

ORIGINAL ARTICLE

Consequences of child maltreatment victimisation in internalising and externalising mental health problems

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Abstract

Purpose: The literature on the prevalence of child maltreatment is extensive, but studies are required to assess the impact on mental health to enhance the effectiveness of intervention programs.

Method: Thus, a field study was undertaken to evaluate depression, anxiety, and anger in 65 child victims of multiple types of maltreatment.

Results: The results showed that child maltreatment victim (CM-V) reported more depressive (36%), anxiety (45%), and anger (69%) symptoms than the normative sample. However, subjects were asymptomatic in approximately 25% of depression, 20% anxiety, and 5% of anger. Epidemiologically, the results revealed that the probability of caseness among the CM-Vs sample increased to around 85% for depression and anxiety and 90% for anger.

Conclusions: The clinical, social, and legal implications of the results are discussed.

KEYWORDS

child abuse, child maltreatment, consequences of maltreatment, mental health problems, psychological injury, victimisation

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INTRODUCTION

The World Health Organisation (WHO) states that “child abuse or maltreatment constitutes all forms of physical and/or emotional ill-treatment, sexual abuse, neglect or negligent treatment or commercial or other exploitation, resulting in actual or potential harm to the child's health, survival, development or dignity in the context of a relationship of responsibility, trust or power” (WHO, 1999, p. 15). Subsequently, this definition was extended to specify victims of child abuse or maltreatment as “the abuse and neglect of people under 18 years of age” (WHO, 2016, para. 9), and included children exposed to intimate partner violence as a potential form of child maltreatment. Thus, four types of child maltreatment have been identified: physical abuse, sexual abuse, emotional abuse (also referred to as psychological or mental abuse), and neglect or negligent treatment.

Though the general definition of child maltreatment is widely accepted, operational and legal definitions vary considerably, leading to inconsistencies in prevalence rates worldwide that thwart any comparative analysis. Thus, the legal definition of sexual abuse in some jurisdictions tends to be vague and general, that is, “sexual abuse,” whereas in others each act of sexual abuse is explicitly defined (e.g., rape, incest, molestation, sexual exploitation, and sex trafficking). Likewise, physical abuse is generally defined as any non-accidental physical injury to the child, but other acts or circumstances that pose a threat or harm to the child are also frequently included. The lack of consensual criteria of operational definitions has led to a wide disparity in estimated prevalence rates ranging from nearly 0% (Sibert et al., 2002) to more than 90% (Meston et al., 1999), and to the unexpected results of victimisation rates in Spain, where the victimisation rate of physical violence was 91% but psychological violence was only 14%, even though the former is often accompanied by the latter (WHO, 2017). The discrepancies are not only due to the various definitions of child maltreatment but also to the type of maltreatment under analysis (generally including several types of maltreatment, in particular sexual abuse, but rarely all at once); the respondent (self-report or informants such as medical personnel, child protection professionals, and teachers); the gathering and quality of the official statistics, the country; and the measurement instrument (Barth et al., 2013; Stoltenborgh et al., 2015; WHO, 2016). Nonetheless, fairly high rates have been systematically reported.

