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# Mental health and violence among sixth grade students from a city in the state of São Paulo

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## ABSTRACT

**OBJECTIVE:** To analyze risk and protective factors for mental health problems among adolescents.

**METHODS:** Cross-sectional study with a random sample (N=327; attrition rate=6.9%) of sixth grade students from all public and private schools in the city of Barretos, Southeastern Brazil, conducted in 2004. The factors studied were: exposure to intrafamilial and urban violence, family socioeconomic level, sex, motherless household, participation in social activities (protective factor). All the independent risk and protective factors were included in the initial logistic regression model. Only the variable with a significance level of  $p < 0.05$  remained in the model.

**RESULTS:** It was observed that exposure to violence was the only factor associated with mental health problems in the final logistic regression model ( $p = 0.02$ , 95% CI: 1.12;4.22). In addition, adolescents exposed to intrafamilial violence were three times more likely to have problems than those exposed to urban violence ( $p = 0.04$ ; 95% CI: 1.03;7.55).

**CONCLUSIONS:** Intrafamilial violence was associated with mental health problems among adolescents studied and it could be more important than urban violence in medium-sized cities.

**DESCRIPTORS:** Adolescent. Mental Health. Violence. Risk Factors. Socioeconomic Factors. Cross-Sectional Studies.

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## INTRODUCTION

Mental health problems among adolescents must be identified early, as preventive programs can minimize or even avoid chronic courses with social performance impairments.<sup>7</sup> Several programs have proved to be capable of reducing the impact caused by these problems, and also improve emotional and social development of children and adolescents.<sup>4</sup>

Risk and protective factors can be defined as characteristics, experiences or events associated with the increase or decrease in the likelihood of a certain outcome occurring, in relation to the non-exposed general population.<sup>5</sup> In the area of child/adolescent mental health, there are risk factors that have already been established. Nonetheless, very little research has been done on protective factors.

Six cross-sectional studies with population-based samples and global mental health problems among adolescents and children as outcomes have already been conducted in Brazil.<sup>2</sup> Three of them investigated associations with risk

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factors, whereas none investigated protective factors. These three studies identified associations between mental health problems and some type of violence. However, none of them investigated intrafamilial violence and urban violence concurrently. As a result, it is not possible to determine the impact of each on mental health.

The importance of the issue of violence against children and adolescents is due to the significant increase in homicide rates in Brazil in this age group (>300%): in 1980, in the 10-to-14 age group, there were 131 cases, whereas in 2002 there were 593 cases. In the same period, in the 15-to-19 age group, this number soared from 1,532 to 7,919.<sup>a</sup> Even though there were no accurate data on the evolution of intrafamilial violence in Brazil, a study of prevalence conducted in the urban area of the city of São Paulo identified a severe physical punishment rate of 10.1%.<sup>1</sup>

The present study aimed to analyze risk and protective factors associated with mental health problems among sixth grade students.

## METHODS

Cross-sectional study conducted in the city of Barretos, Southeastern Brazil and with a population of 108,169 inhabitants in 2004. Out of the 9,220 adolescents aged between 11 and 15 and living in this city,<sup>b</sup> 85% went to school and 2,345 of them were enrolled in the sixth grade, according to Barretos' Education Office.

Sample-size calculation was based on the mental health problem prevalence of 12%, identified among students in the urban area of the city of Campos de Jordão, according to the Strengths and Difficulties Questionnaire (SDQ).<sup>2</sup> By determining relative precision at 30%, the adequate sample size for the study was 313 students. Taking into consideration possible losses, the study began with a random sample of 350 students, both male and female, in the sixth grade of all private and public schools in Barretos, according to a random selection of frequency lists. By keeping the proportion found in this city, 13% of students from private schools and 87% from public schools were contacted, thus representing approximately 15% of the total number of students enrolled in the sixth grade (306 from public schools, 44 from private schools). Only one private school did not accept to participate in the study, which led to the invitation of one more student from each of the remaining private schools. The final sample was comprised of 327 students (sample loss of 6.9%).

