Undergraduates' Sexual Risk-Taking: Trends in Casual Sex and Condom Use From the First through the Senior Year

Jonathan Bearak

Introduction

Over the years it has become quite clear that college is about more than just getting an education. While research has shown that students engage in sexual behaviors, we still know little about the evolution of sexual risk-taking among college students. This study uses data from a survey of about twenty thousand undergraduates to address this significant gap in the literature. The findings suggest a rapid progression of sexual promiscuity as students advance in their college careers with seniors engaging in the most casual sex and freshmen engaging in the least. More importantly, students become less likely to use a condom after freshman year. This latter finding is not only surprising, but presents serious health implications for colleges and universities nationwide.

Data

I utilize data from the Online College Social Life Survey--a fifteen to twenty-minute survey administered between 2005-2011. This survey posed questions about sexual behaviors; the context of specific sexual behaviors; sexual history; most recent hookup, date, and relationship; and about basic demographic information. Students were recruited from undergraduate classes at twenty four-year colleges. Notably, the data represents a near census of the sampled students, with a response rate in most cases between 99-100%.[1]

In this paper I focus on students' most recent hookups. I therefore restrict the sample to self-identifying heterosexual students in their 1st, 2nd, 3rd, and 4th-year of college who are of typical age, 18, 19, 20, or 21 +/- 1, respectively. Table 1 reports the means for all the variables used in the analysis. The analytical sample includes 7,511 and 3,441 female and male respondents reporting on their most recent heteronormative hookup. Of these, 2,805 (37%) and 1,423 (41%), respectively, involved intercourse.

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[1] For more details on data collection and data see Armstrong, England, and Fogerty (2012).

Method and Results

This study address two questions: Are undergraduates in their 2nd, 3rd or 4th year of college more likely than 1st-year students to have intercourse when they hookup? And, when they have casual sex, are more senior students more or less likely to use a condom? For both questions, I estimate logistic probability models, separately by sex. The key independent variable in these regressions is *grade*, a categorical in which the reference category is *Freshman* and the other levels are *Sophomore*, *Junior*, and *Senior*. Results for intercourse are reported in Table 2, while results for condom use are reported in Table 3.

I begin with an unconditional model in which the dependent variable is whether the student reported having vaginal intercourse and the independent variable is grade. Sophomores, juniors and seniors are more likely than freshmen to report having intercourse in their most recent hookup. For female seniors, the risk ratio is 1.88 ($p < .001$), and for male seniors, the risk ratio is 1.98 ($p < .001$), relative to first-year undergraduates.

I then introduce demographic controls into the model. These controls include the respondent's and partner's race[2], the educational attainment of the respondent's mother, the religion in which the respondent was raised, the population density of the area in which the respondent attended high school, and whether the respondent is an immigrant. Importantly, these controls do not substantively affect the size or significance of the results. The conditional risk ratios are 1.93 ($p < .001$), for female seniors and 2.07 ($p < .001$) for male seniors. Adjusting for the age at which each respondent first had intercourse, the results are slightly smaller in magnitude, but do not substantively differ. After adjusting for age at onset, the risk ratios are 1.76 ($p < .001$) for female seniors and 2.02 ($p < .001$) for male seniors.

The likelihood of engaging in intercourse during a hookup is largest for seniors, but the odds are also significantly larger for sophomores and juniors, relative to freshmen. Results are similar across models. Net of demographics and onset, the risk ratios are 1.22 and 1.66 ($p < .01$ and .001) for sophomore and junior women, and 1.39 and 1.43 ($p < .01$ and .001) for sophomore and junior men. As these trends, however, become more prominent with each subsequent year, this suggests that undergraduates' behaviors change over the entire course of college, rather than indicating a swift and sudden indoctrination into a culture of casual sex.

Undergraduates are increasingly likely to report that intercourse occurred during their most recent hookup in their sophomore, junior, and, most substantially, in their senior years. Again, this suggests that college students engage in more casual sex as they progress through college.