To provide a more accurate assessment of the prevalence worldwide, Stoltenborgh et al. (2015) reviewed all the meta-analyses in the literature. The results varied according to the type of respondent (self-report vs. informant), with higher rates found in self-reports than in informants. These discrepancies appear to be more an outcome of the measure (the prevalence of self-reports and the incidence of informants), than of the construct itself. Accordingly, the meta-analyses have shown data from informants raised the estimates of child maltreatment. Field studies tended to measure the incidence at a specific period but rarely the prevalence. The meta-analytical review (data computed from Table 1 weighting registered prevalence for continent by sampling error) found worldwide reports of 14.35% [$M = 0.1435$, 95% CI (0.1423, 0.1446)] of child sexual abuse; 22.93% [$M = 0.2293$, 95% CI (0.2274, 0.2312)] of physical abuse; 35.78% [$M = 0.3578$, 95% CI (0.3545, 0.3613)] of emotional abuse; 18.59% [$M = 0.1859$, 95% CI (0.1828, 0.1890)] of physical neglect; and the 15.35% [$M = 0.1535$, 95% CI (0.1506, 0.1564)] of emotional neglect. The data indicated the probability of being a victim of emotional abuse in childhood was significantly higher (the rates were higher with no overlapping confidence intervals for the means) than for any other type of abuse or negligence. However, research has mainly focused on sexual ($N = 358,926$, $k = 297$) and physical abuse ($N = 194,665$, $k = 157$) in comparison to emotional abuse ($N = 76,586$, $k = 42$). Moreover, the results showed the probability of physical abuse was significantly higher than being the victim of sexual abuse. As for neglect, significantly higher rates of physical neglect were reported in comparison to emotional neglect. In relation to the gender of victims of sexual abuse, 18.86% [$M = 0.1886$, 95% CI (0.1869, 0.1890)] females, and 7.54% [$M = 0.0754$, 95% CI (0.0740, 0.0768)] males were abused, that is, females had 2.5 ($OR = 2.50$) times more probability of being the target of sexual abuse than males. Though this was the best approximation to the prevalence of child maltreatment, the margin of error was substantial, mainly owing to the array of operational definitions of the types of child maltreatment; the instrument employed (interview vs. questionnaire); the quality

TABLE 1 Contrast of the CM-Vs and the normative sample in the internalising (depression and anxiety) and externalising (anger) mental health problems. One-sample *t*-test

Variables	<i>t</i>	Power	M_{CM-V}	M_{NS}	P (95% CI _p)	δ (95% CI _{δ})	<i>d</i> (95% CI _{<i>d</i>})	AUC	U2	PIS
Depression	4.45***	.990	14.97	11.17	0.36 (0.13, 0.56)	0.77 [-3.36, 4.90]	0.69 [0.18, 1.20]	.69	.63	.245
Anxiety	7.30***	.999	16.09	14.59	0.45 (0.23, 0.63)	1.01 [-3.22, 5.23]	0.92 [0.40, 1.44]	.74	.68	.179
Anger	6.73***	.999	12.72	9.04	0.69 (0.54, 0.80)	1.93 (-2.89, 6.75)	1.74 (1.16, 2.32)	.89	.81	.041

Note: *d*f(64). M_{CM-V} = Mean of the group of CM-Vs; M_{NS} = Test value, mean of normative sample; AUC = area under the Curve; U2 = Probability of the Correct Classification of Real Cases; PIS = Probability of an Inferiority Score; ****p* < .001.

of implementation (training and productivity of the interviewer, concordance among interviewers); and the validity and reliability of the questionnaires.

The impact of child maltreatment is diverse, such as death (annual worldwide estimate of 155,000 deaths of children under 15 years as a consequence of abuse or neglect; Pinheiro, 2006); to economic deprivation (Fang et al., 2015; Pinheiro, 2006); academic failure (i.e., school maladjustment and failure, dropouts; Corrás et al., 2017; Seijo et al., 2015); adult physical disorders (e.g., ischemic heart disease, cancer, chronic lung disease, skeletal fractures, autoimmune disorders, liver disease; Nemeroff, 2016); behavioural problems (e.g., delinquency, violence, suicidal; Dunn et al., 2013; Del Hoyo-Bilbao et al., 2020; Stewart et al., 2008); internalising (e.g., mood and anxiety disorders), and externalising (e.g., anger, aggressive behaviour, substance, and alcohol abuse) mental health problems [MHPs] (Li et al., 2016; Marcos et al., 2020; Oksanen et al., 2021); which were of a magnitude that accounted for a significant proportion of the Global Burden of Disease (Gilbert et al., 2009). These MHPs become chronic as confirmed by the systematic finding of long-term disorders in adulthood (Amado et al., 2015; Kisely et al., 2018; Lindert et al., 2014; Springer et al., 2007). Of all the possible consequences of child maltreatment victimisation, mood and anxiety disorders were the most morbid internalising problems, and behavioural disorders (e.g., irritability, violence, disruptive behaviour, and anger), and the most externalising ones (Anda et al., 2006; Green et al., 2010).

