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Gender Differences In Social And Developmental Factors Affecting Puerto Rican Adolescents During The Early Stage

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Abstract

Background—Adolescence is associated with risky behaviors related with social and developmental factors. Objectives were to describe social and developmental factors affecting Puerto Rican early adolescent by gender and type of school at study entry.

Methods—Cross-sectional study design. The study group was composed by 168 seventh grade adolescents from private and public schools. Descriptive and non-parametric comparisons were performed.

Results—Significance differences among proportions for gender by type of school were found in the following variables: self-esteem and HIV/AIDS attitudes in public school and peer pressure and sensation seeking in private school

Discussion—Our study revealed that public school adolescents are characterized by males with higher self-esteem and less attitude for HIV/AIDS, while in private school the males has more peer pressure and seeking sensation than females. Future studies could analyze factors related with changes in developmental factors, this step is important to evaluate the effectiveness of ASUMA interventions.

Index words

gender; differences; social; developmental; factors; Puerto Rico

INTRODUCTION

Risk taking, sexual debut, experimentation, exploration, impulsiveness, and a sense of invulnerability are experience during adolescence. (1) Teenagers are a high risk group because they are in search of their sexual identity. Adolescents are influenced by peer pressure and feel invulnerable because they cannot foresee long-term consequences. (1) They are more likely to engage in high risk behaviors, such as drugs and alcohol and as a result, they are more vulnerable to sexual transmitted infections (STIs), including HIV. Developmental factors including cognitive immaturity, struggle for psychological autonomy, peer influences, physical development, undefined sexual identity, and cultural and ethnic identity issues may enhance adolescent's propensity for HIV risk behavior. (2)

The Youth Risk Behavior Surveillance System (YRBSS) is conducted every two years and provides data representative of ninth through twelfth grade students in public and private schools throughout the United States (U.S.) and dependent territories. (3) Last data available

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that includes Puerto Rico was collected in 2005. A comparison between U.S. and Puerto Rico (P.R.) related to alcohol use, tobacco use and sexual intercourse among ninth grade adolescents for the first time before the age of 13 revealed the following: 6.2% of U.S. adolescents and 7.0% of P.R. adolescents had sexual intercourse; 54.3% of U.S. adolescents and 36.3% of P.R. adolescents have tried cigarette smoking; 25.6% of U.S. adolescents and 26.7% of P.R. adolescents drank alcohol and 8.7% of U.S. adolescents and 3.9% of P.R. adolescents tried marihuana. (3) This data revealed that cigarette smoking, alcohol use, and had sexual intercourse were more frequently reported in males than females for both, U.S. and P.R. (3)

Recent research indicates that despite prevention efforts, adolescents are still engaging in sexual practices at early ages. Early sexual activity in adolescence is also associated with participation in other risky behaviors such as alcohol and illicit drug use. (4) Malow et al (2004) stated that adolescent exhibits high levels of sexual impulsivity and curiosity; engage in sexual activities often unprotected, and lack of adequate knowledge, motivation, and skills to implement safer sex behaviors. If an adolescents experiment with drugs or alcohol before they engage in sexual activity; lack of judgment and impulse control and a tendency to underestimate the risk of acquiring HIV can result. (2)

Moscoso et al (2004) conducted a study with a representative sample of public and private junior school students during 2003–2004 that explored risky behavior in P.R. (5) The most common risky behavior among early-adolescents in seventh grade was alcohol use (43.7%) at any time in their lives. Among those, 18.7% reported alcohol use during the last month. Cigarette smoking was reported in 13.2% of seventh graders. Also, the use of marihuana and inhalants were reported (4.6% vs. 3.1%; respectively) by the students at any time in their lives. Cigarette smoking (9.3% vs. 6.2%), alcohol use (33.7% vs. 29.0%), and illicit drug use (7.9% vs. 5.0%) were more frequently reported in seventh grader males than in females. (5)

Baez et al (2008) conducted study in Puerto Rico related to early initiation of injection drug use (IDU) before 13 years old in a cohort of HIV patients. They reported that early injection drug users were more likely to have a history of smoking tobacco, use of alcohol, suicide attempts, and incarceration. (6) As previously published, HIV risk behavior (alcohol use, drugs use and/or sexual intercourse) was measured among early-adolescents in ASUMA project at study entry; none of them reported illicit drug use, 26.3% reported alcohol use at any point in their lives and 1.2% reported sexual intercourse at any time in their lives. (7)

