# Alcohol Consumption and Intimate Partner Violence Perpetration Among College Students: The Role of Self-Determination\*

M. CHRISTINA HOVE, PH.D., † MICHELE R. PARKHILL, PH.D., † CLAYTON NEIGHBORS, PH.D., † JENNIFER MOLLOY McCONCHIE, B.A., † AND NICOLE FOSSOS, B.S. †

Trauma Recovery Services, Department of Veterans Affairs Medical Center (006S), Office 3201, 3rd Floor, Building 111, 5000 W. National Avenue, Milwaukee, Wisconsin 53295

ABSTRACT. Objective: The present research examined the role of self-determination theory in alcohol consumption and intimate partner violence (IPV) perpetration among college students. We were interested in evaluating the extent to which individual differences in self-determination (i.e., autonomous and controlled orientations) may influence problematic alcohol use and male-to-female IPV perpetration and the extent to which problem drinking may mediate the associations between self-determination and IPV perpetration. Method: A total of 313 incoming heterosexual, male freshman drinkers at a large northwestern university between the ages of 18 and 21 years completed self-report measures of autonomous and controlled orientations, alcohol use, and IPV perpetration as part of a larger social norms intervention study. Analyses evaluated the influence of autonomous and controlled orienta-

tions on alcohol consumption, associated problems, and IPV perpetration. **Results:** The proposed model fit the data relatively well,  $\chi^2$  (11, N=313) = 32.19, p=Ns, root mean square error of approximation = .079, normed fit index = .95, nonnormed fit index = .93, comparative fit index = .96. Both autonomous and controlled orientations had significant direct and indirect effects on perpetration through alcohol consumption. Although the model fit the data well, it explained a relatively small amount of variance in both alcohol consumption (5%) and perpetration (7%). **Conclusions:** Findings support previous research implicating the role of alcohol in IPV perpetration. Additionally, our findings suggest that self-determination theory may be a useful heuristic in the examination of individual characteristics that promote alcohol consumption and IPV perpetration. (*J. Stud. Alcohol Drugs, 71, 78-85, 2010*)

THE TRANSITION TO COLLEGE is a unique time for experimentation with alcohol for most young adults. A large majority of adolescents use alcohol before it is legal (McCarty et al., 2004). Research has consistently demonstrated that the transition to college and the college years represent the highest drinking rates in the life span (Johnston et al., 2007). The deleterious effects of alcohol use, particularly heavy alcohol use, are well documented (Hingson et al., 2005; Schulenberg, 1996), and include arguments, injuries, risky sexual behavior, poor academic performance, legal problems, traffic fatalities, suicide, death (Ham and

Received: February 6, 2009. Revision: August 27, 2009.

†Correspondence may be sent to M. Christina Hove at the above address or via email at: mchristinahove@gmail.com. At the inception of the research, M. Christina Hove, Clayton Neighbors, and Nicole Fossos were with the Department of Psychiatry and Behavioral Sciences, University of Washington, Seattle, WA. Michele R. Parkhill was with the Alcohol and Drug Abuse Institute, University of Washington, Seattle, WA. Michele R. Parkhill is now with the Department of Psychology, Oakland University, Rochester, MI. Clayton Neighbors is now with the Department of Psychology, University of Houston, Houston, TX. Jennifer Molloy McConchie is with the Department of Psychology, Metropolitan State College of Denver, Broomfield, CO. Nicole Fossos is now with the Department of Psychology, University of Houston, Houston, TX.

Hope, 2003; Hingson et al., 2002; Yi et al., 2004), and intimate partner violence (IPV; Collins and Messerschmidt, 1993; Kantor, 1993; Leonard and Quigley, 1999; O'Leary and Schumacher, 2003). These findings suggest that college students may be vulnerable to excessive alcohol use and—for some—perpetrating IPV. In light of the numerous and broad negative consequences associated with IPV for both perpetrators and victims, exploration of the nomothetic mechanisms that promote IPV perpetration is warranted. One promising heuristic in this exploration is self-determination theory (Deci and Ryan, 1985), a general theory of human motivation that focuses on the degree to which an individual's behavior is self-endorsed and self-determined (Deci and Ryan, 2002). The current study was designed to explore research relevant to self-determination theory, alcohol, and IPV and to investigate hypotheses specific to the intersection of these phenomena.