Although the effect size was medium-low and highly heterogeneous, both the psychological treatment of Child Maltreatment Victims (CM-V) (Rosa-Alcázar et al., 2010; Skowron & Reinemann, 2005), and prevention (Mikton & Butchart, 2009), have proven to be effective. Hence, an in-depth and precise understanding of a victim's health serves to enhance the effectiveness of interventions designed to improve mental health (Weber et al., 2016).

Study aims

Although a high prevalence of child maltreatment has been systematically reported, and the WHO's definition of child maltreatment victimisation states that victimisation may result in actual or potential harm to the child's health, there is no field evidence concerning the harm in mental health problems as a consequence of child maltreatment victimisation. Thus, a field study was undertaken with real victims classified as such by judicial judgement (ground truth) to estimate the prevalence of case-ness and quantify harm in mental health problems in the real victim population. As for this, victims were assessed in both internalising (i.e., anxiety and depression; Amado et al., 2015) and externalising (high levels of anger leading to overtly aggressive or violent behaviour, aggressiveness, and violence to

discharge anger; Gardner & Moore, 2008; Kassonov & Tafrate, 2002) mental health problems associated to victimisation.

METHOD

Participants

The sample consisted of 65 children (41 boys and 24 girls) maltreatment victims, mean age 12.49 years ($SD = 1.46$). The children were interned in two centres in the north of Portugal with administrative and court orders for child maltreatment victimisation within the family. As for the types of maltreatment and victimisations, the files of the administrative and/or court orders confirmed multiple child maltreatment: two types, 6 (9.2%); three types 19 (29.2%), and 40 (61.5%) all types of abuse (physical, emotional, and sexual), and neglect (acts of omission). Thus, the participants had been exposed to severe child maltreatment.

Measurement instruments

Depression was evaluated using the Portuguese and Spanish adaptation and norms of the *Children's Depression Inventory* [CDI] (Dias & Gonçalves, 1999) with 27 items measuring depressive symptomatology in children. Items are answered using a three-option scoring format: 0 (*absence of symptomatology*), 1 (*mild symptomatology*), and 2 (*severe symptomatology*). The internal consistency of the scale was $\alpha = .80$. Girls scored higher than boys.

Anxiety was measured with the Portuguese adaptation and norms of the *Children's Manifest Anxiety Scale-Revise* [CMAS-R] (Dias & Gonçalves, 1999) consisting of 28 items with a true or false response format evaluating anxiety in children and adolescents. The internal consistency of the scale was $\alpha = .83$. Girls scored higher than boys.

For the evaluation of Anger-State, the Portuguese adaptation and norms of the State-Trait Anger Expression Inventory for Children and Adolescents (Barrio et al., 2004) was applied, consisting of 32 items on a 4-point response format (*almost never, sometimes, often, and almost always*) measuring 4 dimensions: Anger-State, Anger-Trait, Anger-Expression, and Anger-Control. In this study, Anger-State was assessed, which is the psychobiological emotional state or condition marked by suggestive feelings that vary in intensity from mild irritation or annoyance to intense fury and rage (severe). The internal consistency of the Anger-State dimension was $\alpha = .81$. Boys scored higher than girls in the Anger-State dimension.

Design and procedure

A comparison mean design was performed with a test value and differences in proportions with a constant in psychological adjustment markers. Contrasted the sensitivity of the design for a sample size of 65 maltreated children, the probability in the mean comparisons of detecting ($1 - \beta$) significant differences ($\alpha < .05$) for medium effect size ($d = 0.50/g = 0.15$) was 99.0%.

The ground truth for the classification of children as victims was an administrative decision, confirmed judicially by the courts after 6-month internment in a child protection centre.

The evaluations were undertaken individually in the child protection centres during the reception phase (<1-month internment) by researchers experienced in clinical evaluation. Participants were administered a sociodemographic questionnaire (age, gender, education, and family structure), and informed consent was obtained prior to applying the measurement instruments: the CMAS-R, the STAXI-CA,

and the CDI. As the order of test of administration may lead to a systematic measurement error, that is, introducing an alternative explanation for the effects under analysis (Fariña et al., 2008), the order was counterbalanced using a standard rotation procedure (A-B-C; A-C-B; B-C-A; B-A-C; C-B-A; and C-A-B). The test completion time ranged from 25 to 40 minutes.