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[2]Respondents could select any combination of races, so coefficients are estimated for each race; put another way, the reference category for race is none listed.

Restricting the sample to hookups involving intercourse, I next examine whether sophomores, juniors and seniors are more or less likely to use a condom when they have casual sex, as compared to first-year undergraduates. Proceeding in a parallel fashion to my analysis of undergraduates' likelihood of casual intercourse, I estimate an unconditional model, then introduce demographic controls, and in a third model control for age at onset.

The results for condom use are also similar across model specifications and gender. Net of demographics and onset, the risk ratios are 0.59 ($p < .001$) for female seniors and 0.60 ($p < .001$) for male seniors, relative to first-year undergraduates. This does not appear to be a gradual maturation effect; rather, the odds of condom use are similar for sophomores, juniors and seniors. In other words, the change in undergraduates' condom use mostly occurs between their first and sophomore years. By their second year of college, many undergraduates escalate their sexual risk-taking behavior.

Whereas the odds of casual intercourse increase monotonically between grades, the odds of condom use significantly fall between the first two years of college. Taken together these findings indicate that the likelihood of unprotected casual sex increases with each year of college.

Sensitivity Analysis

The longer undergraduates are in college, the more likely they are to report intercourse, and the less likely they are to report using a condom, during their most recent hookup. While this indicates more and riskier casual sex, and elevated risk-taking, it does not suggest a causal pathway. More specifically, the results of this study could be biased if older students report a greater number of higher-order hookups (recurrences with repeat partners), such that their sex, though casual, could be seen as less casual.

To address these concerns, I re-estimated all models, but restricted the sample to zero-order hookups (where the respondent reports on the first hookup with a partner). This reduces the sample to 3,464 females and 1,747 males whose most recent hookup was with a partner they had not previously hooked up with. Of these, 871 (15%) and 549 (31%) report having intercourse during the hookup. Means for these subsamples are reported in the the appendix, alongside results for intercourse and condom use in this subsample. As can be seen in Tables A1 and A2, the results are robust even with these restrictions. Results are qualitatively similar even with these restrictions. The estimates for female sophomore intercourse and male senior condom use lose significance, but the grade trend remains significant in all other cases.

Conclusion and future directions

The culture of casual intercourse among today's undergraduates corresponds to a culture of unprotected sex. This study finds a clear progression of casual sex in the

sophomore, junior, and most substantially, senior years. I also find a more abrupt transition to higher risk-taking between freshman and sophomore years. Furthermore, I find that undergraduates not only use condoms less after freshman year, but that they often forego condoms with first-time partners. This then raises the question of risk perception. While students have more casual sex, they also become desensitized to the risks, avoiding precautions to prevent disease transmission. Ironically, and of great concern, the laws of disease transmission mean that the actual risk of transmission, as a function of these behaviors, may increase at the same time as and because students take fewer precautions.

Between the submission of this proposal and the PAA conference, I will further explore the data, specifically focusing on variation by college region and on the sexual practices that may pose the greatest risks to the larger population. Of these practices I will closely examine whether students engage in intercourse with multiple overlapping partners and whether the odds of unprotected intercourse vary by the partners' familiarity or knowledge of one another prior to hooking up. I will then compare predicted probabilities by gender and across regions to illuminate at which colleges students are most likely to engage in risky sexual behavior.

References

Armstrong, Elizabeth, Paula England, and Alison C. K. Fogerty. 2012. "Accounting for Women's Orgasm and Sexual Enjoyment in College Hookups and Relationships." *American Sociological Review* 77: 435–462.
http://asr.sagepub.com/content/77/3/435.short.

