

PUBLIC HEALTH

Intention to Postpone Sexual Initiation Among Puerto Rican Female Adolescents[‡]

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ABSTRACT. The purpose of this analysis is to examine the factors associated with intentions to initiate sexual intercourse among a group of female high school students in Puerto Rico. A large metropolitan high school was purposively selected for the study. The mean age of the girls who participated in the study (N=133) was 16. 13% of the surveyed girls reported having had intercourse at some point in their lives. 45% indicated when answered that they were sure they would not initiate sex during the next year; 18%

answered that it probably would not happen; and the others (28%) responded with an even 50-50 chance or more that it will probably happen. A multiple regression/correlation analysis showed that the mother's traditional sexual values along with the teen's own conventional behavior, traditional sexual values as well as a perception of conventional behavior by their peers were related to a lower expectation of sex initiation.

For female adolescents living in AIDS epicenters the implications of deciding whether to initiate sexual activity is more important than ever. Low chronological age of onset of sexual behaviors increases the probability of HIV infection by increasing the period of possible exposure and by increasing the number of lifetime partners (1,2,3). It also reduces both the probability of effective risk reduction as well as the use of contraceptive techniques (4). Other studies have also been found that early age at first intercourse is related to reports of alcohol and drug use at last sexual activity, aggressive behavior and suicidal ideation in adolescents (3).

In the HIV risk behaviors literature, intentions to use condoms, to limit number of sexual partners, to change risk behaviors and to be monogamous, have been studied (5,6,7,8). Studies focusing on intentions to delay sexual initiation by male and female adolescents are scarce, however (9). This lack is particularly poignant when faced

with the proliferation of abstinence programs that attempt to delay the onset of intercourse among adolescents as an obvious way to reducing HIV transmission (10). Adolescents sexual behaviors also varies widely by ethnic group. The 1990 Youth Risk Behavior Survey (YRBS) conducted by the Centers for Disease Control and Prevention (CDC) in a representative sample of high school students in the United States found that among the females surveyed, black students reported the highest proportion of having engaged in intercourse(60%), followed by 47% of white students and 45% of Hispanic students (11). Other national surveys have also found similar distributions among adolescents in the U.S. (1,12). In sharp contrast, the YRBS found that in Puerto Rico only 18% of the female high school students surveyed reported having sexual intercourse (11).

Intentions to initiate a given behavior are conceived as the most immediate antecedent of that behavior and as such are considered the best predictors of future behavior according to the theory of reasoned action (13). Based on this theory the dependent variable in this study was conceptualized as intention to initiate sexual behavior (ie. penile-vaginal intercourse).

Jessor & Jessor (14) and Jessor (15) theory of problem behavior on the other hand, provided the theoretical framework to organize the independent variables considered in this analysis. The independent variables will be conceptualized in a continuum as antecedent,

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intervening and proximal variables which influence the adolescent's intentions to initiate sexual behavior. The most distal variables considered in the model include the sociodemographic variables, which measure the general social context of the behavior.

The next two sets of variables in Jessor's model are considered to be intervening variables. These include measures of maternal socialization practices and the other represents the adolescent's involvement in conventional behavior. The most proximal dimension in the model includes the teen's perception of her peers' values as well as the adolescent's own values concerning initiation of sexual practices. Different components of Jessor's theory have been studied in relation to adolescent sexual behavior, but there has been little emphasis in the study of initiation of sexual behaviors. Research relevant to various aspects of Jessor's theory in relation to adolescent sexual behavior is briefly reviewed below.

Maternal education, has been reported to have a negative relationship with early onset of intercourse (16,17,18) with some exceptions. Among Black girls living in a poverty area in Chicago (19) no relationship between sex initiation and mother's education was found. In terms of family structure, girls from non-intact families have been reported to be more likely to initiate sexual activity than those from intact families (18,20,21). The role of maternal socialization variables in adolescent sexual behavior have also been investigated. Two domains are particularly salient; parental communication and parental control. In one important study of children 9-15 in public housing in six cities of the U.S., it was found that detailed monitoring of the teens' activities was associated with less teen sexual activity. Similar results have been reported earlier by Jessor & Jessor (22). Findings concerning the role of communication between parents and adolescents in adolescent sexual behavior are mostly non-significant (20,23) or inconsistent (24). When this relationship is specified further, it has been reported that only daughters of traditional parents who communicated with them about sex are less likely to have had intercourse (25).

