

Severe physical punishment: risk of mental health problems for poor urban children in Brazil

Isabel A Bordin,^a Cristiane S Duarte,^b Clovis A Peres,^a Rosimeire Nascimento,^a Bartira M Curto^a & Cristiane S Paula^c

Objective To examine the relationship between specific types of child mental health problems and severe physical punishment, in combination with other important known risk factors.

Methods We conducted a cross-sectional study in Embu, São Paulo, Brazil, as the Brazilian component of a multicountry survey on abuse in the family environment. From a probabilistic sample of clusters that included all eligible households (women aged 15–49 years with a son or daughter < 18 years of age), we randomly selected one mother–child pair per household ($n = 813$; attrition rate: 17.6%). This study focused on children aged 6–17 years ($n = 480$). Child Behaviour Checklist CBCL/6–18 was used to identify children with internalizing problems only, externalizing problems only, and both internalizing and externalizing problems (comorbidity). Severe physical punishment was defined as being hit with an object, being kicked, choked, smothered, burnt, scalded, branded, beaten or threatened with a weapon. We examined other potential correlates from four domains: child (gender, age, ever witnessing marital violence); mother (education, unemployment, anxiety or depression, marital violence); father (absence, drunkenness); and family (socioeconomic status). The WHO Self-Reporting Questionnaire (SRQ-20) was used to identify maternal anxiety or depression (score > 7). Backward logistic regression analysis identified independent correlates and significant interactions.

Findings Multivariate modelling showed that severe punishment was an independent correlate of comorbid internalizing and externalizing problems but was not associated with internalizing problems only. It increased the risk of externalizing problems alone only for children and adolescents not exposed to maternal anxiety or depression. Maternal anxiety or depression increased the risk only for children or adolescents not exposed to severe punishment.

Conclusion Severe punishment may be related to child mental health problems, with the mechanism depending on the type of problem. Its influence persists in the presence of family stressors such as the father's absence and maternal anxiety or depression.

Une traduction en français de ce résumé figure à la fin de l'article. Al final del artículo se facilita una traducción al español. الترجمة العربية لهذه الخلاصة في نهاية النص الكامل لهذه المقالة.

Introduction

Few epidemiological surveys have focused on child mental health in developing countries. A literature review (1980–1999) on population studies in Latin America¹ identified 10 studies in which prevalence rates of mental health problems of 15% to 21% were found. Only nine studies in Brazil that used more rigorous methods can be found in the literature (1980–2006); all of them used probabilistic sampling and standardized instruments specifically developed to identify mental problems or disorders in children and/or adolescents.² Based on screening instruments, prevalence rates varied according to informant, from 8.3% for teachers to 35.2% for parents; based on diagnostic interviews, such rates varied from 7.0% to 12.7%.

Several types of factors may increase a child's vulnerability to mental health problems: biological factors (central nervous system abnormalities due to injury, infections or malnutrition), genetic factors (family history of depression), psychosocial factors (marital discord, maternal psychopathology or paternal criminality), stressful life events (parental death or separation from parents) and exposure to physical or sexual abuse.³ The cumulative effect of multiple factors is more important in determining a child's emotional or behavioural problems than the presence of an isolated stressor,

regardless of its magnitude.⁴ In Brazil, the negative impact of different stressors has been shown to affect child mental health; stressors include witnessing marital violence,⁵ living with a mentally disturbed mother^{5,6} and suffering physical aggression at home.^{5–7} However, Brazil lacks a comprehensive examination of the relationship between factors that can be prevented (e.g. corporal or physical punishment) and child mental health problems.

Corporal punishment is associated with mental health problems during childhood and adolescence (antisocial behaviour, depression) and in adult life (aggressive or criminal acts, antisocial behaviour, alcoholism, depression).⁸ This phenomenon occurs worldwide, but most studies on child maltreatment have been conducted in developed countries.⁹ According to the Pan American Health Organization's Team on Violence and Injury Prevention,¹⁰ corporal punishment is more prominent in Latin America, whereas sexual abuse and exploitation are more common in the Caribbean. Nevertheless, methodologically sound data on child abuse in Latin America and the Caribbean are lacking, so that the magnitude of the problem remains poorly defined.

The United Nations Secretary General's Study on Violence against Children (2006)¹¹ recommended the development of a national research agenda on violence against

^a Universidade Federal de São Paulo, Escola Paulista de Medicina, Rua Botucatu 572, São Paulo, SP, 04023-061, Brazil.

^b Columbia University, New York State Psychiatric Institute, New York, NY, United States of America.

^c Universidade Presbiteriana Mackenzie, São Paulo, SP, Brazil.

Correspondence to: Isabel A Bordin (e-mail: fbordin@dialdata.com.br).

(Submitted: 11 April 2008 – Revised version received: 28 May 2008 – Accepted: 13 June 2008)

children across settings where violence occurs. This study is part of WorldSAFE (World Studies of Abuse in the Family Environment), a project involving researchers from six countries.¹² In our pilot study⁷ we found high rates of child mental health problems (22.4% in children aged 4–17 years) and severe physical punishment (10.1% in children aged 0–17 years), which confirms the need to explore the potential association between these factors. This study represents the first use of a comprehensive approach for examining – in a probabilistic household sample of children from a developing country (Brazil) living in an impoverished and violent area – whether and in what way severe physical punishment may be related to different types of mental health problems in children.

Methods

Study design and sampling

We conducted a cross-sectional study in south-eastern Brazil, in a typical urban poor neighbourhood of the city of Embu. The city has 238 891 inhabitants and is located in the boundaries of São Paulo city in the great São Paulo area, where more than 10% (19 million) of the Brazilian population lives. Embu is totally urban, and 38.1% of its inhabitants are under 20 years of age. It is characterized by neighbourhoods of small households and slums and was considered one of the most violent cities in the country at the time the data were collected (April 2002 to February 2003).

