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The Influence of Pre-College Behaviors and Parenting Practices on Alcohol Misuse, Sexual Risk-Taking, and Adverse Outcomes Among First-Year College Women

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Abstract

Objective: Although numerous reports document college students' risk-taking behaviors, few examine these behaviors in a developmental context. The purpose of this study was to examine female freshmen college students' pre-college experiences and parenting influences on first semester experiences with alcohol misuse, sexual risk-taking, and adverse outcomes, including violence. **Methods:** We surveyed 229 female freshman residential college students at the end of their first semester in college. **Results:** Participants who drank frequently in high school were more likely to binge drink in college and regret doing something while drinking. Mother-daughter closeness and parental discussions of sexual risks, personal safety and danger avoidance were associated with a reduced likelihood of regretting doing something while drinking, experiencing sexual violence, and having sex without a condom. Parental provision of alcohol was associated with alcohol misuse. **Conclusion:** These findings provide a life course perspective on the development of risk behaviors and adverse outcomes during emerging adulthood.

Keywords: binge drinking, intimate partner violence, parenting, risky sexual behavior, sexual violence

The Influence of Pre-College Behaviors and Parenting Practices on Alcohol Use, Sexual Behaviors, and Adverse Outcomes Among First-Year College Women

Moving away from home to go to college is perceived as an important marker of adulthood in U.S. society. Within the framework of the Life Course Perspective¹, moving away to college would be viewed as a transition to adulthood. The Life Course Perspective emphasizes the influence of environmental conditions and changes within society (e.g., historical changes) on human development across the lifespan. According to this perspective, individuals' lives follow a trajectory, or a pattern of phases over the life course, from birth to death. Life trajectories are comprised of several interwoven patterns that vary across domains (e.g., work and family). Within each trajectory there are events, also called transitions (e.g., high school graduation and marriage), that signal the end of one social role/developmental phase and the beginning of another¹. Within the life course trajectory, leaving home to go to college would represent a transition that marks the end of adolescence and the beginning of young adulthood. However, for the past two decades, some have argued that, in developed western nations such as the U.S., the period from late adolescence through the mid- to late-twenties represents a distinct period referred to as emerging adulthood^{2,3}.

Emerging adulthood is characterized as a developmental period between adolescence and adulthood that spans from ages 18-29³. During this period, individuals can be viewed as having moved beyond adolescence given that they have been granted many "adult rights" (e.g., being allowed to vote, sign legal documents, and drink at age 21). However, many have not yet assumed roles and responsibilities that are commonly associated with adulthood, such as financial independence, marriage, and parenting. During this period, many are still exploring who they are and experimenting with how they want to live their lives. This period is characterized by role experimentation⁴.

Moving away from parents' home to college provides many emerging adults with their first opportunities for independent living and self-care⁵. This newfound independence provides emerging adults with the means to experiment with different roles/situations across multiple contexts (e.g., educational, intimacy, and political) and increased opportunities for engagement in risk behaviors.

Engagement in risk behaviors and experiencing adverse outcomes are often at a peak during the emerging adulthood years². College students, in particular, have been found to exhibit higher rates of risk behaviors compared to their non-college aged peers due to their environmental contexts, norms, lack of supervision, and other reasons⁶.

The purpose of this study was to take a life course view of risk behaviors and adverse experiences among female college students during their transition to college living. Specifically, we examined pre-college behaviors and parenting behaviors that may act as to deter or facilitate engagement in risk behaviors and the occurrence of adverse experiences among first semester female college students residing in college. The risk behaviors examined included alcohol misuse (underage drinking, binge drinking, regretting doing something while drinking) and sexual behaviors (having sexual contact, having sexual intercourse, having multiple sexual partners, and having sex without a condom). Additionally, being victimized via intimate partner violence (IPV), sexual violence (SV), and intimidation (i.e., stalked, threatened, or made afraid) were examined as adverse experiences. Focusing solely on college women is critical because rates and experiences of the risk behaviors and adverse experiences relevant to this study are highest and more detrimental among this population.

Risk Behaviors and Adverse Experiences

Although illegal, many college students engage in underage drinking (drinking before the legal age of 21) and many of these students partake in binge drinking. Binge drinking, defined as having four-five drinks in a row in a two-hour time span (four drinks for women and five drinks for men) is an epidemic on college campuses^{7, 8}. In 2018, 54.9% of college students between the ages of 18-22 reported drinking alcohol in the past month prior to data collection; 36.9% reported drinking four-five drinks in a row⁸. Research also suggests that binge drinking is more detrimental for college women relative to college men. According to the American College Health Association (ACHA)⁷, binge drinking among college women is associated with a higher likelihood for being diagnosed with a sexually transmitted infection (STI) and for having unprotected sex. ACHA⁷ also found that approximately one third of college women reported that they did something while drinking that they later regretted, and 29% reported that

they forgot what they did while drinking at least once during the past year. Binge drinking among young women is also associated with risk for injury and sexual violence⁹. Lastly, compared to college men, college women are more likely to experience black outs, passing out, alcohol tolerance, and injury as a result of their drinking behavior¹⁰.

Sexual exploration is also common during emerging adulthood, particularly among college students. A recent study indicated that 43% of sexual encounters for women and 35% of sexual encounters for men occurred while they were in college or university¹¹. Many emerging adults engage in risky sexual behaviors such as having multiple sex partners^{12, 13} and/or failing to use a condom during sex¹⁴. Such behaviors may increase emerging adults' likelihood for unplanned pregnancies and/or contracting a sexually transmitted infection¹⁴. Moreover, having multiple sex partners can also negatively impact emerging adults' psychosocial development by increasing their likelihood for experiencing IPV, low self-esteem, depression, and negatively impacting future romantic relationship¹⁵.

