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Child Abuse & Neglect

Contextual predictive factors of child sexual abuse: The role of parent-child interaction[☆]

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ABSTRACT

Objectives: To determine the prevalence of child sexual abuse in the Colombian coasts, as well as to assess the role of parent-child interactions on its occurrence and to identify factors from different environmental levels that predict it.
Methods: This cross-sectional study explores the results of 1,089 household interviews responded by mothers. Descriptive analyses and multivariate logistic regressions were conducted, with child sexual abuse regressed on parent-child interactions, children's characteristics, maternal characteristics, family characteristics, and community characteristics.
Results: 1.2% of the mothers reported that their children had been sexually abused. Families that communicated with their children were less likely to report child sexual abuse, each additional standard deviation of communication reduced child sexual abuse 3.5 times. Affection and negative treatment to the children were not associated with child sexual abuse. Families who experienced intimate partner violence and violent communities were more likely to experience child sexual abuse.
Conclusions: Interventions are needed to address the problem of child sexual abuse.

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Introduction

Child sexual abuse is a worldwide public health problem. It has been defined as the use of a child for sexual gratification (Carr, 1999; WHO, 2002). Force or threats are present in many cases and the conduct is usually misunderstood by the child. Sexually abusive acts include sexual penetration, sexual touching, fondling and genital exposure (Berliner & Elliot, 2002). Child sexual abuse is not a diagnosis or a disorder; it is an adverse experience (Putnam, 2003).

Prevalence rates of child sexual abuse vary widely depending on the research methodology and the definition of child sexual abuse; they range from 4% to 60% for girls and 2% to 30% for boys (Smith & Bentovim, 1994). Many authors have discussed the importance of a clear and standardized definition of child sexual abuse not only to compare the magnitude of the phenomena but also to understand better its causes, and to develop useful interventions and treatments (Aber & Ziegler, 1981; Cicchetti & Carlson, 1989; Giovanonni, 1989, 1992; Giovannoni & Becerra, 1979; McGee & Wolfe, 1991; Straus & Gelles, 1986; Zuravin, 1991).

There is extensive literature on this topic despite the difficulty to establish reliable data (Carr, 1999). In a well known study, surveying college students from six universities in New England, USA, Finkelhor (1979) found a prevalence of sexual

abuse during childhood of 19.2% for women and 9% for men. According to Finkelhor (1994), there is enough evidence to conclude that at least 20% of women and between 5% and 10% of men in North America have experienced sexual abuse in their lifetime. Factors such as ethnicity and socioeconomic level have not been associated with child sexual abuse, while factors such as parenting styles, domestic violence, harsh punishment practices at home, and emotional deprivation have been considered risk factors (Finkelhor, 1994).

The experience of sexual abuse in early infancy and childhood impacts different dimensions of development; it is associated with short and long term consequences and many adjustment problems later in life, including depression (Browne & Finkelhor, 1986; Finkelhor & Browne, 1985), cognitive problems (Feldman-Summers & Pope, 1994; Putnam & Carlson, 1993), behavioral problems (Widom & Ames, 1994), sexual dysfunction (Namjan, Dunne, Purdie, Boyle, & Coxeter, 2006), self-awareness and affect regulation problems (Briere & Rickards, 2007), and alcohol consumption (Sartor et al., 2007). It is necessary to study the prevalence and risk factors associated to child sexual abuse, and to develop prevention and treatment programs to address this serious public health problem.

The ecological model provides a perspective to understand the occurrence of child sexual abuse. Some risk factors of child abuse have been identified through ecological studies (Belsky, 1980, 1993; Belsky & Straton, 2000; Freisthler, Merrit, & La Scala, 2006), including factors specifically associated with child sexual abuse (Bollen, 2001; Hollomotz, 2007). The ecological model comprehensively addresses the problem at different levels. It proposes that abuse arises as the result of a combination of factors from different contexts, and factors that potentiate the abuse but are not sufficient causes of it (Faller, 1989). Some of the factors that have been associated with child sexual abuse are listed below. From the victim's side, at the individual level: age, gender, health conditions, developmental stage, and behavior; at the immediate context level: parent-child interactions, family dynamics, rear practices, and exposure to domestic violence; at the broader context level: community factors, social support and family networking; and finally, at the cultural context level: beliefs, norms, and values (Belsky & Straton, 2000; Garbarino & Kostelny, 1992).

