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Original article

Self-Medication Among Adolescents Aged 18 Years: The 1993 Pelotas (Brazil) Birth Cohort Study☆

Andréa Dâmaso Bertoldi, Ph.D. [a,*], Aline Lins Camargo, M.Sc. [b], Marysabel Pinto Telis Silveira, Ph.D. [c], Ana M.B. Menezes, M.D. [a], Maria Cecília Formoso Assunção, Ph.D. [a], Helen Gonçalves, Ph.D. [a], and Pedro Curi Hallal, Ph.D. [a]

[a] *Postgraduate Program in Epidemiology, Federal University of Pelotas, Pelotas, Rio Grande do Sul, Brazil*
[b] *Department of Pharmacosciences, Federal University of Health Sciences of Porto Alegre, Porto Alegre, Rio Grande do Sul, Brazil*
[c] *Institute of Biology, Department of Physiology and Pharmacology, Federal University of Pelotas, Pelotas, Rio Grande do Sul, Brazil*

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A B S T R A C T

Purpose: To estimate the point prevalence of self-medication among adolescents aged 18 years and to evaluate the type of drugs used (either over-the-counter or prescription drugs) and socioeconomic, health-related, and behavioral correlates of self-medication.
Methods: This cross-sectional study used data from the 1993 Pelotas (Brazil) Birth Cohort Study. Data were obtained through the administration of a questionnaire to adolescents aged 18 years. The outcome variables were point prevalence of medicine use and self-medication collected by self-report. The independent variables studied were gender, continuous medicine use, socioeconomic status, schooling, self-rated health, body mass index, and physical activity levels. Medicines were classified into therapeutic groups according to the Anatomical Therapeutic Chemical classification system.
Results: A total of 4,106 adolescents were interviewed. The point prevalence of medicine use was 41.1% (95% confidence interval [CI] 39.6–42.6), and the proportion of self-medication among medicine users was 65.1% (95% CI 62.8–67.4). The point prevalence of self-medication was 26.7% (95% CI 25.4–28.1), and it was higher among female adolescents, those more educated, and those who rated their health as poor. Out of the drugs used for self-medication (58% of all drugs used), 1,003 (78.7%) were nonprescription drugs and 271 (21.3%) were prescription drugs. The most frequently used drugs for self-medication were analgesics (56.1%), systemic antihistamines (7.4%), and anti-inflammatory and antirheumatic products (7.1%).
Conclusions: A high point prevalence of self-medication was found among adolescents, which is particularly concerning due to high use of prescription drugs for self-medication. Interventions are needed to promote rational use of medicines in this population.

IMPLICATIONS AND CONTRIBUTION

The proportion of self-medication among medicine users was high (65.1%), and for continuous medication, self-medication reached 18.7%. Strategies to promote rational drug use are needed addressing issues related to drug use, from elementary and high school, as they can potentially lead to behavior changes toward the rational use of medicines.

Self-medication is a widespread practice regarded by the World Health Organization (WHO) as being part of self-care. Self-medication is defined as the selection and use of medicines by individuals to treat self-recognized or self-diagnosed conditions or symptoms. WHO recognizes this practice as responsible when the individual uses products that are approved and available without the need of medical prescription [1]. It is important to

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* Address correspondence to: Andréa Dâmaso Bertoldi, Ph.D., Centro de Pesquisas Epidemiológicas, Programa de Pós-graduação em Epidemiologia, Universidade Federal de Pelotas, Rua Marechal Deodoro, 1160 3° piso, Pelotas, Rio Grande do Sul, Brazil 96.020-220.
E-mail address: andreadamaso.epi@gmail.com (A.D. Bertoldi).

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understand this practice among people of all ages, but particularly among those individuals who are becoming more independent and encouraged to be more independent about self-care.

In Brazil, as in most countries, the age of 18 years is a legal milestone into adulthood when adolescents can enjoy adult privileges. Yet, the road to adulthood involves exploring various levels of independence and responsibilities under adult supervision. This transition from adolescence into young adulthood is often characterized by going off to college, joining the military, marrying and becoming a parent [2]. This transition period can affect one's health and medicine use due to increases in the prevalence of sexually transmitted diseases, obesity, smoking and alcohol use, as well as decreases in physical activity practice [3].

Appropriate and responsible self-medication has been associated with several benefits including increased access to medicines, active patient role, and promotion of self-care and optimization of the use of public resources for the treatment of mild or minor health conditions [4]. However, self-medication is not always safe, as it may be related to incorrect self-diagnosis, delays in seeking medical advice when needed, infrequent but severe adverse reactions, dangerous drug interactions, incorrect manner of administration, incorrect dosage, incorrect choice of therapy, masking of a severe disease, and risk of dependence and abuse [4–7].