Emerging adults are also at high risk for experiencing intimate partner violence (IPV) and sexual violence (SV). IPV, as defined by the Centers for Disease Control and Prevention (CDC) is a pattern of abusive behaviors and coercive control within an intimate relationship¹⁶. SV refers to sexual activity in which consent is not obtained or freely given (e.g., sexual assault)¹⁷. Although one in five women are sexually assaulted in their lifetimes¹⁸, rates of experiencing IPV and SV are highest among emerging adults¹⁹. Approximately 24% of women 18 years of age or older experienced some form of physical IPV in their lifetime²⁰. Moreover, women are more likely to be victims of SV relative to men²¹. Emerging adults who are victims of IPV are likely to experience symptoms of trauma, anxiety, depression, and interpersonal distress^{22, 23, 24}. IPV and SV can also inhibit academic success and/or potentially derail young women's academic careers^{25, 26}.

Intimidating behaviors such as stalking, which is defined as a consistent pattern of uninvited behaviors such as harassing or threatening tactics²⁷ are also commonly experienced by women. Rates of women reporting to have been stalked by a current/former partner or stranger in the United States range

from 8% - 43%²⁸. Women are generally more likely to be victims of such behaviors than men²⁸ and men are more likely to engage in intimidating behaviors such as the use of fear tactics²⁹.

Although rates of IPV are high among community samples of emerging adults^{30, 31, 32}, being enrolled in college may increase one's risk of being a victim of IPV³³. Barnyard et al³⁴ found that nearly 25% of college women reported being sexually victimized at least once. Female college students, ages 18-25, are significantly more likely to experience IPV and SV compared to men, women of other age groups, and same age women who are not on college campuses^{35, 24}. Rates of stalking and other forms of intimidating behaviors are also high among university/college samples, with 29.1% of college women indicating to have been stalked; such percentages were higher than rates reported from national samples during that time period³⁶. Furthermore, Fisher et al^{35, 37} found that 13.1% of women were stalked at least once during a seven-month period of the academic year.

Problem-Behavior Theory

Within the life course perspective¹, this study was informed by Problem-Behavior Theory (PBT)³⁸ to understand risk behaviors and adverse outcomes among college women. PBT stresses the need to examine factors that precede risk behaviors to understand how to minimize engagement in such behaviors. PBT also emphasizes that risk behaviors often co-occur across risk behavior domains³⁸. In other words, engagement in risk behaviors in one domain may increase the likelihood for engagement in risk behaviors in other domains. For instance, heavy alcohol use has been associated with risky sexual behaviors such as having a high number of sexual partners and lower condom use during sex^{14, 39}. Moreover, PBT also argues that risk behaviors can increase the likelihood for experiencing health/life compromising outcomes³⁸. For example, several studies have found associations between heavy drinking and IPV and SV. Approximately 25%-30% of college women report having experienced sexual victimization in association with problem drinking^{40, 41}. In other words, heavy drinking is found to be a risk factor for alcohol-involved sexual assault^{40, 41, 42} and reports of IPV victimization⁴³. Studies also suggest that engagement in substance use during adolescence increases the likelihood of heavy

alcohol/drug use in young adulthood⁴⁴. Thus, experiences with alcohol before college were examined as risk factors to alcohol misuse, risky sexual behaviors, IPV and SV victimization, and intimidation.

Additionally, PBT stresses the need to understand protective factors against engagement in risk behaviors³⁸. Positive parental attitudes and communication about sex and alcohol can serve as protective factors against engagement in alcohol misuse and risky sexual behaviors. Research suggests that parent-teen sexual communication, monitoring, closeness, and the transmission of positive values have been associated with delayed sexual initiation, less sexual activity, and more consistent condom use among those who are sexually active^{45, 46, 47, 48, 49}. Parental influences on emerging adult drinking are thought to include parental closeness/nurturance, monitoring, permissiveness, perceived awareness, and parental attitudes towards drinking^{50, 51, 52, 53, 54}. These findings cohesively suggest that a positive parent-adolescent relationship and parental communication about alcohol and/or other risk behaviors conveys attitudes to emerging adults that promote low engagement in drug use and sexual activities and usage of protection during sex.

Furthermore, although children of alcoholic parents are also more likely to become heavy drinkers and/or engage in constant drug use as young adults⁴⁴, to the authors' knowledge, studies have yet to examine the influence of parents providing alcohol to their underage adolescent/young adult on later alcohol use. It may be possible that parental provision of alcohol may convey parental attitudes of acceptance or promotion of underage drinking in addition to providing access to alcohol. Both could facilitate alcohol abuse and other risk behaviors associated with heavy drinking. The present study builds on this literature by examining parents providing alcohol to their child as a risk factor for later alcohol misuse, risky sexual behaviors, IPV and SV victimization, and experiencing intimidation during emerging adulthood and the transition to college living.

The Present Study

In the present study, parental provision of alcohol to their child and pre-college experiences with alcohol were examined as potential risk factors for these risk behaviors and adverse outcomes. In contrast, parental closeness and parental communication were examined as potential protective factors against the

occurrence of alcohol misuse, sexual risk behaviors, IPV and SV victimization, and experiencing intimidation during college women's first semester of college. By taking a life course perspective, findings from the present study can provide a deeper understanding as to how pre-college factors can impede or promote a healthy and successful transition to college living and can inform educational interventions for college-bound emerging adult women and their parents.

Method

The current study utilized a quantitative, cross-sectional design. Data were collected via anonymous online surveys using the Qualtrics™ Survey⁵⁵ platform from female freshmen college students attending a private residential university in the northeastern United States.

