

# Variables Associated with Early Sexual Intercourse among Adolescents of Costa Rica

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## Abstract

**Introduction:** The initiation of sexual intercourse is an important life event for both women and men and it has been associated with some health risk behaviors, disengagement from education and a lack of support from family. **Objective:** Identify variables associated with early sexual relations among Costa Rican adolescents, the time of initiation, and the context characteristics in which this experience occurs. **Materials and Methods:** Cross-sectional and descriptive study carried out with 1106 students from 24 high schools in Costa Rica. Several multivariate models were run to study the association between variables and sexual intercourse among the adolescents. **Results:** The average age of sexual onset found in the sample was 14.6 years. The variables associated with early sexual intercourse were working, alcohol intake, low socioeconomic level, age, not feeling part of the educative center and no parental support. **Conclusions:** Our results emphasize the need to plan preventive actions and execute effective sexual health interventions to address adolescent sexuality in a holistic manner.

## Keywords

Adolescent, Sexual Behavior, Costa Rica

## 1. Introduction

Adolescence is a stage of life that involves physical, emotional, social, and sexual development. The initiation of sexual intercourse is an important life event for both women and men in all societies (Lee et al., 2018).

Early sexual initiation has been associated with other health risk behaviors

related to adolescent lifestyles, such as the intake of alcohol, tobacco, and illicit drugs (Reis et al., 2021), mixing alcohol with energy drinks (Scalese et al., 2017), and with a higher risk of experiencing delinquency (Sattler, 2017), emotional and depressive problems (Waller et al., 2006). In addition, it has been reported that early sexual experience can predict disengagement from education (Parkes et al., 2010).

On the other hand, some family factors such as communication and support or lack of it (Stewart et al., 2019) and the school environment, such as coexistence and academic performance (Peterson et al., 2020) have been explored as significant explanatory factors of sexual intercourse among young people.

The relationship between socioeconomic status and educational level with the sexual behavior of the adolescent population has also been reported. Girls with low educational, socioeconomic, and cultural levels, poor parental monitoring, parental separation, and lack of religiosity tend to experience “sexarchy” at a younger age (Lara & Abdo, 2016). Therefore, it is possible to understand that sexual human behaviors do not occur in isolation; they are strongly influenced by the immediate and mediate environments in which they occur (Bronfenbrenner, 2009).

In Costa Rica’s context, national data on sexual health during adolescence date back more than a decade. According to the National Survey of Sexual and Reproductive Health (Ministerio de Salud, 2010b), 60.9% of men and 49.0% of women between the ages of 15 and 19 had already had sexual intercourse with vaginal penetration. In 2010, the average age of sexual debut was 15.2 years in men and 15.8 years in women. In the case of adolescents 15 years of age or younger, the results of the Global School Health Survey (Ministerio de Salud, 2010a), which included a representative sample of students in the first three years of secondary school, indicated that 24.5% of students reported having coital relations, being more frequent in men (28.3%) than in women (19.6%). The ENSSR-2010 refers that the use of contraceptive methods and sexual protection was limited in the adolescent population. Nationally, 43.7% of women and 66.1% of men between the ages of 15 and 19 reported having used a condom in their last sexual relationship. However, this percentage was lower in people with a lower educational level (with primary education, 24.6% in men and 10.8% in women) (Ministerio de Salud, 2010b).

Subsequently, the Second National Survey of Sexual and Reproductive Health of 2015 (Ministerio de Salud, 2015), which is the most recent in Costa Rica, reported that at the age of 18, half of the women and two-thirds of the men have already had sexual relations.

In Costa Rica, there is not enough knowledge about the predictive factors of the initiation of early sexual intercourse, which are deeply shaped by the social and cultural environment, where the lives of young people unfold. Therefore, the objective of this study was to identify lifestyle factors (personal, family, and social) associated with sexual relations among Costa Rican adolescents, the time of initiation, and the context characteristics in which this experience occurs. Our findings

are expected to guide policy decisions, and the development of interventions and initiatives aimed to reduce the negative outcomes of early sexual intercourse.

## 2. Materials and Methods

### 2.1. Type of Study and Population Selection

Descriptive and cross-sectional study realized in a total of 1128 students from 24 high schools in the seven provinces of Costa Rica. To determine the sample size, the proportion estimation formula was used, with a confidence level of 95%, a margin error of 3% and a non-response rate of 15%. Two groups were randomly chosen in each high school and the questionnaires were applied to 47 students using age (from 13 to 17 years) as the only inclusion criterion in each educational center. The only exclusion criteria applied was the incomplete information of the participant. At the end of this selection process the sample size was 1,106 students, being a representative national sample.

### 2.2. Data Collection and Measurement Techniques

The participating students received a validated and self-administered questionnaire designed by the investigators and used in previous projects under the supervision of professionals. Data on individual, family, and social nature were collected and categorized in three models that could influence the dependent variable studied: sexual intercourse. To know individual (personal) environment of each young participant the next variables were included:

- 1) Sociodemographic and psychosocial data: sex, age, nationality, believes in a superior being and if he/she is working. To evaluate body size dissatisfaction the Contour Drawing Rating Scale was used. Participants are asked to rate their ideal figure and their current size (Thompson & Gray, 1995). The discrepancy between these size scores was used as an index of body size dissatisfaction.

- 2) Biological data: weight (kg) was determined to all students using a Tanita scale model SC-331 S (without column) and height (m) was determined using a freely positioning stadiometer with a wall separator, SECA brand, model 217. Body Mass Index (BMI:  $\text{kg}/\text{m}^2$ ) was estimated for each participant and international BMI cut-offs were used to assess nutritional status (Cole & Lobstein, 2012).

