Adolescents exposed to physical violence in the community: a survey in Brazilian public schools

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> **Objective.** To determine the proportion of adolescents who have been exposed to physical vi-ABSTRACT olence in the city of Porto Alegre, Brazil. Methods. Fifty-two Porto Alegre public schools that offer basic primary education (grades 1 to 8) were selected through a random sampling process stratified according to school size. In May-November 2000 a screening survey that identifies exposure to violence—experienced personally, witnessed, or knowing victims of violent acts-was administered to all students who were attending a randomly selected 8th grade class in each of the 52 schools. **Results.** The total number of adolescents included in the analysis was 1 193, representing 10.3% of the students enrolled in 8th grade classes in the city's public school system. On average, each adolescent had been exposed to 19.8 incidents of violence (standard deviation (SD) = 8.5): 2.0 incidents personally experienced (SD = 2.1), 8.5 incidents witnessed (SD = 4.0), and 9.3 knowing a victim of an incident of violence (SD = 4.1). In our sample, the variables of being male (P < 0.001), being in an older age group (P < 0.001), and not living with both parents (P < 0.001) were independently associated with exposure to more incidents of violence. Conclusions. We found a high prevalence of incidents of violence among the adolescents in our sample in Porto Alegre. Considering the particular burden inflicted by violent acts on adolescents, health professionals must develop effective approaches to actively identifying, intervening in, and preventing community violence.

Key words Violence, adolescence, crime victims, aggression, Brazil.

The significant increase in community violence occurring in urban areas has been characterized as a public health epidemic (1–6). Some communities experience a daily routine of chronic violence, with a high frequency and intensity of attacks, robberies, muggings, and other violent acts.

Latin America and the Caribbean are considered among the most violent regions in the world. For example, in Brazil during the 1990s the city of São Paulo had a homicide rate of 50.2 per 100 000 inhabitants (1). The rate in Rio de Janeiro was even higher, 60.7 per 100 000.

Adolescents constitute a high-risk group for experiencing, witnessing, and perpetrating incidents of violence (6, 7). In a study of 16 countries in the Region of the Americas, Colombia and Brazil were the only countries where the rates of mortality among adolescents due to external causes were rising (8). In Brazil, 67.9% of all deaths of persons between 15 and 24 years old are due to external causes, mostly homicides and traffic accidents, involving mainly male adolescents (6).

Direct and indirect exposure to violence results in aggressive behavior, negative emotions, symptoms of posttraumatic stress, and difficulties in interpersonal relationships (2, 3, 9). In these situations, health professionals have two key roles: 1) to identify violence as a potential underlying condi-

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tion of physical and emotional illnesses and 2) to work toward interrupting and preventing the cycle of violence that characterizes the lives of people in these communities (2, 5, 10).

Most studies on violence concern specific and isolated situations and are based on small samples usually obtained from clinical environments (2, 3). Osofsky (3–5) has suggested that health specialists should broaden their perspective on violence by looking at not only the immediate victim but all those who are involved in and exposed to violent incidents in the community. Identifying incidents of exposure to violence among different groups in the community can be part of a public health strategy to develop preventive programs intended to reduce the number of violent acts themselves as well as the negative effects associated with violent environments.

We decided to investigate violence in Brazilian communities, especially violence affecting adolescents. We chose to use population-based studies focusing on violence as a broad social phenomenon. Although violence in Brazil is a serious social concern, much less research has been done on the problem there than has been done in such countries as Canada, France, Germany, the United Kingdom, and the United States of America (11). Nonetheless, a growing number of publications attest to the urgent need to look carefully at the problem in Brazil, in order to fully address the situation, especially among vulnerable groups such as adolescents and children (7, 8, 12–14). The goal of our research work was to ascertain the level of exposure to physical violence in the community among adolescents studying in the public schools of the city of Porto Alegre.

MATERIAL AND METHODS

Subjects

The adolescents whom we surveyed for our study were attending public schools in Porto Alegre, Brazil. Porto Alegre is the capital of Brazil's southernmost state, Rio Grande do Sul, and it has a population of 1 400 000 inhabitants. In the year 2000, there were 233 public schools in the city, 176 of which offered complete primary education (grades 1 to 8). In that same year, 11 556 students were enrolled in the 8th grade of those 176 schools.

