

# Gender differences in the associations between childhood trauma and parental bonding in panic disorder

## Diferenças de gênero nas associações de trauma na infância e apego no transtorno do pânico

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### Abstract

**Objective:** The aim of this study is to evaluate the association between childhood trauma and the quality of parental bonding in panic disorder compared to non-clinical controls. **Method:** 123 patients and 123 paired controls were evaluated with the Mini International Neuropsychiatric Interview, the Childhood Trauma Questionnaire and the Parental Bonding Instrument. **Results:** The Parental Bonding Instrument and the Childhood Trauma Questionnaire were highly correlated. Panic disorder patients presented higher rates of emotional abuse (OR = 2.54,  $p = 0.001$ ), mother overprotection (OR = 1.98,  $p = 0.024$ ) and father overprotection (OR = 1.84,  $p = 0.041$ ) as compared to controls. Among men with panic disorder, only mother overprotection remained independently associated with panic disorder (OR = 3.28,  $p = 0.032$ ). On the other hand, higher father overprotection (OR = 2.2,  $p = 0.017$ ) and less father warmth (OR = 0.48,  $p = 0.039$ ) were independently associated with panic disorder among female patients. **Conclusion:** Higher rates of different types of trauma, especially emotional abuse, are described in panic disorder patients as compared to controls. The differences regarding gender and parental bonding could be explained in the light of the psychodynamic theory.

**Descriptors:** Object attachment; Anxiety; Environment; Panic disorder; Gender and health

### Resumo

**Objetivo:** O objetivo deste estudo foi avaliar a associação entre trauma na infância e qualidade do vínculo parental em pacientes com transtorno de pânico comparados com controles. **Método:** 123 pacientes e 123 controles pareados foram avaliados através do Mini International Neuropsychiatric Interview, do Childhood Trauma Questionnaire e do Parental Bonding Instrument. **Resultados:** As escalas Parental Bonding Instrument e Childhood Trauma Questionnaire mostraram-se altamente correlacionadas. Pacientes com transtorno de pânico apresentaram elevadas taxas de abuso emocional (OR = 2,54;  $p = 0,001$ ), superproteção materna (OR = 1,98;  $p = 0,024$ ) e superproteção paterna (OR = 1,84;  $p = 0,041$ ) quando comparados ao grupo controle. De acordo com o gênero, nos homens, apenas a superproteção materna permanece independentemente associada ao transtorno de pânico (OR = 3,28;  $p = 0,032$ ). Já as mulheres com transtorno de pânico descreveram mais frequentemente o pai como sendo superprotetor (OR = 2,2;  $p = 0,017$ ) e pouco amoroso (OR = 0,48;  $p = 0,039$ ) e referiram mais negligência emocional em comparação aos controles. **Conclusão:** Altas taxas de diferentes tipos de trauma, especialmente abuso emocional, foram encontradas em pacientes com transtorno de pânico quando comparados com o grupo controle. As diferenças com relação ao gênero e ao vínculo parental podem ser explicadas à luz da teoria psicodinâmica.

**Descritores:** Apego ao objeto; Ansiedade; Meio ambiente; Transtorno do pânico; Gênero e saúde

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## Introduction

Psychiatric disorders are complex conditions in which both genetic and environmental factors share an etiological role. Regarding panic disorder (PD), the proportion of variance explained by genes was estimated to be approximately 25 to 35%, whereas environment accounts for the remaining 70%.<sup>1</sup> As previously observed and described by the psychodynamic theory, childhood maltreatment and parenting characteristics are environmental factors probably associated with PD etiology.

Childhood maltreatment has shown to be associated with several psychiatric disorders and symptoms such as depression, anxiety,<sup>2,3</sup> schizophrenia,<sup>4</sup> suicide, hopelessness, delinquent behaviors, promiscuity, drug and alcohol abuse,<sup>5</sup> and dissociation symptoms.<sup>6</sup> Emotional abuse and neglect have also proved to predict increased anxious, depressive and somatic symptoms in adult women.<sup>7-9</sup> Studies have shown that PD patients have higher rates of past sexual or physical abuse than those with social phobia and generalized anxiety disorder<sup>10</sup> and much higher rates of domestic violence than controls.<sup>11</sup> Also, a recent survey<sup>12</sup> has shown that lifetime exposure to a potentially traumatic event is associated with a higher probability of psychiatric morbidity. PD rather than a range of other psychiatric disorders was associated with traumatic events especially when they first occurred in childhood.<sup>12</sup> That study highlighted the role of childhood experiences, such as trauma and the quality of parental bonding, in the development of PD.

