Sex Roles

Process-Based Consent Among College Men: The Interactive Influence of Hostility Toward Women, Perceived Peer Norms, and Alcohol-involved Sexual Consent Attitudes

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COVER LETTER w/ all Authors Email Addresses

March 18, 2024

Dear Dr. Calogero,

We are writing to submit our manuscript for consideration in *Sex Roles.* This paper bridged the sexual aggression and consent literatures to clarify the interplay between gendered attitudes and perceived peer norms in shaping college men's process-based consent values and behaviors.

Of note, our study materials and analytic code have been made publicly available via Open Science Framework (OSF) and included as Supplemental Information. The masked registration and OSF project can be accessed using this Anonymized View-Only Link: https://osf.io/zxrjp/?view_only=89295c61cb5f415c9f9526df9352d517.

The following links are to supplemental files referenced in the manuscript (all masked for peer-review):

- Online Resource 1, transparency report
- Online Resource 2, flowchart of response retention
- Online Resource 3, power analyses
- Online Resource 4, descriptives, alphas, and correlations
- Online Resource 5, hierarchical regressions and assessment of multicollinearity

Thank you for considering our work for review and potential publication in *Sex Roles*.

Sincerely,

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Process-Based Consent Among College Men: The Interactive Influence of Hostility Toward Women, Perceived Peer Norms, and Alcohol-involved Sexual Consent Attitudes

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Declarations

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This research with human subjects was approved by the Institutional Review Board. Informed consent was obtained from all participants electronically and documentation of consent was waived.

Study materials and analytic code are publicly available via Open Science Framework and can be accessed using this Anonymized View-Only Link created for masked peer review: https://osf.io/zxrjp/?view_only=89295c61cb5f415c9f9526df9352d517

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Process-Based Consent Among College Men: The Interactive Influence of Hostility Toward Women, Perceived Peer Norms, and Alcohol-involved Sexual Consent Attitudes

Abstract

Process-based consent refers to the ongoing consideration of a partner's willingness to engage in sexual activity and continual communication with that partner. Drawing upon research identifying individual-, situational-, and peer-level factors that contribute to men's perpetration of sexual violence, the current study used online survey data and hierarchical linear regression to examine how hostility toward women, perceived peer support for abuse, and permissive attitudes toward sexual experiences involving alcohol use influence process-based consent among college men (*N* = 463; Mage = 19.32; 64% white, non-Hispanic; 93% heterosexual). Findings revealed all three primary study variables were independently associated with weaker process-based consent while adjusting for fraternity membership, relationship status, and sexual history. A significant three-way interaction indicated that the negative association between permissive alcohol-involved sexual consent attitudes and process-based consent was exacerbated when both hostility toward women and peer support of abuse were high, implying complex relationships between multiple attitudes and beliefs that shape college men's approaches to sexual consent. Interventions that address interactions between personal beliefs and gendered peer group norms concerning alcohol use and sexual behavior may be important for violence prevention and consent education.

Keywords: sexual consent; hostility toward women; masculinity; alcohol; peer influence

Process-Based Consent Among College Men: The Interactive Influence of Hostility Toward Women, Perceived Peer Norms, and Alcohol-involved Sexual Consent Attitudes

Sexual consent has been operationalized in many ways (Anyadike-Danes et al., 2023) but generally can be considered to reflect voluntary participation in a particular sexual behavior within a given context (Willis & Jozkowski, 2019). By extension, process-based consent emphasizes the importance of communicating with sexual partners throughout sexual encounters and beyond the confines of such interactions, with the goal of ensuring that willingness is present over time, mutually understood, and established without coercion (Glace et al., 2020). The absence of sexual consent is used to define sexual violence across various domains such as law, policy, and education (Basile et al., 2022; Beres, 2007), and consent education has garnered attention from postsecondary institutions as a mechanism for preventing sexual violence (Beres, 2014; Jozkowski, 2015). The present study examined attitudes and perceived peer norms related to process-based consent among men, who are most likely to perpetrate sexual violence on college campuses (Sinozich & Langton, 2014).

Process-Based Consent Values and Behaviors

Traditionally, sexual consent was delineated by the presence or absence of explicit verbal agreement. Cultural rhetoric reinforced this model, depicting consent as a social transaction wherein a "yes" must be obtained before proceeding to sexual behavior, a now widely-held notion that fails to capture how consent may evolve or be withdrawn at any time (Beres, 2014; Muehlenhard et al., 2016). Yet representations of sexual behavior in popular films, television programs, and pornographic content often portray a different approach, one relying on implicit, nonverbal sexual consent cues (Gronert et al., 2023; Willis et al., 2020). Research suggests the latter is more representative of how university men initiate and progress through heterosexual encounters. University men have described verbal consent communication as "weird" and report that it "kills the mood" when a man asks for sex

(Jeffrey & Barata, 2020, p. 362). To suggest that verbal consent communication disrupts the flow of normative heterosexual encounters aligns with adjacent work illustrating that university men tend to view sexual consent as a one-time event that precedes sexual activity, takes place in social settings, and can thus be interpreted or otherwise assumed from contextual cues (Jozkowski et al., 2018; Jozkowski & Willis, 2022). This is cause for concern as perceptions of consent as a prerequisite to sexual activity might unconsciously absolve people, particularly heterosexual men, of the responsibility to remain attentive to their partner's body language, potentially placing women in a position of having to resist unwanted escalations (Jeffrey, 2022; Jeffrey & Barata, 2020).