Data analysis

The analyses of the effects of child maltreatment on anxiety, depression, and anger were performed (mean comparisons) using one-sample *t*-test contrasting the mean of the CM-Vs with a test value, that is, the normative sample mean as it is less biased than any control group (Novo et al., 2019; Schmidt & Hunter, 2015). As for quantifying the harm in mental health problems (the aim of the study), a derivation of the BESD statistical tool (p) was employed (Rosenthal & Rubin, 1982), estimating the upper and lower limits of injury for the CM-Vs sample computing the 95% confidence intervals for p (Corrás et al., 2017; Seijo et al., 2015). Additionally, the area under the curve (AUC) was calculated, that is, the probability that CM-Vs would obtain a higher score (harm) than children in the normative sample; the U2 (Cohen, 1988), which is an estimate of the probability of correctly classifying CM-Vs as real cases; and the probability of an inferiority score (PIS; Gancedo et al., 2021), that is, the probability of scores in the CM-Vs sample being below the mean score for the normative sample (error of the statistical model). The U2 and the PIS statistics consist in computing the areas overlapping the distributions of the normative and victimisation samples.

The effect size for the mean comparisons was calculated as δ . For this, Cohen's *d* was computed with the one-sample formula and then corrected for criterion unreliability (δ), that is, the correction for attenuation, and intervals for δ were calculated with Schmidt and Hunter's formula (Schmidt & Hunter, 2015). The magnitude of the effect size of δ was interpreted in terms of the probability of superiority of the effect size (PS_{ES} ; Monteiro et al., 2018), involving the transformation of the effect size to a percentile. To determine if the population was homogeneous (fixed effects in the CM-Vs sample) in harm manifesting depression, anxiety, and anger, the 95% population interval for δ was obtained ($1.96 * SD \pm \delta$). If the population interval did not include zero, 97.5% of the CM-Vs would obtain a minimum effect over the lower limit of the interval (lower injury limit). However, if the interval included zero, then exist moderators of the relationship between injury and child maltreatment victimisation, that is, harm was not generalisable to all of the population of CM-Vs.

Nevertheless, the mean comparisons in the assessment of MHPs were insufficient and must be complemented with a study of cases (American Psychiatric Association [APA], 2013). To estimate the epidemiology of caseness (clinical cases), the clinical (severe deterioration), and moderate (moderate deterioration) significance of harm (specification of the severity; APA, 2013) in mental health markers was computed (Jacobson & Truax, 1991; Vilariño et al., 2018). As for the caseness classification (study of caseness prevalence), the raw data were transformed into zeta scores (mean and standard deviation from the normative sample of girls and boys were taken as girls scored higher in all the measured dimensions), with caseness being classified in participants with a *Z* score ≥ 1.96 , that is, with clinical deterioration higher than 97.5% (clinical significance; severe deterioration) of the normative population. Thereafter, the registered probability of caseness among CM-Vs was contrasted in depression, anxiety, and anger with a constant (.025, i.e., the probability of caseness for a 1.96 zeta score was .025). Additionally, in the clinical dimensions, a percentile of 90 in the normative sample has been proposed as a cut-off score for clinical cases (Derogatis, 2002), corresponding to moderate clinical deterioration. A percentile of 90 matched approximately to a *Z* score of 1.28 ($P_{89.97}$). Thus, *Z* scores from 1.28 to 1.96 ($1.28 < Z$ score < 1.96) classified subjects as of moderate clinical significance (Fandiño et al., 2021). As for the normative sample, the expected probability of cases between 1.28 and 1.96 was .075 (normative constant in contrast to the observed probability among CM-Vs). Effect sizes were computed in odds ratio and the magnitude

was interpreted in terms of the effect incremental index (EII; Gancedo et al., 2021; Redondo et al., 2019), $(p_1 - p_2)/p_1$ where p_1 was the observed probability of caseness (clinical or moderate deterioration) and p_2 the test value (.025 or .075). The result of the equation multiplied by 100 was the percentage increase of caseness among the sample of CM-Vs above the normative sample.

