Age, Gender and Resilience in Sexual Risk Behavior of STI among adolescents in Southern Mexico
Edad, Género y Resiliencia en la Conducta Sexual de Riesgo para ITS en Adolescentes al Sur de México

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ABSTRACT

Objective: To compare sexual risk behaviors among high school students and differentiate them by age, gender, and level of sexual resilience.

Methods and Materials: Descriptive, cross-sectional and explanatory study. A stratified random sampling was used. The sample consisted of 182 adolescents, age 15 and 16 years from two educational institutions.

Results: The research instruments used presented acceptable reliability values. Sixty nine percent of the adolescents were 16 years old and 64% were female. Adolescents aged 16 years had higher averages on sexual risk behaviors ($M = 12.1$, $SD = 23.3$) than aged 15 years ($M = 4.76$, $SD=14.6$), $U=2,984.0$, $p=.038$. Regarding gender, significant differences were found ($U=3,714.0$, $p=.017$) between females ($M = 7.45$, $SD = 2.77$) and males ($M = 8.01$, $SD=2.03$). Significant differences were also found in the level of sexual resilience ($U=2,809.0$, $p=.034$): the age 15 group presented lower levels ($M=60.5$, $SD=13.6$) than the age 16 group ($M=65.0$, $SD=17.3$). A Lineal Regression Model showed that age, gender and marital status were the main contributors to sexual risk behavior ($F=1.85$, $R^{2}$adjusted=.065, $p=.052$). Another Linear Regression Model showed that age, gender and marital status were significant predictors of the level or resilience ($F=5.4$, $R^{2}$adjusted=.07, $p=.001$). Research on sexual risk behavior among adolescents and factors that affect such conduct is valuable to understand the adolescents’ motivations to practice or avoid sexual risk behaviors.
**RESUMEN**

**Objetivo**: Comparar las conductas sexuales de riesgo en estudiantes de preparatoria y diferenciar por edad, género y nivel de resiliencia sexual.

**Material y métodos**: Estudio descriptivo, transversal y explicativo. La población de interés estuvo conformada por 182 adolescentes de 15 y 16 años de dos instituciones educativas. La selección de la muestra fue mediante un muestreo aleatorio estratificado.

**Resultados**: Los instrumentos de medición mostraron medidas de confiabilidad aceptables. El 69% de los adolescentes refirió contar con 16 años de edad, mientras que el 64% correspondió al género femenino. Los adolescentes de 16 años tuvieron promedios más altos en las conductas sexuales de riesgo ($M = 12.1$, $DE = 23.3$) que los adolescentes de 15 años ($M = 4.76$, $DE = 14.6$, $U = 2,984.0$, $p = .038$). En cuanto al género se presentaron diferencias significativas, las mujeres presentaron ($M = 7.45$, $DE = 2.77$) los hombres ($M = 8.01$, $DE = 2.03$, $U = 3,714.0$, $p = .017$). Mientras que el nivel de resiliencia sexual también fue diferente, los adolescentes de 15 años mostraron niveles de resiliencia más bajos ($M = 60.5$, $DE = 13.6$) que los adolescentes de 16 años ($M = 65.0$, $DE = 17.3$, $U = 2,809.0$, $p = .034$). El Modelo de Regresión Lineal identificó que las variables que mayor contribución tuvieron fueron la edad, género y estado civil para la conducta sexual de riesgo ($F = 1.85$, $R^{2}$ ajustada = .065, $p = .052$). En otro modelo la edad, genero y estado civil fueron significativas para el desarrollo de la resiliencia ($F = 5.4$, $R^{2}$ ajustada = .07, $p = .001$). La investigación sobre la conducta sexual del adolescente y los factores que influyen en el comportamiento, es útil para comprender lo que motiva a los adolescentes en participar o evitar las conductas de riesgo sexual.

**Palabras clave**: Resiliencia; Conducta sexual de riesgo; ITS (Fuente: DeCs, Bireme)

**INTRODUCTION**

Sexually Transmitted Infections (STI) affect various vulnerable groups in an alarming way, and despite the campaigns to reduce cases of STIs, such as the Human Immunodeficiency Virus (HIV), the numbers persist. Worldwide, the HIV epidemic has remained stable; however, new cases and deaths from this infection continue being disturbing in some countries. Data from the Joint United Nations Programme on HIV indicates that, in 2013, there were 35 million people living with HIV, 2.1 million contracted the disease, and 1.5 million died from this cause. The agency also mentions that if the HIV cases are not reduce in the next five years, the epidemic will emerge with a higher incidence than currently exists. A 45% of people living with HIV are concentrated in America, and a significant percentage of them are represented by adolescents and young adults (45%).