Ongoing approaches to consent create space for fluctuations in willingness to be communicated verbally and nonverbally (e.g., through body language that signals discomfort) when such cues are attended to over time. This is critical, as individuals often experience unwanted sexual intercourse after consenting to less-intimate sexual activities (e.g., Fantasia, 2011), demonstrating the importance of revisiting consent throughout partnered sexual encounters. How one comes to understand a partner's sexual consent cues may rely on communication both in and out of the bedroom. Referred to as communicative sexuality, this tenet of process-based consent highlights the values and behaviors involved in expressing one's own sexual desires, boundaries, and comfort levels, and honoring sexual partners' expressions of the same (Glace et al., 2020). Communicative sexuality can encompass dialogue about when and why a partner's willingness to participate in a given sexual behavior may vary from day to day or place to place, which is crucial to process-based consent because certain situations (e.g., moving from a public to private setting) more often prompt assumptions about others' intentions to engage in sexual activity (see Jozkowski & Willis, 2022; Holmström et al., 2020). Instead of making inferences, conversation between partners may help individuals contextualize situational cues as well as explicit and implicit forms of

consent communication, so that assumptions about sexual preferences are not taken for granted and messages conveyed through body language are interpreted with accuracy.

However, ongoing attention and dialogue regarding sexual desires and boundaries is not sufficient for ensuring mutually wanted sexual experiences. Recognition of cues that might signal reluctance and subsequent communication about how to proceed must take place when the individual intends to prioritize their partner's comfort and, if indicated, adjust their behavior accordingly. Process-based consent therefore relies on the absence of even the subtlest forms of sexual coercion (Glace et al., 2020), which is defined here as the use of guilt, manipulation, repeated requests, or other tactics not requiring incapacitation or physical force to pressure an unwilling partner into engaging in sexual behavior (DeGue & DiLillo, 2004). Coercion can take place during mutually-wanted sexual encounters that begin with freely-given consent when one partner uses coercive tactics to escalate sexual behavior beyond the other's comfort level (e.g., pressuring someone to orgasm; Chadwick & vanAnders, 2022). Experiencing sexual coercion predicts negative consequences for the relationship as well as the victim's mental health and sexual function (Chadwick et al., 2022), highlighting the importance of accounting for verbal and psychological coercion in the context of process-based consent. Yet immediate partner pressure is not the only means through which a coercive sexual experience can occur; women also cite forms of social coercion among core reasons for acquiescing to unwanted sexual activity (Conroy et al., 2015), such as expectations to enact sexual scripts.

Sexual Scripts and Social Norms

Individual differences in process-based consent practices may reflect underlying sexual scripts, which draw on culturally-defined core beliefs to unconsciously guide expectations of sexual experiences (Simon & Gagnon, 1986; Wiederman, 2015). These sexual scripts reproduce traditional gender norms and have notable influence that spans

international borders, from the United States to Canada as well as Mexico, Australia, Ireland, and the UK (Burns, 2018; Healy Cullen, 2023; Jeffrey, 2022; Jozkowski & Peterson, 2013; Kollath-Cattano, 2018; Maxwell, 2007). American scripts in particular dictate that men initiate sexual contact, women act as gatekeepers of sexuality, and men continue to pursue sexual engagement when faced with refusals from women (Jozkowski et al., 2014). Thus, heterosexual scripts about "token resistance"—where women initially express reluctance despite intending to engage in sex—may lead some men to assume a seemingly disinterested woman will eventually say yes and use this logic to justify more persistent advances (Muehlenhard, 2011; Osman & Davis, 1999). For example, in anticipation of token resistance from women, heavy-drinking college men have reported "trying and trying again" (p. 13) to pursue a sexual encounter without recognizing this is coercive (Orchowski et al., 2020b).

Alcohol-induced impairment can diminish one's ability to give or obtain consent (Drouin et al., 2019) and alcohol use is strongly associated with sexual assault perpetration and victimization (Abbey, 2002, 2011a; Lorenz & Ullman, 2016). Yet drinking to have sex remains a highly normative, socially mandated form of recreation on college campuses where alcohol affects sexual consent processes in several ways (Herbenick et al., 2019; Hirsch et al., 2019). Alcohol consumption might impede active consent communication, as emerging adults who engage in heavy drinking rely more on the use of context to infer sexual consent than on the use of verbal or nonverbal cues (Marcantonio et al., 2022). Campus norms tend to promote drinking together as a context within which students–particularly men–can assume sexual consent (Jozkowski et al., 2018). When men are drinking alcohol they are more likely to perceive women who are also drinking alcohol as higher in sexual interest (Farris et al., 2010), or when they have sex-related alcohol expectancies that alcohol will make sexual situations easier and more enjoyable (Abbey et al., 2003; George et al., 2000; Marcantonio & Jozkowski, 2021). Collectively, these findings suggest that more permissive attitudes toward

alcohol-involved sexual consent may undermine communicative, ongoing consent practices among college men.

Yet no singular variable is presumed to exclusively determine how college men negotiate sexual consent, necessitating research that explores how sexual scripts and gender norms influence sexual behavior in alcohol-laden environments. For example, increased frequencies of sexual aggression have been observed among men with hostile sexist attitudes who engaged in heavy episodic drinking (Lisco et al., 2012), and heavy-drinking college men have reported frequenting drinking venues to locate women they presumed would be open to their sexual advances based on shared alcohol use (Orchowski et al., 2020b). These findings are notable in light of longitudinal research that suggests a higher frequency of bar and party attendance increases the likelihood of sexual assault perpetration more so than a greater quantity of alcohol consumed (Testa & Cleveland, 2017), implicating attitudes toward women and alcohol use in addition to the effects of intoxication alone.

Gendered social norms baked into sexual scripts may play a role in shaping sexual consent practices, or lack thereof, as these unwritten rules prescribe which behaviors are considered typical and desirable for men and women (Fenner, 2017). In fact, empirical research informed by social norms theory and centered on men has revealed multiple masculinities associated with attitudes and standards of behavior that serve the overall subordination of women in society (Wedgwood et al., 2022), including hostile and hyper masculine norms (Malamuth et al., 1991; Mosher & Sirkin, 1984). Examinations of sexual consent among college men have revealed associations between endorsement of hostile masculine norms and more negative consent attitudes, as well as a greater reliance on nonverbal cues to determine consent (Hermann et al., 2018). Hyper masculine norms that emphasize power and dominance also have been shown to socialize men in ways that promote hostility toward women, and men with high levels of hostility toward women have

been identified as especially likely to perpetrate sexual aggression (Hudson-Flege et al., 2020; Murnen et al., 2002; Ray & Parkhill, 2023).

