Psychopathology among youths who were victims of documented childhood maltreatment

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Background: There is an established relationship between childhood maltreatment and later psychopathology, but most studies have used self-reports and only consider a small number of experiences. The main aim of this study was to examine predictors of psychopathology by comparing two sources (official records vs. self-reports) of ten different childhood adversities among youths who were identified by Child Protective Services (CPS). We also used a comparison group that was not identified by CPS. This study also compared, in terms of psychopathology, three groups of respondents (under-report; agreement; and over-report) based on the discrepancy between the two sources of childhood adversity. **Method:** The sample included 136 youths, ages 14–23 years, identified by CPS prior to age 12 as being maltreated and who lived with their family for at least 5 years. The comparison group included 80 youths. **Results:** The identified youths were not different from the comparison group in global psychopathology. Psychopathology was associated only with the total amount of self-reported adverse experiences, with depressive symptoms being predicted by both documented and self-reported sexual abuse. Females reported and had more documented adversities, presenting an increased risk for psychopathology. The under-report group had a higher mean of documented experiences and a lower mean in psychopathology. **Conclusions:** Despite the limitations of a self-report methodology, our findings attest to its contribution in predicting health outcomes. Professionals from CPS need to be thorough when assessing and documenting the multiple experiences that may co-occur in a household, paying particular attention when young girls are involved, as the experience of sexual abuse has been shown to be independently associated with later risk of developing depressive symptoms. This process may increase the appropriateness of the chosen interventions.

Key Practitioner Message

- Practitioners need to consider the importance of documentation of multiple adverse experiences to more effectively intervene to prevent psychopathology in later life
- Retrospective self-report measures are strongly associated with psychopathology
- Sexual abuse can independently increase the risk for later depression
- Girls with documented history of maltreatment have more risk for later development of psychopathology than boys and should receive special attention

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Extensive research has shown that childhood adversity is related to subsequent poor mental health and increased risk for psychopathology (Afifi et al., 2008; Dube, Felitti, Dong, Giles & Anda, 2003; Edwards, Holden, Felitti & Anda, 2003) in both adolescence and early adulthood (Johnson, Cohen, Brown, Smailes & Bernstein, 1999; Kaplan et al., 1998; Lansford et al., 2002; Wolfe, Scott, Wekerle & Pittman, 2001). However, research in this field has been restricted by two main methodological limitations. The first limitation is that the main evidence for the relationship between childhood adversity and psychopathology is based on the study of two or three single categories of abuse and neglect, ignoring other adversities such as family functioning. This is a serious limitation because the co-occurrence of multiple types of childhood abuse is known to be common, with reported rates ranging from 3% to 55% (Edwards et al., 2003). The exposure to several adverse experiences has been associated with larger effects on psychopathology than exposure to any single category of abuse (Teicher, Samson, Polcari & McGreenery, 2006).

The second limitation is the use of retrospective methodology in this research area. Previous studies have shown that the respondents failed to report several adverse experiences described in official data (Brown, Cohen, Johnson & Salzinger, 1998; Everson et al., 2008; Raphael, Widom & Lange, 2001; Shaffer, Huston & Egeland, 2008; Widom, Raphael & DuMont, 2004; Widom, Weiler & Cottier, 1999; Williams, 1994). For this reason, some researchers are skeptical about the accuracy of retrospective self-reporting (Hardt & Rutter, 2004; Widom et al., 2004), claiming the need to use other sources of information such as official records (Shaffer et al., 2008).

The comparisons between official data and retrospective self-reports have generally not been encouraging. First, these two different sources of information on

childhood adversity have been associated with different later health outcomes. Everson et al. (2008) found that adolescent psychological adjustment was more strongly associated with self-reports than with the official data. Similarly, other studies using prospective analyses based on official records did not find relationships between childhood maltreatment and pain symptoms in adulthood (Raphael et al., 2001) or subsequent drug problems (Widom et al., 1999). In contrast, these later problems were significantly associated with retrospective self-reports. The second problem lies in the inconsistency of the prevalence of abuse and neglect when comparing official records with self-reports. This discrepancy usually involves false negative responses, such as not reporting a documented adverse experience, but may also involve over-reporting, when the reported experience is absent in official data (Brown et al., 1998; Everson et al., 2008; Raphael et al., 2001; Shaffer et al., 2008; Widom et al., 2004, 1999). For example, a previous study conducted by our team (Pinto & Maia, in press), with the same research participants, found three groups of respondents from the comparison between official records and self-reports, and therefore classified as reporting accurately, failing to report, or over-reporting the experiences.

