

# CUIDADO É FUNDAMENTAL

UNIVERSIDADE FEDERAL DO ESTADO DO RIO DE JANEIRO • ESCOLA DE ENFERMAGEM ALFREDO PINTO

RESEARCH

DOI: 10.9789/2175-5361.rpcfo.v12.7419

## SEXUAL BEHAVIOR, SOCIODEMOGRAPHIC AND ECONOMIC PROFILE OF BOTH FIRST-YEAR BRAZILIAN AND INTERNATIONAL STUDENTS AT A PUBLIC UNIVERSITY

Perfil sociodemográfico e econômico e comportamento sexual de brasileiros e estrangeiros recém-ingressos em uma universidade pública

Perfil sociodemográfico y económico y comportamiento sexual de brasileños y extranjeros recién-ingresaron una universidad pública

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### How to cite this article:

Farias AGS, Joaquim DC, Benedito FCS, Brito EHS, Costa EC, Leite ACRM. Sexual behavior, sociodemographic and economic profile of both first-year brazilian and international students at a public university. 2020 jan/dez; 12:779-785. DOI: <http://dx.doi.org/0.9789/2175-5361.rpcfo.v12.7419>.

### ABSTRACT

**Objective:** To characterize, compare and associate the socio-demographic and economic profile, as well as the sexual behavior and the knowledge and presence of Sexually Transmissible Infections (STI) among Brazilian university students and foreigners recently admitted to an public university. **Method:** Exploratory, descriptive and quantitative research was conducted with 131 students. **Results:** There was a predominance of male participants, Brazilian and Guinean, single, with eventual partnership and family income of up to one minimum wage. More than half of the Brazilian and foreign participants had started their sexual life before the age of 18 and had had at least 2 partners. Most students knew the concept of STI and hadn't contracted any of them. An association was observed between being a foreigner, having had the first intercourse and knowing STI. **Conclusion:** It's perceived that the reality of foreign university students is similar to the reality of Brazilians.

**Descriptors:** Sexual Behavior, Students, Sexually Transmitted Diseases, Knowledge.

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DOI: 10.9789/2175-5361.rpcfo.v12.7419 | Farias AGS, Joaquim DC, Benedito FCS et al. | Sexual behavior, sociodemographic and economic profile...

## RESUMO

**Objetivo:** Caracterizar, comparar e associar o perfil sociodemográfico e econômico, bem como o comportamento sexual e o conhecimento e presença de Infecções Sexualmente Transmissíveis (IST) entre universitários brasileiros e estrangeiros recém-ingressos a uma universidade pública. **Métodos:** Pesquisa exploratória, descritiva e quantitativa, conduzida com 131 estudantes. **Resultados:** Houve o predomínio de participantes do sexo masculino, brasileiros e guineenses, solteiros, com parceria eventual e renda familiar de até um salário mínimo. Mais da metade dos participantes brasileiros e estrangeiros tinha iniciado a vida sexual antes dos 18 anos e tinha tido, no mínimo, 2 parceiros. A maior parte dos estudantes sabia o conceito de IST e não tinha contraído qualquer uma delas. Foi observada associação entre ser estrangeiro, ter tido a 1ª relação sexual e conhecer IST. **Conclusão:** Percebe-se que a realidade dos universitários estrangeiros se assemelha à realidade dos brasileiros, sendo ambos vulneráveis às IST.

**Descritores:** Comportamento Sexual, Estudantes, Doenças Sexualmente Transmissíveis, Conhecimento.

## RESUMÉN

**Objetivo:** Caracterizar, comparar y asociar el perfil sociodemográfico y económico, así como el comportamiento sexual y el conocimiento y presencia de Infecciones Sexualmente Transmisibles (IST) entre universitarios brasileños y extranjeros recién ingresados a una universidad pública. **Métodos:** Investigación exploratoria, descriptiva y cuantitativa, conducida con 131 estudiantes. **Resultados:** Hubo el predominio de participantes del sexo masculino, brasileños y guineanos, solteros, con asociación eventual y renta familiar de hasta un salario mínimo. Más de la mitad de los participantes brasileños y extranjeros había iniciado la vida sexual antes de los 18 años y había tenido al menos 2 socios. La mayoría de los estudiantes sabía el concepto de IST y no había contraído ninguna de ellas. Se observó asociación entre ser extranjero, haber tenido la 1ª relación sexual y conocer IST. **Conclusión:** La realidad de los universitarios extranjeros se asemeja a la realidad de los brasileños, siendo ambos vulnerables a las IST.