Sampling procedures

From those 176 Porto Alegre public schools, 52 were selected through a proportional cluster random sampling process based on school size (15, 16). That ensured that the sample would adequately represent all the areas of the city. Approval for the study came from the State Board of Education. In order to obtain the schools' consent to apply the survey instrument, we contacted the staff of each selected school to explain the purpose of the study and the details of the protocol. An 8th grade class was selected in each school through a random sampling process.

Instrument

The survey instrument that we used was the Screening Survey of Children's Exposure to Community Violence (17). It is a self-administered questionnaire that was developed at the National Institute of Mental Health of the United States to identify children and adolescents who had been exposed to community violence. The Screening Survey encompasses 49 questions that identify situations of physical violence, of sexual violence, and of drug exposure in the community. The exposure to violence is categorized as being a victim, being a witness, or knowing someone who had been a victim of a violent act. Each of the specific situations is answered as "true" or "false" depending on whether or not it has been experienced. There is also an open-ended question to identify situations not specifically listed. The original instrument in English was translated to Portuguese and submitted to reverse translation by two specialized and independent translators before we completed our final version. We performed an analysis of the internal validity of the instrument, with a resulting Cronbach's alpha coefficient of 0.89.

Data collection

Data collection took place between May and November 2000 and was conducted by eight medical students who had been trained so that they were familiar with the instrument and with the ethical aspects of the study. The researchers explained the purposes of the study to all the students who were present in each class and also asked the adolescents for their verbal consent. Questionnaires were administered to all the students who agreed to take part in the research. Under the researchers' supervision, the students individually wrote down their answers to the survey questions. Their responses were confidential and anonymous. Students who did not specify sex, age, or race or who failed to answer 10% or more of the questions were excluded from the analysis.

Data analysis

Comparisons among categorical variables were performed using the Student's *t* test and analysis of variance (ANOVA), followed by Tukey's test. In order to identify independent associations among the variables investigated, we performed a multivariate linear regression analysis of the results. *P* values under 0.05 were considered to be statistically significant. We used Statistical Package for Social Sciences version 8.0 computer software (SPSS Inc., Chicago, Illinois, United States) to perform the data analysis.

RESULTS

The questionnaire was administered to a total of 1 223 adolescents in the 52 selected public schools. None of the students refused to take part in the study. Of the 1 223 questionnaires, 30 of them (2.5%) were excluded either because data on sex, age, or race had

TABLE 1. Demographic characteristics of adolescents surveyed, study of violence among adolescents in Porto Alegre, Brazil, 2000

Characteristic	No. ^a	%	
Sex			
Male	544	45.6	
Female	649	54.4	
Age (years)			
13–14	472	39.6	
15–16	537	45.0	
17–20	184	15.4	
Ethnicity			
White	841	70.5	
Nonwhite	352	29.5	
Lives with			
Both parents	676	60.0	
Single mother	287	25.5	
Single father	25	2.2	
Father or mother and			
companion	69	6.2	
Other relatives	69	6.1	
Number of people living			
in the house			
Up to 4	775	69.5	
5–7	309	27.7	
8 or more	31	2.8	

^a Data on "lives with" and "number of people living in the house" were completed by 1126 and 1115 of the adolescents, respectively, versus the total 1193 included in the analysis.

not been answered or because 10% or more of the questions had not been answered. The 1 193 adolescents who were included in the analysis represented 10.3% of all the students enrolled in the 8th grade classes of the Porto Alegre public schools. Table 1 shows the demographic characteristics for these adolescents.

In our sample, 99.7% of the students had been exposed to some kind of violence, 70.9% had been a victim of some incident of violence, 98.4% had witnessed some incident of violence, and 99.2% had known a victim of some incident of violence. On average, each of the adolescents had been exposed to 19.8 incidents of violence (standard deviation (SD) = 8.5). This consisted of: being a victim of 2.0 incidents of violence (SD = 2.1), witnessing 8.5 incidents of violence (SD = 4.0), and 9.3incidents of knowing a victim of violence (SD = 4.1). The incident most frequently experienced by adolescents who themselves had been a victim was mugging (28.2%), and the least frequent was being shot with a gun (1.3%) (Table 2).

The incident of violence most frequently witnessed by the adolescents was seeing someone being arrested by the police (75.3%), and the least frequent was seeing someone committing suicide (8.5%) (Table 3).

The incident of violence for which the adolescents had most frequently known a victim was the break-in of a house or apartment (81.0%), and the least common was having known someone who committed suicide (28.5%) (Table 4).

