles (e.g., Yang et al., 2024). Magalhães et al. (2021) argued that studies about social support in RCS are qualitative and focused on the association with psychopathology, lacking research focusing on the moderating role of supportive relationships. Ferreira et al. (2020) states that in studies with at-risk youth there's a need for a holistic and comprehensive picture of mental health, including positive and negative indicators simultaneously. Notably, there is a lack of investigation into how coping strategies vary among the DT traits in adolescents from RCS and their connections to perceived social support and psychological adjustment. By providing a holistic view of mental health, the present study addresses a gap in the literature, as no prior research has directly linked institutionalized adolescents' self-reports of psychological adjustment to their coping strategies and perceptions of social support, while also considering the predictive role of DT personality traits (Figure 1).

This study has the following objectives: 1) to examine the influence of coping strategies, perceived social support, and DT traits on the psychological adjustment of institutionalized adolescents; 2) to investigate whether each of the three DT traits is associated with distinct coping profiles; 3) to explore whether coping strategies and social support function as protective factors, promoting better psychological adjustment and buffering the negative impact of DT traits; 4) to examine sex differences in the relationship among these variables.



**Figure 1.** Proposed model for investigation.

Based on previous literature, the following hypotheses will be tested: H1) DT traits will have direct effects on psychological adjustment, such that higher levels of these traits will be negatively associated with psychological adjustment; H2) DT traits will have indirect effects on psychological adjustment through coping strategies and perceived social support; H3) emotion- and problem-focused coping will be associated with better psychological adjustment, whereas avoidant coping will be related to poorer adjustment; H4) higher satisfaction with social support will be associated with better psychological adjustment, while a great perceived need for social activities will be associated with poorer adjustment; H5) adolescents high in Machiavellianism and psychopathy are expected to report greater satisfaction with social support than those scoring high in narcissism; H6) DT traits will be associated with distinct coping strategies; H7) the effects of coping strategies and social support on the relationship between DT traits and psychological adjustment will differ according to sex.

## Method

### Participants

Participants were 433 adolescents (196 boys, 45%; 237 girls, 55%) aged between 12 and 18 years ( $M = 15.33$ ;  $SD = 1.74$ ) residing in 46 Portuguese RCS. The age distribution was balanced, with 217 participants aged 12–15 years and 216 aged 16–18 years. This distribution reflects national trends, as youth aged 12–24 represent the most prevalent age group in residential care in Portugal (Instituto da Segurança Social, 2024). On average, adolescents

had been living in their current institution for 41 months ( $SD = 43$ ) with durations ranging from 1 to 204 months. Although multiple reasons were often reported for placement, the most frequently cited primary reasons for the current protective measure were neglect and abuse (38%), school absenteeism (33%), financial difficulties (28%), and exposure to domestic violence (26%).

## **Measures**

### ***Scale of Satisfaction with Social Support for Children and Adolescents (Gaspar et al., 2009)***

The Scale of Satisfaction with Social Support for children and adolescents (Gaspar et al., 2009) measures satisfaction with social support, considering it to be an essential dimension for the cognitive and emotional processes associated with well-being and quality of life. It is a self-completion instrument made up of 12 items divided into two dimensions: one positive including 7 items – “satisfaction with social support” (SSS, such as “I’m satisfied with the number of friends I have”) – and one negative including 5 items “need for activities related to social support” (NASS, such as “I miss social activities that satisfy me”). The answers are given on a 5-point Likert scale ranging from 1 “Strongly disagree” to 5 “Strongly agree.” We followed authors recommendation and eliminated item 5, so the satisfaction with social support dimension showed an internal consistency value of  $\alpha = .70$ , and the need for activities related to social support dimension achieved a value of  $\alpha = .69$ .

### ***Brief COPE (Carver, 1997; Portuguese Version By; Nunes et al., 2021)***

Brief COPE (Carver, 1997) is a reduced version of the original COPE to assess individual’s coping strategies in a stressful situation. It is a self-completion instrument made up of 14 subscales with 2 items each, and the 28 items are written in terms of the action that people implement. The answers are given on a 4-point scale (from 0 = “I never do this” to 3 = “I do it almost all the time”). Cronbach’s alphas in the original version (Carver, 1997) were between .50 and .90 indicating good internal reliability; in the Portuguese adaptation from Nunes et al. (2021) Cronbach’s alphas varied between .37 and .88. For the present study, coping strategies were grouped into three dimensions with the following reliability values and subscales: problem-focused  $\alpha = .79$  (active coping, planning, using instrumental support – e.g., “I’ve been doing things to try to improve the situation”), emotion-focused  $\alpha = .78$  (acceptance, humor, religion, using emotional support, positive reframing, expression of feelings – e.g., “I’ve been learning to live with it”), and avoidance-oriented  $\alpha = .78$  (self-blame, self-distraction, denial, substance use, behavioral disengagement – e.g., “I’ve been blaming myself for the things that have happened”).

