Sustainability of Heterosexual Relationships among Adolescents and Young Adults:

One-year Observation of Bayview Hunter-Point area in San Francisco, CA

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Abstract

Sexual relationships among adolescents are considered to be transitional and ambivalent, yet 60% of males aged 16 years or over in a national survey reported being in romantic relationships that last 11 months or longer. The objectives of this study were to 1) describe the relationship patterns for 6 months period, 2) estimate the odds of having a relationship that was stable for 6 month, 3) compare the odds of having a relationship that was stable for 6 months, but not for 12 month, that was unstable for 6 months, but stable for 12 months, and that was stable for at both 6 and 12 months periods, and 4) assess whether relationship specific characteristics inform relationship patterns, after adjusting for baseline characteristics.

Data were obtained from the Bayview Network Study (CA) designed to examine the prevalence of STI risk behaviors and transmission patterns among adolescents between July 2000 and October 2001. A total of 2,087 unique heterosexual relationships were identified at three surveys during the study period. About 90% of the relationships were observed only once, about 7% of them were observed twice, and only 4% were observed three times.

Logistic regression estimated the odds of a stable relationship for 6 months compared to a relationship that was unstable for 6 months were increased by the length of relationship at survey and reciprocity of relationship nomination, after adjusting for age, gender, number of lifetime sex partners, number of sex partners in the past three months and ever had sex status. The length of relationship at the survey and reciprocity in partner nomination decreased the odds of having a relationship that was longer than 6 months but shorter than 12 months when compared to a relationship that was stable

through out the period, but the number of partner during the past 3 months increased the odds, after adjusting for age, gender and ever had sex status.

This study confirmed that the heterosexual relationships among adolescents and young adults are rarely sustained over 6 months. Reciprocity of partner nominations, but no perceived partner type, was found to be a significant factor in sustaining a relationship, in addition to length of the relationship.

Background

Recent research[1] using the National Longitudinal Study of Adolescent Health (Add Health) examined adolescents' romantic experiences. The percentage of adolescents reporting a romantic relationship in the past 18 months, an important predictors of sexual intercourse,[2] increased monotonically with age from 20 % at age 12 to nearly 70% at age 18. Experiences through romantic and sexual relationships during the early life course build a foundation for personal mate selection in the future, reproductive health behaviors and their outcomes, and family formation.[3, 4, 5, 6, 7] Romantic and sexual relationships among adolescents have been characterized as transitory and unstable with high rates of concurrency and sexual mixing. They also have been viewed in relation to delinquent behaviors[8, 9] and other negative health outcomes such as unintended pregnancy, sexually transmitted infections (STIs), mental health, and social anxiety. The research focusing on interventions to decrease STIs have often viewed adolescents' sexual activities as problematic, disregarding positive correlates such as self-esteem.

Gendered and culturally defined norms shape romantic and heterosexual experiences among adolescents.[10]   While Add Health data support that females and older adolescents are more reliable in reporting stability and duration of relationships,[11] male adolescents in Add Health also reported relationships continuing on average for 11.6 months, and the percent of adolescents that reported being in a romantic relationship over 11 months reached 60% of 16 years old or over. The inconsistency between adolescents' interpretations of romantic and sexual relationships and researchers' assumptions motivated this study to describe heterosexual relationships longitudinally, an under-acknowledged developmentally normative skill-building process, among adolescents and young adults.

In a cross-sectional study in 1980, Jorgensen et al.[12] compared the degree to which qualities of relationships of adolescents with parents, friends, and romantic partners in relationships influence frequency of sex and regularity of contraceptive use. The study found that qualities of the adolescent dyadic relationship were more consistently and strongly associated with exposure to sexual risk behaviors than that of either peer or family relationships. The study suggested adolescents' autonomy in dyadic heterosexual interaction may exert immunity against external control of peers as well as parents. They hypothesized that the adolescent dyad is able to build and maintain psychological and normative boundaries that distinguish it from the other social environments. The study emphasized the need in future research to examine the contribution of couple identity, and to draw larger and more representative samples of teenage couples who are followed longitudinally.