Researchers have tried to understand possible associations between childhood maltreatment and gender of the victim, with little success. Some studies, using participants' self-reports, found that women are more frequently victims of sexual abuse, compared with men, while men report further experiences of physical abuse (Chartier, Walker & Naimark, 2007; Thompson, Kingree & Desai, 2004). In turn, other studies found no gender differences in victims of physical abuse (Browne & Hamilton, 1998; Briere & Elliott, 2003). Overall, studies have shown that women report more adverse experiences, with the exception of physical abuse (Dube et al., 2005; Edwards et al., 2003; Dube et al., 2003). In Portugal, previous studies found no gender differences when considering physical and sexual abuse experiences (Figueiredo, Bifulco, Paiva, Maia, Fernandes, & Matos, 2004).

Also inconsistent are the results from studies that examined the association between gender differences and long-term consequences of child maltreatment. While some studies suggested that girls are more vulnerable to the development of later psychopathology (e.g. Hankin & Abramson, 2001; Koenen & Widom, 2009; MacMillan et al., 2001; Thompson et al., 2004), other studies showed no differences between men and women (Arnow, Blasey, Hunkeler, Lee & Hayward, 2011; Fergusson, Boden & Horwood, 2008; Maikovich, Koenen & Jaffee, 2009).

The current study proposes to overcome the previously discussed limitations with novel contributions and to extend our empirical understanding about the relationship between childhood maltreatment and psychopathology among identified youths. We examine which adverse experiences have the highest predictor effects to risk for global psychopathology by comparing two sources of childhood adversity information, with the novel contribution of extending the assessment of childhood abuse and neglect to other household experiences. We include as predictors a total of ten different experiences of childhood adversity, a sub-total of five experiences of abuse and neglect, another sub-total of five

categories of household dysfunction, and finally each single adverse experience, adjusted for participants' sociodemographic variables such as gender, age, and education. We did the same analysis for depression and anxiety sub-scales. On the basis of the expected inconsistency between self-reports and official records, this study compares, in terms of psychopathology, the three expected groups of respondents: under-report: subjects who omit experiences in the self-report; agreement: subjects who reported the experiences documented in the records; and over-report: subjects who reported experiences that were missing from the official records. Additionally, we examined ten childhood adversities, considering two sources of childhood adversity information, and tested them for gender differences. Finally, we compare the CPS-identified youths and youths without CPS identification in terms of psychopathology.

We hypothesize that self-reports are the best predictors of psychopathology based on previous research. We expect the total amount of adversity to be a better predictor of psychopathology than any single experience and that the experiences directed against the child, abuse and neglect, are better predictors than experiences of the household dysfunction. Furthermore, we expect higher psychopathology scores among the youths who over-reported the experiences, based on the assumptions of Widom et al. (2004) that suggested that not self-reporting a childhood adversity could represent a form of healthy coping, whereas over-reporting may represent poor coping. These authors argue that the degree of accuracy in reporting is motivated by the process of 'effort after meaning', in which unhealthy individuals exert more effort to search for an explanation of their disease and assign more meaning to past events (Widom et al., 2004). Moreover, higher levels of psychopathology in the identified group than in the comparison group are expected, due to the possibility that they may have experienced more types of adversity and higher degrees of social impairment by the time they were identified as having been maltreated. Finally, we expect girls to report more adverse experiences than boys, with the exception of physical abuse, considering the literature on this matter.

Method

Participants

A total of 216 youths between 14 and 23 years of age (mean = 17.05, SD = 1.8; 105 males, 111 females), including 136 youths identified by Child Protective Services (CPS) prior to the age of 12, who lived with their family for at least 5 years before being identified. The 136 identified youths were previously selected from 380 closed cases of child abuse and neglect in CPS records. Documented maltreatment was defined considering official information that confirmed the experience as having occurred during childhood, and the child as being neglected, and/or physically, psychologically, and sexually abused, including situations of domestic violence. Retrospective reports were obtained in adolescence and early adulthood. A participant was defined as a victim of a specific form of childhood adversity when he/she had a positive score in the each category of the self-report questionnaire. The identified sample included 86 youths who were removed from their homes in childhood and placed in child and youth residential care and 50 youths who remained with their families after identification. We also included a comparison group of 80 youths without CPS status for the purpose of comparative analyses. The comparison group was matched as closely as possible from the identified

group by gender, ethnic group, age, education, and approximate family social class. See Table 1 for the demographic characteristics of the sample.