The individual factors of victims and perpetrators have been the focus of most research on this topic (Finkelhor, 1994). The immediate context, including family relations and dynamics has not been studied thoroughly, although some associations have been reported (Runyon, Kenny, Berry, Deblinguer, & Brown, 2006). Finkelhor (1993) found that limited ability to exercise the parental role was associated with child sexual abuse; Finkelhor (1994) found an association of child sexual abuse with parents' characteristics, family conflicts, family structure and family relationships; Edwards and Alexander (1992) found that families of sexually abused victims were more conflictive, more authoritarian, and had more patriarchal beliefs; Finkelhor, Ormrod, and Turner (2007) found that lack of parental monitoring, and family problems increased the rates of victimization; and Carr (1999) found using a cognitive behavioral perspective that lack of parental supervision and parental support, punitive relationships, marital dissatisfaction, and family disorganization were associated. Authors such as Hollomotz (2007) have invited to study more extensively risk factors at the family level, where most of the cases of abuse occur. The majority of the studies on the topic have been retrospective and based on a number of cases reported to the information systems. It is necessary to deepen the study of these interactions to strengthen interventions and prevention programs.

The present study sought to expand existing literature on child sexual abuse by focusing on the role of parent-child interactions on the incidence of this type of abuse in the Colombian coats. In addition to assessing the prevalence of child sexual abuse in the area, the study is unique in examining a range of child sexual abuse predictors from the family and the community contexts.

Method

Population and sample

A cross-sectional study was conducted on 1,089 families living in the Colombian coasts. Data was collected as part of a larger project called "Prevalencia y Factores Asociados al Maltrato Infantil en Comunidades de la Costa Atlantica y el Litoral Pacífico Colombianos" [Prevalence and factors associated to child abuse in communities from the Colombian Atlantic and Pacific coasts], which was carried out by two of the authors (CR and AMP) from June 2004 to September 2005. The original project selected households from three regions of the Colombian Atlantic Coast: Barranquilla, Cartagena, and Sincelejo; and three regions of the Colombian Pacific Coast: Cali, Choco, and Tumaco. The study areas included rural and urban zones. The regions were divided in geographical territories with similar characteristics as determined by an NGO working in the regions for over 40 years; these territories worked as clusters for sampling purposes. Thirty clusters were randomly selected from each of the 6 areas, and 10 households with children younger than 18 years of age were randomly selected from each of the previously chosen clusters. A final sample of 1,800 households was obtained. Families from the 1,800 households were invited to participate in the study, and 1,784 adult child-caretakers agreed to answer the survey. The response rate was 99%. For the present study a subsample of 1,089 families was included, representing families in which the survey was answered by the children's biological mother.

Procedures

The selected households were visited by qualified interviewers with previous experience applying this type of questionnaire; most of them had the equivalent of a bachelor's degree in psychology. They had received training to ensure

standardized implementation of the study procedures. Interviewer training was conducted by the principal investigators during the first phase of the project. Training included a 2-day seminar on the study protocol, the instructions for administering the questionnaire, and practical field work on the study procedures. The principal investigators designated a field supervisor per region to oversee the collection of data in the field. These supervisors were in continuous communication with the principal investigators during the data collection. The interviewers invited the families to participate in the study. Participation was completely voluntary and anonymous, only adults were allowed to answer the survey, and no incentives were provided to participating families. Any family member's disinterest in participating was ground for exclusion from the study. There were no exclusions based on ethnicity or race. All participants provided verbal informed consent for their participation. The protocol followed the international conventions for research on human subjects, and it was approved by the Committee on Research Ethics of the Universidad de San Buenaventura School of Psychology in Bogotá.

Instrument

The interviewers read all materials, including the consent document and questionnaire "Encuesta de Caracteristicas de Familias en el Litoral Pacifico y la Costa Atlantica" [Pacific and Atlantic Coast Family Characteristics Survey]. This questionnaire was based on a previously validated instrument on child abuse used by Duque, Klevens, and Ramirez (1997). Focus groups with parents and teachers, in-depth interviews with parents, and role-plays with children were conducted in the 6 study regions to adapt the instrument to the target population. The new instrument was reviewed by a panel of experts and it was piloted in a population with similar characteristics to the study population. The questionnaire was adapted to reflect regional Spanish dialects. The final instrument had 200 items. The average response time was 45 min. The items were divided in the following categories: sociodemographic characteristics of the respondent and household, beliefs, intergenerational transmission of physical abuse, domestic violence, external violence, child abuse and neglect, and child rearing practices. The instrument collected information on household characteristics and not on individual children.

