Selection and Socialization Accounts of the Relation Between Fraternity Membership and Sexual Aggression

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Objective: The current project aims to enhance our understanding of the well-established relation between fraternity membership and sexual aggression on college campuses. Most prior research has been cross-sectional and unable to distinguish selection and socialization accounts of the relation, and only one prior longitudinal study has simultaneously examined selection and socialization effects. Method: Fraternity membership, sexual aggression, binge drinking, sociosexual attitudes and behaviors, and perceived peer sexual aggression were assessed for 772 male participants (n = 116 fraternity members) in a longitudinal survey study from the summer prior to college through Year 2 of college. Results: Longitudinal path analyses revealed three key findings. First, fraternity membership was prospectively correlated with sexual aggression in Years 1 and 2 of college (socialization effect), controlling for selection effects, when the two prospective paths were constrained to be equivalent. Second, more frequent binge drinking and sociosexual attitudes prior to college prospectively correlated with an increased likelihood of joining a fraternity (selection effect), and both selection variables indirectly correlated with future sexual aggression via fraternity membership. Third, fraternity membership was associated with increased binge drinking and perceived peer sexual aggression (socialization effects). Conclusions: These findings identify critical targets for the prevention of sexually aggressive behavior that are linked to fraternity membership: Binge drinking and sociosexual attitudes.

Public Health Significance Statement
Fraternity membership is associated with an increased likelihood that college men engage in sexual aggression, even after considering past sexual aggression and variables that predict joining a fraternity (i.e., binge drinking and a preference for casual sex).

Keywords: sexual aggression, fraternities, binge drinking, sociosexuality, peer influence

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Sexual aggression is a major problem on college campuses. Approximately 20%–25% of college women experience sexual aggression during their college years (Cantor et al., 2019; Muenchenhard et al., 2017). Although sexual-assault prevention programs have been widely implemented on college campuses, their effects on the incidence of sexual assault are discouraging (DeGue et al., 2014; Newlands & O’Donohue, 2016). Fraternity men show elevated perpetration rates (see Murnen & Kohlman, 2007; Tharp et al., 2013, for reviews), and researchers have identified factors associated with both fraternity membership and sexual aggression (e.g., heavy episodic drinking, risky sexual behavior, and social norms for sexual aggression). These variables may serve as both selection factors that predict joining fraternities and mechanisms through which fraternity membership socializes men to be more sexually aggressive. Yet, only a single longitudinal study (N = 424) with a small number of fraternity men (n = 28) has examined socialization effects of fraternity membership while accounting for risk factors that may be associated with entry into fraternities, including prior sexual aggression (Kingree & Thompson, 2013). The current study (N = 772) leverages a pre-existing longitudinal data set that assessed a larger number of fraternity men (n = 116) to examine the association of fraternity membership with later sexual aggression while accounting for several risk factors that may lead men at high risk for sexual aggression to join fraternities. The current study also expands upon this prior research by examining four factors as both selection variables and potential mediators of relations between fraternity membership and sexual aggression.
membership and sexual aggression: Binge drinking; descriptive norms (perceptions of peer sexual aggression); and both attitudinal and behavioral aspects of sociosexuality, a preference for and engagement in impersonal and unrestricted sexual behavior (i.e., casual sex).

In Murnen and Kohlman’s (2007) comprehensive meta-analysis of 29 studies, fraternity membership showed small-to-moderate magnitude positive associations with rape-supportive attitudes and self-reported sexual aggression (see also Tharp et al., 2013, for a more recent narrative review). More recent research continues to underscore the positive link between membership in a fraternity and either perpetration of sexual aggression, proclivity to perpetrate, or endorsement of rape-supportive attitudes (e.g., Calzada et al., 2011; Canan et al., 2018; Foubert et al., 2007; Franklin et al., 2012; Kingree & Thompson, 2013; McMahon, 2010; Salazar et al., 2018; Seabrook, McMahon, et al., 2018; but see Gidycz et al. 2007, for null findings). Wiersma-Mosley et al. (2017) also recently examined institutional-level predictors of rates of reported rape at over 1,400 4-year universities, as required by the Clery Act. The proportion of fraternity men on a campus correlated positively with the reported rates of rape on campus, even when controlling for a broad array of other institutional-level characteristics, including tuition, campus type (public/private), the rate of reported liquor violations, location, and multiple aspects of campus athletics.

Heavy episodic consumption of alcohol is also widespread among college students and an established correlate of self-reported sexual aggression. The National Survey on Drug Use and Health found that approximately 38% of college students engaged in binge drinking in the past month (5 or more drinks over a 2-hr period for men) and approximately 12% engaged in frequent binge drinking, with their nonacademic counterparts reporting less frequent binge drinking and heavy alcohol use (National Institute on Alcohol Abuse and Alcoholism [NIAAA], 2017; Substance Abuse and Mental Health Services Administration [SAMHSA], 2015). Fraternity members exhibit higher rates of heavy drinking than other college men, and longitudinal studies indicate that men who drink more heavily are more likely to join fraternities (selection effect), and that fraternity membership increases rates of heavy drinking (socialization effect; e.g., Capone et al., 2007; McCabe et al., 2005, 2018; Park et al., 2008, Park, Sher, & Krull, 2009; Park, Sher, Wood, et al., 2009). Extensive cross-sectional survey research establishes heavy drinking as a reliable correlate of sexual aggression, and experimental studies indicate that consumption increases aggressive behavior in the lab (see Abbey et al., 2014, for review). Studies examining direct prospective prediction of sexual aggression from heavy drinking report more mixed findings, however, with heavy drinking more weakly predicting future sexual aggression (if at all) once prior aggression, situational factors (e.g., attendance at bars and parties), and other individual differences risk factors (e.g., casual sexual activity) are incorporated into analytic models (see Abbey et al., 2014; Cleveland et al., 2019; Testa & Cleveland, 2017). Overall, heavy drinking has been linked to both fraternity membership and risk for sexual aggression, though its causal role in explaining relations between fraternity membership and sexual aggression is not entirely clear.