Given the need to better understand how multiple interrelated factors influence sexual behavior and the perpetration of sexual violence, researchers have developed models to explain these complex phenomena. The Confluence Model of Sexual Aggression focuses on heterosexual men as perpetrators of sexual aggression and contends that men perpetrate against women due to a convergence of attitudinal and behavioral risk factors. Specifically, this model posits that the interaction between hostile masculinity (i.e., hostility toward women) and impersonal sex (i.e., frequent, noncommittal sexual encounters with little if any emotional intimacy) is most predictive of sexual aggression, such that men who are high in both are most likely to perpetrate (Malamuth et al., 1991, 1993). Extensions of the Confluence Model also have tested the addition of an alcohol pathway, demonstrating that hostility toward women and impersonal sex interact with alcohol-related factors in ways that predict sexual aggression (Abbey et al., 2011b; Parkhill & Abbey, 2008).

Further research among college men has shown that conformity to hyper masculine norms (i.e., power, dominance, strength, entitlement) and greater peer support of abuse predict less comprehension of sexual consent, which mediates the relationship between these variables and sexual aggression (Warren et al., 2015). Peer influence is thus an interpersonal factor that may be important to consider in regard to process-based consent, as peer group norms can affect individual beliefs and behaviors. Rape-supportive attitudes within one's peer network have been shown to influence individual college men's hostility toward women (Kaczkowski et al., 2017; Swartout, 2013), and those who perceive their peers to support the use of sexually coercive behaviors may be more likely to engage in sexual coercion themselves, as research suggests friends' approval of forced sex may be directly related to the perpetration of sexual aggression against casual partners (Pegram et al., 2018).

Like Malamuth's Confluence Model, the Integrated Model of Sexual Aggression is a multifactorial framework for understanding causal pathways to sexual violence perpetration, one that emphasizes the contributions of perceived peer-group norms that support sexist attitudes and sexually aggressive tendencies (Orchowski & Berkowitz, 2022). Support for this model and the role of peer influence can be found in research demonstrating sexual aggression often manifests in groups of male peers that reinforce hostile masculine attitudes (Dardis et al., 2016). Prior research suggests one group with such dynamics is Greek fraternities (Murnen & Kohlman, 2007), as greater conformity to masculine norms (e.g., risk-taking, violence, dominance, power over women), perceived pressure to conform to masculine stereotypes, and objectification of women have been identified as mediators through which fraternity men are socialized to accept sexual violence (Seabrook et al., 2018).

Sociodemographic characteristics besides fraternity membership may also play a role in how individuals conceptualize and communicate consent. People in committed relationships may perceive less of a need to explicitly communicate consent because of an established foundation of trust (Humphreys, 2007), or as sexual precedent theory suggests, they may believe engaging in consensual sex at one point in time implies consent to later sexual encounters with that person (Willis & Jozkowski, 2019). And given that some college students may perceive sexual consent as a function of prior intimacy between sexual partners, individuals who have not previously had at least one consensual sexual encounter also may have different ideas about what constitutes process-based consent (Humphreys, 2007).

Current Study

Few scholars have conducted research focused on correlates or moderators of process-based consent, and we are aware of no studies that have examined this operationalization of consent in the context of hostility toward women, alcohol-involved sexual consent, and perceived peer norms in support of abuse. Recognizing this gap, we conducted a cross-

sectional study in a predominantly heterosexual sample of college men to assess how individual attitudes and perceptions of peer norms influence process-based consent. Our analysis focuses on testing the following hypotheses about the independent and interactive effects of these variables, while controlling for potentially confounding factors such as fraternity membership, relationship status, and sexual history.

Hypothesis 1

We hypothesized that each of the three primary study variables – permissive alcohol-involved sexual consent attitudes (H1a), hostility toward women (H1b), and peer support of abuse (H1c) – would have independent negative associations with process-based consent and these associations would persist after adjusting for covariates and other main effects.

Hypothesis 2

Our second hypothesis concerned two-way interactions between primary study variables while adjusting for all other variables in the model (e.g., covariates, main effects, other two-way interactions). Specifically, we hypothesized that (H2a) the negative association between permissive alcohol-involved sexual consent attitudes and process-based consent would be stronger when hostility toward women was high; (H2b) the negative association between permissive alcohol-involved sexual consent attitudes and process-based consent would be stronger when perceived peer support of abuse was high; and (H2c) the negative association between hostility toward women and process-based consent would be stronger when peer support of abuse was high.

Hypothesis 3

Building on the two-way interactions in Hypothesis 2, our third and final hypothesis examined the three-way interaction between primary study variables while controlling for all main effects, two-way interactions, and covariates. We predicted that the negative association between permissive alcohol-involved sexual consent attitudes and process-based consent

would be strong when both hostility toward women and peer support of abuse were high, and low when peer support of abuse was low.

Method

Research Transparency

We have adhered to high standards of research integrity and transparency in this study while also prioritizing the confidentiality and welfare of our participants. To protect sensitive data, including self-reports of sexual coercion, from subpoena, we obtained a Certificate of Confidentiality from the National Institutes of Health (NIH). Our primary concern was to create a virtual environment where participants felt secure enough to provide honest and accurate responses. This confidentiality guarantee was crucial for the ethical conduct of our research and for maintaining the trust of our participants. As a result, the raw data from this study will not be made publicly accessible. However, we value open science and maximized research transparency through alternative means. Our transparency checklist (Online Resource 1) and analytic code have been made publicly available via Open Science Framework (OSF) and included with this article as online resources. Analytic code is provided in knitted html versions of RMarkdown scripts that can be used to view analyses and output in a web browser without any analysis software needed.