Over two decades later, researchers study the characteristics and the meaning of "non-relationship" sex for its potential as a developmentally appropriate context of adolescent sexuality. Non-relationship sex, found to be reported by the majority of adolescents at some point,[13, 14] is viewed as sex that occurs outside the boundaries of traditional dating, yet distinguished from "one-night-stand", or "hook-up."[15] Even among youth who had sex within a dating context with their boyfriends or girlfriends, their relationships often are not universally monogamous. Non-relationship sex often occurs between friends or with ex-boyfriend/girlfriends, with one of the partners' expectation to transit their current friendships to a more traditionally defined dating relationship.

Combined with the relatively short history of research[16] on adolescent romantic and sexual relationships and sex partners compared to peers or family, there is a need to update knowledge about adolescent romantic and sexual activities, and understand adolescents' interpretations of having intimate relationships during the transitional period to young adulthood. The objectives of this study were to 1) describe the relationship patterns for 6 months period using information of 12 months relationship status, 2) estimate the odds of having a relationship that was stable for 6 month, 3) compare the odds of having a relationship that was stable for 6 months, but not for 12 month, that was unstable for 6 months, but stable for 12 months, and that was stable for at both 6 and 12 months periods, and 4) assess whether relationship specific characteristics inform relationship patterns, after adjusting for baseline characteristics.

Methods

Study Description and Participants

        The Bayview Network Study was designed to examine the prevalence of STI

risk behaviors and transmission patterns among adolescents in the Bayview-Hunters

Point area in San Francisco between July 2000 and October 2001. Index individuals of

local social and sexual networks were identified and recruited though random digit

telephone sampling and household enumeration. Adolescents were eligible at baseline if

they were aged 14 to 19 years and were residing in the Bayview-Hunter's Point

neighborhood of San Francisco. The surveys of the Bayview Network Study were

administered three times, roughly every 6 months between July 2000, the baseline, and

August 2001, the second follow-up. The study employed two sampling methods to

recruit participants: population-based random sampling and snowball sampling methods.

By combining the population-based random sample of index individuals and the snowball

sample of index individuals' social friends and sex partners, we were able to construct a

population-based sample of adolescent sexual dyads.

        Baseline survey respondents, who reported ever having had sex, formed **the index**

cohort of the study. Snowball sampling methods were employed to recruit social friends

and sex partners of the index adolescents. A **name generator**[i] of the snowball sampling

of social friends was conducted once, and allowed each index adolescent to nominate up

to two closest social friends. In order to increase the size of eligible heterosexual

relationships for the study, index adolescents and their social friends were pooled and

together served as **the partner recruitment cohort** of snowball sampling of their sex

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[i] Name generator: the questions in a network survey that are used to elicit the names of respondents'
partners.

partners. The partner recruitment cohort included sexually active adolescents and their

social friends who were interviewed to identify up to 6 sex partners per person. The

partner recruitment cohort was followed at 6 months and 1 year. Data were collected as

well from their sex partners, and the sex partners of the partner recruitment cohort's sex

partners at baseline and 1 year survey. All sex partners were pooled in the sex partner

cohort. The recruitment procedures of the Bayview Network Study are discussed in more

detail elsewhere.[17]

Definition and Eligibility of Heterosexual Relationships

We first used the data from the Bayview Network Study as egocentric data. We

identified all heterosexual relationships reported by every respondent who was

interviewed at each survey. The Bayview Network Study pooled three different types of

respondents as **roots**[ii] of sequences of heterosexual relationships: adolescents and their

social friends in the partner recruitment cohort, sex partners who were referred by the

partner recruitment cohort, and sex partners who were referred by the sex partners of the

partner recruitment cohort. These three types of respondents served as egos, and

provided information about their sex partners, termed here as alters.

The partner recruitment cohort was followed at 6 months and 1 year. Sex partners

who were nominated at the baseline and 1 year surveys were contacted and interviewed

to nominate their heterosexual relationships. Thus, there was structural missing data

about partner information, in which by study design the partner recruitment cohort

provided partner information for all three surveys, but only two surveys for the sex

partner cohort. A single heterosexual relationship, which was reported by two partners,

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[ii] Root position: the first position from which each sequence of sexual prelateships originates

was counted as a heterosexual relationship of the individual who was the primary interviewee in the partner referral scheme. All reported heterosexual relationships in each survey were pooled for the analysis.

