Diary Study of Sexual Risk Taking, Alcohol Use, and Strategies for Reducing Negative Affect in Female College Students

NICOLETTE L. HOWELLS, PH.D., a,* AND HOLLY K. ORCUTT, PH.D. b

a The Center for Cognitive and Behavioral Therapy of Greater Columbus, Inc., Columbus, Ohio
b Department of Psychology, Northern Illinois University, DeKalb, Illinois

ABSTRACT. Objective: The goal of this study was to examine motivations for engaging in risky sexual behaviors (RSBs) and factors that may increase the likelihood of engaging in RSB. RSB was defined as not using condoms during intercourse and having intercourse with poorly known partners, which were treated separately with regard to analyses. Method: Utilizing a weekly diary methodology, the present study examined whether using situation-specific coping strategies (e.g., using alcohol to reduce negative affect and sex to reduce negative affect) and whether subjective reports of intoxication significantly predicted if participants would engage in RSB. Female college students (N = 93) completed a weekly computerized questionnaire for 8 weeks reporting on their sexual behavior, their level of intoxication, and use of strategies (i.e., sex and alcohol) to reduce negative affect at the time of the sexual encounter. Results: Using hierarchical linear modeling, results indicated that level of intoxication was the sole significant main effect related to engaging in RSB; specifically, level of intoxication was positively related to sex with a poorly known partner. Conclusions: Alcohol use, as opposed to motivation for intercourse, is an important area to focus on with regard to prevention of RSB. (J. Stud. Alcohol Drugs, 75, 399–403, 2014)

ENGAGING IN INTERCOURSE and other sexual behaviors with poorly known partners is a documented practice among college students (Paul and Hayes, 2002). This behavior is considered risky sexual behavior (RSB). RSB has also been defined in the research as using drugs and alcohol during sex, having a high number of lifetime sexual partners, and having sexual intercourse with partners with known risk factors (Anaya et al., 2003; Campbell et al., 2004; Cinq-Mars et al., 2003). Previous literature has addressed factors leading to engaging in RSB to aid in more effective intervention and reduction programs for college students. Cooper et al. (1998) conducted a prospective study and found that participants endorsing using sex to reduce negative affect (SRNA), and who were not in an exclusive romantic relationship, had more sexual partners, one-night stands, intercourse with strangers, and intercourse with high-risk partners than those not endorsing using SRNA. Although studies have examined the relationship between negative affect and RSB, few outside of Cooper et al. (1998) have examined SRNA’s relationship to RSB. Therefore, the current study aims to extend research in this area.

In addition to the role of sexual motivations in RSB, alcohol intoxication before intercourse can negatively affect one’s decision-making ability, which may then increase the likelihood of engaging in RSB. Using adolescents, Cooper et al. (1994) found that the level of alcohol intoxication was significantly predictive of decreased condom use and decreased partner intimacy. Drinking proximal to intercourse was significantly predictive of prior discussion of risk-related topics and degree of partner intimacy but not condom use with the most recent partner. From a developmental perspective, research has shown that as rates of alcohol intoxication increase through adolescence, so does the risk of engaging in RSB (Hipwell et al., 2012).

Using adults, Dunn et al. (2003) found that high levels of alcohol intoxication were associated with early age at first intercourse, number of partners, not using condoms, and pregnancy. Brown and Vanable (2007) found that the level of alcohol intoxication was associated with a decrease in condom use when intercourse was with a poorly known partner. Rates of condom use did not vary by drinking status for encounters involving a steady partner, suggesting that the effects of alcohol vary according to the context in which it is used. Similarly, Scott-Sheldon et al. (2010) found that among women, but not men, less condom use was associated with steady versus casual sexual partners; however, partner type interacted with level of alcohol intoxication among women such that less condom use occurred when high levels of alcohol intoxication preceded sex with steady partners. Similarly, when compared to those with moderate drinking episodes, women reporting frequent heavy episodes of alcohol intoxication had the greatest number of sexual partners and reported greater likelihood of having unprotected sex in the future (Stappenbeck et al., 2013).
Motivational models of alcohol use assert that an individual’s reasons for engaging in a behavior are important in understanding the initiation and perpetuation of behavior (Read et al., 2003). Research has supported the claim that drinking alcohol to decrease negative affect is a strong predictor of both alcohol intoxication and alcohol dependence (Cooper et al., 1988). These authors have suggested that coping styles indicative of avoidance of emotion are more significant predictors of high levels of alcohol intoxication than other types of coping. Evidence has been provided for the possibility of a relationship between level of alcohol intoxication and engaging in RSB. However, as noted by Cooper (2006), the relationship between alcohol use and RSB is complex and often not able to be explained by one mechanism. Therefore, looking at additional factors to high levels of alcohol intoxication, such as using alcohol to reduce negative affect (ARNA), can contribute to our knowledge of this relationship.