Intimate partner violence, alcohol, and self-determination theory

The National Violence against Women Survey estimated that approximately 1.3 million women are physically abused by an intimate partner annually (Tjaden and Thoennes, 2000). Similar patterns of abuse are found within the college student population. A national survey of college students found that within 1 academic year, 87% of women reported

<sup>\*</sup>The National Institute on Alcohol Abuse and Alcoholism provided support for the preparation of this manuscript through grants T32AA007455 and F32AA1756401A1.

having experienced verbal aggression (arguments, yelling, insults), and 32% acknowledged experiences consistent with physical aggression (grabbed, pushed, hit) perpetrated by an intimate male partner (White and Koss, 1991). Rates of aggression were similar in a smaller study, which revealed 90% of college women reported experiences consistent with verbal abuse and 34% reported experiences of physical abuse (Ryan, 1998). Rates of self-reported perpetration among male college students, although somewhat lower, are still considerable. Forty-two percent of male college students at a Canadian university acknowledged committing behaviors consistent with IPV (Barnes et al., 1991). Research among American college men revealed similar patterns of perpetration within intimate relationships (Fossos et al., 2007).

Previous research has consistently found a strong positive association between alcohol consumption and IPV. This relationship has been identified in the general population (Caetano et al., 2005), clinical populations (Fals-Stewart et al., 2005), and among college students (Nicholson et al., 1998; Shook et al., 2000; Williams and Smith, 1994). IPV perpetrators are five times more likely than nonperpetrators to consume alcohol (Luthra and Gidycz, 2006; Riggs and O'Leary, 1989, 1996). Cogan and Ballinger (2006) found that men with alcohol problems were generally more likely to commit violence against their intimate partners. Similarly, Fals-Stewart and colleagues (2005) found that male-to-female aggression was 11 times more likely to occur on days when perpetrators were drinking alcohol. Sixty percent of these aggressive incidents occurred within 2 hours of the perpetrators' consumption of alcohol. In addition, previous research suggests that alcohol-consuming perpetrators were more likely to cause significant physical injury to their partners relative to sober perpetrators (Thompson and Kingree, 2006). These findings have led some researchers to recommend that treatment communities address alcohol abuse and IPV concurrently (Klostermann and Fals-Stewart, 2006; Stuart, 2005; Stuart et al., 2003).

Despite the prevalence of IPV, questions remain about the social and nomothetic influences that promote its occurrence at the individual level: What factors motivate perpetrators, and how do these factors vary among perpetrators? One promising heuristic in this exploration is self-determination theory (Deci and Ryan, 1985), a broad, humanistic theory of motivation that consists of several interrelated subtheories addressing individual psychological needs, internalized behavior regulations, environmental influences on internal constructs, and motivation. Self-determination theory proposes that, based on learning history and psychodevelopmental experiences, individuals develop motivational orientations in their interactions with the environment. Two such orientations, autonomous and controlled, represent dichotomous, but not mutually exclusive, motivational predispositions. Motivational constructs such as autonomous and controlled orientations are often described in terms of internalization.

Internalization refers to the degree to which an originally external motive has been transformed into a personally endorsed value with accompanying behavioral regulations (Ryan, 1995). Levels of extrinsic and intrinsic motivation can be aligned along a continuum (Ryan and Deci, 2000), anchored by controlled and autonomous orientations.

On one end of the continuum is internal motivation and autonomous orientation. Autonomous orientation refers to behavior motivated by personal interests and self-endorsed values and is suggestive of an individual's general tendencies toward intrinsic and well-integrated extrinsic motives (Deci and Ryan, 2002). Because behavior is motivated by intrinsic or self-determined extrinsic goals, individuals with higher autonomous orientation engage in activities that are interesting and challenging, and they assume personal responsibility and initiative. Consequently, individuals with higher autonomous orientations appear less likely to base behaviors on others' expectations. Rather they tend to be oriented toward growth, personal values, and supporting the autonomy of others.

On the other end of the continuum is external regulation and controlled orientation, which characterize behavior engagement as a means of achieving rewards or avoiding punishments (Deci and Ryan, 2002). Controlled orientation represents an individual's predisposition to seek external approval and praise to enhance feelings of self-worth and value. Thus, individuals with high controlled orientation focus on rewards, external reinforcements, others' expectations, deadlines, or ego involvement. Their motivational focus is oriented toward external demands or internal demands that function similarly to external demands (e.g., feeling one should or must) rather than on personal values or choices. In this manner, controlled orientation is highly correlated with external regulation. As such, these individuals tend to be more vulnerable to social influences than individuals lower in controlled orientation (Knee and Neighbors, 2002).