The Brazilian Institute of Geography and Statistics randomly selected 24 clusters in the chosen neighbourhood, based on census units. In these clusters, we identified 996 eligible households (those having a woman aged 15–49 years with at least one child < 18 years of age). One mother–child pair was randomly selected per household. At the time of the interview, nine pairs had to be excluded (mother and child not living together due to separation or death, mother with health problems that impaired communication, or mother unable to be interviewed because of death threats by local drug dealers). From the initial sample ($n = 987$), 813 mothers completed the WorldSAFE Core Questionnaire (attrition rate: 17.6%). Sample size was calculated based on the lowest expected outcome

prevalence (5%; 95% confidence interval, CI: 3%–7%) with an adopted relative precision of 40%.¹³ The present study was restricted to children aged 6–17 years of age, with complete information on the three outcomes and 12 independent variables of interest ($n = 480$). Five subjects were excluded due to missing data.

Variables and instruments

Variables were measured with standardized instruments delivered to mothers by trained interviewers. These included the Child Behaviour Checklist, the Self Reporting Questionnaire and a family economic classification questionnaire developed by the Brazilian Association of Research Companies. Child mental health problems (outcomes) were defined as internalizing problems only, externalizing problems only, and both internalizing and externalizing problems (comorbidity). “Internalizing” corresponds to inwardly-directed emotional and subjective symptoms that are hard to observe and cause suffering to the individual affected (e.g. ideas of suicide); “externalizing” corresponds to outwardly-directed behavioural symptoms that disturb other people (e.g. robbery, vandalism). Anxiety and depression at a clinical level are thus considered internalizing mental health problems, whereas aggressive behaviour and breaking of rules at a clinical level are considered externalizing mental health problems. We examined potential correlates from four domains: the child (gender, age, severe physical punishment, ever witnessing physical marital violence); the mother (education, unemployment, anxiety or depression, severe physical marital violence); the mother’s husband or partner (not residing in the household in the last 12 months, unemployment, getting drunk at least once in the last 12 months); and the family (socioeconomic status). Child severe physical punishment was defined as the child being hit with an object (e.g. a stick, broom, cane or belt); being kicked, choked, smothered, burnt, scalded, branded, beaten (i.e. hit repeatedly with an object or fist) or threatened with a weapon (such as a knife or gun) by the mother or her husband or partner in the last 12 months. Severe physical marital violence in the last 12 months was defined as the mother being kicked, hit, beaten, or

threatened or assaulted with a weapon by a residing husband or partner.

The WorldSAFE Core Questionnaire on Domestic Violence investigates intrafamilial violence and associated factors (the original English questionnaire was developed by the WorldSAFE steering committee). The child-rearing behaviour section included parental behaviours usually noted in developing countries and items from the Parent–Child Conflict Tactics Scales¹⁴ (included with the authors’ permission). The steering committee decided that mothers would not be questioned about violence in the last 12 months from non-residing husbands or partners. The Core Questionnaire was translated to Portuguese, back translated to confirm the quality of the translation, field tested and applied in a pilot study before being used in the full study. (The Brazilian version of the WorldSAFE Core Questionnaire was developed by Bordin & Paula in 1999).

The Child Behaviour Checklist (CBCL/6–18) is a standardized parent report screening questionnaire that is used to identify emotional and behavioural problems in children and adolescents; it has adequate psychometric properties.¹⁵ The Brazilian version of CBCL/6–18 was developed by Bordin et al. in 2002. The last version of CBCL/6–18 was CBCL/4–18; validity studies demonstrated the high sensitivity of the Brazilian version of CBCL/4–18 compared to the “gold standard” psychiatric diagnosis based on the *International statistical classification of diseases and related health problems, 10th revision* and the *Diagnostic and statistical manual of mental disorders, 4th edition* criteria.^{16,17} CBCL/4–18 and CBCL/6–18 are very similar (only 6 out of 118 items were changed from the 1991 English version to the 2001 English version), so we assumed the validity of the Brazilian version of CBCL/6–18. In our study, children and adolescents with T scores > 63 (above the 90th percentile according to American normative data) on internalizing or externalizing scales were classified as clinical cases.¹⁵ Borderline cases (T scores 60–63) were considered non-clinical.

The Self Reporting Questionnaire (SRQ-20) is a screening instrument developed by WHO; it has 20 items that can be used in community and primary care settings, especially in developing

countries, to identify symptoms that may be indicative of mental disorders.¹⁸ The current version detects probable cases of anxiety and depression. The Brazilian version of SRQ-20 has good validity and high reliability.^{19,20} Mothers with a total score > 7 were considered cases.^{18,20}

The Brazilian Association of Research Companies developed a family economic classification questionnaire to determine socioeconomic classes according to family purchase power.²¹ The instrument is based on the number of home appliances, the existence of private bathrooms inside or outside the dwelling, the educational level of the head of the household, and the number of home employees working at least 5 days a week. Total scores were used to determine families' socioeconomic status (low: 0–16; middle–low: 17–34).

Procedures

The Research Ethics Committee of Universidade Federal de São Paulo approved this study. Trained interviewers obtained written informed consent and then administered the instruments to mothers. All questions about intrafamilial violence were asked by female interviewers, following the WorldSAFE standardized procedure. All interviews were conducted individually at the local health centre to guarantee the privacy and safety of both mothers and interviewers. Conducting interviews at home in a violent community could have exposed women and interviewers to aggression; also, family members or neighbours could have overheard the interviews and provided the information to potential perpetrators. People involved in drug trafficking could also have become suspicious of strangers in the home asking questions and could have harmed or threatened the women and interviewers.

In Brazil, reporting of suspected child abuse and neglect is mandatory, but survey interviewers are exempt from this rule. At the end of the interviews, mothers were provided with a list of local institutions that could help with physical illness, mental disorders or intrafamilial violence.

Statistics

Our sample of children ($n = 480$) was divided into four mutually exclusive groups: (i) children with internalizing

problems only (Group 1; $n = 92$); (ii) children with externalizing problems only (Group 2; $n = 33$); (iii) children with both types of problems (Group 3; $n = 52$) and (iv) children without mental health problems (Group 4; $n = 303$). Groups 1–3 were each combined with Group 4 to create three subsets of data. For each combination of two groups, a logistic regression model was adjusted to the respective data using SPSS, version 10.0 (SPSS Inc., Chicago, IL, United States of America). When examining collinearity among 12 independent variables in all subsets, only two husband/partner variables were collinear (Cramer's $V > 0.60$): residing in the household (for the last 12 months) and currently working for pay. All independent variables except the husband or partner's unemployment were forced into the initial multivariate models.

