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Risk factors for antisocial behavior in children: comparison between boys and girls

Fatores de risco de comportamento antissocial em crianças: comparação entre rapazes e garotas

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Abstract

Recognizing the importance of assessing the risk of antisocial behavior, this study aimed to characterize the risk factors for the occurrence of antisocial behavior, seeking to understand if there are differences between boys and girls. Eighty-five cases of children referred by the promotion and protection system due to the display of antisocial behaviors were reviewed. A total of 65 were boys and 20 were girls, aged between six and eleven years. Data collection was performed using the Portuguese version of the risk assessment instruments Early Assessment Risk List for boys and for girls. Gender differences were assessed, with boys exhibiting a higher risk level for antisocial behavior, adopting more serious behaviors (e.g., impulsive behaviors). Girls engaged in less serious behavior (e.g., disrespect). By characterizing the most prevalent risk factors, the results of this study may contribute to the identification of intervention priorities.

Keywords: Antisocial behavior; Gender differences; Risk factors.

Resumo

Reconhecendo a importância da avaliação do risco de comportamentos antissociais, com este estudo pretendeu-se caracterizar os fatores de risco para a ocorrência do comportamento antissocial, procurando perceber se existem diferenças

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entre rapazes e garotas. Foram analisados 85 processos de crianças sinalizadas ao sistema de promoção e proteção devido à exibição de comportamentos antissociais, 65 referentes a rapazes e 20 a garotas, com idades compreendidas entre os seis e os onze anos. A recolha de dados foi realizada com recurso à versão portuguesa dos instrumentos de avaliação de risco Early Assessment Risk List para rapazes e garatas. Apuraram-se diferenças entre sexos, com os rapazes a apresentar um nível de risco para o comportamento antissocial mais elevado, adotando comportamentos mais gravosos (e.g., comportamentos de impulsividade). As garotas, adotam comportamentos menos gravosos (e.g., desrespeito). Ao caracterizar os fatores de risco mais prevalentes, os resultados deste estudo podem contribuir para a identificação de prioridades de intervenção.

***Palavras-chave**: Comportamento antissocial; Diferenças sexuais; Fatores de risco.*

The adoption of antisocial behaviors in childhood entails costs for society (e.g., property's destruction) and especially for child development, since there is evidence that early antisocial behavior tends to get worse with age (Loeber, Farrington, & Petechuk, 2003). Less serious behaviors that may develop around the age of seven may escalate to moderate severity behavior at age 9.5, and at around 14.5 years the first contact with the justice system tends to occur due to the practice of more serious aggressions (e.g., homicide) (Loeber et al., 2003). The early behavioral problems are associated with their continuity and quantity (e.g., accumulation of risk factors), i.e., the adoption of antisocial behavior in childhood and the number of risk factors (i.e., cumulative risk perspective) detected in this age groups are strongly associated with the persistence and duration of future delinquent and criminal behavior (Appleyard, Egeland, Dulmen, & Sroufe, 2005; Farrington, 2003). This evidence underlies the importance of early risk assessment and identification of antisocial behavior in order to provide timely and appropriate intervention (Goodnight et al., 2016). To that end, it is essential that professionals working in the field of childhood and youth become knowledgeable regarding the risk and protective factors in connection with antisocial behavior (Sitnick, Galán, & Shaw, 2018). Antisocial behavior is defined as:

> "acts that normally would lead to criminal charges if the child were twelve years of age or older (or ate the age of criminal liability in his jurisdiction); or actions, albeit not contrary to existing legal codes in a strict sense, that are deemed to be highly objectionable by community standards" (Augimeri, Koegl, Webster, & Levene, 2001, p.13, author's emphasis).

This behavior is also described as "conduct disorder" and defined as "*repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules are violated"* (American Psychiatric Association [APA], 2014, p.472) (e.g., use of physical violence, property destruction and theft), which is often diagnosed in children and youngsters (Frick, 2016).

