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Associations between the triarchic traits and mental health symptoms: the role of coping styles as mediators

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Short Title: Triarchic traits, mental health, coping

Associations between the triarchic traits and mental health symptoms: the role of coping styles as mediators

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Abstract

Objective: We investigated relationships between the triarchic model of psychopathy, coping styles, and externalizing and internalizing symptoms, and verified the mediating effect of coping styles. **Methods:** Participants were 957 adults responding to the Triarchic Psychopathy Measure, Inventory of depression and anxiety symptoms expanded version, and Crime and Analogous Behavior Scale. **Results:** Data were analyzed using four path analyses to test our hypothesis, indicating each triarchic trait is differently associated with psychological symptoms and coping styles. We also observed the preference for some coping styles affecting the association between triarchic traits and psychological symptoms. **Conclusion:** Our findings suggest that coping styles affect only the associations between boldness*distress and boldness*fear, indicating that specific coping strategies can account for variations in distress and fear linked to boldness.

Keywords: behavioral symptoms; antisocial behaviors; coping behavior; mediating factor.

Introduction

Psychopathy and mental health symptoms

Psychopathy is a personality disorder characterized by superficial charm, lack of remorse, low empathy, manipulation, and tendencies toward antisocial behavior.¹ Although considered a personality disorder, psychopathy is not an explicit diagnostic in essential diagnostic manuals such as the Diagnostic and Statistical Manual of Mental Disorders² and the International Statistical Classification of Diseases and Related Health Problems.³ However, these manuals present the antisocial/dissocial diagnostic, created initially to incorporate psychopathy features.⁴ The focus on behavioral criteria moved the psychopathy diagnosis away from the antisocial personality disorder diagnosis, even though they still present high overlap.⁵ Advances in the field have been incorporating psychopathy features in these diagnostic manuals (e.g., the psychopathy specifier in DSM-5 and the understanding of personality disorders in a trait-based perspective in ICD-11),⁶⁻⁷ but other models still present a more accurate representation of psychopathy. Several models have been proposed to conceptualize psychopathy,⁸⁻¹⁰ with no consensus on the most proper. Nevertheless, the triarchic model of psychopathy¹⁰ has been used as a basis for the understanding and study of psychopathy, with the advantage of reconciling different historical perspectives on this disorder and encompassing associated neurobiological aspects associated with it and facilitating the association with the normal-range of personality.¹⁰⁻¹²

The triarchic model understands psychopathy from three phenotypic domains: Disinhibition, Meanness, and Boldness.^{10,12} The disinhibition domain covers impulsive tendencies, difficulties with planning and control, irresponsibility, and antisocial behaviors. Meanness incorporates characteristics related to interpersonal and affective deficits, such as manipulation, low empathy, and exploitation of others. Boldness refers to low fear, low anxiety, dominance, social efficiency, and adventure-seeking tendencies. Although these

domains are related and are characteristics of the same disorder, previous studies indicate that they have different (and even inverse) relationships with external variables, such as internalizing and externalizing symptoms.¹³⁻¹⁵

The disinhibition domain is the most related to psychological symptoms, while boldness can be understood as a protective factor for mental disorders. Disinhibition is associated with higher levels of internalizing symptoms such as anxiety, depression, and suicidal tendencies and externalizing symptoms such as substance use and antisocial behaviors.^{13,15} In contrast, boldness is inversely associated with internalizing symptoms (e.g., anxiety, depressive symptoms, and especially symptoms of phobic disorders;^{11,14,16}), whereas meanness tends to have positive associations with externalizing symptoms (e.g., antisocial behaviors;¹⁴).

Psychopathy, symptoms, and coping strategies

Previous empirical findings provide a robust basis for the associations between the domains of psychopathy and externalizing and internalizing symptoms. **Several individual characteristics, including coping strategies, can impact these relationships.** Although the associations between coping and personality traits have already been investigated, including normal-range studies¹⁷⁻¹⁸ and pathological traits,¹⁹⁻²² research focusing on the relationship between coping and typical traits of specific personality disorders, such as psychopathy, are still lacking.

Coping strategies refer to ways of dealing with stressful situations, which can be divided into three main styles:²³ task-oriented, which focuses on solving the problem or changing the situation; emotion-oriented, which represents a tendency to deal with the situation based on aroused emotions; and avoidance-oriented, which reflects the tendency to avoid the stressful situation. The avoidance-oriented style can be separated into two subtypes: social

diversion, which refers to shifting the problem focus to socializing with others, and distraction, a tendency to replace the problem focus with an emphasis on other activities.

Specific relationships between coping and psychopathy have been the subject of only a tiny group of empirical studies. Nowakowski and Wróbel²⁴ found that boldness is positively associated with greater task-oriented coping style use, while disinhibition is more related to emotion-oriented coping. Saltoğlu and Uysal Irak²⁵ investigated the mediating role of coping styles in the relationship between psychopathy and well-being (depression, anxiety, stress, and life satisfaction). In the study, Saltoğlu and Uysal Irak²⁵ investigated psychopathy based on the division between primary and secondary psychopathy.⁹ The authors found that people with elevations in secondary psychopathy traits tend to use more maladaptive coping **styles than those in** primary psychopathy traits. Furthermore, the authors found a partial mediating effect for task-oriented, emotion-oriented, and avoidance-oriented styles on the relationship between primary psychopathy and life satisfaction and stress, between secondary psychopathy and the same outcomes, and a total mediating effect on the relationship between primary psychopathy and depression symptoms.