Tables

Table 1. Means for All Hookups and Hookups in which Intercourse Occurred

	All Hookups		Hookups With Intercourse	
	Women	**Men**	**Women**	**Men**
had.vaginal.intercourse	0.38	0.42		
used a condom			0.67	0.73
grade				
Freshman	0.33	0.31	0.27	0.25
Sophomore	0.24	0.25	0.21	0.25
Junior	0.22	0.22	0.25	0.23
Senior	0.21	0.21	0.26	0.26
white	0.77	0.77	0.79	0.78
black	0.06	0.07	0.07	0.08
hispanic	0.13	0.11	0.13	0.11
asian	0.11	0.11	0.10	0.09
other.race	0.07	0.07	0.07	0.07
partner.white	0.75	0.79	0.75	0.79
partner.black	0.10	0.05	0.12	0.06
partner.hispanic	0.12	0.10	0.12	0.10
partner.asian	0.07	0.12	0.05	0.11
partner.other.race	0.04	0.03	0.04	0.03
immigrant	0.08	0.10	0.07	0.10
mothers education				
High school or less	0.22	0.21	0.24	0.23
Bachelors degree	0.32	0.31	0.30	0.32
Graduate degree	0.22	0.25	0.20	0.21
Some college	0.24	0.23	0.26	0.24
childhood religion				
Catholic	0.40	0.40	0.40	0.42
Jewish	0.09	0.10	0.07	0.09
Protestant	0.14	0.15	0.14	0.15
Other	0.16	0.13	0.17	0.13
None	0.21	0.21	0.22	0.21
population density during high school				
Suburb	0.36	0.37	0.33	0.34
Rural	0.06	0.05	0.06	0.07
Small town	0.24	0.22	0.26	0.22
Medium city	0.22	0.23	0.23	0.24
Large city	0.12	0.13	0.12	0.14
age at first intercourse				
15 or younger	0.16	0.16	0.24	0.23
16	0.17	0.17	0.23	0.22
17	0.17	0.20	0.21	0.21
18	0.17	0.20	0.20	0.21
19 or older	0.12	0.11	0.12	0.10
Not applicable	0.20	0.16	0.01	0.02
Observations	7511	3441	2805	1423

Table 2. Results for Intercourse

	Model 1		Model 2		Model 3	
	Women	Men	Women	Men	Women	Men
grade						
Reference = Freshman						
Sophomore	1.17*	1.39***	1.18*	1.40***	1.22**	1.39**
Junior	1.72***	1.46***	1.76***	1.49***	1.66***	1.43***
Senior	1.88***	1.98***	1.93***	2.07***	1.76***	2.02***
white			1.31**	1.07	1.12	1.05
black			1.06	1.22	1.23	1.10
hispanic			1.01	0.91	1.01	0.91
asian			1.01	0.76	1.05	0.88
other.race			0.98	1.11	0.92	1.03
partner.white			1.16	1.20	1.17	1.14
partner.black			1.67***	1.10	1.57***	0.95
partner.hispanic			1.04	1.04	0.96	0.99
partner.asian			0.90	1.00	0.94	1.05
partner.other.race			1.24	1.17	1.35*	1.19
immigrant			0.88	1.00	0.92	1.05
mothers education						
Reference = High school or less						
Bachelors degree			0.76***	0.83	0.83*	0.84
Graduate degree			0.74***	0.62***	0.80**	0.59***
Some college			0.88	0.80*	0.90	0.81
childhood religion						
Reference = None						
Catholic			0.91	1.04	1.01	1.13
Jewish			0.78*	0.87	0.82	1.05
Other			1.02	0.98	1.13	1.18
Protestant			0.84*	0.86	0.97	1.13
population density during high school						
Reference = Suburb						
Rural			1.09	1.52**	1.05	1.39
Small town			1.29***	1.13	1.22**	1.11
Medium city			1.16*	1.11	1.15*	1.07
Large city			1.24*	1.18	1.26*	1.11
age at first intercourse						
Reference = 17						
15 or younger					1.56***	2.19***
16					1.13	1.68***
18					0.91	1.10
19 or older					0.57***	0.76*
Not applicable					0.02***	0.07***
Observations	7511	3441	7511	3441	7511	3441