Data Analyses and Variables

Description of the Baseline Characteristics and the Local Sexual Networks

The partner recruitment and sex partners cohorts were compared by race, current age, age at first sex, number of life-time sex partners, number of sex partners in the three months prior to the baseline interview, prevalence of chlamydia and gonorrhea, and pregnancy history. Two sample t-tests and Chi-square tests were employed to test equal means for continuous variables and equal proportions for categorical variables, respectively. We identified patterns of all local sexual networks.

Outcome variables

Heterosexual relationships were distinguished into 8 relationship patterns indicating the relationship status at 6 month survival, and 4 relationship patterns indicating the relationship status at 12 months survival. (Table 1.) The eight relationship patterns were pattern 1 [000], relationship not reported; pattern 2 [001], observed once at 1 year follow-up; pattern 3 [010], observed once at 6 month follow-up; pattern 4 [100], observed once at baseline; pattern 5 [101], observed twice at baseline and 1 year follow-up; pattern 6 [110], observed twice at baseline and 6 month follow-up; pattern 7 [011], observed twice at 6 month and 1 year follow-up; and pattern 8 [111], observed at all three surveys. The four relationship patterns were pattern 1 [00], relationship not reported at both baseline and 1 year follow-up; pattern 2 [01], not observed at baseline but observed

at 1 year follow-up; 3 [10], observed at baseline but not observed at 1 year follow-up; and 4 [11], observed at both baseline and 1 year-follow-up surveys.

A binary outcome was defined to indicate stability of relationship for 6 months: assigned 1 for stable for 6 months (combined patterns of 6, 7, and 8 in the above 8 relationship patterns), and 0 for unstable for 6 months (combined patterns of 2, 3, 4, and 5). Another categorical outcome was defined to indicate a combination of 6 month and 12 months relationship status: assigned a 1 for stable 6-unstable 12 (combined patterns of 6 and 7), a 2 for unstable 6-stable 12 (pattern 5), and a 3 for stable 6-stable 12 (pattern 8).

Explanatory variables

Relationship specific variables were selected as explanatory variables: perceived partner types (main vs. casual), reciprocity of partner nomination (reciprocal vs. unidirectional partner nominations), condom used at last sex (used vs. not used) and reported length of a relationship (Less than 1 month, 1 to 3 months, 4 to 6 months, 7 to 12 months, More than 1 year).

Covariates

Baseline characteristics included age, race, gender, parents in the household, parental monitoring, number of close relatives, number of close friends, ever had sex, number of lifetime sex partners, number of sex partners in the past three months, and ever been tested STDs.

Statistical Analyses

First, we described the 6 months and 12 months relationship status, respectively by the 8 relationship patterns using the responses of the partner recruitment cohort, and the 4 relationship patterns using all respondents' report. We then provided 6 month

relationship status using three assumptions about missing data that: there was no relationship when an observation was missing at the 6 month survey, missing observations at the 6 month survey were at random, and there was a relationship when observations were missing at the 6 month survey.

We then described the relationship patterns with baseline characteristics of respondents under missing at random assumption. Multinomial logistic regression was used to estimate the log odds of being in one of 8 relationship patterns compared to no relationship (pattern 1) as a reference outcome. It also was used to compare the log odds of being one of 3 categories (stable 6-unstable 12 vs. unstable 6-stable 12 vs. stable 6-stable 12) using stable 6-stable 12 as a reference outcome. Logistic regression was used for the comparison of relationships that were stable for 6 months vs. unstable for 6 months. For the latter two regressions, relationship specific characteristics (partner type, reciprocity in partner nomination, length, and condom use) were added to the model as well as the baseline characteristics. Stata Version 10.0 SE (Stata Corporation, College Station, Texas) statistical analysis software was used for the analyses.

Results

Description of Baseline Characteristics of the Study Sample

The characteristics of the partner recruitment cohort and the sex partner cohort are shown in Table 2. The partner recruitment cohort was a total of 523 respondents (299 females and 224 males). The sex partner cohort totaled 320 respondents (168 females and 152 males) who were not only nominated, but also interviewed at the baseline and/or 1 year follow-up surveys. The sex partner cohort included 1st generation sex partners

who were referred by the partner recruitment cohort, and 2nd generation sex partners who were referred by the 1st generation sex partners. The total number of lifetime sex partners per was greater for males than females in both the baseline and the sex partner cohort. Males in the sex partner cohort were older than females in the sex partner cohort.