Table 5 shows the association between the adolescents' demographic characteristics and the average number of incidents of violence to which they had been exposed. There were statistically significant differences between male and female adolescents in terms of being exposed to incidents of violence as a victim or as a witness and for the total number of incidents (P <0.001 for all three). There was no statistically significant difference between males and females in terms of knowing someone who had been a victim (P = 0.40). Exposures to violence increased progressively with age. When we compared adolescents living with both parents versus adolescents not living with both parents, we found that the former group was exposed to significantly fewer total incidents of violence, including for the categories of being a victim and knowing a victim. The variables of ethnicity and the number of people with whom the adolescent was living were not significantly associated with any kind of exposure to violence.

When we performed the multiple linear regression analysis, we found three characteristics that remained independently associated with more total exposures to incidents of vio-

TABLE 2. Proportion of adolescents who had experienced incidents of physical violence in the community, study of violence among adolescents in Porto Alegre, Brazil, 2000

	13–14 years old			15–16 years old			17–20 years old							
	N	lale	Fe	male	N	lale	Fer	nale	M	ale	Fer	nale	Тс	otal
Violence experienced	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Mugged	85	44.5 ^a	39	13.9 ^a	118	45.9 ^a	47	16.9 ^a	35	37.2 ^a	12	13.3ª	336	28.2
Chased by gangs	64	33.7ª	54	19.4 ^a	82	32.4 ^a	48	17.3 ^a	35	37.2 ^b	17	19.1 ^b	300	25.4
Threatened with physical														
harm	35	18.2	41	14.9	70	27.2	56	20.1	24	25.5	12	13.6	238	20.1
Slapped, punched, or hit	47	24.5 ^a	26	9.4 ^a	77	30.0 ^a	36	13.0 ^a	29	30.9 ^b	14	15.6 ^b	229	9.3
At home when someone														
broke in	28	14.6	46	16.5	45	17.4	38	13.7	17	18.1	21	23.6	195	16.4
Serious accident	18	9.4	20	7.3	40	15.7 ^a	20	7.4 ^a	10	10.9	10	11.1	118	10.1
Attacked/stabbed	20	10.4 ^a	7	2.5 ^a	29	11.3 ^a	12	4.3 ^a	10	10.8	6	6.7	84	7.1
Arrested by police	9	4.7	4	1.4	32	12.5 ^a	12	4.3 ^a	11	11.7 ^a	1	1.1 ^a	69	5.8
Seriously wounded	9	4.7	7	2.5	16	6.3	11	3.9	6	6.4	4	4.5	53	4.5
Been shot	3	1.6	1	0.4	8*	3.1	1	0.4	2	2.1	1	1.1	16	1.3

^a P < 0.005 for differences between sex.

^b P < 0.05 for differences between sex.

TABLE 3. Prevalence of adolescents who had witnessed incidents of physical violence in the community, study of violence among adolescents in Porto Alegre, Brazil, 2000

Incidents of violence witnessed	No.	%
I have seen someone else get arrested by the police.	894	75.3
I have seen or heard a gun fired while I was in my home.	877	73.7
I have seen someone carrying a gun or a knife.	752	63.4
I have seen another person hit by someone who is not a member of their		
own family.	741	62.6
I have seen someone else have a serious accident where I thought that		
he/she would die.	724	60.9
I have seen someone else being mugged.	721	60.6
I have seen someone else being chased by a gang.	616	52.2
I have seen someone else get threatened with serious physical harm.	598	50.3
I have seen a dead person somewhere in the community.	507	42.9
I have seen a seriously wounded person after an incident of violence.	473	39.8
I have seen someone trying to force their way into somebody else's house		
or apartment.	365	30.9
I have seen someone else get shot with a gun.	295	24.8
I have seen someone else being attacked or stabbed with a knife.	230	19.3
I have seen someone killed by another person.	166	14.0
I have seen someone committing suicide.	101	8.5

TABLE 4. Proportion of adolescents who know victims of incidents of physical violence in the community, study of violence among adolescents in Porto Alegre, Brazil, 2000

Incidents of violence where know victim	No.	%
I know someone whose house or apartment has been broken into.	964	81.0
I know someone who has been mugged.	889	74.9
I have heard about a dead person somewhere in the community.	834	70.3
I know someone who has been chased by a gang.	785	66.4
I know someone who has been shot with a gun.	744	62.5
I know someone who has been hit by someone who was not a member		
of their own family.	740	62.2
I know someone who carries or holds a gun or a knife.	724	60.9
I know someone who has been arrested by the police.	713	59.9
I know someone who has been in a serious accident.	693	58.3
I know someone who has been threatened with serious physical harm.	674	56.6
I know someone who has been seriously wounded in an incident of violence.	473	39.8
I know someone else who has been attacked or stabbed with a knife.	440	36.9
I have known someone who was killed by another person.	402	33.8
I have known someone who committed suicide.	339	28.5

lence. The three characteristics were: being male (P < 0.001), being in a higher age group (P < 0.001), and not living with both parents (P < 0.001).

