Original article

# Contextual factors associated with sexual behavior among Brazilian adolescents

Maryane Oliveira-Campos BPT, MHS [a,b,*], Luana Giatti MD, PhD [a,b,c], Deborah Malta MD, PhD [d], Sandhi M. Barreto MD, PhD [a,b]

[a] Department of Public Health, School of Medicine, Universidade Federal de Minas Gerais, Belo Horizonte, Brazil
[b] Research Group on Chronic and Occupational Diseases — GERMINAL, Universidade Federal de Minas Gerais, Belo Horizonte, Brazil
[c] School of Nutrition, Universidade Federal de Ouro Preto, Ouro Preto, Brazil
[d] Department of Surveillance of Non-Communicable Diseases, Health Surveillance Secretariat (SVS), Brasília, Brazil

## ARTICLE INFO

## ABSTRACT

*Purpose:* There are few studies about the influence of the context on sexual behavior among adolescents in developing countries, such as Brazil. Adolescent pregnancy and the high incidence of sexually transmitted disease (STDs) among Brazilian youngsters are a public health problem. The object of this study was to investigate whether factors from family and school contexts are associated with sexual behavior among Brazilian adolescents.
*Methods:* This study used data from 60,973 adolescent participants in the National Survey of School Health. The response variable was sexual behavior, described in three categories (never had sexual intercourse, had protected sexual intercourse, had unprotected sexual intercourse). The explanatory variables were grouped into sociodemographic characteristics, number of risk behavior factors (regular use of alcohol, smoking, and experimenting with illicit drugs), and family and school context. Variables associated with having protected and unprotected sexual relations in each context were identified by means of multinomial logistic regression. The reference was "never had sexual intercourse."
*Results:* Approximately one fourth of adolescents have already had sexual intercourse, most frequently boys. Among the adolescents who declared sexual initiation, the most part had their first sexual relation with age of 13 years or younger. Almost 21% did not use protection the last time they had sex. The greater the number of risk factors involved, the higher the incidence of protected and unprotected sex. In the family context, living with only one or with neither parent and low parental supervision increased the frequency of protected and unprotected sex. Never eating meals with the parents augmented the incidence of unprotected sex (odds ratio [OR], 1.60). In the school context, students from private schools were less likely to have had protected and unprotected sex (OR, 0.58 and 0.68). Not receiving instructions at school about pregnancy prevention increased the frequency of protected and unprotected sex (OR, 1.33 and 1.74, respectively).
*Conclusions:* Family and school context factors are associated with sexual behavior. These associations are generally stronger for unprotected sex. Information about the prevention of pregnancy and STDs/AIDS has to be disseminated very early owing to the young age of sexual initiation.

## Introduction

Adolescent development is a complex and interactive process, which involves family, school, and the community in general [1]. Generally, adolescents spend most of their time at school or in a family environment. These contexts influence the health and welfare of adolescents and have important impacts on adult life [2,3]. Since the 1990s, important social, cultural, and economic changes have occurred in Brazil. In addition to changes in the family composition caused mainly by the increase in the rate of divorces, remarriages, and single parenthood, the participation of Brazilian women in the labor market also increased [4].

Transformations in the family structure and in the parent–child relationship had several implications, such as the increase of adolescents' involvement with violence, the use of psychoactive substances, and sexual risk behaviors [5–7]. One of the most important events during adolescence is sexual initiation. According to ecological models, sexual behavior in adolescents is influenced by a large scope of circumstances, which range from individual and

* Corresponding author. Programa de Pós-graduação em Saúde Pública, Faculdade de Medicina- Grupo de Pesquisa GERMINAL. Universidade Federal de Minas Gerais- UFMG. Avenida Alfredo Balena 100, sala 814, CEP: 30320-050, Belo Horizonte-Minas Gerais, Brazil. Tel.: +055 31-8800-0192; fax: +055 31-3248-9938.
*E-mail address:* oliveiracampos.m@gmail.com (M. Oliveira-Campos).

close context (friends, family, and school) to cultural, religious, and environmental factors [1,8].

Scientific evidence reveals that certain factors from the family and school context can be protective against sexual risk behavior. Living with both parents and greater parental involvement and supervision have positive impacts, such as later sexual initiation, fewer sexual partners, and condom use [9–12]. At school, greater commitment and programs about sexual and reproductive health are associated with later sexual initiation and the use of protection [13–15].

Good family and school relationships are also associated with lower rates of sexually transmitted diseases (STDs) worldwide and undesired adolescent pregnancy [15,16], public health problems that can be avoided with the use of condoms [17,18]. Unprotected sex is one of the factors that most contributes to increase the number of lost disability-adjusted life years among adolescents and young adults [19]. Undesired, unplanned pregnancy, besides compromising sexual and emotional development, is associated with school abandonment and future impoverishment [20,21].