- 3) Lifestyle data: Food quality was measured with the Diet Quality Index for children and adolescents of Costa Rica (Núñez et al., 2020), comprising several habitual daily meals as well as the frequencies of consuming foodstuffs of adequate nutritional value, snacking in between meals, eating just before bedtime and how were fast-food, fruit and vegetable consumed. Physical activity: the sum of screen hours (0 - 24 hours/day) was done, considering the frequency of four sedentary behaviors during weekdays and weekends: watching TV, playing on a computer or console, connecting to the Internet, and daily speaking with friends by phone or Skype. A final question about the weekly frequency of physical activity out of school (average  $\geq 60$  minutes/day: 0: never, 7: daily) was included (U.S. Department of Health and Human Services, 2018). Questions about the use of tobacco,

alcohol (getting drunk), the mix of alcoholic beverages with energy drinks, marijuana, cement/glue inhalation and cocaine were considered. One or more cigarettes of tobacco or use of drugs during the last 30 days was considered as of risk for high school adolescents.

Among the family variables, information was collected on family structure, socioeconomic status, and parental support. Family typology was defined as: nuclear, as that group consisting of the couple and one or more children and non-nuclear as any other type of family consisting of other members. The socioeconomic index was determined knowing the possession of some material goods at home (Madrigal, 1997). To estimate whether the students had parental support or not, an index was constructed based on five variables of the questionnaire related to the topic. Then a scale was developed where if the sum was  $\leq 3$  points, which means that the adolescent had parental support and  $> 3$  points means they do not have parental support.

Among the social variables, young people were asked about their belonging and feeling of happiness in the educational center; whether they feel confident talking about sexuality with their teachers and classmates, and if they have experienced violent behavior of their classmates or teachers of physical, psychological nature or in social networks (cyberbullying). Questions about educational expectations (if they want to continue studying) and academic achievement were also included.

### 2.3. Statistical Analysis

Data were analyzed using the Statistical Package for Social Sciences (SPSS), version 22.0 for Windows (SPSS Inc., Chicago, IL, USA, 2021) to estimate frequencies. The prevalence of sex behavior was calculated according to sex, age, socioeconomic status, family, social and personal variables. A critical value of  $p < 0.05$  was adopted. Finally, a multivariate summary model was tested to estimate the odds ratio of the behavior studied, adjusting for individual, family, and social variables. The variables that were significant in the three corresponding models (family, social and individual/personal) that were previously executed individually (adjusting for age and sex), were finally included in the summary model to generate odds ratios that could comprehensively explain the behavior (sexual intercourse) analyzed in this study.

### 2.4. General and Ethical Procedures

The study protocol, the informed consent, and the assent form used were approved by the Scientific Ethic Committee of INCIENSA in Ordinary session # 27 of October 19, 2010; IC-2010-05. Parents and legal guardians signed the Informed Consent of the students. As well, adolescents were asked to sign the Informed Assent to respect their will to collaborate. Those students who did not agree to sign the Informed Assent Formula were not forced to participate in the investigation. All procedures performed were in accordance with the Helsinki Declaration and its ethical standards.

### 3. Results

A total of 1106 students participated in this study. Near 45.4% were men and 54.6% were women, with an average age of  $14.60 \pm 1.52$  and an age range between 13 and 17 years. 56.4% of young people belong to the middle socioeconomic class. The age range of sexual onset or debut found in the sample was 10 to 17 years of age, with an average age of 14.6 years. Around 24.1% of the youngsters have had sexual intercourse at the time of the study (Table 1). Being the males the ones who mostly begin to have sexual relations between 10 and 13 years of age. Therefore, the age of the first sexual relation—sexual debut—was significantly lower in men than in women, as well as the number of sexual partners was significantly higher in men than in women (data not shown). At the time of the first sexual intercourse, nearly 83.0% used a condom, 9.0% some contraceptive pill, and 8.0% did not use any contraceptive method (data not shown).

**Table 1.** Characteristics of students with and without experience in sexual intercourse, according to family, social and individual risk variables, Costa Rica, 2022.

Variables	With experience in sexual intercourse				Total		Value <i>p</i> *
	Yes		No		n	%	
	n	%	n	%			
	267	24.1	839	75.9	1106	100%	
<b>Individual:</b>							
Average age (years)	15.51 ± 1.653		14.56 ± 1.461		14.60 ± 1.520		
Gender:							
Male	137	51.3	366	43.6	503	45.5	0.028
Female	130	48.7	473	56.4	603	54.5	0.028
Nationality:							
Costa Rican	232	86.9	737	87.8	969	87.6	0.681
Other countries (**)	35	13.1	102	12.2	137	12.4	0.681
Works	72	26.9	105	12.5	177	16.0	<0.001
Does not believe in God	23	8.6	47	5.6	70	6.3	0.008
Body image dissatisfaction	117	43.8	364	43.4	481	43.5	0.900
Nutritional status:							
Not normal	132	49.4	436	51.9	568	51.4	0.471
Healthy diet:							
No	248	75.0	746	83.0	994	89.9	0.061
Two or more screen hours per day (TV, video games, among others)	82	30.7	258	30.7	340	30.7	0.990
Few physical activity (0 - 3 days/week)	90	33.7	318	37.9	408	36.9	0.216
Smokes cigarettes	40	14.9	55	6.6	95	8.6	<0.001
Drinks alcohol with/without energetic beverages	93	34.8	156	18.6	249	22.5	0.001
Smokes marijuana	34	12.7	41	4.9	75	6.8	<0.001
Inhale cement or glue	12	4.5	10	1.2	22	2.0	<0.001
Inhale cocaine	8	3.0	8	0.9	16	1.4	0.015

## Continued

<b>Family:</b>							
Family structure:							
Not-nuclear	154	57.7	428	51.0	582	52.6	0.057
Socioeconomic status:							
Low	66	24.7	153	18.2	219	19.8	0.068
Medium	141	52.8	483	57.6	624	56.4	0.068
Socioeconomic status:							
Medium	141	52.8	483	57.6	624	56.4	0.068
High	60	22.5	203	24.2	263	23.8	0.068
Has no parental support	26	9.7	29	3.5	55	4.9	<0.001
<b>Social:</b>							
Does not feel happy in the EC	44	16.5	112	13.3	156	14.1	0.201
Does not feel part of the EC for having suffered some type of bullying (hitting, teasing, cyberbullying)	51	19.1	114	13.6	165	14.9	0.028
Does not feel confident with his teachers to talk about sexuality	217	81.3	139	16.6	356	32.2	<0.001
Does not feel confident with their classmates to talk about sexuality	33	12.4	154	18.3	187	16.9	0.023
You are not doing as well in school as most of your classmates	60	22.5	141	16.8	201	18.2	0.036
Do not want to continue studying	34	12.7	62	7.4	96	8.7	0.007

\*Significative if  $p < 0.05$  ( $\chi^2$  test), n: number of persons; EC: educative center; (\*\*) 132 from Nicaragua, 2 from Colombia, 1 from Honduras, 1 from Chile and 1 from Panamá.