All possible interactions with age, gender and severe punishment were initially explored by univariate analysis. When an interaction was present, the association between the risk factor and the outcome variable differed depending on age (11–17 years; 6–10 years), gender (female; male) or severe punishment (yes; no). Only interactions that reached a statistical level of significance of $P < 0.08$ when forced to enter the full model were retained in the model. Backward elimination of interactions (first) and independent variables (second) was applied, and interactions or independent variables were dropped manually, one at a time, according to the highest P -value. Final best associative models identified independent correlates and significant interactions ($P < 0.05$). A likelihood ratio test was applied to compare the full and the reduced models (where a non-significant test indicated no difference existed between models).

Results

The mean age of the children was 11.0 ± 3.4 years. Informants (22–49 years of age; mean age: 37.1 ± 6.5 years) were biological mothers (97.9%) or female guardians (2.1%). The residing husband or partner was the child's biological father in 88.1% of families with a husband or partner who had resided in the household for the last 12 months (388). Socioeconomic indicators revealed low living standards: 62.7% of mothers or female guardians did not complete 8th grade, 42.9% of mothers or female

guardians and 18.3% of husbands or partners currently residing in the household (378) had no paid job, and 77.7% of families had low socioeconomic status (Table 1).

The data on mental health problems showed that 36.9% of children were affected by internalizing problems, externalizing problems or both, while 30.8% of mothers or female guardians had probable anxiety or depression. Also, 21.3% of mothers or female guardians reported that their husband or partner had been drunk at least once in the last 12 months. Exposure to physical aggression in the home was frequent: 20.0% of children had suffered severe physical punishment by one or both parents in the last 12 months, and 18.8% of children had witnessed marital physical violence (i.e. had ever seen or heard their mother being physically harmed or threatened by a resident husband or partner) (Table 1).

Table 2 summarizes the demographic characteristics, mental health problems and violence exposure of children and parents in the three subsets of data. The frequencies of all potential risk factors were similar across subsets.

The best associative model for internalizing problems only (model I, Table 3) identified four independent correlates: gender (female), age group (11–17 years), mother currently working for pay (yes) and maternal anxiety or depression (present), with no interactions. Girls were at greater risk than boys for internalizing problems only. Adolescents (11–17 years) were twice as likely to present internalizing problems as children (6–10 years). Offspring of women currently working for pay were at greater risk for internalizing problems alone than offspring of non-working women. Maternal anxiety or depression was strongly associated with internalizing problems only.

The best associative model for externalizing problems only (model II, Table 3) identified four factors, all of them part of an interaction: age group – by residing husband/partner, and severe punishment – by maternal anxiety/depression. In the age group 6–10 years, children without a residing father or male guardian were as much at risk for externalizing problems only as those with a residing father or male guardian (odds ratio, OR: 0.42; 95% CI: 0.09–2.02). However, in the age group 11–17 years, adolescents without

a residing father or male guardian were five times more likely to present externalizing problems only than adolescents with a residing father or male guardian (OR: 5.04; 95% CI: 1.28–19.79). When maternal anxiety or depression was present, children and adolescents who were exposed to severe punishment were equally at risk of externalizing problems as those who were not exposed (OR: 1.25; 95% CI: 0.28–5.58), but when maternal anxiety or depression was absent, children and adolescents exposed to severe punishment were almost eight times more likely to present externalizing problems only than children and adolescents not exposed to severe punishment (OR: 7.86; 95% CI: 3.02–20.42). Alternatively, when children and adolescents were exposed to severe punishment, those whose mother had anxiety or depression were equally at risk for externalizing problems only as those whose mother did not have anxiety or depression (OR: 0.75; 95% CI: 0.18–3.24). However, when children and adolescents were not exposed to severe punishment, having a mother with anxiety or depression put them at greater risk for externalizing problems only (OR: 4.72; 95% CI: 1.72–12.97) (not shown in Table 3).

The best associative model for comorbidity (model III, Table 3) identified three independent correlates: gender (female), severe punishment (yes) and maternal anxiety/depression (present), with no interactions. Severe punishment was associated with a more than twofold increase in the risk of presenting both internalizing and externalizing problems. Female gender and maternal anxiety or depression were both strongly associated with comorbidity.

Discussion

This study had limitations. For example, because of the cross-sectional design, causal relationships between correlates and outcomes could not be determined. It has three possible sources of bias: (i) mothers may have refrained from reporting severe punishment because they were afraid that authorities would be notified; (ii) mothers may have refrained from reporting marital violence because they were too frightened to reveal abuse; (iii) the study does not account for violence perpetrated in the last 12 months by non-residing husbands, partners or boyfriends.

Table 1. Demographic characteristics, mental health problems and exposure to violence for children aged 6–17 years ($n = 480$) and their parents in Embu, São Paulo, Brazil, 2002–2003

Sample characteristics by domain	No.	%
Child		
Gender		
Female	246	51.3
Male	234	48.7
Age group (years)		
6–10	230	47.9
11–17	250	52.1
Mental health problems (CBCL)		
Internalizing only	92	19.2
Externalizing only	33	6.9
Both	52	10.8
None	303	63.1
Severe physical punishment (last 12 months)		
Yes	96	20.0
No	384	80.0
Ever witnessing marital physical violence		
Yes	90	18.8
No	390	81.2
Mother		
Education (years of schooling)		
0–7	301	62.7
> 7	179	37.3
Currently working for pay		
No	206	42.9
Yes	274	57.1
Anxiety/depression (SRQ total score)		
Yes (> 7)	148	30.8
No (0–7)	332	69.2
Severe physical marital violence (last 12 months)		
Yes	12	2.5
No	468	97.5
Mother's husband/partner		
Residing in the household any time in the last 12 months		
No	92	19.2
Yes	388	80.8
Residing in household at time of interview		
No	102	21.3
Yes	378	78.7
Working for pay at time of interview		
No (not working or absent)	171	35.6
Yes	309	64.4
Drunk one or more times (last 12 months)		
Yes	102	21.3
No (not drunk or absent)	378	78.7
Family		
Socioeconomic status		
Low	373	77.7
Middle-low	107	22.3

CBCL, Child Behaviour Checklist; SRQ, Self Reporting Questionnaire.

