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Pathways From Individual Characteristics to Subjective Consequences of Sex: The Mediating Role of Risky Sexual Encounters

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Abstract

Objectives: This study examined associations between young adults' psychological characteristics and psychosocial consequences of sex, and whether risky sexual encounters mediated these associations.

Methods: College students (N=265; $M_{age}=19.49$) completed questionnaires

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concerning risky sexual relationships, behaviors, situations, and psychosocial consequences during their most recent encounter and over the last year.

Results: Sexual restraint indirectly predicted positive consequences of the most recent encounter via risky sexual behaviors. Sexual restraint and permissiveness predicted positive and negative consequences over the past year via risky relationships.

Conclusions: Psychological characteristics may influence the likelihood of risky sexual encounters, thereby influencing consequences.

Keywords: Sexual risk, consequences of sex, sexual restraint, sexual attitudes, young adults

Introduction

Young adults engage in high levels of risky sexual behavior, including unprotected intercourse (e.g., coitus without condoms) and sex with multiple partners. National survey data indicate that nearly 20% of women and 32% of men ages 20–24 years report more than six sexual partners in their lifetime, with 5% of women and 10% of men reporting four or more partners in the past year (for a review, see Halpern & Kaestle, 2014). Moreover, consistent condom use tends to be low among young adults (Chandra et al., 2012). These behaviors are related to elevated incidence of sexually transmitted infections (STIs) and unintended pregnancy (Centers for Disease Control & Prevention [CDC], 2018; Hamilton et al., 2015; National Center for Health Statistics, 2019) and constitute a significant public health concern.

Past research on the consequences of sexual behavior has tended to focus on physical health consequences (e.g., sexually transmitted infections and unplanned pregnancy), resulting in a dearth of information about subjective or psychosocial consequences (Harden, 2014; Vasilenko et al., 2014). Furthermore, research on sexual behavior among youth has generally emphasized the *negative* consequences of sex while overlooking positive outcomes (Harden, 2014; Tolman & McClelland, 2011). Yet, sex can confer psychosocial benefits such as emotional satisfaction and feelings of intimacy. Indeed, surveys of adolescents and college students show that sexual behaviors are related to both positive and negative psychosocial outcomes (Snapp et al., 2014; Brady & Halpern-Felsher, 2007; Vasilenko et al., 2012); moreover, college students reporting on oral or vaginal sex were more likely to cite positive consequences (e.g., increased intimacy, physical

satisfaction) than negative consequences such as health concerns or guilt (Lefkowitz et al., 2016; Moilanen et al., in press). Thus, to understand the impact of sexual encounters, it is important to consider both kinds of consequences.

Psychosocial consequences of sex are also important because they may influence sexual health and psychosocial well-being. Subjective appraisals of sexual experiences (e.g., perceived consequences) are thought to influence subsequent mental health and relationship quality (Vasilenko et al., 2014) and may shape future sexual interactions in ways that contribute to sexual health. For example, young women's emotional responses to first intercourse were associated with their subsequent risky sexual behaviors (Pollard, 2020). Furthermore, positive and negative consequences are likely to have divergent implications for sexual and mental health. Negative consequences may contribute to suboptimal sexual relationships and reduce psychological well-being, whereas positive consequences may lead to better relationships and well-being. Yet, apart from research on young adults' emotional reactions to hookups (e.g., Owen et al., 2010), relatively few studies have explored the psychosocial consequences of risky sexual practices (e.g., having sex with high-risk partners, not using condoms or contraceptives, or engaging in substance use before or during the encounter). Because such practices increase the risk of negative health outcomes (e.g., STIs and unintended pregnancy), they would be expected to result in negative cognitions and emotions (e.g., worry or regret) and reduce positive feelings of pleasure and intimacy. We address this gap in the present investigation.

Theoretical background

Understanding the factors underlying the psychosocial consequences of risky sex requires a theoretical framework that includes predictors of risky sexual practices and psychosocial consequences. To build such a framework, we drew on theoretical models of risky sex (Cooper et al., 1998) and psychosocial consequences (Vasilenko et al., 2014).

Cooper et al. (1998) developed a model of sexual motives and used it to predict risky sexual practices. They proposed that sexual motives predict patterns of risky sexual behaviors, in part because individuals select into interpersonal contexts (e.g., exclusive versus or

non-exclusive sexual relationships) that are congruent with their motives, and these contexts shape their sexual behavior. In subsequent work, Cooper and colleagues refined this framework, arguing that people self-select into sexual relationship contexts (i.e., committed versus casual relationships) and situations (e.g., first time with that partner) and that these relational and situational factors influence involvement in risky sexual behaviors during that encounter (Cooper, 2010; Cooper et al., 2011). Although their original focus was on sexual motives as the main force driving selection into sexual contexts, they subsequently incorporated other relevant psychological characteristics (i.e., personality dimensions) into their work (Cooper & Zhaoyang, 2014).

Vasilenko et al. (2014) focused on explaining the psychosocial consequences of sex. Drawing on Cooper et al.'s (1998, 2011) motivational model of sex, they theorized that sexual behaviors have psychosocial consequences and that individual characteristics (e.g., attitudes toward sex) predict a person's sexual behaviors and the perceived consequences of those behaviors. More precisely, personal characteristics guide selection into diverse sexual contexts, which, in turn, lead to different sexual behaviors and psychosocial consequences. Like Cooper (2010), the model posits that contextual variables such as the quality of the relationship with the partner also influence psychosocial consequences (Vasilenko et al., 2014). However, this framework does not explicitly focus on risky sex.

The conceptual framework for this study draws upon and extends both models (see **Figure 1**). We propose that individual characteristics predict positive and negative subjective consequences of sex in part by influencing a person's selection into more or less risky sexual encounters which, in turn, contribute to positive and negative psychosocial consequences. Furthermore, relationship status (e.g., casual versus committed relationship) and situational factors (e.g.,

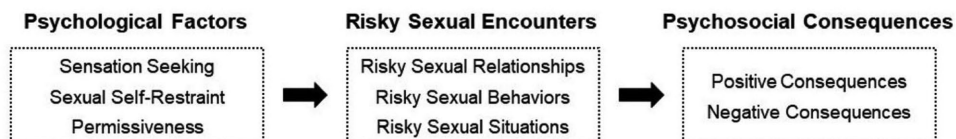


Figure 1. Conceptual model linking psychological factors to psychosocial consequences of sex.

substance use) influence the consequences of the encounter (Vasilenko et al., 2014). We further propose that sexual encounters can be analyzed along multiple dimensions (i.e., behaviors, type of relationship, and situational factors), which can each contribute to psychosocial consequences and could help explain or mediate the associations between individual characteristics and those consequences. Applied to risky sexual encounters, individual characteristics (personality traits and sexual attitudes) should predict selection into risky sexual encounters, operationalized as risky sexual behaviors (e.g., unprotected sex), risky relationships (e.g., sex with high-risk or casual partners), and risky situations (e.g., use of alcohol or drugs). In turn, the risky relational, behavioral, and situational features of a sexual encounter should predict the individual's subjective responses to the encounter as indexed by positive and negative psychosocial consequences.

