Child Maltreatment in Puerto Rico: Findings from the 2010 National Child Abuse and Neglect Data System

Kanako Ishida, PhD*; Joanne Klevens, MD, MPH, PhD†; Brenda Rivera-García, DVM, MPH‡; Brenda Mirabal, MD, MPH§

Objective: Child maltreatment can have long-term adverse effects. Quantifying the scope and characteristics of child maltreatment is necessary for effective prevention in Puerto Rico.

Methods: The National Child Abuse and Neglect Data System Child File contains all the reports of child maltreatment from the United States (US) and Puerto Rico. A child maltreatment victim is defined as a child whose maltreatment was substantiated or indicated by the local child protective agency. We compared reporting and victimization rates and reporting sources in Puerto Rico, with those in the US and examined characteristics of child maltreatment in Puerto Rico.

Results: During 2006-2010, a total of 31,849-40,712 cases of child maltreatment were reported annually in Puerto Rico. Victimization rates are consistently higher in Puerto Rico than in the US (10.7/1,000-14.8/1,000 in Puerto Rico vs. 10.1/1,000-12.1/1,000 in the US), despite consistently lower reporting rates. In 2010, victimization rates were highest among children aged 1-6 years. In Puerto Rico, neglect is the most common form of maltreatment, followed by emotional abuse; however, the majority of victims suffered multiple types of abuse. Reporting was more commonly anonymous in Puerto Rico (29.8%) than in the US (9.4%) and less commonly provided by professionals in Puerto Rico (37.2%) than in the US (58.7%).

Conclusion: We identified a high prevalence of child maltreatment in Puerto Rico. A lower reporting rate, higher victimization rate, and substantial percentage of anonymous reporting indicate potential underreporting of child maltreatment in Puerto Rico. Increasing the awareness and training professionals for improved child maltreatment identification could help alleviate the problem of underreporting. [*P R Health Sci J 2013;3:124-131*]

Key words: Child maltreatment, Child abuse, The National Child Abuse and Neglect Data System

Child maltreatment negatively affects the well-being of children, and the adverse effects can extend into adulthood. Studies have reported that child maltreatment victims tend to have poor physical (1) and mental health, suffer from suicidal ideation or have attempted suicide (2), and suffer from depression (3), even into adulthood. Alcoholism, drug use (4), risky sexual behaviors —e.g., early sexual debut (5) and multiple sexual partners (6), and unwanted pregnancies (7) have also been documented among victims. Child maltreatment starts, and can perpetuate, a cycle of violence. Victims are at high risk for becoming abusive towards their own children (8) and incurring other types of violence—e.g., peer violence (9) and sexual assault (10), which are risk factors for juvenile and adult violence and crime (11). Puerto Rico has had an average homicide rate of 19/100,000 residents during 1980–2005, the highest rate in all the states and territories of the United States (US), and this rate is rising (12). To create a healthier society in Puerto Rico, alleviating the preventable problem of child maltreatment is imperative. However, quantitative studies documenting the magnitude and characteristics of maltreatment in Puerto Rico do not exist. The objective of this article is to present the prevalence, characteristics, and sources of reports of child maltreatment, highlighting some differences based on comparison with those in the US.

*Epidemic Intelligence Service, Centers for Disease Control and Prevention, Atlanta, Georgia, United States of America, Puerto Rico Department of Health, San Juan, Puerto Rico; †Division of Violence Prevention, Centers for Disease Control and Prevention, San Juan, Puerto Rico; ‡Puerto Rico Department of Health; §School of Medicine, University of Puerto Rico Medical Sciences Campus, San Juan, Puerto Rico

The authors have no conflicts of interest to disclose.

Address correspondence to: Kanako Ishida PhD, Division of Applied Sciences, Scientific Education and Professional Development Program Office, Centers for Disease Control and Prevention, 1600 Clifton Road, E-92, Atlanta, GA 30333. Email: kanakoi@ucla.edu

Methods

This study used data from the National Child Abuse and Neglect Data System (NCANDS), which is a voluntary data collection system of reported cases of child maltreatment from all 50 states, the District of Columbia, and Puerto Rico. This system was created in 1974 in response to the Child Maltreatment Prevention and Treatment Act (13). The Department of the Family, the local child protective services agency in Puerto Rico, began submitting the Detailed Case Data Component (DCDC) to NCANDS in 2006. This study used DCDC data from the 2010 NCANDS, except for the trend analysis, which used all available years beginning with 2006. NCANDS' DCDC data are grouped by fiscal year; the units of observation are report-child pairs, i.e., a report can represent more than 1 child, and a child can appear in more than 1 report. For example, if a single child was reported three times on different dates, the child appears in three reports resulting in three report-child pairs; however, if three children were reported on a single occasion, the number of report-child pairs is three but the number of reports is only one. This study used the report-child pair as a unit of analysis to better describe the magnitude of maltreatment and their characteristics except for victim's age, where the unit of analysis is the child and for reporting sources, where the unit of analysis is the report.