From the significant differences observed in **Table 1**, it can be stated that experiences in sexual relationships are probably (0.95) linked to gender, employment status, smoking, consumption of alcoholic beverages, marijuana use, inhalation of cement, glue, or cocaine, family structure, parental support, not feeling part of the educational center, mistrust of their teachers to talk about sexuality, mistrust of their classmates to talk about sexuality, academic performance, and no overcoming desire.

In the multivariate model of lifestyle individual variables to examine having sexual relations, the variables that were statistically associated were (in decreasing order according to odds ratio and etiological fraction -EF- or preventive -PF-): -inhales cement (OR = 2.755, 95% CI: 1.154 - 7.203, EF = 63.7%); -works (OR = 2.248, 95% CI: 1.551 - 3.259, EF = 55.5%); -drinks alcoholic beverages (OR = 1.818, 95% CI: 1.297 - 2.548, FE = 45.0%); -age (OR = 1.489, 95% CI: 1.341 - 1.655, EF = 32.8%) and -used to mix alcoholic and energy drinks (OR = -1.209, 95% CI: 1.105 - 1.332, PF = 17.3%). This model explains between 0.136 (Cox and Snell's  $R^2$ ) and 0.199 (Nagelkerke's  $R^2$ ) part of the variance of the dependent variable (sexual intercourse) and is capable of correctly predicting 78.4% of cases with sexual intercourse (Data not shown).

Regarding the multivariate model of family variables to examine having sexual

relations, the variables that were statistically associated were (in decreasing order according to odds ratio and etiological fraction -EF- or preventive -PF-): -does not have parental support (OR = 2.375, CI 95%: 1.326 - 4.252, FE = 87.9%); -age (OR = 1.489, 95% CI: 1.341 - 1.655, EF = 32.8%); -belonging to a low socioeconomic status (OR = 1.340, 95% CI: 1.011 - 1.894, PF = 25.4%) and -being female (OR = 0.718, 95% CI: 0.538 - 0.909, PF = 28.2%). This model explains between 0.09 (Cox and Snell R<sup>2</sup>) and 0.129 (Nagelkerke R<sup>2</sup>) the part of the variance of the dependent variable (sexual intercourse) and is capable of correctly predicting 76,4% of the cases with sexual intercourse (Data not shown).

According to the multivariate model of social variables to examine having sexual relations, the variables that were statistically associated were (in decreasing order according to odds ratio and etiological fraction -EF- or preventive -PF-): - does not want to continue studying (OR = 1.806, 95% CI: 1.135 - 2.871, EF = 44.6%); -age (OR = 1.530, 95% CI: 1.377 - 1.700, EF = 34.6%); -does not feel part of the educative center (OR = 1.339, 95% CI: 1.099 - 1.942, EF = 25.3%) and -being female (OR = 0.738, 95% CI: 0.554 - 0.980, PF = 26.2%). This model explains between 0.09 (Cox and Snell R<sup>2</sup>) and 0.125 (Nagelkerke R<sup>2</sup>) the part of the variance of the dependent variable (sexual intercourse) and is capable of correctly predicting 75.9% of the cases with sexual intercourse (Data not shown).

Regarding the goodness of each of the multivariate models run (set of independent variables), it should be noted that all were significant (chi-square significance in the omnibus test < 0.05), and the *p* values associated with the Hosmer-Lemeshow contrast in each of the models they were higher than 0.05, which means that the models adjust to reality and are well explained with the included variables.

The summary multivariate model of individual, family and social variables associated with sexual intercourse among Costa Rican adolescents is shown in **Table 2**.

**Table 2.** Summary multivariate model of individual, family, and social variables associated with sexual intercourse among Costa Rican adolescents, 2022.

Personal variables	<i>B</i>	OR	CI 95%	Standard error	<i>p</i>	Etiologic fraction (EF)	Preventive fraction (PF)
						Exposed cases (%)	
Age (continue variable)	0.311	1.364	1.225 - 1.520	0.055	0.000	26.7	-
Works	0.752	2.121	1.456 - 3.090	0.192	0.000	52.9	-
Drinks alcoholic beverages	0.574	1.775	1.254 - 2.512	0.177	0.001	43.7	-
Belongs to a low socioeconomic status (Yes = 1, No = 0)	0.405	1.499	1.039 - 2.174	0.190	0.033	33.3	-
Has parental support (No = 1, Yes = 0)	0.420	1.522	1.228 - 2.753	0.340	0.045	34.3	-
Does not feel part of the EC (No = 1, Yes = 0)	0.312	1.366	1.199 - 2.089	0.228	0.049	26.8	-

$\alpha = -6.455$ , represents the value of the intercept of the equation of the straight line, when the independent variables take a value of zero. EC: educative center; OR: odds ratio; CI: confidence interval.

According to these results, the predictive factors associated with sexual intercourse were the following, according to type or nature and, in decreasing order (odds ratio and etiological fraction -EF- or preventive -PF-): -works (OR = 2.121, 95% CI: 1.456 - 3.090, EF = 52.9%); -drinks alcoholic beverages (OR = 1.775, 95% CI: 1.254 - 2.512, EF = 43.7%) and -age (OR = 1.364, 95% CI: 1.225 - 1.520, EF = 26.7%); -does not have parental support (OR = 1.522, 95% CI: 1.228 - 2.753, EF = 34.3%) and -belongs to a low socioeconomic status (OR = 1.499, 95% CI: 1.039 - 2.174, EF = 33.3%); -does not feel part of the school environment (OR = 1.366, 95% CI: 1.199 - 2.089, EF = 26.8%).