Perceived peer engagement in sexual aggression is another possible risk factor related to fraternity membership and sexual aggression. For example, Boeringer et al. (1991) found fraternity members perceived their peer group engaged in more frequent sexual coercion and aggression than did nonfraternity members. Although we are not aware of studies linking such norms to personal perpetration of sexual aggression by fraternity members, Hackman et al. (2017) demonstrated that 200 college men strongly overperceived the rates of sexually aggressive behavior among their college peers. Men who self-reported prior engagement in sexually aggressive behavior, relative to their peers, also showed a greater overestimation of the rates at which the typical undergraduate used verbal pressure or intoxication to obtain sexual activity. Dardis et al. (2016) also found that college men who endorsed a history of sexual aggression over-perceived their friends’ engagement in sexual aggression to a greater degree than college men who did not endorse any prior history of aggression. Other recent studies have also demonstrated clear associations between sexually aggressive behavior and other peer-related influences, such as perceived peer approval and peer pressure (e.g., Franklin et al., 2012; Jacques-Tiura et al., 2015; Salazar et al., 2018; Swartout et al., 2015; Thompson et al., 2013, 2015). Overall, this body of work suggests that perceived peer engagement in sexual aggression may be linked to both fraternity membership and sexual aggression.

In addition to alcohol use and perceptions of peer sexual aggression, sociosexuality (i.e., unrestricted or casual sexual attitudes and behaviors) is associated with both fraternity membership and sexual aggression. Links between sociosexual behaviors and sexual aggression are well established (e.g., Abbey et al., 2011; Davis et al., 2018; Mouilso & Calhoun, 2012; Swartout, 2013; Yost & Zurbriggen, 2006). Additionally, studies link fraternity affiliation to engagement in risky sex, which is correlated with sociosexual behavior and shares some overlapping aspects (e.g., sex with multiple partners). For example, in a cross-sectional study of 568 college men (Scott-Sheldon et al., 2008), fraternity members reported more sexual partners in the last three months than nonfraternity members. Although almost all studies focus on sociosexual behavior, both factor-analytic and path-analytic work underscores the importance of distinguishing the attitudinal and behavioral aspects of this construct (Corbin et al., 2016; Penke & Asendorpf, 2008; Webster & Bryan, 2007), as we do in the current work.

Most of the existing research on fraternity membership and sexual aggression has assumed causal effects of fraternity membership on sexual aggression (i.e., socialization effects). However, it is also possible that men with characteristics that predispose them toward sexual aggression (i.e., binge drinking, sociosexuality, perceptions of peer sexual aggression, and prior sexual aggression) disproporionally select into fraternities. Indeed, as mentioned above, heavy-drinking men are more likely to join fraternities (e.g., Capone et al., 2007; McCabe et al., 2005, 2018; Park et al., 2009a, 2009b). Unfortunately, almost all prior studies examining the relation between fraternity membership and sexual aggression are unable to distinguish between selection and socialization accounts, either because they are cross-sectional or because they have not assessed potential selection factors prior to fraternity entry. Additionally, several studies have examined potential mediators of risk for sexual aggression among fraternity men (Boeringer et al., 1991; Franklin et al., 2012; Seabrook, Ward, et al., 2018), but almost all studies have been cross-sectional in nature.

Only one prior longitudinal study, to our knowledge, has examined both selection and socialization accounts of the well-established association between fraternity membership and sexual aggression,
which afforded an examination of the prospective effects of fraternity membership on sexual aggression while controlling for selection effects (Kingree & Thompson, 2013). Kingree and Thompson (2013) examined peer influences (peer pressure to have sex and perceived peer approval of forced sex), attitudes (rape-supportive attitudes and hostility toward women), and risky behaviors (number of sexual partners and binge drinking) as potential selection factors and mediators of fraternity effects on sexual aggression. Perceived peer approval of forced sex and binge drinking at time one predicted entry into a fraternity, and fraternity membership prospectively predicted perceived peer approval of forced sex and peer pressure to have sex, as well as greater frequency of binge drinking and more sexual partners, at time two (1-year follow-up). Only perceived peer approval of forced sex and binge drinking at time two prospectively predicted time three (2-year follow-up) sexual aggression, and these variables mediated the relation between fraternity membership and sexual aggression. This study made an important contribution to our understanding of selection and socialization effects related to fraternity membership and sexual aggression. However, the sample included a relatively small number of fraternity men (n = 28), and other potential selection and socialization factors remain unexplored. Thus, additional studies are needed to confirm and extend these findings.

The current study aims to strengthen and broaden our understanding of selection and socialization factors linking fraternity membership with sexual aggression. We evaluate four primary questions in a large sample of college men (N = 772) with 116 fraternity members. First, we evaluate the prospective association of sexual aggression with fraternity membership, controlling for various selection factors and prior sexual aggression. Second, we extend the prior examination of selection factors (Kingree & Thompson, 2013) by examining descriptive norms (perceptions of peer engagement in sexual aggression), rather than injunctive norms (i.e., perceptions of peer approval of sexual aggression); sociosexual attitudes in addition to sociosexual behavior; and binge drinking. Third, we determine whether the four putative selection factors also function as socialization factors and whether they mediate risk for future sexual aggression among fraternity men. We evaluate this question initially in the absence of selection effects to allow for comparisons to prior work. Finally, we evaluate both selection and socialization influences within a single model, which has been done only once previously in the literature (Kingree & Thompson, 2013). Comparison of the findings when selection effects are and are not included provides a window onto the extent to which the common failure to account for selection effects in the literature may produce false positives regarding the socializing influences of fraternity membership. We addressed these research questions with data from the first 2 years of college given large increases in both binge drinking and sexual aggression during the transition to college. In addition, we thought we would be most likely to capture socialization effects if they were measured in close proximity to the transition into the fraternity.