In Brazil in 2006, 16.2% of the female adolescents between the age of 15 and 19 years were already moms; 13.5% had two children or more. Between 1996 and 2006, in the age range of 10 to 14 years, the number of births increased from 3 to 4 per 1000 women [22]. The high prevalence of STDs among young Brazilians also deserves attention. Comparing all age groups, young people (20 years or younger) are those who present the highest prevalence of chlamydia and human papillomavirus in the country [23]. The incidence of human immunodeficiency virus (HIV) is 2 in 100,000 men and 1.6 in 100,000 women among Brazilians aged 15 to 24 years [24].

Most studies published in Brazil regarding exposure to unprotected sex refer to older adolescents and young adults, or do not contain relevant information on the social contexts surrounding youngsters [4,25]. The few studies that collected information on these topics are small and restricted to a specific town or even school [26–28]. The National Survey of School Health (PeNSE) is the first comprehensive, nationally representative study to include information about both behavioral and social (family and school) contexts regarding Brazilian early adolescents.

The objectives of the present study were to describe the sexual behavior of adolescents in Brazilian schools and identify risk and protection factors in the family and school contexts associated with unprotected sex among this population, independent of individual, socioeconomic, and behavioral factors. Our hypothesis is that less parental involvement and supervision and poor access to information about sexual and reproductive health are associated with engaging in sexual intercourse and, especially, with engaging in unprotected sex.

## Methods

The study analyzed data regarding 60,973 students who participated in the PeNSE, a cross-sectional study was undertaken by the Brazilian Ministry of Health among high school students in the 9th grade in public and private high schools from all 26 Brazilian State Capitals and the Federal District during May and June 2009. In each city, private and public schools were defined as two strata and the final sample was proportional to the size of the stratum in each municipality. Within each stratum, a cluster sampling was used where the primary sampling unit was the school. Within the school, one or two classes from the 9th grade were randomly selected depending on the school's size. All pupils in the randomly selected class were invited to participate.

### Procedures used in the study

A self-administered questionnaire was used for data collection. The students answered the questions in a personal digital assistant, a palmtop computer. Participation was voluntary; the students had the choice of not answering. No information that could identify an individual student was obtained. All data regarding the school was confidential and was not included in the database. The research project was approved by the National Research Ethics Commission—CONEP (no 11.537). The methodology of the survey has been described in detail elsewhere [29].

### Measures

In this study, the following variables were used to describe sexual behavior among the students: Having engaged in sexual intercourse at least once (defined by the question: Have you ever had sex?); age of sexual initiation (assessed by the question: How old were you when you had sex for the first time?); and total number of sexual partners (determined by the question: Overall, with how many people have you ever had sexual relations?) The dependent variable, sexual behavior, was assessed by the question: The last time you had sex, did you or your partner use a condom? The answer was categorized into never had sex, had safe sex (used a condom), and had unprotected sex (did not use a condom).

The explanatory variables were grouped into the following four domains.

1. Sociodemographic characteristics: Gender, age in years (≤13, 14, 15, ≥16) and ethnic group/skin color (White, Black, Mulatto, Asian origin, Brazilian Indian). Socioeconomic status was assessed by the household assets indicator [30], composed of the assets that had less than a 70% prevalence in the sample (fixed telephone, washing machine, computer with Internet connection, car, and motorcycle). The weight attributed to the presence of each domestic asset was defined as 100%, subtracted by the relative frequency (%) of the asset; that is, the rarer the presence of an item in the household, the greater the weight attributed to it. The indicator ranged from 0 to 1 and was divided into terciles (1st tercile, lowest; 2nd tercile; and 3rd tercile, highest).

2. Psychoactive substances: Alcohol use (no/yes) was defined by drinking at least one cup or dose of any alcoholic beverage in the past 30 days and was assessed by the question, "In the past 30 days, on the days you drank any alcoholic beverage, how many cups or doses did you have?" Similarly, regular smoking (no/yes) was defined by any positive answer to the question, "In the past 30 days, in how many days did you smoke cigarettes?" Experimenting with drugs (no/yes) was obtained by the question, "Have you ever used any drugs, such as marijuana, cocaine, crack, glue, chloroform, ethyl chloride, ecstasy, or others?" We built a single variable that corresponds with the sum of all risk behaviors reported by the teenager (adolescent) and varied from 0 (no risk behavior) to 3 (all three risk behaviors)."

3. Characteristics of the family context: Family composition (lives with farther and mother, lives only with mother, lives only with father, lives with neither); having meals with a parent or equivalent (assessed by the question: Do you usually have lunch or dinner with your parent[s] or whoever is responsible for you?—every day of the week, at least 1 day of the week, rarely, never); parental supervision (measured by the question: In the last 30 days, how frequently did your parent[s], or person responsible for you, really know what you were doing during your spare time?—always/most of the time, sometimes/rarely).