Regarding the goodness of the summary multivariate model, it (set of independent variables) is significant (chi-square significance of the model in the omnibus test < 0.05); it explains between 0.10 (Cox and Snell's  $R^2$ ) and 0.145 (Nagelkerke's  $R^2$ ) the part of the variance of the dependent variable (sexual intercourse) and is capable of correctly predicting 79.4% of the cases with sexual intercourse.

#### 4. Discussion

Among the individual factors related to lifestyles, this study found that the inhalation of cement, working, consuming alcoholic beverages, age, and the habit of mixing alcoholic and energy drinks predict sexual intercourse among the adolescent population. Risk behaviors such as the consumption or use of substances, illicit drugs (Reis et al., 2021), and alcoholic beverages mixed or not with energy drinks have been reported in the literature associated with having sexual relations (Scalese et al., 2017). It is well known that consumption activities occur in a group of peers and friends, who are part of the closest environment to the adolescent (microsystem), in which they talk, play, do leisure, and earn the respect of friends, where having sex relationships adds to that respect and accelerate sexual debut (Sieving et al., 2006). The association between age and having sexual relations was expected in our study since socialization processes and social interactions increase according to the time lived.

Our data is partially consistent with the results of the II ENSSR-2015 (Ministerio de Salud, 2015), they show an early onset of sexual life in both men and women and largely it occurs before reaching the age of 18 years. However, in the II ENSSR (Ministerio de Salud, 2015) 14.0% of the women and 24.0% of the men of 15 years of age who were consulted, already have had sexual intercourse and this proportion increased rapidly with age: at 19 years of age, 7 out of 10 women and 8 out of 10 men had already had sexual intercourse. In our study 40% of the adolescents who have had their first sexual intercourse debuted between the ages of 10 and 13 years of age, increasing this percentage (cumulative frequency) to 91% among those who made their debut before or at 14 - 15 years of age.

In other words, at the time of this study, some of them had already made their debut between 3 and 6 years before; near 83% used a condom, 9% some contraceptive pill, and 8% did not use any contraceptive measure at the first sexual intercourse. A study carried out with young Spaniards evaluated the influence of

various sociodemographic factors on the use of contraceptive methods and the results were like ours, since 9 out of 10 young, single, sexually active Spaniards reported use of contraceptives in the last relationship, being the use of the condom the predominant method (Martín, 2005).

In this study we obtained results that confirm that in the younger cohorts studied there is a slight advance in the age of sexual initiation. Since 2015, the trend reported is that the sexarchy (first sexual intercourse) is occurring in younger girls each time at a younger age (Liu et al., 2015). This has important implications for adolescent health due to the association of early age and sexarchy with later health problems and later risky sexual behavior.

Working is also a risk factor for having early sexual relations. When young people have greater autonomy from their parents because they have a job, there is a greater probability that they will begin sexual life earlier (Nigatu & Fituma, 2018). On the other hand, when they are economically dependent on their parents, who exercise control and supervision over youth behaviors, they are more likely to delay their entry into sexual life (Nigatu & Fituma, 2018).

Regarding the family environment of the students, which is also part of the microsystem of adolescents (where they can interact face to face with their relatives at home), age is also a factor that predicts sexual intercourse. In addition, the absence of parental support and belonging to a low socioeconomic status predict sexual intercourse among the adolescent population. On the other hand, being female turned out to be a protective factor for having sexual relationships.

Evidence indicates that ensuring adolescents have correct information about sexual and reproductive health can be vital in preventing child marriages and school dropout. Parental support has been reported as another of the protective factors that can promote positive attitudes related to sexual risk behaviors. Stable and supporting parental environments have been associated with slower reproductive maturation, including a later menarche and development of secondary sexual traits, and a later age for the first sexual intercourse (Lenciauskiene & Zaborskis, 2008). Parents need to talk openly about sex with their children, and to do so they may need to empower themselves with knowledge and skills in sex education. Therefore, some sex education programs foster strong parent-child relationships and teach parents how to set and enforce rules (Crosby et al., 2009).

Family-based interventions are reported to be effective among Hispanic populations when they are done in community settings, reducing drug use (marijuana, cocaine, inhalants, and other drugs), prescription drug use, cigarette use, alcohol intake, and sexual intercourse without a condom (Estrada et al., 2019).

On the other hand, belonging to a low socioeconomic status is also a predictor of early sexual intercourse. It is important to highlight that poverty is structural and is reproduced socially in terms of sexual and reproductive health (Bronfenbrenner, 2009; Melesse et al., 2020). Although adolescents do not actively participate in the construction of the marginal socioeconomic environment, the limited conditions produce events that affect what happens in the environment of the

adolescent and even their offspring. A multinational study examined socioeconomic inequalities in sexual and reproductive health in adolescents in sub-Saharan Africa and when comparing adolescents from the richest wealth quintile with adolescents from the poorest wealth quintile, the latter had their first sexual intercourse 2.2 years earlier, were married 4.6 years earlier, and gave birth 4.1 years earlier. Children in both wealth quintiles started having sex at the same age, but those from the poorest households married 4.3 years earlier than those from the richest households (Melesse et al., 2020).

Cultural factors that could influence early sexual behavior among Costa Rican adolescents are not unique to Costa Rica; these must be understood within the framework of Western societies. However, in Costa Rica, sex education has been part of the school curriculum for several years. The openness and quality of sex education in schools and high school can influence adolescents' perceptions of sexuality and their decisions related to sex. Likewise, the family plays an important role in the lives of Costa Ricans. Family values, beliefs, and norms transmitted at home can influence how adolescents view and manage their sexuality (Preinfalk, 2022).