The teens' conventional behavior such as religiosity as well religious affiliation have been reported to be related to lower sexual involvement (16,24,26,27). High educational expectations and good academic performance have also been found to be related to lower probabilities of sexual initiation in adolescence (28,18,7).

The last and most proximal set of variables posited in the model is peer behavior. The saliency of peers in influencing teen's behaviors including sexual behavior is well documented in the literature (29,30). Self-selection of similar peers can partially explain this influence. There are some gaps in the information relating to the factors

associated with the delay of sexual initiation in teens and furthermore, some findings are inconsistent. Moreover, research on Hispanics in general is sparse and the information when available include Puerto Ricans, Mexican-Americans, and Cubans under the same heading diluting important differences between the groups (9). In analyzing intentions to postpone sexual intercourse initiation among Puerto Rican female adolescents, the focus of this paper is on understanding the factors associated with the delay.

This study is part of a CDC multi-site study of adolescents and their mothers geared to examine individual, familial, peer and environmental factors in relation to HIV risk-taking and risk reduction behaviors among adolescents varying in terms of ethnic group membership and geographic location. The purpose of this analysis, however, is to examine the factors associated with intentions to initiate sexual intercourse among a group of female high school students in Puerto Rico.

Methodology

Population and Sample. One of the largest high schools in the Greater San Juan Metropolitan area was purposefully selected for the study. The selected school had a total enrollment in 1993 of 1,074 students. Study eligibility criteria included: students who were between 14 and 16 years old, who lived with their biological mothers and have lived in the Island for ten years or more.

Grades 10th and 11th were targeted as the most likely to include the younger students. The official school registration in the selected school for grades 10th and 11th by the end of the spring semester of 1994-1995 was 784 students. On average, 74% of the study body was present during the homeroom periods when the study was described and the eligibility data were gathered. Of the students present on such days 11% refused to participate in this study and their eligibility status could not be established. After the initial consent from the selected mothers was obtained, only 2 teens and a mother refused to be interviewed. A total of 250 mother-offspring dyads were surveyed, of which 133 were mother and daughter dyads.

Data Collection Procedures. With the permission of the school administration, the research staff visited all 10th and 11th grade homerooms to describe the study to students and teachers and to administer a short questionnaire inquiring about their eligibility for the study. Parents of eligible students were sent letters describing the study including a notice that an interviewer will be calling to set a time for the interviews. The sex of the interviewees was matched to the sex of the interviewers.

All interviews were checked and debriefed after completion.

Measurement development. The questionnaire developed for the study was a comprehensive instrument which included measures of various aspects relevant to Jessor theory of problem behavior. This analysis is based on the female student reports. The set of antecedent variables included sociodemographic variables such as

family structure, age of the teen, and maternal education.

Eight different scales were constructed to measure the intervening and proximal domains studied in this analysis. Tables 1 and 2 present the representative items for each scale and descriptive statistics. The internal consistency of each scale was measured with Cronbach's alphas.