Conceiving the coping strategies as mediators of the relationship between psychopathy traits and internalizing and externalizing symptoms is reasonable, as previous studies indicate direct relationships between psychopathy and coping²⁴⁻²⁵ and between psychopathy and internalizing and externalizing symptoms.¹³⁻¹⁵ **Empirical** findings indicate direct relationships between coping, internalizing, and externalizing symptoms. The emotion-oriented and avoidance-oriented styles are related to higher levels of internalizing and externalizing symptoms,²⁶⁻²⁷ while the task-oriented style is associated with good psychological adjustment.²⁸ **However, evidence also suggests** that psychological adjustment is more related to being fluid across coping styles than always using the same coping strategy.²⁹⁻³⁰

Current study

The studies by Nowakowski and Wróbel²⁴ and Saltoğlu and Uysal Irak²⁵ provided relevant information about the relationship between psychopathy and coping strategies. However, these studies were based on covariations without simultaneous control for the influence of all traits (i.e., traits were independently analyzed),²⁴ or did not use the triarchic model as a basis for investigation.²⁵ This research aimed to investigate relationships between the domains of the triarchic model of psychopathy, coping styles, and externalizing and internalizing symptoms, in addition to verifying the mediating effect of coping styles on the relationship between triarchic traits and mental health.

We hypothesized that boldness would present negative associations with internalizing symptoms (H1a), meanness would show positive associations with antisocial behavior (H1b), and disinhibition would contribute to positive associations with both internalizing and externalizing symptoms (H1c). Moreover, we expected to observe negative associations between boldness and mal-adaptative coping styles (i.e., emotional-oriented, social diversion, and distraction) and positive associations with adaptative coping styles (i.e., task-oriented; H2a). Contrasting these hypotheses, we also disinhibition to show negative associations with task-oriented and positive associations with mal-adaptative coping styles (H2b). We also anticipated that task-oriented, social diversion, and distraction would mediate the relation between boldness and disinhibition and externalizing symptoms (H3a), while an emotional-oriented coping strategy would mediate the relation between triarchic traits and internalizing symptoms (H3b).

Material and methods

Participants and Procedure

The full sample for the study consisted of 957 Brazilian adults recruited via social media. A Google Forms link for the study survey was shared on Facebook and WhatsApp, inviting individuals to participate and relying on **the snowball principle³¹ to reach** a large number of participants. The online survey conformed to the recommended standards for conducting and reporting web-based surveys, the Checklist for Reporting Results of Internet E-surveys (CHERRIES).³² All procedures complied with the Declaration of Helsinki provisions regarding research on human participants³³ and were approved by a research ethics committee at a Brazilian university. All participants provided written informed consent before participating.

The full sample (N = 957) was composed mainly of women (87%), and the mean age was 30.3 years (SD = 11.2, range = 18 to 76). **We employed a robust variation of the Mahalanobis distance exclusion method based on the Minimum Covariance Determinant, the Mahalanobis-MCD³⁴, to enhance the data quality. We used the MCD50 (i.e., a sub-sample of $h = n/2$ and a breakdown point of 0.5).** This method identified 95 multivariate outliers. The final dataset was 862 adults ranging from 18 to 76 years (M = 30.6; SD = 11.4) based on the preceding exclusions. The majority of the sample reported being women (87.5%), Caucasian (68.8%), single (54.8%), **and people with thirteen to sixteen years of education (34.3%).** **Table 1 presents the demographics of the final sample.**

Table 1 - Final Sample Descriptive Statistics

Variables	n	%
Sex		
Women	754	87.5
Men	108	12.5
Years of education		
Less than nine	4	0.5
Nine	7	0.8
From nine to eleven	30	3.5
Twelve	127	14.7
From thirteen to sixteen	296	34.3
Seventeen	168	19.5
From eighteen to nineteen	50	5.8
More nineteen	180	20.9
Ethnic		
Caucasian	593	68.8
Pardo	194	22.5
Black	52	6.0
Asian	19	2.2
Indigenous	4	0.5
Marital status		
Single	472	54.8
Married	303	35.2
Divorced	49	5.7
Widow	33	3.8
Others	5	0.6

Measures**Triarchic Psychopathy Measure (TriPM)³⁵**

The TriPM is a 58-item self-report measure to evaluate the three traits described by the triarchic model of psychopathy: Boldness, Meanness, and Disinhibition. The items were answered on a 4-point Likert scale, from 0 = False to 3 = True. Previous findings support the psychometric properties and convergent and discriminant validity of the TriPM.³⁶ We administered a Brazilian Portuguese translation of the TriPM.³⁷⁻³⁸ The reliability of the subscales in this sample was good: Cronbach's α varied from .81 to .90, and McDonald's ω from .81 to .89.