Reporting sources are the categories or roles of persons who reported suspected child maltreatment cases to the Department of the Family. The four main groupings of reporting sources are professional, nonprofessional, anonymous, and other. Professional sources are grouped into the following four major sectors: education, medical, legal/police, and social services. The education sector consists of persons working in educational institutions or programs and includes teachers, administrative staff, or any person who provides educational services. The medical sector consists of persons who work in medical and dental facilities and includes doctors, nurses, technicians, emergency room staff, pathologists, dentists, and dental assistants. The legal/police sector consists of justice department and correctional facility employees and includes police officers, judges, and lawyers. The social services sector represents public and private social service agencies (e.g., social workers and counselors). Other professional sources not grouped into the major sectors include mental health services staff and child care providers. The nonprofessional category includes victims' parents, relatives, and friends or neighbors. When the person reporting the suspected maltreatment did not identify him- or herself, the reporting source was categorized as anonymous. Reports by victims, alleged perpetrators, and unclassified sources are grouped into a single category as other. NCANDS categorizes child maltreatment into the following five types: physical, sexual, emotional or psychological abuse, negligence (deprivation of needs), and medical negligence. Because a limited number of medical negligence was reported, this category is included under negligence for this study.

In Puerto Rico, the Well-being and Comprehensive Child Protection Act (PR Act 177, August 3, 2003) defines child maltreatment as "any act or deliberate omission incurred by the father, mother, or person responsible for the minor… that leads to or puts the minor at risk for loss or damage to their physical, mental and/or emotional health and integrity, including sexual abuse." In the same act, "negligence" is defined as "to fail to complete the duties to adequately provide food, clothing, shelter, education, and health care to the minor, to fail the duty of supervision, to fail to visit the minor or to fail to maintain frequent contact or communication with the minor." "Emotional abuse" is defined as "impairment of intellectual or emotional capacity of the child given his or her age and cultural environment." "Physical abuse" is not specifically defined as such in the same act, but broadly interpreted as any act that causes or has a potential to cause "physical damage," which is defined in the act as "any trauma, non-accidental injury, or condition that could result in death, disfigurement, illness, or the temporary or permanent disability of any part or function of the body in a single or multiple episodes." Finally, "sexual abuse" is defined as "engaging in sexual conduct in the presence of a child or using a child to perform sexual acts in order to satisfy one's lust." "Child" is defined as anyone who is aged 0–17 years. If an official investigation validates maltreatment as defined by the law, the case disposition is said to be "substantiated." If it is suspected that the child was maltreated or is at risk of being maltreated but insufficient legal evidence exists, the disposition is said to be "indicated." As is the case with the majority of the states in the US, Puerto Rico does not use the "indicated" disposition. Some states also have an additional category, "alternative response victim," which is used when the local child protective services agency provides services to a child who is at low risk of maltreatment. If insufficient information or evidence to warrant suspicion is determined, the case disposition is said to be "unsubstantiated." Other dispositions include the following: "alternative response disposition nonvictim," "intentionally false," and "closed without finding." NCANDS defines children involved in either substantiated, alternative response victim, or indicated cases as "victims" (13).

The indicators used with these analyses are rates of report and victimization. The rates for 2010 use estimates on the basis of the 2010 United States census; the rates for 2006–2009 use the annual 2000 census projections. The report rate is calculated by dividing the total number of report-child pairs by the population aged 0–17 years and expressed as the number of report-child pairs per 1,000 children aged 0–17 years in Puerto Rico and in the US (US rates exclude Puerto Rico). The victimization rate is calculated by dividing the total number of victims (report-child pairs) by the population aged 0–17 years and expressed as the number of victims per 1,000 children.

This study underwent review by the Scientific Education and Professional Development Program Office human subjects protection coordinator of the Centers for Disease Control and Prevention (CDC). This study was determined to be a non-research public health surveillance activity and thus exempt from the CDC's IRB review.

Results

Substantiation, reporting, and victimization

The number of report-child pairs reported by Puerto Rico ranged from 31,849 to 40,712 annually, during 2006–2010 (Table 1). In 2009 and 2010, a substantial proportion of reports from Puerto Rico lacked information regarding case disposition. Among report-child pairs for which information regarding case disposition was available, the victimization percentage ranged from 32.6% to 47.3%. These percentages are consistently and, in a limited number of occurrences, substantially, higher than the percentages calculated for the US during the same period. However, reporting rates are consistently lower in Puerto Rico (31.3/1,000–42.2/1,000, compared with 47.5/1,000–49.2/1,000 in the US). Finally, despite having a low reporting rate, the victimization rate is consistently higher in Puerto Rico—ranging from 10.7/1,000 to 14.8/1,000 compared with the US, which ranged from 10.1/1,000 to 12.1/1,000.

