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Factores asociados a la automedicación en adolescentes en el
área rural de Cartagena, Colombia

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Abstract: **Objective:** to determine the factors that influence on self-medication in Cartagena de Indias (Colombia) adolescents in rural area. **Materials and methods:** analytical, cross-sectional study, which 383 adolescents between 10 and 18 years old, who lives in two towns of Cartagena, participated. An instrument designed for this study and validated by an expert was applied and integrated by a sociodemographic component, as well as a self-medication and related factors instrument. **Results:** participants were mostly males (58.2%), between 12 and 17 years old (14.9% and 16.2%), high school students (55.1%). This practice is associated with influence of a relative or a friend (OR 95% CI (6,686 (3,960-11,288)), female sex (OR 95% CI (2,636 (1,516- 4,586) and the acquisition of medications without a medical formula (OR 95% CI (10,491 (4,849 22,698))). **Conclusions:** self-medication is a common practice among adolescents in the rural area of Cartagena, and is given by cultural factors, such as the family influences and the flexibility of acquiring medications without a medical formula. **Keywords:** self-medication, adolescent health, drugs, public health.

Resumen: **Objetivo:** determinar los factores que influyen la automedicación en adolescentes de la zona rural de Cartagena de Indias. **Materiales y métodos:** estudio analítico, transversal, en el cual participaron 383 adolescentes de 10 a 18 años que habitan dos corregimientos de la ciudad de Cartagena. Se aplicó un instrumento diseñado para este estudio, el cual fue validado por un experto; se integró por un componente sociodemográfico, y otro de automedicación y factores relacionados. **Resultados:** los adolescentes participantes fueron masculinos el (58,2%), de 12 y 17 años (14,9% y 16,2%), estudiantes de secundaria (55,1%), Esta práctica está asociada a la influencia de un Familiar o amigo (OR IC 95% (6,686 (3,960-11,288)), el sexo femenino (OR 95% 2,636 ((1,516-4,586) (P = 0.001), y la adquisición de medicamentos sin formula médica (OR IC 95% (10,491 (4,849 22,698))). **Conclusión:** la automedicación

es una práctica común en los adolescentes del área rural de Cartagena, y está dada por factores culturales como la influencia de la familia o familiar y la flexibilidad de adquirir medicamentos sin fórmula médica.

Palabras clave: automedicación, salud del adolescente, medicamentos, salud pública.

Introduction

Self-medication is a growing global phenomenon, which has traditionally been defined as the individual action of following a treatment without any prescription. However, this vision has briefly reduced the contemporary manifestations of the phenomenon that goes beyond self-care and is increasingly associated with the mass consumption of drugs induced by advertising [1], as a result the irrational use of medications becomes a worldwide increasing practice and serious public health problem. Jerez [2], attributes this practice to the economic, political and cultural actors [1]. On the other hand, it's indicated around the prevalence and measures in self-medication, that there is a greater incidence of this in the population with social, economic and educational restricted resources, which hinder access to health [2].

Self-medication is an inevitable fact, whether due to cultural or economic factors, and it is necessary to inquire about the global and current phenomenon of self-medication in order to offer an explanation both at the mass and individual level. It has been reported that self-medication is practiced between 60% to 80% of the health problems cases [3]. Eichenberg in Germany found that the 94.9% personal interviews of those questioned did treat at least one of the 25 symptoms included in the survey with non-prescription medicine before potentially seeing a doctor [4].

This phenomenon is not alien in developing countries, as in the case of Saudi Arabia, it was observed that 58% of the treated patients were self-medicated, due to the triviality of their symptoms or to "save" time and money [5]. Similar to what was found in Latin America, where studies have also shown that this practice is very frequent, for example Moreover, Real founds in Paraguay that around 66% of the participants ingest more than one drug at a time, and the main source of acquisition of drugs were pharmacies (50%), the drugs most frequently ingested were analgesics (84%). [6]. However, in Lima and Yauri (Cuzco), it was determined that 32% of the medications were sold without medical formula and was higher in high socioeconomic stratum [7].

On the other hand, in Popayan, Colombia, 76.22% of the respondents found themselves self-medicated. Moreover, 35.17% of self-medicated individuals acquire their medications at drug stores, without requiring any type of medical formula and 45.26% of them range between 29 to 39 years old [8].

