

## Is the offence the best defense? Influences of childhood experiences and paranoia in the aggression in Azorean youths

### Atacar será a melhor defesa? A influência das experiências precoces e da paranoia na agressividade dos jovens açorianos

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#### Abstract

Paranoid ideation is a normative cognitive and social process considered normative (e.g. occasional mistrust feelings) or dysfunctional and pathological symptom (e.g. Paranoid delusions). Even at subclinical levels, paranoid ideation can hinder interpersonal functioning, to the extent that the resulting disruptive behavior can impact several life areas (e.g. family, peer and academic/professional relationships). The current study explores the influence of parental styles and the mediating role of paranoid ideation in aggression during adolescence, and discusses the implications for prevention and intervention in clinical and educational settings.

*Keywords:* cognitive processes, group and interpersonal processes, social perception and cognition

#### Resumo

A ideação paranoide é um processo cognitivo e social que pode ser considerado normativo (e.g. sentimentos de desconfiança ocasionais) ou disfuncional, constituindo-se, neste ultimo caso, como um sintoma psicopatológico (e.g. delírios paranoides). Mesmo em níveis subclínicos, a ideação paranoide pode constituir um entrave para o bom funcionamento interpessoal, na medida em que o comportamento disruptivo que dela advém pode afetar todas as esferas de funcionamento do indivíduo (e.g. relações familiares, entre pares, profissionais e/ou académicas). O presente estudo explorará a influência dos estilos parentais e o papel mediador da ideação paranoide na agressividade durante a adolescência, bem como as implicações para a prevenção e intervenção em contextos clínicos e educacionais.

*Palavras chave:* processos cognitivos, processos de grupo e interpessoais, percepção e cognição social

A significant body of evidence on the continuity of paranoid experience has supported current conceptualizations of this phenomena as a cognitive and social process that is manifested over a continuum (Célia Barreto Carvalho, Pinto-Gouveia, Peixoto, & Motta, 2014; Combs, Michael, & Penn, 2006; Freeman, Pugh, Vorontsova, Antley, & Slater, 2010; Nuevo et al., 2012). Thus, paranoid ideation can present itself as a normative

phenomenon, such as mistrust feelings that occasionally arise in individuals without psychiatric problems, or present itself in more dysfunctional and inflexible fashion, constituting specific psychopathological symptoms (e.g. paranoid delusions). According to evolutionary psychology and social rank theorists, paranoid ideation is among several defenses against perceived social threats and can be considered an adaptive response, to the extent that it allows

individuals to protect themselves by resorting to adequate strategies to cope with social threats (D. M. Buss, 2011; Gilbert, 1998). However, when the frequency or degree of belief on paranoid thoughts causes an excessive use of defensive interpersonal strategies at the expense of more cooperative strategies, these ideations, even when present at a subclinical level, may hinder individuals from building satisfactory interpersonal relationships. The maladaptive or disruptive behaviors that can result from paranoid thoughts may affect all areas of individual functioning (e.g. family, peer, academic or professional relationships). From this perspective, the pervasive societal problem of aggressive behavior can be considered, at least in part, as a coping strategy with a world that is perceived as hostile and where others have malevolent intents to harm the self (D. M. Buss, 2005; Gilbert, 1998). Youths can be a particularly vulnerable group, where several genetic (e.g. Temperament, vulnerability markers) and environmental factors (e.g. Influence of psychosocial dynamics, adverse life events) interact, and at a developmental stage where the construction of self-concept and identity take place (Bowers et al., 2011; Heaven, Ciarrochi, & Leeson, 2009; Morrison, Rodgers, Morgan, & Bale, 2014; Steinberg, 2007). Therefore, it becomes fundamental to provide knowledge on the mechanisms, risk and protective factors that can be targeted from an early age in order to foster self-regulation and more adaptive coping and interpersonal strategies. In this regard, school settings is a privileged context, especially when dealing with more challenged individuals who may struggle with both interpersonal and school adjustment difficulties.

In a previous study on the endorsement and predictors of paranoid ideation in Azorean youths, participants presented the highest endorsements on mistrust feelings and persecutory ideas dimensions of paranoid ideation (Sousa et al., 2015). While the first aspect refers to more adaptive concerns about social evaluation, particularly relevant during early adolescence, the frequencies of persecutory ideas revealed that youths have thoughts and concerns about being influenced and actively persecuted by others, which implies the attribution of malevolent intent to others. In addition, several studies point out to memories of parental styles characterized by hostile criticism, abuse or neglect being important predictors of both paranoid ideation and aggressive behavior (Célia Barreto Carvalho, da Motta, Pinto-Gouveia, & Peixoto, 2015; Kimonis, Frick, Fazekas, & Loney, 2006; Makin-Byrd & Bierman, 2013; Pinto-gouveia, Matos, Castilho, & Xavier, 2012; Sousa et al., 2015). Those findings have led us to hypothesize that paranoid ideation, or perhaps specific types of paranoid ideation, may play a significant role in hostile or aggressive behavior presented by youths. Thus, the present study aims to explore the influence of parental relationship styles and the mediating role of paranoid ideation in aggression during adolescence.