Procedure

We made formal contact with the CPS (National Committee of Child and Young in Risk) for permission to conduct the research and were granted formal ethical permission from the National Commission for Data Protection (NCDP). Only cases of child abuse and neglect that had been identified by the CPS were included in the sample. Retrospective reports were carried out in adolescence at least 4 years after the identification. All participants and parents (or legal representatives of those living in residential care) provided informed consent to participate in the study in accordance with procedures approved by the NCDP.

In Portugal, the CPS investigation begins when the suspicion or situation of maltreatment is reported to child protection agencies. The assessment process includes the study of the child's home and extended environment, integrating visits to family, school and neighborhood, and the contact with health professionals, to confirm the maltreatment. The Portuguese CPS system focuses on interventions that aim to improve the quality of the family care and the cessation of the maltreatment. The intervention may include periodic visits to evaluate the progress of both the child and family, and a large range of actions as promotion of parenting skills; education about child development; support for economic and employment problems; therapeutic interventions such as treatment for substance abuse, mental illness, or marital counseling; adequate health care; and social support. However, if an intervention is inefficient and maltreatment continues, or a family does not accept or actively refuses the interventions offered, formal reporting to the authorities may still be necessary to remove the child from a harmful environment. The child is usually placed in Residential Care for Child and Youth, which has the facilities, equipment, and a permanent technical team to ensure proper care, and provide conditions for education, physical and emotional development, and community integration. The case files in Portugal include, among other information, the suspicion or situation of maltreatment reported to child protection agencies, investigation of the home and environmental situation of the child, and whether further action need to be taken.

We began by examining 380 cases of child abuse and neglect in CPS records (from the year 1999 to 2006) within a district in Northern Portugal. Only cases of child abuse and neglect that had been validated and confirmed by CPS were included. All children had stayed with their families for at least 5 years and were identified after this period up until they were 12 years old. The inclusion criteria for children living with families for at least 5 years was chosen because children are unlikely to be able to remember experiences in the first 2 or 3 years of life (Howe & Courage, 1993). We also established as inclusion criteria the identification before 12 years old because after this age the reports to CPS are usually based on youth's conduct disorders and school drop-outs. On the basis of these criteria, 198 official records were selected, including 110 closed cases of children who remained with their family, and 88 cases of children who were institutionalized. Afterward, only 50 youths who were living with their parents were located, and all agreed to participate in the study. All of the 88 institutionalized youths were located, and 86 agreed to participate in the study. The discrepancy in participation between these two groups was due to the fact that it was easier to locate the youths in institutions compared with youths living with families who moved to unknown addresses after the identification.

The youths living with their parents were contacted by the CPS through a letter and invited to participate in a research study. In the case of institutionalized youths, the researchers visited the institutions to request permission for data collection. Retrospective reports were carried out in the CPS and the institutions in a calm and private room where the participants filled out the questionnaire while the researcher was nearby and available to help them if needed. The aims of the study were explained to each individual by the researcher.

In the case of the comparison group, we made formal contact with two schools from demographic areas similar to those of the identified youths for permission to conduct the research. The students from two classes were invited to participate in the study, and the aims, confidentiality issues, and the importance of participation were explained. Data were collected in the classroom from all of the participants; questionnaires and informed consent were distributed in sealed envelopes. Five youths from the original 85 participants of the comparison group were excluded because of previous CPS identification. To ensure