The main outcome in the present study was RSBs, defined as having intercourse with a poorly known partner and/or not using condoms. It was hypothesized that for a given individual, using SRNA and/or ARNA increases the likelihood that that individual will engage in intercourse with a poorly known partner. In addition, using SRNA and/or ARNA decreases the likelihood of condom use. Finally, at the event level, higher levels, as opposed to lower levels, of subjective reports of intoxication would be negatively associated with condom use and positively associated with having sex with a poorly known partner.

**Method**

**Procedure**

Participants who consented were invited to complete a self-administered computerized questionnaire once a week for 2 months. At each data point, participants completed the questionnaire for the most recent sexual occasion for each partner that they had sexual contact with since the last data collection, for up to three partners. Compensation included either class credit or an entry into a drawing.

**Participants**

Participants were 93 sexually active female undergraduates enrolled at a large midwestern university. For inclusion in the present study, participants had to endorse that they had been sexually active (defined as having had consensual vaginal or anal intercourse) in the past 6 months and were currently not in an exclusive relationship. To find participants, 1,159 women participating in two separate studies were screened. Of those qualifying, 143 agreed to participate; however, 50 were excluded from data analyses because they either did not have a sexual partner during the study (24 participants) or had an exclusive relationship (26 participants). Thus, a final sample of 93 participants was included in the analyses. The mean age of this sample was 19.25 years (SD = 1.78). With regard to race/ethnicity of the sample, 80% reported being White, 7.7% Black, 3.1% Hispanic, 4.6% Asian, and 7.7% other.

**Measures**

*Sex to reduce negative affect.* The participants completed a modified version of questions from the Motivations for Sex (Cooper et al., 1998) questionnaire as part of the survey. The coping motives scale, which is used to determine whether a participant endorses SRNA, has five questions that assess whether the participant had intercourse to cheer up, feel better when lonely, feel better when feeling low, deal with disappointment, and cope with upset feelings. The questions were answered on a 5-point Likert scale ranging from *not at all* to *a great deal*. Scores on each item were summed to create a total score. Cooper et al. (1998) reported adequate convergent and discriminant validities of the Motivations for Sex questionnaire using samples of male and female college undergraduates and a community sample of adolescents and young adults. Cronbach’s α for the present study was calculated for each time point and ranged from .84 (n = 44) at Time 3 to .98 (n = 9) at Time 6.

*Alcohol to reduce negative affect.* The participants completed a modified version of the Motivations for Alcohol Use questionnaire (Cooper, 1994). The coping motives scale, which was used to determine whether a participant endorses ARNA, has five questions (answered on a Likert scale) that assess whether the participants used alcohol to help when they feel depressed or nervous, to forget their worries, to cheer themselves up when they are in a bad mood, to forget their problems, and to help them feel more self-confident. The Motivations for Alcohol Use questionnaire shows internal consistency, factorial validity, and criterion-related validity in predicting adolescents’ and young adults’ levels of alcohol use and alcohol-related problems (Cooper, 1994). Cronbach’s α for the present study was calculated for each time point and ranged from .71 (n = 44) at Time 3 to .97 (n = 9) at Time 6.

