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BEGINNING OF SEXUAL LIFE OF ADOLESCENTS IN SANTIAGO ISLAND, CAPE VERDE, WEST AFRICA

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ABSTRACT

Objective: to estimate the age of the first sexual intercourse and the effects of socio-demographic factors among adolescents. **Method:** cross-sectional study with 368 sexually active adolescents aged 13-17 years from eight public elementary and high schools, randomly selected, in Santiago Island, Cape Verde, in Jan-Mar/2007. The analysis was made by means of regression adjusted for ordinal variables with *probit* link function, with a 5% significance level. **Results:** among the 368 adolescents, 31.5% (116) were female and 68.5% (252) were male. There was higher prevalence of protected sexual relationship among adolescents who began sexual life later (16 and 17 yrs). Sexual initiation among females occurred later and younger males (13 yrs) reported the first sexual intercourse from 10 years. After multiple analyses, four factors have remained statistically significant associated with the age of first sexual intercourse among females: age, living in rented house, not being dating and age at menarche. The factors included for males were age, not being dating and interaction between age and not being dating. **Conclusions:** adolescents who begin sexual life later have safe sexual relationships more frequently. However, the influence of living in their own or donated house and affective-sexual partnership at the beginning of sexual life reveals the necessity (or demand) of preventive actions. These actions must be focused on groups with worse socioeconomic conditions and adolescents who are not dating.

Key words: Age of first sexual intercourse; sexual and reproductive \health; Cape Verde; West Africa.

Running title: Adolescence and age at the beginning of sexual life. Adolescência e idade do início de vida sexual.

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INTRODUCTION

Today, adolescents are more subject to pregnancy and also more exposed to sexually transmitted infections (STI), especially due to unprotected sexual relations. This is a consequence which comes from the natural course of the reproductive maturity in the sexual initiation.[1]

In Cape Verde, there was a 2.8% increase in the fecundity rate among adolescents aged 15 to 19 yrs from 1990 to 2000; in 1990, for each 100 women aged 15 to 19 yrs, 11.0 had a child, and in 2000, this value increased to 11.3.[2]

In the majority of sub-Saharan Africa countries, the use of any contraceptive method does not surpass 20% among married adolescent women, although over 60% declare no intention of having children during the first years of marriage.[3]

The majority of youths become sexually active[4] in adolescence[5] (period comprising 13 to 17 years of age). It has been demonstrated that sexual initiation at a very young age (before 15 years) is an important risk factor for adolescent pregnancy and the infection of sexually transmitted diseases, including HIV.[6] Adolescence is a life stage characterized by complex processes of biological, psychological and social development. The social influences external to the family group become more important and such influences will have implications on decision making, behavior and definition of life styles.[5]

In Cape Verde, as in several countries in the world, the first sexual experience has been consistently occurring at an earlier age, being earlier among adolescent males when compared to females.[7,8] This gender issue also defines the kind of connection created with the first partner and the decisions concerning contraceptive practices, influencing preventive behaviors in the sexual relationship.[9] These differences should be taken into account in reproductive health promotion and care for individuals within this age group.

The literature on adolescent sexuality in African nations is scarce, particularly in Portuguese- speaking countries. In order to update information on sexual initiation among Cape Verde's adolescents, the objective of this study was to estimate age at first sexual intercourse among adolescents and its association with sociodemographic factors.

METHODS

A cross-sectional study was carried out with a representative probabilistic sample of adolescents residing on Santiago Island, Cape Verde, in 2007.

Cape Verde is an archipelago composed of ten islands (nine of which are inhabited) situated in the Atlantic Ocean, approximately 500 km west of the African continent, occupying 4.033 km^2. This study was conducted on Santiago Island, representing the largest terrestrial surface (991 km^2) and population in Cape Verde, with approximately 234.940 inhabitants,[10] 54% of the total population.

A two-stage probabilistic sample technique was employed. In stage one (strata sampling) stratification was conduced for each municipality: we have drawn a random selection of the schools by municipality. In stage two (cluster sampling) the division was conduced for each school through a random draw of students from the 7th to the 12th grade, in all the selected schools. This drawing is important because it results in a checklist of all the students with quantitative characteristics of interest. In other words, the checklist of all the students must follow the inclusion criteria in each draw. In this study, eight of the sixteen public schools of the Island municipalities were included.