Inventory of depression and anxiety symptoms expanded version (IDAS-II)³⁹

The IDAS-II is a 99-item self-report measure used to assess internalizing symptomatology. The items were answered on a 5-point Likert scale, ranging from 1 = Not at all to 5 = Extremely. The IDAS-II includes 18 content-based subscales, for which exploratory factor analyses have revealed a three-factor latent structure: Distress, Obsessions/Fear, and Positive Mood.³⁹ Our study used a Brazilian version of the IDAS-II,⁴⁰ and the factors presented good reliability: Cronbach's α varied from .70 to .93, and McDonald's ω from .70 to .93. Previous studies support the psychometric properties of this measure.⁴¹

Crime and Analogous Behavior Scale (CAB)⁴²

The CAB is a 55-item self-report inventory used to assess lifetime externalizing problems related to antisocial behavior and substance use, answered using a 2-point response format (0 = No, 1 = Yes). To reduce participant fatigue, we administered an abbreviated 16-item version used in prior research⁴³ that includes items from the CAB's Substance Abuse ($\alpha = .64$; $\omega = .66$) and Antisocial Behavior subscales ($\alpha = .63$; $\omega = .56$). We used a Brazilian version of the CAB scale⁴⁰

The Coping Inventory of Stressful Situations (CISS)²³

The CISS is a self-report measure to assess how **much respondents adhere to different coping styles during stressful situations**. This inventory comprises 48 items that were answered on a 5-point Likert scale, ranging from 1 = never to 5 = extremely. **We translated the CISS into Brazilian Portuguese**. Using ESEM in the current sample, we found a four-factor structure with acceptable fit indices. **The factors were: Emotion, Task, Distraction, and Social Diversion**. Cronbach's α for items composing the subscales composing the three factors in the current study ranged from .74 to .91, with McDonald's ω from .75 to .91. The translation procedures

for this inventory, and the results of the internal structural analysis in the current sample, are detailed in the Supplementary Material. Supplementary Table 1 presents the factor structure and factor loadings of the Brazilian Portuguese version of the CISS.

Data Analysis

We performed descriptive statistics of all variables used in the study, including an investigation of the normality of data using skewness and kurtosis statistics as criteria (i.e., values from -2 to +2 indicate normal distribution).⁴⁴ We performed four path analyses to test our hypothesis: a) triarchic traits predicting internalizing and externalizing symptoms, b) triarchic traits predicting coping styles, c) coping styles predicting internalizing and externalizing symptoms, d) coping styles mediating the association between triarchic traits and internalizing and externalizing symptoms. The path analyses were performed in Mplus (version 7)⁴⁵ using the MLR estimator. We used the following fit indices: Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI; ≥ 0.95 indicates a good fit, and ≥ 0.90 indicates an acceptable fit), Root Mean Square Error of Approximation (RMSEA; values < 0.06 considered good and < 0.10 are considered acceptable).⁴⁶⁻⁴⁸ We adopted $p < .05$ as the significance level in this study. The present study was not pre-registered. All data and codes have been made publicly available at the OSF repository and can be accessed at https://osf.io/ksmxn/?view_only=41e86338e6f84022b562a06ce750ed48.

Results

Table 2 presents the descriptive statistics of the variables used in the study. Most variables tended to be normally distributed.

Table 2. Descriptive statistics of the study variables.

	Min	Max	M	SD	Skewness	Kurtosis
Boldness (TriPM)	1.00	49.00	24.39	9.03	0.01	-0.42
Meanness (TriPM)	0.00	32.00	10.83	7.50	0.73	-0.24
Disinhibition (TriPM)	2.00	49.00	23.23	9.22	0.38	-0.41
Task-Oriented (CISS)	1.00	5.00	3.24	0.81	-0.02	-0.46
Emotion (CISS)	1.00	5.00	3.51	0.83	-0.52	-0.44
Distraction (CISS)	1.00	5.00	3.30	0.87	-0.11	-0.44
Social Diversion (CISS)	1.00	5.00	2.71	0.86	0.34	-0.27
Substance Abuse (CAB)	0.00	6.00	1.51	1.30	0.81	0.23
Antisocial Behavior (CAB)	0.00	9.00	0.66	1.01	2.33	9.28
Distress (IDAS-II)	1.00	4.98	2.95	0.94	-0.09	-0.88
Fear (IDAS-II)	1.00	5.00	2.68	0.93	0.20	-0.73
Positive Mood (IDAS-II)	1.00	4.67	2.09	0.67	1.05	1.27

Note. Min = Minimum; Max = Maximum; M=Mean; SD=Standard deviation. The antisocial behavior variable was the only one presenting deviation from normality. However, the MLR estimator applied in the path analysis allows non-normal distributed variables.

We conducted a path analysis to verify the relationship between triarchic traits and internalizing and externalizing psychological symptoms. Figure 1 depicts the results. The model was just identified (CFI=1; TLI=1; RMSEA = 0).

