

Patterns of Union Formation Among Urban Minority Youth in the United States

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Since 1990, several large surveys of sexual behavior have been conducted. In addition to collecting general information on sexual histories, such as number of partners in the previous year and whether subjects ever used condoms, these studies collected information on sexual behavior with specific partners, or "partnerships." The data are useful both for testing of substantive hypotheses about the determinants of behavior as well as for disease transition modeling. The objective of this paper is to use partnership histories to describe the union formation patterns of low-income youth living in Detroit. Data from the partnership histories will be used to illustrate the types of statistics that can be generated from these histories. Data will be presented on the number and types of unions (married/cohabiting, "knew well," "casual"), the frequency and duration of these unions, the types of intercourse reported in each type of union, the patterns of mixing by age and ethnic group in each type of union, concurrency in unions, and condom use in unions.

KEY WORDS: African American; Hispanic; condoms; AIDS.

INTRODUCTION

In the last several years, a number of large surveys of sexual behavior have been conducted in many countries (Catania *et al.*, 1996). Studies in the United States have included the National Health and Social Life Survey, conducted by the University of Chicago (Laumann *et al.*, 1994), the series of National AIDS Behavioral Surveys (Catania *et al.*, 1992; Binson *et al.*, 1993), The National Surveys of Current Health Issues (Tanfer, 1993; Tanfer *et al.*, 1995), The National Surveys of Adolescent Males (Sonenstein *et al.*, 1991), and the adolescent health study

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ADD Health (Bearman *et al.*, 1997). In addition to collecting general information on sexual histories, such as number of partners in the previous year and whether participants ever used condoms, these studies have collected information on sexual behavior with specific partners, or "partnerships." Data on specific partners may be collected for several reasons. First, there may be an expectation that memory of specific events may be improved if the respondent recalls experiences with specific partners. Second, the data may be needed for tests of specific substantive hypotheses, such as an examination of differences in condom use with primary partners and casual partners. Third, the study may be concerned with sexual networks and need data on demographic or geographic locations of partners. Finally, the data may be useful for disease transition modeling.

Urban minority youth in the United States have been identified as a group at risk of human immunodeficiency virus (HIV) infection (Holmes *et al.*, 1990). Data on partnerships were collected in a study of urban minority youth living in Detroit. The objective of this paper is to use partnership histories to describe the union formation patterns of low-income youth living in Detroit. Data from the partnership histories will be used to illustrate the types of statistics that can be generated from these histories. Data will be presented on the number and types of unions (married/cohabiting, "knew well," "casual"), the frequency and duration of these unions, the types of intercourse reported in each type of union, the patterns of mixing by age and ethnic group in each type of union, concurrency in unions, and condom use in unions.

METHODS

Data were drawn from a household probability sample of African-American and Hispanic adolescents and young adults age 15–24 from low-income areas of Detroit. The sample design and the field work were conducted by the Survey Research Center of the Institute for Social Research of the University of Michigan. Study areas were selected by consideration of the demographic and socioeconomic household characteristics to include low-income African-American and Hispanic populations. The white population was not included due to its small size in Detroit. The field work period was from February through July of 1991. A total of 1,435 interviews were completed. The response rate for the study averaged 85%. This response rate is the product of the percentage of households successfully screened multiplied by the percentage of eligible respondents who were interviewed. Written consent was obtained from all respondents and from parents or guardians of persons under age 18. More than 95% of parents or guardians or persons contacted about the study agreed to let their adolescent participate.

Interviewers were hired and trained specifically for this study. More than 95% of the 60 interviewers who worked on the study were minority residents of Detroit. Interviewer training consisted of two 3-day sessions that included instruction on

general interviewing techniques, including introductions, probing, following instructions, recording information, and a persuasion workshop. Training relevant to conducting interviews included discussions of acquired immunodeficiency syndrome (AIDS), drugs, sexual practices, a values-clarification exercise, and practice in conducting interviews. Potential bias because of respondent concerns over social desirability was minimized by training interviewers to be nonjudgmental and assessing interviewer perceptions of respondent truthfulness. Interviews were conducted in respondents' homes (when privacy could be assured) or in neutral sites (when privacy was not available in the home).