The sample size was based on the percentage of sexual active adolescents (83,6%) with the sample error fixed at 3,0% and confidence level of 95,0%.

Considering a population-based of 25.618 students, the size of the sample was estimated in 576 adolescents, to which 28.0% were added to compensate eventual loss. Thus the final size of the sample was 768 adolescents aged from 13 to 17 years (7^{th} – 12^{th} grade students) from public secondary schools in 2007. There was no register of students in this age group from private schools (see PhD dissertation in - http://www.teses.usp.br/teses/disponiveis/6/6136/tde-02032010-162337).

World Health Organization (2002)[5] defined adolescence as a chronological profile that conceals the differences in the process of development regarding individuals from ten to 19 years of age. However, this definition needs to include biological, psychological and economic aspects experienced during this period of development.[11]

Nevertheless, this study included only adolescents aged from 13 to 17 due to the following reasons: some of the questions in the questionnaire were related to sexual practices; the age group considered represented the beginning and the mean process of sexual life among adolescents; the age group selected was within the chronological definition adopted by WHO's Committee of Experts[5] and also concentrated more than half (58%) of secondary students in the entire archipelago. Considering the possibility of 10 to 12-year-old students feeling constrained to answer the questionnaire, they were not considered in the study design. Only those who had initiated their sexual life were considered, resulting in the exclusion of 400 adolescents. In this study only sexually active students were taken into consideration (368) as well.

Thus, the criteria for inclusion were: age between 13 to 17 years, enrollment in a public secondary school, beginning sexual life and voluntary consent to participate in the investigation.

The participants answered a self-applied questionnaire comprising 76 closed questions on sociodemographic and behavioral data. The questionnaire was administered in the classroom and adolescents took about 50 minutes to complete it.

After collection, the data were double-entered using CSPro 6.0 software. In the final step of the analysis, this data bank was converted into the Eviews 6 software.

Descriptive analysis was presented by means of proportions, means and standard deviations. The response variable was age at first sexual intercourse. The explanatory variables were sociodemographic variables such as age, type of house, religion, type of water supply source, if the individual dated before the research period, exposure to media (has a TV, radio), age at menarche, municipality of origin and interaction between age and has not had a boyfriend/girlfriend. In order to investigate the relation between the response variable and the explanatory variables the multiple regression model was fitted for ordinal variables with probit link function.[12] This model takes into consideration that the response variable is a categorical variable, since age at the beginning of sexual life may assume only the values 12, 13, 14, 15, 16 or 17 years.

The probit model for the observed response variable, age at the beginning of sexual life, (SI), was defined in function of the (latent) variable not observed SI* for which was constructed the following model of linear regression:

$$SI^* = x^T\beta + e,$$

with the explanatory variables on the x matrix and with *e* alleatory error having a homoscedastic Gaussian distribution with mean zero.

The response variable observed SI was such that:

$$SI = \begin{cases} 12, \text{ if } SI^* \leq \gamma_1 \\ 13, \text{ if } SI^* \leq \gamma_2 \\ 14, \text{ if } SI^* \leq \gamma_3 \\ 15, \text{ if } SI^* \leq \gamma_4 \\ 16, \text{ if } SI^* \leq \gamma_5 \\ 17, \text{ if } SI^* > \gamma_5. \end{cases}$$

The parameters of the model β, γ and the variance of *e* were estimated by the method of maximum likelihood and the model was fitted on the Eviews 6 program, according to the parametrization presented by Greene.[12]

When interpreting the coefficients, it was observed that the larger the coefficient of a specific explanatory variable, the greater the probability that sexual initiation occurred at an older age.

There were few reports of female adolescents whose sexual initiation occurred before they were 12 years old. Therefore, all young women who initiated sexual life between the ages of ten and 12 were placed together in a single category.

This study was approved by the Ethics Committee in Research of the Public Health School of São Paulo University. It was financially supported by the Student's Program – Graduate Studies Covenant- PEC-PG/Capes.

RESULTS

The study sample was comprised of 368 adolescents. Among them, 31.5% (116) were females and 68.5% (252) males. The mean age at first sexual intercourse among the boys was 14 (sd=2.0) and 15 (sd=1.6) years among the girls. The percentage of male and female adolescents who had already initiated sexual life was different according to sex (p<0,001): 65.6% (252) and 30.2% (116), respectively.