Description of the relationship patterns for 6 months and 12 months periods

A total of 2,087 heterosexual relationships, including 355 of no-relationships and 1,732 unique heterosexual relationships patterns, were identified by 842 respondents during the 1 year observation period of the Bayview Network Study. A total of 1,544 relationships (89%) were observed only once, 118 (7%) heterosexual relationships were observed twice, and only 70 heterosexual relationships (4%) were observed three times over the 1 year study period.

Each respondent in the partner recruitment cohort provided 3 observations for relationship status; thus 8 relationship patterns were identified for the 1,492 (71.5%) relationships including 301 no-relationships. The sex partner cohort reported the rest of the 595 relationships; they only provided relationship information twice over the study period. The partner recruitment cohort informed 8 patterns of 6 months relationship status, while the sex partner cohort informed only 4 patterns of the 12 months relationship status. The partner recruitment cohort informed 6 months relationship patterns of [000], [001], [010], [100], [101], [110], [011], [111], in 17.0%, 33.2%, 18.9%, 25.1%, 2.3%, 2.8%, and 3.4%, and 12 months relationship patters of [00], [01], [10], and [11] in 42.0%, 28.4%, 23.6%, and 6.0%, respectively. The sex partner cohort informed 12 months relationship patters of [00], [01], [10], and [11] in 9.6%, 52.9%, 37.0%, and 0.01%, respectively. (Table 3.)

Assuming respondents in the sex partner cohort were similar to the partner recruitment cohort, structural missing of relationships status of the sex partner cohort at the 6 month survey were imputed. A total of 25 completed datasets were imputed and the distribution of 6 months relationship patterns was produced. (Table 4.) Six month relationship patterns were also provided under two other assumptions: 1) there was no relationship at a missed survey, and 2) there was a relationship at a missed survey. (Table 5.)

Baseline and relationship characteristics that predict the relationship patterns

The odds of being one of the eight 6 months relationship patterns were estimated in the multinomial logistic regressions using baseline characteristics of respondents as explanatory variables. (Table5.) Respondent's age increased the odds of having relationship patterns of [001], [010], or [011] compared to [000], while number of lifetime sex partners increased the odds of having a relationship pattern of [100] compared to [000].   Probabilities of 6 month relationship patterns were plotted by age. (Figure 1.)

Among those relationship patterns in which actually a relationship was observed (i.e. pattern 2 through pattern 8), the odds of having a relationship that was stable for 6 months was compared to unstable for 6 months. (Table 7) Logistic regression estimated the odds of stable relationship for 6 months that were increased by the length of relationship at survey and reciprocity of relationship nomination, after adjusting for the age, gender, number of lifetime sex partners, number of sex partners in the past three months and ever had sex status.

Multinomial logistic regression was also used to estimate the odds of having a relationship that was stable for 6 months but unstable for 12 months (i.e. a relationship longer than 6 months but shorter than 12 months) compared to a relationship that was stable for both 6 and 12 months. (Table 8) The length of relationship at the survey and reciprocity in partner nomination decreased the odds of having a relationship that was longer than 6 months but shorter than 12 months, but the number of partner during the past 3 months increased the odds, after adjusting for age, gender and ever had sex status. There was no relationship characteristic that was significant when compared to a relationship that was unstable for 6 months but stable for 12 months or to a relationship that was stable for both 6 and 12 months. The partner recruitment cohort and the sex partner cohort showed similar results in all of the above analyses, indicating the assumption of missing at random was held.

Discussion

This study followed a cohort that included randomly selected adolescents and their friends, as well as their sex partners who were initially referred by the partner recruitment cohort at the baseline survey. We found comparable results in the analyses for both cohorts, suggesting that the findings may be generalizable to not only adolescents of age 15-19 years, but also to young adults of age up to 25 years, the 95 percentile of the sex partner cohort. The findings suggest that majority of relationships were observed only once during the study period. About 20% of all reported relationships were observed twice consecutively, confirming that reasonable numbers of relationships were stable for at least 6 months.