Table 1. Participant characteristics

	Overall sample		Identified group		Comparison group		
	N = 216	%	*n* = 136	%	*n* = 80	%	*p*
Gender							
Female	111	51.4	64	47.1	47	58.8	*ns*
Male	105	48.6	72	52.9	33	41.3	
Marital status							
Single	213	98.6	134	98.5	79	98.8	*ns*
Living with someone	3	1.4	2	1.5	1	1.3	
Years of education[a]							
>12	9	4.2	12	8.8	0	0	**
≤ 12	102	47.8	34	15.7	68	31.5	
≤ 9	102	47.8	90	41.7	12	5.6	
Age							
14–16 years	100	46.3	69	50.7	31	38.8	*ns*
17–19 years	99	45.8	54	39.7	45	56.3	
20–23 years	17	7.9	13	9.6	4	5	
Occupation							
Students	184	85.2	108	79.4	76	95	**
Working and studying	11	5.1	7	5.1	4	5	
Working	5	2.3	5	3.7	0	0	
Unemployed	14	6.5	14	10.3	0	0	

[a]One-Way analysis of variance (ANOVA) showed differences among the three groups in terms of education ($F(2, 210) = 14.51$, $p < .001$), and Post Hoc Tests revealed that the means of home group ($M = 8.6$; $SD = 1.61$) were statistically different from the institutionalized group ($M = 9.8$; $SD = 2.08$), and comparison group ($M = 10$; $SD = 0.56$).
*$p < .05$.
**$p < .01$.

confidentiality for all cases of identified children, names and personal data were codified. The use of the code number ensured that none of the information about the child could be identified except by the researcher who maintained the data from records and questionnaires in secure conditions.

Measures

Sociodemographic questionnaire. This questionnaire was used to collect information regarding the age, gender, marital status, occupation, education, and residence location of each participant.

Adverse childhood experiences (ACE) study questionnaire. (Felitti et al., 1998). We used a Portuguese version of the ACE Study Questionnaire (Silva & Maia, 2008). Table 2 shows the detailed information about 10 different adverse childhood experiences organized in two areas: experiences directed against the child (physical, emotional and sexual abuse; physical and emotional neglect) and experiences of household dysfunction (domestic violence, household substance abuse, mental illness in the household, incarcerated household members, and parental separation or divorce). For each category, if the subject scored positively in at least one of the items, he/she was defined as having been a victim of that experience. With this scoring, the total amount of adverse experiences for each subject varied between 0 and 10, but it was also possible to have a separate value for neglect and abuse

(ranging from 0 to 5) and another for household dysfunction (also ranging from 0 to 5).

The reliability of the ACE Study Questionnaire, Portuguese version, showed appropriate kappa values, ranging between 0.65 and 0.86.

Official records. The data collected from official records were scored according to a checklist based on the ACE Study Questionnaire. The checklist was always completed by the same researcher and contained all 10 different categories of adverse experiences. For the purpose of analysis, the information from the records was transformed into a dichotomous value for each variable (yes or no). For example, if there was documented information indicating that the child's parents or other adults had physically harmed the child, then that subject was coded as yes for the dichotomous variable of physical abuse. When there was no information for an experience, the subjects were classified as no. To establish coding reliability, 10% ($n = 14$) of the records were coded concurrently by an independent rater, and kappa coefficients were computed to measure rating agreements. The results of this computation were acceptable, with a range between 0.68 and 0.89.

The status of each participant regarding whether he/she had experienced a specific kind of childhood adversity was defined by two possibilities: (a) information gathered from official records with the participant identified as having been a victim of a specific form of childhood adversity, (b) information gathered

Table 2. Categories, questions, and scoring of ACE study questionnaire

Categories of adversity	Score
Evaluation of abuse and neglect	
Emotional abuse: Two items (e.g. 'How often did a parent, stepparent, or adult living in your home swear at you, insult you, or put you down').	A response of often or very often to at least one of the items.
Physical abuse: Four items (e.g. 'While you were growing up, that is, during your first 18 years of life, how often did a parent, stepparent, or adult living in your home push, grab, slap, or throw something at you?').	A response of often or very often to the first item or sometimes, often, or very often to the second item.
Sexual abuse: Four items (e.g. 'During the first 18 years of your life, did an adult, relative, family friend, or stranger ever touch or fondle your body in a sexual way?').	A response of yes to any of the four items.
Emotional neglect: Five reverse-scored items (e.g. there was someone in my family who helped me feel important or special).	A response of never or once in response to at least one of the five items.
Physical neglect: Five items (two reverse-scored items; e.g. 'I didn't have enough to eat'; 'I knew there was someone there to take care of me and protect me.').	A response of never or once in response to at least one of the two reverse-scored items; often or very often to at least one of the three items.
Evaluation of household dysfunction	
Domestic violence: Four items (e.g. 'While you were growing up, that is, during your first 18 years of life, how often did your father or stepfather or mother's boyfriend do any of the following to your mother or stepmother: push, grab, slap, or throw something at her?').	A response of sometimes, often, or very often to at least one of the two-first items; once, sometimes, often, or very often, to at least one of the two last items.
Household substance abuse: Two items (e.g. 'During the first 18 years of your life, did you live with anyone who used drugs?').	A response of yes to any of the two items.
Mental illness in the household: One item ('During your childhood, was anyone depressed or mentally ill, or did anyone in your household attempt suicide?').	A response of yes to the item.
Parental separation or divorce: One item ('Were your parents ever separated or divorced?').	A response of yes to the item.
Incarcerated household members: One item ('During your first 18 years of life, did anyone in your household go to prison?').	A response of yes to the item.