***Strengths and Difficulties Questionnaire (SDQ, Goodman, 1997; Portuguese Version By; Pechorro et al., 2011)***

The SDQ is a 25-item self-report scale aiming to assess socio-emotional problems. Items are rated using a three-point Likert-type scale (0 = “Not true,” 1 = “Somewhat true,” 2 = “Certainly true”) and are organized into five subscales relating to emotional problems (e.g., “I am often unhappy, downhearted or tearful”), behavioral problems (e.g., “I get very angry and often lose my temper”), hyperactivity/inattention difficulties (e.g., “I am restless, I cannot stay still for long”), peer relationship problems (e.g., “I am usually on my own. I generally play alone or keep to myself”), and prosocial behaviors (e.g., “I try to be nice to other people. I care about their feelings”) (Goodman, 1997). The SDQ total difficulties score is the sum of all subscales except the prosocial behaviors and is a psychometrically relevant measure of overall child mental health issues. SDQ scores correlate substantially with other validated measures of psychopathology and discriminate well between children with and without psychopathological symptoms (Goodman, 2001). Cronbach’s alphas in the original version were between .41 and .80 (Goodman, 2001). For the present study, the reliability values obtained for each subscale and the total scale were as follows: emotional problems  $\alpha = .68$ , behavioral problems  $\alpha = .57$ , hyperactivity/inattention difficulties  $\alpha = .66$ , peer relationship problems  $\alpha = .51$ , prosocial behaviors  $\alpha = .78$ , and the total scale  $\alpha = .78$ .

***Short Dark Triad (SD3, Jones & Paulhus, 2014; Portuguese Version By; Pechorro et al., 2018)***

SD3 measure was designed to capture the DT as conceptualized by Jones and Paulhus (2011), with a focus on the classic conceptions and the facets of each trait, namely: Machiavellians are strategic manipulators, narcissists promote attention-seeking, and psychopaths are impulsive thrill-seekers. It is a brief 27-item measure that assesses the dimensions of Machiavellianism (e.g., “Avoid direct conflict with others because they may be useful in the future”), narcissism (e.g., “I have been compared to famous people”), and psychopathy (e.g., “It’s true that I can be mean to others”) with nine items in each of the three subscales. The Portuguese version (Pechorro et al., 2018) excluded some items, culminating in a structure with three factors and seven items each. Participants indicate their level of agreement on a 5-point Likert scale ranging from 1 “Strongly disagree” to 5 “Strongly agree.” Higher scores indicate higher levels of DT traits. Internal consistency was good for the three subscales of the SD3, with Cronbach’s alpha and composite reliability values always above .80. For the present study, reliability values obtained for each subscale were: Machiavellianism  $\alpha = .78$ , narcissism  $\alpha = .58$ , and psychopathy  $\alpha = .69$ .

In addition to the measures described above, an *ad-hoc* questionnaire was used to gather information about the participants’ and institutions’

sociodemographic characteristics, namely participants' age, sex, and length of stay in the institution.

## **Procedures**

### ***Data Collection***

Ethical approval was obtained from the Ethics Committee of the University of Algarve (CEUAlg Pn° 110/2023). All procedures performed in the study were in accordance with the ethical standards from the 1964 Helsinki Declaration and its later amendments. The authors of the Portuguese versions of the scales also approved the use of these measures with youth from RCS.

Using a convenience sampling method, 46 RCS from mainland Portugal and the Azores and Madeira archipelagos were contacted via phone and e-mail. Institutions were informed about the study's aims and procedures, and all agreed to participate. Data collection was conducted in person by the first author whenever possible. In cases where geographic distance made in-person administration unfeasible, questionnaires were sent by post and administered by a professional from the RCS. Detailed written instructions and clarifications about the study were provided both during the authorization process and again when the questionnaires were delivered. The first author remained available throughout the process to address any questions or concerns raised by staff or participants.

Inclusion criteria required participants to be aged 12 or older, fluent in Portuguese, and free from medical conditions that could impair participation. Adolescents identified by institutional staff as having cognitive impairments were excluded from the sample. Eligible participants were informed about the purpose and voluntary nature of the study. They were assured of their right to withdraw at any time without facing any consequences. Adolescents aged 16 or older who agreed to participate provided written informed consent. For those under 16, written consent was obtained from either the legal guardian or the institution's technical directors, in accordance with ethical standards.

Data were collected using anonymous, structured, self-report questionnaires administered within the institutions. In addition, RCS directors completed anonymous questionnaires providing information about each institution's organizational characteristics and religious affiliation. Participants with incomplete responses were excluded from the final sample.

### ***Data Analysis***

Data analyses were performed using IBM SPSS Statistics Version 30.0 (IBM Corp [IBM], 2024) and R Studio (RStudio Team, 2020). The aim was to examine the associations among coping strategies, social support, DT traits, and psychological adjustment. Descriptive statistics and Pearson correlations

were computed, alongside the path analysis to explore both direct and indirect effects. Differences by sex were also investigated.

Cases with missing data or extreme outliers were excluded from the analyses. Descriptive statistics (means and standard deviations) were used to describe demographic characteristics. Pearson correlation coefficients were computed to assess bivariate associations among all key variables. Correlations were interpreted as follows: weak if below .20, moderate between .20 and .50, and strong above .50 (Marôco, 2021a).