Participants

The initial sample consisted of 571 undergraduate students from a large public university in the midwestern United States. Study participants were recruited from Greek life fraternity organizations and an online subject pool of students taking introductory psychology courses. Eligible research subjects were undergraduate students who consented to participate, self-identified as men, and reported being at least 18 years old. Women, as well as students identifying as nonbinary or genderqueer, were not eligible for participation because our

primary study aims involved constructs pertaining to masculine gender role socialization. Students from both recruitment channels who did not meet eligibility criteria were screened out of the Qualtrics survey (n = 41), which began with a three-item eligibility check. To ensure the independence of observations, students recruited through the Psychology subject pool who endorsed current fraternity membership were not permitted to participate (n = 24), and duplicates submitted by participants with preexisting responses were removed (n = 18).

To recruit participants involved in Greek life, we emailed executive board leadership representing three fraternity councils with a presence on campus (i.e., the National Pan-Hellenic Council, the Multicultural Greek Council, and the Interfraternity Council) and asked each council's student leaders to forward the email to their members. The research team stated in these emails that our lab was seeking participants for an online survey study on alcohol-related sexual experiences among college students, including unwanted experiences. We included information about the incentives to participate, investigators' contact details, and the survey's web address. The final analytic sample (N = 463) consisted of undergraduate men between the ages of 18 and 32 (M = 19.32, SD = 1.52; 99% ages 18 - 22) and was relatively homogenous in terms of race/ethnicity and sexual orientation. Specifically, 64% of study participants identified as white and non-Hispanic, and 93% identified as heterosexual. Sociodemographic characteristics for the current sample are reported in Table 1. Given the importance of reporting demographic heterogeneity (Flanagin et al., 2021), the only categories combined prior to reporting sample demographics in Table 1 were those with numbers small enough to potentially identify study participants (i.e., American Indian, Alaska Native, Native Hawaiian or Pacific Islander; Gay, Bisexual, Queer, or Questioning).

Procedures

The research team used the Qualtrics survey platform to construct a web-administered data collection instrument. After providing informed consent, participants responded to a

series of self-report items assessing sociodemographic variables, process-based consent values and behaviors, risk factors for perpetrating sexual aggression, and psychosocial variables associated with sexual consent. All procedures were reviewed and approved by the Institutional Review Board for research conducted with human subjects. Students enrolled in the Sona subject pool had the option to receive extra credit in their introductory psychology course and participants recruited from fraternities were offered a $20.00 Amazon gift card.

Measures

Sociodemographic Variables

Survey items assessed the following sociodemographic variables: age; race (response options were listed for participants to self-identify from or provide via open text-entry); fraternity membership (coded such that members = 0.5 vs. non-member = –0.5); relationship status (current relationship = 0.5 vs. single = –0.5); and lifetime sexual history (self-reported at least one prior sexual experience = 0.5 vs. no self-reported sexual experience = –0.5).

Hostility Toward Women Scale (HTWS; Lonsway & Fitzgerald, 1995)

The HTWS was used to assess participants' hostile attitudes toward women (e.g., "Sometimes, women bother me by just being around"). Responses were made using a 5–point Likert scale ranging from 1 (*Disagree*) to 5 (*Agree*), with higher mean scores indicating greater levels of general hostility toward women. The HTWS has exhibited good internal consistency (McMahon, 2010; Wheeler et al., 2002) and been found to discriminate between perpetrators and nonperpetrators of sexual assault (Parkhill & Abbey, 2008). In the current study, the HTWS demonstrated good internal reliability ($\alpha = .85$).

Alcohol and Sexual Consent Scale (ASCS; Ward et al., 2012)

The ASCS was used to assess attitudes about sexual consent in the context of alcohol consumption. Response options were on a 7-point Likert scale from 1 (*Strongly Disagree)* to 7 (*Strongly Agree)*, with higher mean scores indicating more permissive alcohol and sexual

consent attitudes and greater approval of alcohol-involved sexual consent experiences (e.g., "As a general rule, alcohol makes sexual situations easier and more enjoyable for both men and women"). The ASCS exhibited strong psychometric properties in prior research conducted among university students in the United States, with positive correlations observed between ASCS scores and acceptance of rape myths, acceptance of sex role stereotypes, and self-reported histories of sexual coercion (Ward et al., 2012). In the current study, the second ASCS item (i.e., "A person who is sexually assaulted after drinking alcohol should only blame him- or herself") degraded scale consistency ($\alpha = .70$); this item was removed and internal reliability improved ($\alpha = .73$).

Peer Support of Abuse Scale (PSA; DeKeseredy, 1988)

The PSA scale was used to assess the degree to which an individual perceives his peers to uphold hostile masculine norms encouraging the transactional abuse of women for sexual gratification. Respondents rated each item on a 5-point Likert scale ranging from 1 (*Disagree*) to 5 (*Agree*), with higher scores reflecting a higher degree of support for abuse and sexual instrumentalism of women among the respondent's peers. The scale items are: "Would your male friends agree or disagree: (1) Your dates or girlfriends should have sex with you when you want; (2) If a man spends money on a date, she should have sex with him in return; (3) You should respond to your dates' or girlfriends' challenges to your authority by insulting them or putting them down." The third item degraded scale consistency ($\alpha = .70$); this item was removed and internal reliability improved ($\alpha = .75$). The resulting mean score reflected perceptions that peers support using women for sex.