Moreover, adolescents often have wrong thoughts about sexuality and believe that sex is not risky. They are impulsive and tend to fantasize so; they do not consider the consequences of their actions and do not seek prompt medical attention when they suffer changes in their health. Therefore, sexual health in adolescents is a topic of interest for health systems of the low- and middle-income countries, since STIs are increasing despite prevention campaigns implemented on a large scale. Various authors consider that adolescents who initiate sex at an early age and those who think they are too young to get sick and die, are more prone to acquire an STI, so they become a vulnerable group.

In this sense, there are several factors that may influence the risk of STI in adolescents, one of them is gender, which is considered as the experience of meanings related to sexuality; constructions of concepts and roles that men and
women must assume are framed by social and cultural norms, supporting the specific sexual pattern and power exercised by certain gender in relationships. Age is also a determining factor in the practice of risk behaviors; several authors report that the onset of sexual intercourse at an earlier age, becomes a higher risk of pregnancy and STIs, as the teenager is still in a cognitive evolution of construction and reconstruction of his or her thoughts, ideas and personality that regulate sexual behavior.

On the other hand, sexual resilience enables safe behavior, under its positive influence, the adolescent exercises responsible and self-determined behaviors, developing the ability to respond in a critical and creative way to various situations of sexual risk and harmful influences. Also, it stimulates in the adolescent the need to improve his or her health. The development of resilient capacity in teenagers becomes a unique opportunity for health personnel involved in sexual care of this population, allowing them to modulate the risk effect. Therefore, the objective of this study was to compare sexual risk behaviors among high school students and the differences based on age, gender, and level of sexual resilience.

METHODOLOGY

Descriptive, cross-sectional and explanatory study. A stratified random sampling was used with a statistical power of 90%. The sample consisted of 182 adolescents, ages 15 and 16 years old, from two educational institutions of Campeche, Mexico.

Selection of participants

Inclusion criteria: teenagers who agreed to participate voluntarily in the study and with their parents’ consent. Exclusion criteria: married adolescents or those living with their partner. Elimination criteria: incomplete questionnaires.

Instruments

A socio-demographic data sheet was applied to describe the participants of the study. Two instruments were also used to measure the concepts of interest. First, the Sexual Behavior Scale, which measures the frequency of condom use, sex with multiple partners, and sexual behavior in the past three months; it consists of 38 items with a total score range of 0-76. Secondly, the Sexual Resilience Scale, which measures the level of resilience for safe sex, and consists of 22 items, with a range of 22-110.

Procedures

The protocol was submitted to the Research Committee of the Faculty of Nursing at the Universidad Autonoma del Carmen. The authorization by the administration of the educational institutions for the study was obtained; further information was given to parents about the project at both institutions to obtain their consent and informed consent from the adolescents. Then, data collection was scheduled with school authorities; data was collected by social service interns, with nursing majors, previously trained for this purpose. Adolescents were informed about the voluntary and anonymous character of the questionnaire. Instructions were read aloud, clarifying the doubts that were presented, emphasizing that they must not leave unanswered questions. During the application of the questionnaires pollsters were present. At the
end, adolescents placed questionnaires into an urn to ensure confidentiality and anonymity of the information.

**Statistical Analysis**

The Statistical Package for the Social Sciences (SPSS), version 17 for Windows, was used to analyze statistical data. Descriptive and inferential statistics were applied; for categorical variables frequencies and percentages were calculated, and measures of central tendency and dispersion for quantitative variables. After the verification of the variables distribution, the statistical test of Mann Whitney U was performed to verify differences between them. Linear Regression Models were performed. The value of $p < 0.05$ was used to demonstrate statistical significance of the results.

**Ethical aspects**

The study took into account the provisions of Chapter I, Article 13 of the Regulations of the General Law of Health in Research for Health\(^\text{16}\), ethical aspects of research in humans. Dignity, anonymity, protection of the rights, and welfare of participants in the study, during recruitment, selection of participants, and data collection were observed. The information collected was only handled by the head researcher and was released in general terms.

**RESULTS**

Data corresponded to 182 high school teenagers, of which, 69% were 16 years old, and 64% were female. Ninety percent of the participants were second semester students, and 68% reported being single. Regarding the number of people in the family who lived at the same address, 67% reported living in a household of 4 or 5 people, including the father and the mother (75% and 99% respectively) and a brother or sister in 60% and 55% of the cases (see table 1).