Individual factors, risky sexual behaviors, and psychosocial consequences

Prior research provides support for several paths in the theoretical model. Regarding individual characteristics, two personality traits—sensation seeking and self-regulation—have been linked repeatedly with risky sexual behaviors. Sensation seeking, defined as a propensity to seek novelty and excitement (Quinn & Fromme, 2010; Zuckerman, 2007), is positively associated with risky sexual practices including unprotected sex and number of sexual partners (Zuckerman, 2007) and with participation in high-risk sexual encounters (Hoyle et al., 2000). Presumably, these associations occur because sensation seekers choose to engage in novel or risky activities that result in a thrill or “rush.” Sensation seeking may also affect how a sexual experience is interpreted. Because sensation seekers value novelty and excitement, they might perceive risky sexual behaviors positively even though the encounter could lead to negative consequences, a response akin to viewing the world through “rose colored glasses.” Thus, sensation seeking might motivate individuals to engage in risky sexual encounters and lead them to view their encounters more positively (i.e., experience favorable psychosocial consequences).

The second personality characteristic, self-regulation, refers to the ability to modulate attention, emotions, and behavior to achieve one's goals (Moilanen, 2015; Raffaelli & Crockett, 2003). Self-regulation allows an individual to resist temptations associated with immediate rewards in favor of long-term goals. When applied to sexual behavior, self-regulation has been labeled "sexual restraint" (Gailliot & Baumeister, 2007). Sexual restraint could reduce risky sexual behavior because well-regulated individuals are able to resist temptation and delay gratification. For example, a person high in self-restraint might plan for a possible sexual encounter (e.g., have condoms available) and, if caught unprepared, might resist the lure of immediate physical or psychological pleasure in order to avoid negative consequences (Cooper & Zhaoyang, 2014; Moilanen & Manuel, 2018). In contrast, someone low in sexual restraint might not be able to resist engaging in tempting but risky behaviors. Several studies have shown that higher levels of sexual self-restraint/self-regulation are associated with lower levels of risky sexual behavior among adolescents and young adults (e.g., Crandall et al., 2018; Moilanen & Manuel, 2018; Raffaelli & Crockett, 2003).

A third individual characteristic—permissive attitudes toward sex—has also been linked to risky sexual practices or their consequences (Cooper et al., 1998; Vasilenko et al., 2014). More permissive attitudes may lead individuals to have sex with casual or potentially high-risk partners, to participate in risky sexual behaviors, or to experience non-volitional (i.e., unwanted) encounters or behaviors (Dempster et al., 2015; Paul, 2021). For example, studies of college students indicate that permissive attitudes about sex are associated with current and subsequent hooking up (Katz & Schneider, 2013; Owen et al., 2010; Paul, 2021), having more sexual partners (Shapiro et al., 2017; Townsend & Wasserman, 2011), and engaging in more risky sexual behaviors (Simons et al., 2013). In turn, these experiences could lead to more negative psychosocial consequences (e.g., emotional distress or worries about health) or fewer positive consequences (e.g., lower self-esteem; reduced feelings of trust and intimacy). However, permissive attitudes could also increase positive consequences of sex in some cases. Among college women who had recently engaged in casual sex, sexual self-esteem was higher for those who thought casual sex was acceptable than for those with non-permissive attitudes (Kaestle & Evans, 2018).

Overall, personality traits and permissive attitudes appear to be consistently associated with risky sex, but their implications for psychosocial consequences of sex, although plausible, have not been established. These characteristics could influence psychosocial consequences of sex directly, by affecting how sexual encounters are evaluated, or indirectly, by increasing or decreasing a person's tendency to engage in risky sexual encounters. Illuminating these pathways could inform interventions to reduce risky sexual encounters and improve sexual health and wellbeing among young adults.

Risky sexual behaviors, relationships, and contexts and psychosocial consequences

Prior research has operationalized risky sex in various ways, considering behavioral, relational, and situational aspects. Often these aspects are examined in separate studies which focus on one or two specific factors (e.g., condom nonuse; e.g., Fehr et al., 2018). In other studies, several factors are combined to create a risk composite (e.g., Raffaelli & Crockett, 2003). Neither of these approaches fully captures the multifaceted nature of sexual encounters, which generally involve both sexual behaviors and contextual (relational or situational) factors. For the current study, we adopted a more nuanced approach by distinguishing among three dimensions of risky sexual encounters and creating a separate risk composite to measure each one. The three dimensions were sexual behaviors (e.g., use of condoms or not), relationship characteristics (e.g., romantic versus casual), and situational factors (e.g., substance use prior to or during encounters). This approach allowed us to examine diverse pathways through which individual characteristics might predict psychosocial consequences of sex.

Some previous research has examined associations between specific aspects of risky sexual encounters and psychosocial consequences. Regarding risky behaviors, the type of sexual behavior during an encounter predicts psychosocial consequences: for example, oral, vaginal, and anal sex were more strongly related to both positive and negative consequences than were behaviors such as kissing and petting (Wesche et al., 2021). Owen and Fincham (2011) showed that college men who reported coital hookups in the last

year reported less negative emotional reactions relative to men who engaged in noncoital hookups during the same period, while young women's levels of negative emotional reactions did not vary by type of sexual behavior. In addition, lack of contraceptive use is associated with negative psychosocial consequences. In one investigation, college students who did not use contraception during sex had higher odds of reporting negative psychosocial consequences the next day (Vasilenko et al., 2012). Similarly, college students who did not use contraceptives during first intercourse described the experience more negatively than those who had used contraceptives (Moore & Davidson, 1997; Smiler et al., 2005), and among male students, nonuse of condoms/ contraceptives at first intercourse was associated with membership in a latent class exhibiting increased levels of guilt and regret (Vasilenko et al., 2022). Moreover, Owen and Fincham (2011) revealed that in the context of coital hookups, condom use was associated with more negative and fewer positive emotional reactions. Evidence regarding positive psychological consequences is sparse. In one study, using contraceptives was associated with feelings of empowerment among women and feelings of love among men (Smiler et al., 2005). However, other studies found no effect of contraceptive use on psychological satisfaction (Higgins et al., 2010). Overall, while there is some evidence that contraceptive use and type of sexual behavior are associated with psychosocial consequences, further research on risky behaviors is needed, particularly regarding positive consequences.

Contextual aspects of sexual encounters have also been implicated in the psychosocial consequences of sex. Regarding relational factors, Vasilenko et al. (2012) found that oral and coital sex were associated with more negative consequences when they occurred with a casual partner as opposed to a romantic partner (see also Wesche et al., 2021). Regarding situational factors, undesired sexual contact and use of substances prior to casual encounters were associated with negative emotional consequences (Flack et al., 2007; Owen & Fincham, 2011; Wesche et al., 2021). Moreover, a previous study using the current sample examined bivariate associations between select behavioral, relational, and situational factors and psychosocial consequences of sex: engaging in oral or vaginal sex (versus petting), having sex with romantic partners (versus other partners), and volitional

activities (versus non-volitional) were each associated with more positive psychosocial consequences at the most recent encounter, while non-volitional sexual activities and sex with someone other than a romantic partner were associated with more negative consequences. Notably, none of these studies examined mediated pathways from individual characteristics to psychosocial consequences.