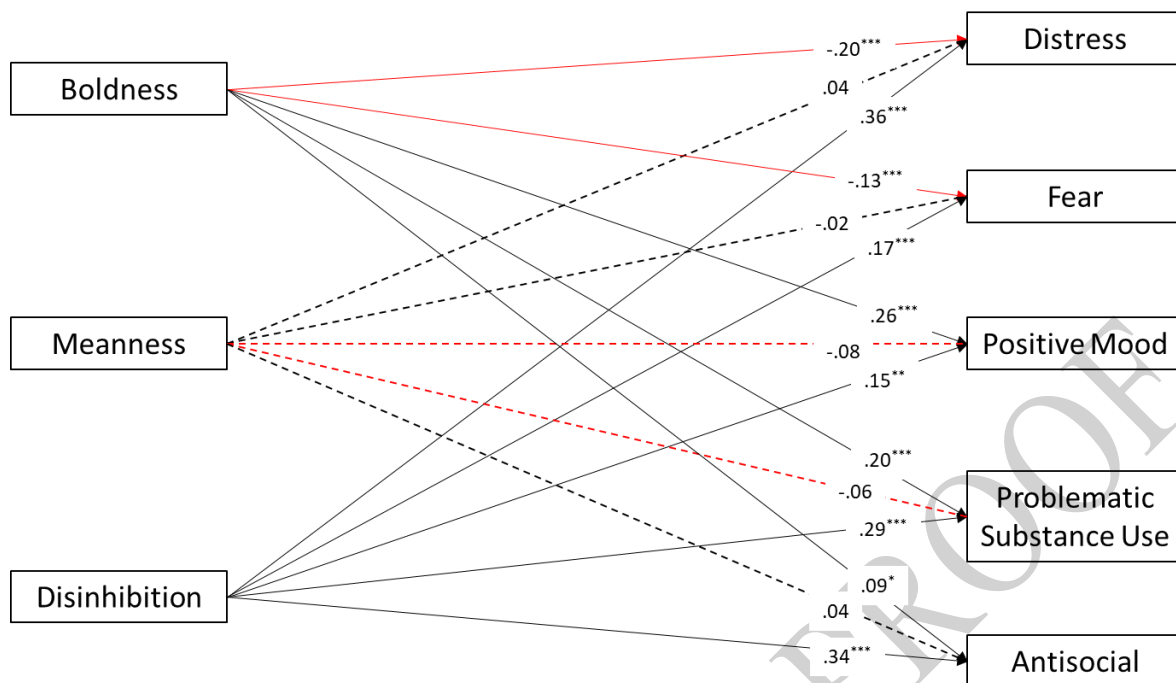


Figure 1. Path model examining triarchic traits as predictors of internalizing and externalizing symptoms. Regression coefficients are standardized β s. *** $p < .001$; ** $p < .01$; * $p < .05$. For ease of interpretation, dotted lines represent non-significant paths, continuous lines represent significant paths, black lines represent positive associations, and red lines represent negative associations. R^2 for dependent variables: Distress ($R^2 = .23$, $p < .001$); Obsessions/Fear ($R^2 = .06$, $p < .001$); Positive Mood ($R^2 = .06$, $p < .001$); Problematic Substance Use ($R^2 = .07$, $p < .001$); Antisocial Behavior ($R^2 = .12$, $p < .001$).

Meanness was not a significant predictor for any of the symptoms. Boldness was negatively associated with distress and fear, and positive relations with positive mood, problematic substance use, and antisocial behavior. Disinhibition showed positive associations with all internalizing and externalizing symptoms. We conducted a second path analysis to investigate associations between triarchic traits and coping styles. The model was just identified (CFI=1; TLI=1; RMSEA = 0). Figure 2 presents the results.