Two relationship patterns that indicate relationships observed twice at baseline and 1 year follow-up and relationships observed at all three surveys were found not to be different. This suggests measuring the status of relationships reported by adolescents and young adults at 6 months may not be short enough to detect a change in relationship status given that the majority of relationship observed in this study survived shorter than 6 months. Future longitudinal studies may need shorter intervals between interviews to more precisely understand relationship patterns among this age group.

The limitations of this study include a high level of the missing observations in the number of friends due to the interview protocol determined by the Bayview Network Study; only index adolescents were asked to name the number of close friends. Imputing values from adolescents of age 15-19 for young adults whose partners were age up to 39, the oldest of sex partner cohort, may not be accurate. The comparison of the data of the partner recruitment cohort and the imputed data of the sex partner cohort confirmed they were comparable; however, suggesting that the imputation was successful in handling the missing data, increasing the number of observations, recovering the covariate matrix, and producing appropriate statistics in the analyses.

This study used data that were longitudinally collected. Relationship characteristics were collected at each survey as well as respondents' baseline characteristics. The strengths of this study include the potential ability to draw causality assumptions. The relationship patterns were built in three different manners that can help us to extrapolate the censored relationship status by the study design before and after the study period. Reciprocity in partner nomination was informed by self reports of two

partners in a relationship. This was one of the beneficial uses of a network study that collected data beyond index respondents in an egocentric manner.

Conclusions

This study described the heterosexual relationships among African American adolescents and young adults over a 1 year period. The heterosexual relationships were not often sustained over 6 months. The findings reported here do not appear to agree with the results from national survey by showing that adolescents' report of their relationship experience may not be accurate. They supported the results of past research that relationships are transitory among African American adolescents and young adults.

Reciprocity in partner nomination, but not perceived partner type (main vs. casual), was found as a positive predictor of the odds of sustaining a heterosexual relationship as well as the length of relationship. These characteristics of the heterosexual relationship potentially determine the trajectory of adolescent couple's contraceptive behaviors. Future studies are warranted to investigate sexual relationships that are characterized as casual but reciprocally acknowledged in relation to STIs risk behaviors such as inconsistent condom use.

Table 1. Relationship Patterns observed in the Bayview Network Study

Relationship Patterns 12 months	6 months	Baseline	6months	1 year
00	000	–	–	–
	010	–	Observed	–
01	001	–	–	Observed
	011	–	Observed	Observed
10	100	Observed	–	–
	110	Observed	Observed	–
11	101	Observed	–	Observed
	111	Observed	Observed	Observed

-- : relationship not reported

Table 2. Baseline characteristics of respondents in the Bayview Network Study

Partner recruitment cohort

	Males (n=224)		Females (n=299)	
	n	(%)	n	(%)
Age				
Mean (SE)	17.6 (0.11)		17.9(0.12)	
Median (IQR)	18 (2)		18 (3)	
Race/Ethnicity				
African American	207	92.4	269	90.0
Others	17	7.6	30	10.0
STI prevalence				
Chlamydia	8	3.6	17	5.7
Gonorrhea	0	0	6	2.0
Pregnancy prevalence	NA	NA	14	4.7
Sexual Partnerships				
Total # partners per respondent *				
Mean (SE)	5.6(0.24)		3.2(0.14)	
Median (IQR)	4(6)		2(3)	
# partners in the past 3 months**				
Mean (SE)	1.6(0.07)		1.1(0.02)	
Median (IQR)	1(1)		1(0)	

Sex Partner Cohort

	Males (n=152)		Females (n=168)	
	n	(%)	n	(%)
Age*				
Mean (SE)	21.2 (0.35)		17.8(0.26)	
Median (IQR)	20.5 (4)		17(3)	
Race/Ethnicity				
African American	136	89.5	128	76.2
Others	16	10.5	40	23.8
STI prevalence				
Chlamydia	16	10.5	18	10.7
Gonorrhea	1	0.7	6	3.6
Pregnancy prevalence	NA	NA	13	7.7
Sexual Partnerships				
Total # partners per respondent *				
Mean (SE)	8.7(0.26)		4.0(0.23)	
Median (IQR)	11(5)		3(3)	
# partners in the past 3 months**				
Mean (SE)	3.2(0.22)		1.5(0.07)	
Median (IQR)	2(3)		1(1)	