**Method**

**Participants and Procedure**

The sample for the current study was drawn from all male students (n = 901) from a sample of 2,245 incoming freshmen at a large southwestern university who participated in a 5-year longitudinal study. Eligibility criteria for the longitudinal study consisted of being 17–19 years old, unmarried, and never having attended college or university. A total of 777 men (86.2%) completed the Wave 3 survey and 772 were included in the current analyses as they provided valid data on fraternity membership. A total of 671 men (74.5% of the wave 1 sample and 86.4% of the wave 3 sample) completed the wave 5 assessment. A total of 652 men (72.4%) completed all three waves. In Year 2 of college, 642 men provided valid data on the perpetration of sexual aggression. Within the sample of male students who provided valid data on fraternity membership, 15% (n = 116) were fraternity members at wave 3.

Over the summer prior to the fall of freshmen year, participants accessed a secure website where they gave informed consent to participate and completed the initial (wave 1) online survey. The wave 1 survey asked participants to focus on the last 3 months of their senior year of high school, and demographics, as well as behavioral and social-cognitive baseline measures, were obtained. Three weeks before the end of every fall and spring semester through the fall of the fourth year of college, participants completed similar online surveys, though the fall surveys did not include the full battery of measures included in the spring surveys. Additional surveys were collected 1 year and 2 years following the last college survey. All analyses in the current study are based on the surveys from wave 1 (reports of high-school behavior assessed in the summer before college), wave 3 (spring semester of freshman year), and wave 5 (spring semester of sophomore year) to capture processes proximal to entry into a fraternity and early socialization related to fraternity membership. All study procedures were conducted in compliance with the university’s Internal Review Board. For more information about the recruitment and survey procedures of the study, see Fromme et al. (2008) and Hatzenbuehler et al. (2011).

**Measures**

**Fraternity Membership (Wave 3)**

Fraternity membership was assessed using one question, “Do you belong to a fraternity or sorority?” Although fraternity membership was assessed at the same time-point as the proposed mediating variables, the fraternity rush took place at the beginning of the spring semester and the mediating variables were assessed over the course of the entire spring semester. In addition, most of the men (60%) who reported being in a fraternity at wave 3 also reported being in a fraternity at wave 2 (fall of freshman year). Thus, relations between fraternity membership and the proposed mediators were primarily prospective.

**Personal Engagement in Sexual Aggression**

Participants were asked to report the frequencies with which they “made unwanted sexual advances or engaged in unwanted sex play” and “coerced someone into having sex” in the past 3 months. A dichotomous variable was created based on responses to these two questions (0 = no perpetration, 1 = any perpetration). These items assess the perpetration of similar unwanted experiences to those measured by the Sexual Experiences Survey, which assesses both...
unwanted sexual advances and perpetration of sexual assault (Koss et al., 1987).

Perceived Peer Sexual Aggression

The two items used to ask about personal sexual aggression were collapsed into one item and presented again, but participants were asked to report on how many members of their peer group engaged in these behaviors on a 5-point scale (1 = none to 5 = all).

Sociosexual Attitudes

Sociosexuality was assessed with six items reflecting attitudes about engagement in unrestricted sexual behaviors using a 5-point scale (1 = none to 5 = all). A sample item is “It is okay for me to have casual sex without being in a relationship.” This measure used items similar to those described in Bailey et al. (2000).

Sociosexual Behavior

Sociosexual behavior was assessed with three items assessing the number of sexual partners in the last 3 months, the number of sexual partners in the last 3 months the participant had known for 3 weeks or less, and the number of times in the past 3 months the participant had sex without protection against pregnancy and STDs. The first two items were assessed continuously, and the third was assessed on the following scale (0 = 0; 1 = 1; 2 = 2; 3 = 3–5; 4 = 6–10; 5 = 11–20; 6 = more than 20). Because <1.4% of participants reported scores of 5 or more on any of the three items, all items were recoded to the following scale (0 = 0; 1 = 1; 2 = 2; 3 = 3–5, 4 = 6+) and a sum of the three items (0–12) was used to characterize sociosexual behavior.

Binge Drinking

Binge drinking was assessed with a single item inquiring about the frequency of consuming five or more drinks in a sitting during the past 3 months.

Data Analytic Plan

First, we examined zero-order correlations among the variables in the model and identified any potential problems with multicollinearity. Next, we used structural equation modeling in Mplus 8.4 to evaluate the theoretical models.

Robust Weighted Least Squares (WLSMV) estimation with the Theta parameterization was used in all models given the categorical nature of fraternity membership and sexual aggression. WLSMV uses a pairwise missing data approach which allowed us to use the full sample as only participants with valid data at wave 3 were included in the analyses. Bootstrapping (5,000) was used to address nonnormality in the data. The variance of exogenous predictor variables (e.g., wave 1 perpetration) was set to 1 × (1 − mean). The fit of each model was examined to identify any theoretically relevant paths that were not specified and to determine if models that included selection effects provided a better fit to the data than the model without selection effects. A CFI > .95 and RMSEA < .06 were considered indicative of a good model fit (Hu & Bentler, 1999). We used bootstrapped confidence intervals to estimate the significance of indirect effects. Using this method, if the confidence interval does not include 0, the effect is significant at the specified alpha level of .05 (MacKinnon et al., 2004).

Model 1 (Socialization Effects of Fraternity Membership on Future Sexual Aggression Accounting for Selection Effects) examined socialization effects of fraternity membership in the first year of college (wave 3) on sexual aggression in Year 1 (wave 3) and Year 2 (wave 5) of college, controlling for selection effects related to high school (wave 1) binge drinking, sociosexual attitudes, sociosexual behavior, and perceptions of peer sexual aggression. This model also accounted for the effects of the selection factors, including high-school sexual aggression, on sexual aggression in Years 1 (wave 3) and 2 (wave 5) of college. All wave 1 predictors (selection factors and wave 1 sexual aggression) were allowed to freely covary. Fraternity membership and sexual aggression at waves 3 and 5 were treated as categorical outcomes.