Path analysis was conducted using RStudio (v4.5.0) with the lavaan package (v0.6–19; Rosseel et al., 2023) to explore the hypothesized mechanisms underlying the relationship between DT traits and psychological adjustment, through the mediating roles of coping strategies and social support dimensions. The analysis was performed using the mean scores of each variable. Robust maximum likelihood estimation was applied. Modification indices were considered to improve the model fit, particularly regarding residuals correlations (Kline, 2023). The measurement models were evaluated prior to testing the structural paths. Direct, indirect, and total effects were estimated using a non-parametric bootstrapping procedure with 1,000 bootstrap samples and 90% bias-corrected confidence intervals.

To examine group differences, multigroup analyses were performed by sex. Configural invariance was tested to determine whether the latent constructs were similarly structured across groups (Vandenberg & Lance, 2000). Configural invariance was assessed by comparing model fit across groups using the same measurement structure. If the same model demonstrated adequate fit across groups, configural invariance was considered supported.

Model fit was evaluated using several goodness-of-fit indices: chi-square divided by degrees of freedom ( $\chi^2/df$ ), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Standardized Root Mean Square Residual (SRMS), and Root Mean Square Error of Approximation (RMSEA) with 90% confidence intervals (Kline, 2023). Model fit was considered acceptable if CFI and TLI were  $\geq .90$ , RMSEA  $\leq .10$ , and SRMR  $\leq .08$  (Hair et al., 2019). While a non-significant chi-square indicates a good fit, a significant result was expected given the large sample size (Marôco, 2021b).

The final hypothesized model included the three DT traits as exogenous variables, three coping strategies and two social support dimensions as mediator, and psychological adjustment as the endogenous dependent variable. Each construct was modeled as a latent factor based on the mean of its constituent items.

## Results

Correlational analyses were conducted to examine the associations among coping strategies, social support subscales, DT traits, and psychological

adjustment, and descriptive statistics were calculated for each variable (Table 1). As shown in Table 1, all the variables show statistically significant correlations with each other, except for Machiavellianism and psychopathy with problem-focused and emotion-focused coping strategies. Satisfaction with social support also showed no significant correlations with psychopathy and problem-focused coping strategies. Finally, narcissism and problem-focused coping also did not show significant correlation values with adolescents' psychological adjustment.

Given that the DT traits are conceptually interrelated personality dimensions, a path analysis was conducted to examine the unique contribution of each trait to coping strategies and dimensions of social support. This analytic strategy was employed following the regression analysis, which had previously identified significant predictors of psychological adjustment.

Figure 2 presents the final path model, illustrating the associations between the three DT traits, the three coping strategies, the two dimensions of social support, and psychological adjustment among institutionalized adolescents.

Subsequently, a multigroup analysis was conducted to examine whether the structure of the proposed model remained invariant across different groups. Specifically, the analysis compared the model across sex (boys *versus* girls) to assess potential differences in the strength and direction of relationships between constructs. Goodness-of-fit indices were computed for the total sample of 433 participants, and the results for each tested model are presented in Table 2.

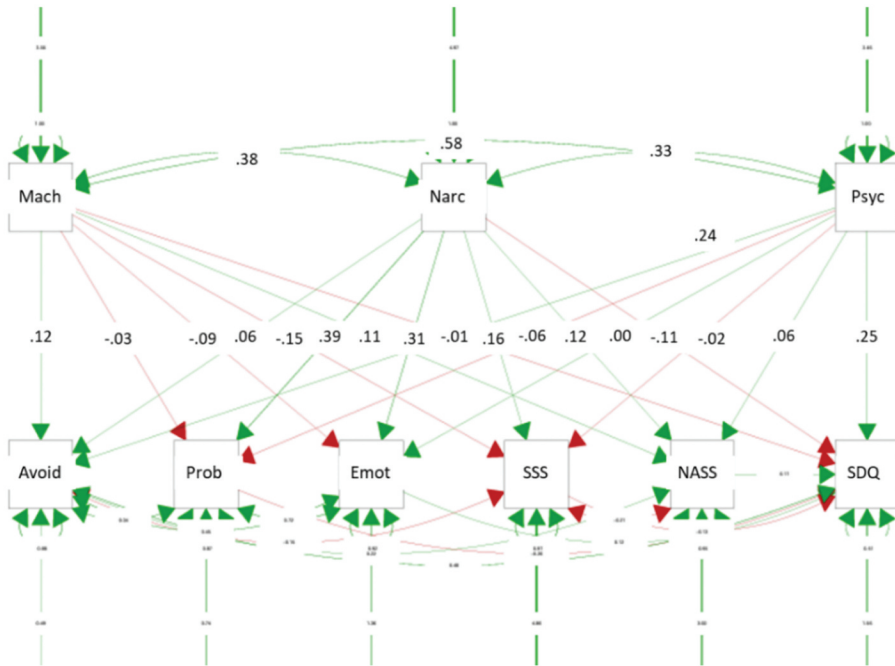
As shown in Table 2, the overall model demonstrated a good fit to the data, and acceptable fit indices were also obtained for the multigroup comparisons by sex. The partial invariance model showed a satisfactory fit for both boys and girls, indicating that the general structure of associations between variables is equivalent across sexes.