Risk factors for antisocial behavior can be grouped into four broad categories: individual/temperamental (e.g., IQ level), environmental and social (e.g., family, peers and neighborhood), genetic and physiological factors. (e.g., family history) and course modifiers (e.g., comorbidity with other disorders and early adoption of antisocial behaviors (APA, 2014; Gardner, Waller, Maughan, Cluver, & Boyes, 2015). Although most of these factors are common to the practice of antisocial behavior by boys and girls, some authors argue that there are gender-specific risk factors (APA, 2014; Urben et al., 2016). With regard to girls it is claimed that they are prone to a higher number of institutionalizations (Levene et al., 2001), tend to establish weak affective bonds with the mother or female caregiver; they develop more often depressive problems (Kerig, 2014; Urben et al., 2016) and internalization problems (e.g., isolation behaviors) (Leve, Chamberlain, & Kim, 2015) and experience some kind of neglect, mistreatment or abuse (Kerig, 2014). As for boys, they seem to use physical violence more often as a way to solve problems (Gardner et al., 2015); they tend to have a high number of externalizing problems (Kristoffersen, Obel, & Smith, 2015) and greater comorbidity with hyperactivity attention deficits (Shaw & Gilliam, 2017). However, there has been a greater investment in the study of male antisocial behavior, with few studies integrating girls in their samples. According to Cutrín, Gómez-Fraguela, and Sobral (2017), this may be explained by the fact that girls' antisocial behavior

is perceived by society as being less severe. However, the truth is that the offenses committed by girls are increasing (Oudekerk, Burgers, & Reppucci, 2014) and this in itself requires greater scientific investment in the study of female antisocial conduct. In Portugal, different antisocial behaviors are adopted by girls and boys, and there is a need for the development of gender-focused interventions (Morgado & Dias, 2016), since the adoption of antisocial behaviors differs between genders (Urben et al., 2016).

In Portugal, during the 2016/2017 school year, police forces recorded 7.066 occurrences, 63% of which were antisocial and delinquent (Sistema de Segurança Interna, 2017). As regards the signs made to the *Comissões de Proteção de Crianças e Jovens* (CPCJ, Commission for the Protection of Children and Youngsters), there has been an increase in antisocial and delinquent behavior (e.g., indiscipline, substance abuse and/or school truancy/dropout), with the most frequent referrals coming from the police forces and schools (Comissão Nacional de Promoção dos Direitos e Proteção das Crianças e Jovens, 2018).

Recognizing the importance of risk assessment of early antisocial behaviors and using instruments specifically designed by international experts for this purpose, this study aimed at characterizing the risk factors for the occurrence of antisocial behavior in a sample of Portuguese children, seeking to understand if there are differences between boys and girls. More specifically, we sought to characterize the frequency of risk factors and their levels in children referred for their antisocial behaviors in the promotion and protection system and to verify if there is an association between the child's gender and risk factors and levels; also, to verify if there is an association between age and risk factors and their levels and, finally, to verify if there is an association between the type of antisocial behavior and its risk factors and levels.

Method

Participants

The sample of this investigation was taken from a *Comissão de Proteção de Crianças e Jovens* (CPCJ, Commission for the Protection of Children and Youngsters) located in the Setúbal district. CPCJ is an official non-judicial institution that aims to promote the rights of children and youngsters, preventing or putting an end to situations that may affect their well-being and development (Pereira, 2017). In this sense, all files open between January 1, 2008 and December 31, 2015, which reason for referral was associated with the display of antisocial behavior by children between 6 and 11 years of age more specifically, those exhibiting behaviors that could undermine the right to education (e.g., child-motivated school truancy/dropout) and behaviors that affect their well-being and development (e.g., violent behavior). Only cases that culminated in the effective application of a promotion and protection measure were included. The final study sample consisted of 85 cases referring to 65 male (76.5%) and 20 female (23.5%) children; the participants' ages ranged from six to eleven, with an average of 9.36 years (SD = 1.72). The 85 children had been referred on account of the following types of antisocial behaviors: school truancy or dropout (45.9%; n = 39), adoption of violent antisocial behaviors (e.g., physical aggression) (24.7%; n = 21), adoption of antisocial oppositional behavior at school and at home (16.5%; n = 14), and lastly due to the adoption of nonviolent antisocial behaviors (e.g., threats) (12.9%; n = 11).