Ethical considerations

The evaluations were authorised by the authorities responsible for the centres, juvenile court prosecutors, and the legal guardians of the victimised children. All children freely volunteered to participate in the study and were assured their data would remain anonymous and confidential in compliance with the Portuguese data protection law.

RESULTS

Estimated injury in internalised and externalised MHPs in the population of child maltreatment victims

The results (see Table 1) showed that, as for the quantification of the harm (ρ), CM-Vs exhibited significant harm related to depressive symptoms (more symptoms), reporting on average 36% more depressive symptoms than the normative sample, ranging from 13% (lower limit of the interval) to 56% (upper limit of the interval) for victims. The magnitude of the effect, $\delta = 0.77$ (corrected for attenuation), was higher than 41.08% of all possible effect sizes, that is, the harm caused (effect) in depression was over 41.08% ($PS_{ES} = 0.4108$) of all possible harm (percentile of the distribution of the effects). Furthermore, the probability of finding scores (AUC) in depression was 69% higher in the CM-V population as compared to the normative sample, whereas the correct classification of child maltreatment victimisation (U_2) derived from the scores in depression was 63%. Nevertheless, the adverse effects of child maltreatment victimisation in depression were not generalisable to all the victim population (the population interval included zero, meaning that real victims may exhibit less depressive symptoms than the normative sample), with 24.5% of CM-Vs being asymptomatic ($PIS = 0.245$), that is, reporting fewer symptoms than the mean of the normative sample.

As for anxiety, the results (see Table 1) revealed that CM-Vs reported significantly more anxiety symptoms than the normative population. Quantitatively, CM-Vs reported on average 45% more anxiety symptoms (ρ), ranging from 23% to 63% for the victim population. The magnitude of the effect, $\delta = 1.01$, was higher than 51.6% than all possible effect sizes, that is, harm caused in anxiety was higher than 51.6% ($PS_{ES} = 0.5160$) of all possible harm (effect). Moreover, there was a 74% higher probability of finding scores (AUC) in anxiety in the CM-V population as compared to the normative sample, whereas there was a 68% correct classification of child maltreatment victimisation (U_2) derived from the anxiety scores. However, the adverse effects of child maltreatment victimisation in anxiety were not generalisable to the entire victim population (the population interval included zero, meaning real victims may exhibit less anxiety symptoms than the normative sample), with 17.9% being asymptomatic ($PIS = 0.179$).

In relation to anger, the results (see Table 1) indicated that CM-Vs reported significant harm (more symptoms) in anger, reporting on average 69% more anger symptoms than the normative population (ρ), ranging from 54% (lower limit of the interval) to 80% (upper limit of the interval) for victims. The magnitude of the effect, $\delta = 1.93$, was higher than 82.62% of all possible effect sizes, that is, the harm caused (effect) in anger was high 82.62% ($PS_{ES} = 0.8262$) of all possible harm. Furthermore, there was an 89% higher probability of finding (AUC) scores in anger in the CM-V population as compared to the normative sample, and there was an 81% correct classification of child maltreatment victimisation (U_2) derived from the anger scores. Nonetheless, the adverse effects of child maltreatment victimisation

in anger were not generalisable to the entire victim population (the population interval included zero, meaning real victims may exhibit lesser anger symptoms than the normative sample), with 4.1% being asymptomatic ($PIS = 0.041$).

Epidemiology of clinical and moderate deterioration in depression, anxiety, and anger in CM-Vs

The results of the epidemiology (see [Table 2](#)) showed that the registered probability of caseness was significantly higher in the CM-Vs sample than in the normative sample (test value: .025) in depression (.169), anxiety (.169), and anger (.262). This probability of caseness was 6.76, 6.76, and 10.48 times (*OR*) times more probable in the population of CM-Vs than in the normative sample. In terms of the magnitude of the effect (caseness, severe harm), the EII was 85.20%, 85.20%, and 90.46% in depression, anxiety, and anger (clinical anger; Gardner & Moore, 2008), respectively. These results were highly powered ($1 - \beta > .999$). Moreover, the minimum expected probability of caseness (lower limit of the 95% CI for p) among CM-Vs was in all comparisons significantly higher than the probability of caseness in the normative sample.