On the other hand, most of the Costa Rican population identifies as Catholic. The influence of religion, its teachings and values on sexuality can impact adolescents' sexual behavior, either by promoting abstinence or by establishing moral norms about sexual relationships. Meanwhile, media culture, including music, television, and social media, can have a significant impact on Costa Rican adolescents' perception of sexuality. Exposure to sexualized content or models of sexual behavior can influence their decisions (Pineda, 2022).

Furthermore, it should be considered that, although Costa Rica is considered a progressive country in many aspects, there is still a deeply rooted culture of machismo that can influence attitudes towards sexuality, especially about social pressure on gender roles and expectations in relationships. The availability and accessibility of sexual and reproductive health services, including contraceptives and education on the prevention of sexually transmitted diseases, can influence the decisions that adolescents make regarding their sexuality (Redondo, 2019).

Regarding the female sex as a protective factor for having sexual relations, the authors consider that this, in part, responds to gender stereotypes that grant greater permissiveness in this topic to men and not to women. Men are required to have and give proof of sexual activity, thus confirming their male identity. In this logic, the virginity of men after a certain age arouses suspicion because it represents a sign of dubious masculinity. While for women the desire and sexual pleasure are conceived as negative connotations. Modesty, arriving marriage without having sexual experience and that they explicitly state having no knowledge about sex and sexual desires are behaviors expected from women. Hence, their sexual initiation is often linked to an affective relationship, to the beginning of their life as a couple and to their procreative activity (Lagarde, 1996).

Besides this, the female pleasure is linked to the evaluation of the "other", so to

the end, women end up bearing an alienated body and colonized by male desires. The body becomes more of an enemy than an ally and becomes part of a situation that is aggravated in women who are sexually victimized. While “masculine” is associated with the right to own, penetrate, win, demonstrate, and master. Social coercion and the objectification of the female body and sexuality are part of the learned by man, to the extent that, the ability to control women, their lives, their bodies, their sexuality, and their decisions (Lagarde, 1996) is generated. In fact, adolescent girls report greater perceived responsibility and face higher levels of social stigma compared to their male partners for early sexual behaviors and their outcomes. The social norms that underlie this gender-based disparity perpetuate the “blame the victim” model in response to related problems, including pregnancy, sexually transmitted diseases, sexual coercion, and rape (Batres, 2001).

Likewise, Sánchez reports in their research in 2016 that being a woman, schooling, receiving information about contraceptives and sexually transmitted diseases, the frequency of relationships, and parental support have a positive relationship with the probability of using contraceptive methods (Sánchez-Retana & Leiva-Granados, 2016).

In the social environment multivariate analyses, two factors were added in our study that predict early sexual intercourse: school dropout and not feeling part of the educational center. Studies have reported that, in general, women with little schooling initiate sexual relations and marital union early, while the level of schooling has strong effects on the possibility of postponing or delaying sexual intercourse. Reaching a higher educational level, attending school, and having better living conditions are related to a later start of sexual life (Nigatu & Fituma, 2018).

Associations with girls’ frequency of school attendance indicate that spending more time in school may impose time and sexual network restrictions, thereby reducing exposure to infection (Stoner et al., 2017).

On the other hand, students who do not feel part of the educational center suffer misunderstanding, lack of empathy, intimidation, and are harassed, mainly by their peers. These interpersonal aspects transform the school environment into a disillusioning, oppressive space that lacks academic challenges and humanization for adolescents, which promotes school dropout and the development of sexual behavior and bullying. Volk (2015) conducted research on the premise that people who bully are generally more powerful than their victims, who in turn have difficulty defending themselves; while people who use general aggression are not necessarily more powerful than those they attack, but there are reasons why abusers might enjoy greater reproductive benefits. Bullies generally have high physical and social attributes that may offer a sign of good genes, social dominance, and the ability to control resources, which could make them more attractive to partners than non-bullies, since the latter would not be able to maintain and protect their mate and their potential offspring. In this study, it is reported that bullying is a statistically significant predictor of sexual behavior, and that harassment is

associated with 1.5 to 2 times more likely to have had sexual intercourse (Volk et al., 2015).

Holt (2013) reported that aggressors and victim-aggressors engaged in more risky sexual behaviors. Hence, bullying prevention programs and programs aimed at reducing harmful sexual practices need to consider a broader perspective of stress and address the potential link between the stress of engaging in bullying and maladaptive coping responses, school dropout, early sexual intercourse, and its implications, sexually transmitted diseases, and adolescent pregnancy, among others (Holt et al., 2013).

Age turned out to be a common factor that predicts sexual intercourse in the three models mentioned (individual, family, social), with the etiological fraction being 29.4% in the individual variable model, 32.8% in the family model, and 44.6% in the social model. Also, gender was a common protective factor for sexual intercourse in the family and social environments, with similar preventive fractions, 28.0% and 26.2%, respectively.

Our study sample does not differentiate between urban and rural areas because in Costa Rica, most communities are urban or peri-urban, located in the central cantons and surrounding areas of each of the seven provinces of Costa Rica. However, there may be some not-so-deep differences between urban and rural areas. In rural settings, there may be a greater influence of traditional norms and conservative values regarding sexuality; less access to sexual and reproductive health services, including sexual education; and less diversity of recreational and educational options, which can lead to less information and exposure to different perspectives on sexuality. While in urban settings, there may be greater exposure to media, which can influence the sexual attitudes and behaviors of adolescents. Likewise, greater access to sexual and reproductive health services can translate into greater awareness of the prevention of unintended pregnancies and sexually transmitted diseases. The greater diversity of educational and recreational options can offer a wider range of information about sexuality (Rodríguez & Chavarría, 2019).

Similarly, the findings on early sexual behaviors analyzed in this study could be applicable in some countries or regions where, as in Costa Rica, sexual education is valued, the family plays an important role, and religion influences social norms. The influence of cultural factors such as religion, family values, and sexual education could be relevant in similar contexts, suggesting that successful intervention strategies could be adapted to other places with similar cultural characteristics (World Health Organization, 2017). However, when generalizing the findings of studies on early sexual behaviors in Costa Rica, it is important to consider the disparities in resources and experiences between rural and urban settings. Intervention and prevention strategies should be adapted to the specific needs of each setting, recognizing contextual differences and addressing inequalities in access to information and health services.