Measures

The measures were divided in family level measures and community measures.

Family level measures. These measures present the characteristics of the interviewed families.

Sexual abuse. A family was considered positive for child sexual abuse if the mother reported that any of her children had been forced to engage in any of the following sexual activities: child sexual exploitation, sexual intercourse, exposure of child's genitalia for the purpose of sexual gratification, touching of the adult's sexual organs, or allowing the adult to touch their genitalia.

The measures for parent-child interaction were created using a principal components factor analysis including all the items in the questionnaire exploring the way parents treat their children The criteria included Eigenvalues greater than one and an Oblimin rotation. The factor analysis showed the presence of three different components: Positive treatment—Affection, Positive treatment—Communication, and Negative treatment.

Positive interaction—affection. It presents the family score on signs of affection to their children. This variable summarizes the mother's answers to six Likert-scale questions on the frequency of hugs, kisses, cuddles, nice words, time spend playing, and favorite food that children receive. Higher scores represent more signs of affection. The variable was normalized to facilitate interpretation.

Positive interaction—communication. It presents the family score on communication to their children. This variable summarizes the mother's answers to seven Likert-scale questions on frequency of dialogue about child feelings, child fears, child emotions, child friendships and child problems, as well as time spent listening to the children and knowledge about child whereabouts. Higher scores signify higher levels of communication. The variable was normalized to facilitate interpretation.

Negative parent-child interaction. It recognizes the families that manifest negative interactions with their children. The variable was created from a family score on negative treatment practices to their children according to the mother's perceptions. The score summarized the mother's answers to 34 Likert-scale questions measuring physical abuse, psychological abuse, and neglect. An evident cutoff point was identified on the score histogram that identified the top 20% families.

Other family level variables included in the analysis were divided in the following: children characteristics, maternal characteristics, and household characteristics. The children characteristics are a summary of the characteristics of all the children in the household. *Children's Gender—Boys* identifies the households with only boys, *Children's Gender—Girls* the households with only girls, and *Children's Gender—Both* the households with both girls and boys. *Children's Age—Preschool* identifies the households with only children under 5 years of age, *Children's Age—School* the households with only children between 5 and 12 years of age, *Children's Age—Teens* the households with only children between 13 and 17 years, and *Children's Age—Multiple* the households with children of different ages. Finally, *Number of children in household* represents the number of children – people under 18 years of age – living in the household.

The maternal characteristics present some features of the children's biological mothers. *Mother's Age* gives the age of the mother in years. *Mother's Occupation* identifies the mothers that are employed. *Mother's Education—less than Elementary* separates the mothers that did not complete elementary school, *Mother's Education—less than High School* the mothers that completed elementary school but not high school, and *Mother's Education—High School or more* the mothers that completed

high school or more. A principal components factor analysis was used to create the summarized maternal beliefs variables for analysis using Eigenvalues greater than one and an Orthogonal rotation. The factor analysis showed the presence of two different components: "Machismo" and physical punishment. Standardized individual scores on these two factors were saved as separate variables. *Mother's Beliefs—"Machismo"* loaded six items that reflected the beliefs about the supremacy of men over women, and *Mother's Beliefs—Physical Punishment* loaded six items that reflected the beliefs on the importance to use physical punishment to raise children. Finally, *Mother's Self-Reported Childhood Experience with Abuse* presents the results of a principal components factor analysis that loaded the seven items on history of child abuse on the family of origin.

The household characteristics include the following: *Family Income* presents the families that receive more than one minimum wage per month. *Family Recent Move* identifies the families that have migrated in the last year. *Family Structure—Nuclear* shows the families that have biological father and biological mother living together, and finally, *Intimate Partner Violence* is a score calculated from items reflecting intimate partner violence.

Community level measures. These measures present the characteristics of the geographical territories that worked as clusters for sampling purposes. They summarize the answers of all the interviewed households from the area.

The variables reflecting the geographical area access to public services were created summarizing the items on the family perception of public services in the area with a principal components factor analysis using Eigenvalues greater than one and an Oblimin rotation. The factor analysis showed the presence of three different components: Public Utilities, Recreation, and Health and Education. Standardized individual scores on these three factors were saved as separate variables: *Family Access to Public Utilities, Family Access to Recreation*, and *Family Access to Health and Education*. These factors were later aggregated to the cluster level to create a community level measure. *External Violence* presents a score on community fights and violent deaths aggregated to the community level. *Region* separated the household located in the Atlantic coast from those in the Pacific coast.

