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The Relationship Between Sexual Victimization and Year in School in U.S. Colleges: Investigating the Parameters of the “Red Zone”

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Abstract

It is the conventional wisdom among some universities that the highest risk of sexual assault is in the first or possibly second year in school. While initially belief in this pattern was primarily based on anecdote, recently some attempts have been made to more systematically and quantitatively test the existence of a “red zone,” a time of heightened risk of sexual assault sometime near the beginning of a female student’s time at the college. However, most of these studies have been conducted with relatively small convenience samples from single schools and have had conflicting results. Here, I test the red zone hypothesis using self-reported sexual victimization data with a large sample (~16,000) drawn from 22 schools as part of the Online College Social Life Survey. To investigate the specific mechanisms responsible for the red zone, I separately test for the existence of a red zone for four different types of sexual victimizations: physically forced intercourse, attempted forced intercourse, unwanted intercourse when incapacitated, and unwanted intercourse due to verbal pressure. Within these categories, I separately address sexual victimization that occurred while hanging out and sexual victimization during a party. Prior literature has emphasized the role of parties in the increased risk of assault for freshman. While I find some evidence for this in the higher estimates for sexual victimization at a party, the freshman effect remains for other types of sexual victimizations, suggesting that the red zone is not easily attributable to a single mechanistic cause, but to more generalizable factors. With one exception, I find that the red zone does not extend into the sophomore year.

Keywords

sexual assault; alcohol and drugs; adult victims; situational factors

Introduction and Literature Review

It is the conventional wisdom among some universities that the highest risk of sexual assault is in the first or possibly second year in school. While initially much of this received knowledge was based on anecdotes (e.g., see Ostrander & Schwartz, 1994), more recent

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empirical work supports the existence of a “red zone,” a time period of arguable length near the beginning of the student's time at college in which female students are at a heightened risk of sexual assault (Flack et al., 2008). While the literature on the red zone is still in its infancy, identifying the exact parameters of this time period and investigating the mechanisms underlying the temporal relationship are crucial for more effective institutional rape prevention efforts, allowing colleges to more effectively direct their rape prevention resources to contexts and student populations that are most at risk. However, research quantifying the exact boundaries of the heightened time of risk of sexual assault has either been conducted with relatively small convenience samples drawn from single schools or has imprecisely measured the time period involved, and the findings have been inconsistent across the literature.

Specifically, there is some disagreement about which years are in the red zone. Some argue that the red zone covers the first year (Schwartz, 1997), and college materials on the red zone tend to emphasize this time period specifically (Flack et al., 2008). Empirically, Kimble, Neacsu, Flack, and Horner (2008) use a sample of 50 first-year and 52 second-year students and find a significantly higher rate of victimization for first years, and Armstrong, Hamilton, and Sweeney (2006) use a qualitative approach to come to the same conclusion.

However, some argue that the red zone also covers the sophomore year (Ostrander & Schwartz, 1994; Sampson, 2005). In its introduction, the White House's Task Force to Protect Students From Sexual Assault cites Krebs, Lindquist, Warner, Fisher, and Martin (2007) as support for the statement that “most often, [sexual assault] happens [the] freshman or sophomore year” (White House, 2014). However, in their large study ($N = 5,446$) Krebs et al. (2007) only find a statistically significant relationship between freshman status and forced and/or drug and alcohol-assisted sexual assault since the respondents started college; the cumulative probability for sophomores was insignificantly different from those of the higher years (5-8), suggesting that most of the cumulative increase happened during the freshman year. When freshmen were excluded and the “last 12 months” of school measure was used for sophomores, sophomores showed a higher probability of sexual assault (5-5). However, it is not clear how much of this uptick was due to the “last 12 months” including the high-risk time period of the freshman year.