**Table 1.** Correlations coefficients between the coping strategies, social support subscales, DT traits, and psychological adjustment, and descriptives for each variable ( $N = 433$ ).

	1	2	3	4	5	6	7	8	9
1. Machiavellianism	–	.376***	.577***	.080	.024	.282***	–.099*	.188***	.259***
2. Narcissism		–	.334***	.354***	.276***	.186***	.098*	.181***	.022
3. Psychopathy			–	.051	.052	.329***	–.054	.161***	.395***
4. Problem-focused				–	.748***	.350***	.094	.138**	–.012
5. Emotion-focused					–	.434***	.113*	.092	.122*
6. Avoidant coping						–	–.125**	.299***	.574***
7. SSS							–	–.207***	–.265***
8. NASS								–	.341***
9. SDQ									–
M	2.83	3.06	2.53	4.64	8.13	5.67	3.60	3.13	15.78
(SD)	(.80)	(.62)	(.73)	(1.99)	(3.16)	(2.78)	(.71)	(.75)	(6.07)

Note. Problem-focused = problem-focused coping; Emotion-focused = emotion-focused coping; SSS = satisfaction with social support; NASS = need for activities related to social support; SDQ = psychological adjustment.

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .



**Figure 2.** Final path model with standardized regression coefficients. Mach = Machiavellianism, Narc = narcissism, Psyc = psychopathy, Avoid = avoidant coping, Prob = problem-focused coping, Emot = emotion-focused coping, SSS = satisfaction with social support, NASS = need for activities related to social support, SDQ = psychological adjustment.

**Table 2.** Summary of model fit indices for tested models.

Models	$\chi^2$ (df), $p$ value	CFI	TLI	SRMR	RMSEA (90% CI)
Overall model	7.54(4), $p = .110$	.997	.973	.02	.05 (.00 – .09)
Multigroup by sex	25.83 (13), $p = .018$	.994	.948	.02	.06 (.00 – .11)

Table 3 presents the standardized path coefficients for the overall model. The analysis of both direct and indirect effects revealed distinct patterns of association among the DT traits, the mediating variables (coping strategies and social support dimensions), and psychological adjustment. A significant negative direct effect was identified between Machiavellianism and satisfaction with social support. Furthermore, Machiavellianism showed a significant indirect effect on psychological adjustment, mediated by satisfaction with social support. This suggests that adolescents with higher levels of Machiavellian traits tend to perceive lower social support satisfaction, which in turn is associated with greater adjustment difficulties.

Narcissism exhibited weak to moderate direct effects on all examined variables, except for avoidant coping strategies, for which no significant

**Table 3.** Path coefficients based on the final model: direct and indirect effects with standardized values of variables entered into the overall model.

Direct effects		Indirect effects		
Paths	$\beta$	Paths	$\beta$	90% CI
Machiavellianism → Avoidant	.121	Machiavellianism → Avoidant → SDQ	.058	-.024 – .923
Machiavellianism → Problem	-.030	Machiavellianism → Problem → SDQ	.008	-.183 – .310
Machiavellianism → Emotion	-.094	Machiavellianism → Emotion → SDQ	-.011	-.279 – .029
Machiavellianism → SSS	-.147*	Machiavellianism → SSS → SDQ	.020*	.018 – .314
Machiavellianism → NASS	.109	Machiavellianism → NASS → SDQ	.019	-.025 – .345
Machiavellianism → SDQ	-.009			
Narcissism → Avoidant	.060	Narcissism → Avoidant → SDQ	.029	-.189 – .788
Narcissism → Problem	.385***	Narcissism → Problem → SDQ	-.099***	-1.513 – -.549
Narcissism → Emotion	.311***	Narcissism → Emotion → SDQ	.038*	.062 – .752
Narcissism → SSS	.161**	Narcissism → SSS → SDQ	-.022*	-.450 – -.038
Narcissism → NASS	.121*	Narcissism → NASS → SDQ	.021	.026 – .440
Narcissism → SDQ	-.108*			
Psychopathy → Avoidant	.240***	Psychopathy → Avoidant → SDQ	.115**	.428 – 1.547
Psychopathy → Problem	-.061	Psychopathy → Problem → SDQ	.016	-.108 – .424
Psychopathy → Emotion	.002	Psychopathy → Emotion → SDQ	.000	-.147 – .163
Psychopathy → SSS	-.023	Psychopathy → SSS → SDQ	.003	-.115 – .177
Psychopathy → NASS	.057	Psychopathy → NASS → SDQ	.010	-.063 – .256
Psychopathy → SDQ	.248***			
Avoidant → SDQ	.481***			
Problem → SDQ	-.257***			
Emotion → SDQ	.122*			
SSS → SDQ	-.135***			
NASS → SDQ	.174***			

Note. avoidant = Avoidant coping, Problem = problem-focused coping, Emotion = emotion-focused coping, SSS = satisfaction with social support, NASS = need for activities related to social support, SDQ = SDQ total score.