Female initiation occurred later than male initiation in the study sample; younger boys (13 years old) reported they had begun to have sexual intercourse from ten or 11 years of age.

The variables with p>0.05 on Table 1 were withdrawn from the reduced model of ordinal probit multipleregression with multiple covariates (table 2).

Table 2 presents the estimates of the coefficients and respective standard errors and p-values of the explanatory variables associated to age at first sexual intercourse for the model of ordinal probit multiple regression.

After multiple analysis, four variables remained significantly associated to age at first sexual intercourse for female adolescents: age (p < 0.001), living in a rented house (p = 0.001), not dating at the time of the interview (p = 0.007) and age at menarche (p = 0.004). For male youths, the factors significantly associated to age at first sexual intercourse were: age (p < 0.001), not dating at the time of the interview (p = 0,007) and interaction between age and not dating (p = 0.002).

It was observed that the probability of being older at sexual initiation increased according to age and that this effect was greater among female adolescents (coefficient = 0.72; SE = 0.14) than for males (coefficient = 0.51; SE = 0.06). The variable age controlled the effect that younger adolescents could only initiate their sexual experience at an earlier point. Furthermore, it was more probable that the age of first sexual intercourse among girls occurred significantly earlier for girls that lived in rented houses and who were not dating at the time of the study. Additionally, the greater the age at menarche, the more probable the age of sexual initiation occurred later on, at an older age (p=0.004). For the male sex, it was more probable that the age of sexual initiation be significantly older when the adolescent was not dating at the time of the interview.

Table 1: Estimates of the complete model of ordinal probit multiple regression model for age at sexual initiation, according to sex. Santiago Island, Cape Verde, 2007

Variable	Sex			
	Female (n = 102) Age at first intercourse Coefficient(Standard-error)	p	Male (n = 247) Age at first intercourse Coefficient (Standard-error)	p
Age	0,82 (0,16)	<0,001‡	0,53 (0,07)	<0,001‡
Type of house				
Owned (reference)				
Rented	-1,64 (0.38)	<0,001‡	-0,41 (0,26)	0,122
Granted, other or NA(0,44)	-0,90	0,043‡ (0,34)	0,13	0,711
Number of divisions in the house				
4,5 or 6 (reference)				
1,2 or 3	0,13 (0,35)	0,717	0,12 (0,17)	0,474
7 and more	-0,33 (0,30)	0,275	-0,27 (0,17)	0,129
Religion				
Catholic (reference)				
Others	0,42 (0,35)	0,236	-0,04 (0,17)	0,812
Source of water supply				Água encanada
Piped water or auto-tank	0,40 (0,24)	0,106	0,19 (0,14)	0,171
Outher (reference)				
Already dated				
Yes (reference)				
No or NA	13,22 (9,15)	0,148	5,82 (2,07)	0,005‡
Has Tv				
Yes	0,43 (0,35)	0,214	-0,04 (0,20)	0,861
No (reference)				
Has rádio				
Sim	-0,97 (0,45)	0,029‡	0,05 (0,24)	0,831
No (reference)				
Age at menarche	0,34 (0,12)	0,004‡	–	–
Municipality of origin				
Beach (reference)				
Others	-0,11 (0,25)	0,642	0,11 (0,15)	0,496
Interacion age and has not dated	-0,97 (0,57)''	0,097	-0,43 (0,14)	0,001‡

Symbol: NA: Ignored.
(–) signifies that the case with co-variables was not important in explaining the event being studied.
‡ p < 0.05 = p descriptive according to ordinal logistic regression with multiple co-variables were presented in table 2.As variáveis com p > 0,05 na Tabela 1 foram retiradas do modelo completo.

DISCUSSION

Male sexual initiation occurred earlier than female initiation, corroborating findings in similar studies.[13,14] These results demonstrate that sexual initiation did not occur in a similar manner among males and females. Borges

Table 2: Estimates of the ordinal probit multiple regression model for age at first intercourse, according to sex. Santiago Island, Cape Verde, 2007

Variable	Sex			
	Female (n = 102) Age at first intercourse Coefficient(Standard-error)	p	Male (n = 247) Age at first intercourse Coefficient (Standard-error)	p
Age	0,72 (0,14)	<0,001‡	0,51 (0,06)	<0,001‡
Type of house Owed, Gramted, other or NA (referemce)				
Rented	-1,03 (0,31)	0,001‡	-	-
Has already dated Yes (reference)				
No or NA	-1,70 (0,63)	0,007‡	5,42 (2,00)	0,007‡
Age at menarche	0,32 (0,11)	0,004‡	–	–
Interaciom between age and has not dated	–	–	-0,41 (0,13)	0,002‡