The questionnaire was developed in a three-stage process: (1) a pilot study that consisted of interviews with a convenience sample ($N = 64$) of persons from the target population using an instrument that contained many open-ended free-response items about AIDS and condoms; (2) consultation with key informants in Detroit, including both youth and youth service providers; and (3) two formal pretests of the final mainly close-ended instrument.

Spanish-language questionnaires were used for 108 interviews with Hispanic respondents. The instrument was designed to be a conceptual equivalent of the English-language questionnaire. The first translation was done by Latino Family Services, a Hispanic community agency in Detroit; the instrument was then translated back into English. Differences were resolved through discussion of the meaning of different words for different Hispanic groups, with the aim of finding words that all groups would understand. Finally, the instrument was reviewed jointly by representatives of the Mexican and the Puerto Rican dialects, the major Hispanic groups in Detroit.

The survey interview assessed sexual experience, condom use, knowledge of AIDS, psychosocial measures, and social and demographic characteristics. Respondents were asked about their first and most recent experiences with different types of intercourse (vaginal, oral, and anal) generally and with different types of partners. Detailed data were collected on up to three partners that the respondent had sex with in the previous year. Respondents were asked during the interview how many partners that they had in the previous year. They were then asked to divide these partners into three groups: (1) partners they were married to or that they lived with; (2) partners they "knew well," and (3) partners they "did not know well." Respondents were able to interpret these categories subjectively. Almost all respondents were able to put their partners into these categories easily. Validity of respondent's use of these categories was supported by the average length of the relationship for married/lived with partners (2.9 years) and knew well partners (0.7 years), and by the average number of times the respondent had sex with the partner s/he did not know well (1 time). Respondents were asked detailed questions for three or fewer partners from their experience in the previous year. The partners were selected for detailed questions with a predetermined sampling table designed to produce a sample of each type of partner. Table I shows the demographic characteristics of the sample.

Table I. Demographic Characteristics of Detroit Youth, 1991

Characteristic	African American (<i>N</i> = 724)	Hispanic (<i>N</i> = 711)	Total (<i>N</i> = 1435)
Mean age (years)	19.0	19.2	19.1
15–17 (%)	35.8	35.2	35.5
18–21 (%)	40.3	38.7	39.5
22–24 (%)	23.9	26.1	25.0
Gender	(<i>N</i> = 724)	(<i>N</i> = 711)	(<i>N</i> = 1435)
Male (%)	37.8	48.1	42.9
Female (%)	62.2	51.9	57.1
Education	(<i>N</i> = 723)	(<i>N</i> = 706)	(<i>N</i> = 1429)
<12 years, without GED or diploma (%)	59.1	65.6	62.3
12 or less years, with GED or diploma (%)	26.7	23.5	25.1
13+ years (%)	14.2	10.9	12.6
Currently attending school	(<i>N</i> = 724)	(<i>N</i> = 711)	(<i>N</i> = 1435)
	57.5	48.2	52.9
Dropouts	(<i>N</i> = 721)	(<i>N</i> = 700)	(<i>N</i> = 1421)
<12 years, no plans to attend further (%)	4.0	13.7	8.8
Marital status	(<i>N</i> = 723)	(<i>N</i> = 711)	(<i>N</i> = 1434)
Never married (%)	97.1	84.4	90.8
Separated (%)	0.4	2.1	1.2
Divorced (%)	0.6	1.0	0.8
Married (%)	1.9	12.5	7.2
Hispanic origin		(<i>N</i> = 705)	
Mexican			
Born in Mexico (%)	—	16.4	—
Born in United States (%)	—	56.7	—
Puerto Rican			
Born in Puerto Rico (%)	—	7.9	—
Born in United States (%)	—	15.2	—
Other Hispanic			
Born outside United States (%)	—	1.8	—
Born in United States (%)	—	1.3	—