Table 1 shows the intervening variables measured. The first set includes the maternal related variables and it

Table 1. Maternal related scales developed for female high school students surveyed in Puerto Rico (N=133)

Scales, Representative Items and Statistic	(N)	%
A. Perceived Maternal Traditional Sex Values (5 items)		
Does your mother think...?		
{Never to Always OK}		
Female teenagers your age having sex is (IT*=.60)	126	95
Your having sex (IT*=.54)	129	97
Range: 5-12, \bar{x} : 9.7, SD: 1.2, Alpha **: 0.71		
A higher score means higher traditional values.		
B. Disharmony with the Mother (2 items)		
How often do you and your mother get into arguments?		
{Almost every day} (IT*=.55)	22	17
How would you describe this arguments?		
{Mild} (IT*=.55)	99	74
Range: 1-10, \bar{x} : 5.6, SD: 2.5, Alpha **: 0.71		
A higher score means more disharmony.		
C. Communication with Mothers About Sex (5 items)		
Have you and your mother ever talked about when to start having sex? {yes} (IT*=.93)	62	47
On your lifetime, how many times have you and your mother talked about when to start having sex? {Never} (IT*=.95)	71	53
Range: 1-11, \bar{x} : 4.1, SD: 4.0, Alpha **: 0.88		
A higher score means more communication.		
D. Maternal Involvement/Control (4 items)		
To what extent does your mother know...?		
What do you do with your free time (IT*=.56)		
{Always Know}	62	58
Who your friends are (IT*=.54)		
{Always Know}	80	60
Range: 5-12, \bar{x} : 10.2, SD: 1.9, Alpha **: 0.70		
A higher score means more involvement/control.		
E. Perceived Agreement with Maternal Values (2 items)		
My other thinks that having more than 1 sex partner can ruin my reputation (IT*=.49) {Strongly Agree}	86	65
My mother thinks that getting pregnant now will ruin my future (IT*=.49) {Strongly Agree}	96	72
Range: 2-8, \bar{x} : 7.0, SD: 1.4, Alpha **: 0.66		
A higher score means more agreement.		

* Item - Total Score Correlation

** Standardized Alpha

included the daughter's perception of; her mother's traditionality in attitudes regarding adolescent sexual behavior, her own agreement with maternal sex values, maternal involvement with the teens activities, frequency of communication with the mother about sex and disharmony with the mother. The internal consistency coefficients for each scale ranged between .66 and .88 respectively.

The next set of intervening variables measured the girl's traditionality in attitudes concerning teens' sexual behavior, as well as her own conventional behavior. The teens' own conventional behavior included questions about the importance of church and school for them as well as items concerning lifetime drug use. The internal consistency coefficients in this domain varied from .77 for the traditional values scale to .62 for the youngster conventional behavior scale (See Table 2). The most proximal domain measured was perceived conventionality

the next year?". This item was asked only if participant previously reported they had never had vaginal sex (See Table 3). The dependent variable, intention to initiate sex, was coded so that "0" indicates that the teen was sure it would not happen in the next year; "1" indicates it probably would not happen; "2" indicates a 50-50 chance; "3" that it will be probably happen or that for sure it will happen; and "4" indicates that she had already initiated sex.

Results

Antecedent Variables. The mean age of the girls who participated in the study (N=133) was 16.3; the majority (63%) were enrolled in the 10th grade. About half of them lived in a female-headed family. The youngsters reported a higher educational level for their mothers than for their fathers. Fifty-three percent of the mothers were reported to have more than a high school education compared to

Table 2. Teen's related scales developed for female high school students surveyed in Puerto Rico (n=133)

Scales, Representative Items and Statistics	(n)	%
A. Traditional Adolescent Values (6 items)		
What do you think about...?		
Male teenagers your age having sex {Never OK} (IT*=.70)	87	66
Female teenagers your age having sex {Never OK} (IT*=.70)	100	75
Range: 10-16, x: 14.5, SD: 1.6, Alpha**: 0.77 A higher score means more traditional values.		
B. Teen's Conventional Behavior (9 items)		
How important is doing well in school to you? {Very important} (IT*=.44)	122	92
Have you ever...? Smoke cigarettes {No} (IT*=.49)	88	66
Range: 10-16, x: 14.5, SD: 1.6, Alpha**: 0.77 A higher score means more traditional values.		
C. Perceived Peer Conventional Behavior (items)		
Of your close friends, how many do you think...?		
Have ever sex {None of them} (IT*=.57)	52	39
Smoke cigarettes on a regular basis {None of them} (IT*=.57)	108	81
Range: 6-27, x: 22.6, SD: 4.1, Alpha**: 0.72 A higher score means more conventional behavior.		