Types of maltreatment

The most common type of maltreatment in Puerto Rico in 2010 was negligence, with a rate of 6.2 males/1,000 and 6.4 females/1,000 (Table 2). This was followed by emotional abuse (4.2 males/1,000 and 4.4 females/1,000), physical abuse (2.7 males/1,000 and 2.8 females/1,000), and, finally, sexual abuse (0.1 males/1,000 and 0.4 females/1,000). The only notable difference among types of maltreatment between males and females involved sexual abuse, with a rate that was four times greater among females than among males. A majority of victims suffered from more than one type of maltreatment. This tendency was especially marked in the victims of physical abuse: 71.2% of physically abused males and 72.1% of physically abused females suffered at least 1 other form of maltreatment. Victims of negligence were the least likely to suffer from other forms of maltreatment (40.1 % among males and 41.0 among females).

Figure 1 presents a graph of victimization rates by age and sex in Puerto Rico and the US for 2010. In Puerto Rico, reports of maltreatment most commonly involved preschool children aged 1–6 years, peaking at age 2 for both males and females. The age pattern differed substantially from that of the US, where peaks occurred during the first year of life. In both jurisdictions, victimization rates among males steadily decreased after the peaks. Before the age of 12, males and females in both jurisdictions had similar rates. However, after age 12, the victimization rate among females was higher than that among males.

Figure 2 displays victimization rates among children by type of maltreatment and age. For all types of maltreatment except sexual abuse, the victimization rates increased from 0 to 2 years of age, remained high during preschool age (<5 years), and then dropped for both males and females after reaching 6 years of age. However, rates increased again at around 11 years of age among girls. The increase in the rates of negligence toward females is particularly notable during adolescence (ages 13–15 years).

Figure 3 displays the percentage distribution of perpetrators by type of maltreatment. The predominant perpetrator for negligence (72.8%), emotional abuse (45.1%), and physical abuse (63.5%) was the mother, followed by the father. This was followed by both parents for negligence and stepfathers for emotional and physical abuse. Regarding sexual abuse, the most frequent perpetrators were the stepfather (36.6%), the father (34.9%), and the mother (11.8%).

Table 1. Percentage of victimization and rates of reporting and victimization in Puerto Rico (PR) and the US, 2006-2010

	2006		2007		2008		2009		2010	
	PR	US	PR	US	PR	US	PR	US	PR	US
Victims	15,066	870,615	10,696	740,342	14,109	744,180	11,891	888,751	11,723	741,932
Nonvictims	16,780	2,589,922	22,071	2,579,966	21,681	2,849,108	20,695	2,703,012	18,920	2,825,922
Without information	3	19,204	43	6,177	109	6,272	8,126	3,211	1,847	3,756
Child population	1,018,291	72,226,694	1,002,044	70,063,873	982,273	72,601,265	963,847	74,548,215	903,295	73,278,172
Victimization percentage	47.3	25.2	32.6	22.3	39.4	20.7	36.5	24.7	38.3	20.6
Report rate	31.3	48.2	32.7	47.5	36.5	49.6	42.2	48.2	36.0	49.2
Victimization rate	14.8	12.1	10.7	10.6	14.4	10.3	12.3	11.9	13.0	10.1
Total	**31,849**	**3,479,741**	**32,810**	**3,326,485**	**35,899**	**3,599,560**	**40,712**	**3,594,974**	**32,490**	**3,604,100**

Note: Victimization percentage is the number of victims ÷ (victims + nonvictims). Report rate is total ÷ child population X 1,000. Victimization rate is number of victims ÷ child population X 1,000. All numbers for the US exclude Puerto Rico. For 2006 and 2007, 49 states and the District of Columbia are included; and for 2008–2010, 50 states and the District of Columbia are included.

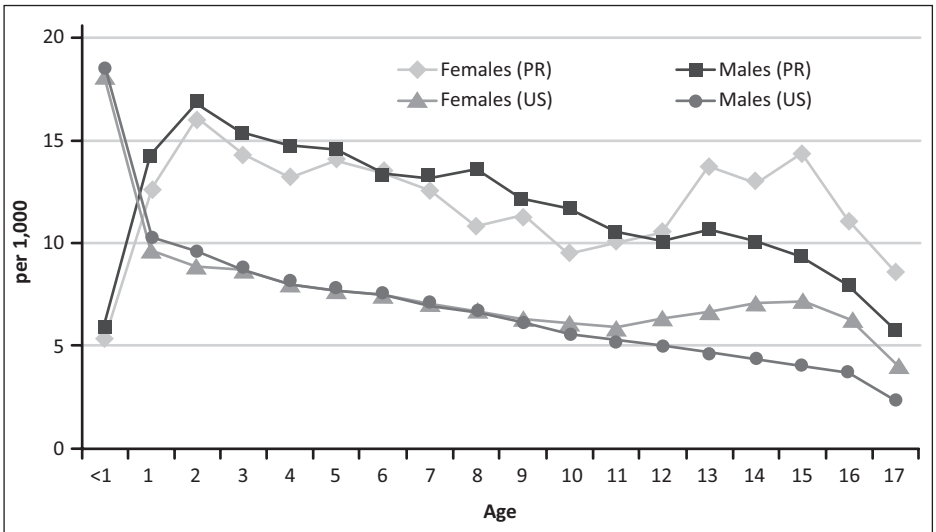
Table 2. Victimization rates among children by type of maltreatment and percentage with other types of maltreatment in Puerto Rico, 2010