Statistical Methods

All data are presented as means and percentages. Initial bivariate analyses consisted of chi-square and *t*-tests. Data regarding respondents' behaviors with specific kinds of partners were analyzed using the Generalized Estimating Equation (GEE) method statistical procedure for longitudinal data analysis with multiple observable vectors for the same subject (Liang and Zeger, 1986; Diggle, Liang, and Zeger, 1994). This procedure is a repeated measures analysis for correlated dichotomous outcomes and a set of predictors, i.e., a multiple logistic type of analysis in which the outcomes are correlated. This procedure is appropriate because respondents with multiple partners in the previous year were asked to report on their experiences with up to three different partners, i.e., each respondent could

appear in the analysis up to three times. In general, analyses included a dependent variable, such as experience with oral intercourse or condom use, and independent variables that included gender, ethnicity, and type of partner or types of relationships reported.

Variable Definitions

Types of Intercourse. Respondents were asked about types of intercourse that they had experienced. Pilot work for the study indicated that definitions for the vagina, anus, and for oral, anal, or vaginal intercourse needed to be included in the interview. These were read to all respondents before reading questions concerning sexual history or experiences with different partners. For the interview, oral intercourse was defined as penis in the mouth; anal intercourse was defined as penis in the anus; and vaginal intercourse was defined as penis in the vagina.

Concurrency. For each partner asked about, respondents were asked if they had sex with other partners while they were sexually involved with the reference partner. In the tables, this variable is coded 1 (had other partners) or 0 (did not have other partners).

The respondent was also asked if they thought that their partner had sex with other partners while they were sexually involved. This variable was coded 1 (yes or probably yes) or 0 (no or probably no).

Condom Use. Condom use with a partner was coded 1 (ever used condoms with the partner) or 0 (never used condoms with the partner).

High Consistency of Condom Use. High consistency of condom use was coded 1 (use all the time or most of the time) or 0 (use sometimes, rarely, or did not use). This variable was not coded for casual partners due to the small number of times that the respondents reported sex with these partners.

Other Method Use with a Partner. Method use other than condoms with a partner was coded 1 (method used) or 0 (no method used).

No Method. No method was coded as 1 (no method used, including condoms) or 0 (method used).

RESULTS

Tables II and III show general data on sexual experience of the population. The majority of respondents had experienced sexual intercourse. African-American males had the highest proportion who were experienced (90.7%) and Hispanic females had the smallest proportion (69.1%). Almost all of the respondents who had experienced some type of intercourse had experienced vaginal intercourse. Some respondents had also experienced oral sex and anal sex.

Table II. Experience with Sexual Intercourse

	African-American males	African-American females	Hispanic males	Hispanic females
Median age at first vaginal intercourse (yrs)	14.4	16.0	15.8	17.0
Vaginal sex ever (%)	89.4	82.5	83.5	68.6
Oral sex ever (%)	45.5	19.2	54.6	30.6
Anal sex ever (%)	14.1	9.0	19.5	7.6
Any sex ever (%)	90.7	82.5	85.5	69.1

Table III. Number of Partners Ever and Number of Partners in Previous Year

	African-American males	African-American females	Hispanic males	Hispanic females
Number of partners ever	(<i>n</i> = 292)	(<i>n</i> = 331)	(<i>n</i> = 307)	(<i>n</i> = 241)
Mean	20.0	5.84	10.30	2.88
Median	10.0	4.0	5.0	2.0
Range	1–95	1–50	1–95	1–18
Number of partners in previous year	(<i>n</i> = 292)	(<i>n</i> = 331)	(<i>n</i> = 307)	(<i>n</i> = 241)
Mean	4.13	1.90	2.46	1.30
Median	2.0	1.0	1.0	1.0
Range	0–40	0–50	0–35	0–10

Note. Table includes only persons who reported at least one experience with intercourse.

Table III shows the number of partners ever and number of partners in the previous year for four gender–ethnic groups. The group did vary in the level of sexual activity, with males reporting a larger number of partners than females and African Americans reporting more partners than Hispanics.