**Descriptorios:** Conducta Sexual, Estudiantes, Enfermedades de Transmisión Sexual, Conocimiento.

## INTRODUCTION

The sexual behavior of first-year university students is partially defined according to the social and subjective relationships between them and their new environment, family principles and past experiences. In addition to these factors, new customs and life habits contribute to sexual behavior of students seeking higher education institutions abroad.<sup>1</sup>

Considering the university framework, the knowledge and adoption of sexual practices by students in relation to Sexually Transmitted Infections (STIs) become extremely relevant if one considers that most of them are young people. For them, sexual activities are understood as a form of liberation and autonomy and can make them more susceptible to contract STIs.<sup>2</sup>

In the context of the sexual experience of adolescents and young people, certain behaviors become remarkable, such as the different values attributed according to gender, appearance and non-constant use of contraceptives.<sup>3-5</sup>

In short, these attitudes result from both individual and collective factors, such as age, education level, sexual initiation, living with parents, and cultural values.<sup>4,6-9</sup>

Bearing in mind the aforesaid, it is important to understand young people's attitudes and knowledge of sex and STIs since inappropriate behaviors can generate health and psychological disorders. In fact, inappropriate sexual practices can lead to unwanted pregnancy or important sequelae. People also may contract STIs and die as a result.

STIs are defined as conditions transmitted mainly through sexual contact. It affects males and females, especially young people under 25 years old from different social classes and ethnic groups.<sup>10</sup> Furthermore, STIs are considered a serious public health problem in Brazil.<sup>11</sup>

Considering the influence of different aspects of the students' sexual life in the university environment, as well as the fact that young people are more vulnerable to STIs, the aim of this study was to characterize, compare, and associate the socio-demographic and economic profile of first-year Brazilian and international students at public university, as well as their sexual behavior and knowledge of STIs.

## METHODS

It is a descriptive-exploratory study with a quantitative approach, which was performed on campuses of a Brazilian public university with an international focus from February to April 2017. These campuses are located in the municipalities of *Redenção* and *Acarape*, Ceará State, Brazil.

The sample consisted of 131 university students (101 Brazilian students and 30 international students). They were women and men enrolled in courses in Nursing, Chemistry, Physics, Humanities, Biology, Energy Engineering, Mathematics, and Literature.

Inclusion criteria were Brazilian and international first-year university students from the countries from the *Comunidade de Países de Língua Portuguesa* (CPLP) [Community of Portuguese-Speaking Countries], who were attending courses in the first semester of 2016. No exclusion criteria were applied.

After signing the informed consent document, the study participants answered a questionnaire with objective and subjective questions addressing the following aspects: demographic and socioeconomic data; age at first sexual intercourse; the number of partners; knowledge, presence, and treatment of STIs.

The data was organized using Excel for Windows 2010 and analyzed using Epi Info version 7.0. Fisher's test was applied to analyze the association between the variables with a 5% significance level.

The project was approved by the Research Ethics Committee of the educational institution in which it was carried out under the *Certificado de Apresentação para Apreciação Ética* (CAAE) [Certificate of Presentation for Ethical Appreciation] No.59953716.5.0000.5576

and Legal Opinion No. 1.937.092. The autonomy of the subjects and the non-maleficence and beneficence of research involving human participants were guaranteed, as stated in the Resolution No. 466/12 from the Brazilian National Health Council.<sup>12</sup>

## RESULTS

The results indicated a predominance of Brazilian students, 101 (77.1%), followed by 21 (16%) Guineans, 4 (3%) Cape Verdeans, 3 (2.2%) Angolans, and 2 (1.5%) Santomeans. There was a predominance of males, especially among international students. Although university students from 18 to 64 years old were included, there was a high number of Brazilians 18 years of age (31; 30.7%). Among the international students, 23 (7; 23.3%) aged 18 years old. In relation to marital status, most of the students were single. Concerning the family income, a high proportion of the students had an income of one minimum wage or less (Table 1).