Several researchers have studied the difference between risk-protection approach and applied developmental factors. (8) Protective factors are conceptualized as characteristics or processes that decrease the likelihood of negative developmental outcomes, whereas developmental factors are conceptualized as characteristics or process that increase the likelihood of positive developmental outcomes. (8) A Supportive Model for HIV Risk Reduction in Early Adolescent (ASUMA) developed by Dr. Diana M. Fernandez-Santos and Dr. Wanda I. Figueroa-Cosme is a theoretical intervention developed to modify HIV risk behaviors among Puerto Rican early-adolescents. (Figure 1) The theoretical framework that supports this study explains that HIV risk behaviors among early-adolescents can be decrease by increasing parent support, and self-efficacy. Conversely, a decrease in sensation seeking has to occur. An increase in HIV/AIDS knowledge and positive attitudes towards HIV/AIDS among early-adolescents are a result of a decrease in invulnerability. Self-esteem among early-adolescents is increase by a decrease in negative peer pressure. Researches indicate that the more factors adolescents' posses, the less likely they were to have engaged in risky behaviors and the more likely to demonstrate positive behaviors. (9)

HIV infection is associated with a lack of HIV/AIDS knowledge. Attitudes towards HIV infection is often the denial of any chance of infection and belief of invulnerability among adolescents. (10) Also, it is known that without appropriate knowledge a change in attitude cannot be achieved. As cited by Akpabio et al (2009) according to Asuquo et al, it appears that developing a positive attitude toward sexual health or HIV/AIDS preventive measures could produce tangible desirable behavioral changes in HIV/AIDS risk behavior. (11) They stay even when adolescents appreciate the risks of HIV/AIDS; many of them believe that they are not vulnerable. (12)

Invulnerability is define as the property of being incapable of being hurt or damage physically or emotionally. Morojele (2006) found that sexual risk behaviors results from the limited power in sexual relationship among girls and having multiple partners is related to boy's perceived invulnerability to HV infection. Alcohol as well drugs was considered to exacerbate underlying invulnerabilities to risky sexual behavior mainly due to drug's effects on adolescents' inhibition, rational thinking and safer sex negotiation skills. (13)

Peer pressure can positively or negatively contribute to adolescent risky sexual behaviors. According to DiClemente, adolescents' perception about the sexual behaviors of their peers can have a greater influence on his/her decision about sex. (1) In addition, positive peer pressure is related to a delay in sexual initiation, and increase in condom use and with smoking cessation. (14)

DiClemente suggested that adolescents that perceived positive family support, family closeness, parental monitoring and parent-adolescent communication are less likely to perform risky sexual behaviors. (1) Moreover, a study conducted in Puerto Rico by Robles (2007) found that adolescents whose parents reported poor or little communication, monitoring, or control over their children were almost three times more likely to engage in early sexual activity. (15)

Self-esteem has proven to be a predictor of risk behaviors (e.g. smoking initiation and alcohol use) in adolescents and adults which predispose them to poor physical health. (16) A nationally representative longitudinal study characterized self-esteem among male and female adolescents. Researchers found that boys were more likely than girls to report high self-esteem in all grades (8th, 10th and 12th) ($p < 0.001$). (16) In grade 8, 39.2% of boys versus 27.4% of girls reported high self-esteem. Factors common to both boys and girls included positive family communication, and baseline self-esteem. (16) An adolescent with low self-esteem can be more expose to peer pressure than an adolescent with adequate self-esteem. A longitudinal study followed over two years period was conducted with seventh grade students reveled that boys with higher self-esteem were 2.4 times more likely to initiate intercourse, while girls with higher self-esteem were more likely to remain virgin than those with lower self-esteem who were 3 times more likely to initiate intercourse. (17)

Zuckerman (1994) suggested that sensation seeking is a personality trait defined by the need for novel, complex, intense, and ambiguous experiences and the willingness to take risks to obtain such experiences. (18) Sensation seeking has been found to be a strong positive predictor of smoking, alcohol use, and drug use, and other risky health behaviors. According to Zuckerman (1994) males are higher in sensation seeking than females. (18) He also explained that older adolescents are higher in sensation seeking than younger adolescents.