Instrument

For this study, the instruments used were the Portuguese version of the Early Assessment Risk List for Boys (EARL-20B) and Early Assessment List Risk for Girls (EARL-21G) (Augimeri et al., 2001; Levene et al., 2001), translated by the authors for the purpose of the present investigation. Acknowledging the importance

of early risk assessment of antisocial behaviors, the Early Development Risk List 20 (EARL) instrument was developed by the Child Development Institute in Canada in two versions – version for boys (EARL-20B) and version for girls (EARL-21G) –, which aim to evaluate children aged between six and eleven at risk of future criminal behavior (Augimeri et al., 2001; Levene et al., 2001). Considering the instruments' structure, they are divided into three sections: (a) Family; (b) Child; and (c) Responsivity. The family section corresponds to the level at which "*the child has or has not been nurtured, supported, supervised, encouraged and disciplined*". The child's section corresponds to the level at which "*the child can or cannot perform his social role and can or cannot act creatively, responsibly, spontaneously, and sensibly*". Finally, the responsivity section concerns "*the ability of the child and family to engage in treatment and benefit from planned interventions*" (Augimeri, Enebrink, Walsh, & Jiang, 2010, p.13, author's emphasis). The EARL-20B consists of 20 items, six corresponding to the family section, twelve corresponding to the child section and two corresponding to responsivity section. The girls' version, EARL-21G, is all identical to the boys' version, except for the child section, where there is no "authority contact" item and there is a "sexual development" item and a family section that includes an extra item, "caregiver-daughter interaction" (Table 1).

Table 1
Description of the Early Assessment Risk List for boys (EARL-20B) and Early Assessment Risk List for girls (EARL-21G) Items

Items	EARL-20B	Items	EARL-21G
F1	Household circumstances	F1	Household circumstances
F2	Caregiver continuity	F2	Caregiver continuity
F3	Supports	F3	Supports
F4	Stressors	F4	Stressors
F5	Parenting style	F5	Parenting style
F6	Antisocial values and conduct	F6	Caregiver – daughter interaction
C1	Developmental problems	F7	Antisocial values and conduct
C2	Onset of behavioral difficulties	C1	Developmental problems
C3	Abuse/neglect/trauma	C2	Onset of behavioral difficulties
C4	Hyperactivity/Impulsivity/Attention deficits (HIA)	C3	Abuse/neglect/trauma
C5	likeability	C4	Hyperactivity/Impulsivity/Attention deficits (HIA)
C6	Peer socialization	C5	likeability
C7	Academic performance	C6	Peer socialization
C8	Neighborhood	C7	Academic performance
C9	Authority contact	C8	Neighborhood
C10	Antisocial attitudes	C9	Sexual development
C11	Antisocial behavior	C10	Antisocial behavior
C12	Coping ability	C11	Coping ability
R1	Family responsivity	C12	Family responsivity
R2	Child responsivity	R1	Child responsivity
		R2	Antisocial behavior

Source: Augimeri et al. (2001); Levene et al. (2001).

Regarding the instruments' scoring, each item is scored on a three-point scale (0- absent; 1- partially present; 2- present). Thus, "0" corresponds to the absence of information suggesting the presence of the risk factor for the adoption of future criminal behaviors; "1" corresponds to the suspicion for the presence of the risk factor, but without conclusive information. Finally, "2" corresponds to the unambiguous presence of the risk factor.

The maximum score of the EARL-20B is 40 points and that of the EARL-21G is 42 points. The attribution of the risk level is based on a structured professional judgment, that is, the sum of the items does not prevail in the final decision on the risk level, and this decision is based on the evaluator's criteria (Koegl, Farrington, & Augimeri, 2009). In the present study, EARL-20B showed a good internal consistency ($\alpha = 0.82$) and EARL-21G a reasonable internal consistency ($\alpha = 0.70$).