* Item - Total Score Correlation

** Standardized Alpha

in peer behavior and it included questions concerning peer's sexual behaviors, drug use and problems with the law. The internal consistency coefficient for this scale was .72.

Intentions to initiate sex was measured with an item asking the teen " How likely is it that they will have sex in

only 29% of the fathers.

Intervening Variables

A. Maternal-related variables. The youngsters generally perceived their mothers' sex values to be very traditional (Table 1). That is, most teens reported they perceived their mothers as being definitely, against boys

Table 3. Intention to initiate sex among female high school students surveyed in Puerto Rico (n=133)

How likely is it that you will have sex in the next year?	n	%
(1) Sure it won't happen	60	45
(2) Probably won't happen	24	18
(3) Even chance (50-50) it will happen	26	20
(4) Probably will happen/will happen for sure	6	4
(5) Already Initiate Sex	17	13

or girls their own age engaging in sex. Not surprisingly the young women also reported high agreement with the mother's traditional values about teenagers having sex. The overwhelming majority of youngsters reported that they agreed with their mothers in that female teens having sex and getting pregnant is never OK (Table 1).

Most of the girls reported their mothers to be highly involved with their daughters' activities. According to the youngsters, mothers know who their friends are, where they go out at night, what they do with their free time, and where they go most afternoons (Table 1). This domain is similar to that of parental monitoring as researched by others. Communication between the mother and daughter about when to start sex was reported as somewhat infrequent (Table 1). Less than half the teens reported ever discussing with their mothers when to initiate sex. However, the majority of the girls reported their mothers have talked to them about how to handle sexual pressures. Although more than half of the youngsters (55%) reported weekly arguments with their mothers, the majority of them rate these arguments as mild (Table 1).

Each of the maternal socialization variables measured is fairly independent of the others. However, there are two exceptions. The measure of perceived maternal traditional values is moderately correlated with the measure of the teens' agreement with maternal sexual values ($r=.40$). In addition, the reported maternal involvement or monitoring of the teens' activities is negatively related to reports of disharmony in the relationship between mother and daughter ($r=-.25$). All other interrelationships in this domain are not statistically significant (Table not shown).

B. Teen's related variables. Similar to their perception of traditionality in their mothers' sexual values, most of the girls surveyed reported that it was never OK for girls of their own age to either have sex, or get pregnant (Table 2). For most, religious beliefs were important (66%) and doing well in school was very important (92%). Ever use of marijuana was reported only by 5 youngsters, and cigarettes was reported by 34% of the surveyed

teenagers (Table 2). The measures concerning the adolescents own behavior and values were intercorrelated. The highest correlation was between the teen conventional behavior and the teens' traditional sexual values ($r=.51$); and the smallest between the teen's sexual values and the perceived peer norms ($r=.29$) (Table not shown).

Proximal Variables. The teens also perceived their peers as conventional in terms of sexual and drug use behavior and in terms of problems with the law (Table 2).

Dependent Variable: Intention to Postpone Sexual Initiation. Thirteen percent of the surveyed girls reported engaging in intercourse at some point of their life. The plurality of the surveyed youngsters (45%), when asked how likely it was that they would initiate sex during the next year, answered that they were sure it would not happen and an additional 18% answered that it probably would not happen. About 20% reported an even 50-50 chance of initiating sex during the coming year and 4% felt that it will probably happen or that it will happen for sure.