As variáveis com p > 0,05 na Tabela 1 foram retiradas do modelo completo.

et al. suggest, on the one hand, that this is a tendency for social groups or between generations, indicating several complex factors that may lead to the decision making process with respect to the time of sexual initiation.[15] On the other hand, international studies have not considered the relevance of delaying sexual initiation in policies aimed at STI or unplanned pregnancy prevention.[16,17] Masculine sexual initiation is part of the ideals of the constitution of the engendered male identity, which expresses itself in the concrete behaviors that comprehend the process of "becoming a man".[18]

The logic of gender relations and the constitution of gender identity in Cape Verde is similar to that observed in Brazil.[19,18] Thus, differences found between the sexes with respect to sexual initiation are also attributed to gender norms embodied in different perspectives of male and female behavior in the field of sexuality.[19] The literature on masculinities affirms that this process is also constructed in opposition to and differentiation from other men.[20]

Several individual variables have shown to be associated with the beginning of sexual life, such as age, color, sex, religion, schooling and work. Besides these variables, sexual initiation is influenced by conditions related to the family, such as communication and characteristics of the relationship between parents and children, parental supervision, and family structure.[15]

With respect to the age at first sexual intercourse, as indicated in other studies,[8,21] this investigation points towards a growing tendency characterized by a decrease in the age group, reflected with the high fecundity rates among adolescents from Cape Verde aged from 15 to 19 years in the beginning of the decade of 2000.[2]

This study also indicates the older the age, the more probable the age at sexual initiation be higher, being such effect greater among girls. Age is a variable that controls the effect that younger youths tend to begin their sexual intercourse at an earlier age.

The age at sexual initiation for women is more probable to be significantly lower for those who lived in rented houses and were not dating at the time of the interview. Therefore, the condition of living in a rented house is considered a

Proxy for the economic condition of the family. In this sense, girls with better economic conditions tend to postpone the first sexual intercourse than those in worse conditions. However, no other studies were found by establishing this relation between living in a rented house and age at sexual initiation.

The lower frequency of sexual initiation among adolescents who were not dating at the time of the interview in relation to those that were dating corroborates findings in other studies among adolescent populations.[22]

Another factor associated to postponing the beginning of sexual activity was menarche at a later age, corroborating other studies,[18] which may be explained primarily by biological issues that would result in reproductive maturity at a later age. On the other hand, girls that have their menarche earlier (11 yrs or less) do not systematically begin sexual life earlier,[18] except when menarche at an earlier age is associated to a low level of schooling (lower than the complete primary level).[18]

In this study, as well as in a Brazilian study,[23] a higher frequency of protected sexual initiation occurred among youth whose sexual initiation occurred when they were older.

Age at sexual initiation should be taken into consideration when formulating programs for unplanned pregnancy and STI/HIV prevention, particularly when sexual practices occur without condom use and with occasional partners. Although it is well known that each society has its own code, with norms concerning the appropriate age for experiencing sexuality,[24] sexual relations without the use of condom and with eventual partners are dangerous whatever the age in which sexual initiation occurs.

This study's findings corroborate data from Cape Verde's Ministry of Health:[7] the age at sexual life begin has been constantly declining over the past decade and, in the majority of the cases, without adequate information. The results of this study demonstrate that although first sexual intercourse occurs early on, adolescents declare that they are informed with respect to contraceptive methods.

As to the limitations of the present study, the response rate was 100%, thus reducing the possibility of the occurrence of selection bias. However, one limitation of this study is a possible bias of information based on gender expectation,[16] that is, the boys may have reported more sexual experiences and the girls less experiences than they actually have had.

Another limitation is that some important variable replies were not measured. On the other hand, other new variables, not yet explored in similar youth sexuality surveys, were measured in this research.

The greater frequency of protected sexual initiation occurs among youths who postpone sexual initiation. The influence of living in a own house or that is granted to them and having affective partnership at sexual initiation reveals the need for preventive actions directed towards segments with worse socioeconomic conditions and adolescents who do not date.

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