In their introduction, Krebs et al. (2007) also cite Gross, Winslett, Roberts, and Gohm (2006) to support their position that the risk of sexual victimization for women is highest “during their first four semesters on campus.” However, Gross et al. (2006) pool the first four semesters together (293), so once again it is difficult to know how much of this effect is due to the freshman year, and whether the red zone extends into the sophomore year itself. Using a sample of 121 women from a single university, only one study finds a red zone effect in the sophomore year but not the freshman year (Flack et al., 2008), with the only statistically significant uptick in the risk of assault for second-year students between the end of the first month and the mid-October fall break.

There have been a variety of suggestions for why the risk of sexual assault might be higher in certain years than others. Higher risk during the sophomore year is generally attributed to inductions into the Greek system that occur during the first half of the sophomore year,

during which time potential members are invited to a series of potentially dangerous parties (Flack et al., 2008; Gross et al., 2006); Ostrander and Schwartz (1994) note that the transfer from on-campus to off-campus housing that often occurs between the freshman and sophomore years could also contribute to a heightened risk of sexual assault.

Hypothesized reasons for the freshman red zone are more diffuse, but many of the speculations also mention the effect of parties, alcohol, and the Greek system. In their interviews of freshman women, Armstrong et al. (2006) find that first years are offered transportation and admittance to select (and potentially dangerous) parties, and that fraternities are the most reliable source of alcohol for underage first-year students. Similarly, in Kimble et al.'s (2008) focus groups, undergraduate women thought that first years would be at a higher risk of sexual assault because they were more likely to be invited to parties on campus. As party attendance (Armstrong et al., 2006) and alcohol consumption (Krebs, Lindquist, Warner, Fisher, & Martin, 2009) are both risk factors for sexual victimization, a higher proclivity to engage in these activities would, *ceteris paribus*, be associated with more sexual victimization. However, Kimble et al.'s (2008) study that found a freshman effect was conducted at a university with a tightly regulated alcohol policy and no Greek system, suggesting that other mechanisms were responsible.

Less proximate but more fundamental causes of the freshman red zone that have been suggested include freshman women's social vulnerability as new students (Armstrong et al., 2006), their relative lack of informal knowledge regarding "tacit rules for avoiding sexual assault" (Schwartz, 1997), and their lack of experience with alcohol (Gross et al., 2006) and newfound freedoms (Ostrander & Schwartz, 1994, p. 74). It is unclear to what extent the disproportionate attention given to freshman women among male partygoers and organizers is due to these factors.

Data and Method

The literature on the red zone is still in its infancy, and with the one exception noted above (Krebs et al., 2009) suffers from relatively small sample sizes and single-university settings for its studies. This has led to a rather spotty, sometimes conflicted literature. Here, I conduct a brief exploratory investigation of the parameters of the red zone using a large dataset (~16,000 females) that includes 22 schools, differentiating my results by context to draw conclusions about the specific mechanisms involved. Specifically, I test whether the heightened risk of sexual assault extends into the sophomore year, and try to determine the contexts in which risk is most heightened.

I use the Online College Social Life Survey (hereafter OCSLS), an Internet survey administered to a variety of classes in 22 schools from 2005 to 2011. The OCSLS was self-administered online to derive more accurate responses to potentially sensitive sexual items. Almost all respondent recruitment occurred within classes. While the participating instructors were disproportionately drawn from sociology, only 11% of the respondents were sociology majors. In most classes, the response rate was 99% to 100% (Armstrong, England, & Fogarty, 2012) even though respondents were offered alternatives for credit.

While primarily focused on consensual sex, the survey asks a variety of detailed questions about sexual victimization history. How rape is best defined, operationalized, and measured on survey instruments for maximum conceptual accuracy and clarity is an ongoing, highly active debate. The questions about sexual victimization in the OCSLS fall into four categories: physically forced intercourse, attempted forced intercourse, unwanted intercourse when incapacitated, and unwanted intercourse due to verbal pressure.

Each of these questions are asked initially as screening questions, which are then followed up with questions about where the victim and perpetrator had been right before the incident: “at a party,” “on a date,” “studying,” “hanging out,” or “not together—this was a stranger.” The categories of sexual victimization used are not necessarily mutually exclusive, and the same incident may involve multiple categories of sexual victimization.