Table 3. Results for Condom Use In Hookups With Intercourse

	Model 1		Model 2		Model 3	
	Women	**Men**	**Women**	**Men**	**Women**	**Men**
grade						
Reference = Freshman						
Sophomore	0.68**	0.67*	0.67***	0.65*	0.64***	0.64*
Junior	0.71**	0.60**	0.71**	0.60**	0.68**	0.59**
Senior	0.63***	0.65*	0.63***	0.63**	0.59***	0.60**
white			1.03	0.86	1.05	0.85
black			1	1.72	1.01	1.78
hispanic			1.34	1.17	1.33	1.19
asian			0.97	1.28	0.97	1.27
other.race			1.06	1.14	1.1	1.16
partner.white			0.89	1.12	0.88	1.12
partner.black			1.59*	0.77	1.66*	0.82
partner.hispanic			0.88	1	0.9	1.02
partner.asian			0.76	1.1	0.74	1.08
partner.other.race			0.75	1.42	0.78	1.41
immigrant			1.12	1.33	1.08	1.34
mothers education						
Reference = High school or less						
Bachelors degree			0.92	1.15	0.9	1.14
Graduate degree			0.94	0.88	0.91	0.88
Some college			0.96	1	0.94	0.99
childhood religion						
Reference = None						
Catholic			0.94	1.35	0.91	1.34
Jewish			1.32	1.39	1.31	1.38
Other			0.88	0.99	0.85	0.98
Protestant			1.31	1.24	1.25	1.23
population density during high school						
Reference = Suburb						
Rural			0.9	0.84	0.9	0.83
Small town			1.14	0.87	1.15	0.86
Medium city			1.22	0.8	1.23	0.79
Large city			1.23	1.36	1.23	1.35
age at first intercourse						
Reference = 17						
15 or younger					0.64***	0.69*
16					0.87	0.75
18					1.13	0.9
19 or older					1.08	1.07
Not applicable					1.06	0.65
Observations	2805	1423	2805	1423	2805	1423

Appendix

Appendix Table A1. Means for First Hookups and First Hookups in which Intercourse Occurred				
	First Hookups		**First Hookups With Sex**	
	Women	**Men**	**Women**	**Men**
had.vaginal.intercourse	0.25	0.32		
used a condom			0.71	0.76
grade				
Freshman	0.35	0.36	0.27	0.28
Sophomore	0.24	0.23	0.21	0.24
Junior	0.22	0.21	0.27	0.22
Senior	0.20	0.21	0.25	0.26
white	0.76	0.76	0.75	0.76
black	0.06	0.07	0.07	0.07
hispanic	0.14	0.11	0.14	0.12
asian	0.12	0.12	0.12	0.11
other.race	0.07	0.07	0.06	0.07
partner.white	0.74	0.79	0.72	0.81
partner.black	0.09	0.05	0.12	0.05
partner.hispanic	0.12	0.09	0.13	0.09
partner.asian	0.07	0.12	0.06	0.11
partner.other.race	0.04	0.02	0.04	0.02
immigrant	0.08	0.11	0.08	0.13
mothers education				
High school or less	0.23	0.20	0.27	0.23
Bachelors degree	0.32	0.33	0.26	0.34
Graduate degree	0.21	0.23	0.19	0.19
Some college	0.25	0.24	0.27	0.24
childhood religion				
Catholic	0.39	0.39	0.39	0.42
Jewish	0.08	0.10	0.06	0.07
Protestant	0.15	0.16	0.13	0.17
Other	0.16	0.14	0.18	0.15
None	0.21	0.21	0.24	0.20
population density during high school				
Suburb	0.36	0.38	0.31	0.33
Rural	0.07	0.05	0.08	0.08
Small town	0.23	0.21	0.25	0.20
Medium city	0.23	0.24	0.24	0.25
Large city	0.11	0.12	0.13	0.14
age at first intercourse				
15 or younger	0.13	0.14	0.24	0.23
16	0.15	0.16	0.21	0.24
17	0.16	0.20	0.21	0.19
18	0.17	0.19	0.21	0.20
19 or older	0.13	0.12	0.13	0.12
Not applicable	0.27	0.20	0.01	0.01
Observations	3464	1747	871	549