Sample and Procedures

A total of 1,000 female freshmen were invited to participate in an online survey examining transitions to college living. The inclusion criteria were a) female; b) age 18 or older; c) full-time matriculated first-year student; d) able to read, write and understand English. All of the procedures for the protection of human subjects were reviewed and approved by the university IRB.

Data collection took place at the end of participants' first semester in college, but prior to final exams. The university's Institutional Research Office provided email addresses for a random sample of 1,000 female freshmen students. Students were recruited using the procedures outlined by Dillman and associates⁵⁶. Potential participants were contacted a maximum of 3 times and re-invited to participate unless they chose to opt out from further contact. Qualtrics™⁵⁵ was used to distribute contact emails with invitations to participate and a URL link to the survey. The elements of informed consent were provided on the first screen; participants had to type in "YES" to indicate that they had read the information and agreed to participate. No identifiers were collected as part of the online survey and demographic questions were limited to reduce the risk of deductive disclosure. At the end of the survey, participants were offered the option to enter a drawing for one of ten \$100 Amazon gift cards. Those who chose to enter the drawing were redirected to a separate Qualtrics™ site where they entered an email address for the raffle.

Measures

Demographics

Demographic variables included age, race, Hispanic/Latina ethnicity, and mother's level of education as a proxy for socioeconomic status. Most of the demographic variables were assessed using widely used, published, single-item measures. Family variables included college experience of mother/father, closeness to mother, and presence of older sibling who attended college. The family's previous experience with college was assessed with the following two questions. Participants were asked for each parent's level of education (*middle school or less* [1] to *graduate degree* [8]) and by asking the yes/no question, "*Do you have older siblings who went to live away at college before you did?*" (1 = *No*, 2 = *Yes*).

Pre-college behaviors and parenting variables

Pre-college experiences with alcohol was assessed using a single generic question of alcohol use frequency adapted from the alcohol screening tool AUDIT⁵⁷. The question asked, "*Before you came to college, approximately how often did you drink beer, wine, or other alcoholic beverages?*" Response choices ranged from *never* (1), to *every day or almost every day* (6). Participants were also asked, "*At the beginning of the semester or during the semester, did a parent ever provide you with beer, wine, or liquor for a party or for your residence hall room?*" Responses were dichotomized (0 = *No*, 1 = *Yes*).

Other pre-college parenting behaviors/processes that were measured included parent-teen sexual risks communication (seven items)^{46, 47, 48}, communication about personal safety and avoiding danger (two items), and parental closeness (one item). Parent-teen sexual risks communication items were from the 7-item *Parent-Teen Sexual Risks Communication Scale (PTSRC-III)*^{46, 48}. This measure has documented reliability and validity from earlier studies with a variety of adolescent and young adult samples (Cronbach's alpha > .92). It is also the only measure used in its entirety in the present study. Items are worded, "*How much information did your mother/father share with you about... waiting to have sex, preventing pregnancy, preventing STIs, preventing HIV, using condoms, peer pressure to have sex, and how to resist pressure to have sex?*" Response options ranged from *nothing* (1) to *extensive* (5). A

composite score based on the mean of these seven items was created; higher scores indicated more communication about sexual risks between parents and teens. Cronbach alpha for the present study's sample was .95. The parent-teen communication items related to safety and danger (2 items) used wording that paralleled that of the PTSRC-III items and used the same response options. Both items were highly correlated ($r = .81, p < .001$), thus a composite score based on the mean of these two items was created. Higher scores indicated more parent-teen communication about safety and danger. Furthermore, parental closeness was assessed via one single item ("During your senior year of high school, how close were you with your mother or primary mother figure?"). Response options ranged from *not at all close* (1) to *extremely close* (4).

Risk behaviors and adverse events during the first semester of college

Recall for all risk behavior and adverse event questions were limited to 30 days or to the "current fall semester", which would include approximately three months. The accuracy of recall over a 3- to 6-month period is supported in the literature, particularly for salient events^{58, 59}.

Alcohol-related risk behaviors were assessed using published, single-item measures that are commonly employed in national surveys of college students^{7, 60} and in the CDC's 2017 *Youth Risk Behavior Survey* (YRBS)⁶¹. Frequency of alcohol use during the past 30 days was assessed by asking, "During the past 30 days, on how many days did you have at least one drink of alcohol?"; eight response options ranged from *0 days* to *all 30 days*. Frequency of binge drinking (five or more drinks in a row within a couple of hours) during the past 30 days was assessed using a parallel question and response options. Alcohol-related regret was assessed with the question, "During the fall semester, did you ever do something while drinking alcohol that you later regretted? Responses were dichotomized (0 = *No*, 1 = *Yes*).

Sexual behaviors were also assessed using commonly employed, single-item measures. These single-item measures are widely used and published items adapted from the YRBS⁶¹ and/or the *National College Health Assessment*⁶⁰. Specific sexual behaviors during the first semester were assessed with the following two yes/no questions (0 = *No*, 1 = *Yes*), "During this semester, have you had any type of sexual

contact with another person?” and “During this semester, have you had sexual intercourse?” Participants were also asked the following to assess numbers of sexual contacts/partners, *“During this semester, with how many different people have you had sexual contact?”* Sexual contact was used rather than sexual intercourse to be more inclusive of sexual behaviors that some students might not consider to be intercourse. Response options ranged from *none* to *6 or more people*. Participants were also asked the following Yes/No question, *“The last time you had sexual intercourse during this semester, did you or your partner use a condom?”* (0 = *No*, 1 = *Yes*).