Finally, a significant probability of moderate deterioration (see [Table 3](#)), higher than expected in the normative sample (test value: .075), was observed among CM-Vs in depression and anxiety, but not anger. The joint probability of moderate and total deterioration (total caseness), that is, the probability of moderate and severe harm (total deterioration) was significantly higher than expected (test value: .10 in normative sample) in depression, anxiety, and anger (Gardner & Moore, 2008). Thus, moderate and severe harm was 3.38, 3.38, and 3.23 times (*OR*) more probable in the population of CM-Vs than in the normative sample. The increase in the magnitude of the epidemiology (EII) among CM-Vs above the base rate (normative sample) was 70.41%, 70.41%, and 69.04% in depression, anxiety, and anger, respectively. These results are highly powered ($1 - \beta > .999$). Likewise, the minimum expected probability of moderate or severe harm (lower limit of the 95% CI for ρ) among CM-Vs was significantly higher in all comparisons than the probability of moderate or severe harm in the normative sample (see Z_3 in [Table 3](#)).

Accumulatively, the rate of depression and anxiety in victims was equally moderate and clinically significant (the rate of moderate, clinical, and total cases was equal, that is, the intervals overlapped), the anger rate of clinical cases was higher than in moderate cases (the rate of moderate cases was below the number of clinical cases and the total, with no overlapping confidence intervals). The study of cases revealed 24.6% ($n = 16$) suffered a clinical disorder, and 32.3% ($n = 21$) comorbidity or multi-comorbidity. In total, half (.569), $\chi^2(1, N = 65) = 1.25, ns, OR = 1.31$, of the CM-Vs developed a clinical disorder.

DISCUSSION

The results showed that CM-Vs reported more depressive (36%), anxiety (45%), and anger (69%) symptoms than the normative sample; and a harm greater than 41.08% [0.4108 (0.2912, 0.5304)] for depression, 51.60% [0.5160 (0.3945, 0.6375)] for anxiety, and 82.62% [0.8262 (0.7341, 0.9183)] for anger. If the magnitude of the harm were translated to the Global Assessment Functioning Scale (Endicott et al., 1976) it would be (contrasted with the symptomatic population) moderate (91–100 [range for asymptomatic]—40 = 50–60 [range for moderate]) in depression; severe in anxiety (91–100 [range for asymptomatic]—40 = 40–50 [range for severe]); and extreme in anger (91–100 [range for asymptomatic]—80 = 10–20 [range for extreme]). Comparatively, the magnitude of harm was greater (the probability of harm was higher with no overlapping confidence intervals) in anger than in depression or anxiety. That is, harm was both internalised and externalised, but the magnitude was greater in the latter. Notwithstanding, not all children manifest harm in internalising and externalising markers

TABLE 2 Clinical deterioration (severe deterioration) in depression, anxiety, and anger in CM-Vs

Variable	$f(p)$ (95% CI _p)	Z ₁	OR	Power	Z ₂
Depression	11(169)(0.078, 0.260)	7.44***	6.76	.999	2.74**
Anxiety	11(169) (0.078, 0.260)	7.44***	6.76	.999	2.74**
Anger	17(,262) (0.115, 0.369)	12.24***	10.48	.999	4.65**

Note: Cut score: $\geq Z_{1.96}$ (one-tailed confidence level = .025); $f(p)$: frequency of caseness (proportion); Z₁: zeta score for the comparison of the registered proportion of caseness among CM-Vs with a constant (.025); OR: odds ratio effect size; Z₂: zeta score for the comparison of the registered proportion among CM-Vs with the lower probability of caseness among CM-Vs (lower limit of the CI_p); ** $p < .01$; *** $p < .001$.