Factors, such as family influence, which usually have misconceptions about medication, can negatively influence the patient and lead to self-medication [9]. The transition from childhood, with parental control of the administration of medications to adulthood, is linked to adolescence,

where responsibility for self-medication in minor diseases begins. Whereas, in adulthood people get more involved in the responsibility of self-medication in chronic diseases [10]. It has been reported that individuals at age 17, start self-medication practices, often in high school years. Cesolary et al, found that 58 to 76% of the individuals studied in their research, are self-medicated on pain relievers, without their parent's knowledge and the percentage increases with age, starting at 11 or 12 [11]. In the same way, Shabani [12] Found in Kosovo young population that the self-medication was the pharmacy without prescription 91.69%, followed by the left-over antibiotics 8.31% (n=31). The most common reasons for self-medication with antibiotics were sore throat 44.47% of respondents.

The development of autonomous behaviour, in adolescence, extends from the use of medications to handle aspects that affects life quality, such as physical and psychological well-being and relationships with friends, classmates, parents as well as school environment. But it is also in this age, where habits that shape the adolescent's lifestyle are outlined and consolidated, some of them with a marked health impact, such as the consumption of psychoactive substances, alcohol and tobacco. At this key stage of development, the influence of parents, acquires a crucial relevance. Hence, the way that parents exercise their parenthood as well as their socialization style, interacts with the inner development of the child, modulating the way he faces different daily challenges [12].

Considering all this and the fact of no registered data or statistics on self-medication in adolescents in Colombia, this study was proposed to identify the factors that influence self-medication in adolescents located in the city of Cartagena de Indias, because there are no reports regarding the topic in adolescents.

Materials and methods

Type of study, population and sample

A cross-sectional observational and analytical study that was conducted with the study population that were 163.290 according of the total projection in 2005-2020 of the DANE'S. To obtain the sample size, there was a confidence level of 95%, this was taken into account with an absolute error of 5%. It had a 50% of established prevalence, with $q=1-p$; $t=1.96$, a simple random sampling was used, obtaining a sample of 383 adolescents in total between 10 and 18 years old, they live in two suburbs, as a rural area of Cartagena de Indias- Colombia. The inclusion criteria that was taken were: adolescents whose tutor or father agreed to be participants in this research, as well, they had to live in the rural community and also the ones without apparent cognitive illness. In the same way, exclusion criteria will be such as: adolescents with an apparent cognitive disease, also the ones whose their tutor or father or they do not want to participate in the study or suffer from a cognitive disease.

Instruments and Study variables

A 22 questions instrument that was designed by the authors of the study based on the WHO Pharmacotherapy program. It was initially a pilot tested out on 15 individuals, which also reviewed by an external peer expert in order to validate it. The survey consisted of two sections: sociodemographic characteristic sections (First 7 questions) where age, sex, educational level and marital status were taken, also, the self-medication and related factors (next 15 questions). The study data were collected in the second period of the 2017 year, beginning with the geographical recognition of the town and then the coordination with the community sector leaders to explain the study objectives and the impact of the same and finally, it was implemented.

Statistical analysis

It was carried out in a Microsoft Excel spreadsheet for the tables and graphs realization, as well as the different statistical calculations such as means standard deviations, absolute and relative frequencies, which was allowed the descriptive analysis of the demographic variables and characteristics of the self-medication practice. For the associated variables analysis, a value of $p < 0.05$ was taken into account, OR and the respective confidence intervals were also calculated using the IBM SPSS 24 (IBM Corp).

Bias control

It was verified that the people participating in the data collection do not present conflicts of interest, in addition, a pilot test was carried out to evaluate the content of the instrument and anonymous participation in the study was guaranteed to favor the sincerity of the responses.

Ethical consideration

The study was approved by the Ethics Committee of the Rafael Nuñez University Corporation, which determined that the project conformed to Resolution 8430 of 1993 classified as risk-free, since data were obtained without carrying out experiments on the subjects [13]. Informed consent was obtained from the legal guardian or parent, who agreed to participate in the investigation, in addition, informed consent was also obtained from the minors, and informed settlement was applied to parents in order to make them an active subject in the investigation and highlighting their points of view.