Additionally to traumatic experiences in childhood, part of the individual's psychological development and personality is also a complex result of early object relationships,<sup>13</sup> i.e., an individual could see him/herself and evaluate the external reality based on the kind of attachment behavior he/she experienced with his/her parents or other caregivers in his/her childhood. These models are internalized as part of the "internal world of an individual", becoming a model for future relationships.<sup>14</sup> Shear et al. conducted a study in which all individuals with PD described at least one parent as angry, frightening, critical or controlling.<sup>15</sup> Moreover, Silove et al. demonstrated higher mother overprotection on patients with panic disorder as compared to controls.<sup>16</sup> Some authors have described that PD patients reported less care and more protection by both parents as compared to control subjects.<sup>17-19</sup> Pacchierotti et al. observed less care and more protection regarding the paternal figure, whereas considering the maternal figure, there were less careful and less protective patterns.<sup>20</sup>

To our knowledge, there are no available data in the literature about the role of the quality of parental bonding, assessed by the Parental Bonding Instrument (PBI), and childhood trauma, assessed by the Childhood Trauma Questionnaire (CTQ), and PD in adulthood in South American countries, which are culturally different from European and North American countries. Therefore, the aim of this study was to evaluate the association between trauma and parenting in childhood in adult PD patients. Additionally, we evaluated if gender was associated with these childhood experiences and the development of PD.

## Method

### 1. Sample

This is a case-control study paired 1:1 by gender, age and income. The final sample was composed of 123 patients and 123 controls. PD patients participated in psychopharmacology clinical trials or Cognitive Behavior Therapy Groups at the Anxiety Disorders Program at the Clinical Hospital of Porto Alegre (HCPA) (36 men and 87 women, aged between 19 and 63 years, mean age = 37.42,

SD = 10.29). Patients with primary diagnosis of PD with or without agoraphobia, according to DSM-IV diagnostic criteria, and aging at least 18 years were eligible for the study. Exclusion criteria included mental retardation, dementia or other organic brain syndrome, psychotic disorders and chronic disabling diseases. Patients with comorbidities common to PD were included in the study provided that the symptoms were not clinically more prominent than the PD symptoms. PD patients who were included could be currently symptomatic or in remission. The control group comprised HCPA employees who did not meet the criteria for any psychiatry disorder (36 men and 87 women, aged between 19 and 63 years old, mean age = 37.16, SD = 10.16). Patients and controls signed an informed consent form, and the study was approved by the Institutional Review Board of the Hospital de Clínicas de Porto Alegre (number 06-124).

## 2. Measures

### 1) Diagnostic

Patients and controls were evaluated by trained psychiatrists and psychologists with a clinical interview and the Mini International Neuropsychiatric Interview (MINI) - Brazilian version.<sup>21</sup> A semi-structured interview was used to assess sociodemographic data and clinical history.

### 2) Parental Bonding Instrument

The Parental Bonding Instrument (PBI) is a self-report questionnaire designed to measure the subjective experience of being parented to the age of 16 years. PBI scores have been shown to remain stable over time, being independent of current mood state, reflecting how others rate the parent-child relationship, and being sensitive to cultural differences.<sup>22</sup> The original construct designed by Parker et al. assesses, in a 25-item format, two main components that have been suggested to influence parental bonding: care and overprotectiveness.<sup>23</sup> Cox et al.<sup>24</sup> evaluated competing models of the basic dimensions underlying different versions of the PBI and found that one model proposed by Kendler,<sup>25</sup> with a 16-item version of the PBI, showed the best fit to the data. This version includes both care (now named warmth) and protection, and also the authoritarianism dimension. There are several nomenclatures used to describe the PBI factors in the current literature; for instance, warmth could be named "nurturance", "care" and "loving". We decided to use all the terms proposed by Kendler, except for protection. As this dimension seems to be associated with a risk factor, we named it as overprotection in our sample. The warmth factor includes seven items reflecting the warmth and lovingness of the parent-child relationship. Examples of these items are "Enjoyed talking things over with her" (positive loading) or "Was emotionally distant from her" (negative loading). The overprotection factor includes five items and represents the parental style of overprotection and control. Examples of these items are "Was overprotective of her" (positive loading). The authoritarianism factor includes four items and represents the parental style that discouraged autonomy and independence. Representative items on this scale were "Let her dress in any way she pleased" (negative loading) or "Let her decide things herself" (negative loading). Each item must be rated from 0 to 3, according to how much the individual's parent resembles a given behavior. This questionnaire has already been translated into Brazilian Portuguese.<sup>26</sup>