To increase the likelihood of obtaining truthful answers, interviewers made their neutral role clear, while offering information about local services for distressed families. Other study procedures, such as having female interviewers working in privacy at the health centre, rather than conducting in-home interviews that could be overheard by family members, may have minimized reporting bias.

A previous study reported on risk factors for child mental health problems in Brazil with multivariate analysis^{6,22}. Conducted in the city of Taubaté, south-eastern Brazil, the study used a stratified probabilistic sample of students from public (urban and rural) and private (all urban) schools ($n = 1251$; attrition rate: 17%).²² A screening instrument (Strengths and Difficulties Questionnaire) was also used to identify emotional (or internalizing) problems and behavioural (or externalizing) problems. Parent, teacher and youth reports were combined to identify clinical cases. In contrast to our study, a school-based sample of the general population was used, so it did not focus on high-risk children or children who were not at school. Furthermore, because the study's main focus was not child physical punishment, its assessment was necessarily less comprehensive than ours. In the previous study, specific risk factors were identified for different types of mental health problems. Emotional problems were associated with female gender, parental anxiety or depression, and poor general health, while behavioural problems were associated with harsh punishment (e.g. child beaten with an object such as a belt or stick), parental anxiety or depression, family alcohol abuse and not living with both biological parents. The study did not examine potential interactions. When parental reports from the Strengths and Difficulties Questionnaire ($n = 454$, children aged 7–11 years) were considered,⁶ hitting with a belt, parental anxiety or depression, and low socioeconomic status were independently associated with behavioural problems. In low-income families, girls were twice as likely to present emotional problems as boys; however, in middle-income families, both genders were at similar risk. Parental anxiety or depression was also an independent predictor of emotional problems.

Table 2. Demographics, mental health problems and exposure to violence among children and parents in three subsets of data on children aged 6–17 years in Embu, São Paulo, Brazil, 2002–2003

Study variables by domain	Subset 1 ^a (<i>n</i> = 395) No. (%)	Subset 2 ^b (<i>n</i> = 336) No. (%)	Subset 3 ^c (<i>n</i> = 355) No. (%)
Child			
Gender			
Female ^d	192 (48.6)	156 (46.4)	176 (49.6)
Male ^e	203 (51.4)	180 (53.6)	179 (50.4)
Age group (years)			
6–10 ^e	184 (46.6)	180 (53.6)	180 (50.7)
11–17 ^d	211 (53.4)	156 (46.4)	175 (49.3)
Mental health problems (CBCL)			
Internalizing only	92 (23.3)	NA	NA
Externalizing only	NA	33 (9.8)	NA
Both	NA	NA	52 (14.6)
None	303 (76.7)	303 (90.2)	303 (85.4)
Severe physical punishment (last 12 months)			
Yes ^d	66 (16.7)	65 (19.3)	65 (18.3)
No ^e	329 (83.3)	271 (80.7)	290 (81.7)
Ever witnessing marital physical violence			
Yes ^d	67 (17.0)	52 (15.5)	63 (17.7)
No ^e	328 (83.0)	284 (84.5)	292 (82.3)
Mother			
Education (years of schooling)			
0–7 ^d	240 (60.8)	202 (60.1)	223 (62.8)
> 7 ^e	155 (39.2)	134 (39.9)	132 (37.2)
Currently working for pay			
No ^d	167 (42.3)	151 (44.9)	164 (46.2)
Yes ^e	228 (57.7)	185 (55.1)	191 (53.8)
Anxiety/depression (SRQ total score)			
Yes (> 7) ^d	106 (26.8)	73 (21.7)	91 (25.6)
No (0–7) ^e	289 (73.2)	263 (78.3)	264 (74.4)
Severe physical marital violence (last 12 months)			
Yes ^d	7 (1.8)	7 (2.1)	10 (2.8)
No ^e	388 (98.2)	329 (97.9)	345 (97.2)
Mother's husband/partner			
Residing in the household in the last 12 months			
No ^d	71 (18.0)	55 (16.4)	62 (17.5)
Yes ^e	324 (82.0)	281 (83.6)	293 (82.5)
Currently working for pay			
No (not working or absent) ^d	133 (33.7)	113 (33.6)	123 (34.6)
Yes ^e	262 (66.3)	223 (66.4)	232 (65.4)
Drunk one or more times (last 12 months)			
Yes ^d	85 (21.5)	66 (19.6)	69 (19.4)
No (not drunk or absent) ^e	310 (78.5)	270 (80.4)	286 (80.6)
Family			
Socioeconomic status			
Low ^d	303 (76.7)	256 (76.2)	270 (76.1)
Middle–low ^e	92 (23.3)	80 (23.8)	85 (23.9)

CBCL, Child Behaviour Checklist; NA, not applicable; SRQ, Self Reporting Questionnaire.

^a Children with internalizing problems only + children with none.

^b Children with externalizing problems only + children with none.

^c Children with both internalizing and externalizing problems + children with none.

^d Value = 1.

^e Value = 0.

Table 3. Initial and final logistic regression models identifying best associative models for mental health problems in children in Embu, São Paulo, Brazil, 2002–2003^a