Only nonprescription, over-the-counter (OTC) drugs should be used through self-medication. According to WHO guidelines, OTCs must be safe, reliable, effective, easy to use, and convenient [1]. In Brazil, however, many pharmacies do not comply with the mandatory requirement of presenting a medical prescription for the purchase of prescription drugs, which facilitates its use through self-medication. The implications of this harmful practice and its potential damaging health effects are of great concern.

The prevalence of self-medication in Brazil and worldwide has been estimated between 10.3% and 87.0% varying according to the population studied and methods used [4,8–19]. The drugs most frequently used through self-medication are analgesics and antipyretics, nonsteroidal anti-inflammatory drugs, and antimicrobials [8,9,12,15,18,20]. Studies about self-medication in adolescents are rare. In three previous studies, the prevalence of self-medication ranged from 26.7% to 56.6% [14,17,18].

Previous studies have shown that medicine use is strongly associated with gender [13,17,21], socioeconomics position, schooling [15,16], and self-rated health [14,22]. We are interested in investigating whether these variables also influence self-medication in this age group. Body mass index (BMI) has proved directly associated with medicine use in adults [23,24]. In addition, physical activity was shown to be inversely associated with medicine use [25]. The effect of these two variables on medicine use and self-medication in adolescents was seldom explored. There is also a literature gap on the use of medicines that require medical prescription through self-medication, a fact that indicates lack of control in medicine dispensing. This would be of particular concern in a country like Brazil, where such medicines should be only used with medical prescription. The same concern was raised in Europe, Asia, and Latin American concerning the use of antibiotics [8,26–28].

This study aimed to assess the point prevalence of self-medication among adolescents aged 18 years, the type of drugs used (either OTC or prescription drugs), and socioeconomic, health-related, and behavioral correlates of self-medication.

Methods

Pelotas is a southern Brazilian city with around 330,000 inhabitants in 2010. All live births in city hospitals in the calendar year of 1993, of mothers living in the urban area of the city of Pelotas, Brazil, were included in the 1993 Pelotas (Brazil) Birth Cohort Study. Of the 5,265 eligible mothers of children born that year, 5,249 agreed to participate. Subsamples of these children were followed up at ages 1, 3, and 6 months and 1, 3, 6, and 9 years. The first follow-up visit to all cohort members took place when participants were aged 11 years. Follow-ups of the entire cohort were also carried out at the ages of 15 and 18 years.

The 18 years follow-up visit took place between September 2011 and March 2012. Adolescents were invited to attend the Postgraduate Program in Epidemiology outpatient clinic, where they underwent medical examinations and filled out questionnaires. Further details on the methods used in previous cohort visits can be found elsewhere [29,30]. Data on medicine use were collected during the follow-up at the age of 18 years through self-report.

We assessed two outcomes at the individual level: point prevalence of medicine use and point prevalence of self-medication. We defined medicine use as the use of at least one medicine in the 15 days preceding the interview, independent if it was an eventual use or an ongoing use (i.e., continuous use), and we defined self-medication as the use of at least one medicine without a current medical prescription in the 15 days prior to the interview. Information on advice for medicine use was collected and categorized as current medical prescription, noncurrent medical prescription, or nonmedical advice (by a family member, friend, nonmedical health professional, and others).

The independent variables studied were gender; continuous medicine use (daily or almost daily use with no end date); socioeconomic position (an index was constructed based on a score of household assets; the sum of items was entered in a principal component analysis and the first factor was extracted; we then divided this factor into quintiles to represent fifths of socioeconomic position; the assets originally included in the questionnaire were those collected in standardized socioeconomic position classification systems in Brazil [31]); schooling (up to 8 years; 9–11 years), self-rated health (excellent, good, regular, fair, poor); BMI (low, normal, overweight, obese according to the WHO criteria for 18-year-old adolescents) [32]; and physical activity (a cutoff of 300 minutes or more per week of commuting or leisure-time physical activity was used to classify participants as active) [33].

We also conducted analyses using the total number of drugs used as the denominator. The reported drugs were divided into groups following the Anatomical Therapeutic Chemical (ATC) classification system [34], level 1 classified drugs by main anatomical group and level 2 according to pharmacological/therapeutic subgroups. Medicines were also categorized as nonprescription (OTC) or prescription drugs according to the current Brazilian regulations [35].

The analyses were performed using Stata 11.2 (StataCorp, College Station, TX). First, we conducted a description of the independent variables and then calculated the point prevalence of medicine use and overall self-medication stratified by gender and continuous medicine use. We used the chi-square test for heterogeneity at a 5% level of significance and calculated 95% confidence intervals (CIs) of the main estimates.