One subject did not rate the mother's version of the PBI because he did not have a mother figure in his/her childhood and 11 subjects did not rate the father's version of the PBI because they did not have a father figure in their childhood.

### 3) Childhood Trauma Questionnaire

The original CTQ is a 70-item self-report scale that was developed to provide reliable and valid retrospective assessment of child abuse and neglect. Its items ask about experiences in childhood and adolescence and are rated on a 5-point Likert-type scale, indicating the frequency in which the incident in question occurred, with response options ranging from Never True to Very Often True.<sup>27,28</sup> The CTQ has five clinical scales: physical abuse (“bodily assaults on a child by an adult or older person that posed a risk of or resulted in injury”), sexual abuse (“sexual contact or conduct between a child younger than 18 years and an adult or older person”), emotional abuse (“verbal assaults on a child’s sense of worth or well-being or any humiliating or demeaning behavior directed toward a child by an adult or older person”), physical neglect (“failure of the caretakers to provide for a child’s basic physical needs”) and emotional neglect (“failure of the caretakers to meet the children’s basic emotional and psychological needs”).<sup>29</sup> The CTQ has proved to be stable over time, even after six-month therapy, to resolve child abuse issues, despite reductions in general symptoms, increased self-esteem and resolution of abuse issues,<sup>30</sup> and it has internal consistency for adult<sup>29</sup> and adolescent samples.<sup>31</sup> Bernstein et al. developed a short version of the CTQ, in which each type of maltreatment was represented by five items to provide adequate reliability and content coverage, while substantially reducing the overall number of items in the scale, making it easier and quicker.<sup>29</sup> The 28-item short version form of the scale has already shown its coherence and viability, including the invariance of its factor structures across diverse populations and its criterion-related validity in adolescent psychiatric populations.<sup>29,31</sup> We used this brief form of the CTQ named QUESI (*Questionário sobre Traumas na Infância*), which was translated and validated into Portuguese.<sup>32</sup>

### 3. Statistical analysis

Normal distribution and sphericity were assessed previously to any statistical analysis with the Kolmogorov-Smirnov test and Levene’s test. Data are presented as count (percent). Since the majority of the CTQ and PBI scales are not normally distributed and data transformation (logarithmic, inverse, etc.) did not solve this problem, we decided to dichotomize PBI and CTQ variables. In order to compare the frequencies of the transformed scores into dichotomous variables (described below), Fisher’s exact test was used. All variables associated with the outcome with a p-value less than 0.1 were included in a multivariable logistic regression model in order to control for confounders using forward stepwise method (Likelihood) for selection of variables to maximize prediction. Statistical analysis was also performed separately for gender, since Stein et al. showed different kinds of trauma leading to PD in adulthood depending on gender differences.<sup>33</sup>

All tests were two-tailed and performed with the Statistical Package for the Social Sciences (SPSS) v. 14.0. The level of significance adopted was  $\alpha = 0.05$  and 95%CI.