Finally, the summary multivariate model integrated the individual, family, and

social domains, constituting a mesosystem where two or more environments converge in which adolescents with their lifestyles actively participate in interrelation with family, work, their peers, and they make their life in society as social actors that they are. According to this model, more than half of adolescents who have early sexual relations could be because they began to work. Almost 53% of the cases of sexual intercourse are attributable to this aggressor factor (working). Likewise, 44% of the cases are attributable to the intake of alcoholic beverages, to the lack of parental support (34%), belonging to a low socioeconomic status (33%), not feeling part of the educational center (27%) and age (27%).

Sexuality is a social and complex phenomenon because it adopts different meanings for people in each social context; therefore, this study considered the characteristics of particular social groups, such as adolescents, considering also that sexual relationships are immersed in inequities oriented by differences in age, socioeconomic status, occupational status, gender, lack of support parental, among other individuals, family and social factors. The schools are important places for the development of norms and values in adolescents, together with their families, to foster a positive self-concept around sex, sexuality, and relationships and to fight against social and health disparities faced by young people. Poverty and gender inequality, for example, have a negative impact on health outcomes, including sexual health outcomes; the chain of perpetuating inequalities within the school classroom through explicit or implicit stereotypes must be broken, such as physical violence, mocking by teachers and classmates, among others, which ultimately contribute to students not feeling part of the school environment (Smith et al., 2020).

Sexual health education has the potential to give young people the opportunity to critically examine social inequalities linked to gender, sexuality, and poverty. While sexual health education cannot eliminate inequalities in society at large, it can help students gain the critical thinking skills that will enable them to confront and challenge them more effectively. In this regard, the combined education model (distance and face-to-face) in Costa Rica is presented as a necessity resulting from the contingency due to preventive quarantine against COVID-19. This impact is reflected in sexual education aimed at adolescents in schools and colleges and in sexuality programs for tenth and eleventh grades, focused from the family perspective through the guides for autonomous work.

## 5. Conclusion

Our results emphasize the need for sexual health interventions to address adolescent sexuality in a holistic manner. These must be inclusive for all young people, their peers, and families, and must also mitigate the impact of structural inequalities, such as poverty, which could be involved in school dropout and immersion in the adult world of work. Likewise, it should be considered that the transition to the beginning of sexual life implies the end of childhood and the entrance to the adult stage, whose meaning given by men and women is different, within the

framework of the gender perspective, which underlines that the planners of policies and programs related to sexual and reproductive health of adolescents should be more detailed, deeper and of wide coverage.

We hope that this study will serve as a guide to better understand the social and complex phenomenon of sexual intercourse among the adolescent population, as well as to plan preventive actions and execute effective interventions.

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## Strengths and Limitations of the Study

The main strength of the study is its sample size, which makes it representative at the national level. The perspective of the real sexual health situation of the young Costa Rican population is shown since it serves to demonstrate those differences that are often overlooked and that can be of great importance for carrying out more individualized programs that help achieve optimal levels of quality of life from early ages. Possible limitations of the study could be the selection bias, since only the captive and schooled population was recruited. Additionally, the design of this study is cross-sectional, so it allows only inferences to be made regarding associations and not about causality. Socio-economic data were based on self-records, which may be influenced by social convenience and memory bias.

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## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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## Appendix



### PROJECT

*“Education as a promoter of comprehensive health for children and adolescents in Costa Rican educational centers”*

#### HIGH SCHOOL STUDENTS QUESTIONNAIRE

*This questionnaire is voluntary and ANONYMOUS (No one will know what your answers were). THIS IS NOT AN EVALUATION (There are NO good or bad answers). It is not required that you participate, but we would like very much you do so. We need your collaboration because your answers will help us improve health and education programs in Costa Rica.*

#### DO NOT COMPLETE

0. Code: \_\_\_\_\_ 1. Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_  
day month year

a.1.1. S: \_\_\_\_\_

#### A. GENERAL INFORMATION ABOUT YOU

a.1. What year of high school are you in?

Seventh ( ) Tenth ( )

Eighth ( ) Eleventh ( )

Ninth ( ) Twelfth second ( )

a.2. How old are you?

Less than 13 years ( ) 16 years ( )

13 years ( ) 17 years ( )

14 years ( ) 18 years ( )

15 years ( ) More than 18 years ( ) \_\_\_\_\_ years

What's your age?

a.3. Your sex is: Woman ( ) Man ( ).

a.4. What country were you born in? Costa Rica ( ) Another country ( ):

(Write here the name of your country)

#### B. INFORMATION ABOUT YOUR HOUSE AND YOUR FAMILY

Please answer if there are any of the following items in your home:

#### Items

- |                     |                       |
|---------------------|-----------------------|
| b.1. Clothes dryer  | <input type="radio"/> |
| b.2. Microwave oven | <input type="radio"/> |
| b.3. DVD            | <input type="radio"/> |
| b.4. Computer       | <input type="radio"/> |

**Continued**

b.5. Internet	<input type="radio"/>
b.6. Cable Television	<input type="radio"/>
b.7. Hot water tank and pipe throughout the house	<input type="radio"/>
b.8. Two side door refrigerator	<input type="radio"/>
b.9. Own vehicle (thay is not used for taxi or to sell products)	<input type="radio"/>
b.10. Dish washer	<input type="radio"/>

**Who do you live with in your house?**

People who live in your house	Number of people
b.11. Father	<input type="radio"/>
b.12. Mother	<input type="radio"/>
b.13. Grandfather/Grandmother	<input type="radio"/>
b.14. Brothers and sisters	<input type="radio"/>
b.15. Uncle or Aunt	<input type="radio"/>
b.16. Cousins	<input type="radio"/>
b.17. Stepfather or your mother’s boyfriend	<input type="radio"/>
b.18. Stepmother or your dad’s girlfriend	<input type="radio"/>
b.19. Nephew or niece	<input type="radio"/>
b.20. Brother or sister in law	<input type="radio"/>
b.21. Domestic worker	<input type="radio"/>
b.22. Other persons Who?:	<input type="radio"/>