* $P<0.001$, ** $P<0.01$

Table 3. Observed 6 and 12 months Relationship Patterns

Relationship Patterns					
12 months	**6 months**	**The partner recruitment cohort**		**Sex partner cohort**	
0 0		626 (42%)		57 (9.6%)	
	000		301		Unknown
	010		325		Unknown
0 1		422 (28.4%)		315(52.9%)	
	001		377		Unknown
	011				Unknown
1 0		352 (23.6%)		220 (37.0%)	
	100		304		Unknown
	110		48		Unknown
1 1		88 (6.0%)		3(0.005%)	
	101		18		Unknown
	111		70		Unknown
		1492(100%)		595 (100%)	

Table 4. 6 months Relationship Patterns with MAR assumption for Sex Partner Cohort

Relationship Pattern	Total sample		The partner recruitment cohort		Sex partner cohort [MAR]	
000	356	17.01%	301	17.01%	55	9.24%
010	327	18.94%	325	18.94%	2	0.34%
001	586	33.16%	377	33.16%	209	35.13%
011	155	2.83%	45	2.83%	106	17.82%
100	450	25.11%	304	25.11%	146	24.54%
110	122	2.30%	48	2.30%	74	12.44%
101	19	1.21%	18	1.21%	1	0.17%
111	72	3.35%	70	3.35%	2	0.34%
	2087	100.00%	1492	100.00%	595	100.00%

Table 5.   6 months relationship with all data with missing assumptions

Relationship Pattern	Assumption 1) (00)-->(000), (01)-->(001), (10)-->(100), (11)-->(101) — Partner Recruitment cohort	Sex Partner cohort	total	Missing At Random — Partner Recruitment cohort	Sex Partner cohort	total	Assumption 2) (00)-->(010), (01)-->(011), (10)-->(110), (11)-->(111) — Partner Recruitment cohort	Sex Partner cohort	total
1 000	301 / 20.41%	57 / 9.58%	358 / 17.29%	301 / 20.41%	121 / 20.34%	422 / 20.39%	301 / 20.41%	0 / 0.00%	301 / 14.42%
3 010	325 / 22.03%	0 / 0.00%	325 / 15.70%	325 / 22.03%	131 / 22.02%	456 / 22.03%	325 / 22.03%	57 / 9.31%	382 / 18.30%
2 001	377 / 25.56%	315 / 52.94%	692 / 33.43%	377 / 25.56%	152 / 25.55%	529 / 25.56%	377 / 25.56%	0 / 0.00%	377 / 18.06%
7 011	45 / 3.05%	0 / 0.00%	45 / 2.17%	45 / 3.05%	18 / 3.03%	63 / 3.04%	45 / 3.05%	315 / 52.12%	364 / 17.44%
4 100	304 / 20.61%	220 / 36.97%	524 / 25.31%	304 / 20.61%	123 / 20.67%	427 / 20.63%	304 / 20.61%	0 / 0.00%	304 / 14.57%
6 110	48 / 3.25%	0 / 0.00%	48 / 2.32%	48 / 3.25%	19 / 3.19%	67 / 3.24%	48 / 3.25%	220 / 35.95%	268 / 12.84%
5 101	19 / 1.29%	3 / 0.50%	22 / 1.06%	19 / 1.29%	8 / 1.34%	27 / 1.30%	19 / 1.29%	0 / 0.00%	19 / 0.91%
8 111	56 / 3.80%	0 / 0.00%	56 / 2.71%	56 / 3.80%	23 / 3.87%	79 / 3.82%	56 / 3.80%	3 / 2.61%	72 / 3.45%
	1475 / 100.00%	595 / 100.00%	2087 / 100.00%	1475 / 100.00%	595 / 100.00%	2087 / 100.00%	1475 / 100.00%	595 / 100.00%	2087 / 100.00%

Table 6. Multinomial logistic regression: 6 month relationship patterns (n:2087)