Experiences with IPV, SV, and intimidation were assessed via three separate items from the *Abuse Assessment Screen (AAS)*^{62, 63}. The AAS has been used in studies with diverse groups of women. In previous studies, test-retest reliability was reported to be 0.83 and 0.97 for the summed 3-item scale and sensitivity was reported as 93%^{62, 63}. The three yes/no items (0 = *No*, 1 = *Yes*) were worded: *“During the fall semester, had anyone forced you to have sexual contact or activities?”*; *“During the fall semester, have you been hit, slapped, kicked, or otherwise physically hurt by a boyfriend, girlfriend, partner or acquaintance?”*; and *“During the fall semester, have you been stalked, threatened, or made afraid by a boyfriend, girlfriend, partner or acquaintance?”*

Data Analyses

Data were downloaded from Qualtrics^{TM 55} copyright © [2019] and analyzed using SPSS v. 25⁶⁴ and MPLUS Version 8⁶⁵. Items were recoded as appropriate and multi-item scales were totaled. Internal reliability of multi-item scales was assessed. Preliminary analyses included examining response rates and differences in demographics between participants and the characteristics of female freshman students at the university. Frequencies and distributions were examined, and patterns of missing data were assessed. A correlation matrix using Spearman’s rho was created to examine the direction and strength of associations between all variables and to assess for potential multi-collinearity among predictors.

Nine logistic regression models were fit to the data using MPLUS Version 8⁶⁵; separate models were created for each of the risk behavior (alcohol misuse and sexual behaviors) and adverse experience (IPV, SV, and intimidation) outcomes of interest. For each model, one group was treated as a reference

group whereas the other group was used as the central group. Logistic regression was used to determine whether participants are best classified in the central group relative to the reference group according to the predictors of this study. Therefore, results indicated whether the predictors predicted membership in the central group compared to the reference group (positive coefficient) or whether the predictors predicted membership in the reference group relative to the central group (negative coefficient). Results from logistic regression models also indicated the probability that participants would belong in the central group relative to the reference group according to each predictor. An odds ratio greater than one implies that participants have a greater probability to be classified in the central group relative to the reference group given a one-unit increase in a specific predictor variable. In contrast, an odds ratio less than one suggests a greater probability for participants to be categorized in the reference group relative to the central group. A structural equation model (SEM) was also fit to the data using MPLUS to examine whether the predictors of the present study predicted more or less sexual partners during participants' first semester of college. Full Information Maximum Likelihood (FIML) was used to account for missing data. Through this procedure, participants who provided data for at least one of the variables pertaining to the model in question were included in the analyses. This is an effective and recognized procedure for the handling of data missing at random⁶⁶.

Results

A total of 241 female freshmen students completed the online survey, an overall response rate of 24.1%. Of these, 12 cases contained extensive amounts of missing data and were deleted from the dataset. The final sample size included 229 students. Participants ages ranged from 18 – 21 years old. No significant demographic differences were found between study participants and the population of first-year college women at the university in terms of age, race, or Hispanic/Latina ethnicity.

Demographics

A summary of the sample demographics is provided in Table 1. Most of the participants (72.5%) were 18 years old ($M = 18.3$; $SD = 0.53$) and identified as non-Hispanic/Latina whites (69.0%). Only one participant was 21 years old. More than 40% ($n = 104$; 45.4%) of young adults indicated to not have any

older siblings to live away at college. Participants were also asked whether they were *the only child* (1), *the oldest child* (2), *the middle child or one of the middle children* (3), or *the youngest child* (4). Nearly over a tenth ($n = 24$; 10.5%) of the sample reported being the only child in the family. The aforementioned two items were used to group participants according to whether they were the only child who went away to college (0 = *No*, 1 = *Yes*). Over half of participants ($n = 128$; 55.9%) were the only child in college. Within this subsample, 68% of young women ($n = 87$) were the oldest child, 7.8% of participants ($n = 10$) were middle children or one of the middle children, and 5.5% of this subsample ($n = 7$) were the youngest child. Given that such participants represented more than half of the sample, this variable was included as a covariate in the present study. Bivariate correlations (Spearman's rho) are shown in Table 2.

Logistic Regression Models

Nine logistic regression models were fit to the data to examine the contributions of being the only child in college, pre-college behaviors, and parenting variables on the likelihood of engaging in risk behaviors and experiencing adverse events during participants' first semester of college. Separate models were fit for each outcome assessing report of alcohol misuse, sexual behaviors, and adverse experiences. Being the only child in college, pre-college behaviors, and parenting variables were fit to each model as predictors controlling for one another.

Alcohol Use

Three regression models examined alcohol misuse during participants' first semester of college. A separate model was fit for each of the following three outcome variables: (a) underage drinking, (b) binge drinking, and (c) regretting doing something while drinking. Responses for all outcomes were dichotomized. The frequency of alcohol use item was dichotomized to create the underage drinking outcome. College students who did not drink during the 30 days prior to data collection were categorized in the reference group for the underage drinking model (no underage drinking, $n = 60$) whereas participants who drank at least once within these 30 days were categorized in the central group (underage drinking, $n = 148$). Models for the last two alcohol-related outcomes (binge drinking and regretting doing

something while drinking) included only those participants who reported underage drinking; thus, the 60 participants who reported no underage drinking were not included in these last two models. The frequency of binge drinking item was dichotomized to create the binge drinking outcome. For the binge drinking model, participants who did not binge drink during the 30 days prior to data collection were categorized in the reference group (no binge drinking, $n = 44$) whereas others who binge drank at least once within these 30 days were categorized in the central group (binge drinking, $n = 104$). Lastly, when modeling regret doing something while drinking, women who regretted doing something while drinking (regret while drinking, $n = 63$) were placed in the central group, whereas all others were categorized in the reference group (no regret while drinking, $n = 86$).