**Please answer the following questions, with a Yes or a No:**

Questions	Yes	No
b.23. Does your father, mother or another person who lives in your house support you with homework, extra-class work, or participate in high school activities?	<input type="radio"/>	<input type="radio"/>
b.24. Does your father, your mother or the person who oversees you attend your high school when they are called for a meeting or other activity?	<input type="radio"/>	<input type="radio"/>
b.25. Do your father, your mother or other person who oversees you, know who your friends are?	<input type="radio"/>	<input type="radio"/>
b.26. Does your father, mother or another person who lives in your house believe that you are capable of doing things well (helping in the house work, doing high school work, getting your high school things ready)?	<input type="radio"/>	<input type="radio"/>
b.27. Does your father, mother or another person who lives in your house listen to you when you want to say something that seems important?	<input type="radio"/>	<input type="radio"/>
b.28. At home, do you find it difficult to complete your high school tasks or homework?	<input type="radio"/>	<input type="radio"/>
b.29. Can you speak, in confidence, about sexuality and other intimate matters, with your father, your mother or another person who is in charge of you?	<input type="radio"/>	<input type="radio"/>
b.30. Does your father, mother or the person in charge of you limit the hours you watch television, spend on the computer or play video games?	<input type="radio"/>	<input type="radio"/>

### C. INFORMATION ABOUT YOUR NEIGHBORHOOD

c.1. Is there a park, square or other establishment near your house where you can play, exercise, dance or practice a sport?

Yes ( ) No ( )

### D. INFORMATION ABOUT YOUR HIGH SCHOOL

Please answer the following questions, with a Yes or a No:

Questions	Yes	No
d.1. Do you feel happy at your high school?	<input type="radio"/>	<input type="radio"/>
d.2. Do you feel safe within your high school?	<input type="radio"/>	<input type="radio"/>
d.3. Do you feel like you are part of the high school?	<input type="radio"/>	<input type="radio"/>
d.4. When you want to say something that seems important to you, do teachers and other adults at your high school listen to you?	<input type="radio"/>	<input type="radio"/>
d.5. When you want to say something that seems important to you, do your classmates listen to you?	<input type="radio"/>	<input type="radio"/>
d.6. At your high school, can you talk, in confidence, about sexuality and other intimate matters with your teachers or other adults?	<input type="radio"/>	<input type="radio"/>
d.7. At your high school, can you talk, in confidence, about sexuality and other intimate matters with your classmates?	<input type="radio"/>	<input type="radio"/>

Please answer the following questions, with a Yes or a No:

Questions	Yes	No
d.8. In the last 30 days, has any student or classmate intentionally destroyed any desk, books, plants or other materials at your high school?	<input type="radio"/>	<input type="radio"/>
d.9. Has a teacher intentionally destroyed a desk, books, plants or other materials at your high school?	<input type="radio"/>	<input type="radio"/>
d.10. In the last 30 days, did you hit, kick or push a student or classmate at your high school, with the intention of harming them?	<input type="radio"/>	<input type="radio"/>
d.11. In the last 30 days, did you hit, kick or push a teacher at your school, with the intention of hurting them?	<input type="radio"/>	<input type="radio"/>
d.12. In the last 30 days, has a student or classmate hit, kicked or pushed you?	<input type="radio"/>	<input type="radio"/>
d.13. Has a teacher hit, kicked or pushed you?	<input type="radio"/>	<input type="radio"/>
d.14. In the last 30 days, has any student or classmate spoken badly or told lies about you, via cell phone or the Internet (Facebook™, MySpace™, Skype, Hi5™, Twitter™, Youtube™, email, instant messages) or other similar medium?	<input type="radio"/>	<input type="radio"/>
d.15. Has a teacher spoken badly or told lies about you, via cell phone or the Internet (Facebook™, MySpace™, Skype, Hi5™, Twitter™, Youtube™, email, instant messages) or other similar medium?	<input type="radio"/>	<input type="radio"/>
d.16. In the last 30 days, has a student or classmate made fun of your body?	<input type="radio"/>	<input type="radio"/>
d.17. Has a teacher made fun of your <b>body</b> ?	<input type="radio"/>	<input type="radio"/>

d.18. From 1 to 10, how much do you like physical education classes? \_\_\_\_\_  
(write down the number)

### E. MORE INFORMATION ABOUT YOU

What things can you not miss every day so that you are well?

**Things you can't miss**

- e.1. Celular Phone
- e.2. Television
- e.3. Video games (e.g. Nintendo DS®, Wii®, X-Box®, Playstation®, Game Cube®)
- e.4. Lip paint and gloss, creams, perfumes, nail paint
- e.5. Computer
- e.6. Cap
- e.7. Tennis shoes
- e.8. Fashionable clothes
- e.9. Piercings
- e.10. Tattoos
- e.11. IPOD® or music player
- e.12. Dark glasses
- e.13. Bags, purse or wallet
- e.14. Messenger, Facebook, chat or other similar
- e.15. Others, Which ones? \_\_\_\_\_

**Please answer the following questions, with a Yes or a No:**

Questions	Yes	No
e.16. Do you work to earn money or obtain other benefits?	<input type="radio"/>	<input type="radio"/>
e.17. Do you believe in God or a supreme divinity?	<input type="radio"/>	<input type="radio"/>
e.18. In the last 30 days, have you smoked a cigarette?	<input type="radio"/>	<input type="radio"/>
e.19. In the last 30 days, have you had alcoholic beverages (beer, guaro, rum, whiskey, wine or other)?	<input type="radio"/>	<input type="radio"/>
e.20. In the last 30 days, have you smoked marijuana (weed or something similar)?	<input type="radio"/>	<input type="radio"/>
e.21. In the last 30 days, have you inhaled cement to get high?	<input type="radio"/>	<input type="radio"/>
e.22. In the last 30 days, have you inhaled cocaine to get high?	<input type="radio"/>	<input type="radio"/>

e.23. Have you had sexual relations? Yes ( ) No ( )

e.24. If your answer to the previous question (e.23) was “Yes”, at what age did you have your first sexual relationship? \_\_\_\_\_ (write down the age)

e.25. If your answer to the previous question (e.23) was “Yes”, do you continue having sexual relations? Yes ( ) No ( )