The present study

Prior research suggests that psychological characteristics (e.g., personality traits and attitudes), relationship status, and situational variables predict risky sexual behaviors (Cooper, 2010; Cooper et al., 1998) and that sexual behaviors, relationships, and situational variables are associated with some psychosocial consequences (Smiler et al., 2005; Vasilenko et al., 2012, 2022; Wesche et al., 2021). However, indirect pathways linking psychological characteristics to psychosocial consequences via risky sexual encounters have rarely been tested, and to our knowledge no prior study has examined risky behaviors, relationships, and situational factors as distinct mediators of these associations. This study was designed to investigate these pathways.

Building on prior theory and research, this study addressed two questions. First, are sensation seeking, sexual restraint, and sexual permissiveness associated with positive and negative psychosocial consequences of sex? Second, do risky sexual encounters mediate the relations between these individual-level variables and positive and negative consequences? As far as we know, these questions have not been addressed in prior research. We hypothesized that **(H1)** sensation seeking, sexual restraint, and sexual permissiveness would predict the three aspects of risky sexual encounters (risky behaviors, risky relationships, and risky situational factors) as well as **(H2)** psychosocial consequences. Specifically, sensation seeking was expected to be associated with more risky behaviors, relationships and situations but also more positive consequences; sexual restraint was expected to be associated with fewer risky behaviors, relationships, and situations and fewer negative consequences; and permissive attitudes were expected to be associated with more risky relationships, behaviors, and situations and with more positive and negative consequences. Furthermore, **(H3)** risky behaviors, risky partners, and risky

situational factors would mediate the associations between the three individual characteristics and psychosocial consequences. These hypotheses were examined in relation to two time frames: the most recent sexual encounter and sexual encounters over the last year. The first time frame provides a precise test of the hypotheses for a specific sexual encounter, whereas the second one enables a test of the hypotheses over a longer period, allowing for the cumulative effects of multiple sexual encounters. This study extends the literature in several important ways: by illuminating indirect relations between individual characteristics and psychosocial consequences of sex, distinguishing multiple aspects of risky sexual encounters that could serve as mediators, and examining both positive and negative psychosocial consequences associated with risky sex.

Method

Participants and procedures

Young adults ages 18–22 years were recruited in the spring of 2019 from the psychology subject pools of two large, public land grant universities in the United States. Site 1 was located in the mid-Atlantic region and Site 2 in the Midwestern Great Plains. In 2021, 44% of the student body at Site 1 were in-state students and 77% were seeking undergraduate degrees (National Center for Education Statistics, 2022a). During the same year, 73% of the student body at Site 2 were in-state students and 80% were seeking undergraduate degrees (National Center for Education Statistics, 2022b). Standard ethical procedures, including obtaining informed consent for all participants, were followed throughout the study as approved by the IRB of each institution (West Virginia University and the University of Nebraska-Lincoln). Respondents completed anonymous online surveys and received course credit for participation.

A total of 301 students agreed to participate and answered survey questions. We dropped any students who failed reading checks ($n=15$), failed to answer any questions about their most recent sexual encounter ($n=8$), or reported no prior experience with any partnered sexual behaviors ($n=13$), including kissing, petting, etc. (The

Table 1. Demographic characteristics of the full sample.

<i>Characteristic</i>	<i>N</i>	<i>n (%)</i>
Gender	265	
Women		227 (85.7%)
Men		37 (14.0%)
Transgender		1 (0.4%)
Race	261	
White		230 (88.1%)
Asian/Asian American		12 (4.6%)
Black/African American		7 (2.7%)
Native American		1 (0.4%)
Biracial/other		11 (4.2%)
Hispanic ethnicity	265	17 (6.4%)
Sexual identity	265	
100% heterosexual		186 (70.2%)
Mostly heterosexual		53 (20.0%)
Bisexual		13 (4.9%)
Mostly homosexual		6 (2.3%)
100% homosexual		6 (2.3%)
Asexual		1 (0.4%)
Lifetime sexual experience	265	
Any oral sex		237 (89.8%)
Any coitus		209 (79.2%)
Any anal sex		58 (22.0%)
Most recent encounter	261	
More than 1 year ago		35 (13.4%)
9–12 months ago		8 (3.1%)
6–8 months ago		6 (2.3%)
3–5 months ago		30 (11.5%)
1–2 months ago		31 (11.9%)
Within the past month		35 (13.4%)
Within the past week		116 (44.4%)
In a long-term relationship	264	81 (30.7%)

latter group was excluded as they had no opportunities to experience sexual consequences). The resulting analytic sample consisted of 265 young adults ($M_{age} = 19.49$, $SD=1.22$). See **Table 1** for demographic information.

Measures

Unless noted otherwise, all variables were calculated as means, and scale scores were calculated only for participants who responded to at least 75% of the items in the scale. As needed, items were reverse

scored so that high scores corresponded to high levels of each construct, unless specified otherwise below.

Sensation seeking

Sensation seeking was measured using the 4-item Impulsivity subscale from The Short UPPS-P Impulsive Behavior Scale (SUPPS-P; Lynam, 2013), a short version of the Urgency, Perseverance, Premeditation and Sensation Seeking Impulsive Behavior Scale (UPPS-P; Lynam et al., 2006). The Sensation Seeking subscale assesses an individual's motivation to experience novelty and includes such items as "I quite enjoy taking risks" and "I welcome new and exciting experiences and sensations, even if they are a little frightening and unconventional." Participants rated their agreement with statements about their behavioral characteristics on a scale from 1 (*strongly disagree*) to 4 (*agree strongly*). Items were averaged to create a total score ($\alpha = .66$). Reliability and validity of the Short UPPS-P have been documented (Cyders et al., 2014).

Sexual self-restraint

Sexual self-restraint refers to the ability to exert self-control and resist temptation to engage in sexual behaviors. This ability, which is associated with trait self-control, was measured using a 10-item scale that asks participants to think about their sexual decision-making processes (Gailliot & Baumeister, 2007). The scale consisted of four items that were positively valenced (e.g., "When I set a limit on my sexual behaviors, I stick to what I had planned") and six reverse-coded items (e.g., "Sometimes I lose control of my sexuality"). Participants rated their agreement with each item on a scale from 1 (*not at all like me*) to 5 (*very much like me*). Items were averaged to create a total score ($\alpha = .83$).