	Negligence		Emotional abuse		Physical abuse		Sexual abuse	
	Males	Females	Males	Females	Males	Females	Males	Females
Victimization rate	6.2	6.4	4.2	4.4	2.7	2.8	0.1	0.4
Percentage of victims of other types of maltreatment	40.1	41.0	59.8	59.6	71.2	72.1	50.9	66.5
Percentage of victims of negligence	-	-	44.5	43.4	47.3	47.1	49.1	56.5
Percentage of victims of emotional abuse	30.2	30.0	-	-	48.8	51.7	15.8	21.5
Percentage of victims of physical abuse	20.6	20.6	31.3	32.7	-	-	49.1	56.5
Percentage of victims of sexual abuse	0.9	3.5	0.4	1.9	0.3	2.0	-	-
Total	**3,070**	**3,088**	**2,081**	**2,135**	**1,335**	**1,349**	**57**	**191**

Note: The unit of observation is the report-child pair. Children (report-child pairs) without information regarding the type of maltreatment are excluded from the denominator. Victimization rate is calculated as number of victims (report-child pairs) per 1,000. Population consists of 492,412 males and 480,273 females.

Report sources

Figure 4 displays the percentage distribution for sources of maltreatment reports in Puerto Rico and the US. A substantial difference between these two jurisdictions regarding the percentage of anonymous reports was noted. In Puerto Rico, 29.8% of reports were anonymous versus only 8.8% in the US. The percentage of reports by health professionals was limited in both jurisdictions, with 7.5% in Puerto Rico and 8.7% in the US. With the exception of reports by medical professionals, report percentages of reports from each professional group were lower in Puerto Rico than in the US, particularly those from legal/police professionals and from social services personnel. The percentage of reports from all professional sources was 37.2% in Puerto Rico and 58.7% in the US.



Note: The unit of observation is the child. Children without information regarding age are excluded from the denominator. Total numbers of children are 5,246 females and 5,316 males for PR and 274,401 females and 258,309 males for the US.

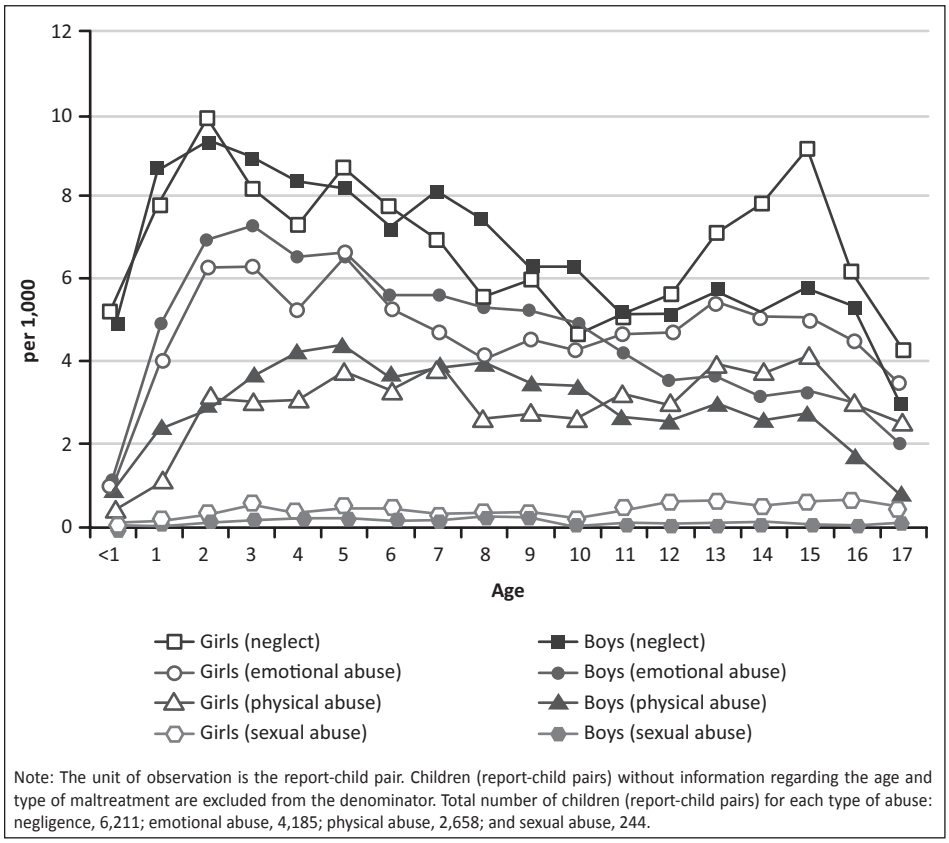
Figure 1. Rate of victimization among children by age in Puerto Rico (PR) and the US, 2010

Conclusions and discussion

In Puerto Rico during 2006–2010, from 10.7 to 14.8 maltreatment cases/1,000 children were substantiated, and victimization rates were consistently greater than those in the US. In 2010, Puerto Rico ranked 16th among 52 US jurisdictions in terms of child maltreatment victimization (13). In Puerto Rico, high victimization rates combined with consistently lower reporting rates are worrisome because they may suggest that only severe cases of maltreatment are being reported to the child protective services agency and that less severe cases fail to be reported. In addition, a lower percentage of child maltreatment reports from professional sources and a higher percentage of anonymous reports were documented in Puerto Rico. The fact that the reporting rates in Puerto Rico are lower than those in the US suggests that professionals may be underreporting child maltreatment. If professionals with close or frequent contact with children were to report a greater number of cases, the victimization rate might be even greater.