Procedure

The investigation project was approved by the Ethics Committee of the academic institution where the study was conducted, and obtained permission by the CPCJ for the collection of data, provided the complete confidentiality and anonymity of children, or others, involved or mentioned in the files.

After obtaining permission from the original authors, the EARL-20B and EARL-21G were translated and back-translated, complying with the structure and order of the items. Data were collected from consultation of the CPCJ files. The scoring of the instruments was performed by the first author, taking into account the data available in the files, from the time the child was referred until the first deliberation (i.e., the decision regarding the application of a promotion and protection measure), a period ranging from one month to ten months ($M = 4.62$; $SD = 2.148$). For the purpose of data collection and its evaluation, the author was trained in the use of the instruments mentioned and continuous consultation of their manuals was allowed.

In the present study, the results of the EARLs will be analyzed using the scores (total and in each section), as well as the classification of the risk level attributed by the first author using the structured professional judgment method. The data collected in this study were subjected to statistical analysis using the IBM®SPSS® Statistics (version 2.0) for Windows.

Results

Descriptive analysis of the EARL-20B and EARL-21G results

First, a descriptive analysis was performed, and Table 2 shows the results of risk factor frequencies (i.e., EARL-20B and EARL-21G items) present in the sample of boys, girls and total sample. Observing the items corresponding to male children, it was found that the factors most frequently present in their most severe form (i.e., scored as 2 - present) were F3 (i.e., supports), F5 (i.e., parenting style), and C10 (i.e., antisocial attitudes). Indeed, it was found that these families did not have any kind of support, either socially or at family level. On the other hand, even families that could count on some help from someone in the family (e.g., grandparents) or state (e.g., welfare benefits) did not accept it. As for the parents, they were unaware of their children's behavior; they did not take a problem-solving stance while adopting a violent parenting style (e.g., physical aggression as a form of punishment) and did not take proper supervision. Finally, as regards children's attitudes, they have demonstrated antisocial attitudes (e.g., they valued aggression; they verbalized insults), reacting negatively to attempts by authority figures (e.g., parents and teachers) to set and maintain limits.

By observing the items corresponding to female children, it was found that the factors that were most frequently present in their most severe form (i.e., scored as 2 - present) were F5 (i.e., parenting style), C7 (i.e., academic performance) and R1 (i.e., family responsivity). More specifically, the parents adopted a rather permissive parenting style; they had difficulty setting limits and revealed some less acceptable behaviors (e.g. insults) and did not visit the school to gain some insight into the child's school performance or other existing problems. As for the children's academic performance, they were one year below what should be their

school level, presenting some learning difficulties and obtaining negative results at the end of the period, thus having to attend remedial classes. Finally, the families of the female children showed clear indications that they were reluctant to engage in the treatment (e.g., never visited the school, nor the psychologist and/or the CPCJ), denying or minimizing the seriousness of their children's problems.

Finally, given our total sample, the majority (50.6%) of those children engaged in more moderate behaviors, including school truancy and dropout. On the other hand, there were children (27.1%) who exhibited one or more serious antisocial behaviors, namely serious aggression to physical integrity and use of sharp tools (e.g., an angle grinder) in order to obtain something in their favor.