Permissive sexual attitudes

Permissive sexual attitudes refer to liberal or non-judgmental attitudes regarding sexual behaviors such as pre-marital sex, casual sex, and cohabitation. Permissive attitudes were measured using the Permissiveness subscale of the Brief Sexual Attitudes Scale (Hendrick et al., 2006). The subscale consists of 10 items which participants answered by rating how much they agreed with each item on a scale of

1 (*strongly disagree*) to 5 (*strongly agree*). Sample items included "Casual sex is acceptable" and "It is possible to enjoy sex with a person and not like that person very much." Items were averaged to create a total permissiveness score ($\alpha = .91$).

Risky sexual behaviors, relationships, and situations at the most recent encounter

Although prior studies have examined specific aspects of sexual risk (e.g., condom use/nonuse), we conceptualized sexual risk as a multifaceted construct that entails several sources of risk including sexual behavior, relationships, and situational factors. Participants responded to a series of *yes/no* questions characterizing the sexual behaviors, partner/relationship characteristics, and situational features of their most recent sexual encounter, and responses to these nine items were used to construct three corresponding risk composites.

Risky behaviors at the most recent encounter.

In keeping with the larger literature on sexual risk (Barker et al., 2019), we included sexual behaviors and contraceptive use in the composite corresponding to risky behaviors. This composite was comprised of four indicators, including whether the encounter involved vaginal intercourse, involved anal sex, did not involve condoms (in the case of penetrative behaviors), and did not include other forms of birth control (in the case of male-female dyads who engaged in penetrative behaviors where pregnancy was of possible concern). Young adults who reported no involvement in penetrative behaviors at the most recent encounter received zeros for the latter two indicators. Responses to the four items were summed to create an index of risky behaviors at the most recent encounter, ranging from 0 (*no penile-vaginal intercourse or anal sex at the most recent encounter*) to 4 (*involved penile-vaginal intercourse or anal sex, and no condoms or other methods of birth control were used*).

Risky relationships at the most recent encounter.

This composite was based on two binary items indicating whether the most recent partner was a casual partner and whether the partner was possibly or definitely a high-risk partner (defined as a partner who has had many sexual partners, used IV drugs, or is HIV+ per Cooper et

al., 1998). To identify casual partners, participants chose from a list of possible options the term that best described their most recent sexual partner. Responses were then coded as either casual or non-casual. Non-casual partners included spouse (husband/wife) and current romantic partner (boyfriend, girlfriend, fiancé or fiancée); casual partners included friends with benefits, "booty calls," "fuck buddies," former romantic partners, prostitutes/customers, and strangers who were not prostitutes or customers (Wentland & Reissing, 2014). Responses to these two items were summed to create an index of partner risk, ranging from 0 (*most recent partner was not a casual partner or a high-risk partner*) to 2 (*the most recent partner was both casual and high-risk*).

Risky situations at the most recent encounter.

This composite was constructed using three binary items assessing whether the most recent encounter involved drugs or alcohol, was unplanned, or was potentially or actually non-volitional (i.e., defined as involving an attempt by the partner to engage in sexual activity against the respondent's will, through the use of force, pressure, threats, and/or coercion). For all three items, the response options were *yes*, *no*, *don't know/unsure*, and *do not wish to answer*. Responses of "yes" and "don't know/unsure" were categorized as suggestive of high-risk sexual situations. The three indicators were summed to create an index of situational risk, ranging from 0 (*no risk*) to 3 (*all situational risk items were endorsed*).

Risky sexual behaviors, relationships, and situations in the last year

Risk indices for the last year were similar to those for the most recent encounter. Young adults who reported no involvement in oral, coital, or anal sex in the last year did not respond to these questions; thus, their responses were set to the lowest score (i.e., 0) for all three indices.

Risky sexual behaviors in the last year.

This composite was based on three indicators, including anal sex (*yes/no*), inconsistent condom use, and inconsistent use of other forms of birth control. Inconsistent condom use was measured with one

reverse-coded item, "Thinking of all the times you have had sexual intercourse during the past 12 months, about what proportion of the time have you or a partner of yours used a condom or condoms?" This item was originally coded on a scale from 1 (*all of the time*) to 5 (*none of the time*); for consistency with the other variables in the index, we recoded the values as 0 (*used condoms all of the time*) or 1 (*used condoms less than all of the time*). Other birth control use was measured with additional items assessing an array of birth control methods other than condom use. A binary variable was computed reflecting 0 (*used reliable methods of contraception [i.e., hormonal methods, the morning after pill, diaphragm, IUD, or sterilization] most or all of the time during the past year*) and 1 (*no consistent use of other reliable forms of contraception*). Young adults who reported no involvement in penetrative behaviors received zeros for the latter two indicators. These three indicators were summed to create an index of behavioral risk over the last year.

Risky sexual relationships in the last year.

This composite was based on five items. The first item assessed number of partners in the last year ("With how many partners have you had sexual intercourse during the past year?"). Responses were originally coded on a scale ranging from 1 (*no partners*) to 11 (*10 or more partners*); however, for consistency with prior research (e.g., Moilanen, 2015), national trends (e.g., Chandra et al., 2011), and other variables in this index, we recoded values for this item as either 0 (*one to three partners in the last year*) or 1 (*four or more partners in the last year*). Four additional binary (*yes/no*) items were adapted from Cooper et al. (1998) to assess past year involvement with: casual partners (including hookups, booty calls, "friends with benefits," and "fuck buddies"; Wentland & Reissing, 2014); one-night stands (defined as sexual activity with a stranger or person the respondent did not know well that was unplanned and/or without expectations of future contact); high-risk partners (as defined above); and strangers or prostitutes. The five items were summed to create an index of past year involvement in risky relationships, ranging from 0 (*no risky relationship involvement*) to 5 (*reported involvement in all risky relationship types*).

Risky situations in the last year.

This variable was constructed identically to that for the most recent encounter, except that the items referred to experiencing these situational factors at any point during the past year.

Positive and negative psychosocial consequences of sex

Participants completed two versions of a 19-item measure about perceived consequences of sex (Vasilenko et al., 2012). The original item stem was modified to refer to how participants' thoughts and feelings were impacted by their *most recent encounter* and by *all of their encounters over the past year*. Respondents who did not report any encounters in the last year skipped all subsequent questions about sexual behaviors in the last 12 months, and thus have missing data by design for the *past year* version of the measure. Negative consequences included 13 items (e.g., "wished you had not had sex," "felt that you harmed your reputation;" Cronbach's α 's = .88 and .85, respectively). Positive consequences included six items (e.g., "felt physically satisfied," "felt close to partner;" Cronbach's α 's = .88 and .84, respectively). Participants responded to each item on a scale ranging from 1 (*not at all*) to 5 (*very much*). Confirmatory factor analyses of each version of the measure indicated that a two-factor solution corresponding to positive consequences and negative consequences, respectively, provided the best fit to the data.

Control variables

Analyses controlled for participant race (1=*European American*, 0=*all other*), age in years, gender (0=*male*, 1=*female*), study site (0=*Mid-Atlantic site*, 1=*Midwest site*), and sexual orientation (1=*primarily/exclusively heterosexual*, 0=*all other*). In the analysis involving risk and consequences in the last year, we also controlled for whether the respondent was in a long-term relationship, defined as a partnership with a total duration of 12 or more months prior to the survey (1=*yes*, 0=*no*).