TABLE 3 Moderate deteriorate and total deteriorate (moderate and clinical deteriorate) in depression, anxiety, and anger in CM-Vs

Variable	$f(p)$ (95%CI _p)	Z ₁	OR	$f_{total}(p)$ (95%CI _p)	OR	Z ₂	Power	Z ₃
Depression	11(169) (0.078, 0.260))	2.88**	2.25	22(,338) (0.223, 0.453)	3.38	6.40***	.999	3.31***
Anxiety	11(169) (0.078, 0.260)	2.88**	2.25	22(,338) (0.223, 0.453)	3.38	6.40***	.999	3.31***
Anger	4(,062) (0.003, 0.121)	-0.40	0.83	21(,323) (0.209, 0.437)	3.23	5.99***	.999	2.93**

Note: Classification criterion as moderately deteriorated: Z score >1.28 (lower limit) and <1.96 (upper limit); $f_{total}(p)$: total frequency of moderate deterioration and clinical deterioration (probability); Z₁: zeta score for the comparison of the registered proportion of clinical deterioration among IPV-V with a constant (.075, expected probability among normative sample into the range of 1.28 and 1.96 zeta scores); Z₂: zeta score for the comparison of the registered proportion of deterioration and moderate deterioration among IPV-V with a constant (.10, one-tailed confidence level for a Z score of 1.28); ** $p < .01$; *** $p < .001$.

related to child maltreatment victimisation. Thus, approximately 25%, 20%, and 5% of victims showed no harm (score below the mean for the normative group) in depression, anxiety, and anger, respectively; that is, they were completely asymptomatic.

Epidemiologically, the results revealed the probability of caseness among the population of CM-Vs was significantly higher than expected, with an increase in the rate (compared to the normative sample) of 85% in depression and anxiety, and 90% in anger, a higher probability of internalising problems (depression and anxiety) than in victims of child or adolescent sexual abuse of 70% (Amado et al., 2015). This minor difference in the victimisation rate may be explained by the fact that child maltreatment victimisation in this study always involved the primary group, that is, parents (most child maltreatment is perpetrated by parents; Nemeroff, 2016). Thus, harm arising from child maltreatment is twofold, both personally and involving the primary social network.

The study of cases revealed that the severe caseness prevalence rate (clinical deterioration) was significant or equal (the confidence intervals for the observed probability overlapped) in the three measures. Likewise, the total caseness (moderate and clinical deterioration) was extraordinarily high, that is, 1/3 of CM-Vs exhibited moderate or severe depression-, anxiety-, and anger-related harm. These results are generalisable to the CM-Vs population since the prevalence rate was also significantly contrasting with the lowest expected probability of caseness (lower limit of the CI of the probability of registered severe deterioration—clinical significance—and total caseness—moderate and severe deterioration).

Furthermore, harm in the dimensions evaluated in this study was both comorbid and multi-comorbid. Comorbidity of depressive and anxiety disorders was very high, as was the depressive disorder with irritability and persistent anger especially in children and adolescents (APA, 2013). Nonetheless, a much higher rate of comorbidity was expected. Since the cause of harm was a traumatic event (i.e., child physical abuse, sexual abuse, and inappropriate sexual experiences), the resulting disorder should be a post-traumatic stress disorder (PTSD), with anxiety invariably present in PTSD, which is only clinically diagnosed if it does not concur with another disorder or other disorders (APA, 2013). Thus, PTSD is strongly associated with victimisation of all types of abuse, multiple types of abuse, and with more than one episode of abuse (Amado et al., 2015), and is highly comorbid in particular with depression and anxiety (APA, 2013). Comorbidity and multi-comorbidity associated with a traumatic event may lead to severe clinical harm (Kessler et al., 2005), with a high probability of it being lifelong (Amado

et al., 2015). Furthermore, clinical anger tends to be chronic and is comorbid with chronic depression (Gardner & Moore, 2008). Indeed, the probability of developing a persistent depressive disorder (dysthymia) following child or adolescent sexual abuse is significantly higher than a non-persistent major injury (i.e., a major depressive disorder) (Gardner & Moore, 2008)].