	Model I Internalizing problems only		Model II Externalizing problems only		Model III Both internalizing and externalizing problems	
	Initial OR (95% CI)	Final OR (95% CI)	Initial OR (95% CI)	Final OR (95% CI)	Initial OR (95% CI)	Final OR (95% CI)
Independent variables by domain						
Child						
(1) Gender	6.55 (1.72–24.95)	1.70 (1.03–2.81)	1.87 (0.82–4.27)	VEM	2.22 (0.79–6.24)	3.86 (1.90–7.82)
(2) Age group	2.32 (1.35–4.01)	2.35 (1.39–3.98)	0.24 (0.08–0.69)	VPI	0.45 (0.14–1.46)	VEM
(3) Severe physical punishment ^b	0.58 (0.21–1.59)	VEM	9.47 (3.43–26.17)	VPI	4.37 (1.55–12.31)	2.67 (1.24–5.74)
(4) Ever witnessing marital violence	1.20 (0.59–2.45)	VEM	1.03 (0.32–3.35)	VEM	2.14 (0.90–5.11)	VEM
Mother						
(5) Education	1.39 (0.56–3.42)	VEM	0.78 (0.34–1.82)	VEM	1.73 (0.74–4.02)	VEM
(6) Currently working for pay	0.62 (0.36–1.07)	0.54 (0.32–0.92)	0.81 (0.36–1.82)	VEM	1.25 (0.62–2.54)	VEM
(7) Anxiety/depression	3.69 (2.13–6.39)	3.82 (2.28–6.40)	4.83 (1.71–13.63)	VPI	7.04 (3.16–15.66)	5.76 (3.01–10.99)
(8) Severe physical marital violence ^b	0.22 (0.02–2.17)	VEM	1.38 (0.10–18.68)	VEM	1.75 (0.32–9.65)	VEM
Father						
(9) Residing in the household ^b	1.58 (0.81–3.09)	VEM	0.42 (0.08–2.10)	VPI	1.79 (0.77–4.12)	VEM
(10) Drunk one or more times ^b	1.77 (0.94–3.33)	VEM	1.13 (0.39–3.25)	VEM	0.63 (0.24–1.67)	VEM
Family						
(11) Socioeconomic status	2.69 (0.82–8.82)	VEM	1.54 (0.50–4.73)	VEM	0.75 (0.30–1.83)	VEM
Selected interactions^c						
(9) Father residing in the household						
(2) Age group 6–10 years				0.42 (0.09–2.02)		
(2) Age group 11–17 years				5.04 (1.28–19.79)		
(3) Severe physical punishment						
(7) Maternal anxiety/depression present				1.25 (0.28–5.58)		
(7) Maternal anxiety/depression absent				7.86 (3.02–20.42)		
–2 log likelihood	363 295	379 972	179 757	183 554	232 831	247 913

CI, confidence interval; OR, odds ratio; VEM, variable excluded from the model; VPI, variable is part of an interaction.

^a The reference group is that of children without internalizing or externalizing problems.

^b In the last 12 months.

^c Interaction terms included in regression models: model I [(1)*(3), (1)*(5), (1)*(11)]; model II: [(9)*(2), (3)*(7)]; and model III [(1)*(2) and (3)*(7)].

Our study revealed that female gender, older age and maternal working status were unique risk factors for internalizing problems only. Previous studies have demonstrated that internalizing behaviours are stable during childhood but increase during adolescence.^{23,24} Girls show higher mean levels

of internalizing symptoms than boys, as well as sharper increases in internalizing symptoms from childhood to adolescence.^{25,26} Maternal employment may have a negative effect on an adolescent's mental health if employment leads to deficient parenting practices.²⁷ In the poor urban community where our study

was conducted, women are usually overloaded with activities and obligations at home and outside and are frequently the main financial provider in the family. Such stressful life circumstances may reduce the ability of working mothers to be emotionally supportive and available to their children.

On externalizing behaviours only, our data revealed that having the mother's husband or partner residing in the home was a protective factor for adolescents but not for children. It was found in a recent systematic review of longitudinal studies²⁸ that a residing father or male guardian is a protective factor against externalizing behaviours for children, possibly through involved fathering, supporting the mother in her role and disciplining the children. We also found that severe punishment increased the risk of presenting externalizing problems alone, but only for children or adolescents not exposed to maternal anxiety or depression, while maternal anxiety or depression increased that risk only for children and adolescents not exposed to severe punishment. This suggests that when children perceive their relationship with parents as less warm and more rejecting (due to harsh punishment or as a consequence of maternal anxiety or depression), they may become aggressive as a means of externalizing anger, frustration or sadness. Severe physical punishment and maternal anxiety or depression do not strengthen each other's influence; each risk factor alone is sufficiently powerful to have a deleterious effect on parent–child relations.

In our study, correlates of comorbidity included factors independently associated with internalizing behaviours only, and factors involved in significant interactions that were influencing the occurrence of externalizing behaviours only. According to the model of risk for the development of comorbidity proposed by Wolff & Ollendick,²⁹ female gender can be considered a unique risk factor for internalizing problems, while maternal anxiety/depression can be interpreted as a common risk factor underlying the co-occurrence of internalizing and externalizing problems. Maternal depression is generally associated with lower levels of nurturance and affection, as well as with hostility and conflict.³⁰ Depressed mothers are more verbally aversive, monitor and

supervise their children's activities less effectively, engage in fewer affectionate interactions with their children, and respond to them with less warmth.³¹ Children prone to externalizing problems only may respond to maternal anxiety or depression with anger and impulsivity, while children prone to internalizing problems only may respond with withdrawal and behavioural inhibition. Some researchers³² consider children with comorbidity similar to externalizing children, since both are high on anger and impulsivity but low on attention regulation and inhibitory control. Others³³ suggest that children with comorbidity are unique, as externalizing children show elevated aggression in response to aversive events (e.g. warnings from adults) and internalizing children show elevated withdrawal in response to aversive peer events (e.g. teasing from peers), whereas children with comorbidity display elevated rates of aggression and withdrawal in response to positive events (e.g. friendly peer talk or adult praise).

Finally, aggressive behaviour from children may stimulate parental use of more strict disciplinary methods, and inadequate parenting behaviours may influence the development of child mental health problems. Similarly, chronically depressed mothers may use more relaxed and inconsistent discipline with their children, which favours the development and persistence of externalizing disorders,³⁴ while the behaviour of children with conduct disorders may decrease a mother's disposition to adopt nurturing attitudes, generating disappointment and depressive feelings.³⁵ Psychogiou et al.³⁶ noted that a mother's expressed emotions were driven more by the child than by maternal characteristics, and these effects were specific to conduct and emotional problems. Therefore, physical punishment as well as parental psychopathology may be the cause or consequence of child externalizing problems, deserving attention in future longitudinal studies.

Implications

In this study we focused on a high-risk, relatively homogeneous low-socioeconomic status sample from a Latin American country, which allowed us to identify key child and family factors related to specific types of child mental health problems in a population that has rarely been systematically studied. Our study results are probably generalizable to other disadvantaged communities located in the outskirts of highly populated cities in developing countries. As such, they have important implications for designing effective interventions to tackle the development of child mental health problems among these populations. Maternal anxiety and depression and severe punishment are modifiable risk factors; therefore, intervention efforts to support parents emotionally may help them adopt more adequate child-rearing practices. ■

Acknowledgements

We thank all study participants, professionals and employees from the health centre where data were collected, Embu Health Secretariat and Mental Health Coordination, and all research team members of the Brazilian Studies of Abuse in the Family Environment (BrazilSAFE) for the valuable collaboration.