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

association was found. A small but significant negative direct effect was observed between narcissism and psychological adjustment. Additionally, narcissism influenced psychological adjustment indirectly through multiple pathways, including the use of problem-focused and emotion-focused coping strategies, as well as satisfaction with social support; however, these indirect associations were generally weak in magnitude.

Psychopathy demonstrated a robust positive direct effect on both the use of avoidant coping strategies and on psychological adjustment difficulties. Moreover, psychopathy was indirectly associated with greater maladjustment through its strong association with avoidant coping. These findings suggest that psychopathy contributes to poorer psychological adjustment both directly and indirectly via maladaptive coping strategies.

Avoidant coping emerged as the most robust predictor of psychological adjustment difficulties. In addition, problem-focused coping, emotion-focused coping, satisfaction with social support, and the perceived need for increased social activities were also identified as significant predictors of adjustment outcomes.

The multigroup analysis by sex (Table 4) revealed distinct patterns in the direct and indirect effects of the DT traits on psychological adjustment, highlighting notable differences between boys and girls. Specifically, among girls,

**Table 4.** Direct and indirect effects with standardized values of variables entered into the model by sex.

Direct effects		Indirect effects	
Paths	Boys/Girls $\beta$	Paths	Boys/Girls $\beta$
Machiavellianism → Avoidant	.053 / .209**	Machiavellianism → Avoidant → SDQ	.022 / .088*
Machiavellianism → Problem	.034 / -.077	Machiavellianism → Problem → SDQ	-.008 / .018
Machiavellianism → Emotion	.027 / -.177*	Machiavellianism → Emotion → SDQ	.003 / -.022
Machiavellianism → SSS	-.157 / -.144	Machiavellianism → SSS → SDQ	.018 / .017
Machiavellianism → NASS	-.013 / .213**	Machiavellianism → NASS → SDQ	-.002 / .033*
Machiavellianism → SDQ	-.125 / .106		
Narcissism → Avoidant	.025 / .088	Narcissism → Avoidant → SDQ	.010 / .037
Narcissism → Problem	.367** / .382***	Narcissism → Problem → SDQ	-.086*** / -.090***
Narcissism → Emotion	.225* / .352***	Narcissism → Emotion → SDQ	.028 / .044*
Narcissism → SSS	.132 / .187*	Narcissism → SSS → SDQ	-.015 / -.022*
Narcissism → NASS	.270*** / .004	Narcissism → NASS → SDQ	.042*** / .001
Narcissism → SDQ	-.130* / -.087		
Psychopathy → Avoidant	.320** / .210*	Psychopathy → Avoidant → SDQ	.135*** / .088*
Psychopathy → Problem	-.042 / -.066	Psychopathy → Problem → SDQ	.010 / .016
Psychopathy → Emotion	.006 / .032	Psychopathy → Emotion → SDQ	.001 / .004
Psychopathy → SSS	-.004 / -.094	Psychopathy → SSS → SDQ	.000 / .011
Psychopathy → NASS	.145 / .017	Psychopathy → NASS → SDQ	.023 / .003
Psychopathy → SDQ	.291*** / .251***		
Avoidant → SDQ	.487*** / .421***		
Problem → SDQ	-.262*** / -.235***		
Emotion → SDQ	.140* / .124*		
SSS → SDQ	-.120*** / -.117***		
NASS → SDQ	.182*** / .156***		

Note. Avoidant = avoidant coping, Problem = problem-focused coping, Emotion = emotion-focused coping, SSS = satisfaction with social support, NASS = need for activities related to social support, SDQ = SDQ total score.

\* $p < .05$ , \*\* $p < .01$ ; \*\*\* $p < .001$ .

Machiavellianism was significantly associated with an avoidant coping style and a heightened perceived need for social activities. These mediating variables, in turn, exerted significant indirect effects on psychological adjustment.

Narcissism exhibited significant positive direct effects on both problem-focused and emotion-focused coping strategies across sexes. Notably, problem-focused coping strategies were linked to significant negative indirect effects on SDQ scores in both boys and girls. However, the direct negative effect of narcissism on SDQ was significant only among boys.

For both sexes, psychopathic traits demonstrated a weak but statistically significant positive association with total SDQ scores. Psychopathy exerted a moderate direct effect on the utilization of avoidant coping strategies in both groups, which consequently produced significant indirect effects on psychological adjustment. Furthermore, a negative direct association was observed in both sexes between problem-focused coping strategies, satisfaction with social support, and psychological adjustment. While all endogenous variables were directly related to adjustment difficulties, the associations were negative for problem-focused coping and satisfaction with social support in both groups.

Avoidant coping emerged as the most robust predictor of SDQ scores across sexes, highlighting its central role in explaining psychological maladjustment among institutionalized adolescents.

## Discussion

This study was conducted in the Portuguese context, where the alternative care system differs markedly from that of other European countries and non-European contexts, being predominantly based on residential care (Instituto da Segurança Social, 2024). With more than 5,400 children and adolescents removed from their biological families and placed in care (Instituto da Segurança Social, 2024), this research sought to examine, through a cross-sectional design, the psychological adjustment challenges faced by adolescents residing in residential care.