Taking into account that harm to mental health occurs in both the CM-Vs population, and in casesness, with individual differences between cases, ranging from extreme and persistent harm to being totally asymptomatic, forensic evaluations should go beyond the diagnosis of a disorder to establish a causal relationship between the offence and the injury (PTSD), and seek to establish comorbidity and multi-comorbidity and its severity. The severity of harm and chronicity should be specified in the forensic report given that these two parameters are directly linked to the criminal responsibility of the accused (i.e., more harm and persistency of harm, more criminal responsibility).

Moreover, when the behavioural disorders of victimised children and adolescents are subject to judicial investigation, the forensic report should inform of their origin in the victimisation of child maltreatment in order for the courts to appraise this contingency in assessing the criminal responsibility of children and adolescents.

The high probability, severity, and chronicity of harm in CM-Vs underscore both the need for implementing prevention programs, which have proven to be highly effective (Mikton & Butchart, 2009; WHO, 2016), and the need for clinical intervention in mental health markers. In relation to prevention, our results have implications for coping with the severity and chronicity of damage, which naturally tends to go from moderate deterioration to clinical deterioration. As for the intervention, the target should be directed to correcting the deterioration in the mental health markers studied by turning this population into a normal situation (no significant differences in the mental health markers with the normative population) and, in terms of casesness, achieve a clinically significant therapeutic outcome.

Further research is required to establish the moderators associated with asymptatology as well as the key factors for prevention and treatment. Additionally, future research should be focused on forensic sequelae (i.e., PTSD and adjustment disorder) as key evidence to support victimisation in legal proceedings, and in particular in PTSD and adjustment disorder with delayed onset or expression (APA, 2000, 2013).

Finally, the results of this study are subject to several limitations that should be borne in mind in the generalisation. First, participants suffered multiple episodes of victimisation resulting in greater effects than in cases of a single episode of victimisation (Holt et al., 2007; Stevens et al., 2005). Thus, lower effects should be expected for victims of only one episode of victimisation. Second, participants were exposed to more than one type of maltreatment and multiple victimisations, that is, participants were exposed to severe child maltreatment, being the probability of psychological harm and the magnitude of the harm higher for severe victimisation (Stevens et al., 2005). Thus, the results for non-severe victimisation should be generalised with caution. In any case, victims normally suffer two or more types of maltreatment and multiple victimisation (Berzenski & Yates, 2011). Third, the measures were obtained during the reception phase of internment, which is not generalisable in magnitude to the entire life cycle. Although sequelae tend to be chronic and the non-exposure to the stressor diminishes the magnitude of psychological harm (APA, 2013). Fourth, the results of studies on judicial populations differ from simulated or community samples (Fariña et al., 1994). Succinctly, higher probabilities of psychological harm and a higher magnitude of harm are expected in judicial populations than in community populations. Thus, the quantitative results are not transferable to community sample studies. Fifth, the results for children victimised by their parents are not generalisable to other aggressors as it affects the primary social network, and its failure is associated with higher psychological harm (Cacho et al., 2020). Sixth, though the design was highly sensitive, the sample size was small and consisted of adjudicated victims, which may not reflect the variability in the victimised population. Seventh, harm may be extended to other clinical dimensions (multi-comorbidity), but only the highly comorbid were assessed. Eighth, the design does not control systematically the potential effects of all strange variables (normative sample served as the control group and not a strictly randomised control group); thus, causal relations established may be mediated for them.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

Adriana Selaya (Conceptualization; Formal analysis; Writing – original draft) **Ramón Arce** (Conceptualization; Formal analysis; Funding acquisition; Methodology; Writing – original draft; Writing – review & editing) **Dolores Seijo** (Conceptualization; Formal analysis; Methodology; Writing – original draft; Writing – review & editing) **Manuel Vilarinho** (Conceptualization; Data curation; Methodology; Writing – original draft) **Bárbara G. Amado** (Conceptualization; Methodology; Writing – original draft).

DATA AVAILABILITY STATEMENT

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

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