Model 2 (Socialization Effects of Fraternity Membership and Evaluation of Potential Mediators of Relation between Fraternity Membership and Sexual Aggression, not Accounting for Selection Factors) were examined the socialization effects of fraternity membership on changes in binge drinking, sociosexual attitudes and behavior, and perceived peer aggression from the first to the second year of college (wave 1 to wave 3), and also evaluated changes in these variables as potential mediators of the relation between fraternity membership and sexual aggression in the second year of college (wave 5), controlling for sexual aggression in high school (wave 1) and the first year of college (wave 3). In this model, fraternity membership in Year 1 of college (wave 3) was used as a predictor of changes in binge drinking, sociosexual attitudes, sociosexual behavior, and perceptions of peer sexual aggression from wave 1 to wave 3, using latent difference scores. Latent difference scores were created by setting the factor loadings of the mediators at wave 3 at 1, the regression of the wave 3 mediators on their corresponding wave 1 values at 1, and the means and the variances of the wave 3 mediators at 0. The latent difference scores for the mediators were also specified as predictors of sexual aggression in Year 2 of college (wave 5), controlling for wave 3 sexual aggression. Note that fraternity membership temporally preceded the mediators assessed at wave 3. The direct effects of fraternity membership on wave 3 (Year 1) and wave 5 (Year 2) sexual aggression were also included in the model. Wave 1 values for each mediator were allowed to covary with the latent difference score for the corresponding mediator (e.g., wave 1 binge drinking with changes in binge drinking from wave 1 to wave 3), and the wave 1 variables were allowed to covary with each other. The wave 1 variables, including wave 1 sexual aggression, were included as predictors of wave 3 and wave 5 sexual aggression which were treated as categorical outcomes. Paths from the wave 1 selection factors to fraternity membership were constrained to zero to mimic the common evaluation of socialization hypotheses in the absence of selection effects.

Model 3 (Socialization Effects of Fraternity Membership and Evaluation of Potential Mediators of Relation between Fraternity Membership and Sexual Aggression, Accounting for Selection Factors) evaluated selection, socialization, and mediation questions simultaneously by essentially combining the first two models, such that wave 1 sexual aggression and the selection factors (wave 1) were added as predictors of fraternity membership (wave 3) in Model 2. This allowed for the examination of socialization and
mediation processes when accounting for selection effects. Fraternity membership and sexual aggression at waves 3 and 5 were treated as categorical outcomes. A comparison of the findings for Models 2 and 3 also afforded evaluation of the potential overestimation of socialization and mediation effects when selection effects are not considered.

Results

Preliminary Analyses

Examination of correlations among the variables in the model identified significant correlations consistent with hypotheses, but the magnitude of bivariate correlations (≤.71) was not sufficient to create problems with multicollinearity (see Table 1, for descriptive statistics and correlations among study variables).

Primary Analyses

Model 1—Socialization Effects of Fraternity Membership on Future Sexual Aggression Accounting for Selection Effects

The model standard errors were unstable with more than 1850 bootstraps, so we utilized the model with 1850 bootstraps. This model demonstrated excellent fit to the data, \( \chi^2 = 97 \) (df = 2), \( p = 1.00 \), CFI = 1.00, RMSEA = .00, SRMR = .01. Higher levels of wave 1 (high school) binge drinking (\( b = .03, SE = .01, p = .003 \)), and sociosexual attitudes (\( b = .15, SE = .07, p = .04 \)) were associated with a greater likelihood of joining a fraternity during the first year of college. Importantly, controlling for factors associated with entry into a fraternity in Year 1 of college and prior levels of sexual aggression, fraternity membership in the spring of Year 1 of college was significantly associated with sexual aggression in the spring of Year 1 of college (\( b = .29, SE = .13, p = .02 \)). The relation between fraternity membership and sexual aggression 1 year later (spring of the second year of college) did not reach statistical significance (\( b = .26, SE = .16, p = .11 \)), though the odds ratios for the two effects were quite similar (\( OR = 1.66 \) for wave 3 sexual aggression, and \( OR = 1.56 \) for wave 5 sexual aggression). Given the similar and substantial odds ratios across the two time-points, we fit a model constraining these two effects to be equivalent and, unlike the unconstrained model, this model converged with 5,000 bootstraps. Further, there was no decrement in model fit, \( \Delta \chi^2 = .04 \) (\( \Delta df = 1 \)), \( p = .84 \) relative to the unconstrained model, and the overall association between fraternity membership and later sexual aggression was statistically significant, (\( b = .28, SE = .10, p = .003 \)). Belonging to a fraternity was associated with a 62% higher likelihood of sexual aggression across the first 2 years of college. Descriptively, the perpetration rates for fraternity members were 10.6% at wave 3 and 12.9% at wave 5, whereas the rates for nonfraternity members were 3.5% at both waves 3 and 5.

Given the significant relations between binge drinking and sociosexual attitudes and later fraternity membership, and the significant relation of fraternity membership with later sexual aggression, we examined potential indirect effects of binge drinking and sociosexual attitudes on wave 3/5 sexual aggression using the constrained model. Indirect effects of both selection factors were statistically significant based on bootstrapped confidence intervals (95% CI [.003–.022] for binge drinking; 95% CI [.004–.108] for sociosexual attitudes). Conceptually, more frequent binge drinking and higher levels of sociosexual attitudes in high school were associated with membership in a fraternity in the first year of college, which, in turn, was associated with more personal engagement in sexual aggression in the first and second years of college. Figure 1 provides standardized coefficients (for continuous outcomes) and odds ratios (for dichotomous outcomes) for this model.