In Table IV, the proportion of respondents whose partners were asked about in detail during the interview is shown. This table does not include all of the respondent's partners, but only those who were asked about. As mentioned, the partners to be asked about in detail were determined by a preset sampling table. Up to three partners were asked about. The most common types of partners were “knew well” partners. Indeed, about half of the sample (50.5%) reported only this type of partner. This was the most common combination, except for Hispanic females. Hispanic females reported “married/lived with” partners most often (56.5%). “Married/lived with” partners only were the second most common category for the sample (27.6%), whereas “knew well” and “casual” came in third (9.6%).

Table V shows the types of intercourse reported in each type of union. Oral and anal intercourse occurred most often with a “married/lived with” partner compared to well-known or casual partners ($p < 0.001$). Furthermore, men reported higher

Table IV. Proportion of Respondents in Each of Three Relationship Categories

	African-American males (%) (<i>n</i> = 228)	African-American females (%) (<i>n</i> = 349)	Hispanic males (%) (<i>n</i> = 268)	Hispanic females (%) (<i>n</i> = 237)	Total (<i>n</i> = 1082)
Married/lived with only	8.3	26.9	19.4	56.5	27.6
Know well only	63.6	57.9	46.3	31.6	50.5
Casual only	2.2	0.0	9.0	1.3	3.0
Married/lived with and knew well	7.5	8.3	6.7	5.1	7.0
Married/lived with and casual	0.0	0.0	1.5	0.0	0.4
Knew well and casual	16.2	5.4	14.6	3.8	9.6
Married/lived with, knew well, and casual	2.2	1.4	2.6	1.7	1.9

Table V. Types of Intercourse in Each Type of Union

Types of intercourse	African-American males	African-American females	Hispanic males	Hispanic females
Married/lived with partners	(<i>N</i> = 41)	(<i>N</i> = 128)	(<i>N</i> = 81)	(<i>N</i> = 150)
Vaginal (%)	95.1	99.2	95.1	99.3
Oral (%)	45.1	27.3	58.2	46.7
Anal (%)	7.5	7.8	18.0	8.0
Knew well partners	(<i>N</i> = 202)	(<i>N</i> = 255)	(<i>N</i> = 188)	(<i>N</i> = 100)
Vaginal (%)	94.6	99.2	95.7	100.0
Oral (%)	16.3	10.6	35.3	30.0
Anal (%)	4.5	1.2	11.2	5.0
Casual partners	(<i>N</i> = 47)	(<i>N</i> = 24)	(<i>N</i> = 74)	(<i>N</i> = 16)
Vaginal (%)	89.4	100.0	85.1	100.0
Oral (%)	28.8	12.5	29.7	6.3
Anal (%)	2.2	8.3	4.1	0.0

percentages of oral and anal intercourse than women, and Hispanics reported higher percentages of oral and anal intercourse than African Americans ($p < 0.001$). These differences remained after reported relationships with other partners were controlled in a GEE analysis, except for Hispanic men (Norris *et al.*, 1995), for whom there were no significant differences by type of partner.

In Tables VI and VII, the partnership histories are used to examine the differences in partner's ethnicity and age. For Hispanic respondents, the percentage of partners that were Hispanic varied by type of partner. The partner's ethnicity was more similar in "married/lived with" relationships than in other types of relationships ($p < 0.01$). About 64%–72% of Hispanic men and women reported Hispanic ethnicity for their "married/lived with" partners, compared to 51%–58% of "knew well" partners and 45%–46% of "casual" partners. The ethnicity of the

Table VI. Ethnicity of Partners

Group	Partner's ethnicity				N
	Hispanic	African American	White	Other	
Married/lived with partner					
Hispanic females	72.3	11.6	16.1	0.0	148
Hispanic males	64.2	5.7	28.4	1.6	90
African-American females	1.1	97.4	0.0	1.5	121
African-American males	2.9	93.2	3.9	0.0	64
Knew partner well					
Hispanic females	50.8	19.1	22.6	7.5	93
Hispanic males	58.0	5.1	33.1	3.9	188
African-American females	0.5	97.2	0.2	2.1	224
African-American males	0.3	97.6	0.4	1.6	233
Casual partner					
Hispanic females	46.5	18.6	34.8	0.0	18
Hispanic males	45.0	6.7	43.0	5.4	88
African-American females	6.8	93.2	0.0	0.0	23
African-American males	5.5	94.5	0.0	0.0	52

non-Hispanic partners varied. White partners were reported most often, followed by African-American and other partners. Regardless of type of partner, Hispanic men were more likely to report white partners than Hispanic women ($p < 0.01$).