**If your answer to question e.23 was “Yes”, indicate which contraceptive methods you have used:**

Contraceptive methods	
e.26. Male condom	<input type="radio"/>
e.27. Female condom	<input type="radio"/>
e.28. Morning after pill	<input type="radio"/>
e.29. Patches	<input type="radio"/>

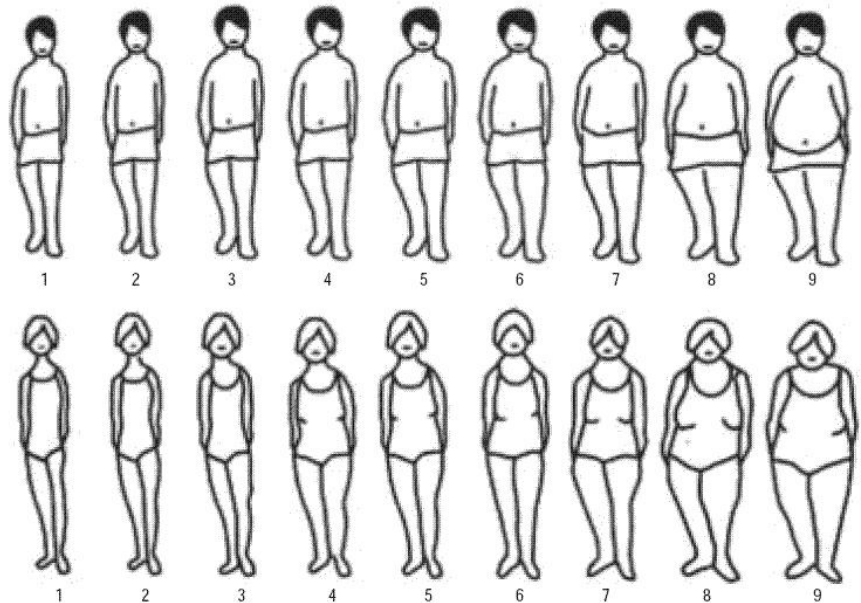
**Continued**

e.30. Pills	<input type="radio"/>
e.31. Spermicides	<input type="radio"/>
e.32. Injection	<input type="radio"/>
e.33. According to the menstrual cycle (rhythm, billings)	<input type="radio"/>
e.34. Other, _____ (which?)	<input type="radio"/>
e.35. You have not used any contraceptive method	<input type="radio"/>

**Please answer the following questions about what you usually eat and drink 7 days a week:**

Questions	Consumption frequency				
	Never	1 to 2 days	3 to 4 days	5 to 6 days	Every day
e.36. ...You have breakfast?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e.37. ...You have lunch?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e.38. ...You have dinner?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e.39. ...You eat a fruit?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e.40. ...You eat more than one fruit?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e.41. ...You eat fruits with salt (e.g.: mango and pineapple)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e.42. ...For lunch you have green salad or vegetables?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e.43. ...For dinner you have green salad or vegetables?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e.44. ...Do you drink three glasses of water or more?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e.45. ...Do you drink any "sports" drink that hydrates (e.g.: Gatorade®, Powerade® or other)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e.46. ...Do you drink energy beverages (e.g.: Battery®, Red Bull® or other)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e.47. ...Do you drink milk or yogurt or eat white cheese?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e.48. ...Do you take some carbonated soft drinks?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e.49. ...Do you eat food such as: empanadas, french fries, churros, tacos, hamburgers, pizza, fried chicken, hot dogs, chinese food?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e.50. ...Do you eat sweets (e.g.: gum, pops, chocolates, candies)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e.51. ...Do you add soy sauce (Chinese) or Worcestershire sauce to the food when you eat it (e.g.: to gallo pinto, rice with chicken or mango)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e.52. ...Do you add tomato sauce (ketchup), mayonnaise or pink sauce to food when you eat it (e.g.: rice, potatoes or salads)?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e.53. ...Do you add salt to the food served on your plate?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e.54. ...Do you eat toasted potatoes, plantains, yuquitas, Picaritas® or something similar?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e.55. ...Do you eat peanuts or other seeds with salt?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e.56. ...Do you eat crackers?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e.57. ...Do you eat yellow cheese?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e.58. ...Do you eat salchichón, chorizo, sausage, mortadella or ham?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e.59. ...Do you eat popcorn?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e.60. ...Do you eat instant microwave soups?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

e.61. Look carefully at these 9 figures and make a circle on the number of the figure that most resembles you.



e.62. Look carefully at these 9 figures again and make a circle on the number of the figure you would like to be.



e.63. How many days a week do you exercise, dance or play a sport?

0 days ( ) 2 days ( ) 4 days ( ) 6 days ( )

1 day ( ) 3 days ( ) 5 days ( ) 7 days ( )

e.64. Yesterday, how much time did you watch television, spend on the computer, or play video games (e.g.: Nintendo DS®, Wii®, X-Box®, Playstation®, Game Cube®)?

No, yesterday I did not watch television, use the computer or play video games  
( )

I watched less than 1 hour ( )

I watched between 1 and 2 hours ( )

I watched more than 2 hours ( )

e.65. How many times a week do you walk to go to school or to return home?

Never (0 times) ( ) 3 to 4 times ( )

1 to 2 times ( ) Every day ( )

e.66. How are you doing in your studies?

I am one of the best students ( ) I'm doing the same as the other students ( )

I'm doing better than most students ( ) I'm not doing as well as most students ( )

e.67. Do you want to continue studying after you finish this year? Yes ( ) No ( )