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pattern               |Coefficient  P-value  [95% Confidence Intervals]
------------------------------------------------------------------------
[001]                 |
            age       |   .257228    0.039    .013521   .500936
         female       |   .244722    0.647   -.811062   1.30051
   # partner/life     |   .124345    0.149   -.047015   .295705
   # partner/3months  |   .273527    0.139    -.10206   .649114
   Live w/parents     |   .119605    0.712   -.515787   .754996
  parental monitoring |  -.019536    0.910   -.358995   .319923
     # social friend  |   .001915    0.977   -.132982   .136811
     Ever had sex     |   20.8924    0.000    16.2502   25.5346
----------------------+-------------------------------------------------
[010]                 |
            age       |   .600202    0.005    .183307    1.0171
         female       |  -.716612    0.373   -2.31774    .88452
   # partner/life     |   .184589    0.135   -.060969   .430147
   # partner/3months  |   .316419    0.218   -.210283   .843121
   Live w/parents     |   .345807    0.493     -.6481   1.33971
  parental monitoring |  -.120468    0.669   -.678325   .437388
     # social friend  |  -.062451    0.546   -.272281   .147379
     Ever had sex     |  -18.3257    1.000    -3.9e+08   3.9e+08
----------------------+-------------------------------------------------
[100]                 |
            age       |   .048901    0.706   -.206972   .304775
         female       |   .163834    0.767   -.923771   1.25144
   # partner/life     |   .202506    0.027    .025189   .379824
   # partner/3months  |   .165828    0.369   -.219445     .5511
   Live w/parents     |   .221476    0.507   -.433285   .876236
  parental monitoring |  -.144265    0.412   -.489746   .201217
     # social friend  |  -.117605    0.113   -.264151   .028941
     Ever had sex     |    21.107    0.000    16.3047   25.9093
----------------------+-------------------------------------------------
[101]                 |
            age       |   .121134    0.682   -.459097   .701365
         female       |   .088069    0.950   -2.67021   2.84635
   # partner/life     |   .079777    0.723   -.364548   .524102
   # partner/3months  |  -.069415    0.905   -1.24304   1.10421
   Live w/parents     |   .424185    0.599   -1.15957   2.00794
  parental monitoring |   .052698    0.910   -.864836   .970232
     # social friend  |  -.068247    0.720   -.441442   .304947
     Ever had sex     |   20.3899    0.000    9.05551   31.7243
----------------------+-------------------------------------------------
[110]                 |
            age       |   .192558    0.187   -.095498   .480613
         female       |    .85002    0.260   -.632751   2.33279
   # partner/life     |   .176198    0.125   -.051683    .40408
   # partner/3months  |   .307232    0.145   -.119313   .733777
   Live w/parents     |   .182949    0.666   -.649517   1.01541
  parental monitoring |  -.139973    0.539   -.589118   .309172
     # social friend  |  -.062127    0.523   -.257113   .132859
     Ever had sex     |   19.8682    0.000    14.2767   25.4597
----------------------+-------------------------------------------------
[011]                 |
            age       |   .302109    0.026    .036231   .567988
         female       |   .619752    0.389   -.795479   2.03498
   # partner/life     |   .103794    0.331   -.109934   .317522
   # partner/3months  |   .379597    0.063   -.023626    .78282
   Live w/parents     |   .040632    0.920   -.752775   .834039
  parental monitoring |  -.059992    0.785   -.494816   .374831
     # social friend  |   .023372    0.789   -.153523   .200268
     Ever had sex     |   2.10758    0.100   -.406241    4.6214
----------------------+-------------------------------------------------
[111]                 |
            age       |   .184228    0.298    -.16318   .531636
         female       |   .722889    0.402   -.971993   2.41777
   # partner/life     |   .119851    0.377   -.150944   .390646
   # partner/3months  |  -.194001    0.567   -.889752    .50175
   Live w/parents     |   .208678    0.671   -.755265   1.17262
  parental monitoring |   .000728    0.998   -.538361   .539816
     # social friend  |  -.056167    0.616    -.27866   .166326
     Ever had sex     |   2.16399    0.107   -.472888   4.80087
------------------------------------------------------------------------
```
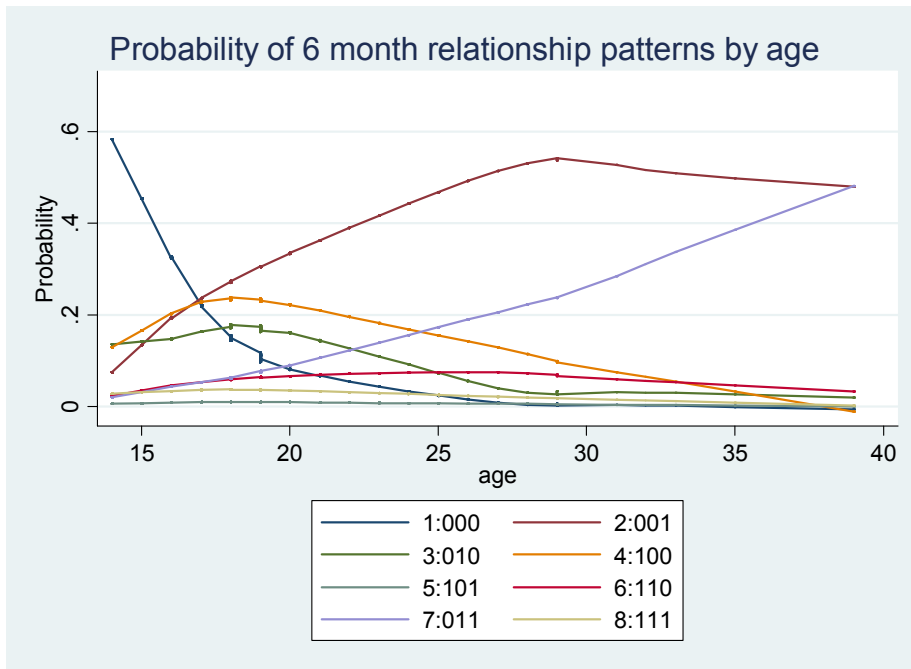
Figure 1.

Probability of 6 month relationship patterns by age

Table 7. Logistic regression: stable for 6 month vs. unstable for 6 months