Model 2—Socialization Effects of Fraternity Membership and Evaluation of Potential Mediators of Relations Between Fraternity Membership and Sexual Aggression, Not Accounting for Selection Factors

Model 2, depicted in Figure 2, examined relations between fraternity membership and changes in binge drinking, sociosexual attitudes, and perceptions of peer sexual aggression from wave 1 to wave 3 using latent difference scores and examined latent differences for these variables as potential

### Table 1

<table>
<thead>
<tr>
<th>M (%)</th>
<th>SD</th>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
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<tr>
<td>2.218</td>
<td>5.667</td>
<td>1. Binge (W1)</td>
<td>1</td>
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<tr>
<td>4.046</td>
<td>8.219</td>
<td>2. Binge (W3)</td>
<td>.513**</td>
<td>1</td>
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<td>2.209</td>
<td>.860</td>
<td>3. Sociosexual Att (W1)</td>
<td>.264**</td>
<td>.252**</td>
<td>1</td>
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<td>2.336</td>
<td>.883</td>
<td>4. Sociosexual Att (W3)</td>
<td>.260**</td>
<td>.312**</td>
<td>.706**</td>
<td>1</td>
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<td>2.210</td>
<td>1.329</td>
<td>5. Descriptive Nrms (W1)</td>
<td>.018</td>
<td>.038</td>
<td>-.014</td>
<td>-.056</td>
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<td>2.127</td>
<td>1.304</td>
<td>6. Descriptive Nrms (W3)</td>
<td>.144**</td>
<td>.191**</td>
<td>.093*</td>
<td>.060</td>
<td>.179**</td>
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<td>.693</td>
<td>1.600</td>
<td>7. Sociosexual Beh (W1)</td>
<td>.259**</td>
<td>.194**</td>
<td>.349**</td>
<td>.325**</td>
<td>.028</td>
<td>.086</td>
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<td>.759</td>
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<td>8. Sociosexual Beh (W3)</td>
<td>.255**</td>
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<td>.270**</td>
<td>.335**</td>
<td>.034</td>
<td>.043</td>
<td>.441**</td>
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<tr>
<td>15%</td>
<td>9. Fraternity Memb</td>
<td>.234**</td>
<td>.332**</td>
<td>.189**</td>
<td>.130**</td>
<td>.010</td>
<td>.226**</td>
<td>.160**</td>
<td>.206**</td>
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<tr>
<td>6.5%</td>
<td>10. Aggression (W1)</td>
<td>.152**</td>
<td>.152**</td>
<td>.350**</td>
<td>.264**</td>
<td>.198**</td>
<td>.221**</td>
<td>.315**</td>
<td>.207**</td>
<td>.062</td>
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<tr>
<td>4.6%</td>
<td>11. Aggression (W3)</td>
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<td>.122</td>
<td>.126**</td>
<td>.111**</td>
<td>.010</td>
<td>.028</td>
<td>.118</td>
<td>.190**</td>
<td>.141**</td>
<td>.211**</td>
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<tr>
<td>4.8%</td>
<td>12. Aggression (W5)</td>
<td>.191**</td>
<td>.143**</td>
<td>.322**</td>
<td>.369**</td>
<td>.068</td>
<td>.220**</td>
<td>.168**</td>
<td>.131**</td>
<td>.382**</td>
<td>.198</td>
<td>.231**</td>
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</table>

*Note. Correlations are based on the full sample (n = 772) with FIML estimation of missing data. Means and standard deviations are included in the table and are based on data only from individuals with complete data for the particular variable (sample sizes of 739 to 772). Att = Attitudes, Nrms = Norms, Beh = Behaviors.

*p < .05. **p < .01.
mechanisms through which fraternity membership at wave 3 was related to sexual aggression at waves 3 and 5 (controlling for wave 1 and wave 3 sexual aggression, respectively). Fraternity membership was also included as a direct predictor of sexual aggression at waves 3 and 5. As anticipated, the model provided poor fit to the data because it did not include paths from the selection factors to fraternity membership, $\chi^2 = 241.69$ (df = 34), $p < .001$, CFI = .91, RMSEA = .09, SRMR = .04. Fraternity membership was significantly associated with difference scores for binge drinking ($b = 7.94$, SE = 1.28, $p < .001$), sociosexual attitudes ($b = 30$, SE = .10, $p = .004$), sociosexual behavior ($b = .90$, SE = .23, $p < .001$), and perceptions of peer sexual aggression ($b = .68$, SE = .16, $p < .001$). In addition, higher baseline levels of sociosexual attitudes were associated with greater likelihood of sexual aggression at waves 3 ($b = .27$, SE = .13, $p = .04$) and 5 ($b = .41$, SE = .18, $p = .02$), but the latent increases in sociosexual attitudes from wave 1 to wave 3 ($b = .31$, SE = .19, $p = .10$) were not significantly associated with sexual aggression at wave 5. Neither baseline levels or changes in any of the mediators were significantly associated with wave 5 sexual aggression, though the $p$-value was .07 for the relation between latent changes in perceptions of peer sexual aggression and wave 5 sexual aggression ($b = .18$, SE = .10, $p = .07$). As in the selection model, the association between fraternity membership and wave 3 sexual aggression was significant ($b = .73$, SE = .21, $p < .001$), whereas the relation between fraternity membership and wave 5 sexual aggression was not ($b = .53$, SE = .38, $p = .16$), though odds ratios were large for both effects. Fraternity members were 216% more likely to engage in sexual aggression.

Figure 1
Selection Model 1 With Odds Ratios (ORs)

Note. ORs were calculated by standardizing the continuous predictor variables and converting probit regression coefficients to logits and exponentiating these values. ORs for continuous predictors reflect the increase in odds of the outcome associated with a 1 SD increase in the predictor. ORs for dichotomous predictors reflect the increase in odds of the outcome associated with the occurrence of the dichotomous predictor (e.g., fraternity vs. non-fraternity member).

W1: Wave 1, summer prior to college entry reporting retrospectively regarding spring of high school; W3: Wave 3, spring semester of freshman year; W5: Wave 5, spring semester of sophomore year. Wave 1 predictors were allowed to freely co-vary but correlations are not reflected in the figure for ease of presentation.

* $p < .05$.  ** $p < .01$.  *** $p < .001$. 

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Figure 2
Socialization Model With Standardized Coefficients and Odds Ratios (ORs)

Note. Standardized coefficients are provided for prediction of continuous outcomes. For continuous predictors, standardized coefficients reflect the standard deviation (SD) change in the outcome associated with a 1 SD increase in the predictor. For the dichotomous predictor (fraternity membership), standardized coefficients reflect the SD increase in the outcome associated with occurrence of the predictor (fraternity vs. non-fraternity member). ORs are provided for dichotomous outcomes and were calculated by standardizing the continuous predictor variables and converting probit regression coefficients to logits and exponentiating these values. ORs for continuous predictors reflect the increase in odds of the outcome associated with a 1 SD increase in the predictor. ORs for dichotomous predictors reflect the increase in odds of the outcome associated with the occurrence of the dichotomous predictor (e.g., sexual aggression vs. no sexual aggression).