by questionnaire with the participant identified as having been a victim of a specific form of childhood adversity.

Brief symptom inventory – BSI.   (Derogatis, 1993). We used a Portuguese version of the Canavarro BSI (Canavarro, 1999). This questionnaire is a short-form of the SCL-90-R, with a 53-item self-report that evaluates psychological distress. Subjects describe how they were affected by symptoms in the past 7 days on a 5-point scale (not at all = 0; extremely = 4). The inventory includes nine symptom dimensions: somatization, obsessive-compulsivity, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. We then calculated the Positive Symptoms Index (PSI), a global index that reflects the intensity and number of symptoms. The cut-off score for clinical cases in the Portuguese adaptation was 1.7 on the PSI. The BSI internal consistency for the present sample was alpha = .98 for the overall items.

Analyses

We analyzed the data statistically with Statistical Package for the Social Sciences (SPSS; Version 17, Chicago, IL, USA). We used an independent samples t-test to compare the identified group and the comparison group in terms of global psychopathology and total amount of adversity. Chi-square analyses were used to examine associations by gender in terms of each adverse experience reported and documented. We made comparisons using the kappa coefficient (Fleiss, 1971) to estimate the agreement between dichotomous variables from the records and retrospective reports. Based on these comparisons, we obtained three groups of consistency report: The 'under-reporting' group, who omitted experiences (at least one) in the self-report (scored 0), which were observed in the official records (scored 1); The 'agreement' group, who reported the same experiences that were documented in the records (the same score, 0 or 1, between the two measures); and the 'undocumented' group, who reported experiences (scored 1) that were missing in the official records (scored 0). To test predictors of increased psychopathology risk, we performed logistic regression analysis. We first verified that each dichotomized category of childhood adversity was associated with psychopathology using a Chi-square test. Only the variables that were significantly associated with psychopathology were included in the logistic regression analyses. This procedure was performed using self-reports and official data. Categories were entered simultaneously in the analysis to allow for estimates of the unique effect of each category of abuse and neglect and family dysfunction, after controlling for confounding variables (i.e. gender, age, and education). One-way analysis of variance (ANOVA) comparing the consistency of the self-reporting of the three groups was conducted for psychopathology and childhood adversity.

Results

Differences between CPS-identified youths and youths without identification were examined for global psychopathology and total amount of adversity. We found no differences in psychopathology mean between the identified group ($M = 1.59$; $SD = 0.65$) and the comparison group ($M = 1.54$; $SD = 0.53$; $t(211) = -0.596$, $p = .552$). Statistically significant differences were found in the total amount of reported adversity between the identified group ($M = 3.48$; $SD = 2.31$) and comparison group ($M = 1.59$; $SD = 1.42$; $t(201) = -6.861$, $p < .001$).

Chi-square analyses revealed that girls were exposed to more documented sexual abuse 6.9% ($n = 9$) and divorce (20.7%, $n = 28$) than boys (1.5%, $n = 2$), (12.6%, $n = 17$), respectively ($\chi^2 = 5.95$, $p < .05$). The analyses also revealed that girls reported more emotional abuse (19.1%, $n = 26$; $\chi^2 = 7.32$, $p < .01$), physical abuse (17.6%, $n = 24$; $\chi^2 = 6.47$, $p < .05$), and sexual abuse

(13.1%, $n = 17$; $\chi^2 = 8.17$, $p < .01$) than boys (10.3%, $n = 14$), (9.6%, $n = 13$), (4.6%, $n = 6$), respectively.