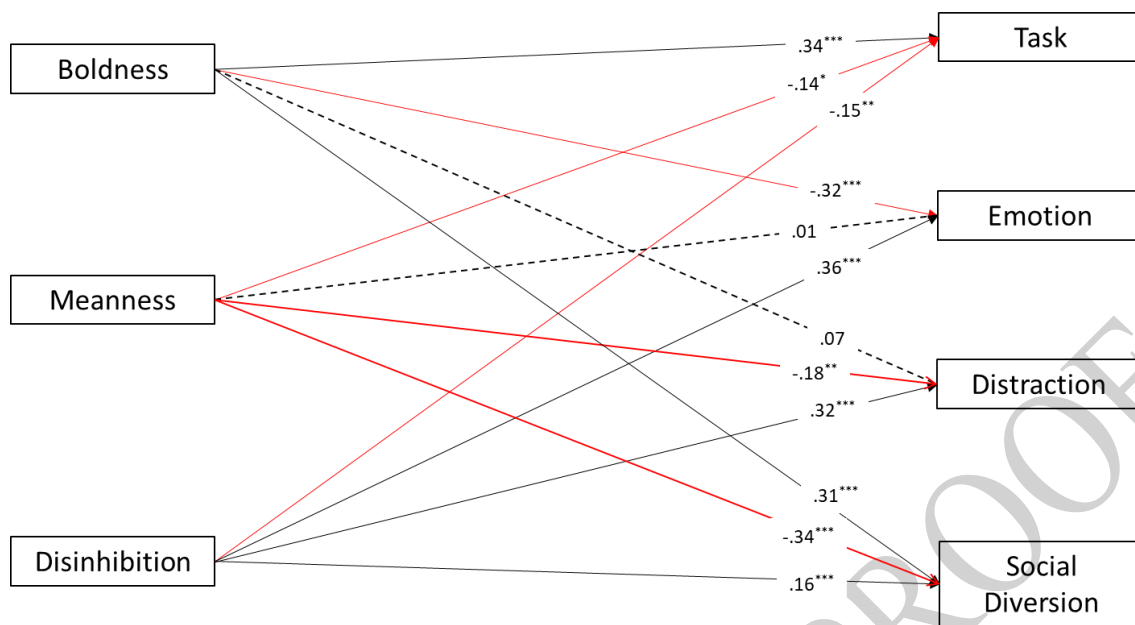


Figure 2. Path model examining triarchic traits as predictors of coping styles. Regression coefficients are standardized β s. *** $p < .001$; ** $p < .01$; * $p < .05$. For ease of interpretation, dotted lines represent non-significant paths, continuous lines represent significant paths, black lines represent positive associations, and red lines represent negative associations. R^2 for dependent variables: Task-oriented ($R^2 = .18$, $p < .001$); Emotion-oriented ($R^2 = .27$, $p < .001$); Distraction ($R^2 = .05$, $p < .001$); Problematic Substance Use ($R^2 = .09$, $p < .001$).

Boldness presented positive associations with task-oriented coping and social diversion styles, negative associations with emotion-oriented, and a non-significant association with distraction. Meanness was negatively related to all coping styles, except emotion-oriented, for which we observed a non-significant association. Nevertheless, we found a different pattern for disinhibition, which presented positive relations with emotion-oriented, distraction, and social diversion, and a negative association with task-oriented style. We again relied on path analysis to test associations between coping styles and psychological symptoms. Figure 3 shows the results.

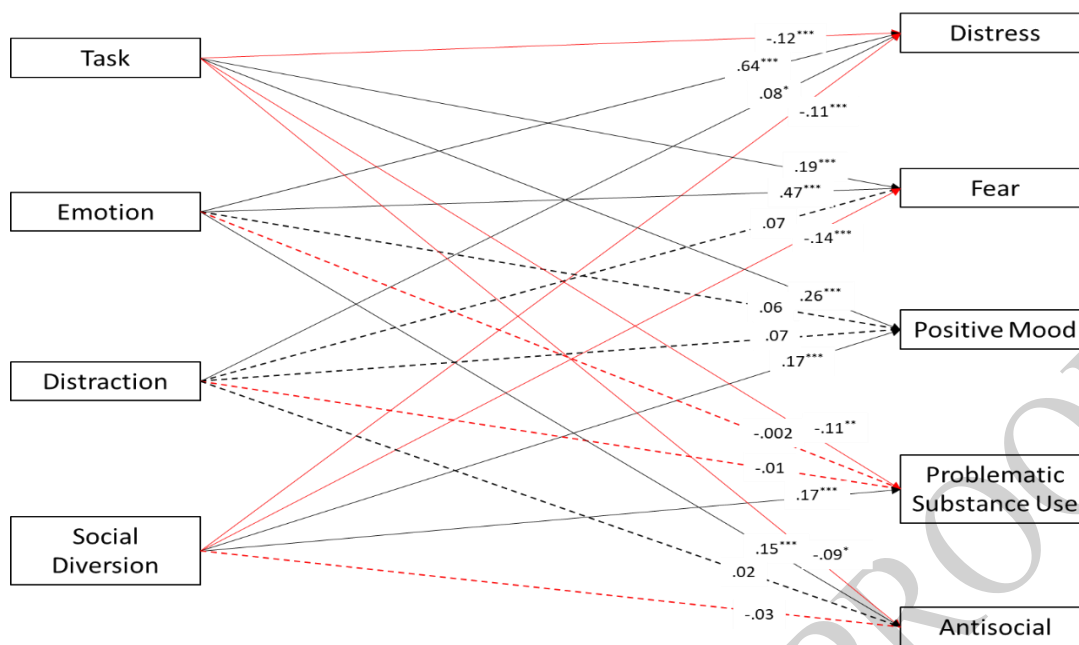


Figure 3. Path model examining coping styles as predictors of psychological symptoms. Regression coefficients are standardized β s. *** $p < .001$; ** $p < .01$; * $p < .05$. For ease of interpretation, dotted lines represent non-significant paths, continuous lines represent significant paths, black lines represent positive associations, and red lines represent negative associations. R^2 for dependent variables: Distress ($R^2 = .47$, $p < .001$); Obsessions/Fear ($R^2 = .28$, $p < .001$); Positive Mood ($R^2 = .17$, $p < .001$); Problematic Substance Use ($R^2 = .02$, $p = .015$); Antisocial Behavior ($R^2 = .03$, $p = .002$).

The model presented in Figure 3 was just identified (CFI=1; TLI=1; RMSEA = 0). We can observe significant associations between task-oriented and all psychological symptoms in the path model (positive for fear and positive mood, and negative for distress, problematic substance use, and antisocial behavior). Emotion-oriented was positively related to all psychological symptoms, except positive mood and problematic substance use, for which non-significant associations emerged. Distraction presented a significant association only with distress. For social diversion, negative associations emerged with distress and fear, positive associations with positive mood and problematic substance use, and a non-significant association with antisocial behavior.

Lastly, we conducted a path model with all triarchic traits, psychological symptoms, and coping styles to verify the effects between triarchic traits and psychological symptoms once we accounted for the coping styles' contribution. We excluded paths there were non-

significant in the three previous tested models before testing this model. Figure 4 presents the results.