Analysis

The software PASW Statistics 18, PASW Statistics 20 Complex Samples module and HLM 7 were used for the analysis. First, PASW Statistics 18 was used to conduct an analysis of missing data. Missing information was found on the maternal beliefs variables—58 cases, the maternal childhood experience with abuse variable—67 cases, and the access to public services variables—78 cases. The information was not missing at random. A multiple imputation method was used to impute all the missing data. Second, descriptive statistics were calculated for all the variables using HLM 7. Third, using the complex samples module of PASW Statistics 20 the relative standard error of child sexual abuse was calculated. Fourth, bivariate correlations of all the variables at the family level were calculated using PASW Statistics 18. Finally, child sexual abuse was modeled using HLM 7 initially including child treatment variables, later adding other family level predictors and finally counting the community level characteristics. It was not possible to model slopes. The equation below shows the complete model obtained.

Level-1 Model

$$Prob(ABSEX_{ij} = 1|\beta_j) = \phi_{ij}$$

$$\log[\phi_{ij}/(1 - \phi_{ij})] = \eta_{ij}$$

$$\eta_{ij} = \beta_{0j} + \beta_{1j}(AFECTO_{ij}) + \beta_{2j}(DIALOGO_{ij}) + \beta_{3j}(MALTTO_{ij}) + \beta_{4j}(NOMENORE_{ij}) +$$

$$\beta_{5j}(AGE_{ij}) + \beta_{6j}(OCUPACIO_{ij}) + \beta_{7j}(BACHIOMA_{ij}) + \beta_{8j}(CREEMACH_{ij})$$

$$+ \beta_{9j}(CREECAST_{ij}) + \beta_{10j}(MIGRARES_{ij}) + \beta_{11j}(FAMILYST_{ij}) + \beta_{12j}(VIOLENCI_{ij})$$

Level-2 Model

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(VIOLENCI_j) + \gamma_{02}(SERVICIO_j) + \gamma_{03}(RECREACI_j) + \gamma_{04}(SALUDYED_j) + \gamma_{05}(COAST_j) + u_{0j}$$

$$\beta_{1j} = \gamma_{10}$$
$$\beta_{2j} = \gamma_{20}$$
$$\beta_{3j} = \gamma_{30}$$
$$\beta_{4j} = \gamma_{40}$$
$$\beta_{5j} = \gamma_{50}$$
$$\beta_{6j} = \gamma_{60}$$
$$\beta_{7j} = \gamma_{70}$$
$$\beta_{8j} = \gamma_{80}$$
$$\beta_{9j} = \gamma_{90}$$
$$\beta_{10j} = \gamma_{100}$$
$$\beta_{11j} = \gamma_{110}$$
$$\beta_{12j} = \gamma_{120}$$

Table 1
Descriptive statistics of variables in the models and Place of Origen.

Variable	N	Minimum	Maximum	Mean	S.D.
Level 1 – Family level					
Child sexual abuse	1,089	.00	1.00	.01	
Positive treatment – signs of affection	1,089	−.32	1.00	.73	.28
Positive treatment – communication	1,089	−.10	1.00	.49	.24
Negative treatment	1,089	−.01	.71	.05	.06
Children's gender – boys	1,089	.00	1.00	.22	
Children's gender – girls	1,089	.00	1.00	.21	
Children's gender – both	1,089	.00	1.00	.56	
Children's age – preschool	1,089	.00	1.00	.12	
Children's age – school	1,089	.00	1.00	.13	
Children's age – teens	1,089	.00	1.00	.13	
Children's age – multiple	1,089	.00	1.00	.61	
Number of children in household	1,089	1.00	13.00	2.75	1.51
Mother's age	1,089	15.00	68.00	34.80	10.06
Mother's occupation	1,089	.00	1.00	.32	
Mother's education – <elementary	1,089	.00	1.00	.31	
Mother's education – <highschool	1,089	.00	1.00	.42	
Mother's education – highschool or more	1,089	.00	1.00	.27	
Mother's beliefs – "machismo"	1,089	−3.17	2.94	.00	1.00
Mother's beliefs – physical punishment	1,089	−2.98	3.36	.00	.99
Mother's childhood experience with abuse	1,089	−3.42	3.35	.01	.96
Family income	1,089	.00	1.00	.24	
Family recent move	1,089	.00	1.00	.38	
Family structure – nuclear	1,089	.00	1.00	.59	
Intimate partner violence	1,089	−2.20	4.99	.00	1.00
Level 2 – Community level					
External violence	128	−2.40	.97	−.04	.56
Family access to public utilities	128	−1.39	1.66	.01	.66
Family access to recreation	128	−1.06	2.02	.04	.66
Family access to health and education	128	−1.74	1.19	.06	.52
Region (Atlantic = 1)	128	.00	1.00	.45	