We did not find a significant association between the total amount of documented adversity and global psychopathology ($r = .012$, $p = .895$). The sub-total of abuse and neglect ($r = -.075$, $p = .391$) and the sub-total score of household dysfunction ($r = .030$, $p = .728$) were also not significantly correlated with psychopathology. There were no significant associations between each single experience and the clinical value of psychopathology. In an attempt to further explore whether documented category may have predictive value, we performed linear regression analysis to account for more specific symptom subscales. We verified that, after controlling for gender, age, and education variables, the documented sexual abuse was the only category that predicted depressive symptoms [$F_{(4, 129)} = 9.84$, $p < .001$, 95% CI (1.35, 8.48)], explaining 5% of the variance. Additionally, analysis showed that sexual abuse, using self-report data, also predicted depressive symptoms [$F_{(4, 124)} = 10.20$, $p < .001$, 95% CI (1.58, 6.71)], explaining 6% of the variance.

The total amount of self-reported adversity was significantly correlated with global psychopathology ($r = .391$, $p < .001$) and used as a predictor variable in 121 identified youths, after adjustment for age, gender, and education. The full model was significantly reliable [$\chi^2(4) = 20.821$, $p < .001$] accounting for 15.8% and 21.7% of psychopathology variance. Reported childhood adversities were significantly associated with an increase in the odds of psychopathology by a factor of 1.289. We also verified that, in the same equation, the variable gender reliably predicted global psychopathology. The coefficient values revealed that being a female was significantly associated with an increase in the odds of psychopathology by a factor of 3.424.

Using self-report data, we found significant associations with the presence of clinical psychopathology for: emotional abuse [$\chi^2(1) = 8.35$, $p < .01$]; physical abuse [$\chi^2(1) = 11.55$, $p = .001$]; physical neglect [$\chi^2(1) = 5.82$, $p < .01$]; and domestic violence [$\chi^2(1) = 6.56$, $p = .01$]. These categories were included as predictor variables, after adjustment for age, gender, and education, the full model being significantly reliable [$\chi^2(7) = 26.17$, $p < .001$] and accounting for 18.1% and 24.8% of psychopathology variance. However, each independent adverse experience did not predict psychopathology. Being a female was significantly associated with an increase in the odds of psychopathology by a factor of 3.924.

The total scores of abuse and neglect ($r = .367$, $p < .001$) and household dysfunction ($r = .275$, $p < .01$) were significantly correlated with psychopathology and were used as predictor variables, after adjustment for age, gender, and education. The full model was significantly reliable [$\chi^2(5) = 21.855$, $p = .001$] accounting for between 16.5% and 22.7% of psychopathology variance. The total score of abuse and neglect was significantly associated with an increase in the odds of psychopathology by a factor of 1.483 (see Table 3). The equation showed that being a female was significantly associated with an increase in the odds of psychopathology by a factor of 3.224.

We found differences in consistency in three groups when comparing official records and self-reports. In a total of 136 identified youths, the under-report group

included 69 subjects (50.7%) of whom 16 (23.2%) had clinical values in psychopathology. Twenty-three subjects (16.9%) reported the documented experiences (agreement group), of whom 10 (43.5%) had psychopathology. Finally, the undocumented/over-report group included 42 subjects (30.9%) of whom 22 (52.4%) had psychopathology. The Chi-square test showed significant associations for clinical psychopathology [$\chi^2(2) = 9.67, p < .01$].

The groups were also compared regarding the total amount of documented experiences and global psychopathology. Table 4 presents the significant main effects that were obtained for documented childhood adversity [$F(2, 133) = 9.54, p < .001$] and for global psychopathology [$F(2, 131) = 5.36, p < .1$], showing that the under-report group had a higher mean of documented experiences and a lower mean in psychopathology.