Experimentation is a normal part of adolescent's development; unfortunately this stage of their development put them at risk for a number of health risks, including HIV/AIDS. Adolescents are continuously struggling about being independent; they pursue the development of their own identity, opinions and values. (19) Prevention efforts could be directed to impact factors related with HIV risk behaviors in late stages of adolescence.

Given this consideration, it is necessary to describe and analyze the social and developmental factors that contribute to a latter exposure to risky behaviors among early-adolescents. The study objectives are 1) to describe social and developmental factors affecting Puerto Rican early-adolescents at study entry; 2) to describe social and developmental factors affecting Puerto Rican early-adolescents by gender and type of school at study entry; and 3) to identify gender differences in social and developmental factors affecting Puerto Rican early-adolescents by type of school at study entry.

MATERIAL AND METHODS

ASUMA was a longitudinal cohort study conducted between August 2004 and May 2008 in four conveniently selected junior schools located in Bayamon and Guaynabo, Puerto Rico. The four schools were randomly assigned to the intervention or control group (one public school and one private school in each group). (20) A total of 224 seventh graders were invited to participate; an informed consent was completed by the parents or legal guardians and an assent was completed by the students. A sample of 173 seventh grader students was obtained. Students were followed until they reached ninth grade. This is a cross-sectional study of a longitudinal cohort comprised of 168 students in seventh grade from public and privates schools in Puerto Rico that completed the first measurement of ASUMA.

A self-administered questionnaire was developed and validated in terms of face and content validity and construct validity. The minimal acceptable level of internal consistency reliability is 0.70. A good internal consistency was obtained from developmental factors scales as followed: self esteem (Cronbach α =0.60), peer pressure (Cronbach α =0.66), invulnerability (Cronbach α=0.46), parent support (Cronbach α=0.62), sensation seeking (Cronbach α=0.77), HIV/AIDS knowledge (Cronbach α=0.86) and HIV/AIDS attitudes (Cronbach α=0.70). (7) The final questionnaire was approved by the Institutional Review Board at the Universidad Central del Caribe.

The curriculum design used pragmatic strategies to facilitate the process of active learning. (7) The intervention considered the cultural aspects of the target population; it included coping skill strategies. A total of eight workshops were conducted: 4 workshops in the first implementation year, 2 in the second year and 2 in the third year. The workshop topicsofthefirst2 years were designed to affect developmental and HIV risk related factors, whereas the focus on the last year was designed to reinforce previous messages and behaviors. (7, 20) Also a parent support workshop was given to 35 parents of the intervention group. The parents curriculum was adapted from program “Taking with kids about AIDS” from Cornell University (21). A 4-hour workshop adaptation that included effective communication skills with kids, HIV knowledge and attitudes was given. Participants were provided with snacks and a certificate for completing the workshops. A pragmatic approach was used to develop the methods and activities for the first workshop activities included group discussion, audiovisual aids, debates, brainstorming, patient testimony, reflection, and critical thinking. The control group did not attend the workshop but received written HIV/AIDS educational material. (7, 20)

We examined several variables in this study: type of school (public/private); sociodemographic (age, sex, parents living together (yes/no), parent’s highest level of education (high school or less/more than high school), adolescents’ academic high performance (includes all students with A’s and B’s) (yes/no); and developmental factors (self esteem [Rosenberg Self-esteem Scale], HIV/AIDS knowledge [Paniagua et al HIV/AIDS Knowledge Scale] (22), self-efficacy, peer pressure, invulnerability, parent support, sensation seeking [Zuckerman Sensation Seeking Scale adapted by Goma’ I Freixanet et al]. (23)

Statistical analysis was done using descriptive (frequencies and percentages) and nonparametric comparisons (using Mann–Whitney U test). The statistical software used was SPSS 14.0. The overall significance level was set to $p<0.05$.