## Method

### Participants

Our study comprised a sample of 1816 adolescents, with ages ranging from 14 to 22 years old ( $M=16.73$ ,  $SD=1.31$ ), 864 males (47.6%) and 952 females (52.4%). The Socioeconomic Status (SES) was estimated from parents' employment class. The Lower SES was the most representative category of the sample with 57.5% ( $n=1044$ ), followed by "Medium" SES with 30.8% ( $n=560$ ) and, finally the Higher SES with 11.7% ( $n=212$ ).

### Measures

**General Paranoia Scale – GPS** (Fenigstein & Vanable, 1992). This self-report scale was specifically devised to measure the paranoid ideation in the general population. The scale comprises a set of 20 items, with a Likert-type format answered on a range of response varying from 1 (never) to 5 (always). The GPS scores can range from 20 to 100, where higher scores indicate the presence of more paranoid ideation. In the original study carried out in an adult population by Fenigstein and Vanable (1992) the Cronbach's alpha was .84. In the Portuguese validation studies in an adolescent sample, the total scale also showed good internal consistency, with a Cronbach's alpha of .90 (Barreto Carvalho et al., 2015). In two studies by Barreto Carvalho and colleagues (Barreto Carvalho et al., 2015; Celia Barreto Carvalho et al., 2014), the GPS yielded three different dimensions of paranoia in adult and adolescent samples: Mistrust feelings, Persecutory Ideas and Self-deprecation. Those factors presented good internal consistency, with Cronbach alphas of .79, .84 and .72, respectively (Barreto Carvalho et al., 2015). In the current study, the total scale presented Cronbach's alpha of .90, .79 to the Mistrust Feelings factor, .83 for Persecutory Ideas and .72 for the Self-deprecation factor.

**Early Memories of Warmth and Safeness Scale – adolescent version (EMWSS-A)** (M. Cunha, Xavier, Martinho, & Matos, 2014; Richter, Gilbert, & McEwan, 2009). The EMWSS-A is a self-report instrument that retrospectively assesses the early recalls of experiences of warmth, security and affection during childhood. In this one-dimensional instrument, items are rated on a 4-point scale, ranging from 0="No, never" to 4="Yes, most of the time". The Portuguese version of the EMWSS for adolescents presented a one-dimensional structure, explaining 61.7% of the variance of the total scale (M. Cunha et al., 2014). Internal consistency was high ( $\alpha=.97$ ), the same value that was obtained in the original study carried out with a sample of undergraduate students (Richter et al., 2009). In the current study, internal consistency was equally good ( $\alpha=.94$ ).

**Childhood Experiences of Care and Abuse Questionnaire (CECA-Q)** (Bifulco, Bernazzani, Moran, & Jacobs, 2005); Translated and adapted to Portuguese by

Barreto Carvalho and Pereira (2012). This questionnaire addresses perceived parental rearing styles during childhood, and identifies the parental figures that were most significant during development (before 17 years old). This questionnaire includes a screening questions for sexual and physical abuse, Neglect and Antipathy scales that scored separately for each parent (e.g. Mother and father). The Antipathy and Neglect scales have 8 items each, referring to antipathy from the parent (hostile criticism, dislike; e.g. He/she was critical towards me) and neglect from parents (e.g. He/she was interested in my problems). All items are rated for each parental figure separately in a 5 point Likert-type scale (1=“Not at all” to 5=“Totally”). The CECA-Q was found to be a good screening tool for assessing early adverse relationships and to the study of the role of these adverse experiences in the development of psychopathology (Bifulco et al., 2005). Internal consistency was .81 to Antipathy and .80 to Neglect subscale. In the Portuguese version internal consistency was .80 for Antipathy and .76 for Neglect, .60 for mothers’ antipathy and .74 for fathers’ antipathy, .61 for mothers’ neglect and .68 for fathers’ neglect. In the current study, the antipathy and neglect were studied from both parents together, in order to have a more general indicator of parental rearing styles and warrant higher internal consistency values (Antipathy  $\alpha$ =.80 and Neglect  $\alpha$ =.76).