Discussion

This study represents a rare opportunity to examine the relationship between several childhood adversities and later psychopathology in identified youths, comparing two different sources of information: self-reports and official data. We verified the different associations with global psychopathology when different sources of childhood adversities were used. The amount of the reported adversities was associated with an increase in psychopathology, but this increase was not observed when official data were considered. These findings suggest that the dose–response relationship that has been found between the amount of reported maltreatment and mental health (Edwards et al., 2003) only applies when self-report data are used. These results are similar to those of previous studies that examined the association

Table 3. Logistic regression analysis to examine the predictors of psychopathology among identified youths

	Psychopathology				
	B	Wald	Adjusted Odds Ratio[a]	95% CI	p
Total score of adversity reported	0.254	7.186	1.289	1.071–1.551	.007
Total score of abuse and neglect reported	0.394	5.404	1.483	1.064–2.067	.020
Total score of household dysfunction reported	0.109	0.402	1.115	0.797–1.560	.526
Physical abuse reported	0.642	1.467	1.901	0.672–5.372	.226
Emotional abuse reported	0.372	.504	1.450	0.520–4.048	.478
Physical neglect reported	0.625	2.075	1.869	0.798–4.376	.150
Domestic violence reported	0.511	1.275	1.668	0.686–4.052	.259

[a]Adjusted for age, gender, and education. Variable predicted: Psychopathology, yes (1), no (0). Identified group as (1) and comparison group as (0). OR = odds ratio; CI = confidence interval.

between childhood maltreatment and both drug abuse (Widom et al., 1999) and pain (Raphael et al., 2001) using two different sources of information.

Our findings showed that there was no increased risk for global psychopathology when each documented single category was used as a predictor. These results highlight the findings of Edwards et al. (2003), who argued that studies that focus on a single type of maltreatment while neglecting the presence of different co-occurring forms of maltreatment, as well as the environment in which they occur, may fail to fully comprehend the complexity of the phenomena. Participants classified as victims of only one form of abuse (e.g. physical abuse) may experience heterogeneous adversities, increasing the probability of no controlled covariates. However, sexual abuse seems to be an exception when global psychopathology is replaced by specific symptom categories. We verified that sexual abuse was the only single category who predicted depression, assessed by both reported and documented data. Despite the recommendations from recent literature for assessing maltreatment across multiple domains, rather than one single form of maltreatment, these findings suggest broader focus for prevention and intervention in sexual abuse cases. Thus, these results seem to be related with another important finding that we verified across all analyses. Being a female was associated with an increased risk for global psychopathology. We also verified that being a female was associated with more adverse experiences in childhood, in particular reported and documented sexual abuse. These findings are consistent with data from literature that portrays women as having at greater lifetime risk of developing later psychopathology, compared to men's lifetime risk.

Additionally, by considering self-reports only, our findings showed that the amount of abuse and neglect was associated with psychopathology, contrary to the amount of family household categories. The family context increases the risk for later problems, but the effect of the childhood experiences directed against the child can be more dangerous to the child's emotional and psychological development.

As expected, the identified youths reported more adverse experiences than youths from the comparison group. However, the identified youths did not differ from the youths without CPS identification in mean values of psychopathology. Although the literature has shown several later problems in victims of childhood maltreatment, these youths differ from other samples (including clinical samples) because of the early CPS intervention, which may decrease the risk factors for later psychopathology.

Considering the identified group only, we found a significant difference in the psychopathology means in the three subgroups according to their report consistency. This finding suggests that in addition to the usual confounding variables that are controlled for by the majority of the studies (e.g. gender, education, and age), other factors, such as report accuracy/inaccuracy of the victimization experiences, could influence the outcomes.

Our results showed that youths who 'over-reported' their adverse experiences also reported significantly more psychopathology than youths who were victims but did not report. Different suppositions could be discussed for the apparent differences in terms of

Table 4. Mean scores of psychopathology and childhood adversity by three groups of consistency report

	Group (N = 134)							
	1. Under-Report (n = 69)		2. Agreement (n = 23)		3. Over-Report (n = 42)			
	M	SD	M	SD	M	SD	F(2, 131) GL	p
	95% CI		95% CI		95% CI			
Psychopathology	1.42	0.57	1.65	0.70	1.82	0.66	5.36	.006
	1.28–1.56		1.35–1.95		1.61–2.02			
Group difference[a]	3***				1***			
Childhood adversity[b]	4.39	1.57	3.83	1.47	3.19	1.04	9.54	.000
	4.01–4.77		3.19–4.46		2.87–3.52			
Group difference[a]	3***				1***			