Logistic regression results for all three alcohol use models are presented in Table 3. Results indicated that participants who engaged in underage drinking during the first semester of college were more likely to not be the only child in college (results were approaching significance), were more likely to have parents providing them alcohol either during or at the beginning of the semester, and were more likely to have drunk alcohol at least once per month in high school. Specifically, engaging in alcohol use was 51% less likely for students who were the only child in their family attending college. Furthermore, participants who drank alcohol before college were more than eight times likely to have engaged in underage alcohol use during their first semester of college. Participants whose parents provided them with alcohol were more than 6,000 times more likely to have engaged in underage drinking during their first semester of college.

For a unit increase in drinking alcohol pre-college (i.e., $.93 SD$), participants were 76% more likely to have binge drank during their first semester of college. Although approaching significance, participants whose parents providing them alcohol either at the beginning or during their first semester of college were more than three times likely to have binge drank.

Regretting doing something while drinking alcohol was associated with low levels of parental closeness prior to attending college and drinking alcohol before college. Those who reported mother-daughter closeness were 41% less likely to report regretting something they did while drinking. Lastly,

participants who drank alcohol before college were 52% more likely to regret something they did while drinking during their first semester of college.

Sexual Behaviors

Separate models were fit for each of the following sexual outcome variables: (a) having sexual contact, (b) having sexual intercourse, and (c) having sex with a condom. Non-engagement in sexual contact ($n = 108$), non-engagement in sexual intercourse ($n = 26$) and having sex with a condom ($n = 49$) were treated as reference groups for these outcomes.

Logistic regression results for sexual behaviors are presented in Table 4. Participants who reported sexual contact during their first semester of college reported lower levels of closeness with their mother, were more likely to have parents who provided them alcohol either at the beginning or during the semester (results were approaching significance), and were more likely to have drunk alcohol before college. Participants who were close to their mother had a 46% lower likelihood of having sexual contact during their first semester of college. Furthermore, participants whose parents provided them alcohol were more than three times likely to have had sexual contact (approaching statistical significance). Students who drank alcohol before college were more than twice as likely to report sexual contact during their first college semester.

Surprisingly, parent-teen communication about sexual risks was associated with a 92% greater probability for having sex during students' first semester of college. However, although approaching significance, such participants were also more likely to have used a condom during sex. Specifically, these participants had a 39% lower likelihood of not of using a condom during sex. Lastly, participants who drank alcohol before college were more than 92% likely to not use a condom during sex.

Adverse Experiences

Participants' experiences with IPV, SV, and intimidation (stalked, threatened, or made afraid by a boyfriend, girlfriend, partner, or acquaintance) were examined as outcome variables. Separate models were fit, one for each adverse experience. Participants who were not victimized by these acts of violence

were classified in the reference groups for these outcomes (no IPV, $n = 205$, no SV, $n = 198$; no Intimidation, $n = 201$).

Logistic regression results for adverse experiences are presented in Table 5. Participants who were provided alcohol by their parents and/or drank alcohol before attending college were more likely to have been victimized by IPV. Participants who were provided alcohol by their parents were more than four times likely to have experienced IPV during their first semester of college. Drinking alcohol before attending college more than doubled the likelihood for experiencing IPV.

Pre-college experiences with alcohol marginally increased the probability for experiencing sexual violence by more than 76%. Having parents talking to their emerging adult child about personal safety and avoiding danger decreased participants' likelihood of experiencing SV by 58%. Unexpectedly, participants who had their parents providing them alcohol before or during the semester were 100% less likely to having experienced SV. This is perhaps due to very small numbers in both the SV and the parental provision of alcohol groups. Furthermore, parent-teen communication about safety and danger and engaging in alcohol use pre-college decreased the likelihood for experiencing intimidation during participants' first semester of college by 48% and by 49%.

Structural Equation Model

An SEM model was fit to the data to examine being the only child in college, pre-college behaviors, and parenting variables as predictors of number of sexual partners. All predictors were fit in the model controlling for one another while predicting number of sexual partners (results not shown). Results showed that engaging in alcohol use pre-college marginally predicted having more sexual partners during college ($B = .19$, $SE = .11$, $\beta = .18$, $p = .08$), whereas parent-teen sexual risks communication was negatively associated with number of sexual partners ($B = -.27$, $SE = .13$, $\beta = -.25$, $p < .05$). In other words, lower levels of parent-teen sexual risks communication were related to having more sexual partners during participants' first semester of college.

Discussion

Many studies have documented high rates of risk behaviors and adverse experiences among college students, but most have failed to take a life course perspective to examine these outcomes in a developmental context. By intertwining the life course perspective with PBT, the findings of the present study suggest that pre-college risk behaviors and parenting behaviors can influence emerging adults' experiences as they transition into the college environment. More broadly, these findings suggest that these behaviors and experiences occur as part of an individual's life trajectory, interwoven with earlier life experiences and connected with the lives of their parents and families¹. In short, college risk behaviors do not occur in isolation; rather they are influenced by earlier behaviors and experiences and often shape the behaviors and experiences of young adulthood.