DISCUSSION

Our study investigated the prevalence of exposure to physical violence in the community among adolescents of Porto Alegre, Brazil, through a representative sample of 8th grade adolescents in the city's public schools. We found that the students in our sample had been frequently exposed to physical violence in the community, with an average of 19.8 incidents of violence when aggregating the categories of having been a victim, having been a witness, or knowing someone who had been a victim.

One possible limitation of the study may have been that only adolescents attending classes when each school was visited were assessed. If being absent from school is related to both domestic and community violence, our results might have underscored the magnitude of the problem. In addition, adolescents studying in private schools and those with no access to basic primary education were not included in the study. Thus, our results reflect the reality of adolescents in Porto Alegre who are studying in the public schools, and not necessarily the reality of all the adolescents in the city.

The questionnaire was easy to fill out, and it concerned common situations that were familiar to the subjects. In addition, a researcher remained in each classroom while the students were completing the questionnaire to clear up any doubts that they had. The number of exclusions of incorrectly completed questionnaires was small, indicating that the subjects adequately understood the questions.

We found that the youngster most frequently exposed to violence was an older adolescent male not living with both parents. These results generally agree with those of Souza and Assis (7), who have identified the profile of children and adolescents killed in Rio de Janeiro, Brazil, as being black, male, and between 15 and 19 years old. The exception in our sample was race, which we did not find to be significantly associated with total exposure to violence. Likewise, a study conducted in São Paulo, Brazil, indicated a high adolescent exposure to violence (12). Older males were more vulnerable to victimization, and the situation of not living with the family was a risk factor for violence exposure.

There are few estimates of the incidence and the impact of exposure to community violence in Brazil that have been derived from well-designed populational studies. For possible comparisons, there are some studies that have been conducted in urban areas of the United States. In a section of the city of Washington, D.C., with a moderate occurrence of community violence, it was found that, in a group of 165 low-income children aged 6 to 10 years old, 32% of them had been di-

TABLE 5. Association of average number of incidents of each type of violence exposure and the demographic characteristics of adolescents, study of violence among adolescents in Porto Alegre, Brazil, 2000^a

Demographic characteristic	Victim	Witness	Know victim	Total
Sex				
Male	2.5	9.1	9.4	21.2
Female	1.5	7.9	9.2	18.7
	<i>P</i> < 0.001	<i>P</i> < 0.001	<i>P</i> = 0.40	P < 0.001
Age (years)				
13–14	1.6	7.9	8.7	18.1
15–16	2.1	8.8	9.6	20.5
17–20	2.9	9.1	10.2	22.1
	<i>P</i> < 0.001	<i>P</i> < 0.001	<i>P</i> < 0.001	<i>P</i> < 0.001
Race				
White	2.1	8.4	9.3	19.7
Non-white	1.9	8.9	9.5	20.2
	<i>P</i> = 0.12	<i>P</i> = 0.09	<i>P</i> = 0.34	P = 0.42
Live with				
Both parents	1.8	8.3	9.0	19.1
Others ^b	2.3	8.7	9.9	20.9
	<i>P</i> < 0.001	<i>P</i> = 0.09	<i>P</i> < 0.001	<i>P</i> < 0.001
Number of people in home				
Up to 4	1.9	8.4	9.2	19.5
5–7	2.1	8.8	9.8	20.7
8 or more	2.4	8.9	8.8	20.0
	P = 0.24	P = 0.26	P = 0.07	P = 0.11

^a The coefficients of multiple determination (*R*²) are: .06 for the victim group, .03 for the witness group, 03 for the know-victim group, and .10 for total exposure.