Funding: The full study was financially supported by the São Paulo State Research Foundation (Fundação de Amparo à Pesquisa do Estado de São Paulo/FAPESP – Process no. 00/14555-4). The pilot stage was funded by the International Clinical Epidemiology Network, Inc., and the Fundo de Auxílio aos Docentes e Alunos (FADA), a research fund from the Federal University of São Paulo.

Competing interests: None declared.

Résumé

Châtiments corporels sévères : risques pour la santé mentale des enfants pauvres dans les villes Brésiliennes

Objectif Examiner la relation entre certains types de troubles mentaux chez l'enfant et les châtiments corporels sévères, en association avec d'autres facteurs de risque importants connus.

Méthodes Nous avons mené une étude transversale à Embu dans l'Etat de São Paulo au Brésil, en tant que composante brésilienne d'une enquête multipays sur les mauvais traitements dans le cadre familial. A partir d'un échantillonnage probabiliste en grappes couvrant tous les

foyers admissibles dans l'étude (femmes de 15 à 49 ans ayant un fils ou une fille de moins de 18 ans), nous avons sélectionné au hasard un couple mère-enfant par foyer (n = 813 ; taux d'attrition : 17,6 %). L'étude s'est focalisée sur les enfants de 6 à 17 ans (n = 480). La Child Behaviour Checklist (CBCL/6-18) a été utilisée pour identifier les enfants présentant des troubles internalisés seulement, des troubles externalisés seulement ou à la fois des troubles internalisés et externalisés

(comorbidité). A été défini comme un châtement corporel sévère infligé à un enfant le fait de le frapper avec un objet, de lui donner des coups de pied, de l'étrangler, de l'étouffer, de le brûler, de l'ébouillanter, de le marquer avec un objet brûlant, de le battre ou de le menacer avec une arme. Nous avons examiné d'autres possibilités de corrélations dans les quatre domaines suivants : l'enfant (sexe, âge, témoin régulier de violences conjugales) ; la mère (éducation, chômage, anxiété ou dépression, violence conjugale), le père (absence, ébriété) et la famille (statut socioéconomique). Le Self-Reporting Questionnaire de l'OMS (SRQ-20) a été utilisé pour reconnaître l'anxiété ou la dépression chez la mère (score > 7). Une analyse par régression logistique rétrograde a permis d'identifier les corrélats indépendants et les interactions significatives.

Résultats Une modélisation multivariée a montré que les châtements sévères étaient un corrélat indépendant de la comorbidité troubles internalisés/troubles externalisés, mais ne présentaient pas d'association avec les troubles internalisés seuls. Ces châtements n'augmentaient le risque de troubles externalisés seuls que chez les enfants et les adolescents non exposés à l'anxiété ou à la dépression maternelle. La présence d'une anxiété ou d'une dépression chez la mère ne majorait ce risque que chez les enfants et les adolescents ne subissant pas des châtements sévères.

Conclusion Il peut exister une relation entre châtements sévères et troubles mentaux chez l'enfant, le mécanisme impliqué dépendant du type de trouble. Cette influence persiste en présence de stressors familiaux comme l'absence du père ou l'anxiété ou la dépression maternelle.

Resumen

Castigos físicos severos: riesgo de problemas de salud mental en niños brasileños de entornos urbanos

Objetivo Examinar la relación existente entre tipos concretos de problemas de salud mental infantil y los castigos físicos severos, teniendo en cuenta otros factores de riesgo importantes.

Métodos Realizamos un estudio transversal en Embu (São Paulo, Brasil) como parte de una encuesta multipaís sobre el maltrato en el entorno familiar. A partir de una muestra probabilística de conglomerados que incluyó a todos los hogares elegibles (mujeres de 15 a 49 años con hijos menores de 18 años), seleccionamos aleatoriamente a una pareja madre-hijo por hogar ($n = 813$; tasa de abandonos: 17,6%). El presente estudio se centró en los niños de 6 a 17 años ($n = 480$). Para identificar a los niños con problemas únicamente de internalización, únicamente de externalización o simultáneamente de internalización y externalización (comorbilidad) se utilizó la Lista de Comportamientos Infantiles (CBCL/6–18). El castigo físico severo se definió como golpes con objetos, patadas, estrangulación, asfixia, quemaduras, escaldaduras, marcas, palizas o amenazas con armas. Además, examinamos otros correlatos pertenecientes a cuatro dominios: características del niño (sexo, edad, haber sido testigo de violencia conyugal), la madre (nivel

educativo, desempleo, ansiedad o depresión, violencia conyugal), el padre (ausencia, embriaguez) y la familia (nivel socioeconómico). Para identificar la ansiedad y la depresión maternales (puntuación > 7) se utilizó el Cuestionario de Autoinformación de la OMS (SRQ-20). Los correlatos independientes y las interacciones significativas se identificaron mediante análisis de regresión logística retrógrada.

Resultados Los modelos multivariados revelaron que el castigo severo se correlacionó de forma independiente con problemas comórbidos de internalización y externalización, pero no con problemas únicamente de internalización. Asimismo, aumentó el riesgo de problemas únicamente de externalización, pero sólo en niños y adolescentes no expuestos a ansiedad ni depresión maternales. La ansiedad o depresión maternales aumentaron el riesgo sólo en niños o adolescentes no expuestos a castigos severos.

Conclusión Los castigos severos pueden estar relacionados con problemas de salud mental infantil, y el mecanismo depende del tipo de problema. Su influencia es persistente en presencia de factores causantes de estrés familiar, tales como ausencia del padre y la depresión o ansiedad de la madre.

ملخص

العقاب البدني الشديد: خطر مشكلات الصحة النفسية على الأطفال الحضريين الفقراء في البرازيل

حيث التعليم والبطالة والقلق والاكتئاب والعنف بين الزوجين)، والأب (من حيث الغياب عن المنزل وتعاطي المسكرات)، والأسرة (الحالة الاقتصادية والاجتماعية) واستخدموا الاستبيان الذي أعدته منظمة الصحة العالمية للإبلاغ الذاتي (SRQ-20) للتعرف على القلق أو الاكتئاب (إذا زاد الحزب عن 7). وقد تعرّفوا، من خلال تحليل التحوف اللوجستي الراجع، على العوامل المرتبطة المستقلة، وعلى التفاعلات الهامة.