**Aggression Questionnaire** (A. H. Buss & Perry, 1992; O. Cunha & Gonçalves, 2012) The Aggression Questionnaire is a 29-item self-report inventory assessing behavioral, instrumental and interpersonal aspects of aggression: verbal and physical aggression, anger and hostility. Response scales range from 1 (extremely uncharacteristic of me) to 5 (extremely characteristic of me). The questionnaire also produces a total score, where higher scores indicate increased levels of aggression, which was considered the dependent variable in the current study. Internal consistency for the subscales and total score range from .72 (Verbal Aggression) to .89 (Total AQ score)(A. H. Buss & Perry, 1992). Studies on the Portuguese version of the questionnaire also revealed good psychometric properties (O. Cunha & Gonçalves, 2012). In the current study, internal consistency of the total scale was .89.

**Procedures**

In the current study, participants were randomly selected from public high schools in São Miguel Island, Azores. The total sample (N=1816) abridged 50% of total of students attending each grade, which warrants sample representativeness. Data confidentiality and participants’ anonymity was warranted at all times. The goals and information about the study were provided to each participant and/or their legal representatives, who signed an informed consent form prior to the administration of the research protocol.

**Statistical analyses.** Statistical analyses consisted of multiple linear regressions and path analysis, carried out

with SPSS version 20.0 and AMOS 20.0 (IBM Corp., 2011). In all analyses, reference alpha levels were of .05. The first step consisted on the calculation of correlation (Pearson’s correlation coefficient) to explore the associations between early memories, paranoid ideation and aggressiveness. Next, a multiple linear regression analysis was used to address the extent to which early adverse memories (independent or exogenous variables) had an impact on the development of paranoid ideation and aggression (endogenous or criterion variables). Assumptions of multivariate normality were verified, attending to skewness and kurtosis. Some outliers (3.1%) were detected with Mahalanobis-DM<sup>2</sup> tests, but were kept due to their small number and interest to the phenomena in the current study. Finally, a hypothetical causal model was tested to address the direct and indirect effects of the endogenous variables with a simple mediation path. The significance of indirect effects was analyzed with Bootstrap resampling method set to 2000 samples and a 95% Confidence Interval. Quality of model adjustment was assessed taking into account the following fit indices and reference values according to recent Structural Equation Modeling recommendations (Kline, 2011): Goodness of Fit Index (GFI) and Comparative Fit Index (CFI) > .90; Root Mean square Error of Approximation (RMSEA)<.05.

**Results**

The associations of the variables in this study were significant in the expected sense: positive, strong or moderate correlations were found between early memories of parental antipathy and neglect and paranoid ideation subscales and total aggression (Table 1), where highest correlation coefficients were found between general paranoia subscales and total aggression variables. Conversely, negative correlations were found between early memories of warmth and safeness and aggressive behavior and paranoid ideations.

Table 1. Correlation analysis between EMWSS, CECA-Q, GPS and AQ (N=1816)

	EMWSS	Antip.	Negl.	Mis-trust	Persec. Ideas	Self-depr.
Antip.	-.390*					
Negl.	.335*	-.182*				
Mistrust	-.315*	.235*	-.096*			
Persec. Ideas	-.414*	.289*	-.148*	.702*		
Self-depr.	-.522*	.503*	-.245*	.485*	.585*	
AQ	-.235*	.274*	-.074*	.519*	.527*	.443*

Note: EMWSS = Early Memories of Warmth and Safeness Scale; AQ = Aggression Questionnaire; CECA-Q = Childhood Experiences of Care and Abuse Questionnaire  
\*  $p < .001$

A linear multiple regression was adjusted to address the significance of each predictor variable and their

explanatory power on the dependent variables (Figure 1). Standardized coefficient estimates and significance of each trajectory in the current model were analyzed, and

individual non-significant paths referring to the neglect subscale of CECA-Q were removed from the proposed model (Table 1).