Analysis plan

Missing data analyses suggested that data were not missing completely at random (MCAR), Little's MCAR $\chi^2(89) = 163.17$, $p < .001$.

Missingness was higher for the past year consequences variables, as respondents who reported no partnered sexual encounters in the last year skipped this portion of the survey by design. Thus, full information maximum likelihood (FIML) was used in model estimation procedures.

Study hypotheses about mediation were addressed in two path analyses (i.e., one for the most recent encounter and one for the last year) with observed variables using MPlus v.7.2 (Muthén & Muthén, 1998–2017). In each model, positive and negative consequences were simultaneously regressed on the three risk composites (i.e., risky sexual relationships, risky behaviors, risky situations), the three individual characteristics, and the control variables, while the three mediators (i.e., the risk composites) were regressed on sensation seeking, sexual restraint, and permissiveness. Both models included these direct effects and the bootstrapped indirect effects of sexual restraint, sensation seeking, and permissiveness on positive and negative consequences via the risky sex mediators, which were treated as continuous variables. Non-significant paths for control variables, correlations between exogenous predictor variables, and correlations between the residual covariances of endogenous variables were trimmed in order to maximize model fit. The primary indicator of acceptable model fit was a non-significant chi-square fit statistic. As chi-square statistics are sensitive to sampling fluctuation, other indices were also used to indicate sufficient fit: a comparative fit index (CFI) larger than .95, a root mean square error of approximation (RMSEA) smaller than .06 or a 90% confidence interval that contained .06, and a standardized root mean square residual (SRMR) smaller than .08 (West et al., 2012).

Results

Preliminary analyses

Preliminary analyses included descriptive statistics and bivariate correlations (see **Table 2**). Sensation seeking was positively associated with risky sexual situations during the most recent encounter and with positive psychosocial consequences during the last year. Sexual restraint was negatively associated with permissiveness, risky sexual behaviors

Table 2. Descriptive statistics and bivariate correlations (N= 265).

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
1 Sen Seek																				
2 Restraint	-.11 ⁺																			
3 Permiss	.08	-.41 ^c																		
4 Beh MRE	-.07	-.18 ^b	.15 ^a																	
5 Rels MRE	.12	-.11	.18 ^c	-.22 ^c																
6 Sits MRE	.15 ^a	-.03	.11	-.11	.34 ^c															
7 Beh LY	.02	-.20 ^b	.17 ^b	.65 ^c	-.15 ^a	-.10														
8 Rels LY	.12	-.39 ^c	.40 ^c	.19 ^b	.29 ^c	.04	.32 ^c													
9 Sits LY	.06	-.11	.26 ^c	.22 ^c	.08	.55 ^c	.25 ^c	.24 ^c												
10 PC MRE	.10	-.08	.12 ^a	.32 ^c	-.43 ^c	-.27 ^c	.29 ^c	-.09	.08											
11 NC MRE	-.00	-.12 ^b	.01	.04	.25 ^c	.18 ^b	.09	.42 ^c	.08	-.28 ^c										
12 PC LY	.15 ^a	-.07	.15 ^a	.20 ^b	-.37 ^c	-.15 ^a	.29 ^c	-.09	.08	.79 ^c	-.25 ^c									
13 NC LY	-.04	-.35 ^c	.06	.14 ^a	.30 ^c	.08	.09	.42 ^c	.08	-.18 ^b	.62 ^c	-.21 ^b								
14 Female	-.10	.03	-.09	.04	-.02	.13 ^a	-.00	.05	.12	.05	.04	.03	.05							
15 White	-.02	.04	-.02	.13 ^a	-.10	.03	.10	-.15 ^a	.07	.05	-.08	.07	-.13	.05						
16 Age	.05	-.07	-.01	.09	-.12 ^a	.06	.11	-.10	-.01	.16 ^a	-.19 ^b	.18 ^b	-.22 ^b	-.09	.05					
17 Site	-.07	-.01	-.12 ^b	.00	-.03	.04	.07	-.11	.02	.04	-.19 ^b	-.01	-.08	-.02	-.02	.39 ^c				
18 Hetero	-.06	.08	-.25 ^c	.09	-.02	.02	.13 ^a	.03	.00	.01	.04	.02	.02	.08	.04	.03	.04			
19 In LT Rel	-.13 ^a	.06	-.07	.28 ^c	-.44 ^c	-.14 ^a	.13 ^a	-.32 ^c	.05	.36 ^c	-.18 ^b	.35 ^c	-.28 ^c	.03	.20 ^b	.18 ^b	-.01	-.03		
M/%	2.67	3.67	2.83	1.32	.47	.70	.92	.79	.81	3.05	1.37	3.32	1.69	85.7%	88.1%	19.49	40.0%	90.2%	30.7%	
SD	.64	.70	.97	.96	.60	.72	.79	1.19	.72	1.11	.54	.95	.63	1.22						

Sen Seek: sensation seeking; Restraint: sexual restraint; Permiss: permissiveness; Beh: behaviors; Rels: relationships; Sits: situations; MRE: most recent encounter; LY: last year; PC: positive consequences; NC: negative consequences; Hetero: heterosexual; LT: long-term; Rel: relationship. All tests are two-tailed.
 + p < .10; a. p < .05; b. p < .01; c. p < .001.

at the most recent encounter and within the last year, risky relationships during the last year, and negative psychosocial consequences during the last year. Furthermore, permissiveness was positively associated with risky sexual behaviors and relationships at the most recent encounter and with all three risk composites during the last year. Permissiveness was also associated with positive consequences for both time frames. There were no gender or race/ethnicity differences in positive or negative consequences. However, older youth reported more positive consequences and fewer negative consequences than younger youth. Respondents at the Midwestern site reported fewer negative consequences than those at the Mid-Atlantic site. Young adults in long-term romantic relationships endorsed higher levels of positive consequences and lower levels of negative consequences at their most recent encounter and over the last year compared to peers.

Direct and indirect relations between individual characteristics and consequences of sex

Consequences of the most recent sexual encounter

The model examining consequences of the most recent sexual encounter provided a marginal fit to the data, $\chi^2(14) = 25.05$, $p = .03$, CFI = .950, RMSEA = .055, 90% CI [.015, .089], SRMR = .030. Model fit was improved by removing demographic control variables that had no significant effects (i.e., only age and site were retained) and by constraining non-significant correlations between the exogenous control and personality variables to be equal to zero, $\chi^2(12) = 14.59$, $p = .26$, CFI = .988, RMSEA = .029, 90% CI [.000, .072], SRMR = .027.