Table 2
EARL-20B and EARL-21G items frequencies

Items	Boy				Girl				Total			
	Present		Partially present		Present		Partially present		Present		Partially present	
	n	%	n	%	n	%	n	%	n	%	n	%
F1	8	12.3	36	55.4	2	10.0	15	75.0	10	11.8	51	60.0
F2	7	10.8	40	61.5	4	20.0	1	5.0	11	12.9	41	48.2
F3	25	38.5	22	33.8	6	30.0	13	65.0	31	36.5	35	41.2
F4	12	18.5	44	67.7	5	25.0	11	55.0	17	20.0	55	64.7
F5	32	49.2	28	43.1	9	45.0	9	45.0	41	48.2	37	43.5
F6B[a]/F7G[b]	5	7.7	6	9.2	2	10.0	0	0.0	7	8.2	6	7.1
C1	3	4.6	5	7.7	2	10.0	2	10.0	5	5.9	7	8.2
C2	3	4.6	62	95.4	1	5.0	19	95.0	4	4.7	81	95.3
C3	13	20.0	35	53.8	5	25.0	13	65.0	18	21.2	48	56.5
C4	13	20.0	26	40.0	0	0.0	5	25.0	13	15.3	31	36.5
C5	21	32.3	21	32.3	1	5.0	5	25.0	22	25.9	26	30.6
C6	7	10.8	17	26.2	2	10.0	3	15.0	9	10.6	20	23.5
C7	17	26.2	36	55.4	9	45.0	7	35.0	26	30.6	43	50.6
C8	19	29.2	12	18.5	6	30.0	1	5.0	25	29.4	13	15.3
C10	28	43.1	12	18.5	1	5.0	9	45.0	29	34.1	21	24.7
C11	22	33.8	35	53.8	1	5.0	8	40.0	23	27.1	43	50.6
C12	24	36.9	20	30.8	2	10.0	3	15.0	26	30.6	23	27.1
R1	23	35.4	17	26.2	8	40.0	3	15.0	31	36.5	20	23.5
R2	16	24.6	19	29.2	2	10.0	2	10.0	18	21.2	21	24.7
F6G[c]	–		–		–		3	3.5	–		3	3.5
C9G[d]	–		–		–		–		–		–	
C9B[e]	24	28.2	9	10.6	–		–		24	28.2	9	10.6

Note: The percentages presented included missing items, ranging from a minimum of 1 (1.2%) to a maximum of 11 (12.9%). [a]F6B is the item that corresponds to the risk factor of EARL-20B "antisocial values and conduct". [b]F7G is the item that corresponds to EARL-21G risk factor "antisocial values and conduct". [c]F6G is the item that corresponds to the EARL-21G risk factor "caregiver-daughter interaction". [d]C9G is the item that corresponds to the EARL-21G risk factor "Sexual development". [e]C9B is the item that corresponds to the risk factor of EARL-20B "Authority contact".

Association between gender and risk factors/levels

In order to determine whether the differences in the distribution of results between boys and girls described above reflected an effective association between genders and risk factors and levels, bivariate inferential analyses were performed based on the Chi-square test. Importantly, this analysis only encompassed the common items between the EARL-20B and the EARL-21G. Of these risk factors, there was only a significant association between gender and the C4 items (i.e., hyperactivity/impulsivity/attention deficits) (x^2 (2) = 10.03,

p = 0.007), C5 (i.e., likeability) (x^2 (2) = 9.774, p = .008), C10 (i.e., antisocial attitudes) (x^2 (2) = 11.35, p = 0.003), C11 (i.e., antisocial behavior) (x^2 (2) = 17.75, p = 0.000), F2 (i.e., caregiver continuity) (x^2 (1) = 14.411, p = 0.000) and lastly R2 (i.e., child responsivity) (x^2 (1) = 7.056 , p = 0.010). In items F2 and R2 the Chi-Square Test (*Chi-Square Test*, x^2) was performed by joining the partially present and present categories in order to comply with the assumptions of the statistical test. The aforementioned risk factors were absent in girls and present or partially present in boys (Table 2).

Regarding the overall risk decision and gender, there was an association between these two variables (x^2 (2) = 6.26, p = 0.044). While in males, the majority (52.3%) of children is at high risk, in females, the majority (50%) of children is at moderate risk for future criminal behavior.

Considering now an analysis of the mean differences in the scores obtained in the EARL-20B and EARL-21G (only in this analysis the weighted total score, i.e., the score obtained divided by the total possible score was used, since the EARL-20B and EARL-21G have a different total number of items) according to the participants' gender, only statistically significant differences were found in the child-related risk factor section (t (83) = 3.44, p = 0.001), verifying that male children have a significantly higher average (M = 0.4404; SD = 0.19) than female children (M = 0.28; SD = 0.17).