Process-Based Consent Scale (PBCS; Glace et al., 2020)

The PBCS is a 17-item scale used to assess participants' process-based sexual consent values and behaviors. Participants responded to each scale item on a 7-point Likert scale from 1 (*Strongly Agree*) to 7 (*Strongly Disagree*). Responses were summed across all scale items

to calculate a PBCS total score, with higher scores indicating higher levels of process-based consent endorsement across three domains: Ongoing Consent, five items that measured the extent to which a participant endorses operationalizations of consent that extend over time (e.g., "I pay attention to my partner's body language during sexual encounters to be sure that they want to have sex"); Communicative Sexuality, six items that measured the extent of participants' comfort with explicit communication during and about sex (e.g., "I ask my partner what they want sexually"); and Subtle Coercion, six items that measured the extent to which a participant endorses tactics and behaviors intended to verbally pressure a potential sexual partner into engaging in sexual activity. The items from this subscale are reverse-coded such that lower levels of coercion indicate higher levels of process-based consent (e.g., "When my partner says they do not want to hookup, I try to change their mind"). In the current sample, the internal consistency of the total PBCS was $\alpha = .87$, with subscale alpha values ranging from .80 (Communicative Sexuality) to .91 (Ongoing Consent).

Data Analytic Approach

Analyses were conducted in R version 4.3.0 (R Core Team, 2021) using RStudio (RStudio Team, 2020) and the *tidyverse* ecosystem of packages (Wickham et al., 2019). Survey responses less than 35% complete were removed (n = 15). Next, data quality was assessed for carelessly invalid responses with several metrics reviewed in sequence to identify participants employing insufficient effort (Curran, 2016). Specifically, responses with incorrect answers on both attention check items and evidence of straightlining were removed (n = 10). To view a flowchart of response retention, see Online Resource 2.

To ensure our sample size was sufficient, we conducted a power analysis using the pwr.f2.test function from the pwr package (Champely, 2020), targeting a hierarchical linear regression model with 11 parameters: the intercept, three covariates, three main effects, three two-way interaction terms, and one three-way interaction term. A conservative, small effect

size was chosen ($R^2 = .037$, converted to $f^2 = .04$) based on patterns observed in similar research (Krstic et al., 2016) and in recognition that the additional variance explained by a three-way interaction, beyond main effects and lower-order interaction terms, might be limited. With an alpha level set at .05 and a power level at .80, this analysis indicated a necessary sample size of 418. To view power analyses, refer to Online Resource 3.

The research team computed descriptive statistics, calculated internal consistency scores using the alpha function from the psych package (Revelle, 2023), and mean-centered all continuous variables. Skewness and kurtosis of the data were evaluated to ensure the outcome variable was normally distributed and bivariate associations were examined. To view a knitted html version of the RMarkdown script containing analytic code and output for descriptives, alphas, and correlations, refer to Online Resource 4. Dichotomous covariates were contrast-coded over zero, an alternative to dummy coding for representing variables with two categories. Contrast coding is particularly useful for hypothesis testing as the values are symmetrical around zero (i.e., -0.5 and 0.5), making it easier to interpret regression coefficients (e.g., Brauer & Curtin, 2018). In this case, the coefficient provides the average difference between the two categories, and the intercept reflects the grand mean (i.e., the mean across both categories).

Hierarchical linear regression was used to test hypotheses, with covariates (fraternity membership, sexual history, relationship status) entered into Step 1, mean-centered primary study variables (alcohol-involved sexual consent, hostility toward women, perceived peer support of abuse) entered into Step 2, all possible two-way interactions entered into Step 3, and the three-way interaction entered into Step 4. Process-based consent served as the outcome, with higher mean scores indicating stronger process-based consent.

Multicollinearity was assessed quantitatively using the vif function from the car package (Fox & Weisberg, 2019). For Step 4, which included the three-way interaction term,

all possible two-way interaction terms, all main effects, and covariates, generalized variance inflation factors (GVIFs) and $GVIF^{(1/(2*df))}$ were evaluated to account for factors with multiple degrees of freedom (Fox & Weisberg, 2019). For Step 2 of the hierarchical regression, which included main effects and covariates, VIFs were calculated to provide a comprehensive view of multicollinearity across the different model complexities (Fox & Weisberg, 2019). A knitted html version of the analysis script containing hierarchical regressions for hypothesis testing, as well as the assessment of multicollinearity, is included in Online Resource 5.

Results

Preliminary Analyses

Process-based consent mean scores achieved acceptable normal distribution with values for asymmetry and kurtosis between -0.99 and 0.84, which are within recommended ranges of ±2 (George & Mallery, 2010). All GVIFs and VIFs were less than 2.5, suggesting that multicollinearity was not an issue in the present analyses (Fox & Monette, 1992; Kutner et al., 2005). Descriptive statistics and bivariate correlations are presented in Table 2.

Test of Hypotheses

For Hypothesis 1, that primary study variables would be independently, negatively associated with process-based consent values and behaviors while adjusting for covariates, more permissive alcohol-involved sexual consent attitudes (β = -0.43, $p < .001$), higher levels of hostility toward women (β = -0.18, $p < .001$), and higher levels of peer support of abuse (β = -0.17 , $p < .001$) were each negatively associated with process-based consent while adjusting for the effects of relationship status, sexual history, and fraternity membership.

Contrary to Hypotheses 2a, that alcohol and sexual consent attitudes would interact with hostility toward women such that those high in both would endorse fewer process-based consent values and behaviors, a significant two-way interaction between alcohol-involved

sexual consent attitudes and hostility toward women was not observed when adjusting for all other predictors entered into Steps 1 and 2. Similarly, Hypothesis 2c was not supported, as we did not observe a significant two-way interaction between hostility toward women and peer support of abuse while controlling for covariates, main effects, and both of the other two-way interaction effects. However, in line with Hypothesis 2b, a significant two-way interaction between approval of alcohol-involved sexual consent and peer support of abuse emerged ($\beta = -0.17$, $p < .001$), suggesting the negative influence of permissive attitudes may be inhibited when peers condemn exploitative views of women and sex.