Standardized path coefficients for the most recent encounter are presented in **Figure 2** and in Table S1. Solid lines indicate significant direct effects, and bold lines indicate significant indirect effects. Regarding direct effects, high sexual restraint was associated with fewer risky sexual behaviors and fewer negative consequences. Sensation seeking was directly related to risky sexual situations and more positive consequences, whereas permissiveness was directly related to more positive consequences and fewer negative consequences. Furthermore, high levels of risky sexual behavior predicted elevated positive consequences, and high levels of both risky relationships and risky situations were associated with fewer positive and more negative

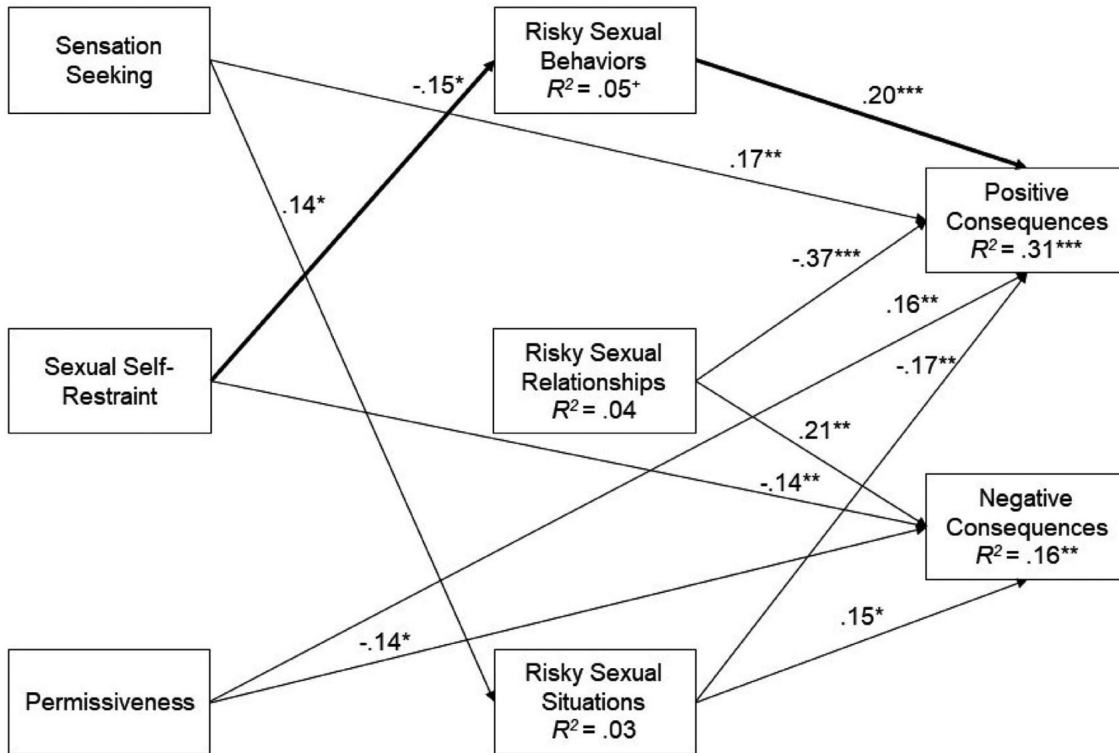


Figure 2. Trimmed model predicting psychosocial consequences of sex at the most recent encounter. Note. All coefficients are standardized values. Non-significant paths are omitted. Bold lines identify significant indirect paths. Paths for control variables and correlations are reported in supplemental Table S1. * $p < .05$; ** $p < .01$; *** $p < .001$.

consequences. Lastly, older youth reported more positive consequences and fewer negative consequences than younger youth, and youth at the Mid-Atlantic site reported more negative consequences than those at the Midwestern site. Notably, there was a modest but significant indirect effect of sexual self-restraint on positive consequences via risky sexual behavior, $B = -.048$, $SE = .024$, $95\% \text{ CI } [-.094, -.002]$, $\beta = -.031$, $p = .042$. Higher self-restraint was negatively associated with risky behaviors, which in turn were associated with more positive consequences.

Consequences of sexual encounters during the last year

Results for the model predicting consequences during the last year provided a marginal fit to the data, $\chi^2(14) = 31.56$, $p = .005$, $CFI = .95$,

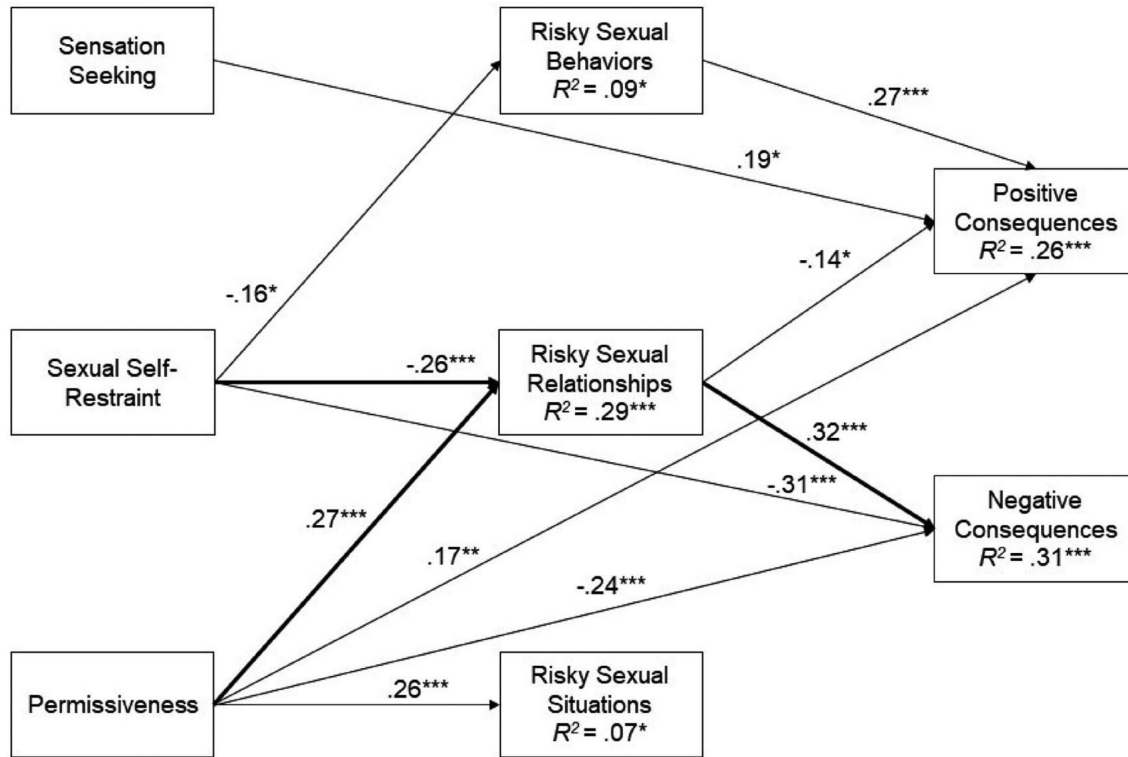


Figure 3. Trimmed model predicting psychosocial consequences of sex over the last year. Note. All coefficients are standardized values. Non-significant paths are omitted. Bold lines identify significant indirect paths. Paths for control variables and correlations are reported in supplemental Table S1. * $p < .05$; ** $p < .01$; *** $p < .001$.