RESULTS

A total of 168 early-adolescents in seventh grade in public (n= 92; 54.8%) and private (n=76; 45.2%) schools participated in the first measurement of ASUMA. From those 50.6% were male and 49.4% were female. Most of the adolescents were 12 years old at study entry (79.0%); followed by 11 years old (12.7%); 13 years old (7.0%) and 14 years old (1.3%). Figure 2 show gender differences by school type.

In table I, gender differences in social factors affecting Puerto Rican early-adolescents by types of school at study entry are presented. A significant difference was found in gender composition by type of school; 56.5% females in public schools vs. 40.8% females in private schools and 43.5% males in public schools vs. 59.2% males in private schools ($p<0.05$). Significant differences were observed related to the parents living together variable in the private schools by the adolescent's gender ($p<0.05$). Different percentage among mothers and fathers with highest education level by gender in both public and private school was observed. A comparison between mothers and fathers in both type of schools; revealed that parents of adolescents in private school have higher educational level. Academic high performance in the public school was higher in females than in males (77.1% vs. 22.9%). Mean rank differences in academic high performance were observed among females and males in the public school ($p<0.05$). Gender differences in developmental factors affecting Puerto Rican early-adolescents by type schools at study entry are presented in table II. Mean rank differences between by gender and type of school were observed. Significant differences in self-esteem (41.6 females vs. 53.0 males; $p<0.05$), and HIV/AIDS attitudes (51.6 female vs. 39.8 male; $p<0.05$) by adolescent's gender in public schools were observed. Also significant differences in mean rank comparisons in private schools by gender were found in peer pressure (31.2 females 43.6 males; $p<0.05$) and sensation seeking (30.1 females vs. 44.3 males; $p<0.05$).

DISCUSSION

Several differences in the social and developmental factors affecting Puerto Rican early-adolescents were presented. ASUMA is an intervention based on a theoretical framework that proposed an explanation of why early-adolescents engage in risky behaviors related to HIV infection (e.g. drug use, alcohol use and sexual intercourse). Early-adolescents are more likely to engage in risk behavior, which makes them more vulnerable to HIV infection. Addressing behavior factors related with risky behaviors at earlier age has proven to be effective in modifying these behaviors and ultimately preventing diseases. Also the development and implementation of culturally appropriate instruments and interventions are a key element in disease prevention for a specific population.

As previously published, a low percentage of early-adolescents reported any HIV risk behaviors. (7) Nevertheless, alcohol use is a major risk factor that is particularly related to our culture. Alcohol use may reduce inhibitions and impair decision making putting adolescents at risk for HIV. In Moscoso et al (2004), alcohol use was reported by 43.7% seventh graders at any time in their lives. (5) In Fernandez et al (2008) alcohol use was the mayor risk behaviors presented in seventh graders (26.3%) of at any time in their lives. A similar percentage in alcohol use was documented in the YRBSS for USA and PR in 2005 (25.6% and 26.7% respectively).

Significant differences were found among parent's marital status in the private schools by the adolescent's gender. A larger percent of parents in the private school live together. In a study conducted in Puerto Rico, Velez-Pastrana et al (2007) found that adolescents with both parents living together were less likely to be sexually active than those adolescents with only one parent living in the household. (24) As cited in Velez-Pastrana, Upchurch et al (1999) suggested that having both parents in the same household is a factor associated with the delay of sexual intercourse. Also, Sokol-Katz (1992) found that Puerto Ricans adolescents living in female-headed households have higher rates of overall risk-taking behaviors than those living with both parents. (25)

In addition, parents of adolescents in private school have higher educational level. In study conducted by Villarruel et al (2008) parents with higher education levels scored higher in HIV knowledge and general communication. Fathers had higher total sexual knowledge while mothers perceived higher sexual communication than fathers. (26)

Significant differences were found in gender composition by type of school. Our study revealed that public school adolescents are characterized by males with higher self-esteem and less attitude for HIV/AIDS; while in private school, males have more peer pressure and seeking sensation than females. According to Shrier et al (2001) and Shier et al (2002) and Spencer (2002), adolescents with low self-esteem are more likely to engage in behaviors associated with HIV transmission. (26)