**Table 1 - Demographic and socioeconomic profile of Brazilian and international first-year university students.**

| Variables                                  | University students |                     |
|--|---------------------|---------------------|
|  | Brazilians<br>n (%) | Foreigners<br>n (%) |
| <b>Gender</b>                              |                     |                     |
| Female                                     | 44 (43.6)           | 5 (16.7)            |
| Male                                       | 57 (56.4)           | 25 (83.3)           |
| <b>Marital status<sup>(1)</sup></b>        |                     |                     |
| Single with a short-term partner           | 61 (60.4)           | 19 (63.3)           |
| Single with long-term partner              | 32 (31.7)           | 8 (26.7)            |
| Married or in a common-law marriage        | 5 (4.9)             | -                   |
| Divorced                                   | 1 (1.0)             | -                   |
| <b>Monthly family income<sup>(1)</sup></b> |                     |                     |
| Up to 1 minimum wage                       | 48 (47.5)           | 9 (30.0)            |
| From 1 to 2 minimum wages                  | 30 (29.7)           | 2 (6.7)             |
| From 2 to 3 minimum wages                  | 10 (9.9)            | -                   |
| From 3 to 5 minimum wages                  | 6 (5.9)             | -                   |
| From 5 to 10 minimum wages                 | 3 (3.0)             | 1 (3.3)             |
| No income                                  | 3 (3.0)             | 2 (6.7)             |

| Variables                       | University students |                     |
|---------------------------------|---------------------|---------------------|
|                                 | Brazilians<br>n (%) | Foreigners<br>n (%) |
| <b>Father's education level</b> |                     |                     |
| Illiterate                      | 6 (5.9)             | 4 (13.3)            |
| IES                             | 30 (29.7)           | 6 (20.0)            |
| CES                             | 18 (17.8)           | 3 (10.0)            |
| HIS                             | 3 (3.0)             | 1 (3.3)             |
| CHS                             | 22 (21.8)           | 5 (16.7)            |
| IHE                             | 6 (5.9)             | 2 (6.7)             |
| CHE <sup>(2)</sup>              | 7 (6.9)             | 6 (20.0)            |
| <b>Mother's education</b>       |                     |                     |
| Illiterate                      | 3 (3.0)             | 7 (23.3)            |
| IES                             | 32 (31.7)           | 5 (16.7)            |
| CES                             | 8 (7.9)             | 3 (10.0)            |
| HIS                             | 7 (6.9)             | 1 (3.3)             |
| CHS                             | 29 (28.7)           | 7 (23.3)            |
| IHE                             | 2 (2.0)             | 2 (6.7)             |
| CHE <sup>(2)</sup>              | 12 (11.9)           | 2 (6.7)             |

IES: Incomplete Elementary School; CES: Complete Elementary School; IHS: Incomplete High School; CHS: Complete High School; IHE: Incomplete Higher Education; CHE: Complete Higher Education; (1) not answered by all participants; (2) including postgraduates.

Considering the Brazilian students' fathers, 30 (29.7%) had Incomplete Elementary School (IES), 22 (21.8%) had Complete High School (CHE) and 18 (17.8%) had Complete Elementary School (CES). Regarding the international students, the same results were found for parents with IES and Complete Higher Education (CHE) (6; 20%). Five fathers (16.7%) had CHE. As for the mothers' level of education, there was a high proportion of mothers with IES among Brazilian students (32; 31.7%), followed by CHS (29; 28.7%), and CHE (12; 11.9%). For the international students, the same quantity was obtained for illiterate mothers (7; 23.3%), and for those with CHS (7; 23.3%), followed by IES (5; 16.7%).

Concerning the occupation of the students' parents, male farmers, and housewives predominated.