Association between age and risk factors

The third objective of this study was to verify if there was an association between age group and risk factors. Thus, it was found that there was no significant association between age and total EARL score. In view of these results, participants were grouped in age groups, one group from six to nine years of age (n = 36) and another from ten to eleven years of age (n = 49), and it was found that such division into these two groups resulted in more significant associations. This separation has been agreed upon because at the age of 10 children move from primary to basic education.

Significant associations were found between age and risk factors F2 (i.e., caregiver continuity) (x^2 (2) = 8.59, p = 0.014), C2 (i.e., onset of behavioral difficulties) (x^2 (1) = 5.71, p = 0.029), C5 (i.e., likeability) (x^2 (2) = 7.101, p = 0.029) and C12 (i.e., coping ability) (x^2 (2) = 6.532, p = 0.038) (Table 3). It can be seen that in the age group of six to nine years most of the risk factors mentioned above were absent, while in the age group of ten to eleven they were present or partially present.

Table 3
Risk Factors frequencies in children between 6-9 years and 10-11 years

Items	6-9 years						10-11 years					
	Present		Partially presen		Absent		Present		Partially presen		Absent	
	n	%	n	%	n	%	n	%	n	%	n	%
F2	5	13.9	11	30.6	20	55.6	6	12.2	30	61.2	13	26.5
C2	4	11.1	32	88.9	-		0	0.0	49	100.0	-	
C5	10	27.8	6	16.7	20	55.6	12	25.5	20	42.6	15	31.9
C12	8	22.2	7	19.4	21	58.3	18	36.7	16	32.7	15	30.6

Association between type of antisocial behavior and risk factors/levels

The fourth objective of this study was to verify whether there was an association between the type of antisocial behavior and risk factors and level. It was decided to test the difference in mean scores obtained in the EARL-20B and EARL-21G subscales according to the reason for referral (i.e., antisocial behaviors

of school truancy or dropout, adoption of violent antisocial behaviors; adoption of antisocial behavior of opposition at school and at home and adoption of nonviolent antisocial behavior). Significant differences were only found in the child's EARL-20B subscale (*K-W* (3) = 20.33, *p* = 0.00). *A posteriori* tests using the Mann-Whitney Bonferroni Correction Test showed that the group that adopted violent antisocial behaviors had a significantly higher average (*M* = 13.79; *SD* = 3.05) than the group that adopted antisocial behavior of opposition at school and at home (*M* = 10.45; *SD* = 4.18) (*u* = 55.50, *p* = 0.033), as well as the group that adopted antisocial school truancy/dropout behaviors (*M* = 7.85; *SD* = 3.49) (*u* = 55.50, *p* = 0.000).

A one-way variance analysis (ANOVA) was performed to compare the total score of EARL-20B and EARL-21G according to the type of antisocial behavior. It was concluded that there were significant differences in the Total Score of the EARL-20B as a function of behavior (*F* (3.61) = 3.62, *p* = 0.018). The Gabriel Post-Hoc Test revealed that male children who were referred for violent antisocial behaviors exhibited higher scores (*M* = 21.37; *SD* = 6.508) than children who were referred for school truancy and/or dropout (*M* = 15.33; *SD* = 5.630). Differences in the EARL-21G Total Score were also found as a function of antisocial behavior, (*F* (3.16) = 9.006, *p* = 0.028). The *Tamhane* Post-Hoc Test revealed that female children who were referred for antisocial behavior of opposition at school and at home scored higher (*M* = 21.00; *SD* = 2.646) than children who were referred for nonviolent antisocial behaviors (*M* = 8.00; *SD* = 1.732).

Discussion

This study aimed to characterize and compare male and female children, referred in the promotion and protection system for adopting antisocial behaviors, regarding the risk factors and the level of repetition of such behavior.

Regarding the association between gender and risk factors, significant differences were found in child-related risk factors, in which male children exhibit a significantly higher risk factors average than female children. More specifically, the most prevalent risk factors in this subscale in male children are antisocial behavior, Hyperactivity/Impulsivity/Attention deficits (HIA), and likeability. This last risk factor concerns the social and communication skills and the physical and/or psychological aspect of the child, and this factor is considered one of the main predictors for antisocial behavior in boys (Levene et al., 2001).