### 4. Factor analysis

Regarding the findings by Cox et al.,<sup>24</sup> we performed a principal component analysis (PCA) for the 16 items, using Varimax rotation with Kaiser normalization, extracting factor with an eigenvalue greater than unity to verify if the three factors proposed by Kendler (warmth, overprotectiveness and authoritarianism) could be extracted from our sample. This was accomplished separately for father and mother scales.<sup>25</sup>

The same procedure was performed with the Childhood Trauma Questionnaire (CTQ) to confirm if our sample extracted the five factors proposed by Bernstein:<sup>28</sup> Emotional Abuse (EA), Physical Abuse (PA), Sexual Abuse (SA), Emotional Neglect (EN) and Physical Neglect (PN). If the PCA failed to extract the same factors previously reported, confirmatory factor analysis was also run using AMOS 6.0 software. The following criteria were used for evaluation: goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), Tucker-Lewis index (TLI), and comparative fit index (CFI). The following criteria were used to indicate goodness-of-fit for the models:  $GFI > 0.85$ ,  $AGFI > 0.80$ ,  $TLI > 0.90$ ,  $CFI > 0.90$ .<sup>24</sup>

### 5. Optimal cut-off points for the CTQ and PBI according to ROC curve

As mentioned above, since most of the PBI and CTQ scales are not normally distributed in our sample, and in order to facilitate the interpretation, we decided to dichotomize the generated scores. However, as there were no cut-off points for the Brazilian population for both scales, ROC curves were used to maximize the accuracy of the cut-off point to predict risk factors for the presence or absence of PD in adulthood. The Youden’s index *J* was used to define the optimal cut-off point for the continuous variables, and the area under the curve (AUC) was used to test their significance.

The best cut-off points for CTQ scales according to Youden’s index were:  $\geq 8$  for EA (AUC = 0.641;  $p < 0.001$ ),  $\geq 7$  for PA (AUC = 0.603;  $p = 0.005$ ),  $\geq 7$  for SA (AUC = 0.548;  $p = 0.190$ ),  $\geq 10$  for EN (AUC = 0.647;  $p < 0.001$ ) and  $\geq 7$  for PN (AUC = 0.579;  $p = 0.032$ ), all defined in risk factor direction. The best cut-off points for PBI scales were:  $\geq 6$  for mother overprotectiveness (MOP) (AUC = 0.625;  $p = 0.001$ ),  $\geq 9$  for mother authoritarianism (MA) (AUC = 0.522;  $p = 0.569$ ),  $\geq 5$  for father overprotectiveness (FOP) (AUC = 0.614;  $p = 0.003$ ) and  $\geq 10$  for father authoritarianism (FA) (AUC = 0.551;  $p = 0.181$ ), – defined in risk factor direction;  $\geq 10$  for father warmth (FW) (AUC = 0.601;  $p = 0.007$ ) and  $\geq 18$  for mother warmth (MW) (AUC = 0.550;  $p = 0.189$ ) – defined in protection factor direction.

Since dichotomization reduces the power to detect small differences between groups, for the variables with a non significant cut-off point according to AUC (an assumption to use Youden’s index), the Mann Whitney test was used to compare mean ranks between cases and controls.

## Results

### 1. Factorial analysis

For the PBI, as expected, the PCA extracted three factors with eigenvalue higher than unity, explaining together 56% (for father) and 57% (for mother) of variance. Table 1 displays the items and factor loadings for the rotated factors, with loading less than .35 omitted to improve clarity. The extracted factors of our sample are very similar to Kendler’s version of the PBI. Only item 9 (“Controlled Everything”) could be better allocated in factor III instead of factor II of the Kendler’s version. However, their correlation with the original factor (factor II) is also very high and very close to the correlation with factor III.

For the CTQ, also as expected, the PCA extracted five factors underlying the structure of this scale. After rotation, the first factor accounted for 17.1% of the variance, the second factor accounted for 15.5%, the third factor accounted for 13.6%, the fourth factor accounted for 9.9% and the fifth factor accounted for 6.1% of the variance, totalizing 62.3% of the variance. In spite of that, there