*Intoxication.* The participants were first asked whether they consumed alcohol before or during sexual intercourse (as adapted from Cooper et al., 2008, and Levitt and Cooper, 2010). If they answered yes, they were then asked, “How intoxicated or drunk were you immediately before the sexual experience?” They rated this on a 4-point Likert scale ranging from *not at all* to *very intoxicated.*

*Poorly known partners.* The participants were asked, “How well would you say you knew this person at the beginning of your encounter?” They rated this on a 5-point Likert scale ranging from *not at all well* to *knew very well.* This question was used as a continuous dependent variable in the
analyses. This variable was recoded for the analyses in the present study such that higher numbers indicated partners who were more poorly known.

**Use of condoms.** Participants were asked one question, to which they were asked to answer yes or no, about their use of condoms during sexual intercourse (as adapted from Cooper et al., 2008, and Levitt and Cooper, 2010). The question about condom use was utilized as a dichotomous dependent variable.

### Results

**Overview**

Participants completed a mean of 6.07 (range: 1–8, \(SD = 2.23\)) weekly diaries, and participants reported on sexual intercourse a mean of 3.29 (\(SD = 2.39\)) times. They reported a mean of 1.13 (range: 1–4, \(SD = 0.36\)) partners per week. Finally, participants reported being under the influence of alcohol a mean of 38.98% (\(SD = 40.02\)) of the time and used condoms a mean of 46% (\(SD = 45.00\)) of the time overall. Descriptive statistics for the variables are presented in Table 1.

The analyses were conducted separately for sex with a more poorly known partner and condom use, because use of condoms was a dichotomous variable and sex with a more poorly known partner was a continuous variable. The intraclass correlation coefficient for having sex with a poorly known partner was equal to .378. In other words, 37.8% of the variance is between persons, indicating that hierarchical linear modeling was warranted in this analysis. Hypotheses were tested using the computer program Linear & Non-Linear Modeling, Version 6 (Scientific Software International, Inc., Skokie, IL) (Raudenbush et al., 2004).

**Hypotheses for main effect models**

Results are presented in Table 2. At an event level, higher levels of subjective intoxication (\(p < .001\)) were positively associated with having sex with a more poorly known partner. No significant main effect was found for SRNA or ARNA. The two-level Bernoulli hierarchical analyses indicated no significant main effects of the predictor variables with regard to condom use.

### Discussion

The results of the present study supported the hypothesis regarding alcohol use and engaging in intercourse with a more poorly known partner, which is consistent with other event- and global-level examinations (Cooper et al., 1994). Research is mixed with regard to the significance of the relationship between alcohol use and condom use. The results of the current study are congruent with the study conducted by Kingree and Betz (2003), because the results did not support the hypothesis that alcohol alone would have a direct relationship with condom use. The lack of significant findings regarding this relationship at an event level may lead researchers to examine other possible predictors of condom use. A number of studies have presented evidence that a more important factor in determining condom use is

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex with a poorly known partner</td>
<td>1.85</td>
<td>1.10</td>
<td>1.00</td>
<td>5.00</td>
</tr>
<tr>
<td>Use of condoms</td>
<td>0.46</td>
<td>0.45</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>Independent variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sex to reduce negative affect</td>
<td>6.36</td>
<td>3.00</td>
<td>5.00</td>
<td>23.00</td>
</tr>
<tr>
<td>Alcohol to reduce negative affect</td>
<td>8.94</td>
<td>4.90</td>
<td>5.00</td>
<td>25.00</td>
</tr>
<tr>
<td>Subjective intoxication level</td>
<td>1.05</td>
<td>1.50</td>
<td>0.00</td>
<td>4.00</td>
</tr>
</tbody>
</table>

Notes: N = 93. Min. = minimum; max. = maximum.