**Table 1.- Sociodemographic Characteristics**

<table>
<thead>
<tr>
<th>Variable</th>
<th>$f$</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>166</td>
<td>63.7</td>
</tr>
<tr>
<td>Male</td>
<td>64</td>
<td>35.2</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>56</td>
<td>30.8</td>
</tr>
<tr>
<td>16</td>
<td>126</td>
<td>69.2</td>
</tr>
<tr>
<td><strong>Semester</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st.</td>
<td>17</td>
<td>9.3</td>
</tr>
<tr>
<td>2nd.</td>
<td>163</td>
<td>89.6</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>124</td>
<td>68.1</td>
</tr>
<tr>
<td>In a relationship</td>
<td>56</td>
<td>30.8</td>
</tr>
<tr>
<td><strong>Sexual Experience</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>153</td>
<td>84.1</td>
</tr>
<tr>
<td>Yes</td>
<td>27</td>
<td>14.8</td>
</tr>
<tr>
<td>Didn’t answer</td>
<td>2</td>
<td>1.1</td>
</tr>
</tbody>
</table>

**Note:** $f$ = Frequency; % = Percentage
When the participants were asked whether or not they had received information on sexuality in the last three months, 87% answered yes, and 91% received specific information on STIs. Moreover, 83.5% reported having received information about HIV or AIDS, and 98% had never been tested for HIV.

The reliability of the scales with Cronbach's alpha was obtained and presented alphas .97 and .87 for scales of sexual risk behavior and sexual resilience, which are considered acceptable. Regarding the scales used, the level of sexual risk behavior showed an average of 9.8 (SD = 21.3) and the scale of sexual resilience showed an average of 63.6 (SD = 16.3).

The objective of this study was to compare sexual risk behaviors among high school students and the differences based on age, gender, and level of sexual resilience. In order to demonstrate it, the statistical test of Mann Whitney U was performed, and the results showed that adolescents aged 16 years had higher averages on sexual risk behaviors (M = 12.1, SD = 23.3) than aged 15 years (M = 4.76, SD=14.6), U=2,984.0, p=.038. Regarding gender, significant differences were found (U=3,714.0, p=.017) between females (M = 7.45, SD = 2.77) and males (M = 8.01, SD=2.03).

Significant differences were also found in the level of sexual resilience (U=2,809.0, p=.034), the age 15 group presented lower levels (M=60.5, DE=13.6) than the age 16 group (M=65.0, SD=17.3) (see Table 2). When comparing gender, males showed a higher levels of resilience (M = 69.5, SD = 13.3) than females (M = 60.2, SD = 17.1), showing a statically significant difference (U = 2,532.5, p = .001; see table 2).

Table 2.- Mann-Whitney U test for sexual risk behavior and sexual resilience

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>U</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual risk behavior</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age 15</td>
<td>4.76</td>
<td>14.6</td>
<td>2,984.0</td>
<td>.038</td>
</tr>
<tr>
<td>Age 16</td>
<td>12.14</td>
<td>23.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sexual risk behavior</td>
<td></td>
<td></td>
<td>3,714.00</td>
<td>.017</td>
</tr>
<tr>
<td>Female</td>
<td>7.45</td>
<td>2.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>8.01</td>
<td>2.03</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sexual Resilience</td>
<td></td>
<td></td>
<td>2,809.0</td>
<td>.034</td>
</tr>
<tr>
<td>Age 15</td>
<td>60.57</td>
<td>13.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age 16</td>
<td>65.05</td>
<td>17.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sexual Resilience</td>
<td></td>
<td></td>
<td>2,532.5</td>
<td>.001</td>
</tr>
<tr>
<td>Female</td>
<td>60.25</td>
<td>17.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>69.54</td>
<td>13.3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Mean= Arithmetic average; SD = Standard deviation; U = Mann-Withney U; p = significance value.

In a further analysis, a Linear Regression Model (LRM) was adjusted, which introduced sociodemographic characteristics and the history of sexuality, knowledge about STIs, HIV and AIDS, as independent variables (IV), and sexual risk behavior as dependent variable (DV), which tended to significance (F = 1.85, R²adjusted = .065, p = .052). When the model was analyzed it was found that the greatest contribution variables were age, gender and marital status, so another LRM was adjusted where those variables were introduced as IV and sexual risk behavior was included as the DV. The model was significant finding that 8.4% of the variation in sexual risk behavior was due to age, gender and marital status (F = 6.38, R²adjusted = .084, p = .000).
Moreover, in another MRL, age, gender, and marital status were used as IV and the level of sexual resilience as DV, which was significant \( (F = 5.4, \text{R}^2_{\text{adj}} = .07, \ p = .001) \), finding that 7% of the variation in the level of sexual resilience was due to the influence of the independent variables in the model.

**DISCUSSION**

Sexual behavior in adolescents is a topic that is becoming more relevant due to the implications for the health of this population. According to various studies and to the alarming statistics on STI-HIV, unwanted pregnancies, school dropout, social exclusion, among others, the sexual problem is compounded, when having a behavioral origin, the risks will always be latent for adolescents. Therefore, this research was conducted to learn about sexual risk behaviors in high school students and differences by age, gender and level of sexual resilience.