Results

383 adolescents with an average age of 14 years ($SD = 2$) participated in the study, of which 58% were male, and the educational level was represented by secondary school in 55.1% of cases. It should be clarified that 8.63% did not study at the time of the study. Regarding the religion professed by adolescents, catholicism was 54.8% of the participants; single marital status prevailed with 94.3% (Table 1).

Variable (level)	n (%)
Sex	
Female	160 (42)
Male	223 (58)
Education level	
Out of school	33 (8.6)
Primary	139 (36.3)
Secondary	211 (55.1)
Religion	
Catholic	210 (54.8)
Protestant	135 (35.2)
Jehovah's Witness	38 (9.9)
Marital status	
Single	361 (94.3)
Free Union	22 (5.7)
Monthly Income	
< 200 000	44 (11.5)
200 000 – 500 000	322 (84.1)
500001 – 1 000 000	17 (4.4)
Total	383 (100)

Table 1
Sociodemographic characteristics of the adolescents participating in the study

n: Frequency. (%) Percentage
 dates of study

The prevalence of self-medication in adolescents with self-medication practices was 78.9%, the frequency with which they self-medicated was 21.9% every 15 days, people who have mostly influenced this practice are family members with 31.3%. The places where they mainly buy medications are in the drugstores 71.3% and if you feel any health discomfort, go to a relative 82.2%. 90.9% of adolescents have acquired medications without a medical formula and mention that they have not presented side effects as a result of the consumption of these medications (Table 2).

Variable (level)	n (%)
Self- medication	
No	81 (21.2)
Yes	302 (78.9)
Self- medication Frecuency	
Every 15 days	84 (21.9)
Every 6 months	57 (14.9)
Never	81 (21.1)
Once a week	78 (20.4)
Once a month	83 (21.7)
¿Who has influenced your self- medication practice?	
Friend	73 (19.1)
Pharmacy	12 (3.1)
Family	120 (31.1)
Media	53 (13.8)
None	83 (21.7)
Others	42 (11)
Places you go to obtain medications	
Pharmacy	273 (71.3)
Do not self- medicate	81 (21.1)
Others	29 (7.6)
¿If you have any health issue, who do you initially go to?	
Friend	7 (1.8)
Family	315 (82.2)
Physician	61 (15.9)
¿What practices do you perform when presenting illness symptoms?	
Attend a health professional consultation	69 (18)
Self- medication	302 (78.9)
Take natural /herbal formulas	6 (1.6)
Cross onself	6 (1.6)
¿Have you obtained medications without medical formula?	
No	35 (9.1)
Yes	348 (90.9)
¿Why haven't you attended lately a medical consultation?	
Change the place of consultation	8 (2.1)
Have no time	10 (2.6)
Always attend	365 (95.3)
¿Have you had any side effects due to self- medication?	
No	298 (77.8)
Do not self- medicate	81 (21.1)
Yes	4 (1)
Total	383 (100)

Table 2
Prevalence and reasons for self-medication in adolescents participating in the study

n: frequency. (%) Percentage
 dates of study

Factors associated with self-medication in adolescents participating in the study

Self-medication in adolescents in the rural area of Cartagena, Colombia, was significantly associated with sex, it is more common in women than in men (OR 95% 2.636 ((1.516-4.586) (P = 0.001), the influence of a family or friend (OR 95% 6.686. CI (3.960-11.288) (P = 0.000)) and the acquisition of medicines without medical formula (OR 10.491. CI (4.849 -22.698) (P = 0.000)), (Table 3).

Self-medication				
Sex	Yes n(%)	No n (%)	OR (CI 95%)	P value *
Male	162 (85.7)	61(12.5)	2.636 (1.516- 4.586)	0.001
Female	140 (72.6)	20 (27.4)		
Family or friend's Influence				
Yes	290 (96.7)	10 (3.3)	6.686 (3.960-11.288)	0.000
No	12 (14.5)	71 (85.5)		
Obtain non-prescribed medications				
Yes	291 (83.4)	58 (16.6)	10.491 (4.849 22.698)	0.000
No	11 (32.4)	23 (67.6)		

Table 3
Factors associated with self-medication in adolescents participating in the study
 n: frequency. (%) Percentage. Source
 dates of study

Discussion

The practice of self-medication is a serious public health problem given its implications and risks that range from the occurrence of adverse effects both in the medium and long term, can even cause irreversible reactions and sequelae, and in worst cases, death [14]. This situation varies between regions, so a variety of factors is involved, including the great cultural diversity of adolescents.