A higher level of self esteem was found among males from public schools. Birndorf et al (2005) found that boys were more likely than girls to report high self-esteem. (16) Peer pressure was higher among males than female in private schools, but no significant differences were found in public schools. This compare with Sumter et al (2009) where they stayed that general resistance to peer influence increased during adolescence. In addition, gender differences were most pronounced during mid-adolescence, when girls were more resistant to peer influence than boys. (17) Attitude was higher in females than males from public schools. We did not found literature that supports these gender differences. Nevertheless, researches have found that without appropriate knowledge a change in attitude cannot be achieved. (11) Sensation seeking was significant higher in males than in females from public school, while no differences were observed among public schools. Significant differences were found in self esteem and HIV/AIDS attitudes by gender in the public schools. Finally we could observe a lightly trend to higher developmental factors scores in public schools. A comparison by gender and type of school was done to compare differences in developmental factors. No significant differences were found among gender and type of groups in HIV/AIDS knowledge, self-efficacy, invulnerability, and parent support.

ASUMA was developed based on the previously cited developmental factors and HIV risk behaviors that early-adolescent face every day. Successful programs are delineated by a theoretical framework and are specifically tailored to a particular subgroup of a population. (27) According to DiClemente et al (2008) interventions that focus on self-concept, self-esteem, and social competency skills are also effective in the reduction of risky sexual behaviors in adolescents. (27)

Future studies could analyze factors related with changes in developmental factors by gender and type of school. This step is important to evaluate the appropriateness after the implementation of ASUMA interventions by gender and type of school environment.

A study limitation is that the sample is not probabilistic but it represent early-adolescents enrolled in both public and privates schools in Puerto Rico.

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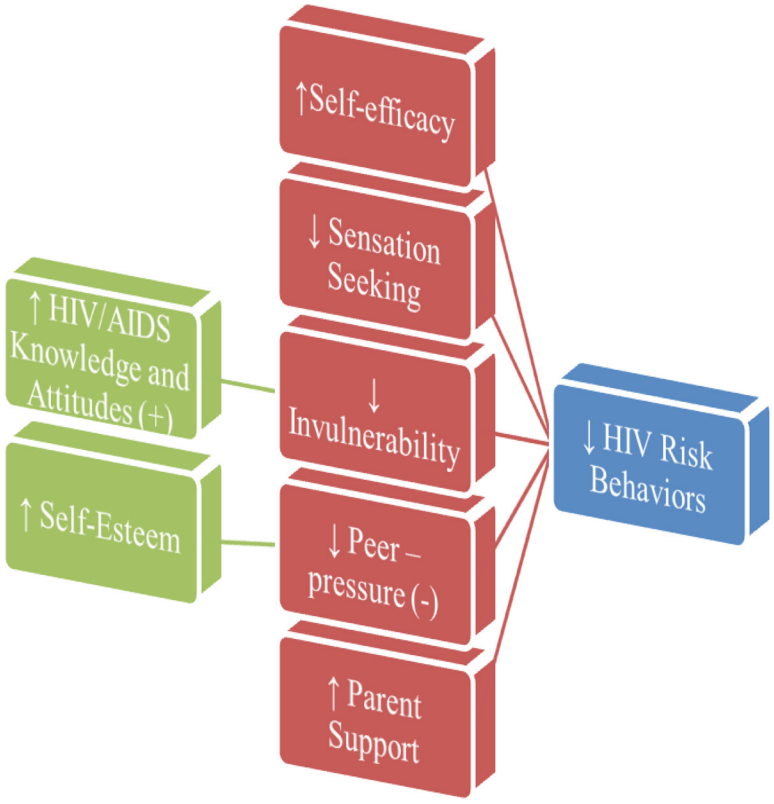

Figure 1.
ASUMA theoretical framework developed by Dr. Diana M. Fernandez-Santos and Dr. Wanda I. Figueroa-Cosme.