High rates of pre-college drinking were predictive of underage drinking, binge drinking, and later regret for doing something while drinking during participants' first semester of college. These findings coincide with past studies suggesting that adolescent alcohol use is related to later alcohol use in young adulthood⁴⁴. Experiences with heavy drinking pre-college were also associated with experiencing adverse experiences, specifically IPV and SV during emerging adult women's first semester of college (although the latter was approaching significance). These findings also coincide with previous studies that indicated that alcohol use can serve as a risk factor for experiencing IPV and SV^{40, 41, 42, 43}. These findings also suggest that heavy drinking during adolescence may hinder young adult women's college experiences during their first semester. Furthermore, alcohol use pre-college increased the likelihood for having sexual contact and for having sex without a condom during participants' first semester of college. Such behaviors were also marginally related to having more sexual partners during college, in conjunction with past findings indicating that heavy alcohol use is related to low condom use and reports of having multiple sexual partners among college students^{14, 39}. Cohesively, these findings coincide with PBT's argument of risk behaviors increasing one's risk for negative outcomes and for the co-occurrence of risk behaviors across multiple domains³⁸. However, by examining pre-college drinking, findings of the present study build on this notion by taking a developmental approach on the potential change and stability of risk behaviors. Specifically, findings of the present study suggest that risk behaviors such as alcohol use may

continue throughout the transition of adolescence to young adulthood, and that risk behaviors during adolescence may lead to other forms of risk behaviors in young adulthood. Longitudinal designs will be necessary to confirm these assertions in future studies.

Findings related to parental influences are consistent with existing literature documenting the influence of parenting processes on a variety of risk behaviors (e.g., unprotected sex and substance use) in adolescents. Specifically, parenting behaviors and processes that have been identified as protective factors against adolescent risk behaviors in the literature include parent-child closeness, monitoring, supervision, sexual communication, and role-modeling^{45, 46, 47, 48, 49, 50, 51, 52, 53, 54}. This is further supported in the present study's findings indicating that pre-college closeness to mother, parent-teen sexual risk communication, and parental communication about safety and danger were associated with less regrets for doing something while under the influence of alcohol, having less sexual contact, and a reduced likelihood for experiencing SV and intimidation. Importantly, although participants who communicated with their parents about sexual risks were more likely to have had sex during their first semester of college, they were also more likely to use a condom during sex and report fewer sexual partners during their first semester of college. Thus, these findings suggest that effective parent-teen relationships may serve as a protective factor against engagement in risk behaviors and adverse outcomes among emerging adult women entering college.

Parents providing alcohol to their child was found to serve as a risk factor to young adult women's transition to college. Specifically, these women were more likely to have engaged in both underage and binge drinking during their first semester of college (although the latter was approaching significance). They were also marginally more likely to have had sexual contact and were more likely to have experienced IPV. As a whole, these findings suggest that parents should limit the provision of alcohol to their child as they enter college. Future studies should examine whether the provision of alcohol from parents promotes positive attitudes about alcohol to further explain these findings.

Importantly, it was found that being the only child to attend college was marginally related to less underage drinking during emerging adults' first semester of college. To the authors' knowledge, this was

not examined in previous studies. To more fully understand whether being the only child to attend college serves as a protective factor against engagement in risk behaviors pertaining to alcohol use, future studies will need to examine whether these individuals serve as role models to their siblings and/or other factors in the home that may deter such individuals from engaging in such behaviors.

In summary, this study highlights that underage drinking, alcohol misuse, alcohol-related risk behaviors, sexual risk behaviors, and adverse experiences in college settings must be viewed as a more developmental perspective. Pre-college behaviors and parenting practices may directly influence underage drinking, alcohol misuse, and alcohol-related risk factors (e.g., SV victimization and having sex without a condom). Parents and college bound young women need anticipatory guidance regarding safety, underage drinking, alcohol misuse, and sexual risk behaviors. For instance, parents should be made aware that providing underage female freshmen college students with alcohol may contribute to alcohol misuse and adverse outcomes such as IPV.

Limitations & Future Directions

Although the findings of the present study contribute to the emerging adulthood literature, they should be viewed in light of several limitations. First, although many of the predictors assessed pre-college experiences, the cross-sectional design of this study does not allow for the determination of causality. Secondly, given the small sample size in the reporting of certain behaviors (e.g., parents providing alcohol to their emerging adult child) and outcomes of this study (i.e., IPV, SV, and intimidation), the possibility for Type I error must be considered. The small sample size within some of our categories may have yielded insufficient power, particularly given the number of analyses conducted in the present study. The small sample size across the categories is also why findings that were approaching significance were discussed. Also, it is important to note that this study's research questions were exploratory, thus the number of analyses conducted were necessary and hence Bonferonni adjustments for significance level were not conducted. Future longitudinal designs within a larger subsample for these behaviors and experiences will be necessary to examine the influence of pre-college experiences on later reports of risk behaviors and adverse outcomes during college.

Additionally, a small range of adverse experiences were examined in this study. Future studies should examine a wider variety of violence experiences. Violence experienced within intimate relationships and other contexts may consist of various forms of psychological, physical, and sexual violence⁶⁷. The small number of participants who reported to have experienced adverse outcomes during their first semester of college may be because participants experienced behaviors not assessed in this study. Thus, future studies should also examine other forms of violence including (but not limited to) psychological/emotional abuse and insisting on sex without using physical force and identify how to best support victims. In line with this notion, participants reported on IPV, SV, and intimidating behaviors expressed from a boyfriend, girlfriend, partner, or acquaintance. Behaviors expressed from a romantic partner may be interpreted differently than behaviors expressed from a friend/associate/stranger. Moreover, by definition, IPV is a pattern of abuse within an intimate relationship¹⁶. Future studies should limit the assessment of IPV, SV, and intimidating behaviors perpetrated within intimate relationships (as defined by the victim).