Results

A total of 1,089 households with 2,992 children were included in the analysis. Table 1 presents the descriptive statistics of the variables included in the study. Sexual abuse was reported on 1.2% of the households. The majority of the households had children from both genders (56.3%) while 22.3% had only boys, and 21.4% had only girls. Most of them had children from different age groups (61.1%), while 12.2% had only preschool age children, 13.5% only school age children, and 13.2% only teens. On average each household had 2.75 children. The maternal age ranged from 15 to 68 years with an average of 34.8. Less than half of the mothers were employed (32%) and only 27.5% of them had completed high school. The average family income was low, with only 24% of the households securing a legal minimum wage or more. Migration among the population was high, with 38.4% of the families reporting a move in the last year. Father and mother were living with their children in 59% of the households. At the community level 45% of the clusters were located on the Atlantic Coast and the remaining 55% at the Pacific Coast.

The calculated relative standard error of child sexual abuse according with the sample design was 18.1%.

The bivariate correlations of the family level variables are presented in Table 2. They show how sexual abuse was positively associated with number of children in the household, mother's beliefs—"machismo", mother's childhood experience with abuse, intimate partner violence, and external violence. Affection and communication were negatively associated with sexual abuse, as well as mother's age, and family income. Some trends were noted, households with only boys reported less child sexual abuse, and households with more children reported more sexual abuse. Finally, negative treatment of children was not associated with sexual abuse.

Table 3 shows the results of hierarchical models predicting sexual abuse. Among the three child treatment variables included in the models, communication was the only significant predictor of sexual abuse. Parental communication was a strong protection factor against child sexual abuse when considered with other treatment variables (Model 1 in Table 3), and it remained a significant predictor of sexual abuse after controlling for other family level variables (Model 2 in Table 3), and community level characteristics (Model 3 in Table 3) (OR = 0.02) (see Table 3).

None of the family level child characteristics included in the models were significant, nor did they improved or changed the models; for this reason and to avoid over-specification, these characteristics were excluded from the analysis. The same situation was true for mother's education, income, and mother's self-reported childhood experiences with abuse.

The family characteristics predicting sexual abuse were occupation, mother's beliefs in "Machismo", and intimate partner violence. Older mothers were less likely to report child sexual abuse (OR = 0.89), employed mothers were more likely to report child sexual abuse (OR = 3.90), mothers that believe on machismo were more likely to report child sexual abuse (OR = 2.37),

Table 2
Bivariate correlations of the variables in the model.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1. Sexual abuse	1																					
2. Positive treatment – signs of affection	−.07*	1																				
3. Positive treatment – communication	−.11***	.44***	1																			
4. Negative treatment	.03	−.08†	−.10**	1																		
5. Children's gender – boys	−.06†	.06*	.05	−.02	1																	
6. Children's gender – girls	.03	.04	−.02	.02	−.28***	1																
7. Children's gender – both	.03	−.08**	−.02	.00	−.61***	−.59***	1															
8. Children's age – preschool	−.04	.22***	−.03	.09**	.12***	.21***	−.27***	1														
9. Children's age – school	−.02	.04	.04	−.01	.19***	.06*	−.21***	−.15***	1													
10. Children's age – teens	.03	−.24***	.00	.00	.10**	.14***	−.20***	−.15***	−.15***	1												
11. Children's age – multiple	.02	−.01	−.01	−.05	−.28***	−.28***	.47***	−.47***	−.49***	−.49***	1											
12. Number of children in household	.06†	−.12***	−.11***	.07*	−.32***	−.33***	.55***	−.30***	−.28***	−.26***	.57***	1										
13. Mother's age	−.07*	−.28***	−.01	−.03	−.06†	−.03	.07*	−.35***	.02	.27***	.04	.07*	1									
14. Mother's occupation	.03	−.05	.09**	−.01	−.05	−.01	.05	−.06†	−.01	.02	.03	.02	.19***	1								
15. Mother's education – < elementary	.06†	−.18***	−.12***	−.02	−.04	−.04	.06*	−.12***	−.01	.04	.06*	.17***	.20***	.03	1							
16. Mother's education – < highschool	−.02	.02	−.02	.05	.00	−.03	.03	−.01	−.02	−.02	.04	.03	−.08*	−.08**	−.56***	1						
17. Mother's education – highschool or more	−.03	.17***	.14***	−.08*	.04	.08*	−.10**	.13***	.04	−.02	−.11***	−.21***	−.12***	.06†	−.41***	−.52***	1					
18. Mother's beliefs – "machismo"	.10**	−.12***	−.17***	.02	−.01	−.02	.03	−.04	−.05†	.03	.05	.14***	.12***	.02	.33***	−.02	−.32***	1				
19. Mother's beliefs – physical punishment	.03	−.16***	−.10**	.10**	−.12***	−.05	.14***	−.06*	−.02	.00	.06*	.12***	.11***	−.01	.11***	−.02	−.09**	−.07*	1			
20. Mother's childhood experience with abuse	.08*	−.04	−.05	.13***	−.06*	−.03	.07*	.01	.08**	.00	−.07*	.03	−.05	.00	.02	.02	−.04	−.13***	.12***	1		
21. Family income	−.06*	.00	.04	−.02	.05	.03	−.06*	−.02	.03	.05†	−.05	−.03	.02	.14***	−.12***	−.02	.15***	−.09**	.04	−.01	1	
22. Family recent move	.02	.14***	.01	.06†	.03	.01	−.03	.21***	−.03	−.11***	−.04	−.06*	−.28***	−.02	−.06†	.05	.01	.00	−.03	.06*	.00	1
23. Family structure – nuclear	−.03	.06*	−.01	.00	.06†	.08**	−.11***	.12***	.05	.06†	−.15***	−.20***	−.04	−.06*	−.04	.00	.04	.06†	−.07*	−.01	.10**	.05