```
-------------------------------------------------------------------------------
pattern                     |Odds Ratio  P-value   [95% Confidence Intervals]
----------------------------+--------------------------------------------------
```
Stable for 6 month

pattern	Odds Ratio	P-value	[95% Confidence	Intervals]
Length of relationship	1.17607	0.018	1.02884	1.34436
Reciprocal nomination	4.05036	0.000	2.69661	6.0837
condom use last sex	.873027	0.462	.607932	1.25372
main partner	1.36394	0.137	.90535	2.05482
age	1.05321	0.039	1.00273	1.10624
female	1.47805	0.054	.993189	2.19963
# partner/life	.99198	0.779	.937626	1.04949
# partner/3 months	1.1264	0.003	1.04156	1.21815
Ever had sex	7.50013	0.000	3.1974	17.593

Table 8. Multinomial logistic regression: stable 6-unstable12 and unstable 6-stable12

```
-------------------------------------------------------------------------------
pattern                     |Coefficient  P-value  [95% Confidence Intervals]
----------------------------+--------------------------------------------------
```
Stable 6-unstable 12: (110) or (011)

pattern	Coefficient	P-value	[95% Confidence	Intervals]
Length of relationship	-.664372	0.004	-1.11773	-.211017
Reciprocal nomination	-1.52759	0.001	-2.39601	-.659169
condom use last sex	-.187577	0.680	-1.07975	.704598
main partner	-.040607	0.949	-1.27909	1.19788
age	.085046	0.377	-.104082	.274174
female	-.159727	0.744	-1.11979	.800337
# partner/life	-.063897	0.421	-.219775	.091982
# partner/3 months	.737074	0.043	.024405	1.44974
Ever had sex	.124837	0.899	-1.81083	2.0605

Unstable 6-stable 12: (101)

pattern	Coefficient	P-value	[95% Confidence	Intervals]
Length of relationship	-.243436	0.501	-.952461	.465588
Reciprocal nomination	.10755	0.887	-1.38394	1.59904
condom use last sex	-.647451	0.379	-2.0915	.7966
main partner	-1.28735	0.153	-3.05354	.478837
age	-.036662	0.826	-.364438	.291113
female	-.560654	0.470	-2.08261	.961298
# partner/life	-.113151	0.385	-.368687	.142384
# partner/3 months	.338237	0.502	-.649868	1.32634
Ever had sex	18.4364	0.000	11.3141	25.5586

(Reference: stable for 6 and 12 months)

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