W1: Wave 1, summer prior to college entry reporting retrospectively regarding spring of high school; W3: Wave 3, spring semester of freshman year; Δ: Latent change from wave 1 to wave 3; W5: Wave 5, spring semester of sophomore year. Wave 1 predictors were allowed to freely covary but correlations are not reflected in the figure for ease of presentation.

*p < .05.  **p < .01.  ***p < .001.
aggression at wave 3 and 155% more likely to engage in sexual aggression at wave 5, than were nonfraternity members. A model constraining relations between fraternity membership and sexual aggression at waves 3 and 5 to equivalence did not result in a significant decrement in model fit, $\Delta \chi^2 = 1.11$ ($\Delta df = 1$), $p = .29$, and the constrained effect was statistically significant ($b = .68$, SE = .18, $p < .001$), with an odds ratio of 2.99.

Given significant relations between fraternity membership and latent changes in perceptions of peer sexual aggression from wave 1 to wave 3, and an association between changes in perceptions of peer sexual aggression and wave 5 sexually aggressive behavior with a $p$-value of .07, we tested the indirect effect of fraternity membership on later sexual aggression through latent changes in perceptions of peer sexual aggression. The bootstrapped confidence interval indicated a significant indirect effect of fraternity membership on later sexual aggression through perceptions of peer sexual aggression (95% CI [.01–.30]). Thus, fraternity membership was associated with increases in perceived peer engagement in sexual aggression which, in turn, were related to more engagement in sexually aggressive behavior.

**Model 3—Socialization Effects of Fraternity Membership and Evaluation of Potential Mediators of Relations Between Fraternity Membership and Sexual Aggression, Accounting for Selection Factors**

Model 3, depicted in Figure 3, simultaneously examined selection and socialization processes by adding selection paths from Model 1 to Model 2. See Supplementary Table 1 for unstandardized coefficients, standard errors, confidence intervals, and $p$ values for all parameters in the full model. This model provided good fit to the data, $\chi^2 = 75.43$ ($df = 28$), $p < .001$, CFI = .98, RMSEA = .05, SRMR = .03. Selection effects of binge drinking and sociosexual attitudes remained and the magnitude of effects were similar to Model 1 (binge drinking, $b = .03$, SE = .01, $p = .007$; sociosexual attitudes, $b = .17$, SE = .08, $p = .03$). With respect to socialization, associations between fraternity membership and latent difference scores for binge drinking and perceptions of peer sexual aggression remained ($p$-values $\leq .01$), whereas the association between fraternity membership and the difference score for sociosexual behavior had a $p$-value of .05. In addition, the significant positive association between fraternity membership and changes in sociosexual attitudes in the socialization model was no longer significant ($b = .04$, SE = .04, $p = .33$). Baseline sociosexual attitudes ($b = .39$, SE = .18, $p = .03$) remained significantly and positively related to sexual aggression at wave 5, controlling for wave 1 and wave 3 sexual aggression, whereas associations between baseline sociosexual attitudes and wave 3 sexual aggression, whereas associations between baseline sociosexual attitudes and wave 3 sexual aggression ($b = .23$, SE = .13, $p = .07$), and changes in sociosexual attitudes from wave 1 to wave 3 and wave 5 sexual aggression ($b = .36$, SE = .19, $p = .05$) were not statistically significant. The significant indirect effect of fraternity membership on wave 5 sexual aggression via increases in perceptions of peer sexual aggression from the socialization-only model was no longer statistically significant (95% CI [−.01 to .09]) with the addition of the selection effects. The relation between fraternity membership and sexual aggression at wave 3 ($b = .32$, SE = .13, $p = .01$) remained significant and the association between fraternity membership and wave 5 sexual aggression remained nonsignificant ($b = .26$, SE = .21, $p = .21$). As in the selection only model, odds ratios were substantial and relatively similar for the two effects (1.72 at wave3; 1.55 at wave 5). As in prior models, constraining associations between fraternity membership and wave 3 and wave 5 sexual aggression to equivalence did not lead to a decrement in model fit, $\Delta \chi^2 = .53$ ($\Delta df = 1$), $p = .47$, and the overall relation between fraternity membership and later sexual aggression was statistically significant ($b = .30$, SE = .10, $p = .003$). Men in fraternities were 66% more likely to be sexually aggressive in the spring of the first and second years of college (waves 3 and 5) relative to men not in fraternities.

**Discussion**

Fraternity membership was associated prospectively with sexually aggressive behavior in the first year of college, even after controlling for sexually aggressive behavior and potential selection factors prior to college. Specifically, men in fraternities were 66% more likely than their peers to report sexual aggression in Year 1. The prospective association of fraternity membership with sexually aggressive behavior in the second year of college was not reliable, although men in fraternities were 56% more likely than their peers to report sexual aggression in Year 2. Given the similarity of the odds ratios for these two prospective paths, we also examined the overall prospective relation between fraternity membership and sexual aggression and found a statistically significant effect, such that fraternity men were 62% more likely to report sexually aggressive behavior in Years 1 and 2 of college. Descriptive statistics, which do not take other factors into account, tell a similar story: Among fraternity members who did not report perpetration at Wave 1, 6.7% reported perpetration in the spring of their freshman year, versus 3.0% of nonfraternity members; among fraternity members who did report perpetration at wave 1, 55.6% reported perpetration in the spring of their freshman year, versus 12.2% of nonfraternity members. Similarly, among fraternity membership who did not report perpetration at Wave 3, 8.5% of fraternity members, versus 3.0% of nonfraternity members reported perpetration in the spring of their sophomore year; among fraternity members who did report perpetration at Wave 3, 44.4% reported perpetration in the spring of their freshman year, versus 16.7% of nonfraternity members. Almost all of the literature bearing on the relation between fraternity membership and sexual aggression is cross-sectional, so evidence of a prospective relationship is noteworthy. Only one prior longitudinal study has controlled for an array of potential selection factors and prior aggression (Kingree & Thompson, 2013). We must be cautious in comparing our results to those of Kingree and Thompson (2013), given the different selection and socialization factors examined in the two studies. Nonetheless, the current results extend their conclusions to a larger sample and a different battery of potential selection factors, and they bolster our confidence that the experience of being a fraternity member—not just being someone who joins a fraternity—is associated with a substantially increased risk of engaging in sexually aggressive behavior in the future.