Similar to what has been observed in the US, negligence was the form of maltreatment most commonly reported in Puerto Rico. The majority of victims in Puerto Rico suffered multiple types of maltreatment. Among neglect and emotional and physical abuse cases, perpetrators were most commonly mothers; perpetrators were most commonly fathers or stepfathers in sexual abuse cases.

The highest victimization rates in Puerto Rico were documented among children aged 1–6 years, with rates of neglect and emotional abuse being highest. Victimization rates for all types of abuse except sexual abuse decreased after this age, but among females increased again during adolescence. In the US, maltreatment patterns were different from those observed in Puerto Rico, with infants in particular having the highest

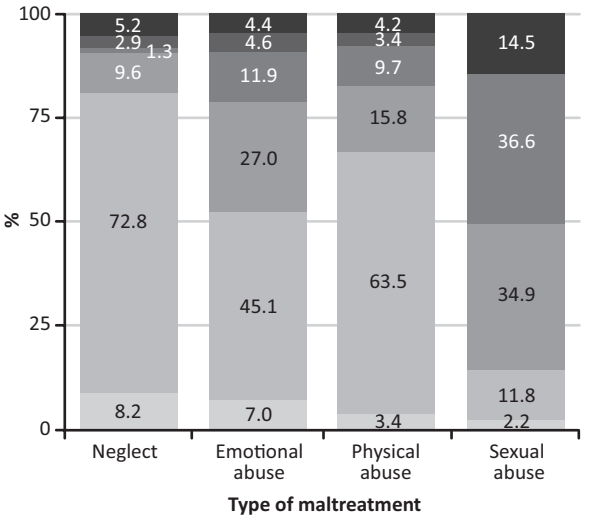


Note: The unit of observation is the report-child pair. Children (report-child pairs) without information regarding the age and type of maltreatment are excluded from the denominator. Total number of children (report-child pairs) for each type of abuse: negligence, 6,211; emotional abuse, 4,185; physical abuse, 2,658; and sexual abuse, 244.

Figure 2. Rate of victimization among children by type of maltreatment and age in Puerto Rico, 2010

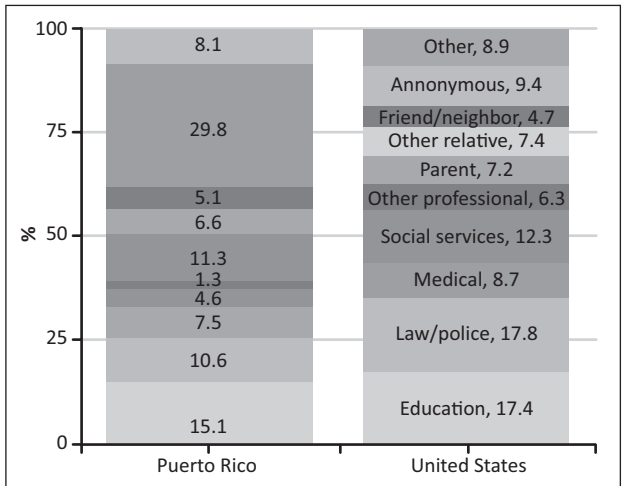
rate of victimization of all US children. Our auxiliary analysis of the 2010 NCANDS data shows that the most common type of child maltreatment among US infants is also neglect (83.9%) and that the most common reporting source among abused infants is medical professionals for both Puerto Rico (27.0%) and the US (27.5%) probably because of the frequent contact through well-baby checkups and routine vaccinations in the first year of life. There are several potential explanations for the substantial difference in infant victimization between Puerto Rico and US. The first relates to the definition of child maltreatment. Child maltreatment, neglect in particular, may be more broadly interpreted for small children, not only by medical professionals but also, generally, in the US when compared with Puerto Rico. For example, Puerto Rico categorizes abandonment separately from neglect while 32 states label abandonment as a form of neglect (14). In addition, in some states, positive perinatal maternal or neonatal illicit-drug test results are routinely reported to child protective services agencies as child neglect. Though the prevalence of fetal exposure to illicit drugs has not been well documented, a multi-state study shows that 13% of mothers had a history of drug abuse, and 59% of these reported having used drugs during pregnancy (15), suggesting that fetal exposure may be one of the important factors for the high victimization rate among US infants; drug use during pregnancy, perinatal toxicology testing, and the reporting of positive results to child protective services agencies all may be less frequent in Puerto Rico. The second relates to potential differences in reporting practices rather than a "true" difference in victimization rates. In the US when compared with PR, mothers, the most common infant caretakers, may be under greater scrutiny by mandated reporters through routine medical check-ups, child care services, and outreach activities by social workers, particularly during the first year of a child's life. Finally, US infants may be at greater risk for child maltreatment, particularly neglect, than are their Puerto Rican counterparts because of the lack of social support outside the nuclear family during that first, most intense child-rearing year. However, a conclusive determination of the relative importance of these three scenarios is not possible with the available data and is an important avenue for the future study.