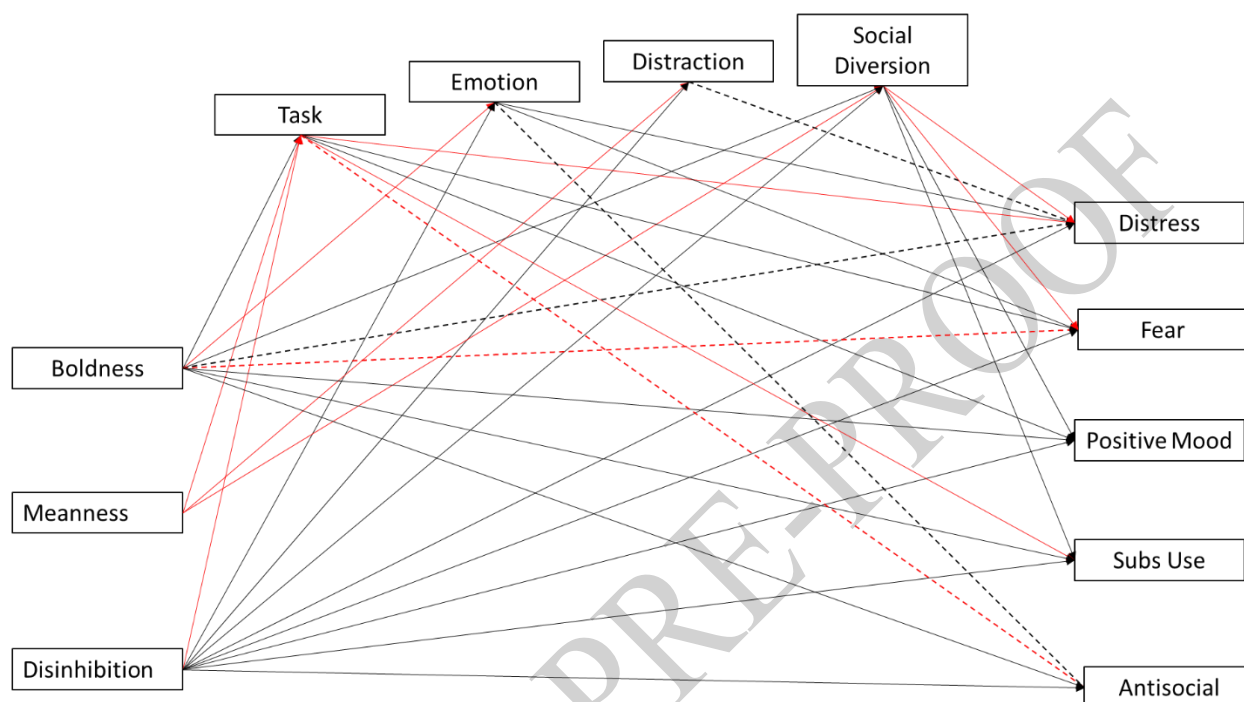


Figure 4. Path model with triarchic traits and coping styles explaining psychological symptoms. Regression coefficients (standardized β s) were not presented in the Figure for simplicity. *** $p < .001$; ** $p < .01$; * $p < .05$. For ease of interpretation, dotted lines represent non-significant paths, continuous lines represent significant paths, black lines represent positive associations, and red lines represent negative associations. R^2 for dependent variables: Distress ($R^2 = .48$, $p < .001$); Obsessions/Fear ($R^2 = .26$, $p < .001$); Positive Mood ($R^2 = .18$, $p < .001$); Problematic Substance Use ($R^2 = .08$, $p < .000$); Antisocial Behavior ($R^2 = .13$, $p < .000$).

The path model presented in Figure 4 has good fit indices (CFI=.998; TLI = .991; RMSEA = .022). The direct relations between variables were consistent with those observed in the three previous models. Changes were observed in the association between boldness, distress, and fear and between antisocial, task-oriented, and emotion-oriented coping styles (significant in previously tested models [Figures 1 and 3]). As the direct association between boldness and fear and distress ceased to be significant with the insertion of coping styles in the model, we tested the mediation effect of coping styles in these relations. Significant indirect effects were observed for boldness via task-oriented ($\beta = -.02$, $p = .016$), emotion-oriented ($\beta = -$

.19, $p < .000$), and social diversion ($\beta = -.03$, $p = .002$) to predict distress. Significant indirect effects were also observed for boldness via task-oriented ($\beta = -.08$, $p < .000$), emotion-oriented ($\beta = -.13$, $p < .000$), and social diversion ($\beta = -.03$, $p = .005$) to predict fear.

Discussion

Although the direct relations between psychopathy and psychological symptoms, and between psychological symptoms and coping strategies are vastly reported in the literature, the associations between psychopathy and coping strategies and the role of coping strategies in the association between psychopathy and mental health still need to be explored. We aimed to investigate the associations between psychopathic triarchic traits, coping styles, and (externalizing and internalizing) symptoms. We also verified the possible mediating effect of coping styles on the relationship between triarchic traits and mental health. Our findings suggested that each triarchic trait is differently associated with psychological symptoms and coping styles. The preference for some coping styles can affect the association between triarchic traits and psychological symptoms.