With regard to the undergraduate course, 23 (17.6%) students were enrolled in Nursing, 22 (16.8%) in Physics, 20 (15.3%) in Mathematics Course, 18 (14.5%) in Energy Engineering, 17 (13%) in Chemistry, and 16 (13%) in Biology. Although in smaller quantities, students enrolled in Humanities (5.3%), Agronomy (2.3%), Literature (1.5%),

and Public Administration (0.7%) participated in this study. Regarding the distribution by nationality, there was a greater proportion of Brazilian students enrolled in Nursing (20; 19.8) and 6 (20%) international students in Energy Engineering.

As for sexual behavior, 63 (62.4%) Brazilian students and 24 (80%) international students already had sexual intercourse before. Of these, 44 (69.8%) Brazilians had this experience before the age of 18, contrasting with only 10 (41.7%) international students. Observing the number of sexual partners, 23 (36.5%) Brazilian students had only one partner; of those with more than one partner, 31 (49.2%) reported having between 2 and 10 partners. Of the international students, 3 (12.5%) had only one partner, and 14 (58.3%) had between 2 and 10 partners (Table 2).

Concerning the knowledge of STIs, 96 (95%) Brazilians and 27 (90%) international students mentioned knowing them. When asked about STIs, only one Brazilian student reported having contracted candidiasis and undergone treatment (Table 2).

**Table 2** - Sexual aspects, knowledge, and presence of STIs among Brazilian and international first-year university students.

| Variables                        | Students        |                     |
|----------------------------------|-----------------|---------------------|
|                                  | Brazilian n (%) | International n (%) |
| <b>Sexual life<sup>(1)</sup></b> |                 |                     |
| Yes                              | 63 (62.4)       | 24 (80.0)           |
| No                               | 37 (36.7)       | 6 (20.0)            |

| Variables                                      | Students        |                     |
|--|-----------------|---------------------|
|  | Brazilian n (%) | International n (%) |
| <b>Age at first intercourse<sup>(1)</sup></b>  |                 |                     |
| < 18 years old                                 | 44 (69.8)       | 10 (41.7)           |
| 18 years old                                   | 13 (20.6)       | 7 (29.2)            |
| > 18 years old                                 | 3 (4.8)         | 5 (20.8)            |
| <b>Number of sexual partners<sup>(1)</sup></b> |                 |                     |
| 1  | 23 (36.5)       | 3(12.5)             |
| 2-10   | 31 (49.2)       | 14 (58.3)           |
| >10  | 5(7.9)          | -                   |
| <b>Knowledge of STIs<sup>(1)</sup></b>         |                 |                     |
| Yes  | 96 (95.0)       | 27 (90.0)           |
| No   | 5 (5.0)         | 2 (7.0)             |
| <b>Presence of STIs<sup>(1)</sup></b>          |                 |                     |
| Yes  | 1 (1.0)         | -                   |
| No   | 95 (94.0)       | 19 (63.3)           |

(1) Not answered by all participants.

The association among the parents' education level, family income, knowledge of the STIs, and sexual variables (first intercourse, age at first intercourse, and the number of partners) was evaluated (Tables 3 and 4). As can be seen in Table 4, the association between knowledge of STIs and first intercourse was the only significant one observed for international students (p=0.037).

**Table 3** - Sociodemographic and economic profile of first-year Brazilian university students, as well as their knowledge of STIs and its association with sexual aspects.