The present study investigated the direct and indirect effects of DT traits on psychological adjustment among adolescents living in RCS, with a particular focus on the mediating roles of coping strategies and perceived social support. Coping strategies were categorized into three broad higher-order dimensions, in line with prior empirical work (e.g., Ben-Zur, 2009; Green et al., 2010). Additionally, the study examined potential variations in these relationships across sex. The findings highlight a complex and multifaceted interplay between individual personality characteristics, adaptive and maladaptive coping mechanisms, contextual resources, and psychosocial outcomes. This underscores the importance of considering both dispositional and environmental factors when assessing the psychological adjustment of youth in residential care.

The literature has increasingly focused on whether coping functions as a mediator or moderator in the relationship between personality traits and psychopathology. In the present study, and consistent with previous research, avoidant coping emerged as the strongest predictor of psychological maladjustment (Compas et al., 2017; Thompson et al., 2014; Zimmer-Gembeck & Skinner, 2016), reinforcing its central role in the manifestation of adjustment difficulties among institutionalized youth. Both psychopathy and Machiavellianism were positively associated with avoidant coping, which, in turn, mediated their indirect effects on psychological adjustment. These findings are in line with prior evidence suggesting that youth exhibiting high levels of callous-unemotional traits are more likely to disengage from stressors, thereby increasing their vulnerability to psychological difficulties and maladjustment (Facci et al., 2023; Muratori et al., 2016; Pechorro, Curtis, et al., 2022), and thus confirm the first hypothesis.

Conversely, problem-focused coping and satisfaction with social support were generally linked to better psychological outcomes, consistent with the literature on adaptive coping mechanisms (Frydenberg & Lewis, 2000; Lazarus & Folkman, 1984). However, their protective influence was modest and appeared to vary across groups, suggesting that their effects may be moderated by individual personality traits or contextual variables. These results provide empirical support for the second hypothesis.

It is also important to consider that reliance on seeking support and guidance – as opposed to other coping strategies – may help mitigate both internalizing and externalizing symptoms during adolescence (Zimmer-Gembeck & Skinner, 2016). In this context, the influence of DT traits may play a critical role in shaping how youth navigate stress. The multigroup analysis by sex revealed meaningful distinctions in the mechanisms underlying psychological adjustment. Among girls, Machiavellianism was significantly associated with both avoidant coping strategies and an increased perceived need for social activities, which mediated its indirect effects on adjustment difficulties. This pattern may reflect socialized conditioned differences in emotional expression and interpersonal functioning (Else-Quest et al., 2006; Meyers-Levy & Loken, 2015), as well as gender-specific expressions of manipulative traits (Efferson & Glenn, 2018; Pechorro, Karandikar, et al., 2022). It is plausible to hypothesize that, among girls, manipulative tendencies are more likely to be associated with emotional withdrawal and unmet social needs, ultimately contributing to less favorable psychosocial outcomes.

Narcissism exhibited a complex profile, encompassing both adaptive and maladaptive dimensions. Consistent with previous literature, it was positively associated with problem-focused coping in both sexes, which mediated negative indirect effects on maladjustment, suggesting that certain narcissistic traits may serve a self-enhancing and protective function under specific conditions (Papageorgiou et al., 2019). This association implies that goal-oriented behaviors and a heightened self-view may encourage more constructive responses to stress. However, narcissism was also linked to emotion-focused coping, particularly among girls, potentially reflecting a heightened self-focus and difficulties with affective regulation under stress (Mor & Winqvist, 2002). These findings underscore the dual nature of narcissism as both a protective and risk factor, depending on the mediating mechanisms and contextual variables.

Although the direct effect of narcissism on SDQ scores was not statistically significant for either sex, significant indirect effects were observed through adaptive coping strategies, especially among boys. This suggests that some narcissistic tendencies may facilitate effective coping responses that buffer against psychological adjustment difficulties. Nevertheless, the association between narcissism and emotion-focused coping, particularly evident among girls, points to a potentially maladaptive pathway when stress levels are high. This dual role aligns with prior research, which also observed sex differences in the expression and effects of DT traits on coping styles and psychological outcomes. For instance, Xia et al. (2023) similarly reported that while narcissism was positively associated with adaptive coping, it also co-occurred with less effective emotion-focused responses under stress.

Psychopathy was consistently associated with greater psychological adjustment difficulties (Mushtaq et al., 2022), both through direct effects and

indirectly via avoidant coping strategies, reinforcing its well-established link to emotional detachment, impulsivity, and deficits in self-regulation (Salekin, 2016). These pathways underscore the importance of considering institutional environments as potential moderators in the relationship between personality traits and psychosocial outcomes.