Regarding hyperactivity behavior, this is also considered a predictor of future aggressive and violent behavior (Shaw & Gilliam, 2017), being associated more with boys than girls (Giannotta & Rydell, 2016).

In addition to child-related factors, other factors were found to be significantly more prevalent in males, namely caregiver continuity (i.e., child who had multiple caregivers, switched caregivers or was separated from a primary caregiver because he had been withdrawn from home) and the child's responsivity (i.e., the child's ability to adapt to and benefit from treatment). Levene et al. (2001) confirmed that female children have a higher percentage of institutionalizations compared to boys. Regarding responsivity, the EARL authors attribute this risk factor more to boys than girls (Augimeri et al., 2001).

With regard to risk levels, it was concluded that most male children exhibited a high risk level, unlike female children who generally had a moderate level of risk. This result is in line with the lower prevalence of antisocial behaviors in females, as shown in statistics and different studies (e.g., Sittner & Hautala, 2016; Morgado & Dias, 2016), also demonstrating that even when such behaviors are exhibited by girls, the risk of recurrence is lower than in boys. Based on the information obtained through the file consultation, when the risk factor "antisocial behavior" was subject to a more in-depth analysis, it was found that male children adopted more aggressive behaviors (e.g., aggression to physical integrity or access to sharp tools), rather than female children, who adopted minor behaviors such as disrespect for authority and insults. This can be

explained by differences in socialization between boys and girls, with boys being socialized to behave more aggressively and girls being more passive (Urben et al., 2016).

Regarding the association between age and risk factors, it was decided to analyze age according to age group. Thus, a division was made between ages (i.e., from 6 to 9 years and from 10 to 11 years), based on educational criteria as well as developmental aspects. In Portugal, children generally move from elementary to middle school at these ages. In fact, this transition may or may not have caused shortcomings to children's behavioral development, as those children get in contact with different problems and older youth and levels of antisocial behavior tend to increase over time (Kemp et al., 2009). On the other hand, according to Ettekal and Ladd (2015), individuals who adopt criminal behaviors during adulthood, began to adopt more serious behaviors at 10 years of age, and from that same age children begin to accelerate the adoption of such behaviors. This fact can also be observed through the APA (2014), since the conduct disorder subtypes are distinguished by the age factor, and 10 years is the milestone of this change/difference.

A statistically significant association was found between age and risk factors, in the sense that, although the present study focuses on a sample whose age range is in childhood, there was a higher percentage of risk factors in the older age group closer to adolescence. Thus, significant associations were found in the risk factors (a) caregiver continuity, (b) likeability and, finally, (c) coping abilities, noting that the age group between ten and eleven years presented these factors, contrary to children between the ages of six and nine, who did not present these factors. Farrington (2003) concluded that antisocial children up to ten years of age had had multiple caregivers, mainly due to the separation of their parents. With regard to coping abilities, Werner and Smith (1992, p.199, author's emphasis) reported that "*successful functioning in adulthood is related to problem-solving skills as assessed at age 10*". Thus, it is found, and taking into account the present study and others already mentioned, that this factor was one of the most prevalent and that it is more associated with functioning in adulthood.

Regarding the association between the type of antisocial behavior and risk factors and level, it was found that there were significant differences between the types of behavior in the average score obtained in the EARL-20B child subscale. These outcomes led to the conclusion that children who were referred for violent antisocial behaviors scored higher on this subscale than children who were referred for antisocial behavior of opposition of at school and/or at home, as well as those who were referred for school truancy/dropout. Thus, children who were referred for violent antisocial behaviors had a higher number of risk factors associated with their own, when compared to children who were referred for the other reasons described above. In this connection, the existence of a single risk factor cannot predict future delinquent and criminal behavior, and the greater the number of risk factors, the greater the likelihood that children will develop those behaviors (i.e., cumulative risk approach) (Augimeri, Koegle, Levene, & Webster, 2005; Appleyard et al., 2005). Thus, it is fundamental that the risk assessment be as detailed as possible, identifying the different risk factors present in the different frameworks in which the child is inserted, so as to be able to assist more effectively the intervention in this area.