The findings of this study have to be viewed with consideration of the following limitations. Despite the fact that we use the NCANDS definition of "victim" (e.g., substantiated and indicated cases), a limited number of studies have shown that substantiated and unsubstantiated cases are not different regarding the likelihood of being reported again (16) or regarding the likelihood of demonstrating behavioral or developmental problems (17). This indicates that unsubstantiated cases should also receive adequate service (18). Because of potential underreporting in Puerto Rico, characteristics of child maltreatment victims presented in this article might not be representative of all cases of maltreatment. During 2009-2010, a substantial number of reports from Puerto Rico were missing information regarding case disposition. Also, Puerto Rico's NCANDS data does not include child maltreatment fatalities. Finally, NCANDS does not contain information on the severity of maltreatment sustained by a child victim, the municipality of child's residence, or the socio-demographic characteristics of that child's parents or household. This information is important if intervention groups are to be prioritized and risk factors for child maltreatment identified.



Note: The unit of observation is the report-child pair. Children without information regarding type of maltreatment and perpetrator are excluded from the denominator. Total number of abuse cases (report-child pairs): negligence, 6,145; emotional abuse, 4,144; physical abuse, 2,568; and sexual abuse, 243.

Figure 3. Percentage distribution of perpetrators by type of maltreatment in Puerto Rico, 2010



Note: The unit of observation is the report. Reports without information regarding sources are excluded from the denominator. Total number of abuse reports in Puerto Rico was 16,233; total number of abuse reports in the US was 1,798,715.

Figure 4. Percentage distribution of report sources in Puerto Rico and the US, 2010

We offer the following recommendations to address this problem from a public health perspective, including strategies both for measuring the magnitude of the problem and for prevention.

- *Reduce reporting barriers among professionals*. Physicians could detect the less obvious signs of maltreatment during history taking and physical evaluation. However, studies in the US have indicated that certain physicians admit not having reported all cases of suspected maltreatment (19, 20). According to a survey administered to Puerto Rican pediatricians in 2011, obstacles to reporting cases of suspected maltreatment included a lack of awareness of the obligation to report such cases and uncertainty in distinguishing maltreatment from unintentional injuries (21). Training and education on the identification of cases of physical and emotional abuse and on how to report them could reduce these obstacles. Another tool to strengthen the role of physicians as protectors of the well-being of children is mandatory continuing education for professional license renewal for those medical specialties involving extensive contact with children (e.g., pediatricians and family and emergency physicians). Physicians in Puerto Rico must complete at least 10 credits of continuing medical education on physical, emotional, or sexual assault or domestic violence for the period 2013–2015. These data underscore the potential benefits of continuing this requirement.
- *Disseminate information about child maltreatment*. The Central Registry of the Department of the Family collects information regarding all reported cases of child maltreatment in Puerto Rico. Statistical information (e.g., the information presented in this article) should be published regularly. In addition to the 64 variables collected for NCANDS, the Department of the Family collects information about the family composition, household, and geographic location of reported cases. However, the uses of these data are limited. The data should be accessible to public health practitioners and researchers to identify risk factors for child maltreatment in Puerto Rico. Results from these analyses can be used to design and implement effective interventions.
- *Complement NCANDS with other surveillance systems*. Initiation of other surveillance systems to more fully understand the characteristics of the maltreatment of children in Puerto Rico and to create evidence-based prevention programs is important. First, the external cause codes (E-codes) that supplement International Classification of Diseases, Ninth Revision, Clinical Modification, or ICD9-CM codes, for the documentation of injuries contain information regarding cause, intent (e.g., accident versus abuse or suicide), and the geographic location where the child sustained his or her injury. Each state has different characteristics of injuries that are commonly sustained by its residents. Therefore, the collection of data to establish the magnitude of the problem and assess local strategies for injury prevention, particularly those associated with child maltreatment, is important in Puerto Rico. Second, the CDC has implemented a National Violent Death Reporting System that collects data regarding each violent death from various sources (e.g., death certificates, police reports, and pathology reports). Eighteen states are participating in this system with funding from the CDC.