Multivariate Analyses: Factors Associated to Intentions to Postpone Sexual Initiation. A multiple regression analysis where the various sets of variables entered hierarchically into the equation was done (31). The order of the variables in the equation was determined by theoretical and temporal considerations. The first set entered into the equation included the demographic variables. None of the hypothesized antecedent variables (age, family structure and mother's education) were found to be related to the female teenager's intentions to initiate sex. The next set entered into the equation were the intervening variables related to maternal behavior and attitudes as perceived by the adolescents. The teens' perceived traditionality of the mothers' sex values showed a negative relationship ($\beta=-.30$) with the teens' reported intention to initiate sex. Reported maternal involvement with the adolescents activities was also found to be negatively associated ($\beta=-.21$) with the teens' intentions to initiate sex. No significant relationship was found between the disharmony scale, the communication about sex scale or the agreement with perceived maternal sexual values and the adolescent intentions to initiate sex (See Table 3). In the last step when the teen behavioral and attitudinal variables were entered into the equation, all were found to be significantly related to their stated intentions to initiate sex. The teen's own conventional behavior ($\beta=-.28$) and the teen's own traditional sexual values ($\beta=-.22$) as well as the perceived peer conventional behavior ($\beta=-.15$) were related to a lower expectation of sex initiation. Altogether the independent variables explained 34% of the students' intention to initiate sex.

In the last step of the equation when the teens' variables were added to the model, the mother involvement variable

Table 4. Regression weights and variance explained for each set of variables included in the equation for sexual postponement among female high school students in Puerto Rico (n=133)

Variables	Steps			
	1	2	3	
	R ²	0.004	0.155	0.347
	IR ²	0.004	0.151	0.192
	Sig	0.787	0.000	0.000
	Beta	Beta	Beta	
A. Demographics				
Mother Education	0.053	0.087	0.029	
Intact Family	0.022	0.021	-0.068	
Age	0.029	0.084	0.080	
B. Mother related				
Mother sexual values		-0.303*	-0.216*	
Disharmony		0.098	0.005	
Communication about sex		0.012	0.038	
Involvement		-0.205*	0.022	
Agreement		0.022	0.007	
C. Teens and peers related				
Peer norms			-0.151*	
Traditional values			-0.228*	
Conventional behavior			-0.281*	

* Statistically significant, $p < 0.05$

** $p < .001$

lost its significance. It can be interpreted that the effect of the mother involvement variable is completely mediated by the more proximal teen related variables (31).

Conclusions

A comparison of the findings of this study with those of the Youth Risk Behavior Survey (YRBS) done in Puerto Rico in 1991 shows that the reports of prevalence of lifetime sexual intercourse in both surveys are consistent. Considering that the YRBS done in Puerto Rico included 12th graders and that this study excluded 12th graders, youngsters who have not lived with their mothers for at least 10 years and those who have lived outside of the Island at some point in their lives, the prevalence of sexual initiation reported in both studies are similar. Eighteen percent of the female high school students in the YRBS in Puerto Rico reported having experienced sexual intercourse while 13% reported the same in this study (32).

In the literature, although studies about adolescent's sexual behavior are abundant, many researchers have decried the lack of information on parental related

variables prior to the teens' sexual initiation (9,23,26,28). This analysis begins to fill this gap.

In the hierarchical regression analysis the sociodemographic variables were entered first in the analysis. Contrary to reports that maternal education and living in an intact family setting are negatively related to early onset of intercourse (17,18,19) this study found no association of maternal education nor of family structure with intentions to initiate sex among female high school students in Puerto Rico. A similar lack of association has been reported by Turner et al. (33). The lack of relationship paralleled those of a previous study with high school students in Puerto Rico (34) which failed to obtain a relationship between father's education and adolescent's drug use involvement. In contrast, the same study found a negative relationship between fathers' education and drug use among Puerto Rican students surveyed in New York City. This suggests one explanation for the lack of association between maternal education, family structure and the teen's intention to initiate sex. It is possible that in the more homogeneous society of the Island, values are also more homogeneous and traditional regardless of the maternal education and family structure.

Perceived maternal involvement used in lieu of parental monitoring, as it is usually labeled in the literature, was negatively related to the teens' intentions to initiate sex when controlling for the sociodemographic variables. This finding is consistent with those studies measuring parental monitoring such as Romer et al. (2), and decades earlier by Jessor & Jessor (12).