The findings with the first path model showed boldness positively predicting positive mood and externalizing symptoms (i.e., problematic substance use, antisocial behavior) and negatively predicting internalizing symptoms (i.e., distress and fear); meanness did not predict any of the symptoms, and disinhibition positively predicted all the internalizing and externalizing symptoms, confirming our H1 partially. As we predicted in H1a, boldness presented negative associations with internalizing symptoms, indicating a protective role for psychopathologies characterized by anxiety, depression, and suicidality symptoms, as widely reported in the literature.^{11,14,16} However, we did not expect the positive associations between boldness and externalizing symptoms observed in our empirical model. These findings may reflect the previous mixed results.^{13,49-53} We also expected positive associations between

meanness and antisocial behavior (H1b), which were not confirmed. Although the majority of previous studies reported these positive associations,^{13,53-54} a recent study conducted in Brazil found non-significant associations between meanness and externalizing symptoms,⁴⁰ which can be occurring due to the prevalence of women in the sample, similar to our study. Regarding our H1c, we observed all the expected associations between disinhibition and psychological symptoms, supporting the notion that disinhibition is a risk factor for different forms of psychopathology.^{10-11,14}

In our second path model, we expected (H2a) to find negative associations between boldness and mal-adaptative coping styles (i.e., emotional-oriented, social diversion, and distraction) and positive associations with adaptative coping styles (i.e., task-oriented). This hypothesis was partially supported, as we found positive associations between boldness and task-oriented and a negative association with emotion-oriented. However, we also observed a non-expected positive association with social diversion style. A positive association between boldness and task-oriented coping style was previously observed,²⁴ indicating boldness as the most adaptive of the triarchic traits.^{10,55} Associations with task-oriented style suggest a more adaptive nature for boldness, as this coping style refers to a healthy way to deal with stressful situations, i.e., it focuses on solving the problem or changing the situation.²³ The negative association with emotion-oriented can also be interpreted in the same light, as this is a maladaptive coping strategy. Although we did not expect the positive association between boldness and social diversion style (i.e., shifting the problem focus to socializing with others) due to its mal-adaptative inclination, this find can be understood given the social potency feature of boldness, which refers to social influence, capability to manipulate and convince others,¹⁰ and high levels of extraversion.⁵⁶

Also, in the second path model, we predicted that disinhibition **would negatively associate with task-oriented and positively** with mal-adaptative coping styles (H2b). Our

findings support this hypothesis, as disinhibition demonstrated all the expected associations with the coping strategies. Nowakowski and Wróbel²⁴ observed that disinhibition presented higher associations with emotion-oriented coping, which was also the higher association ($\beta=.36$) observed in the present study. Saltoğlu and Uysal Irak²⁵ reported that people with elevation in traits of the secondary psychopathy (closely related to disinhibition;⁵⁵) tend to use mal-adaptative coping styles, as observed in our results. This finding meets the assumption that disinhibition is the triarchic trait more related to negative outcomes, stressing its mal-adaptative disposition.^{10-11,14} Although not hypothesized, we observed a milder negative association between meanness and task-oriented and social diversion styles and a strong negative association with distraction, indicating that people with high levels of meanness are those less prone to replacing the problem focus **by emphasizing** other activities.²³ Furthermore, we can understand that people with low meanness tend to focus on solutions, socializing with people, and different activities as strategies to deal with problems.

Our third path model demonstrated specific associations for each coping style. The task-oriented coping presented negative associations with most negative outcomes, emerging **with** only a positive association with fear/obsessions. We may understand these associations by the adaptive nature of the task-oriented style and the fear/obsession factor's ordering, checking, and cleaning features,³⁹ which are related to task execution. The emotion-oriented style was confirmed to be the coping style more associated with psychological symptoms, predicting higher levels of distress, fear/obsessions, and antisocial behavior. Previous studies indicated the emotion-oriented style as the most maladaptive coping style,^{23,57} often presented by people with high internalizing symptoms levels.²⁷ Distraction contributed only with a positive association with distress, while social diversion presented positive associations with positive mood and problematic substance use. Silva et al.⁵⁸ suggest that the avoidance-oriented style is more related to externalizing psychopathology, which is represented by the problematic

substance use associated with the social diversion style. However, the distraction style tends to internalize psychopathology, specifically distress, indicating that people who tend to deal with stressful situations by emphasizing other activities²³ also present higher levels of depression, anxiety, and suicidality symptoms²⁶⁻²⁷.

Our fourth model represents, to our knowledge, an unprecedented attempt to test the mediating effect of coping styles on the relationship between psychopathic traits and externalizing and internalizing symptoms. Specifically, we expected a mediating effect of task-oriented, social diversion, and distraction in the relation between boldness and disinhibition and externalizing symptoms (H3a); a mediating effect of emotional-oriented coping in the relation between triarchic traits and internalizing symptoms (H3b). The coping styles did not impact most associations between traits and symptoms. The only relationships affected were between boldness and distress, and boldness and fear, indicating that these associations can change once we account for the effect of coping styles. These findings suggest that people with high boldness may present less distress due to the tendency to adhere more to the task-oriented and social diversion coping styles and to comply less with the emotion-oriented coping. Similarly, our results implied that people with high boldness could present higher levels of fear if engaged in task-oriented coping, and lower levels of fear due to the tendency to use a social diversion strategy and not use the emotion-oriented style.