† $p < 0.1$.
*** $p < 0.001$.
** $p < 0.01$.
* $p < 0.05$.

Table 3
Hierarchical logistic models of child sexual abuse on child's treatment.

Fixed effect	Model I					Model II					Model III				
	Coef.	S.E.	Sig.	OR	95% CI	Coef.	S.E.	Sig.	OR	95% CI	Coef.	S.E.	Sig.	OR	95% CI
Positive treatment – signs of affection, γ_{10}	−0.48	1.07		0.62	(0.08, 5.08)	−0.20	0.82		0.82	(0.16, 4.13)	−0.61	0.84		0.54	(0.10, 2.83)
Positive treatment – communication, γ_{20}	−4.91	1.59	**	0.01	(0.00, 0.17)	−2.71	0.94	**	0.07	(0.01, 0.42)	−3.92	1.00	***	0.02	(0.00, 0.14)
Negative treatment, γ_{30}	1.29	1.42		3.63	(0.22, 59.25)	−0.10	1.41		0.91	(0.06, 14.46)	−1.05	1.62		0.35	(0.02, 8.39)
Number of children in household, γ_{40}						0.09	0.09		1.09	(0.92, 1.30)	0.02	0.11		1.02	(0.83, 1.27)
Mother's age, γ_{50}						−0.09	0.02	***	0.91	(0.88, 0.95)	−0.12	0.03	***	0.89	(0.84, 0.94)
Mother's occupation, γ_{60}						1.33	0.54	*	3.79	(1.32, 10.84)	1.36	0.64	*	3.90	(1.12, 13.65)
Mother's beliefs – "machismo", γ_{80}						0.66	0.23	**	1.96	(1.22, 3.03)	0.86	0.31	**	2.37	(1.28, 4.35)
Mother's beliefs – physical punishment, γ_{90}						−0.06	0.20		0.94	(0.64, 1.39)	−0.12	0.22		0.89	(0.58, 1.36)
Family recent move, γ_{100}						−0.10	0.55		0.91	(0.31, 2.66)	−0.10	0.63		0.90	(0.26, 3.09)
Family structure – nuclear, γ_{110}						0.08	0.59		1.08	(0.34, 3.43)	−0.05	0.67		0.95	(0.26, 3.52)
Intimate partner violence, γ_{120}						0.55	0.11	***	1.72	(1.39, 2.17)	−0.55	0.12	***	1.73	(1.38, 2.18)
Intercept1, β_0	−5.11	0.52	***	0.01	(0.00, 0.02)	−5.69	0.25	***	0.00	(0.00, 0.01)					
Intercept2, γ_{00}	–	–	–	–	–	–	–	–	–	–	−6.59	0.47	***	0.00	(0.00, 0.00)
External violence, γ_{01}	–	–	–	–	–	–	–	–	–	–	0.01	0.33		1.01	(0.52, 1.95)
Access to public utilities, γ_{02}	–	–	–	–	–	–	–	–	–	–	−0.41	0.23	†	0.67	(0.42, 1.05)
Access to recreation, γ_{03}	–	–	–	–	–	–	–	–	–	–	0.13	0.38		1.14	(0.53, 2.43)
Access to health and education, γ_{04}	–	–	–	–	–	–	–	–	–	–	−1.30	0.38	**	0.27	(0.13, 0.59)
Region, γ_{05}	–	–	–	–	–	–	–	–	–	–	1.49	0.60	**	4.44	(1.35, 14.65)
Random effect	Variance	χ^2	Sig.			Variance	χ^2	Sig.			Variance	χ^2	Sig.		
Intercept1, u_0	0.02	90.2				0.75	58.65				0.84	54.41			
Model reliability	2%					53%					66%				