The perceived traditionality of the maternal sex values was also found to be related to the teens' intentions to engage in sex in the study. One other study (28) has also found that parental traditionality was related to a lower probability of the female teen having engaged in intercourse.

Parent-child communication about sex, perceived agreement with the mother's traditional sex values, and disharmony between mother and teen were found to be unrelated to the intentions to initiate sex. Other researchers have also found no relationship between communication with the parents and the adolescent's sexual behavior (21,25,35). Different aspects of the mother-adolescent communication processes have been measured in the literature rendering comparisons very difficult.

All the teens' related variables which were entered last in the equation, were found to be negatively related to the teens' intention to initiate sex. Traditional sex values and conventional behaviors towards school and religion have been consistently found in the literature to relate to lower sexual involvement (12,19,24,26). The perception of peers as holding conventional and/or traditional sex values was

also related to lower intentions to initiate sex. This relationship has been usually documented in the literature but stated in the opposite direction: the more peers are perceived as having engaged in sex, the higher the probability to initiate or engage in sex (2,32,36).

The research literature concerning the relationship between teen's values and sexual intercourse initiation or intentions to initiate sex is somewhat scarce. Some authors argued that young adolescents are struggling with an immature sense of self and usually "display apparently contradictory ambivalent and so-called irresponsible behavior in their sexual lives" (4). Other investigators have argued that adolescents' expressed values are consistent with responsible sexual behavior (37). Values should be expected to vary widely by ethnic group and by place of residence of the particular ethnic group. Indeed, Puerto Rican youngsters in the Island and in the U.S. have been shown to vary in behavior, attitudes and parental socialization variables according to their place of residence (38).

This study described the immediate social context of the adolescent's expressed intentions to initiate sexual intercourse as reported by the female youngster's perception of parental and peer values, norms and behaviors. Future analyses will include the adolescent males surveyed as part of the current investigation. The relative importance of the correlates of sexual initiation when reported by the teens in contrast with the maternal reports will be also explored.

Identifying the factors associated with the intention to maintain abstinent behavior should help relevant school-based programs to reduce HIV risk behaviors as well as unwanted pregnancies. For the sexually uninitiated female teenager the decision whether to initiate sexual intercourse or not is a very important one. They are likely to be very interested in interventions that reinforce their decision to postpone initiation if they are designed in ways that are motivating and challenging. These interventions should include peers and parents as well. Parents should be given the opportunity to at least meet with other parents to share the experience of having a daughter on the threshold of sexual initiation.

In Puerto Rico, prevention programs to reduce HIV risk behaviors should make postponing sexual initiation by high school students one of their priorities. This approach is feasible since it is consistent with the female youngsters' immediate social environment; parents and peers. A likely emphasis of such programs could be the necessity of being sufficiently mature to assume responsibility for protecting themselves against the negative consequences of unplanned and sometimes involuntary sex. Programs emphasizing safer sex practices and condom-use

negotiation skills will remain important for older females and those raised outside of the Island as well as for boys.

Resumen

El propósito de este análisis es examinar los factores asociados a la intención de iniciar relaciones sexuales en un grupo de estudiantes femeninas de escuela superior en Puerto Rico. Para llevar a cabo el estudio se seleccionó una escuela de gran tamaño ubicada en el área metropolitana. Las estudiantes que participaron (n=133) tenían 16 años de edad promedio. Sólo el 13% de las estudiantes reportaron haber iniciado ya las relaciones sexuales. El 45% de las jóvenes indicaron que estaban seguras que ellas no iniciarían esta conducta durante el próximo año. El 18% contestó que esto probablemente no ocurriría durante el próximo año y las otras (28%) que tenían una probabilidad de 50% ó más de que ello ocurriera. Un análisis de regresión múltiple indicó que tanto los valores sexuales tradicionales de las madres como un comportamiento convencional y valores tradicionales de las jóvenes y una percepción de comportamiento convencional por parte de los amigos estaba relacionados a una baja expectativa de iniciación de conducta sexual.

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