When comparing the total score of the instruments according to the type of antisocial behavior, it was concluded that male children who were referred for violent antisocial behaviors showed higher scores than those who were referred for school truancy/dropout. In contrast, female children who were referred for antisocial behavior of opposition of at school and at home scored higher than those who were referred for nonviolent antisocial behavior. Indeed, oppositional behaviors are presented as risk factors for antisocial behavior, primarily in girls (Cénat, Hébert, Blais, Lavoie, & Guerrier, 2015). Still regarding gender differences, it was found that boys adopted more aggressive behaviors, which has been attributed to their tendency to resort more to aggression and physical violence as problem solving (Gardner et al., 2015).

The results of the present study may contribute to identifying intervention priorities by suggesting that these may differ by gender. For example, when dealing with a male child who has been referred for antisocial behaviors, the intervention should focus primarily on the risk factors associated with the actual child (e.g., hyperactivity/impulsivity/attention deficits) as well as caregivers' continuity and child's responsivity to treatment. On the other hand, this study demonstrated the need for primary prevention regarding this problem. Primary prevention is synonymous with avoiding and acting before the problem is identified. In this sense, it would be important that the other institutions/entities that work towards the good behavioral development of children (e.g., CPCJ's and schools) prevent the occurrence of these behaviors (e.g., conducting training on risk factors associated with antisocial behavior geared to those professionals, as well as to parents and educators focusing on parenting styles) (Gaven & Lima, 2011).

The results also showed that risk factors tend to accumulate with age, which confirms the importance of early intervention. Augimeri, Walsh, Levene, Sewell, & Rajca, (2014) have developed several programs over the years to reduce future criminal behavior in younger children. In fact, these programs have been highly successful as they have always been built on the basis of gender-specific risk factors as well as different contexts and populations (e.g., school and children with Asperger's syndrome) (Augimeri et al., 2014). In this connection, preventive interventions that focus on these aspects will be the most successful in reducing future criminal behavior (Sitnick et al., 2018).

Limitations

This study has some limitations that should be identified. It should be noted, first, that a retrospective methodology for the assessment was used and the fact that the study was performed only through consultation of promotion and protection files, causing a subsequent lack of information. The fact that the sample was only taken from one CPCJ and the exclusion of cases referred for antisocial conduct but that resulted from situations of neglect or family difficulties, led to the small size of the sample, especially the female sample. Finally, the accuracy of the risk level assessment performed by the structured professional judgment method, only by the first author of the study, would have benefited from a collaborative approach in a consensus model. In this model, a set of two or three assessors start by making their independent assessment of the risk level and then putting the results together to verify and discuss the existence of divergences in order to arrive at a unique consensual assessment.

Future Studies

Given the constraints associated with the present study, the development of prospective longitudinal studies is suggested, in order to predict risk factors associated with this problem, to work towards an appropriate intervention, as well as the appropriate monitoring of these families and children. On the other hand, and based on the results described above, it is suggested to conduct investigations that include samples from different age groups, not only for a comparison study of risk factors, but also to assist the field professionals (e.g., in CPCJ) in identifying the most effective interventions, depending on age, as noted above. Regarding the comparison between boys and girls, it is recommended that studies be conducted to analyze behaviors classified as "antisocial", such as bullying and other types of violent behavior, as these issues have been a concern of today's society. Finally, it is suggested that this type of study be extended to the national level, so that one can understand the extent of this issue, as well as the existence of differential aspects of each gender and age group, in order to start new programs and projects and thus foster a decrease in the number of referred cases.

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Contributors

I. C. COELHO was responsible for the project conception and design, data collection, analysis and interpretation and writing of the article. A. C. NEVES was responsible for project conception and design, data analysis and interpretation, review and approval of the final version of the article. S. CARIDADE was responsible for the project conception and design, revision and approval of the final version of the article.

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