Results differed for African-American and Hispanic respondents. In all types of partnerships, African Americans usually reported African-American partners. Ninety-three percent or more of all partners were African American. This result may be due to the fact that the African Americans live in a neighborhood that is much more ethnically homogeneous than the Hispanic respondents.

Table VII shows data on partner differences in age groups. Hispanic women with a "married/lived with" partner had more partners who were older than they were than did Hispanic men. This was also true for African Americans with "married/lived with" partners. Other types of partnerships showed these same differences. Regardless of relationship type or ethnicity of respondent, women had more older partners than men ($p < 0.001$).

Results related to concurrency of partners are shown in Table VIII. These questions are not taken from dates of relationship histories, but from respondent reports of concurrency of themselves and their partners. Concurrency is not noted for casual partners because most of these relationships were for one occasion. Among "married/lived with" relationships, concurrent partners were most common for African-American males (47.8%), moderate for African-American females (20.8%) and Hispanic males (19.9%), and lowest for Hispanic females (6.8%).

Table VII. Respondent's Age in Comparison to Partner's Age

Respondent's age	Partner's age (yrs)				N
	<18	18-19	20-24	25+	
Married/lived with partner					
Hispanic female					
14-17	31.9	23.3	39.3	5.5	9
18-19	2.8	11.0	77.0	9.1	29
20-25	1.0	2.1	49.3	47.6	108
Hispanic male					
14-17	18.9	37.9	43.2	0.0	2
18-19	40.8	59.2	0.0	0.0	11
20-25	2.6	11.1	68.1	18.1	76
African-American female					
14-17	0.0	33.2	58.2	8.7	6
18-19	0.0	30.6	40.9	28.5	16
20-25	0.8	5.2	47.0	47.0	98
African-American male					
14-17	4.9	23.2	45.9	26.0	8
18-19	0.0	40.3	31.7	27.9	7
20-25	0.0	6.9	71.8	21.3	49
"Knew well" partner					
Hispanic female					
14-17	43.8	26.5	23.3	6.4	29
18-19	4.4	18.2	50.0	27.4	22
20-25	1.3	1.0	64.5	33.1	41
Hispanic male					
14-17	74.6	17.1	8.3	0.0	46
18-19	41.0	29.4	29.6	0.0	49
20-25	3.1	26.1	56.1	14.7	92
African-American female					
14-17	37.4	31.9	26.7	4.1	50
18-19	3.3	42.0	42.8	11.9	55
20-25	0.0	5.1	56.7	38.2	119
African-American male					
14-17	76.7	11.5	11.3	0.5	73
18-19	36.0	28.7	29.6	5.8	73
20-25	0.9	29.1	48.9	21.1	87
Casual partner					
Hispanic female					
14-17	44.3	43.6	12.1	0.0	4
18-19	23.8	8.2	68.1	0.0	5
20-25	0.0	0.0	91.4	8.6	8
Hispanic male					
14-17	82.8	0.0	17.2	0.0	9
18-19	51.3	0.0	26.9	21.8	14
20-25	13.0	18.1	33	35.9	54
African-American female					
14-17	32.4	67.6	0.0	0.0	2
18-19	0.0	14.9	46.8	38.3	8
20-25	0.0	4.4	42.9	52.7	13
African-American male					
14-17	63.7	26.0	4.6	5.6	14
18-19	22.6	26.2	31.8	19.5	13
20-25	0.0	38.6	38.6	22.8	23