[a]Mean of group 1 is significantly different from mean of group 3.
[b]Childhood adversity was measured using documented information.
*p < .05
**p < .01
***p < .001.

psychopathology between these groups. The youths who over-reported their adverse experiences and reported more psychopathology were exposed to fewer experiences based on official information. Paradoxically, it is well established in the literature that exposure to more adverse experiences leads to an increase of later psychopathology. We supposed that over-reporting may reflect what was missed in the official records rather than false positives of the youths. In fact, this supposition is coherent with the absence of associations between documented data and outcomes. Considering this assumption, and taking into account that these youths were identified by CPS, not having all of their experiences officially identified may have led to an increase in the probability of some adverse experiences not being stopped and perhaps even escalated. Additionally, the subsequent intervention of CPS may have been incomplete or inadequate.

The second supposition is that those with more psychopathology might also report more experiences, which would increase the discrepancy with the official data. As suggested by Widom et al. (2004), although it is virtually impossible to determine the extent of false positives, those with more psychopathology may better recall early negative experiences than those who are healthy. They may also be more likely to interpret their early experiences in a negative way, increasing the relationship between the current physical or psychological health status and the report of the experiences.

Third, the youths who did not report the experiences might be more resilient. If the CPS professionals were able to identify more adverse experiences, their interventions were more complete and subsequently more effective for these youths. We can also consider that not reporting instances of childhood adversity represents a form of healthy coping. These youths might be more positive and optimistic than others and might subjectively perceive their experiences as nonthreatening or occurring in their past; thus, choosing not to report was a way of helping them feel buffered from the adversity they experienced. Conversely, the under-reporting may serve as a defensive stance which may simultaneously deflect or suppress self-report of psychological distress.

The link between childhood adverse experiences and psychopathology is more complex than usually stated because several other factors may interfere. We need a more robust design to draw conclusions about a relation between adverse experiences and later psychopathology. Assessment should not depend only on self-report because it was not clear if those who did not report the experiences also did not report the symptoms. To improve the outcomes of the present study, future assessment of mental health needs to be performed by multiple measures. To clarify these doubts, we need to include structured clinical interviews, or neuroendocrine and neurophysiologic measures, to explore the potential differences in psychopathology among participants with different self-report profiles.

The major limitations of the current study are the sample size and the use of self-report data to assess psychopathology. The CPS sample does not reflect the largest of youth population who were identified in childhood. Also, there may be a problem of bias in the self-report of psychopathology and one approach would be to include an external evaluation, as structured clinical interviews. These limitations restrict the generalizability of the findings and the comprehension of the totality of the phenomenon under study. In addition, the higher mismatch between officially reported data and the self-report data may have occurred because the Portuguese CPS system was only implemented in 1998, and the records that were analyzed were made between the years of 1999 and 2006. These first years may have been more susceptible to mistakes and difficulties in the detection and confirmation of reported cases. The responsibilities of CPS involve complex procedures that require time and collaboration among several professionals from different jurisdictions, as well as mandated collaboration with reporters as determined by courts.

This study is an attempt to make practitioners and researchers aware to the need of develop more effective strategies to identify maltreated children. The results point out the fact that accurate/inaccurate reports of victimization are likely to occur, as well as other experiences that may not be validated by CPS investigations. The strong association between self-reports and psychopathology is likely due to: (a) incomplete documentation of childhood adversities and subsequently inadequate intervention of CPS and/or, (b) those with more reported psychopathology also tend to report

more adversities. Having in mind the fact that female children are at higher risk of developing psychopathology later in their life, it seems of greater importance to make professionals from CPS aware of this increased risk, which is possibly due to more sexual abuse victimization, as well as undocumented experiences. Therefore, the investigations to identify maltreated children must include a wide range of methods, including those used by CPS professionals, parents' reports, information gathered in schools, and the contact with other health professionals. However, it is also important to include self-reports of the alleged victims of maltreatment. Although the limitations of self-report still remain a significant concern, this study showed its important contribution to the prediction of later health problems. Our findings showed the importance of evaluating different co-occurring forms of maltreatment instead of focusing on a single type of maltreatment. They also suggested that sexual abuse needs to be exhaustively measured, considering its independent contribution to the development of later psychopathology, in particular depressive symptoms.

Acknowledgments

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