**Table 1 - Factor Loadings for the rotated factors for father and mother version of the PBI in the whole sample**

Item summary	N°	Factor Loading*							
		Father's PBI (n = 235)				Mother's PBI (n = 245)			
		I	II	III	C	I	II	III	C
Smiled frequently	12	0.827			0.689	0.758			0.580
Did not talk much**	18	0.777			0.636	0.740			0.577
Spoke with friendly voice	1	0.770			0.651	0.745			0.560
Was emotionally distant**	4	0.769			0.595	0.699			0.496
Understood problems	5	0.768			0.617	0.744			0.595
Enjoyed talking	11	0.761			0.597	0.767			0.639
Made child feel better	17	0.656			0.454	0.608			0.396
Let child dress as she wanted**	25		0.797		0.669		0.745		0.568
Let child decide things for himself/herself**	15		0.764		0.633		0.816		0.691
Gave child much freedom**	21		0.713		0.555		0.771		0.617
Liked child to make own decisions**	7	-0.361	0.574		0.472	-0.356	0.682		0.639
Controlled everything	9		0.427	0.422	0.436		0.456	0.388	0.421
Babied child	13			0.724	0.533			0.789	0.651
Was overprotective	23			0.667	0.565			0.658	0.573
Did not want child to grow up	8			0.586	0.350			0.715	0.556
Made child dependent	19			0.559	0.500			0.668	0.573
% Variance		28.35	15.44	12.16		25.73	17.07	14.29	
Eigenvalues		4.93	2.55	1.47		4.79	2.65	1.689	

Note: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

Loading < 0.35 were omitted.

Abbreviations: C, Communality; PBI, Parental Bonding Instrument

\*Factor I = Warmth; Factor II = Authoritarianism; Factor III = Protectiveness

\*\*Loading is reversed on this item for ease of comparability

were some differences between the extracted and the theoretical model for this scale, especially for physical abuse and physical neglect. Two items originally allocated in Physical Abuse were extracted in the Emotional Abuse factor, and three items originally allocated in Physical Neglect were extracted in Emotional Neglect. Regarding these differences, the CFA was performed to confirm the stability of the whole model, and all criteria for goodness-of-fit were achieved: GFI = 0.862, AGFI = 0.830, TLI = 0.908, CFI = 0.920,  $\chi^2 = 507.49$ .

## 2. Association between Parental Bonding Instrument and Childhood Trauma Questionnaire scales

The association between the PBI and CTQ scales can be seen in Table 2. Overall, we can observe that warmth in mother and father is related to a decrease in the chance of several traumas, and, conversely, overprotectiveness and authoritarianism increase the chance of traumas in childhood. Generally, we can also observe that warmth is inversely associated with overprotectiveness and authoritarianism, and protectiveness and authoritarianism are directly associated in the same caretaker, associating one caretaker's characteristics with another. Additionally, we can observe that subtypes of childhood traumas are highly associated among them.

## 3. Childhood maltreatment, parental bonding and PD – univariate and multivariate analyses

For the whole sample, several variables were associated with PD with a p-value less than 0.1, and only MA was kept out of the model. In the multivariable model, three variables were independently associated with PD risk considering men and women together: MOP, OR = 1.98 (95%CI 1.09 to 3.58; B = 0.682,

Wald = 5.07, p = 0.024); FOP, OR = 1.84 (95%CI 1.03 to 3.29; B = 0.608, Wald = 4.19, p = 0.041) from the PBI, and EA, OR = 2.54 (95%CI 1.47 to 4.41; B = 0.933, Wald = 11.05, p = 0.001) from the CTQ.

The univariate analysis between PD and controls stratified by gender can be seen in Table 3. For men, MOP and FOP from the PBI and EA from the CTQ were selected to enter in the multivariate logistic model, however only MOP remains independently associated with PD, OR = 3.28 (95%CI 1.11 to 9.71; B = 1.19, Wald = 4.59, p = 0.032). Alternatively for women, several variables were associated with PD with a p-value less than 0.1, and only MA was kept out of the model. In the PBI scale, FW remained associated with protection to PD (OR = 0.48, 95%CI 0.24 to 0.96; B = -0.742, Wald = 4.25, p = 0.039), and FOP remained associated with risk of PD (OR = 2.2, 95%CI 1.15 to 4.21; B = 0.79, Wald = 5.67, p = 0.017). In the CTQ scale, EN remained associated with risk of PD (OR = 2.56, 95%CI 1.32 to 4.93; B = 0.94, Wald = 7.82, p = 0.005) after controlling for confounders.