Future studies will also need to examine a wider range of risky sexual behaviors. Although lack of condom use and having many sexual partners are some of the most common types of risky sexual behaviors among emerging adults, such individuals during this developmental period are also likely to engage in unprotected oral and/or anal sex and have sexual intercourse without protection multiple times^{14, 68}. The lack of diversity in risky sexual behaviors may also explain the non-significant findings between some of this study's predictors and its outcomes. Past studies have shown that specific variables can contribute uniquely to specific risky sexual behaviors such as frequency of sex, having sex for the first time at a young age, and having sex before committing to one's partner and/or after only knowing one's partner for a short period of time⁶⁹. A wider range of such behaviors may also have benefitted this study given that very few students indicated they had more than two sexual partners; this small number could explain the non-significant findings between some of the predictors and this outcome.

Findings of the present study provide implications for college counselors, college health care providers, and administrators. The literature clearly demonstrates that young college women experience

higher rates of IPV/SV/intimidation compared to all age groups and their same-age peers who are not in college^{24, 33, 35, 36}. Younger college women (e.g., first-years) are at even greater risk for experiencing IPV/SV⁷⁰. This implies that providers who practice in college health settings should be actively involved in efforts to reduce alcohol misuse on college campuses. College women should be routinely screened for alcohol misuse and experiences (past and present) of IPV, SV, and intimidation. Future longitudinal studies should be undertaken with larger and diverse samples of college women at many types of colleges to further explicate the relationship between parenting, alcohol misuse, risky sexual behaviors, and risk of interpersonal violence.

Additionally, variables that have been shown to be influential to the predictors and/or outcomes may be worth investigating as mediators to the identified relationships of the present study. For instance, mother-daughter sexual risk communication was found to exert a significant influence on reducing the sexual risk behaviors of urban adolescent girls; further, this effect was found to be mediated through increased sexual and condom use self-efficacy⁴⁵. These same types of influences and mediator pathways should be further studied as they relate to successful transitions to emerging adulthood. How can parents best socialize their adolescents and emerging adults and assist them in building the knowledge, attitudes, self-efficacy, and skills to safely negotiate the transitions to emerging adulthood and independent living? This guidance in socialization and skill-building may be particularly vital for young people who are going to be facing particularly challenging environments, including residential college. Further study is also needed to understand not just the mechanisms and mediators of parental influence but also how these mechanisms may vary across groups. For example, how do parental influences vary if the family has no previous experiences with college living when neither parents nor older siblings have attended college? Further understanding of the mechanisms, mediators, and also moderators of influence of risk behaviors are needed to design effective interventions for both students and parents and to assist healthcare providers, student health, and student life professionals in assisting students in making successful transitions to emerging adulthood in college and other settings.

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Table 1. *Descriptive statistics for demographics, pre-college behaviors, parenting variables, risk behaviors, and adverse experiences during first semester of college. Percentages based on valid, non-missing responses (N = 229).*

Demographics	<i>mean [SD]</i>
Age (range from 18 to 21):	18.3 [.53]
	<i>n (%)</i>
Race:	
Asian / Pacific Islander	57 (24.9%)
Black	10 (4.4%)
White	158 (69.0%)
More than one race	4 (1.7%)
Hispanic / Latino Ethnicity:	38 (16.6%)
Mother's education level:	
High school diploma, some college or AD degree	41 (19.5%)
Baccalaureate degree and/or some graduate school	90 (42.9%)
Graduate degree (e.g., MA, MS, JD, MD, PhD)	63 (30.0%)
Only child in the family to go away to college	128 (55.9%)
 Pre-college behaviors and parenting variables	
Pre-college close / very close with mother	154 (73.3%)
Pre-college sexual risk communication:	
A lot - Extensive	24 (11.5%)
Pre-college parent talked about safety and danger:	
A lot – Extensive	120 (57.4%)
Pre-college drinking at least once per month	109 (52.1%)
Parent(s) provided alcohol	19 (9.1%)
 Risk behaviors and adverse events	
Drank any alcohol in the last 30 days	148 (71.2%)
Binge drank at least once in the last 30 days	104 (50.0%)
Did something while drinking alcohol that later regretted	63 (30.1%)
Had any sexual contact	99 (47.8%)
Had sexual intercourse	74 (74.0%)
Number of sexual partners (more than two people)	13 (13.1%)
No condom use during intercourse	24 (32.9%)
Experienced IPV	3 (1.4%)
Experienced SV	9 (4.3%)
Experienced stalking, threat, or made afraid	7 (3.4%)

Table 2. Correlations between first sibling to attend college, pre-college behaviors, parenting variables, risk behaviors, and adverse experiences during first semester of college ($N = 229$).

	a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k.	l.	m.	n.	o.	p.
a. only child to go to college	1.0 ^a															
b. pre-college closeness to mother	.02	1.0														
c. pre-college parent-teen sexual risk communication	-.10	.33**	1.0													
d. pre-college parents talked about safety & danger	.06	.27**	.35**	1.0												
e. drank at least once per month in high school	-.18**	.05	.25**	-.06	1.0											
f. parent provided alcohol during 1 st semester	-.03	-.06	.16*	.05	.24**	1.0										
g. frequency of drinking in the last 30 days	-.34**	-.06	.14	-.02	.69**	.28**	1.0									
h. frequency of binge drinking in the last 30 days	-.23**	-.10	.05	-.02	.56**	.26**	.78**	1.0								
i. regretted doing something while drinking during 1 st semester	-.17*	-.19**	-.08	-.19**	.38**	.19**	.40**	.47**	1.0							
j. any sexual contact during 1 st semester	-.10	-.13	.18*	-.03	.42**	.23**	.42**	.36**	.27**	1.0						
k. sexual intercourse during 1 st semester	-.16	-.02	.27**	-.01	.12	.13	-.04	-.08	.10	^c	1.0					
l. sexual partners during 1 st semester	-.04	-.01	-.10	-.02	.20	.05	.25*	.26**	.25*	^c	.04	1.0				
m. condom use during intercourse	.07	.10	.18	.15	-.14	.04	-.08	-.19	-.05	^c	^c	-.20	1.0			
n. IPV during 1 st semester	-.06	-.00	-.00	-.03	.11	.10	.12	.12	.10	.13	-.03	.00	-.24*	1.0		
o. SV during 1 st semester	-.10	-.11	-.11	-.19**	.08	-.07	.07	.07	.22**	.17*	-.08	.28*	-.16	.37**	1.0	
p. Intimidation during 1 st semester ^b	.00	-.09	-.09	-.13	-.10	.03	-.00	.05	.05	.03	.12	.02	.04	-.02	.22**	1.0