Appendix Table A2. Results for Intercourse In First Hookups

	Model 1		Model 2		Model 3	
	Women	**Men**	**Women**	**Men**	**Women**	**Men**
grade						
Reference = Freshman						
Sophomore	1.19	1.51**	1.19	1.53**	1.22	1.53**
Junior	1.85***	1.55**	1.85***	1.59**	1.68***	1.40*
Senior	1.90***	2.04***	1.94***	2.08***	1.79***	2.02***
white			1.38*	1.22	1.19	1.1
black			0.96	1.15	1.29	0.95
hispanic			1.09	1.1	1.05	1.01
asian			1.26	0.82	1.29	0.89
other.race			0.79	0.87	0.79	0.8
partner.white			1	1.86**	1.02	1.68*
partner.black			1.55*	1.57	1.25	1.23
partner.hispanic			0.99	1.16	0.89	1.11
partner.asian			0.72	1.31	0.69	1.26
partner.other.race			1.1	1.12	1.11	1.05
immigrant			1.1	1.38	1.08	1.44
mothers education						
Reference = High school or less						
Bachelors degree			0.62***	0.83	0.67***	0.82
Graduate degree			0.68**	0.60**	0.71*	0.57**
Some college			0.87	0.74	0.86	0.78
childhood religion						
Reference = None						
Catholic			0.84	1.21	0.95	1.40*
Jewish			0.62**	0.78	0.65*	1.04
Other			0.98	1.29	1.05	1.50*
Protestant			0.70**	1.16	0.81	1.56*
population density during high school						
Reference = Suburb						
Rural			1.64**	2.39***	1.51*	2.35***
Small town			1.30*	1.15	1.19	1.06
Medium city			1.27*	1.2	1.23	1.11
Large city			1.42*	1.42*	1.52**	1.33
age at first intercourse						
Reference = 17						
15 or younger					1.83***	2.55***
16					1.06	2.37***
18					0.9	1.22
19 or older					0.53***	0.92
Not applicable					0.02***	0.07***
Observations	3464	1747	3464	1747	3464	1747

Appendix Table A3. Results for Condom Use In First Hookups With Intercourse

	Model 1		Model 2		Model 3	
	Women	**Men**	**Women**	**Men**	**Women**	**Men**
grade						
Reference = Freshman						
Sophomore	0.60*	0.50*	0.59*	0.47*	0.58*	0.48*
Junior	0.50**	0.51*	0.51**	0.49*	0.50**	0.49*
Senior	0.51**	0.68	0.51**	0.69	0.49**	0.69
white			1.31	1.33	1.33	1.43
black			1.19	1.75	1.13	1.76
hispanic			1.68	2.57	1.67	2.63*
asian			1.15	2.18	1.13	2.24
other.race			1.09	1.04	1.11	1.1
partner.white			0.62	1.53	0.61	1.58
partner.black			1.31	2.14	1.36	2.12
partner.hispanic			0.47*	1.07	0.47*	1.16
partner.asian			0.6	1.48	0.59	1.61
partner.other.race			0.64	1.5	0.65	1.53
immigrant			0.84	1.2	0.83	1.23
mothers education						
Reference = High school or less						
Bachelors degree			0.95	0.97	0.94	0.95
Graduate degree			1.13	0.92	1.11	0.92
Some college			0.99	0.98	0.99	0.97
childhood religion						
Reference = None						
Catholic			1.09	1.3	1.08	1.28
Jewish			1.95	1.16	2.04	1.17
Other			0.87	0.85	0.86	0.84
Protestant			0.79	1.09	0.76	1.1
population density during high school						
Reference = Suburb						
Rural			0.94	0.89	0.95	0.92
Small town			1.31	1.54	1.34	1.5
Medium city			1.37	1.1	1.39	1.09
Large city			1.13	1.83	1.12	1.83
age at first intercourse						
Reference = 17						
15 or younger					0.93	1.03
16					0.81	0.75
18					1.07	1
19 or older					1.22	0.77
Not applicable					1.34	1.96
Observations	871	549	871	549	871	549