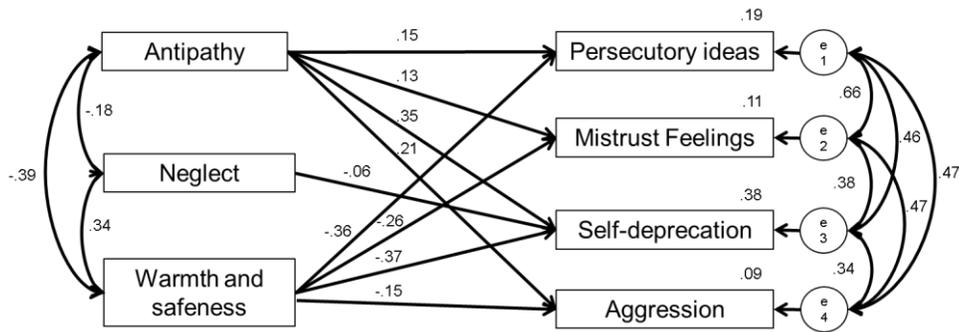


Figure 1. Adjusted Linear Multiple Regression Model between Early memories of warmth and safeness, parental neglect and antipathy, paranoid ideation and aggression (N=1816)

Regarding Paranoid ideation, the adjusted model explains 19% of Persecutory Ideas, 11% of Mistrust Feelings and 38% of Self-deprecation. Concerning aggressive behavior, the predictor variables explained 9% of the total variability of the aggression questionnaire scores. All trajectories were statistically significant, as presented in Table 2.

$\chi^2(5) = 23.534, p \leq .001; GFI=.996; CFI=.996; RMSEA=.045, P(rmse \leq .005)=.630.$

Table 2. Standardized estimates, regression coefficients and significance level for the multiple regression model

	Estimate (b)	S.E.	Z	p
Persec. Ideas←Antipathy	.151	.013	6.568	.000
Persec. Ideas← EMWSS	-.355	.010	-15.501	.000
Mistrust ← EMWSS	-.263	.011	-10.946	.000
Self-deprec. ← EMWSS	-.365	.005	-17.604	.000
Mistrust ← Antipathy	.133	.014	5.538	.000
Self-deprec.← Antipathy	.350	.006	17.421	.000
Self-deprec.← Neglect	-.062	.006	-3.592	.000
AQ ← Antipathy	.215	.042	8.858	.000
AQ ← EMWSS	-.151	.033	-6.245	.000

Note: EMWSS=Early Memories of Warmth and Safeness Scale; AQ=Aggression Questionnaire;

Thus, a causal model of the early memories (independent exogenous variables), paranoid ideation subscales (endogenous mediators) and aggression (endogenous dependent variable) was further tested. Similar to the previous analysis, standardized coefficient estimates and significance of each trajectory within the current model were analyzed, and the individual deletion of non-significant paths resulted in the removal of all paths referring to the Neglect subscale of CECA-Q as an independent exogenous variable in the model. The adjusted mediation model is presented in Figure 2. This model presented good adjustment, according to several fit indices:

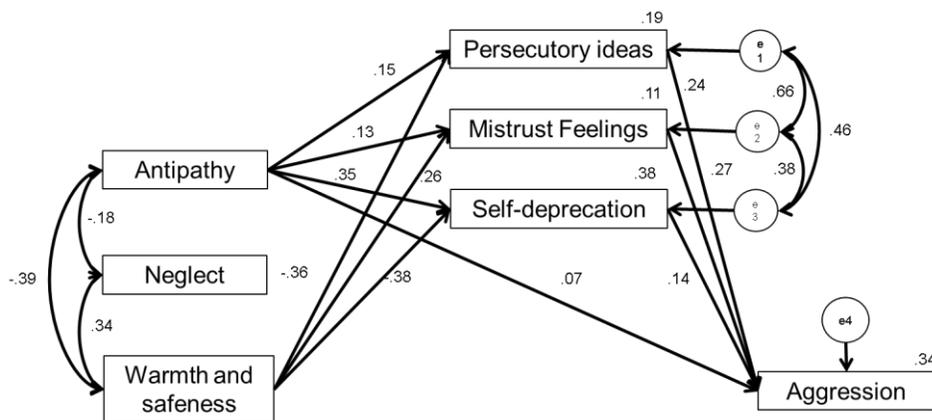


Figure 2. Adjusted Model of the impact of memories of warmth and safeness, parental neglect and antipathy, and paranoid ideation on aggression (N=1816)

The adjusted model explains 34% of the total variability of aggression. Recalls of antipathy presented a total effect of .193 over aggression, with statistical significance (CI).144; .243[,  $p=.001$ ). A direct effect of antipathy from parents on aggression of .073 was found to be significant in the current model (CI).027; .115[,  $p=.002$ ). Results suggest that youths who recall behaviors and attitudes of criticism or hostility from parents (antipathy) are more aggressive. The model also presented a significant indirect effect mediated by the three aspects of paranoid ideation (.120; CI).089; .154[,  $p=.001$ ). Indirect effects of Persecutory ideation are of .036 ( $\beta= .13 \times .27$ ), which corresponds to 18.65% (.036/.193=.186) of the total effect of recalls of antipathy from parents over aggression. These memories were also mediated by Mistrust feelings over aggression of .036 ( $\beta= .15 \times .24$ ), which corresponds to an indirect effect of 18.20% (.036/.193=.182). However, the more important mediator was Self-deprecation, with an indirect effect of .049 ( $\beta= .15 \times .24$ ), which corresponds to 25.40% (.049/.193=.254) of the total effect of recalls of antipathy over aggression.