الموجودات: أظهر بناء النماذج المتعددة المتغيرات أن العقاب الشديد كان عاملاً مرتبطاً مستقلاً لكل من الأمراض المصاحبة للمشكلات المستبطنة والمتخارجة، ولكنه لم يكن مصاحباً للمشكلات المستبطنة لوحدها. وأن العقاب الشديد يزيد من اختطار المشكلات الاختراجية لوحدها فقط لدى الأطفال والمراهقين الذين لم يتعرضوا لقلق الأمهات أو اكتئابهن. وأن قلق الأمهات واكتئابهن يزيد من الاختطار فقط لدى الأطفال والمراهقين الذين لم يتعرضوا لعقاب شديد.

الاستنتاج: العقاب الشديد قد يتعلق بمشكلات الصحة النفسية لدى الأطفال وبآلية تعتمد على نمط المشكلة. وتأثير العقاب الشديد يستمر بوجود عوامل تسبب الشدة الأسرية مثل غياب الأب أو قلق الأم أو اكتئابها.

الهدف: دراسة العلاقة بين أمط معينة من مشكلات الصحة النفسية لدى الأطفال والعقاب البدني الشديد مقرونة بعوامل اختطار هامة أخرى معروفة. **الطريقة:** أجرى الباحثون دراسة مستعرضة في إمبو، في ساو باولو في البرازيل، باعتبارها المكوّن البرازيلي في مسح متعددة البلدان حول سوء المعاملة في البيئة الأسرية. فمن عينة احتمالية مأخوذة من مجموعات تتضمن جميع الأسر المؤهلة للدخول بالدراسة (نساء تتراوح أعمارهن بين 15 و49 عاماً لديهن ابن أو ابنة تقل أعمارهم عن 18 عاماً) قام الباحثون باختيار عشوائي لثنائيات من أم وابن من كل أسرة (بلغ العدد 813 ومعدل الاحتكاك 17.6%). وقد ركزت هذه الدراسة على الأطفال الذين تتراوح أعمارهم بين 6 و17 عاماً (وعددهم 480 طفلاً). واستخدمت في الدراسة القائمة التلقيدية لسلوك الطفل المخصّصة للأطفال بين 6-18 عاماً، للتعرف على الأطفال الذين يعانون من مشكلات استبطنية فقط، أو مشكلات اختراجية فقط أو مشكلات استبطنية واختراجية معاً (مراضة مرافقة). وعرف الباحثون العقاب البدني الشديد بأنه الضرب بشيء أو تلقي الركلات أو الخنق أو كبت النفس أو الحرق أو السمط أو الكي بالنار أو الضرب أو التهديد بالسلاح. وقد درسوا عوامل أخرى محتملة من أربعة مجالات: الطفل (من حيث الجنس والعمر وما إذا سبق أن شاهد ممارسات العنف بين الزوجين)، والأم (من