Table VIII. Concurrency in Each Type of Union

	African-American males	African-American females	Hispanic males	Hispanic females
Married/lived with partners	(<i>N</i> = 263)	(<i>N</i> = 121)	(<i>N</i> = 90)	(<i>N</i> = 148)
Respondent had other partners (%)	47.8	20.8	19.9	6.8
Partner had other partners (%)	27.9	39.3	1.4	15.8
“Knew well” partners	(<i>N</i> = 231)	(<i>N</i> = 223)	(<i>N</i> = 187)	(<i>N</i> = 93)
Respondent had other partners (%)	45.2	21.0	34.8	12.9
Partner had other partners (%)	19.2	31.5	10.6	16.9

Table IX. Condom Use and Other Contraceptive Use in Unions

	African-American males	African-American females	Hispanic males	Hispanic females
Married/lived with partners	(<i>N</i> = 41)	(<i>N</i> = 128)	(<i>N</i> = 81)	(<i>N</i> = 150)
Condom use	61.0	71.1	50.6	55.3
Other methods (%)	24.4	56.3	46.9	49.3
No method (%)	24.2	13.3	17.3	20.0
High consistency of condom use (%)	25.6	19.7	14.3	20.8
“Knew well” partners	(<i>N</i> = 204)	(<i>N</i> = 255)	(<i>N</i> = 188)	(<i>N</i> = 100)
Condom use (%)	73.3	76.1	66.0	64.0
Other methods (%)	13.2	47.5	23.9	37.0
No method (%)	13.2	13.7	19.1	21.0
High consistency (%)	43.8	47.2	42.2	44.8
Casual partners	(<i>N</i> = 47)	(<i>N</i> = 24)	(<i>N</i> = 74)	(<i>N</i> = 16)
Condom use (%)	72.3	58.3	32.4	25.0
Other methods (%)	8.5	41.7	8.1	13.3
No methods (%)	14.9	33.3	40.5	50.0
High consistency (%)	—	—	—	—

Awareness that the partner had other partners was most common for African-American females (39.3%) and lowest for Hispanic males (1.4%).

Among “knew well” partners, the ethnic/gender differences were similar, except that Hispanic males (34.8%) reported more concurrent relationships than African-American females (21.0%) ($p < 0.05$).

In Table IX, data are shown on use of condoms and other contraceptive methods by type of partner. There are differences in condom use and use of other methods by type of relationship and by ethnicity and gender. For all ethnic groups except African-American males, condoms were less likely to be used in casual relationships. This difference held even after the influence of other relationships was controlled for (Norris *et al.*, 1996).

DISCUSSION

This paper illustrates some of the types of data that can be generated from partner histories, the increase in information about sexual behavior that can be obtained from them, and some of the complexities involved in data analysis. It should be kept in mind that the findings of the study rely on self-report of sensitive behaviors.

The data show that experience with sexual intercourse, condom use, and contraceptive use vary significantly with different types of partners. These differences may be observed for several reasons. First, the lengths of relationships differ by types of partner. This length may affect the ease with which sexual encounters can be anticipated or planned for. Furthermore, after a period of time, partners may alter their beliefs about the riskiness of a partner.

Second, the acceptability of behaviors in different types of relationships may affect behavior in those relationships. For example, if a couple is married or living together, there may be a stronger expectation of monogamous behavior, and condoms may be seen as inconsistent with monogamy.

The data indicate that concurrent relationships are common in these populations and that the prevalence of concurrent relationships was greater in the African-American population. Concurrency is a factor that has received attention as a pattern of behavior that can lead to increased rapidity of the spread of HIV infection in a population (Morris and Kretzschmar, 1995).

The data on partner characteristics indicates that partnerships with other ethnic groups are quite common in the Hispanic population. They are also common among women and older partners. These data indicate that bridges exist in these populations for the transmission of infections between age and ethnic groups.

Finally, the two ethnic groups that were included in this study, African Americans and Hispanics, live in the same city and have a similar socioeconomic status. However, there are large differences in many of the sexual behaviors described in this paper. Differences in culture surrounding health and sexuality may have a large effect on sexual behavior and associated susceptibility to HIV and STD infection.

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