| Variables                       | First Sexual intercourse (%) |      | Age at first sexual intercourse (years old) (%) |      | Numbers of partners (%) |      | p-value* |
|---------------------------------|------------------------------|------|---|------|-------------------------|------|----------|
|                                 | Yes                          | No   | ≤ 18  | > 18 | ≤ 10                    | > 10 |          |
| <b>Father's education level</b> |                              |      |   |      |                         |      |          |
| ≤ HS                            | 65.4                         | 34.6 | 97.0  | 3.0  | 89.5                    | 10.5 | p>0.05   |
| HE and GD                       | 61.5                         | 38.5 | 100.0   | -    | 100.0                   | -    |          |
| <b>Mother's education level</b> |                              |      |   |      |                         |      |          |
| ≤ HS                            | 64.1                         | 35.9 | 96.9  | 3.1  | 90.9                    | 9.1  | p>0.05   |
| HE and GD                       | 64.7                         | 5.3  | 100.0   | -    | 92.9                    | 7.1  |          |
| <b>Family income</b>            |                              |      |   |      |                         |      |          |
| ≤ 1 MW                          | 58.8                         | 41.2 | 95.2  | 4.8  | 90.6                    | 9.4  | p>0.05   |
| > 1 MW                          | 66.7                         | 33.3 | 100   | -    | 90.9                    | 9.1  |          |
| <b>Knowledge of STIs</b>        |                              |      |   |      |                         |      |          |
| Yes                             | 63.2                         | 36.8 | 97.4  | 2.6  | 91.4                    | 8.6  | p>0.05   |
| No                              | 60.0                         | 40.0 | 100.0   | -    | 91.8                    | 8.2  |          |

HS: High School; HE: Higher Education; GD: Graduate Degree; MW: minimum wage; \*Fisher's test;

**Table 4** - Sociodemographic and economic profile of first-year international university students, as well as their knowledge of STIs and its association with sexual aspects.

| Variables                       | First sexual intercourse (%) |       | Age at first sexual intercourse (years old) (%) |      | Numbers of partners (%) |      | p-value* |
|---------------------------------|------------------------------|-------|---|------|-------------------------|------|----------|
|                                 | Yes                          | No    | ≤ 18  | > 18 | ≤ 10                    | > 10 |          |
| <b>Father's education level</b> |                              |       |   |      |                         |      |          |
| ≤ HS                            | 73.7                         | 26.3  | 78.6  | 21.4 | 100.0                   | -    | p>0.05   |
| HE and GD                       | 88.9                         | 11.1  | 83.3  | 16.7 | 100.0                   | -    |          |
| <b>Mother's education level</b> |                              |       |   |      |                         |      |          |
| ≤ HS                            | 78.3                         | 21.7  | 81.2  | 18.8 | 100.0                   | -    | p>0.05   |
| HE and GD                       | 75.0                         | 25.0  | 100.0   |      | 100.0                   | -    |          |
| <b>Family income</b>            |                              |       |   |      |                         |      |          |
| ≤ 1 MW                          | 72.7                         | 27.3  | 75.0  | 25.0 | 100.0                   | -    | p>0.05   |
| > 1 MW                          | 100.0                        | -     | 100.0   | -    | 100.0                   | -    |          |
| <b>Knowledge of STIs</b>        |                              |       |   |      |                         |      |          |
| Yes                             | 85.2**                       | 14.8  | 76.2  | 23.8 | 100.0                   | -    | p>0.05   |
| No                              | -                            | 100.0 | -   | -    | -                       | -    |          |

HS: High School; HE: Higher Education; GD: Graduate Degree; MW: minimum wage; \*Fisher's test; \*\* (p=0.037).

## DISCUSSION

This study was the first one to characterize, compare, and associate the sociodemographic and economic profile of Brazilian and international students recently admitted to a public university, as well as their sexual behavior and knowledge of STIs

A high proportion of male university students participated in this study, especially Brazilians and Guineans aged from 19 to 23 years old. With regard to the predominance of male participants, this data directly reflects the pattern of students enrolled in some courses of the university in which the research was conducted. Although Guineans have stood out among the international students, which may be attributed to the greater number of Guineans compared to those from other countries, the low number of international students participating in this study may be justified by the natural and progressive process of adaptation to which these students are susceptible.<sup>13</sup>

The predominance of adult international students may involve the following factors: implementation of educational policies and financial support that provide greater flexibility in the access by other groups; appreciation of education in the face of the political, economic and social situation at certain historical moments; new policies and practices adopted by higher education institutions; and individual aspirations and ambitions.<sup>13</sup>

Single students with short-term sexual partners predominated. This was not surprising because a study reported similar results.<sup>14</sup> Moreover, the university environment allows young people to express their sexuality especially through new experiences.<sup>15</sup>

The conditions to which international students are subjected, such as being away from their families and their birth country in order to pursue adequate professional training in Brazil, favor the arrival of single students, which contributes to the establishment of unstable sexual relationships.