Deci and Ryan (2002) conceptualize these constructs as compatible, interactive components along a motivational continuum. Individuals develop relatively higher or lower orientations toward autonomy and control, which in turn shape their motivations for specific behaviors. Given the insight that this construct may hold in elucidating individual variations in motivation, self-determination theory appears to hold promise in the further exploration of alcohol consumption and potentially IPV perpetration (Neighbors et al., 2008).

Previous research has examined the role of controlled orientation in alcohol consumption among college students. Rockafellow and Sauls (2006) found that athletes who reported controlled reasons for athletic involvement also reported higher rates of alcohol use than those who were athletically involved for autonomous reasons. Knee and Neighbors (2002) found that college men who were higher in controlled orientation were also particularly susceptible

to drinking as a function of perceived peer pressure. Controlled orientation has also been associated with more positive alcohol expectancies, greater alcohol use, and greater alcohol-related negative consequences (Neighbors et al., 2004). In addition, previous research suggests that students higher in controlled orientation were more amenable to altering maladaptive patterns of alcohol use following normative feedback (Neighbors et al., 2006a), suggesting a more extrinsic system of behavior regulation. These findings are indicative of the insight the self-determination theory heuristic has brought to the exploration of nomothetic alcohol consumption and alcohol-related negative consequences. Despite the value of self-determination theory in examining alcohol consumption, no previous research that we are aware of has extended this heuristic to the examination of IPV perpetration.

# Summary and hypotheses

Given the enduring and often negative impact of alcohol use and IPV perpetration, we believed that it was vital to examine individual motivational factors that may contribute to their development and maintenance. The current research was conducted to clarify the relationships among controlled and autonomous orientations, alcohol consumption, and IPV perpetration in male college students. We were generally interested in determining the extent to which autonomous and controlled orientations were influential in explaining the nomothetic mechanisms that promote alcohol consumption and male-to-female IPV perpetration at the individual level. Specifically, we expected that problematic drinking would be positively associated with IPV perpetration (Hypothesis 1 [H1]). Moreover, based on previous theory and research (Knee and Neighbors, 2002; Neighbors et al., 2004, 2008), we expected controlled orientation to be positively associated with problematic drinking (H2) and IPV perpetration (H3). We further expected that problematic drinking would mediate the association between controlled orientation and IPV perpetration (H4). Conversely, we expected autonomous orientation to be negatively associated with problematic drinking (H5) and IPV perpetration (H6), and we expected problematic drinking to mediate the association between controlled orientation and IPV perpetration (H7).

## Method

## **Participants**

Participants included 313 incoming heterosexual male freshman students. Data for the present research are from the baseline assessment of a larger ongoing longitudinal intervention study. Of the 884 men who were screened, 326 met inclusion criteria of consuming five or more drinks on one or more occasions in the previous month. Of those, 313

were heterosexual and were included in the present research. Participants ranged in age from 18 to 21 (M = 18.25, SD = 0.48). Ethnic/race representation was 63.9% White, 25.5% Asian/Pacific Islander, 5.1% Hispanic, 1.0% Black, and 0.3% Native American; 4.2% were of other ethnicities.

#### Procedure

Incoming freshmen students were mailed and emailed an invitation letter to complete a Web-based screening question-naire. Students who completed the screening survey and met the inclusion criteria were invited to the larger trial and were seamlessly routed to the baseline assessment. All question-naires were completed online. In combination, the screening and baseline assessment took approximately 1 hour and 10 minutes, for which participants were paid \$35. All aspects of the study were approved by the university institutional review board.

#### Measures

Autonomy and controlled orientations were assessed with the General Causality Orientations Scale (GCOS; Deci and Ryan, 1985; Ryan, 1989). The GCOS includes 17 scenarios, each of which is followed by autonomous and controlled responses. Participants rate the likelihood that they would make each response on a 7-point Likert-type scale from very unlikely to very likely. For example, one of the scenarios is "Your friend has a habit that annoys you to the point of making you angry. It is likely that you would: . . . ." The autonomous orientation is assessed by the likelihood of responding by "Try[ing] to understand why your friend does it and why it is so upsetting for you," whereas the controlled orientation is assessed by the likelihood of responding by "Point[ing] it out each time you notice it, that way maybe he (she) will stop doing it." Another scenario is: "You feel that your friend is being inconsiderate. You would probably: . . . . "The autonomy orientation is assessed by likelihood of the response: "Find an opportunity to explain why it bothers you; he (she) may not even realize how much it is bothering you," whereas the controlled orientation is assessed by likelihood of the response: "Demand that your friend start being more considerate; otherwise you'll respond in kind." The GCOS has previously demonstrated good construct validity and reliability (Deci and Ryan, 1985). Autonomy orientation was scored as the mean of the 17 autonomous responses ( $\alpha$ = .86), and the controlled orientation was scored as the mean of the 17 controlled responses ( $\alpha = .74$ ).