RMSEA = .069, 90% CI [.037, .101], SRMR = .029. As before, model fit was improved by dropping the non-significant demographic control variables (i.e., gender, race, and site), and by constraining non-significant correlations between the exogenous control and personality variables to zero, $\chi^2(20) = 25.90$, $p = .17$, CFI = .981, RMSEA = .033, 90% CI [.000, .066], SRMR = .035.

Standardized path and correlation coefficients and total effect sizes are presented in **Figure 3** and in Table S1. Solid lines indicate significant direct effects, and bold lines indicate significant indirect effects. Regarding direct effects, sensation seeking was directly associated with more positive psychosocial consequences. In contrast, sexual self-restraint was related to fewer risky sexual relationships and fewer risky sexual behaviors, and directly related to fewer negative consequences. Permissiveness was significantly related to more risky sexual

relationships and risky sexual situations as well as to more positive consequences and fewer negative consequences. Participants in long-term relationships had higher levels of involvement in risky behaviors and lower levels of involvement in risky relationships as well as more positive and fewer negative consequences. Older youth reported fewer negative consequences, and heterosexual youth reported higher levels of risky sexual behaviors. Echoing the pattern observed for the most recent encounter, risky relationships were associated with fewer positive and more negative consequences, whereas risky behaviors were associated with more positive consequences. However, in this case, there were no direct associations between risky situations and either positive or negative consequences.

Turning to indirect effects, the indirect path from sexual restraint to negative consequences via risky relationships was significant, $B = -.07$, $SE = .03$, 95% CI $[-.13, -.02]$, $\beta = -.08$, $p = .006$. Higher levels of sexual restraint were associated with fewer risky relationships and, in turn, with fewer negative consequences. There was also a significant indirect path between permissiveness and negative consequences via risky sexual relationships, $B = .06$, $SE = .02$, 95% CI $[.03, .09]$, $\beta = .09$, $p < .001$. Higher levels of permissiveness were associated with greater involvement in risky sexual relationships, which in turn was associated with higher levels of negative consequences. All other indirect paths were at trend-level significance.

Discussion

Although sexual encounters can lead to both positive and negative psychosocial consequences, the processes leading to these two types of outcomes are not well understood, especially in the case of individual characteristics and dimensions of risky sexual encounters. Building on prior studies of sexual risk behavior, this study examined the direct relations of sensation seeking, sexual self-restraint, and sexual attitudes to positive and negative consequences of risky sexual behavior as well as indirect effects via risk-enhancing features of the sexual encounter (behavioral, relational, and situational). Results indicated that all three individual characteristics were directly associated with positive and/or negative psychosocial consequences as well as

with specific facets of risky sexual encounters. Furthermore, sexual restraint and permissive attitudes predicted consequences of sex indirectly, through particular facets of risky sexual encounters (e.g., risky relationships). These results point to specific pathways and mechanisms through which individual proclivities may influence the psychosocial consequences of risky sex.

A major goal of this study was to illuminate the associations between individual characteristics and psychosocial consequences of sex. As hypothesized (H2), all three individual factors were directly related to either positive or negative consequences of sex. In the path models, sensation seeking was associated with higher levels of positive consequences, sexual restraint with lower levels of negative consequences, and permissive attitudes with more positive consequences and fewer negative consequences. Furthermore, the results for each characteristic were consistent for both time periods (i.e., the most recent sexual encounter and sexual encounters over the last year). Such consistency is not surprising given that the three individual factors represent relatively stable characteristics which may “color” young adults’ perceptions of multiple sexual encounters. The findings are in keeping with research indicating that personality traits such as extraversion, openness, conscientiousness, agreeableness, and neuroticism are associated with reported sexual satisfaction (Jirjahn & Ottenbacher, 2023) but add to the literature by documenting the role of sensation seeking, sexual restraint, and permissiveness in the subjective consequences of sex. Our findings support the notion that individual characteristics influence young adults’ positive and negative responses to sexual encounters (Vasilenko et al., 2014).

We also hypothesized that the three individual factors would predict dimensions of risky encounters (H1). Consistent with expectations, sexual restraint was associated with fewer risky sexual behaviors both during the most recent sexual encounter and over the last year, in line with prior research linking self-regulation and sexual restraint to less risky sexual behavior (e.g., Gailliot & Baumeister, 2007; Raffaelli & Crockett, 2003). In addition, high sexual restraint was associated with less involvement in risky relationships (i.e., fewer and less risky partners) over the last year, suggesting that young adults high in sexual restraint tend to be more selective in choosing their partners at least in the long run (Moilanen & Manuel, 2018). Surprisingly,

sexual restraint was not associated with reduced reports of risky situational factors (i.e., substance use, unplanned sexual activity, and non-volitional activities). Such situational factors may not be anticipated or may not be under the respondent's control.

Permissiveness was related to participating in more risky relationships and situations over the last year and (at trend level in the path model) for the most recent encounter. These results align with prior studies supporting associations between permissive attitudes and engaging in casual sex (e.g., hook ups, Katz & Schneider, 2013; Owen et al., 2010; Paul, 2021), as well as having more sexual partners (Shapiro et al., 2017; Townsend & Wasserman, 2011). However, permissiveness had weak bivariate correlations with risky sexual behaviors at the most recent encounter and over the last year, and was not associated with risky sexual behaviors in either path model, despite some prior research supporting such an association (Simons et al., 2013). Even so, it appears that young adults with permissive sexual attitudes are more willing to engage in potentially risky sexual encounters.

Sensation seeking was associated with more risky situations at the most recent encounter, but otherwise was unrelated to the risk dimensions. These modest results conflict with prior studies that have linked sensation seeking to multiple risk indicators (e.g., Hoyle et al., 2000; Zuckerman, 2007). The discrepancy may reflect methodological differences across studies (e.g., in samples or measures). The current study used a short form of the sensation seeking subscale from the UPPS-P Impulsive Behavior Scale (Lyman et al., 2006); perhaps a more comprehensive measure (Reynolds et al., 2019; Zuckerman et al., 1964) would yield different results.

Indirect pathways linking individual factors and psychosocial consequences of sex

Another major goal of this study was to identify indirect pathways linking individual characteristics to psychosocial consequences of sex via three facets of risky sexual encounters: risky behaviors, relationships, and situations (H3). Consistent with expectations, sexual restraint predicted fewer negative consequences via less risky sexual relationships over the last year. This finding suggests that sexual restraint

reduces the potential for negative psychosocial consequences in part by helping youth avoid encounters with risky partners. Youth high in self-restraint may choose their partners more carefully, accept fewer partners, or avoid casual or potentially high-risk partners, thereby reducing the likelihood of negative consequences. A different pattern emerged for the most recent sexual encounter. Higher self-restraint was related to less risky sexual behavior, as predicted, but risky sexual behavior was associated with more positive consequences, counter to expectations. Perhaps risky behaviors such as unprotected sex lead to certain kinds of positive consequences (e.g., physical pleasure or increased feelings of emotional closeness to the partner). It is also possible that risky behaviors more often occurred with partners that participants view as "safe" (e.g., romantic partners; Norris et al., 2021), thus increasing the likelihood of positive consequences.