Adolescents answered three questionnaires: 1) SDQ; 2) a questionnaire with structured and unstructured questions, prepared by the researchers to identify sociodemographic, risk and protective factors; and 3) a questionnaire about family socioeconomic status.<sup>c</sup> All questionnaires are self-applicable and were filled out individually in a classroom, by groups of up to 20 students, supervised by one of the authors to clarify questions.

The SDQ is a screening questionnaire used to assess mental health problems during childhood/adolescence, and was chosen because it had been validated in Brazil,<sup>d</sup> and also because of its easy application and low cost. In this study, the adolescent version (11 to 16 years of age), which is self-applicable, was used. All those who obtained abnormal and/or borderline scores on the total symptom scale and showed concomitant functional impairment were considered as having mental health problems. This definition enables close relationship with psychiatric disorder diagnoses and could be used to assess interventions, as it is sensitive to changes in the patient's clinical condition.<sup>3</sup>

The risk and protective factors assessed were the following: exposure to violence: "Have you ever experienced any type of violence?" (yes/no); participation in social activities: "Do you participate in/practice sports (in addition to school-based ones), religious or leisure activities?" (yes/no; if yes, how often?); family socioeconomic level: classes A/B/C or D/E; sex: male/female; living in a motherless household: yes/no. Adolescents exposed to violence subsequently answered what type of violence, so that all unstructured answers could be classified as either urban or intrafamilial violence.

All risk and protective factors were included in the initial logistic regression model, after collinearity tests. Only the variable with a significance level of  $p < 0.05$  remained in the final model.

The study was approved by a institutional research ethics committee and all participants' parents signed informed consents.

## RESULTS

The sample was comprised of 142 boys (43.3%) and 185 girls (median=12;  $SD \pm 0.9$ ), belonging to families from all socioeconomic levels (27.8% classes A/B; 46.8% class C; 25.4% classes D/E). In this group of adolescents, the mental health problem rate was 12.5%, of which emotional (anxiety and/or depression, 11.4%) and behavioral problems (8.6%) were the most frequent.

<sup>a</sup> Peres MFT. Homicídios de crianças e jovens no Brasil: 1980-2002. São Paulo: Núcleo de Estudos da Violência da USP; 2006.

<sup>b</sup> Fundação Sistema Nacional de Análise de Dados. Informações dos municípios paulistas. [acesso em 15/12/2004] Disponível em: <http://www.seade.gov.br>.

<sup>c</sup> Associação Brasileira de Empresas de Pesquisas. Critério de Classificação Econômica Brasil. Disponível em: [http://www.abep.org/codigosguais/ABEP\\_CCEB.pdf](http://www.abep.org/codigosguais/ABEP_CCEB.pdf)

<sup>d</sup> Fleitlich-Bilyk BW. The prevalence of psychiatric disorders in 7-14-year olds in the southeast of Brazil [tese de doutorado]. Londres: Department of Child and Adolescent Psychiatry. Institute of Psychiatry. King's College. London University; 2002.

**Table.** Logistic regression models of risk and protective factors for mental health problems in adolescence. City of Barretos, Southeastern Brazil, 2004. (N=327)

Variable	p	OR	95% CI
Initial model			
Sex	0.39	0.73	0.36; 1.49
Socioeconomic status	0.28	1.62	0.68; 3.39
Motherless household	0.36	1.67	0.56; 4.94
Participation in social activities	0.54	0.72	0.26; 2.04
Has experienced violence	0.04	2.01	1.01; 4.00
Final model			
Has experienced violence	0.02	2.18	1.12; 4.22

In addition, 107 participants (32.7%) mentioned having experienced some type of violence at home or on the streets, and 229 of them (70.0%) mentioned participating in social activities, such as religious (68% were Catholic) sports (especially soccer) and leisure activities (going out with the family; playing musical instrument).