^b This "Others" category for "Lives with" in this table combines four of the categories given in Table 1: (lives with) single mother, single father, father or mother and companion, or other relatives.

rect victims of some kind of violence and 72% had witnessed some act of violence being committed (18). A study carried out with children between 9 and 12 years of age living in a violent area of the city of New Orleans, Louisiana, found that 51% of those children had been a victim and 91% had witnessed acts of violence (19). In a study carried out with 221 African-American youth between 7 and 18 years old in eight different urban areas in the United States, 70% of the youngsters had been victims of an incident of violence and 85% had witnessed an incident of violence (20). That study also showed that males were more likely than females to be victims of and witnesses to violent acts; there were no other significant sociodemographic differences in the degree of exposure to violence in the sample. Finally, a study encompassing 2 248 youngsters from different urban areas in the United States found that 41.3% had witnessed a stabbing or a shooting in the previous year (21), results that are quite similar to our findings in Porto Alegre.

The high rates of exposure to physical violence in the community that we found among the adolescents in Porto Alegre indicate the chronic nature of that exposure, as defined by Schwab-Stone et al. (21) and Osofsky et al. (4) when describing community violence. In our study, 25% of the adolescents reported witnessing someone being shot, and 14% reported witnessing someone being killed. In Porto Alegre in 1996, homicides accounted for 22% of the violent deaths, traffic accidents for 22%, and suicide for 9% (mostly self-inflicted gunshot wounds) (13). When considering these categories together, most of the victims were males under the age of 29 years. Most suicide cases occurred at home, with a firearm wound producing death before medical assistance could arrive.

Richters and Martinez (22) have observed that the degree of exposure to violence is variable within communities, and that it depends on environmental, familial, and individual circumstances. Given the results of our research in Porto Alegre, there are various health measures worth considering. One useful step might be to use mapping to locate the areas of the city with a higher risk of exposure to violence. Another worthwhile measure might be to identify factors that protect against chronic violence, in order to help develop prevention and intervention programs.

Several researchers (4, 5, 23) have pointed out that the study of violence often focuses just on the immediate act of violence, and that that narrow approach disregards the fact that violence among youngsters affects all those involved in the surrounding environment. Parents' capacity to care for their children may suffer greatly when families are immersed in communities experiencing high rates of chronic violence (22). Therefore, maintaining strong families is an essential factor in the prevention of violence. Just identifying confirmed incidents of violence is not enough. Instead, health specialists must fully understand the breadth of the environment of incidents of violence, and they must apply a multidisciplinary community-based perspective in their search for effective prevention and intervention measures.

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RESUMEN

Encuesta en escuelas públicas de Brasil sobre la exposición de los adolescentes a la violencia en la comunidad **Objetivos.** Determinar la proporción de adolescentes que han estado expuestos a la violencia física en la ciudad de Porto Alegre, Brasil. **Mátodos** Mediante un muestros aleatorio estratificado en función del tamaño de la

Métodos. Mediante un muestreo aleatorio estratificado en función del tamaño de la escuela, se seleccionaron 52 escuelas públicas de educación básica primaria (grados 1 a 8) de la ciudad de Porto Alegre. De mayo a noviembre del año 2000 se realizó una encuesta sobre la exposición a la violencia entre todos los estudiantes de una clase de octavo grado seleccionada aleatoriamente en cada una de las 52 escuelas. Como exposición a la violencia se consideró el haberla sufrido personalmente, el haberla presenciado o el conocer a víctimas de actos violentos.

Resultados. En el análisis se incluyeron 1 193 adolescentes que representaban 10,3% de los estudiantes de octavo grado de las escuelas del sistema de enseñanza pública de la ciudad. En promedio (± desviación estándar), cada adolescente había estado expuesto a 19,8 (± 8,5) incidentes violentos: 2,0 (± 2,1) sufridos personalmente, 8,5 (± 4,0) presenciados y 9,3 (± 4,1) con un conocido como víctima. Las variables asociadas de forma independiente con una exposición a más incidentes violentos fueron el pertenecer al sexo masculino (*P* < 0,001), el pertenecer a un grupo de edad más avanzada (*P* < 0,001) y el no vivir con ambos padres (*P* < 0,001).

Conclusiones. Se registró una alta prevalencia de indicentes violentos entre los adolescentes de esta muestra de la ciudad de Porto Alegre. Teniendo en cuenta la carga que estos actos representan para los adolescentes, los profesionales sanitarios deben tomar medidas eficaces para identificar activamente la violencia en la comunidad, intervenir ante ella y prevenirla.