The use of a behaviorally specific screening question with follow-up questions about the specifics of the incident represents a two-stage design that is being increasingly used in sexual assault research to “address the measurement error typically associated with a single-stage measurement process” (Fisher, 2009, p. 144); although research on the accuracy of a two-stage procedure is still in its infancy (Cook, Gidycz, Koss, & Murphy, 2011), it is used by the National Crime Victimization Survey and other standard surveys.

Admittedly a limitation of the wordings used here is the use of the term “intercourse,” which, while used for many years in the original Sexual Experiences Survey (hereafter SES; Koss, Gidycz, & Wisniewski, 1987), was removed from the revised version because the definition of the term was not universal (Koss et al., 2007); however, for my present comparative purposes, the potential variation in respondents' understanding of the term represents a substantively negligible threat to the overall validity of my thesis.

Two of the OCSLS items ask about physically forced intercourse (“Since you started college, have you had sexual intercourse that was physically forced on you?” and “Since you started college, has someone tried to physically force you to have sexual intercourse, but you got out of the situation without having intercourse?”), a specific type of rape that may exclude rape that does not necessarily involve physical force such as drug- and alcohol-facilitated rape or verbal coercion (Littleton, Rhatigan, & Axsom, 2007). However, these forms of victimization that do not necessarily involve physical force are covered in the other two questions that measure drug- and alcohol-facilitated sexual assault (hereafter DFSA), and unwanted sex due to verbal pressure.

The DFSA measure in the OCSLS asks, “Since you started college, has someone had sexual intercourse with you that you did not want when you were drunk, passed out, asleep, drugged, or otherwise incapacitated?” Unlike other measures (notably, the original SES), this measure does not make any stipulation regarding who administered the incapacitating agent, simply making it a clear measure of rape while incapacitated for whatever reason.

The verbal pressure question asks, “Since you started college, have you had sexual intercourse that you did not want because someone verbally pressured you?” Here, “verbal pressure” could range from insistent asking to more clear cases of threats and coercion, and, like many measures of unwanted sexual pressure, may include actions that are not strictly

illegal (Gavey & Senn, 2014; Vannier & O'Sullivan, 2010). However, I include it in my analyses to capture another dimension of sexual coercion that may help elucidate the underlying mechanisms involved in increasing the risk of sexual victimization in certain school years.

Summing across victimization types, there were 710 women who reported some victimization while hanging out, and 754 women who reported some victimization during a party. Only 21 reported being victimized while studying, 86 while on a date, and 43 by a stranger. Numbers too small to derive any meaningful patterns from by context and school year. Consequently, here I focus on victimization while hanging out and victimization while at a party. Given the hypotheses proffered in the prior literature that the heightened risk of sexual assault of freshman women is largely experienced at parties, this is a theoretically important distinction. Hanging out itself represents a less-structured, more individuated social event, potentially making it less sensitive to the kinds of institutional norms and arrangements that affect college parties. Simply using victimization while hanging out also allows for a cleaner conceptual comparison than pooling all the non-party sexual victimization together.

As previously noted, it is vital in this literature to use temporal categories that match up exactly with years in school to precisely capture the school year effect. I use the question in the OCSLS about when the event occurred (“When did this happen? I was a ... [freshman, sophomore, etc.]”) to construct a measure for whether the individual experienced the particular form of sexual pressure or assault in the current school year. While respondents were asked whether they had been victimized multiple times during college, the follow-up question asking when and where the incident occurred only applied to the most recent case. Therefore, I use a dichotomous variable measuring whether the individual experienced the particular pressure or assault at least once while they were in their current year in school (freshmen victimized while freshmen, juniors victimized while juniors, etc.).

In large part because the sample sizes vary across schools, the raw frequencies of rape, verbal pressure to have sex, and attempted rape also vary significantly across schools (Table 1).