## Discussion

Our study suggests that PD patients reported their mothers and fathers to be significantly higher overprotective than did the individuals from the control group. This finding corroborates previous studies that evaluated the relationship between parental bonding and anxiety disorders.<sup>17-19,34</sup> A study that was held in six European countries reported a parenting pattern comprising less parental warmth and maternal overprotection associated with different anxiety disorders.<sup>35</sup> Lower parental care has been associated with PD in two other cultures,<sup>18,19</sup> but we were not able to replicate this association in our sample. On the other hand, our results

Table 2 - Odds ratio between the PBI and CTQ scales

			PBI						CTQ				
			Mother			Father			Abuse			Neglect	
			MW	MOP	MA	FW	FOP	FA	EA	PA	SA	EN	PN
PBI	Mother	MW	1	0.48*	0.21**	1.58	0.45*	0.38*	0.26**	0.28**	0.78	0.16**	0.33**
		MOP	0.48*	1	3.42**	0.84	4.92**	1.26	1.75*	1.08	1.03	2.30*	1.63
		MA	0.21**	3.42**	1	0.88	2.95*	4.50**	1.40	2.47*	1.46	2.12*	1.61
	Father	FW	1.58	0.84	0.88	1	0.79	0.15**	0.33**	0.50*	0.81	0.33**	0.50*
		FOP	0.45*	4.92**	2.96*	0.79	1	5.02**	1.68	1.96*	1.20	2.05*	1.91*
		FA	0.38*	1.26	4.50**	0.15**	5.02**	1	2.59*	3.00*	1.38	1.31	1.85
CTQ	Abuse	EA							1	8.00**	1.88	6.13**	3.49**
		PA							8.00**	1	4.00**	3.44**	4.06**
		SA							1.88	4.00**	1	2.23*	2.41*
	Neglect	EN							6.13**	3.44**	2.23*	1	6.85**
		PN							3.49**	4.06**	2.41*	6.85**	1

Note: Values present as OR.

Abbreviations: PBI: Parental Bonding Instrument; CTQ: Childhood Trauma Questionnaire; MW: Mother warmth; MOP: Mother overprotectiveness; MA: Mother authoritarianism; FW: Father warmth; FOP: Father overprotectiveness; FA: Father authoritarianism; EA: Emotional abuse; PA: Physical abuse; SA: Sexual abuse; EN: Emotional neglect; PN: Physical neglect.

Statistics: Significance tested by Fisher Exact test.

\*Correlation is significant at the 0.05 level (2-tailed).

\*\*Correlation is significant at the 0.001 level (2-tailed).

are in accordance with Silove et al., who also did not replicate this previous findings.<sup>16</sup> Sociocultural differences<sup>36</sup> could have contributed to these differences. Additionally, we have to consider that the retrospective nature of these instruments could be biased by memory and could also represent the individual's interpretation of his childhood life. For instance, the concept of parenting viewed

through retrospective instruments have been shown to be influenced by several factors, including cultural concepts about offspring rearing and temperamental aspects of the parents and child.<sup>25</sup>

We also found differences between gender and parental styles. In adulthood, female PD patients described their fathers as being significantly more overprotective and less warm when compared

Table 3 - Univariate analysis comparing the PBI and CTQ scales between cases and controls stratified by gender

			Men (n = 72)				Women (n = 174)			
			Controls N (%)	Cases N (%)	Statistics*		Controls N (%)	Cases N (%)	Statistics*	
					OR (95%CI)	p			OR (95%CI)	p
CTQ	Abuse	EA	11 (30.6)	20 (55.6)	2.81 (1.08 to 7.47)	0.056	42 (48.3)	62 (71.3)	2.66 (1.42 to 4.97)	0.003
		PA	11 (30.6)	17 (47.2)	2.03 (0.78 to 5.34)	0.227	22 (25.3)	40 (46.0)	2.52 (1.32 to 4.78)	0.007
		SA	5 (13.9)	7 (19.4)	1.50 (0.43 to 5.25)	0.753	8 (9.2)	17 (19.5)	2.40 (0.98 to 5.90)	0.082
	Neglect	EN	14 (38.9)	21 (58.3)	2.2 (0.86 to 5.65)	0.157	34 (39.1)	57 (65.5)	2.96 (1.60 to 5.49)	0.001
		PN	10 (27.8)	17 (47.2)	2.33 (0.87 to 6.20)	0.144	31 (35.6)	43 (49.4)	1.77 (0.96 to 3.24)	0.091
		Mother	MW	18 (50)	15 (41.7)	0.71 (0.28 to 1.81)	0.318	40 (46.5)	25 (28.7)	0.46 (0.25 to 0.87)
MOP	7 (19.4)		17 (47.2)	3.71 (1.29 to 10.63)	0.023	28 (32.6)	46 (52.9)	2.32 (1.25 to 4.31)	0.009	
MA	3 (8.3)		6 (16.7)	2.2 (0.51 to 9.58)	0.478	18 (20.9)	25 (28.7)	1.52 (0.76 to 3.06)	0.292	
Father	FW	24 (72.7)	21 (65.6)	0.72 (0.25 to 2.06)	0.598	66 (77.6)	48 (56.5)	0.37 (0.19 to 0.73)	0.005	
	FOP	8 (24.2)	15 (46.9)	2.76 (0.96 to 7.93)	0.072	32 (37.6)	50 (58.8)	2.37 (1.29 to 4.38)	0.009	
	FA	1 (3)	1 (3.1)	1.03 (0.06 to 17.24)	> 0.99	10 (11.8)	22 (25.9)	2.62 (1.16 to 5.94)	0.030	