Regarding our selection questions, men who engaged in binge drinking prior to college were significantly more likely than their peers to join a fraternity. This result converges with several longitudinal studies showing that binge drinking functions as a selection
influence on fraternity membership (e.g., McCabe et al., 2005, 2018). Moreover, binge drinking prior to college was indirectly linked to sexual aggression in Years 1 and 2 of college via fraternity membership. Thus, binge drinking was associated with later sexual aggression in the current study only to the extent that it was associated with entry into a fraternity. This indirect—rather than direct—prospective association is consistent with the generally weaker prospective effects of binge drinking on sexual aggression observed in longitudinal studies once individual differences and contextual factors are taken into account (Abbey et al., 2014;
aggression in the sociosexual attitudes in high school were indirectly related to sexual aggression in the current study, thus identifying a novel selection factor not examined in Kingree and Thompson (2013). Similar to binge drinking, current fraternity membership on binge drinking are well-established (e.g., McCabe et al., 2005, 2018), and the current work bolsters our confidence that similar socialization effects are present for sexually aggressive behavior.

Moreover, in our final model, sociosexual attitudes in high school showed a direct prospective association with sexual aggression in Year 2 of college (but not in Year 1), suggesting the potential utility of targeting misperceived attitudes related to casual sex (Zelin et al., 2015) in sexual-assault prevention programs. This finding extends prior empirical work that is largely cross-sectional in nature (Davis et al., 2018) and provides further support for impersonal sex as a central mechanism in the prevailing theoretical model of sexual aggression (Malamuth & Hald, 2017).

Our final model also afforded evaluation of the prospective relations between the socialization factors and sexual aggression, controlling for selection and autoregressive effects. Unexpectedly, changes in sociosexual attitudes, binge drinking, perceived peer sexual aggression, and sociosexual behavior from high school to the first year of college were not prospectively associated with sexual aggression. In contrast, binge drinking emerged as a reliable mediator in Kingree and Thompson (2013). Thus, across the only two well-controlled longitudinal studies that have evaluated potential mediators of prospective relations between fraternity membership and sexual aggression, findings were mixed. Findings in longitudinal studies aiming to predict sexual aggression from binge drinking are similarly mixed, once situational factors (e.g., bar/party attendance) and other individual differences factors (e.g., prior sexual aggression) are taken into account (see Abbey et al., 2014; Cleveland et al., 2019; Testa & Cleveland, 2017). Thus, it will be important to simultaneously evaluate the status of binge drinking and bar/party attendance as potential selection and socialization influences in future work.

All but one published study examining the potential socializing effects of fraternity membership on future sexually aggressive behavior have been cross-sectional or have not controlled for a variety of potential selection factors, including prior sexual aggression. Thus, we also addressed our socialization questions in a model that did not control for selection effects (including prior sexual aggression), in an effort to determine whether our conclusions would differ. Indeed, three “false-alarm” inferences emerged in the socialization-only model. In particular, fraternity membership was associated with a reliable change in sociosexual attitudes and sociosexual behavior, and perceived peer aggression was indirectly linked with future sexual aggression via fraternity membership. These apparent socialization effects disappeared once selection effects were included in the model. Similarly, the magnitude of the relation between fraternity membership and later sexual aggression was much smaller with selection effects in the model. These results underscore the importance of controlling for selection effects when studying socialization questions.

Limitations and Future Directions

This study highlighted selection and socialization effects for sexual aggression among fraternity members, contributing to our knowledge of potentially modifiable risk factors within this population. However, important assessment-related limitations must be considered. First, we used only two nonstandard items to assess sexual aggression, and these items did not distinguish verbal coercion, physical coercion, and incapacitation tactics. Second, we used
Abbreviated measures of other constructs (e.g., sociosexual attitudes). Third, our binge drinking measure did not specify the time period over which drinks were consumed. These concessions were necessary as the current data were collected as part of a larger study of risk behaviors during the transition to college, and more comprehensive standard assessments would have made the surveys prohibitively long.

Thus, future research should evaluate a more comprehensive battery of potential selection and socialization factors than were evaluated here or in Kingree and Thompson (2013). A more comprehensive battery would include not only measures of binge drinking, sociosexual behavior, and sexual aggression, but also descriptive and injunctive norms for each. The degree of fraternity involvement should also be assessed for each individual, as it may influence the magnitude of socialization effects. Additionally, the frequency of bar-party attendance should be included, as this contextual factor may be more strongly related to sexual aggression than alcohol consumption per se (Cleveland et al., 2019, Testa & Cleveland, 2017), and fraternity membership may serve as a marker for or predictor of bar/party attendance.

It is also important to note that the latent difference score model fit in the current work cannot fully disaggregate between- and within-person aspects of the prospective relations among selection factors, fraternity membership, and sexual aggression (Mund & Nestler, 2019). Consequently, we cannot say with confidence that changes in the proposed mediators reflect individual-level changes that are independent of stable individual differences in these variables. We were unable to use approaches that better disaggregate between- and within-person effects (e.g., cross-lagged panel models with random intercepts, latent curve models with structural residuals) given the nature of our data (three waves of data with dichotomous predictors and outcome variables). In fact, we were not able to get one of our latent difference score models to converge with a full 5,000 bootstraps due to the dichotomous predictors and outcomes and low base-rates of sexual aggression, which led to a relatively sparse data matrix. This also resulted in relatively large changes in the statistical reliability of relations between fraternity membership and later sexual aggression, despite small changes in odds ratios. Constraining relations between fraternity membership and later sexual aggression in Years 1 and 2 of college improved estimation and identified a reliable relation between fraternity membership and later sexual aggression, but the selection model still produced unreliable standard errors with 5,000 bootstraps. Given these issues, future work in this area should increase substantially the number of fraternity men, as well as the number of waves of data collection, which presumably would afford estimation of more complex models that would enhance our understanding of the selection and socialization effects of fraternity membership on sexual aggression.