By analyzing risk (exposure to violence, belonging to a low social class family, female, living in a motherless household) and protective factors (frequent participation in at least one of the social activities) concurrently, it was observed that only exposure to violence remained in the final logistic regression model as a factor associated with mental health problems. Adolescents who had experienced violence were two times more likely to have mental health problems than those who had not experienced violence ( $p=0.02$ ; 95% CI:1.12;4.22) (Table).

To verify what type of violence has the most impact, only the group of adolescents that had suffered some type of violence was analyzed. Among 107 students, those exposed to intrafamilial violence were three times more likely to have mental health problems than those exposed to urban violence ( $p=0.04$ ; 95% CI: 1.03;7.55).

## DISCUSSION

The mental health problem rate of 12.5%, identified among the adolescents studied, is in accordance with Brazilian (8.3%-35.2%)<sup>2</sup> and international (10%-20%)<sup>7</sup> epidemiological studies.

Data from the present study could be generalized to the city as a whole, as the sample covered all the schools, and approximately 85% of adolescents between 11 and 15 years of age. However, the exclusion of adolescents who are out of the school system is a limitation, as these have a distinct profile from that of sample participants.

Another aspect to be considered is that the instrument is insufficiently detailed to assess risk and protective factors.

The study results showed that exposure to some type of violence constituted the most important risk factor for mental health problems among the adolescents investigated. As observed in other national<sup>1</sup> and international<sup>6</sup> studies, to experience intrafamilial violence and suffer physical punishment contribute to children's and adolescents' lacking adaptation, thus impairing their development. Despite violence being a risk factor that is reasonably studied in Brazil, the present study brings a new element, suggesting that intrafamilial violence plays a more relevant role in adolescent mental health than urban violence does. This result, which must be confirmed by other studies, has a significant impact on the establishment of public health campaigns. According to Bordin et al<sup>1</sup> (2006), intrafamilial violence usually has countless negative influences on adolescent mental health, such as the development of anxiety and depression symptoms, social isolation, suicide, substance use, behavioral problems and delinquency. Thus, intrafamilial violence, which has not been in the spotlight as urban violence has, with daily media coverage, should play a key role in proposals for prevention of mental health problems among adolescents. However, results about the intensity and severity of the violence experienced were based on reports given by adolescents, without the use of more objective measures.

The city of Barretos has low rates of violence; in 2006 there were seven homicides in this city (6.34 per 100,000 inhabitants), a rate three times lower than that of the State of São Paulo for the same period (18.4/100,000).<sup>a</sup> Perhaps the type of urban violence experienced by students had low intensity, thus justifying the greater impact caused by intrafamilial violence. This sample particularity suggests that the results found could be generalized to comparable cities, whereas they must be carefully dealt with in areas with high rates of urban violence.

The identification of risk factors enables the preparation of proposals for treatment and prevention with better allocation of resources, a strategy which is especially useful to plan governmental actions in developing countries, where financial resources are limited.<sup>7</sup> These actions would probably have better results with the acknowledgement of protective factors for these populations. In this sense, the present study sought to identify these variables, less investigated than risk factors. Nonetheless, in this study's sample, participation in social activities did not contribute to protect this population from the risk of mental health problems. This may have occurred because protective factors would need to be further investigated to have a relevant and positive impact on adolescent mental health. Or, perhaps, they

<sup>a</sup> Instituto de Saúde do Estado de São Paulo. Sistema de Monitoramento e Avaliação do SUS. São Paulo; 2006. Disponível em: <http://www.isaude.sp.gov.br/sismasus/>

need to be more intense factors, establishing minority resilient groups. This, however, did not take place in this study, as 70% of students regularly participated in social activities. If, on the one hand, there are not enough elements to understand the role of protective factors in the present study; on the other hand, the need to develop new studies specifically designed to analyze protective factors becomes evident.

Finally, it seems reasonable to assume that mental health problems are a consequence of intrafamilial violence. However, this cause-and-effect relationship was not answered in this cross-sectional study. Future longitudinal studies will thus enable to verify this hypothesis, in addition to investigating the impact of different types of violence, both urban and intrafamilial, on adolescent mental health.

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