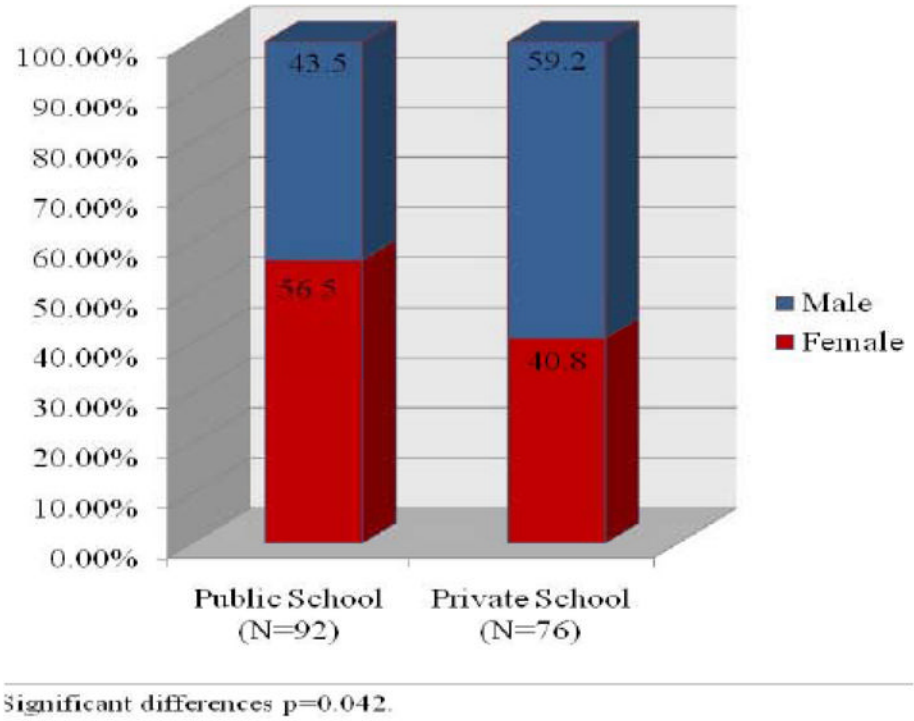

Figure 2.
Gender differences among Puerto Rican early-adolescents by types of school at study entry: ASUMA Project

Table I

Gender differences in social factors affecting Puerto Rican early-adolescents by types of school at study entry: ASUMA Project

Sociodemographic factors	Public School					Private School				
	Female		Male		p value	Female		Male		p value
	n	%	n	%		n	%	n	%	
Parents living together					0.138*					0.010*
Yes	26	52.0	27	67.5		25	80.6	35	77.8	
No	24	48.0	13	32.5		6	19.4	10	22.2	
Parents highest education level										
Mother					0.495*					0.195**
High school or less	13	33.3	8	25.8		2	8.0	0	0	
More than high school	26	66.7	23	74.2		23	92.0	31	100	
Father					0.755*					0.598**
High school or less	16	48.5	12	44.4		2	7.7	1	3.4	
More than high school	17	51.5	15	55.6		24	92.3	28	96.6	
Academic High Performance					0.001*					0.942*
Yes	27	77.1	10	37.0		16	66.7	25	67.6	
No	8	22.9	17	63.0		8	33.3	12	32.4	

* Pearson Chi-square

** Fisher's Exact Test

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Table II

Gender differences in developmental factors affecting Puerto Rican early-adolescents by type schools at study entry: ASUMA Project

Developmental factors	Public School					Private School				
	Female		Male		p value	Female		Male		p value
	n	Mean Rank	n	Mean Rank		n	Mean Rank	n	Mean Rank	
Communication with Parents	52	45.1	40	48.3	0.502	31	35.8	45	40.4	0.244
HIV Knowledge	52	47.7	40	45.0	0.625	31	42.7	45	35.6	0.171
Self-esteem	52	41.6	40	53.0	0.034**	31	38.0	45	39.0	0.838
Peer Pressure	52	46.1	40	47.0	0.854	31	31.2	45	43.6	0.009**
Self-efficacy	51	46.8	39	43.7	0.504	30	42.3	45	35.1	0.134
Attitude	52	51.6	40	39.8	0.035**	31	43.1	44	34.4	0.091
Parent Support	52	44.0	40	49.8	0.287	31	33.9	45	41.7	0.124
Invulnerability 52	45.3	40	48.0	0.631	31	33.6	43	40.3	0.185	
Sensation Seeking	52	46.0	40	47.2	0.822	31	30.1	45	44.3	0.006**

* Mann Whitney U test

** Significance differences in Mean Rank p≤0.05.