All the models correspond to population models with robust standard errors.

† $p < 0.1$.
*** $p < 0.001$.
** $p < 0.01$.
* $p < 0.05$.

and families that suffered intimate partner violence were more likely to report child sexual abuse (OR = 1.73). All of them remained significant after controlling for community factors. The community characteristics that predicted child sexual abuse were access to health and education and region. Families from areas with greater access to health and education were less likely to report child sexual abuse (OR = 0.27). Families living in the Atlantic Coast were more likely to report child sexual abuse (OR = 4.44). Access to public utilities presented a trend showing families with access to public utilities less likely to report child sexual abuse (OR = 0.67).

Discussion

The current study examined the prevalence and predictors of child sexual abuse among households in the Atlantic and Pacific coasts of Colombia with a special focus on the role that parent-child interaction plays on the abuse. To the best of the authors' knowledge, this investigation is the first to examine factors that predict child sexual abuse using a population-based representative sample of households in Latin America.

A prevalence of child sexual abuse of 1.2% seems low when compared with what has been reported in the literature (Finkelhor, 1979, 1993, 1994). Nonetheless, it is necessary to consider the working definition of child sexual abuse adopted in this study. It limits sexual abuse to serious events that were both recognized and reported by mothers, that is, the definition only covers cases of child sexual abuse in which the victim's mother was both aware of the event, and willing to report it to the interviewer.

Parental communication was the only factor of parent-child interaction associated with child sexual abuse. It was found to be a strong protection factor against this type of abuse. Consistent with different theoretical approaches of parent-child interaction (Collins, Maccoby, Steinberg, Hetherington, & Bornstein, 2000) and parenting styles (Baumrind, 1995; Belsky & Jaffe, 2006), which state that communication and good parenting can be protective factors for child abuse including sexual abuse, and could be moderators of the effect of any of these experiences (Zielinsky & Bradshaw, 2006), children from households in which parents regularly ask questions and listen to their children are significantly less likely to become victims of child sexual abuse. It seems reasonable that parents who communicate regularly with their children are more likely to identify potential risks of child sexual abuse before these risks materialize. On the other hand, children who communicate more often with their parents may become better equipped to fend off situations leading to child sexual abuse. In the authors' opinion, the impact of parental communication as a protection factor against child sexual abuse works through a combination of these two mechanisms. This finding is also consistent with previous studies showing that adequate parenting behaviors are necessary for adjustment of children and are protective factors for child sexual abuse. Lack of communication as a family characteristic may be related with parenting style and less child supervision (Conger et al., 1992).

On the other hand parental affection failed to predict child sexual abuse. This is not surprising, as signs of affection may respond to different motives and they may be interpreted in different ways. Signs of affection in most cases genuinely reflect the presence of loving parents, who are more likely to protect their children and prevent all forms of abuse, including sexual abuse. However, parental signs of affection may reflect a different reality; sexually abusing adults are in many cases the victim's parents or close relatives, who may manifest signs of affection in public and perpetrate abuses in private. Moreover, signs of affection may be part of the abuser's strategy to limit the negative consequences within the family or the community – including criminal prosecution – which may result from sexual abuse. In sum, parental signs of affection are not a predictor of child sexual abuse.

Another salient finding is the absence of association between sexual abuse and Negative parent-child interaction (physical abuse, psychological abuse, and neglect). Child sexual abuse appears to be a different phenomenon than other forms of child abuse, possibly responding to different causes and cultural influences, as has been described by other authors (Finkelhor, Ormrod, Turner, & Hamby, 2005).