The high proportion of nursing undergraduate students among the Brazilian participants may be the result of the great importance that they attribute to health issues.<sup>2</sup>

As for the education level of the Brazilian students' parents, the low education level found contrasted with the results of a study conducted in Brazil, which evidenced that 60% of the fathers and 68% of the mothers had completed high school.<sup>16</sup> For international students, although equal results across different education levels were found for both parents and mothers, there was a considerable percentage of parents with low education levels. However, these results match the literature, which shows that, despite the advances in education in CPLP countries, there are major obstacles, especially for African countries and East Timor.<sup>17</sup>

With regard to the parents' occupation, the emphasis on agriculture was also in line with the literature, which highlights that the CPLP countries have a high percentage of the economically active population dedicated to this activity, except for Brazil, Cape Verde and Portugal.<sup>18</sup> Indeed, this area of production is considered one of the main economic activities undertaken in CPLP countries.<sup>17</sup>

Although Brazil and other CPLP countries contrasted in this regard, the significant number of farm parents of Brazilian students may be a consequence of the fact that the university was located in the countryside.



In relation to the initiation of sex, which is considered a milestone for young people,<sup>19</sup> the high number of students, especially international ones, who already had a sexual experience was not a surprising result. A similar result was obtained in Mozambique, in which 63% of young Africans were sexually active and the age at first sexual intercourse varied between 12 and 20 years old.<sup>20</sup>

Although studies show that university students aged from 15 to 18 years old become sexually active, the study results evidenced that the participants started their sexual life sooner or later than those who participated in other studies.<sup>2,14</sup>

As for the number of sexual partners, the study findings indicated that more than half of the Brazilian and international students reported having at least two partners. This number was higher than reported by Castro et al. (2016).<sup>21</sup> The difference between these results is likely due to factors inherent to each study, such as the institution in which the research was conducted, sample size, and courses and semesters included.

Considering this perspective, early initiation of sex and the number of partners suggests that actions should be undertaken to raise awareness among these people about the pathologies and other consequences of unprotected sex since these attitudes can contribute to an increased risk of contracting STIs and becoming pregnant.<sup>14</sup> Furthermore, some factors may increase the risk of contracting this type of infection, as follows: single people under 25 years of age, having more than three sexual partners within three months or a new sexual partner every three months, having one sexual partner with STI, having sexual contact with multiple partners, high consumption of alcohol and drugs, and low adherence to condom use.<sup>22</sup>

Regarding the STIs, a Brazilian participant reported having contracted candidiasis and had undergone treatment. In view of this report, little knowledge about this subject was evidenced since candidiasis is not considered an exogenous STI. In fact, its pathogen is part of the normal vaginal microflora, and this infection of the vulva and vagina caused by a fungus is quite common among women.<sup>23</sup>

The fact that most university students knew of STIs regardless of the birth country was consistent with the findings of a previous study.<sup>24</sup> Nevertheless, knowledge of STIs does not necessarily imply in a safe sexual practice. This assumption is particularly important for international students since the present study found a significant association between knowing STIs and having already practiced sex. Therefore, there is an urgent need to implement innovative sexual education strategies aimed at this audience in order to raise awareness among them about safe sexual activities so that health risks can be avoided.<sup>25</sup>

In this respect, universities are appropriate places for educational activities regardless of the students' birth country, course, and academic semester.

The small number of participants, particularly international students, is a limitation of this study, which leads to the risk of bias. Nonetheless, this does not affect the reliability of this work.

## CONCLUSION

The study findings pointed out that the reality of international university students is similar to that of Brazilians, and both of them are vulnerable to STIs. It is clear the importance of knowing the sociodemographic and economic profile of university students, as well as their sexual behavior, regardless of their birth country. This knowledge allows undertaking educational actions aimed at sexual health within and outside the university environment in order to prevent diseases and maintain the health of this segment of the population.

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Received in: 14/03/2018

Required revisions: 20/08/2018

Approved in: 13/12/2018

Published in: 18/06/2020

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**Disclosure:** The authors claim  
to have no conflict of interest.