Consistent with Hypothesis 3, that the negative association between permissive alcohol-involved sexual consent attitudes and process-based consent would be differentially influenced by levels of hostility toward women and peer support of abuse, a significant three-way interaction emerged ($\beta = -0.12$, $p = .049$). As can be seen in Figure 1, the slope of the line representing the negative association between permissive alcohol-involved sexual consent attitudes and process-based consent was steeper when levels of hostility toward women and peer support of abuse were high (i.e., 1 standard deviation above the mean). This negative relationship was less pronounced when hostility toward women and peer support of abuse were low (i.e., 1 standard deviation below the mean). All results of hierarchical regressions for process-based consent are presented in Table 3.

Discussion

The goal of this study was to examine how permissive attitudes toward alcohol-involved sexual consent, hostility toward women, and perceived peer norms in support of abuse independently and interactively influence process-based consent among college men. Findings indicated that men with greater approval of alcohol-involved sexual consent experiences were less likely to endorse values and behaviors consistent with process-based consent, particularly those with high levels of hostility toward women who believe their peers

hold similarly hostile attitudes in regard to women and sex. These findings support theory and empirical evidence linking alcohol-related beliefs and behaviors, hostile masculinity, and peer influence to men's consent attitudes and sexually aggressive behavior.

College men with permissive alcohol-involved sexual consent attitudes may hold more positive sex-related alcohol expectancies, which is associated with more frequent engagement in sexual and drinking behaviors (Florimbio et al., 2018; White et al., 2009). These men might be more likely to engage in frequent, impersonal sexual relationships and seek out drinking environments to target women they perceive as open to sexual advances without taking much interest in their prospective partner's desires, comfort, or pleasure (Orchowski et al., 2020b). Thus, higher levels of general misogyny coupled with impersonal, alcohol-facilitated sexual encounters may contribute to the devaluation and objectification of potential partners, making it more challenging to respect their autonomy and exacerbating a disregard for empathy and clear communication, which are central to process-based consent (Glace et al., 2020). While permissive alcohol-involved sexual consent attitudes and hostility toward women did not have an interactive association with process-based consent after controlling for other two-way interactions, the negative association between alcohol-involved sexual consent and process-based consent was exacerbated when levels of individual hostility and peer support of abuse were high.

Young adults' sexual behaviors often reflect what they perceive to be their peers' sexual attitudes and behaviors (Johnson & Hoover, 2015), so men who think their peers believe women owe them sex may be more likely to conform to social norms antithetical to process-based consent. Decades of theory and empirical literature support this model, arguing that sexual entitlement and patriarchal notions of masculinity (e.g., hypermasculinity) may encourage broader social acceptance of heteronormative sexual scripts framing consent as a game men must win, the last hurdle to surpass for a successful sexual conquest (DeKeseredy,

1988; Franklin et al., 2012; Holland, 2006; Schwartz & DeKeseredy, 1997). These findings align with work showing that young men who perceive more pressure from their friends to have sex also may feel less comfortable with their friends making egalitarian statements about women, may use more objectifying statements when describing their friends' views of women, and may be more likely to report a past-year instance of making a woman engage in sexual activity when they knew she was unwilling or unable to consent (Jacques-Tiura et al., 2015). By extension, group dynamics within a social context that supports using women to gain sexual pleasure and respect from peers might be most influential among men with greater intrapersonal hostility toward women, compelling them to align with peer group norms by condoning and pursuing more alcohol-involved sexual experiences (Thompson et al., 2011), thereby amplifying the respective effects of these individually-held attitudes and further compromising process-based consent.

Limitations and Future Research

The use of a cross-sectional design limited our ability to determine whether attitudes toward alcohol-involved sexual consent, hostility toward women, and perceived peer norms in support of abuse cause fluctuations in process-based consent. Moreover, recent research suggests that more than half the variance in internal consent feelings and external consent communication manifests at the within-person level (Willis et al., 2021) and situational factors, including geospatial (i.e., physical spaces such as dormitories or parties) and temporal (e.g., time of day or day of week) contexts, can influence whether explicit consent communication is likely to occur (Gantman & Paluck, 2022; Hirsch et al., 2019). Future research could test whether our findings extend across sexual events and spatial contexts using longitudinal or experimental designs that allow for the examination of temporal sequencing and within-subject fluctuations in process-based consent from one sexual encounter to another. For example, study designs utilizing experience sampling methodology

or ecological momentary assessment can reduce the impact of recall biases inherent to retrospective self-report measures. This approach could provide insight as to the stability and variability of consent-related factors within individuals and pinpoint potential influences that may contribute to changes in attitudes and behaviors over time.

Although we examined attitudinal factors in the current study, future research should examine behavioral factors like impersonal sex or alcohol consumption to better understand sexual consent dynamics and risk factors that may compromise process-based sexual consent (Abbey et al., 2011b; Jacques-Tiura et al., 2007; Parkhill & Abbey, 2008). The current study was also limited in how it measured alcohol and sexual consent attitudes and behaviors. While a valid and reliable measure was used, its face validity might have led to an oversimplification of complex topics, potentially influencing respondents to provide socially desirable responses. The items on the measure may not fully encapsulate current sexual consent discourses among college students, particularly regarding the understanding of consent as an affirmative, ongoing process. Furthermore, the measure's framing could seem out of touch with contemporary views on sexual assault dynamics and legal definitions of consent, especially in the context of alcohol use. Future research could attend to these limitations by validating a nuanced and contemporary measure of attitudes toward sexual consent in drinking contexts.

Constraints on Generality

Despite efforts to recruit men from traditionally African American and multiethnic fraternities, 64% of our final sample self-identified as solely white, which is consistent with the demographics of this primarily white institution (Data USA, 2020). Findings may not generalize to men at other universities, including those with greater racial and ethnic diversity. To advance more equitable and inclusive science (Buchanan et al., 2021; Klein et al., 2022), future research should consider tailoring recruitment emails to address the specific

concerns of multiracial and multicultural fraternity organizations. Researchers can also describe how they will prevent the harmful interpretation of study findings and unethical treatment of marginalized groups participating in research (Guthrie, 2004).