Puerto Rico could use this system, even without funding, or could establish a similar system to provide information regarding violent deaths among children. Third, 49 states have set up panels for child death review (CDR). Panels consist of multidisciplinary teams that review each child's death in order to determine how and why he or she died. The information reported is used to design interventions to prevent further deaths. In keeping with the new law, the Safety, Welfare and Child Protection Act, the Secretary of the Department of the Family should appoint a CDR panel. The development of a CDR panel in Puerto Rico could be guided by the experiences of states with well-functioning CDR panels. Finally, given the challenges of surveillance of nonfatal child maltreatment, monitoring child maltreatment risk and protective factors, i.e., indicators of healthy child development through other existing surveillance systems, would be useful.

- *Prioritize the prevention of neglect and emotional abuse in preschool children*. The Nurse-Family Partnership has been effective in reducing the risk of maltreatment, including neglect and emotional abuse, among preschool children (22). This program is directed toward pregnant women during their first trimester from low-socioeconomic strata. The program incorporates nurse visits to the home to establish a trusting relationship from pregnancy until the children reach the age of two years. The Department of Health of Puerto Rico has operated the Home Visiting Program since 1995 with the objective of reducing maternal and infant mortality. Home visits are performed by nurses and other trained health professionals who assess health and social needs and establish a service plan together with the family. The program offers education, support services, and counseling regarding problems that include breastfeeding, prenatal care, signs and symptoms of preterm birth, vaccination, prevention of unintentional injuries, parenting, and prevention of child abuse and neglect. As of March 2012, this program had 4,866 registered mothers (23). The effectiveness of the program in reducing child maltreatment should be assessed.

Contact immediately after birth in the hospital (rooming-in) and breastfeeding can be cost-effective strategies that can reduce the risk of negligence (24) and neglect (25, 26). These strategies might be particularly desirable in resource-limited settings, like Puerto Rico. Intimate physical contact between mothers and babies fosters maternal sensitivity and attachment, which are protective factors against neglect and abandonment. Approximately 70% of mothers in Puerto Rico initiate breastfeeding less than 24 hours after delivery; however, the percentage of mothers who are still breastfeeding when their children reach 6 months decreases to only 23.5% (27). The effectiveness of rooming-in and nursing in preventing neglect in Puerto Rico should be assessed.

This study demonstrated a high prevalence of substantiated child maltreatment in Puerto Rico, despite Puerto Rico's having a lower number of reports than in the US. The development of evidence-based prevention programs and an increase in interagency and multidisciplinary cooperation to reduce this highly preventable public health problem are important.

Resumen

Objetivo: El maltrato infantil puede producir efectos perjudiciales a largo plazo. Cuantificar el alcance y las características del maltrato en niños en Puerto Rico es necesario para diseñar prevención eficaz. Métodos: El "National Child Abuse and Neglect Data System (NCANDS)" es la base de datos que recopila referidos de maltrato en niños en los Estados Unidos y Puerto Rico. Una víctima de maltrato se define como un niño cuyo maltrato se corroboró o constató por la agencia local de protección de menores. Para este estudio se compararon tasas de referidos y victimización y fuentes de referidos entre Puerto Rico y los Estados Unidos y se caracterizó el maltrato de niños en Puerto Rico. Resultados: Durante el 2006–2010, se reportaron un total de 31,849–40,712 casos de maltrato en niños anualmente en Puerto Rico. Las tasas de victimización en Puerto Rico (10.7/1,000–14.8/1,000) son consistentemente más elevadas que las observadas en los Estados Unidos (10.1/1,000–12.1 /1,000) esto a pesar de una tasa baja de referidos en Puerto Rico. Durante el año 2010, las tasas de victimización entre los niños de 1 a 6 años fueron más altas que en otras edades. En Puerto Rico la negligencia es la forma más común de maltrato seguido del abuso emocional; sin embargo, la mayoría de las víctimas reportan múltiples tipos de maltrato. El referido anónimo es la fuente de reporte más común en Puerto Rico (29.8%) en comparación con los Estados Unidos (9.4%); y el referido por profesionales es menos frecuente en Puerto Rico (3.72%) que en los Estados Unidos (58.7%). Conclusión: Se identificó una alta prevalencia de maltrato en niños en Puerto Rico. Una tasa menor de referidos, una tasa elevada de victimización y un mayor porcentaje de referidos anónimos apuntan a un posible subreporte del maltrato en niños en Puerto Rico. La concienciación y la formación de los profesionales para una mejor identificación del maltrato en niños podría ayudar a aliviar el problema de subreporte.

Acknowledgments

The authors are appreciative of the contributions of the following people: María Rullán, Ana Rodríguez Parilla, Dixie Márquez, and W. Randolph Daley. The findings and conclusions of this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention or that of the Puerto Rico Department of Health.