Children characteristics failed to predict child sexual abuse. Nonetheless, since this study did not consider each child individually but rather a summary of the characteristics of all children in the household, this finding is not conclusive – further research is needed to explore the association between child characteristics and child sexual abuse.

The family characteristics that showed an association with child sexual abuse were maternal age and occupation. Older mothers were less likely to report child sexual abuse. Either the older mothers do not know about the abuse or they are less willing to report it, or they are less likely to have sexually abused children. In the authors' opinion, this result is most likely explained by underreporting of abuses by older mothers, although the other two possibilities may not be discarded based on the available evidence. Employed mothers were more likely to report child sexual abuse; this finding is probably explained by the increased exposure to risk due to lack of supervision derived from the maternal absence from home during working hours.

This study also sheds new light on the association between violence and child sexual abuse. Intimate partner violence was associated with child sexual abuse. Consistent with ecological theory, more violent environments make more difficult to prevent, identify and control child abuse, including child sexual abuse. Previous research has shown similar findings (Freisthler et al., 2006).

Other family characteristics, including income, migration, family structure, access to public utilities, health and recreation services, were not found to predict child sexual abuse.

The community characteristics that predicted child sexual abuse were access to health and education, and region. Access to health and education were found to act as protection factors against this type of child abuse. Consistent with family stress

theory and ecological theory, higher access to health and education reduce the family stressors and enable better handling of situations of conflict within the family, which in turn reduce the likelihood of abuse. On the other hand, this finding may also reflect in part the deterrent effect of children's exposure to health and education professionals on potential sexual abusers, including family members, given the legal mandate for these professionals to report abuses to criminal prosecution authorities.

An association was found of a higher prevalence of child sexual abuse in the Atlantic coast than in the Pacific coast of Colombia. This may be due to cultural contextual factors that are reported to be predictive, such as differences in belief systems within culture that legitimate some of this practices, in patriarchal societies where power may be demonstrated by sexual abuse (Faller, 1989; Cicchetti & Lynch, 1993; Bolen, 2001).

Strengths and limitations

The current findings expand the literature on protective and risk factors associated with child sexual abuse in Colombia. Since other countries in Latin America share many cultural and socioeconomic characteristics, including severe income inequalities and high rates of crime and violence (Agrast, Botero, & Ponce, 2011), it is likely that this study's findings may describe a situation that is common to other countries in the region.

As stated above, this study is probably the first to examine factors that predict child sexual abuse using a population-based sample in the region. The sample was representative of the population, the instrument was carefully built, and the interviewers were qualified to apply it.

However, the following limitations must be noted. First, the research was cross-sectional, so no causal direction should be inferred from detected relationships. Second, variables were derived exclusively from the mother's report. This information is subject to response bias, as it may be affected by maternal psychological wellbeing; it was not possible to control for this factor with available data. Third, the unit of analysis for child sexual abuse and other children characteristics was the household and not the individual. Thus, the analysis of the association between child characteristics and child sexual abuse is very limited. Fourth, variables are proxies for the concepts they represent. Child sexual abuse is limited to serious cases recognized and reported by the mothers to the interviewers. This measure ignores cases unknown or not reported by the mothers, as well as situations that may constitute child sexual abuse under a broader definition.

Programmatic and policy implications

The presence of child sexual abuse on the study population is clear and requires action. Considering the innumerable negative and in many cases permanent effects that this type of abuse leaves in children (Cohen & Mannarino, 1988; Hébert, Parent, Daignault, & Tourigny, 2006; Kendall-Tackett, Williams, & Finkelhor, 1993; Putnam, 2003; Ramírez, 2008), it is imperative to develop population measures to prevent this phenomenon in the Colombian coasts. Despite its limitations, this study has implications for programs and policies designed to reduce the prevalence of child sexual abuse.

The high impact of communication as a protection factor against child sexual abuse suggests that policies designed to address child sexual abuse should include intervention measures focused on enhancing dialogue among parents and children.

The lack of association between sexual abuse and other forms of child abuse suggests that policies and intervention measures addressed to combating child abuse broadly may not necessarily contribute to address child sexual abuse; cultural elements and beliefs among the target population must be taken into account.

Another implication of this study is that policies aimed at combating child sexual abuse should consider measures to increase supervision of children of working mothers.

Finally, policies aimed at improving the characteristics of the external environment in families and communities, including prevention of intimate partner violence and community violence and better access to health and education services, may also contribute to reduce the incidence of child sexual abuse.

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