Similarly, cisgender and transgender women and non-binary and gender-expansive individuals were not eligible for this study and less than 8% of participants self-identified as gay, bisexual, queer, or questioning. Researchers have suggested that the consent practices of cisgender heterosexual college students are similar to one another and distinct from the consent practices of non-binary and trans students and those who are lesbian, gay, bisexual, and/or queer (Griner et al., 2021; Hirsch et al., 2019), which warrant separate inquiry with sufficient power to examine within-group differences.

Implications

Limitations notwithstanding, the findings from this study have important implications for campus-based interventions. Consent education campaigns have been shown to improve knowledge and attitudes about consent (Bedera, 2021; Hovick & Silver, 2019) and show promise in reducing traditional social norms about sex and gender (Grose et al., 2014). However, the complex interactions we observed emphasize the importance of avoiding a "one size fits all" approach to teaching college students about consent. Consent interventions targeting men should aim to increase mutual consideration for partners as well as awareness of gender norms, and to challenge men's assumptions about the extent to which other men hold rape-supportive attitudes and adhere to hypermasculine ideals (Gidycz et al., 2011; Orchowski et al., 2018; Salazar et al., 2014).

While informative messaging about gender norms, sexual consent, and risks inherent to sexual intercourse following alcohol consumption may increase people's awareness, some evidence suggests that awareness alone may not change behavior (Fabiano et al., 2003). Instead, taking a social norms approach, which involves correcting misconceptions about the

prevalence and acceptability of certain behaviors (e.g., pursuing sexual behavior with someone who is visibly incapacitated and unresponsive to sexual advances) may lead to attitudinal changes. This approach utilizes the influence of peer attitudes and behaviors, leveraging the fact that individuals are more likely to conform to what they perceive as the normative behavior of the group. Interventions grounded in social norms theory have shown promise in reducing sexual aggression among college men who engage in heavy drinking (Fabiano et al., 2003; Orchowski et al., 2023; Orchowski & Berkowitz, 2022), suggesting that a norms approach can help shift men's misconceptions about how alcohol use influences sexual communication and consent. These programs can be more powerful if developed and delivered with and by peers for their own peer groups.

Interventions that increase opportunities to practice skills related to healthy consent negotiation can also be helpful (Orchowski et al., 2020a), not just for the purposes of reducing men's sexually coercive behavior but also with the explicit goal of reducing their likelihood of experiencing sexual coercion. Indeed, college men's exposure to ambiguous consent and sexual assault is not limited to perpetration, given that many also report experiencing unwanted sexual attention and nonconsensual sexual contact (Barnes et al., 2021), as well as both sexual assault victimization and perpetration (Astle et al., 2024; Voith et al., 2020). Gendered social norms about masculinity have been shown to interfere with men's processing of their sexual victimization experiences and to promote maladaptive behavioral responses such as hypersexuality (PettyJohn et al., 2023), which could, in turn, amplify their risk of future violence involvement, particularly when drinking alcohol in sexual situations without using process-based consent strategies. Thus, our findings as contextualized by the broader literature underscore a pressing need for interventions that teach a pragmatic approach to consent, one that acknowledges the role of alcohol and focuses on fostering ongoing attention to sexual consent cues.

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Table 1

Sociodemographic Characteristics (*N* = 463)

	n	%
Age – Mean (SD)	19.32	(1.52)
18	154	33
19	150	32
20	78	17
21	50	11
22+	31	7
Race/Ethnicity		
Asian/Asian American	72	15.25
Black/African American	21	4.45
Hispanic or Latino	57	12.08
Multiracial	9	1.91
Middle Eastern [a]	7	1.48
AI/AN/NH or PI [b]	6	1.28
White, Non-Hispanic	300	63.55
Sexual Orientation		
Gay, Bisexual, Queer, or Questioning	35	7
Heterosexual	438	93
Fraternity Membership		
Member	186	40
Non-Member	277	60
Financial Need		
Pell Grant Recipient	44	10
Non-Recipient	419	90
Relationship Status		
In A Relationship	200	43
Single	263	57
Sexual History [c]		
Experienced	381	82
Inexperienced	82	18

[a] Selected, "A race/ethnicity not listed, please provide below" and reported via open-text entry. [b] AI/AN/NH or PI = American Indian, Alaska Native, Native Hawaiian or Pacific Islander. [c] Sexual history was defined by having at least one prior consensual sexual experience.

Table 2

Descriptive Statistics and Correlations for Study Variables

	M	*SD*	Range	α	1	2	3	4
1. PBC: Process-Based Consent	5.92	0.75	3.12–7.00	.87	–			
2. ASC: Alcohol and Sexual Consent [a]	2.31	0.74	1.00–4.55	.73	–.54***	–		
3. HTW: Hostility Toward Women	1.87	0.65	1.00–4.20	.85	–.40***	.38***	–	
4. PSA: Peer Support of Abuse	1.49	0.81	1.00–5.00	.75	–.33***	.28***	.33***	–

Note. Correlation coefficients were assessed with Pearson's r correlations and two-tailed tests of significance.

[a] Higher ASC scores indicate more permissive attitudes toward alcohol-involved sexual consent (Ward et al., 2012).