The adolescents were mainly males with an average age of 14 years, results that differ from those evidenced by Ortega [15], who found the average age was 15.5 years and 52.9% were women. This may be because women are mostly those who care for their family's since the beginning of history, often leaving aside their own health. Thus, having a different coping with the disease, as they easily recognize the possibility of getting ill, leading them to manage the initial symptoms without consulting the doctor many times [16].

Educational level is a factor that influences health practices carried out by people, it is assumed that at a lower educational level the consequences of non-prescribed medications are often unknown [17]. Participants in the present study had a basic secondary education – level or were not attending school. This is related to what was found by Ortega [15] who evidenced in his study that the majority of adolescents were high school students.

In the present study it was evidenced that sex was a variable associated with self-medication in adolescents, this practice is more frequent in women than in men, results similar to those evidenced by Machado J. et al. [18] in Pereira, Colombia, where self-medication was showed that it was associated with female sex (OR = 0.42, 95% CI 0.234–0.736, p = 0.003). It can be inferred that this phenomenon is predominant in the female sex, since women live the health-disease process differently than men, they have a greater facility to recognize the health problem that affects them; furthermore, his intuitive sense of responsibility prevails over his health and the people around him [19].

There was a high prevalence of self-medication among adolescents in this study, results that are related to what was reported in other researches, such as those carried out by Fuentes [20] in Chile where 75% of the participants self-medicated. Tobon [21] also evidenced that 97% of Colombian university students self-medicated, considering it as an inappropriate practice that can have serious consequences on their health [14].

It was evidenced that the first practice an adolescent performs when having illness symptoms was self-medication. Studies show that this practice may occur because in Colombia there are so called over the counter medications [22], which do not need a medical formula, for example, through a telephone consultation, or the advice of a pharmacy dependent, or some relative or friend [23].

Throughout the study, it was evident that adolescents largely attribute their self-medication practice to the influence of others, especially family and friends, similar to the results obtained by Tobon et al. [24]. This author also reported the nearby people are the ones that most affect the development of this practice, and that they are not always “suitable professionals to attend health or drug-safety consultations”. Jiménez et al. [25] found that parents influential behaviours, such as consuming unprescribed medications is statistically related with the presence of self-medication in adolescents. Likewise, and given that pharmacies represent the most frequent place to acquire medications which adolescents consume without a prescription, the correlation was significant (p value ≤ 0.05) with the performance of such practice; a similar result to that disclosed by Tobon [24]. Unlike the aforementioned, some variables were not statistically important in the association. This was the case, for example, of the level of education and marital status were not significant, unlike the contribution of Jiménez [25] where it is found that education and singleness are linked to self-medication (p value ≤ 0.05).

Conclusions

The acquisition of over the counter medications, was associated with the consumption of medications, this is a factor that predisposes people to consume medications without the need of a medical prescription for the management of their signs and symptoms. It should be noted that this practice is not consistent with what is established by the World Health Organization (WHO) where it states that for self-medication to be responsible, it must be suggested by a pharmaceutical chemist, who is a leading educator in all aspects of the rational use of the drug. However, secondary school was the most frequent educational level, as well as singles, indicating that not having a permanent person to advise the individual encourages these practices. It is here where health professionals, especially nurses, due to their rapprochement with the community, play an important role in ensuring the improvement of health behaviours, keeping in mind the myths and beliefs that exist in adolescents in relation to consuming non-prescribed medications.

Thus, formulating dynamic educational programs, on the importance of preventing these practices from an early age is fundamental.

In this research, the limitations are given by the threats from the area of influence, in this case, crime, lack of interest on the part of the target population or non-authorization by a responsible adult. Likewise, the little information on the subject under investigation and, finally, the availability of free time by researchers for the development of the research.

Conflicts of interest: the authors declared that there was no conflict of interest during this investigation. The study had no personal, financial and political ties to the entities or individuals surveyed.

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