### Table 2. Results of main effect analyses

<table>
<thead>
<tr>
<th>Fixed effects</th>
<th>Coef.</th>
<th>SE</th>
<th>T ratio</th>
<th>df</th>
<th>(p)</th>
<th>(R^2_B/ R^2_W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex with a poorly known partner</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>19/8</td>
</tr>
<tr>
<td>Sex to reduce negative affect</td>
<td>0.02</td>
<td>0.02</td>
<td>0.80</td>
<td>303</td>
<td>.43</td>
<td>–</td>
</tr>
<tr>
<td>Alcohol to reduce negative affect</td>
<td>-0.03</td>
<td>0.02</td>
<td>-1.20</td>
<td>303</td>
<td>.23</td>
<td>–</td>
</tr>
<tr>
<td>Intoxication</td>
<td>0.28</td>
<td>0.05</td>
<td>5.58*</td>
<td>303</td>
<td>.00</td>
<td>–</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Use of condoms</th>
<th>Coef.</th>
<th>SE</th>
<th>T ratio</th>
<th>df</th>
<th>(p)</th>
<th>Odds ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex to reduce negative affect</td>
<td>0.01</td>
<td>0.06</td>
<td>0.21</td>
<td>303</td>
<td>.84</td>
<td>1.01</td>
</tr>
<tr>
<td>Alcohol to reduce negative affect</td>
<td>0.06</td>
<td>0.06</td>
<td>1.11</td>
<td>303</td>
<td>.27</td>
<td>1.07</td>
</tr>
<tr>
<td>Subjective intoxication</td>
<td>-0.08</td>
<td>0.12</td>
<td>-0.64</td>
<td>303</td>
<td>.52</td>
<td>0.93</td>
</tr>
</tbody>
</table>

Notes: N = 93. Within each dependent variable, main effects were estimated in the same model (i.e., one model per dependent variable). Coef. = coefficient; \(R^2_B\) = percentage of between-person variance in the dependent variable accounted for by independent variable; \(R^2_W\) = percentage of within-person variance in dependent variable accounted for by independent variable.

\(*p < .01\).
partner type, because engaging in intercourse with a poorly known partner was found to lead to increased condom use in both adolescents (Plichta et al., 1992) and adults (Cooper and Orcutt, 2000). However, when examining alcohol as well as partner type with regard to using condoms during intercourse, previous studies have found that “partner intimacy suppressed the relationship between alcohol use and condom use” (Cooper and Orcutt, 2000, p. 417). Therefore, potentially in line with the present findings, partner type or partner intimacy may be a better predictor of condom use than alcohol use alone.

Many of the hypotheses concerning condom use were not supported in the present study. There may be a number of factors attributable to partner characteristics that were not examined in this study. As previously presented, males are often seen as responsible for possessing condoms and initiating condom use. Previous research has suggested that males demonstrate lower skill in negotiating condom use and are more likely to consent to intercourse without a condom after consuming alcohol (Gordon et al., 1997). Another variable related to condom use that was not examined in the present study was whether the participant was using another form of contraception. A longitudinal study of adolescent and adult females showed that for women using contraception, less than 20% of the women used condoms consistently, despite their awareness that their particular form of contraception did not offer protection against sexually transmitted diseases (Sangi-Haghpeykar et al., 1997).

There were several limitations to the present study. For example, the average level of endorsement on sex with a poorly known partner was 1.85 (on a 5-point Likert scale), indicating that in the present study sexual partners were generally well known. In addition, participants reported relatively low levels of ARNA and SRNA. Another limitation of the study is the measurement of alcohol. Focusing solely on the subjective level of intoxication, as opposed to drinking patterns, and relying on subjective reports of intoxication would benefit from being clarified in future studies.

Future research might benefit from including both males and females to allow for a more comprehensive examination of the decision-making strategies for using condoms during intercourse. For example, do female participants leave the decision up to their partners, or is their decision based on whether they are using another contraceptive method? It would also be important for future research to take into account whether a female is using alternative forms of contraception and to assess how the use or non-use of alternative forms of contraception influenced their decisions regarding use or nonuse of condoms in a given sexual encounter. Adding to our knowledge in this area can further aid prevention programs. Finally, future research may also wish to clarify the relationship between alcohol use and engaging in RSB by examining different drinking patterns and levels of intoxication and the effect on RSB (e.g., not using condoms and engaging in intercourse with poorly known partners).

References