*** $p < .001$.

Figure 1

Three-Way Interaction Predicting Process-Based Consent

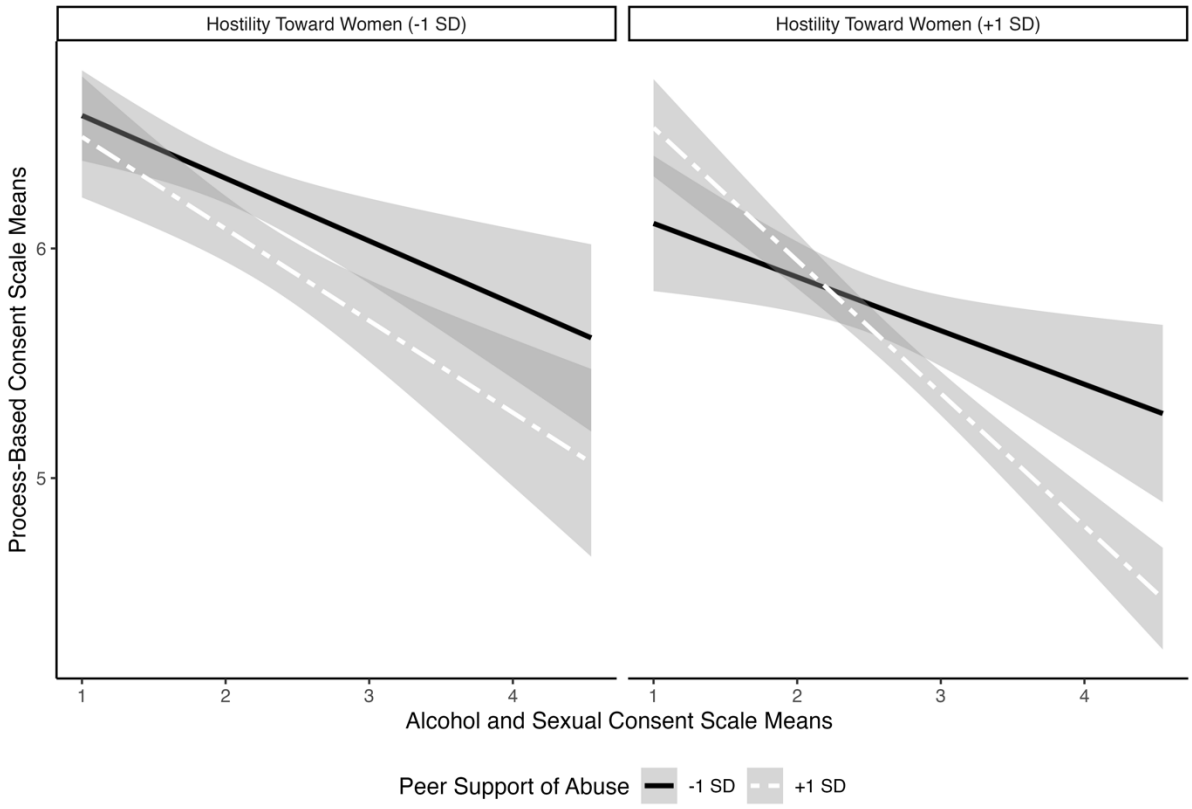

Table 3

Hierarchical Regression Results for Process-Based Consent

				95% CI					
	Variable	*B*	*SE*	*LL*	*UL*	*p*	*F*	R^2	ΔR^2
Step 1								.017	.010
	Sexual History	0.17	.10	-0.03	0.37	.092			
	Relationship Status	0.11	.08	-0.04	0.26	.139			
	Fraternity Membership	-0.01	.07	-0.16	0.13	.870			
Step 2							91.69***	.375	.359
	Sexual History	0.20	.08	0.04	0.36	.014*			
	Relationship Status	0.11	.06	-0.01	0.23	.073			
	Fraternity Membership	0.06	.06	-0.05	0.18	.287			
	Alcohol and Sexual Consent	-0.44	.04	-0.52	-0.35	.000***			
	Hostility Toward Women	-0.21	.05	-0.30	-0.11	.000***			
	Peer Support of Abuse	-0.15	.04	-0.23	-0.08	.000***			
Step 3							7.85***	.406	.031
	Sexual History	0.20	.08	0.05	0.36	.011*			
	Relationship Status	0.10	.06	-0.02	0.21	.106			
	Fraternity Membership	0.06	.06	-0.06	0.17	.338			
	Alcohol and Sexual Consent	-0.41	.04	-0.49	-0.32	.000***			
	Hostility Toward Women	-0.22	.05	-0.31	-0.13	.000***			
	Peer Support of Abuse	-0.12	.04	-0.20	-0.04	.002**			
	ASC x HTW	-0.09	.06	-0.21	0.03	.143			
	ASC x PSA	-0.17	.05	-0.27	-0.08	.000***			
	HTW x PSA	0.10	.05	-0.01	0.20	.074			
Step 4							3.87*	.411	.005
	Sexual History	0.21	.08	0.05	0.36	.009**			
	Relationship Status	0.10	.06	-0.01	0.22	.081			
	Fraternity Membership	0.05	.06	-0.06	0.17	.371			
	Alcohol and Sexual Consent	-0.38	.04	-0.46	-0.30	.000***			
	Hostility Toward Women	-0.21	.05	-0.31	-0.12	.000***			
	Peer Support of Abuse	-0.11	.04	-0.18	-0.03	.006*			
	ASC x HTW	-0.05	.06	-0.17	0.08	.457			
	ASC x PSA	-0.14	.05	-0.24	-0.04	.008**			
	HTW x PSA	0.11	.05	0.00	0.21	.044*			
	ASC x HTW x PSA	-0.12	.06	-0.23	0.00	.049*			

Note. CI = confidence interval; *LL* = lower limit; *UL* = upper limit.

* $p < .050$, ** $p < .010$, *** $p < .001$

Declarations

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Conflicts of Interest

The authors have no relevant financial or non-financial interests to disclose.

Ethical Approval and Informed Consent

This research using human subjects was approved by the Institutional Review Board. Informed consent was obtained from all participants electronically and documentation of consent was waived.

Availability of Materials and Code

Study materials and analytic code have been made publicly available via Open Science Framework (OSF). Analytic code is provided in knitted html versions of RMarkdown scripts that can be used to view analyses and output in a web browser without any analysis software needed.

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Link(s) to supporting data

Click here to download Link(s) to supporting data
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