Although some of the schools (e.g., Harvard) obviously do not have enough reported cases overall to robustly test the existence of a red zone when examined individually, for others it is more arguable whether there is enough power to defend any null results that may arise. Also, because the survey was offered in different classes in different schools, it is impossible to discern whether a college-level effect is being picked up or some sort of class-level effect, problematizing the investigation of school-level effects and the inclusion of school-level variables. Therefore, in this article, I simply examine these effects using the entire dataset, although I include school-fixed effects to control for any single school-level phenomenon that may influence the aggregate results. While some attention has been paid to the influence of school-level variables on the red zone (Kimble et al., 2008), future exploration of the effect of school-level characteristics on the red zone is needed for practical policy reasons to help determine best institutional practices for rape prevention.

I perform simple logistic analyses using the dichotomous measure of victimization in the current school year with two dummy variables for freshman and sophomore status. Juniors and seniors are the combined reference group, and graduate students were omitted to focus on the undergraduate population, and due to their low numbers. Missing responses for any of the variables included in the relevant model are listwise omitted. As I am focusing on sexual victimization of females, males are not included in any of the models or summary statistics.

Results

A much higher percentage of freshmen have been sexually victimized while they were freshmen than any other school year category (Table 2). In most cases, sophomores report higher percentages, but it is inconsistent across types and the differences are not large. Tables 3 and 4 clarify these relations in regressions: In six of the eight categories, freshmen show a significantly higher probability of experiencing the particular event during the present school year than their more senior counterparts with the exception of verbal pressure to have sex while hanging out and DFSA while hanging out (although DFSA is significant to the .1 level). These effects are substantively large, with odds ratios ranging from 2.014 (physically forced rape while hanging out) to 4.59 (attempted forced rape while at a party). The only case in which sophomore status is statistically significant is for attempted rape while at a party.

Discussion

These results make several contributions to the literature, both clarifying the exact parameters of the red zone and providing theoretically informative details about the specific contexts and types of sexual victimizations involved. First, they provide a strong confirmation that the red zone exists during the freshman year. These results are both statistically and substantively significant, and leave little doubt that the freshman year is a time of heightened risk of sexual assault. With the exception of Flack et al. (2008), the prior literature has already suggested as much, but most prior studies used relatively small samples drawn from single schools, whereas these results are derived from a large sample drawn from a wide variety of schools.

Second, they empirically clarify some of the conjectures based on anecdote and qualitative research that parties are one of the main contributors to the red zone (Armstrong et al., 2006; Flack et al., 2008; Kimble et al., 2008). Specifically, in every case, the odds ratios for being a freshman are higher for sexual victimization at parties than sexual victimization while hanging out, and in two cases, there does not appear to be a higher risk for the particular sexual victimization in a non-party context. This suggests that freshmen are especially vulnerable to sexual victimization that happens at parties. However, the fact that the estimates for sexual victimization while hanging out are still significant suggests that the heightened risk for freshman is not wholly attributable to the effects of college parties that the prior literature has hypothesized about. The heightened risk remains for completed and attempted forced rape even while hanging out, perhaps suggesting that the more

fundamental reasons for why freshmen are disproportionately invited to potentially dangerous parties apply to other social situations as well.

Third, I find that, with one exception, the red zone does not extend into the sophomore year. The one exception, attempted forced rape at a party, however, is stark, being significant at the .001 level. On the surface, this result appears to support the theory in the prior literature that sophomores are at a particularly higher risk specifically because of the parties they attend during recruitment season for Greek organizations (Flack et al., 2008; Gross et al., 2006).

However, when the four schools in the sample that do not have Greek systems (Framingham State, Foothill College, Carroll College, and Evergreen State University) are considered separately, their sophomores show the same pattern as the general sample, with the only significant category being attempted forced rape, which is highly significant at the .008 level with a much higher odds ratio (4.5 --full results available upon request). With the evidence of a sophomore red zone being even more stark in settings without a Greek system, it is not likely that Greek recruitment of sophomores is a significant contributing factor to the heightened risk of sophomores for attempted sexual assault at parties.