Although not all associations reached statistical significance, the results suggest meaningful trends. Adolescents with higher scores in Machiavellianism or psychopathy tended to exert less effort toward problem-solving and were more likely to rely on avoidant coping strategies. In contrast, adolescents with elevated narcissism scores exhibited a positive association with both problem-focused and emotion-focused coping strategies, indicating a tendency to confront stressors rather than avoid them. These findings align with prior research (e.g., Birkás et al., 2016; Saltoğlu & Irak, 2022) and were consistent across all tested models, in which narcissistic traits were significantly associated with emotion-focused strategies and indirectly related to psychological adjustment. This suggests that narcissistic adolescents may attempt to regulate their emotional responses when faced with stress. These results confirm the third hypothesis. Furthermore, consistent with Birkás et al. (2016), adolescents high in Machiavellianism and psychopathy were negatively associated with social support dimensions, leading to the rejection of the fifth hypothesis.

The sixth hypothesis was partially supported: only narcissism was positively associated with coping strategies aimed at resolving or altering stressful situations, while psychopathy was associated with the use of avoidant strategies. This distinct coping pattern reinforces the ego-enhancing nature of narcissism described by Jones and Paulhus (2011), including greater self-control and an aversion to situations that might threaten the self-concept, prompting these individuals to engage in problem-solving and emotional regulations strategies. Also, these findings align with previous research demonstrating that maladaptive personality traits are associated with distinctive coping strategies (Birkás et al., 2016, 2020).

Additionally, the negative association between narcissism and psychological adjustment through social support may reflect the narcissist's selective use of interpersonal relationships, where support is instrumentalized rather than internalized. The observed association between narcissism and social support may further suggest a preference for leveraging social influence and status within peers in the institutional context due to its constant contact (Jonason & Webster, 2012).

Conversely, the tendency of adolescents with higher psychopathy scores to rely more heavily on avoidant coping aligns with their typical disregard for the consequences of their actions (Lau & Marsee, 2013). Similarly, the positive direct and indirect effects of both Machiavellianism and psychopathy on the perceived need for more social activities underscore their

manipulative and exploitative social orientations (Paulhus & Williams, 2002) which may paradoxically require the presence of others despite limited emotional engagement.

However, while avoidant coping may offer temporary relief by reducing perceived stress, it is generally maladaptive and does not lead to actual improvements in psychological functioning (Saltoğlu & Irak, 2022). Taken together, the findings suggest that problem-focused coping and satisfaction with social support serve as protective factors, while avoidant coping and a heightened need for social activities may constitute risk factors for emotional and behavioral difficulties among institutionalized adolescents. Consistent with Zimmer-Gembeck and Skinner (2016), the use of emotion-focused coping strategies appears to support better adjustment when facing stressful events.

Psychopathy emerged as the most consistent and robust predictor of adjustment difficulties (Mushtaq et al., 2022; Pechorro, Curtis, et al., 2022, 2022b; Zhao & Jin, 2023), exerting both direct and indirect effects, particularly through avoidant coping. This finding aligns with the view that psychopathic traits are especially harmful in institutionalized settings, where emotional regulation and social support are already compromised (Frick et al., 2014).

Overall, the study highlights the central mediating role of coping strategies and social support in the relationship between personality traits and psychological adjustment. Avoidant coping served as a key pathway linking DT traits to maladjustment, while problem-focused coping and satisfaction with social support functioned as protective factors. These results are consistent with prior research showing stronger associations between negative coping styles and mental health problems (Xia et al., 2023), as well as links between maladaptive personality traits, avoidant and emotional coping, and increased psychological distress (Ireland et al., 2006).

Moreover, a greater perceived need for social activities was linked to increased adjustment difficulties, highlighting perceived social deprivation as a key stressor and unmet social needs as markers of vulnerability. These results underscore the importance of considering adolescents' coping responses, perceptions of control, and other stress appraisals in their psychological adjustment and risk for psychopathology (Zimmer-Gembeck & Skinner, 2016), thereby confirming the fourth hypothesis.

Furthermore, the findings suggest that coping strategies may function as mediators or moderators of adjustment difficulties, consistent with the third hypothesis. According to existing literature, emotion-focused coping is often reflective of predispositional traits, whereas problem-focused coping tends to be situationally specific (Zimmer-Gembeck & Skinner, 2016). Problem-focused strategies are influenced by contextual constraints and resources and can alter or mitigate stressful circumstances, thereby affecting adolescents' adjustment outcomes.

Several studies have identified avoidant coping as a mediator in the relationship between stress and psychological adjustment (Barker, 2007), while others suggest that avoidant strategies may exert more direct effects on adjustment in certain contexts (Clarke, 2006). A third perspective conceptualizes coping as the mechanism through which protective factors – such as social support – impact psychological outcomes (Zimmer-Gembeck & Skinner, 2016).

Multigroup analysis revealed distinct patterns in how the traits of the DT relate to psychological adjustment as a function of sex, both in terms of variables related to social support and coping strategies, thereby confirming the seventh hypothesis. Overall, psychopathic traits were negatively associated with maladjustment in both sexes, but exerted a stronger indirect effect among boys, primarily through avoidance coping strategies. Narcissism demonstrated divergent pathways: among boys, it operated mainly through the perceived need for social engagement, whereas among girls, its effects were mediated via emotion-focused coping strategies. The effects of Machiavellianism were predominantly observed among girls, negatively impacting adjustment through greater reliance on avoidance strategies and a heightened need for social activities.