A third indirect path indicated that young adults with more permissive sexual attitudes were more likely to engage in risky relationships which, in turn, was associated with more negative consequences over the last year. Presumably, youth with permissive attitudes were less choosy about their partners (e.g., more willing to take a chance on a partner who was unknown or potentially high-risk) than less permissive youth, and this choice resulted in more negative psychosocial consequences. Although associations between permissive attitudes and sexual risk (e.g., risky behaviors; having more partners; hooking up) have been reported in prior studies (e.g., Paul, 2021; Simons et al., 2013; Townsend & Wasserman, 2011), this study linked permissive attitudes to psychosocial consequences via risky relationships, revealing potential "downstream" effects of attitudes on subjective evaluations of sexual experience.

In contrast, none of the indirect paths linking sensation seeking to psychosocial consequences was significant. Thus, it seems that sensation seeking, although directly related to positive psychosocial consequences of sex, does not operate via the aspects of risk considered in this study. Instead, sensation seeking appears to lead individuals to emphasize positive aspects of sexual events, regardless of the level of risk involved, reflecting a positive bias toward sexual encounters in general. Future studies should investigate other mediating mechanisms that might explain the association between sensation seeking and positive consequences.

An important feature of the present study was considering distinct dimensions of risky sexual encounters: risky relationships, behaviors, and situations. Although sexual risk is often operationalized using a risk index (Barker et al., 2019), our three risk components were only modestly intercorrelated, if at all, supporting the decision to treat them as distinct. Moreover, results for the three indices differed. All three were associated with psychosocial consequences, but risky relationships and behaviors partially mediated associations between individual characteristics and consequences, and risky relationships partially mediated the effects of multiple individual characteristics on negative consequences. These findings underscore the utility of differentiating among distinct components of risky sexual encounters (Barker et al., 2019) and point to risky relationships and behaviors as potential mechanisms linking individual characteristics to subjective consequences of risky sexual encounters.

Implications

Taken together, the present findings provide some support for the notion that personality traits and attitudes lead individuals to select into more (or less) risky sexual encounters (Cooper, 2010), which in turn influence their experiences during the encounter and their subsequent reactions (Vasilenko et al., 2014). Although replication with other samples is needed, the findings could inform interventions intended to enhance sexual health, by highlighting individual characteristics that are related to psychosocial consequences and identifying mechanisms such as risky relationships that could be targeted to reduce negative psychosocial consequences.

Limitations and future directions

Several study limitations should be kept in mind. Although not unique to the present study (Dickinson et al., 2012), the sample consisted primarily of White, heterosexual college students, and findings may not generalize to non-college populations or to ethnic minority and sexual minority youth. In addition, the cross-sectional data precluded inferences about causality or the direction of effects. Thus, while results suggest that individual characteristics steer some individuals into

more risky encounters which then affect subjective consequences, it is also possible that psychosocial consequences influence future attitudes and choices regarding sexual partners and behaviors. Regarding measurement issues, the present study used composites to measure risky sexual behavior, relationships, and situations. Although composites are useful for capturing complex constructs and increasing measure reliability, future studies might benefit from examining the mediating effects of specific behaviors that increase risk. Furthermore, although items within each personality and consequences questionnaire were randomized, the sequence of survey sections was not: the sections on lifetime and last year sexual behaviors preceded the section on the most recent sexual encounter, and questions about sexual behaviors preceded those about consequences. Thus, it is possible that responses to earlier sections could have influenced responses to later sections. It is also noteworthy that the present composites were based on self-report data and thus assess *potential* sexual risk rather than actual risk (e.g., actual exposure to an STI).

Future studies could extend the present findings to more diverse populations, including other racial/ethnic groups and sexual minority youth. Longitudinal studies would help clarify the temporal sequencing of variables, providing a stronger test of the mediational model. They would also permit a test of bidirectional associations including the possibility that psychosocial consequences inform future decisions about engaging in risky sexual encounters. Researchers might also consider other individual characteristics as well as other potential mediators to identify additional pathways leading to positive and negative psychosocial consequences of sex.

Conclusions

This study contributes to the literature by exploring the pathways from individual characteristics to positive and negative psychosocial consequences of risky sexual encounters. It is among the first to examine the associations between individual characteristics and psychosocial consequences of sex and perhaps the first to disaggregate distinct aspects of risky sexual encounters and test their role in mediating the effects of individual characteristics. The findings indicate that

sensation seeking, sexual restraint, and permissive attitudes are associated with psychosocial consequences directly and, in some cases, indirectly through risky sexual relationships and risky behaviors. The results also underscore the importance of considering both positive and negative subjective consequences of sex.

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Supplemental data Table S1 follows the **References**.

Author contributions Conceptualization, methodology, data collection, funding acquisition, project administration, and supervision were performed by Lisa J. Crockett and Kristin L. Moilanen. Formal analysis and visualization were performed by Kristin L. Moilanen. Lisa J. Crockett took the lead role in drafting the manuscript, and Kristin L. Moilanen and Meredith L. Cartwright played secondary roles. All authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

Ethical approval All procedures performed in this study were in accordance with the ethical standards of the American Psychological Association and the 1964 Helsinki declaration and its later amendments or comparable ethical standards. The study was approved by the institutional review boards of the University of Nebraska-Lincoln and West Virginia University. Informed consent for participation and for publication of findings was obtained from all participants in the study.

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Data availability Due to the nature of this research, participants did not agree to have their data shared publicly, so data are not available.

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Table S1 follows.



Table S1 Paths and Correlations Omitted from Figures 2 and 3

	Model	
	Most Recent Encounter	Last Year
Control Variable Paths		
	γ	γ
Age → Negative Consequences	-.12*	-.17***
Site → Negative Consequences	-.16**	
Age → Positive Consequences	.10*	
In Longterm Relationship → Positive Consequences		.31***
In Longterm Relationship → Negative Consequences		-.13*
In Longterm Relationship → Risky Behaviors		.14**
Heterosexual → Risky Behaviors		.13*
In Longterm Relationship → Risky Relationships		-.29***
Correlations Between Exogenous Variables		
	r	r
Site with Age	.39***	
Site with Permissiveness	-.11*	
Sexual Self–Restraint with Permissiveness	-.40***	-.39***
Age with in Longterm Relationship		.19**
Heterosexual with Permissiveness		-.22***
Endogenous Variable Residual Correlations		
	r	r
Risky Behaviors with Risky Relationships	-.25***	.31***
Risky Behaviors with Risky Situations	-.11 ⁺	.21***
Risky Relationships with Risky Situations	.32***	.19*
Positive with Negative Consequences	.19**	-.11

Note. ⁺ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.