The limitation of the sophomore effect to attempted forced rape at parties is curious; it is possible that the “tacit rules for avoiding sexual assault” that Schwartz (1997) hypothesizes freshman women learn during their first year extends not only to avoiding such situations but also to removing themselves from them when they do arise. Of course, this would only explain the difference between attempted and completed rape, and does not explain why sophomores are at a higher risk of attempted forced rape at parties in the first place when they do not have a significantly higher risk for any other type or context of victimization.

Conclusion

In this brief research note, I have conducted an analysis of the existence and parameters of the red zone. The existence of a red zone during the freshman year is now well established; it is time for the literature to move beyond simply establishing that the red zone exists and into empirically testing the specific mechanisms underlying the freshman effect. In that respect, I have touched on the role of parties, and my results suggest that victimization occurring at parties is a significant part of the picture; however, it is not the whole picture, as the freshman effect extends across a range of forms of sexual victimization, including some non-party contexts. Consequently, future research should investigate more fundamental factors such as unfamiliarity with the environment and social vulnerability and not those that are based on any single institutional mechanism. It is also worth noting that these factors may operate in other institutions. For example, Jenson (2011) finds evidence for a “red zone” in the military, with recruits with less than 3 years of service (the least experienced category measured) having much higher rates of sexual victimization compared with their more experienced counterparts. It is likely that the same principles that lead to a disproportionate targeting of newly arrived women are generalizable to non-educational contexts as well, and future research should investigate this possibility.

I have nuanced our understanding of the location of the upper bound of the red zone, generally finding that the red zone is limited to the freshman year with the exception of attempted forced rape at parties, although the exact reasons for this particular exception are unclear. Future research should focus more on specifics, investigating possible differences in knowledge about informal “tacit rules for avoiding sexual assault” between newly matriculated students and their older counterparts (Schwartz, 1997). Also, more in-depth, perhaps qualitative, research should be done to plumb the underlying on-campus cultural or other mechanisms that lead to the disproportionate targeting of freshman and sometimes sophomore women. A better understanding of the parameters of the red zone, as well as the proximate and distal variables causing these patterns, would help educational and other institutions more effectively vector their rape prevention resources toward more vulnerable populations to obviate their relatively high risk of sexual victimization.

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Biography

Stephen Cranney is a fourth-year dual PhD student in demography/sociology at the University of Pennsylvania. He has a variety of research interests, including fertility, sex, positive psychology, and sociology and psychology of religion.

Raw Frequencies of Sexual Victimization by School.

Table 1

School	Forced, Party	Attempt Forced, Party	DFSA, Party	Verbal, Party	Forced, Hang Out	Attempted Forced, Hang Out	DFSA, Hang Out	Verbal, Hang Out
Stanford	1	7	2	2	3	5	8	7
Indiana	9	39	23	6	5	10	4	8
Arizona	6	19	10	6	7	12	10	19
Stony Brook	4	13	9	4	6	16	4	13
Ithaca	4	16	15	8	4	4	2	10
Evergreen	0	0	0	0	1	2	0	0
Santa Barbara	48	115	90	37	30	54	22	63
U Mass	40	97	62	27	32	60	23	24
Ohio State	19	27	18	4	10	15	9	20
Whitman	4	17	16	5	5	8	2	15
Foothill	9	22	24	7	20	20	17	39
Harvard	0	3	0	0	0	0	0	0
UIC	11	19	20	6	12	29	10	23
Framingham	9	12	13	6	7	21	6	18
Radford	2	3	3	1	2	2	2	4
Beloit	0	6	0	0	2	5	2	5
Riverside	3	8	8	4	5	26	6	12
UPenn	3	12	4	3	1	6	2	6
Washington	3	9	6	1	1	2	1	2
Merced	0	1	1	1	2	4	0	1
MTSU	7	7	9	5	4	12	2	13
Carroll	0	3	1	0	3	4	2	5
Total	182	455	334	133	162	317	134	307

Note. DFSA = drug- and alcohol-facilitated sexual assault; UIC = University of Illinois at Chicago; MTSU = Middle Tennessee State University.