Statistics: Fisher Exact test; OR, Odds ratio; 95%CI, 95% Confident Interval

Abbreviations: PBI: Parental Bonding Instrument; CTQ: Childhood Trauma Questionnaire; MW: Mother warmth; MOP: Mother overprotectiveness; MA: Mother authoritarianism; FW: Father warmth; FOP: Father overprotectiveness; FA: Father authoritarianism; EA: Emotional abuse; PA: Physical Abuse; SA: Sexual abuse; EN: Emotional neglect; PN: Physical neglect; CT: Childhood trauma.

Mann Whitney test with the continuous variables reached very similar results to the dichotomized variables.

to same gender controls. In contrast, male PD patients referred that their mothers were significantly more overprotective than controls. These findings could be interpreted in the light of Freud's theory about the Oedipus complex, in which the major anxious conflict is the castration complex. In males, the overprotection by their mothers, interpreted by an Oedipus' conquest, leads to guilty feelings. Regarding females, conquest and guilt were described together with less warmth and neglect. These factors can decrease the overprotection and confirm that their conquest was not completed. Busch's work explains an Oedipal dynamic in PD in which the competition with the same gender parent is linked to angry preoedipal fantasies and associated fears of disruption in attachments. Discomfort with dependency or homosexual wishes can lead to a reactive state of aggressiveness and competitiveness. Thus, panic patients can view themselves defensively as aggressive oedipal contenders rather than as passive, fragile and castrated infants. However, the view of oneself as an aggressive oedipal contender feeds back into the dangers of hurting important attachment objects. This fear of assertion leads to regression and to a helplessness and dependent state. The same author also points out an important characteristic of panic patients, the ego weaknesses. Individuals with panic perceive themselves as incapable of handling developmentally normative tasks, especially those involving separation and autonomy. This theory can be substantiated by our findings, since it is well known that an overprotective parent creates a sense of incapability.<sup>37</sup> Of note also, the relationship between parents and children is very ambivalent and could lead to different interpretations, considering the individual's history.

In the same way, Shear's psychodynamic model for PD involves the idea of an augmentation of inborn fear by frightening and over-controlling parents, as described in our study, which predisposes to incomplete resolution of conflicts between dependence and independence.<sup>15</sup> The manifestations of this conflict may vary into feelings of being alone and abandoned or trapped and suffocated, provoking the reaction of anger or guilt in situations interpreted as threatening separation or entrapment and the sexual excitement's perception that can also be interpreted considering the Oedipus complex as suggested by the results of our study. The negative affects (anxiety, guilt, shame) are threatening themselves, thus engendering superimposed anxiety. The anxiety enhances the intensity of the negative affect, and finally leads the person to avoid the affect and focus on somatic aspects.<sup>15</sup> In that way, from a psychodynamic perspective, panic symptoms are indicative of specific, intense unconscious conflicts that serve an important psychological purpose.