Notwithstanding this study's contributions regarding the associations of triarchic traits and coping styles, and the impact of coping styles on the relationships between psychopathy traits and mental health symptoms, our findings must be pondered in light of this study's limitations. First, our sample was recruited online and may not represent the Brazilian population. Besides, we must consider differences between our sample and samples from previous studies when comparing findings. Female adults from the general population characterize our sample, while prior studies were based on adolescents,⁵⁹ incarcerated

individuals (e.g.), etc.^{60,52} Second, based only on the participants' self-report, we did not have information about the diagnostics of our sample's internalizing, externalizing, or psychopathy. Third, our study was performed with cross-sectional data, which does not allow directional inferences. We suggest future studies be carried out using truly clinical samples and a longitudinal design strategy.

Despite this study's limitations, we aggregated findings regarding the associations between triarchic traits, mental health symptoms, and coping styles. We believe that one of this study's strengths is to be the first, in our knowledge, to test a model containing triarchic traits predicting coping styles simultaneously, therefore, controlling the variance of all the predictors in the model. Besides, we are the first to investigate the mediating effects of coping styles in the relationship between triarchic traits and mental health. Our findings suggest that coping styles affect only the association between boldness and distress and fear, indicating that specific coping strategies can account for the elevation or debasement in distress and fear linked to boldness.

Declaration of Conflicting Interests

The authors declare that there is no conflict of interest.

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Supplementary material

We translated the coping styles scale (Endler & Parker, 1994) to Brazilian Portuguese for the purposes of this study. We are presenting the scale's translation procedures and the investigation of its internal structure.

Translation Procedures

Initially, two Brazilian authors of this study translated the items independently from the original English to Brazilian Portuguese. We combined the two versions to create a single version of the translated scale. A third Brazilian author performed a back-translation of the items from Brazilian Portuguese to English. The back-translated items of the CSS were sent to a fourth Brazilian author to evaluate the adequacy of back-translated items to the original items. We reformulated items identified as inappropriate. This process was repeated until further item refinement was deemed unnecessary.

Structural Analysis

We first performed a confirmatory factor analysis with the WLSMV estimator replicating the factor structure found by Endler & Parker (1994). The results indicated poor fit indices (CFI = .78; TLI = .77; RMSEA = .082). Given the inadequacy of this structure, we used parallel analysis and ESEM to find the best internal structure for the Brazilian-Portuguese version of the CSS. Parallel analysis indicated the existence of up to five factors. We performed ESEM with one to five factors, applying a WLSMV estimator and Geomin rotation. The four-factor model presented the best interpretability and adequate fit indices: CFI = .92, TLI = .90, and RMSEA = .05. However, the four-factor solution presented three items with factor loadings lower than .30 in all factors. We excluded these items (3, 11, and 44) and ran a new four-factor solution. The four-factor structure with the exclusion of the

three items also showed good fit indices and was retained for further analysis. Table Y shows the factor structure and factor loadings of the CISS Brazilian Portuguese version.

Table 1. Factor structure and factor loadings of the CISS Brazilian Portuguese version

	Emotion	Task	Distraction	Social Diversion
CISS5	.71	-.01	-.15	.10
CISS7	.46	.22	.08	.08
CISS8	.81	-.03	-.09	-.02
CISS13	.86	.00	.08	-.15
CISS14	.81	.02	.13	-.23
CISS16	.49	-.01	.17	-.01
CISS17	.78	-.03	.05	-.03
CISS19	.74	-.05	.23	-.18
CISS22	.85	-.10	-.05	.00
CISS25	.59	-.29	.01	.07
CISS28	.77	.02	-.01	-.03
CISS30	.68	.26	-.06	.14
CISS33	.47	.14	.03	.11
CISS34	.59	.23	-.10	.12
CISS38	.56	.00	.33	-.18
CISS45	.40	-.13	.30	-.09
CISS1	-.23	.68	.00	-.04
CISS2	-.08	.74	-.03	-.06
CISS6	.08	.44	.14	-.01
CISS10	-.05	.70	.12	-.08
CISS15	.25	.57	.09	-.03
CISS21	-.10	.73	.11	-.03
CISS24	.07	.68	-.07	.11
CISS26	-.15	.66	.10	-.02
CISS27	.01	.69	-.07	.10
CISS36	-.05	.73	-.15	.09
CISS39	.00	.79	-.01	.04
CISS41	-.09	.78	.01	.02
CISS42	.20	.63	.02	.05
CISS43	.13	.80	-.05	.00
CISS46	.10	.50	.16	.05
CISS47	.02	.60	.16	-.07
CISS9	-.05	.08	.66	.04
CISS12	.06	.11	.65	.11

CISS18	-.01	-.01	.59	.32
CISS20	.04	.00	.81	.09
CISS40	.18	.19	.32	.12
CISS48	.09	.08	.32	.08
CISS4	-.04	.12	.06	.57
CISS23	-.11	-.14	.29	.62
CISS29	.00	-.06	.10	.83
CISS31	.08	.10	.19	.48
CISS32	-.09	.23	.02	.42
CISS35	.16	.24	-.03	.56
CISS37	.02	.14	.00	.67