References

1. Duarte C, Hoven C, Berganza C, Bordin I, Bird H, Miranda CT. Child mental health in Latin America: present and future epidemiologic research. *Int J Psychiatry Med* 2003;33:203-22. PMID:15089004 doi:10.2190/4WJB-BW16-2TGE-565W
2. Bordin IA, de Paula CS. Estudos populacionais sobre saúde mental de crianças e adolescentes brasileiros [in Portuguese]. In: *Epidemiologia da saúde mental no Brasil*. Mello MF, Mello AAF, Kohn R, eds. São Paulo, SP: Artmed; 2007. pp.101-117.
3. Children and mental health. In: *Mental health: a report of the Surgeon General*. Rockville, MD: United States Department of Health and Human Services, National Institute of Mental Health; 1999. Available from: <http://www.surgeongeneral.gov/library/mentalhealth/chapter3/sec1.html> [accessed on 24 February 2009].
4. Halpern R, Figueiras ACM. Influências ambientais na saúde mental da criança. *J Pediatr (Rio J)* 2004;80 suppl 2:S104-10.
5. Fleitlich B, Goodman R. Social factors associated with child mental health problems in Brazil: cross sectional survey. *BMJ* 2001;323:599-600. PMID:11557705 doi:10.1136/bmj.323.7313.599
6. Vitolo YL, Fleitlich-Bilyk B, Goodman R, Bordin IA. Parental beliefs and child-rearing attitudes and mental health problems among schoolchildren. *Rev Saude Publica* 2005;39:716-24. PMID:16254646
7. Bordin IA, Paula CS, Nascimento R, Duarte CS. Severe physical punishment and mental health problems in an economically disadvantaged population of children and adolescents. *Rev Bras Psiquiatr* 2006;28:290-6. PMID:17242808
8. Gershoff ET. Corporal punishment by parents and associated child behaviours and experiences: a meta-analytic and theoretical review. *Psychol Bull* 2002;128:539-79. PMID:12081081 doi:10.1037/0033-2909.128.4.539
9. Child abuse and neglect by parents and other caregivers. In: *World report on violence and health*. Krug EG, Dahlberg LL, Mercy JA, Zwi AB, Lozano R, eds. Geneva: World Health Organization; 2002. pp. 59-86.
10. Pan American Health Organization, Team on Violence and Injury Prevention. Child and youth health: action, research and advocacy. In: *8th Canadian Conference on International Health, Ottawa, 18-21 November 2001*. Washington, DC: PAHO. Available from: <http://www.paho.org/English/AD/DPC/NC/child-abuse-lac.htm> [accessed on 24 February 2009].
11. Pinheiro PS. Violence against children in the home and family. In: *World report on violence against children*. Geneva: United Nations Publishing Services; 2006. pp. 45-107. Available from: http://www.violencestudy.org/IMG/pdf/3._World_Report_on_Violence_against_Children.pdf [accessed on 24 February 2009].
12. Sadowski LS, Hunter WM, Bangdiwala SI, Munoz SR. The world studies of abuse in the family environment (WorldSAFE): a model of a multi-national study of family violence. *Inj Control Saf Promot* 2004;11:81-90. PMID:15370344 doi:10.1080/15660970412331292306
13. Cochran WG. *Sampling techniques*. New York, NY: John Wiley & Sons Inc.; 1977.
14. Straus MA, Hamby SL, Finkelhor D, Moore DW, Runyan D. Identification of child maltreatment with the Parent-Child Conflict Tactics Scales: development and psychometric data for a national sample of American parents. *Child Abuse Negl* 1998;22:249-70. PMID:9589178 doi:10.1016/S0145-2134(97)00174-9
15. Achenbach TM, Rescorla LA. *Manual for the ASEBA school-age forms & profiles*. Burlington, VT: University of Vermont, Research Centre for Children, Youth and Families; 2001.
16. Bordin IA, Mari JJ, Caeiro MF. Validação da versão brasileira do Child Behaviour Checklist (CBCL) (Inventário de Comportamentos da Infância e Adolescência): dados preliminares. *Revista ABP-APAL* 1995;17:55-66.
17. Brasil HHA. *Desenvolvimento da versão brasileira da K-SADS-PL* [in Portuguese]. São Paulo, SP: Universidade Federal de São Paulo; 2003.
18. *A user's guide to the Self Reporting Questionnaire (SRQ)*. Geneva: World Health Organization; 1994. p. 80.
19. Iacoponi E, Mari JJ. Reliability and factor structure of the Portuguese version of Self-Reporting Questionnaire. *Int J Soc Psychiatry* 1989;35:213-22. PMID:2583955 doi:10.1177/002076408903500301
20. Mari JJ, Williams P. A comparison of the validity of two psychiatric screening questionnaires (GHQ-12 and SRQ-20) in Brazil, using Relative Operating Characteristic (ROC) analysis. *Psychol Med* 1985;15:651-9. PMID:4048323
21. Associação Brasileira de Empresas de Pesquisa (ABEP). *Critério de classificação econômica Brasil*. 2003. Available from: http://www.abep.org/codigosguais/ABEP_CCEB_2003.pdf [accessed on 24 February 2009].
22. Goodman A, Fleitlich-Bilyk B, Patel V, Goodman R. Child, family, school and community risk factors for poor mental health in Brazilian schoolchildren. *J Am Acad Child Adolesc Psychiatry* 2007;46:448-56. PMID:17420679 doi:10.1097/chi.0b013e31803065b5
23. Bongers IL, Koot HM, van der Ende J, Verhulst FC. The normative development of child and adolescent problem behavior. *J Abnorm Psychol* 2003;112:179-92. PMID:12784827 doi:10.1037/0021-843X.112.2.179
24. Twenge JM, Nolen-Hoeksema S. Age, gender, race, socioeconomic status, and birth cohort difference on the children's depression inventory: a meta-analysis. *J Abnorm Psychol* 2002;111:578-88. PMID:12428771 doi:10.1037/0021-843X.111.4.578
25. Angold A, Erkanli A, Silberg J, Eaves L, Costello EJ. Depression scale scores in 8-17-year-olds: effects of age and gender. *J Child Psychol Psychiatry* 2002;43:1052-63. PMID:12455926 doi:10.1111/1469-7610.00232
26. Keiley MK, Lofthouse N, Bates JE, Dodge KA, Pettit GS. Differential risks of covarying and pure components in mother and teacher reports of externalizing and internalizing behavior across ages 5 to 14. *J Abnorm Child Psychol* 2003;31:267-83. PMID:12774860 doi:10.1023/A:1023277413027
27. Doyle AB, Moretti MM, Brendgen M, Bukowski W. Parent-child relationships and adjustment in adolescence: findings from the HBSY Cycle 3 and NLSCY Cycle 2 studies – Technical report to Division of Childhood and Adolescence, Public Health Agency of Canada; 2004.
28. Sarkadi A, Kristiansson R, Oberklaid F, Bremberg S. Fathers' involvement and children's developmental outcomes: a systematic review of longitudinal studies. *Acta Paediatr* 2008;97:153-8. PMID:18052995 doi:10.1111/j.1651-2227.2007.00572.x
29. Wolff JC, Ollendick TH. The comorbidity of conduct problems and depression in childhood and adolescence. *Clin Child Fam Psychol Rev* 2006;9:201-20. PMID:17053962 doi:10.1007/s10567-006-0011-3
30. Jewell JD, Stark KD. Comparing the family environments of adolescents with conduct disorder or depression. *J Child Fam Stud* 2003;12:77-89. doi:10.1023/A:1021310226400
31. McMahon RJ, Wells KC. Conduct problems. In: Mash EJ, Barkley, RA, eds. *Treatment of childhood disorders*. 2nd ed. New York, NY: Guilford Press; 1998. pp. 111-207.
32. Eisenberg N, Cumberland A, Spinrad T, Fabes R, Shepard S, Reiser M, et al. The relations of regulation and emotionality to children's externalizing and internalizing problem behavior. *Child Dev* 2001;72:1112-34. PMID:11480937 doi:10.1111/1467-8624.00337
33. Zakriski AL, Wright JC. Psychological assessment: standardized checklists obscure contextual determinants of child behavior. *The Brown University Child and Adolescent Behavior Letter* 1999;15. Available from: <http://www.childresearch.net/RESOURCE/NEWS/1999/9911.HTM#1> [accessed on 24 February 2009].
34. Feehan M, McGee R, Stanton WR, Silva PA. Strict and inconsistent discipline in childhood: consequences for adolescent mental health. *Br J Clin Psychol* 1991;30:325-31. PMID:1777754
35. Field TM, Sandberg D, Goldstein S, Garcia R, Vega-Lahr N, Porter K, et al. Play interactions and interviews of depressed and conduct disorder children and their mothers. *Child Psychiatry Hum Dev* 1987;17:213-34. PMID:3622042 doi:10.1007/BF00706447
36. Psychogiou L, Daley DM, Thompson MJ, Sonuga-Barke EJ. Mothers' expressed emotion toward their school-aged sons. Associations with child and maternal symptoms of psychopathology. *Eur Child Adolesc Psychiatry* 2007;16:458-64. PMID:17876512 doi:10.1007/s00787-007-0619-y