Our study has also described interesting data about trauma in childhood. Although other types of childhood trauma have been significantly related to PD in adulthood, only emotional abuse remained significant in the multivariate analysis, contrasting with previous studies,<sup>3,10</sup> which attribute to sexual and physical abuse the major responsibility for the pathogenesis of PD, with few researches about the role of emotional abuse. This finding could express the vulnerability of an individual previously to the traumatic event. It is known that the nature and intensity of the trauma influence the development of a disorder, although a recent study has shown that the number of childhood trauma but not its nature has influence on the onset of depression depending on the genetic background.<sup>38</sup> Other studies<sup>7,39</sup> have also observed that emotional abuse in childhood and perception of controlling and noncaring parents had an indirect effect on adulthood psychopathology. In our sample, we also observed that overprotection and authoritarianism meant higher chances to have childhood trauma, linking these two factors to PD.

When comparing all subtypes of trauma, we observed that having a particular kind of trauma increases the chance of suffering other types of trauma. This can represent a very dysfunctional, multi-traumatized familiar pattern. For example, when we detect the presence of emotional abuse, we also find significantly higher rates of physical abuse and emotional and physical neglect. In the same way, the presence of physical abuse was significantly associated with sexual abuse and emotional and physical neglect. These combinations of multiple severe traumatic events were confirmed by other studies on PD in the current literature.<sup>11</sup>

Surprisingly, we did not find a statistically significant relationship between sexual abuse in childhood and development of PD. This might be due to the low prevalence of sexually abused subjects in our sample. This finding contrasts with the results of the present literature.<sup>4,10</sup> In addition, our study has some limitations. First, the case-control design and the retrospective instruments to assess childhood experiences limit some of our conclusions. Second, since the scales are only translated into Portuguese but not validated in Brazil, we had to establish some parameters (through ROC curves) to analyze the data. Consequently, as both parameters' establishment and analysis were done in the same sample, the risk and protection factors associated to PD might be maximized. Another possible limitation is the lack of personality disorder evaluation in our sample. On the other hand, our study has the strength of using self-report instruments. Dill et al. showed that self-report instruments to evaluate childhood trauma are more likely to elicit truthful responses than clinical interviews.<sup>40</sup>

However, our findings could be interpreted in the light of different theories. Siblings could suffer the effect of overprotective parents' attitudes. These effects could be interpreted as an environmental issue or in the light of the learning theory.<sup>41</sup> The offspring of anxious and overprotective parents may believe that life is really frightening, because they see the way their parents deal with the situations, thus learning this way of living. Another possible explanation is that, when exposed to a frightening environment showed by overprotective parents, individuals with anxiety-proneness would express this genetic vulnerability as an anxiety disorder. This theory has successfully been shown by epigenetic studies in depressive disorder.<sup>42</sup> However, these theories could not explain the gender differences described in our study.

### Conclusion

Summing-up, our study suggests that higher rates of different types of trauma are described in PD patients as compared to controls. We also found some important differences between parental bonding and gender in PD. Female PD patients described their fathers as more overprotective and less warm, while male PD patients described their mothers as more overprotective as compared to a control group. These findings regarding gender differences could be discussed according to psychodynamic models of anxiety disorder, particularly PD.

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## Disclosures

Writing group member	Employment	Research grant <sup>1</sup>	Other research grant or medical continuous education <sup>2</sup>	Speaker's honoraria	Ownership interest	Consultant/ Advisory board	Other <sup>3</sup>
Ana Carolina Gaspar Seganfredo	HCPA	FIPE*	-	-	-	-	-
Mariana Torres	HCPA	-	-	-	-	-	-
Giovanni Abrahão Salum	HCPA	CNPq	-	-	-	-	-
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\* Modest

\*\* Significant

\*\*\* Significant. Amounts given to the author's institution or to a colleague for research in which the author has participation, not directly to the author.

Note: HCPA = Hospital de Clínicas de Porto Alegre; UFRGS = Universidade Federal do Rio Grande do Sul; FIPE = Fundo de Incentivo à Pesquisa e Eventos; CNPq = Conselho Nacional de Desenvolvimento Científico e Tecnológico; CAPES = Coordenação Nacional de Aperfeiçoamento de Pessoal de Nível Superior; BIC-UFRGS = Bolsa de Iniciação Científica da Universidade Federal do Rio Grande do Sul.

For more information, see Instructions for authors.

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