Despite these limitations, the findings of the current study, in conjunction with those of Kingree and Thompson (2013), may be used to inform future sexual-assault prevention efforts. Further development and evaluation of prevention strategies targeting sexually aggressive behavior among college men, particularly those at greater risk because of fraternity membership, is a critically important future direction. As of 2013, Congress requires that every federally funded college campus provide sexual-assault prevention programs (see https://www.congress.gov/bill/113th-congress/senate-bill/47). Unfortunately, the effectiveness of existing prevention programs for college men has been discouraging (DeGue et al., 2014; Newlands & O’Donohue, 2016), and rates of sexual assault on college campuses have remained alarmingly high (Cantor et al., 2019).

Of critical importance to prevention efforts for college men, this is the second appropriately controlled longitudinal study to demonstrate that being a fraternity member indeed is associated with a greater risk of exhibiting sexual aggression in the future. This provides strong justification for prevention efforts that target this high-risk population of men. Given that both binge drinking and sociosexual attitudes were indirectly associated with future sexual aggression via fraternity membership in the current study, it may be useful to target men who express interest in fraternity membership prior to its formal pursuit. As initiation into fraternities often takes place during the first semester of freshman year, prevention efforts implemented early in the fall of the first year may hold particular promise. An alternate and potentially more socially acceptable approach might be to target men who engage in binge drinking (or who frequent bars and parties) and who report unrestricted sexual attitudes, as extensive literature supports binge drinking as a selection factor for fraternity membership, and the current work implicates sociosexual attitudes.

In addition, prevention efforts at a minimum should target the three direct and indirect prospective correlates of sexual aggression that emerged either in the current study or in Kingree and Thompson’s (2013) study: Binge drinking (both studies), sociosexual attitudes (current study), and injunctive norms for sexual aggression (Kingree and Thompson’s study). Notably, research demonstrates that college men overestimate their peers’ attitudes related to sexual aggression, as well as their peers’ drinking and sociosexual attitudes, and these normative misperceptions are linked to men’s own drinking and sexual attitudes and behaviors (e.g., Bohner et al., 2006; Lewis et al., 2014; Perkins et al., 2005; Zeln et al., 2015). This suggests the utility of providing personalized feedback on the accuracy of relevant peer norms (Berkowitz, 2010), given the significance of peer influences on sexual aggression (Franklin et al., 2012; Swartout et al., 2015; Thompson et al., 2015). Personalized normative feedback is consistently effective in reducing college students’ levels of alcohol use and related problems (Carey et al., 2007; Larimer & Cronce, 2007).

Depending on the target audience for the prevention program, it may be useful to provide feedback based on normative data from college men in fraternities, or those interested in joining fraternities, to decrease the likelihood that feedback from a broader population of college men is dismissed. Prevention programs targeting the broader population of college men have already begun to incorporate these methods (e.g., Berkowitz et al., 2010; Gidycz et al., 2011; Orchowski et al., 2018).

In conclusion, the current longitudinal work demonstrates that fraternity membership is associated with a substantially greater risk for future sexually aggressive behavior (see also Kingree & Thompson, 2013). Both binge drinking and more favorable attitudes about casual sex correlate indirectly with future sexual aggression via fraternity membership, and sociosexual attitudes are also directly related to future sexual aggression. The current work also underscores the importance of simultaneously examining selection and socialization hypotheses, as both binge drinking and sociosexual attitudes emerged as reliable selection factors. Indeed, a model that evaluated socialization hypotheses while excluding selection effects produced several “false-positive” conclusions about the socializing effects of fraternity membership. Overall, it will be important to redouble our efforts to reduce the risk behaviors of college men in fraternities.
efforts to understand the nature of the socializing effects of fraternity membership on sexual aggression, as well as to evaluate the utility of incorporating normative feedback on relevant drinking and sexual attitudes and behaviors into prevention efforts with fraternity men. We hope the current study will encourage others to address these critical questions as there is much work to be done to reduce the tremendous burden of sexual aggression on college campuses.

Data Transparency Statement

The data utilized in the manuscript are from a large study of risk behaviors during the transition from high school through the college years. This study included an initial survey in the summer prior to college, and additional surveys each semester through the fall of the fourth year of college. Additional surveys were completed in the fall of years 5 and 6. A subsample of participants also completed 30 days of daily diaries across the college years. A total of 53 prior publications have resulted from this rich data set. Many of the prior publications have addressed binge drinking, but only five have addressed intimate partner aggression and only three have addressed sexual aggression. Of the three that addressed sexual aggression, the first exclusively used the daily diary data which were not used in the current study. The second used the same survey data used in the current study but was cross-sectional, using only the high-school data. In addition, this article utilized sexual aggression and alcohol use as predictors of perceived emotional and social consequences of sexual aggression and therefore did not examine effects of alcohol use on sexual aggression. The third also used the survey data employed in the current manuscript and demonstrated that alcohol use in high school predicted later sexual aggression. Other findings from this article addressed sensation seeking and impulsivity and their interactions with alcohol use in relation to sexual aggression. None of the prior articles from this data set have examined the role of fraternity membership, perceptions of peer sexual aggression, or sociosociality in relation to sexual aggression. The only real overlap with prior articles is the one prior study showing a prospective main effect of alcohol use on sexual aggression, a finding that has been demonstrated consistently in the literature. Thus, the focus here on factors associated with selection and socialization into fraternities and their roles in sexual aggression is quite distinct from any prior publications from this data set.

References


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