References

1. Flaherty EG, Thompson R, Litrownik AJ, Theodore A, English DJ, Black MM, et al. Effect of early childhood adversity on child health. Arch Pediatr Adolesc Med 2006;160:1232-8.
2. Afifi TO, Boman J, Fleisher W, Sareen J. The relationship between child abuse, parental divorce, and lifetime mental disorders and suicidality in a nationally representative adult sample. Child Abuse Negl 2009;33:139-47.
3. Bradley RG, Binder EB, Epstein MP, Tang Y, Nair HP, Liu W, et al. Influence of child abuse on adult depression: moderation by the corticotropin-releasing hormone receptor gene. Arch Gen Psychiatry 2008;65: 190-200.
4. Lansford JE, Dodge KA, Pettit GS, Bates JE. Does physical abuse in early childhood predict substance use in adolescence and early adulthood? Child Maltreat 2010;15:190-4.
5. Wilson HW, Widom CS. An examination of risky sexual behavior and HIV in victims of child abuse and neglect: a 30-year follow-up. Health Psychol 2008;27:149-58.
6. Roemmele M, Messman-Moore TL. Child abuse, early maladaptive schemas, and risky sexual behavior in college women. J Child Sex Abus 2011;20:264-83.
7. Boden JM, Fergusson DM, Horwood LJ. Experience of sexual abuse in childhood and abortion in adolescence and early adulthood. Child Abuse Negl 2009;33:870-6.
8. Appleyard K, Berlin LJ, Rosanbalm KD, Dodge KA. Preventing early child maltreatment: implications from a longitudinal study of maternal abuse history, substance use problems, and offspring victimization. Prev Sci 2011;12:139-49.
9. Lev-Wiesel R, Sternberg R. Victimized at home revictimized by peers: Domestic child abuse a risk factor for social rejection. Child and Adolescent Social Work Journal 2012;29:203-20.
10. Barnes JE, Noll JG, Putnam FW, Trickett PK. Sexual and physical revictimization among victims of severe childhood sexual abuse. Child Abuse Negl 2009;33:412-20.
11. Moylan CA, Herrenkohl TI, Sousa C, Tajima EA, Herrenkohl RC, Russo MJ. The Effects of Child Abuse and Exposure to Domestic Violence on Adolescent Internalizing and Externalizing Behavior Problems. J Fam Violence 2010;25:53-63.
12. Godoy R. Is homicide in Puerto Rico high? Homicide Studies 2008;12:188-207.
13. U.S. Department of Health and Human Services, Administration for Children and Families, Administration on Children, Youth and Families, Children's Bureau. Child Maltreatment 2011. 2012. Available from: Url: http://www.acf.hhs.gov/programs/cb/research-data-technology/statistics-research/child-maltreatment.
14. Child Welfare Information Gateway. Definitions of Child Abuse and Neglect. Washington, DC: Children's Bureau/ACYF2011.
15. Bauer CR, Shankaran S, Bada HS, Lester B, Wright LL, Krause-Steinrauf H, et al. The Maternal Lifestyle Study: drug exposure during pregnancy and short-term maternal outcomes. Am J Obstet Gynecol 2002;186: 487-95.
16. Kohl PL, Jonson-Reid M, Drake B. Time to leave substantiation behind: findings from a national probability study. Child Maltreat 2009;14: 17-26.
17. Hussey JM, Marshall JM, English DJ, Knight ED, Lau AS, Dubowitz H, et al. Defining maltreatment according to substantiation: distinction without a difference? Child Abuse Negl. 2005;29:479-92.
18. Fallon B, Trocme N, MacLaurin B. Should child protection services respond differently to maltreatment, risk of maltreatment, and risk of harm? Child Abuse Negl 2011;35:236-9.
19. Flaherty EG, Sege RD, Griffith J, Price LL, Wasserman R, Slora E, et al. From suspicion of physical child abuse to reporting: primary care clinician decision-making. Pediatrics 2008;122:611-9.
20. Jones R, Flaherty EG, Binns HJ, Price LL, Slora E, Abney D, et al. Clinicians' description of factors influencing their reporting of suspected child abuse: report of the Child Abuse Reporting Experience Study Research Group. Pediatrics 2008;122:259-66.
21. Ishida K. Maltrato de Menores en Puerto Rico: 2006-2010. Presented at: Annual Meeting for the Puerto Rican Society of Pediatrics; March 18, 2012; San Juan Puerto Rico.
22. Macmillan HL, Wathen CN, Barlow J, Fergusson DM, Leventhal JM, Taussig HN. Interventions to prevent child maltreatment and associated impairment. Lancet 2009;373:250-66.
23. Dixie Marquez M, Child and Adolescent Division, Puerto Rico Department of Health. Email Communication. March 14, 2012.
24. Strathearn L, Mamun AA, Najman JM, O'Callaghan MJ. Does breastfeeding protect against substantiated child abuse and neglect? A 15-year cohort study. Pediatrics 2009;123:483-93.
25. Lvoff NM, Lvoff V, Klaus MH. Effect of the baby-friendly initiative on infant abandonment in a Russian hospital. Arch Pediatr Adolesc Med 2000;154:474-7.
26. Buranasin B. The effects of rooming-in on the success of breastfeeding and the decline in abandonment of children. Asia Pac J Public Health 1991;5:217-20.
27. División de Madres Niños y Adoloscentes, Departamento de Salud de Puerto Rico. Estudio de Salud Materno Infantil de Puerto Rico: Departamento de Salud de Puerto Rico; 2010.