According to the results, it was observed that women were more participatory; this may be due to the Latino culture where women show greater participation for their health care, which agrees with other studies\(^{17,18}\).

On the other hand, a protective factor to prevent sexual risk behavior is the support of the family. In the present study we found that most teenagers live with their parents. In their home teens are economically and emotionally supported, and families are the first pillar of support. Family members strengthen protection, communication, love, and affection among themselves. This is a very strong link that enables the adolescent in risk situations to go to his or her family for support and guidance. All this coincides with several authors\(^{18,20}\) who report that adolescents perceive the family as the primary source of support; when they have doubts they turn to their families for information. Also, this support is even more perceived by teens who are not sexually active.

It was also found that most of the teens have received information about sexuality, STI-HIV and AIDS in the last three months, which represents another protective factor linked to knowledge, which allows them at this stage of cognitive maturity to internalize relevant data that can help them become aware of their sexual health and the risks that they could face living that important stage in their lives. However, a small percentage of teens reported having no information on these topics, placing them in a position of risk which it is consistent with other authors\(^{19,21}\) who mentioned that at the stage of adolescence there is a need for more information on sexuality issues to achieve self-protection strategies. However, having information is not equivalent to having the right knowledge to prevent STIs.

At the same time, it was found that older adolescents were more likely to practice sexual risk behaviors, which could be because at this stage adolescents are in a process of constant change that makes them vulnerable, with negative consequences for their health; this is consistent with other authors’ reports\(^{18,20}\) who state that older adolescents begin their first dating around age 15. This suggests that they are more likely to practice sexual risk behaviors because they are in a stage of experimentation and discovery of their sexuality where the forbidden and mysterious become a constant challenge.

In this study, significant differences were found among genders regarding sexual risk behaviors; men had a higher score. This is consistent with other studies\(^{8,23}\), where it was found that men have more risk behaviors initiating their sexual activity at an
earlier age (15.2 years). Also, male adolescents are less inhibited because of cultural practices such as polygamy, casual partners, use of commercial sex, less parental supervision for being men, among others; they have a predisposition to risk behaviors\textsuperscript{17, 24}. 

Regarding resilience older adolescents had a higher level of resilience. This agrees with other authors\textsuperscript{25} who mention that a high level of resilience helps prevent sexual risk behavior. The results showed that men are more resilient than women, which could indicate that females are more prone to risk, consistent with Matta\textsuperscript{26} in his study where he found that males have a high degree of resilience, indicating that men have greater capacity to counter sexual risk factors.

It was also found that age, gender, and marital status are determinants that contribute to sexual risk behavior. Several studies have shown that having a dating relationship is associated with the onset of sexual relations, as well as being older and being male\textsuperscript{7, 28}. The influence of a romantic person, age, and gender impacts sexual initiation and the adolescent’s sexual health.

In this sense, it was shown that age, gender, and marital status have an influence in the development of sexual resilience; the latter is regarded as the ability to counteract risk situations through the use of protective factors that the person has, which agrees with Esparza\textsuperscript{29} who said that if adolescents have an adequate level of resilience, they can make assertive decisions about changes that may arise regarding sexual behavior. However, in the present study we found that older male adolescents, with a dating relationship and low resilience, were more likely to practice sexual risk behaviors.

CONCLUSIONS

According to the above, it can be concluded that adolescents are more likely to perform sexual risk behaviors due to the vital process they are going through, and to the social and cultural norms that rule over them. Gender and age play an important role in addressing educational programs, since they provide guidelines to assist men and women; this is relevant to the design of prevention programs, which should seek the strengthening of information through a variety of teaching strategies that are interesting and novel for teens that may also generate significant interest and significant learning on the prevention of sexual risk behaviors.

For the health professional, this represents an opportunity to direct objectives to help improve the skills in making right decisions for the postponement of first sexual intercourse and reduction of risk in this population. Nurses must participate in sexual health care to provide comprehensive care for adolescents, with a focus on detection and prevention of potential risks to physical and psychosocial health related to negative behaviors. In addition, health institutions should enable practices that encourage free and confidential access to sexual health services.

Research on adolescent sexual behavior and the factors that influence behavior, is useful to understand what motivates adolescents to practice or avoid sexual risk behaviors. Many teens are involved in many risks; knowledge, skills and values to develop over the course of their lives provide them the possibility of having a safe and happy life, unlike someone without these elements who would have more chances of contracting an STI including HIV, which consequently, increases greatly the risk of
dying at an early age. That is why it is important to help adolescents to become sexually healthy adults, with the ability to avoid risk by making right decisions.

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