* $p < .05$, ** $p < .01$; ^aAll correlations are Spearman's ρ ; ^bstalked, threatened, or made afraid by a boyfriend, girlfriend, partner, or acquaintance; ^cCorrelations cannot be computed because at least one of the variables is constant.

Table 3. *Logistic regression models for alcohol misuse.*

	<i>Underage drinking</i> (<i>n</i> = 148)				<i>Binge drinking</i> (<i>n</i> = 104)				<i>Regrets while drinking</i> (<i>n</i> = 63)			
	<i>B</i>	(<i>S.E</i>)	β	<i>OR</i>	<i>B</i>	(<i>S.E</i>)	β	<i>OR</i>	<i>B</i>	(<i>S.E</i>)	β	<i>OR</i>
Only child to go to college	-.71	(.42)	-.09~	.49	-.49	(.39)	-.30	.61	-.51	(.36)	-.28	.60
Pre-college reported closeness to mother	-.07	(.26)	-.01	.93	-.28	(.27)	-.27	.76	-.53	(.25)	-.45*	.59
Pre-college parent-teen sex communication	-.14	(.27)	-.04	.87	-.18	(.23)	-.24	.84	-.27	(.22)	-.33	.76
Pre-college parents talked about safety & danger	-.02	(.18)	-.01	.98	.29	(.23)	.36	1.34	-.30	(.21)	-.32	.74
Parent provided alcohol during first semester	8.73	(.60)	.64***	6201.55	1.15	(.79)	.47~	3.16	.73	(.54)	.27	2.07
Drank alcohol at least once per month in high school	2.18	(.36)	.62***	8.82	.57	(.19)	.65**	1.76	.42	(.23)	.43*	1.52

Note. Reports of non-alcoholic use were treated as reference groups for frequency of drinking and binge drinking. Participants who indicated to not have done something that they regretted while drinking alcohol were treated as the reference group for the regrets while drinking outcome.

~ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 4. *Logistic regression model for sexual behaviors (N = 229).*

	<i>Sexual contact</i> (n = 99)				<i>Sexual intercourse</i> (n = 74)				<i>Sex without a condom</i> (n = 24)			
	<i>B</i>	<i>(S.E)</i>	β	<i>OR</i>	<i>B</i>	<i>(S.E)</i>	β	<i>OR</i>	<i>B</i>	<i>(S.E)</i>	β	<i>OR</i>
Only child to go to college	-.01	(.32)	-.00	.99	-.77	(.52)	-.46	.46	-.30	(.54)	-.14	.74
Pre-college reported closeness to mother	-.62	(.21)	-.40**	.54	-.34	(.32)	-.32	.71	-.03	(.36)	-.03	.97
Pre-college parent-teen sex communication	.28	(.18)	.24	1.32	.65	(.32)	.85**	1.92	-.49	(.32)	-.52~	.61
Pre-college parents talked about safety & danger	-.02	(.17)	-.02	.98	-.14	(.26)	-.18	.87	-.39	(.32)	-.41	.67
Parent provided alcohol during first semester	1.20	(.67)	.28~	3.31	.75	(.84)	.26	2.11	-.29	(.70)	-.08	.74
Drank alcohol at least once per month in high school	.85	(.16)	.76***	2.33	-.03	(.25)	-.03	.97	.65	(.29)	.71**	1.92

Note. Reports of non-engagement in sexual acts were treated as reference groups for the sexual contact and sexual intercourse outcomes. Reports of having sex with a condom was treated as a reference group for the sex without a condom outcome.

~ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 5. Logistic regression models for adverse experiences ($N = 229$).

	IPV ($n = 3$)				Sexual Violence ($n = 9$)				Intimidation ^a ($n = 7$)			
	<i>B</i>	(<i>S.E</i>)	β	<i>OR</i>	<i>B</i>	(<i>S.E</i>)	β	<i>OR</i>	<i>B</i>	(<i>S.E</i>)	β	<i>OR</i>
Only child to go to college	-.93	(.92)	-.32	.39	-.89	(.87)	-.17	.41	.15	(.87)	.07	1.17
Pre-college reported closeness to mother	.02	(.74)	.01	1.02	-.48	(.45)	-.15	.61	-.38	(.56)	-.29	.68
Pre-college parent-teen sex communication	.03	(.63)	.02	1.03	-.12	(.57)	-.05	.89	.17	(.70)	.17	1.18
Pre-college parents talked about safety & danger	-.29	(.33)	-.21	.75	-.87	(.41)	-.36*	.42	-.65	(.28)	-.66**	.52
Parent provided alcohol during first semester	1.43	(.81)	.28**	4.17	-7.74	(.70)	-.87***	0.00	1.39	(1.32)	.38	4.03
Drank alcohol at least once per month in high school	.99	(.51)	.76***	2.68	.57	(.30)	.25~	1.76	-.67	(.34)	-.71**	.51

Note. Reports of not experiencing adverse experiences were treated as reference groups.; ^astalked, threatened, or made afraid by a boyfriend, girlfriend, partner, or acquaintance.

~ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.