Concerning early memories of warmth and safeness, the total effect over aggression was statistically significant (-.208; CI)-.178;-.242[,  $p=.001$ ) and fully mediated by the three components of paranoia. The indirect effect of Persecutory ideation was -.086, which corresponded to 41.53% of the total indirect effect on aggression. Mistrust feelings presented an indirect effect of -.070, which corresponds to 33.75% of the indirect effect of early memories of warmth and safeness on aggression. Finally, the indirect effect of Self-deprecation was -.053, consisting of 25.57% of the total indirect effect on aggression.

Table 3.  
Standardized estimates, path coefficients and significance level of the mediation model

	Estimate (b)	S.E.	Z	p
Persec. ideas← Antipathy	.151	.013	6.568	.000
Persec. Ideas← EMWSS	-.355	.010	-15.501	.000
Mistrust ← EMWSS	-.263	.011	-1.946	.000
Self-deprec. ← EMWSS	-.384	.005	-19.13	.000
Mistrust ← Antipathy	.133	.014	5.538	.000
Self-deprec.← Antipathy	.353	.006	17.586	.000
AQ ← Antipathy	.073	.038	3.311	.000
AQ ← Persec. ideas	.236	.089	8.121	.000
AQ ← Mistrust	.269	.083	9.98	.000
AQ ← Self-deprec	.139	.146	5.30	.000

Note: EMWSS=Early Memories of Warmth and Safeness Scale; AQ=Aggression Questionnaire;

### Discussion

The current study aimed to explore the impact of early memories and paranoid ideation on aggression in youths from the Azorean population. Despite participants

presented no behavior problems, findings indicated that paranoid ideation is an important mediator and accounts for a significant amount of variation in aggression in adolescents from the general population. While early experiences of parental antipathy or affection can help shape individual's perspective on the world and others and establish interpersonal styles, these thoughts and behavioral patterns can be reproduced across different interpersonal settings, as peer, acquaintances or school contexts, maintaining dysfunctional beliefs and interpersonal cycles. In accordance with current literature in the field (Ellett et al., 2003; Gilbert, Allan, & Goss, 1996; Gilbert, Boxall, Cheung, & Irons, 2005; Sousa et al., 2015), relationships characterized by warmth and safeness can act as a protective factor against paranoid beliefs, while hostile criticism, abuse or neglect from caretakers constitute factors that can aggravate paranoid ideations and, as suggested by our findings, more aggressive and disruptive behaviors.

It is important to emphasize that, despite paranoid ideation being a normative phenomenon, educators and policy-makers can have an important role in targeting variables that may pose a direct or indirect impact on this problems that affects school environments such as aggressive behavior. Fostering the development of socioemotional skills in youths is an important step that can simultaneously improve school performance and adjustment, as well as promote adaptive interpersonal functioning and mental health.

The main strength of the current study is sample representativeness. Thus, the generalization of findings is warranted to the Azorean population of youths. It is important to emphasize that adolescence is a developmental phase where several changes occur at different paces for each individual, and the cross-sectional design of the current research points out the need to carry out further longitudinal studies addressing the developmental aspects of paranoia and not focus solely on self-report questionnaires or recalls of childhood experiences. The neurocognitive development process should not be overlooked when studying samples of adolescents, and readers should bear in mind that several elaborate thought and self-regulatory processes are still developing at this age range (Raffaelli, Crockett, & Shen, 2005; Steinberg, 2007). Therefore, future research should focus on possible differences across age groups. In addition, further studies that are currently being carried out aim to explore possible gender differences and the role of each parental figure separately. The current study also suggested the importance of exploring the role of paranoid ideation on psychopathological symptoms experienced by youths, as well as in specific populations of youths with disruptive behaviors or conduct disorder. In educational settings, it is relevant to address whether these thought processes can have a significant impact on school achievement, holdbacks and school adjustment. Along with

the current findings, this line of research can provide additional insights both for clinical practice and on the role of educators in the development of preventive strategies and curricula that overtly include education on socio-emotional skills training in addition to academic skills since an early age.

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Fecha de recepción: 26 de marzo de 2015.

Recepción revisión: 8 de julio de 2015.

Fecha de aceptación: 22 de julio de 2015.