Table 2

Frequencies of Sexual Victimization by Year.

		Freshman	Sophomore	Junior +	Total
Forced, party	0	5,547	3,930	6,476	15,953
	1	118	24	40	182
	%	2.08	0.61	0.61	1.13
DFSA, party	0	5,297	3,827	6,382	15,506
	1	305	80	69	454
	%	5.44	2.05	1.07	2.84
Verbal, party	0	5,462	3,872	6,405	15,739
	1	186	62	84	332
	%	3.29	1.58	1.29	2.07
Attempt forced, party	0	5,469	3,853	6,369	15,691
	1	81	26	26	133
	%	1.46	0.67	0.41	0.84
Forced, hang out	0	5,576	3,930	6,469	15,975
	1	89	24	47	160
	%	1.57	0.61	0.72	0.99
Attempted forced, hang out	0	5,433	3,844	6,368	15,645
	1	169	63	83	315
	%	3.02	1.61	1.29	1.97
DFSA, hang out	0	5,591	3,901	6,445	15,937
	1	57	33	44	134
	%	1.01	0.84	0.68	0.83
Verbal, hang out	0	5,435	3,806	6,279	15,520
	1	115	73	116	304
	%	2.07	1.88	1.81	1.92

Note. DFSA = drug- and alcohol-facilitated sexual assault.

Table 3

Sexual Victimization at a Party (Logistic Regression, Odds Ratios).

	(1) Forced, Party	(2) Attempt Forced, Party	(3) DFSA, Party	(4) Verbal, Party
Freshman	2.792 *** (0.535)	4.591 *** (0.644)	2.081 *** (0.288)	2.998 *** (0.709)
Sophomore	1.029 (0.269)	1.981 *** (0.332)	1.195 (0.204)	1.683 ⁺ (0.474)
Constant	7.57e-09 (0.000)	0.0132 *** (0.008)	0.00711 *** (0.007)	1.22e-08 (0.000)
Observations	15,691	15,897	15,744	15,498
BIC	2,069.8	4,053.7	3,296.7	1,664.0
χ^2	107.6	292.4	125.6	69.09
Log-likelihood	-938.3	-1,915.6	-1,546.9	-730.7

Note. Exponentiated coefficients; standard errors in parentheses. School fixed effects included in every model. DFSA = drug- and alcohol-facilitated sexual assault; BIC = Bayesian information criterion.

⁺
 $p < .10$.

*
 $p < .05$.

**
 $p < .01$.

 $p < .001$.

Table 4

Sexual Victimization While Hanging Out (Logistic Regression, Odds Ratios).

	(1) Forced, Hang Out	(2) Attempted Forced, Hang Out	(3) DFSA, Hang Out	(4) Verbal, Hang Out
Freshman	2.014*** (0.385)	2.368*** (0.338)	1.467 ⁺ (0.314)	1.171 (0.163)
Sophomore	0.797 (0.203)	1.282 (0.218)	1.246 (0.293)	1.052 (0.162)
Constant	0.0250*** (0.015)	0.0273*** (0.014)	0.0158*** (0.012)	0.0463*** (0.022)
Observations	15,710	15,847	15,777	15,649
BIC	1,952.7	3,215.6	1,729.4	3,162.3
χ^2	46.07	99.00	18.44	48.48
Log-likelihood	-870.0	-1,496.6	-763.2	-1,474.9

Note. Exponentiated coefficients; standard errors in parentheses. School fixed effects included in every model. DFSA = drug- and alcohol-facilitated sexual assault; BIC = Bayesian information criterion.

⁺ $p < .10$.

* $p < .05$.

** $p < .01$.

*** $p < .001$.