Perceived satisfaction with social support emerged as a protective factor for both sexes, consistent with previous findings identifying perceived social support as a buffering factor against stress and psychological maladjustment (Pinheiro et al., 2024; Rueger et al., 2016; Simão et al., 2025). Conversely, the perceived need for increased social support activities appears to reflect a sense of relational deprivation, mediating the effects of Machiavellianism among girls and narcissism among boys. Prior studies have shown that adolescent girls scored higher on a composite goal index representing the degree to which they valued social goals (Rose & Rudolph, 2006). These findings suggest that while girls with elevated levels of Machiavellianism may employ manipulative strategies to compensate for feelings of exclusion or relational dissatisfaction (Rose & Rudolph, 2006), boys with higher levels of narcissism may seek external social reinforcement as a form of validation.

Thus, the perceived need for social support activities may be interpreted as a sex-specific marker of psychosocial risk, underscoring the importance of tailored approaches that are sensitive to the relational contexts and needs of each group.

Adolescence is a developmental period marked by challenges in emotion regulation, particularly in highly emotional environments. During early adolescence, some youth may rely more heavily on a variety of maladaptive coping strategies and show reluctance to seek help from adults. Institutionalized adolescents, in particular, may demonstrate greater hesitation, with their help-seeking behaviors becoming more selective regarding the types of support they request. However, the literature shows that they seek help from institutional

staff when needed, likely reflecting a sense of safety and trust within those relationships (Pinheiro et al., 2024).

### ***Limitations and Future Research***

Despite its contributions, this study has several limitations that should be acknowledged. The correlational cross-sectional design precludes establishing temporal ordering or causal relationships among variables and limits the ability to examine long-term associations. Consequently, the results must be interpreted with caution, as they only reveal direct and indirect associations without confirming causality. To clarify the directionality of effects and investigate potential mediation mechanisms more robustly, future research should adopt longitudinal designs.

Additionally, the findings are specific to institutionalized youth in Portugal, which limits the generalizability to other cultural or care system contexts. Future studies could explore how cultural norms, and institutional climates interact with personality traits, as well as examine potential moderating influences such as age, length of institutionalization, trauma history, and attachment patterns.

Among the strengths of this study are the use of a national sampling frame, the inclusion of youth perspectives on critical developmental issues, a high response rate from a typically hard-to-reach and under-researched population, and the opportunity to analyze differences across sexes. These factors enhance the relevance and applicability of the findings within the Portuguese residential care context.

### ***Implications for Practice***

The present study aimed to better understand coping patterns among institutionalized youth to inform the development of interventions that mitigate the negative effects of institutionalization. By focusing on successful coping strategies in relation to psychological adjustment and personality traits, the findings highlight important implications for interventions by psychologists and social workers, as well as for policy.

Promoting adaptive coping strategies is critical to improving psychological outcomes, particularly for youths exhibiting high levels of psychopathic or Machiavellian traits (Compas et al., 2017; Lochman et al., 2017). Tailoring interventions to address the distinct roles of DT traits, while considering the institutional context, is essential for effectiveness. Programs that foster trusting and stable relationships with staff and peers, alongside expanding meaningful social engagement opportunities, may help buffer the impact of manipulative or callous tendencies and reduce feelings of social deprivation (Evans et al., 2025).

Furthermore, monitoring high-risk profiles and providing intensive, relationship-focused interventions is crucial to address deficits in empathy and emotional engagement, which are key contributors to psychological maladjustment.

## Conclusion

This study highlights the significant impact of DT traits on youth psychological adjustment, revealing how maladaptive traits interact with coping strategies and contextual factors to influence psychological adjustment. Each trait appears to operate through distinct mechanisms, suggesting that the DT is not a homogeneous construct in terms of its psychosocial impact. The complexity of the indirect effects – some protective, others risk-enhancing – highlights the importance of considering the variables proposed in the model. Simultaneously, these findings underscore the relevance of sex as a critical variable in understanding the psychosocial implications of DT traits. The findings underscore the need for gender-sensitive interventions, particularly those that promote adaptive coping and fostering meaningful social connections. Notably, higher levels of psychopathy were linked to poorer mental health, and among boys, psychopathy was associated with reduced use of problem-focused coping, thereby increasing adjustment difficulties. Interventions that address avoidant coping behaviors and unmet social needs may be especially crucial for youths exhibiting high Machiavellian and psychopathic traits.

## Disclosure Statement

No potential conflict of interest was reported by the author(s).

## Funding

This work was funded by national funds through Fundação para a Ciência e a Tecnologia (FCT)—as part the project CUIP—Ref<sup>a</sup> UID/06317/2023. Partial financial support was received from a doctoral grant awarded to E.R. by the Fundação para a Ciência e a Tecnologia (FCT), under grant number [2024.00502.BD].

## ORCID

Ana Simão  <http://orcid.org/0000-0002-0838-9255>

Elias Ratinho  <http://orcid.org/0000-0003-1778-8343>

Cristina Nunes  <http://orcid.org/0000-0002-1009-0519>

## Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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