Alcohol consumption. Problematic drinking was operationalized as a latent construct consisting of three measures of alcohol consumption and one measure of problems. Alcohol consumption was assessed by the Daily Drinking Questionnaire (Collins et al., 1985) and the Quantity/Frequency Questionnaire (Dimeff et al., 1999). On the Daily Drinking

Questionnaire, participants were asked to "Consider a typical week during the last three months. How much alcohol, on average (measured in number of drinks), do you drink on each day of a typical week?" Participants reported the typical number of standard drinks consumed on each day of a typical week. Responses for each day of the week were summed so that scores on this variable represent typical number of drinks per week. This variable was capped at 80 to reduce the influence of extreme outliers. Peak drinking was assessed by an item from the Quantity/Frequency Questionnaire that asked the largest number of drinks consumed on a single occasion in the previous month. The frequency item asked how often participants consumed alcohol in the past month and was coded to reflect number of days per week. Alcohol problems were assessed using the Rutgers Alcohol Problem Index (White and Labouvie, 1989). The Rutgers Alcohol Problem Index includes 23 items, each of which assesses the frequency of a specific alcohol problem during the past 3 months. Example items include, "Neglected your responsibilities?" and "Kept drinking when you promised yourself not to?" Two items were added assessing the frequency of driving after drinking. Response options range from never to more than 10 times on a 5-point (0-4) scale. Scores reflect the sum of the 25 items, with a possible range of 0 to 100  $(\alpha = .92)$ . Both the Daily Drinking Questionnaire and the Rutgers Alcohol Problem Index have been used in numerous studies of college student drinking and have demonstrated good reliability and validity (e.g., Martens et al., 2007; Neighbors et al., 2006b).

Perpetration of intimate partner violence. Frequency of perpetration was assessed using the short form of the Revised Conflict Tactics Scale (Straus and Douglas, 2004). The scale includes eight items assessing psychological, physical, injurious, and sexual aggression. Response options were coded on an 8-point Likert-type scale ranging from this has never happened before to more than 20 times in the past year. Example items included, "I pushed, shoved, or slapped

my partner" and "I used force (like hitting, holding down, or using a weapon) to make my partner have sex." Two reversed items regarding positive relationship behaviors were not included because they substantially reduced reliability. The short form has demonstrated good validity in comparison with the full version of the Revised Conflict Tactics Scale (Straus and Douglas, 2004). Internal consistency reliability in this study was  $\alpha = .86$ .

#### Results

Bivariate analyses

Frequency of perpetration was severely skewed. Therefore, we took the square root of the scale score to approximate a normal distribution (Tabachnick and Fidell, 2007). Table 1 provides the (transformed) means and standard deviations for all measures, as well as the bivariate correlations between them. All of the hypothesized predictor variables, except control, were significantly correlated with interpersonal violence. The strongest bivariate correlation with IPV was with alcohol problems.

## Structural equation modeling analyses

The proposed structural equation model was evaluated using LISREL 8.80 (Jöreskog and Sörbom, 1999). Maximum likelihood estimation was selected because it is relatively robust to violations of normality (Chou and Bentler, 1995). Model fit was assessed with several absolute and incremental fit indices, including chi-square, root mean square error of approximation (RMSEA), normed fit index (NFI), nonnormed fit index (NNFI), and comparative fit index (CFI; Bentler, 1990; Bentler and Bonett, 1980; Bollen, 1989; Browne and Cudeck, 1993). Although a nonsignificant chi-square demonstrates that the model fits well, it is dependent on sample size and significant values are often accepted if

Table 1. Bivariate correlations, means, and standard deviations for variables in structural path model

Variable	Autonomy	Control	Mean drinks/ week	Alcohol problems	Most drank in past month	Days/ week drink	IPV no.
Autonomy	1.00						
Control	.33	1.00					
Mean drinks/week	13	.11	1.00				
Alcohol problems	09	.18	.50	1.00			
Most drank in past month	02	.10	.65	.45	1.00		
Days/week drink last month	07	.10	.68	.42	.43	1.00	
Perpetration	16	.09	.17	.26	.14	.13	1.00
M	5.35	4.23	20.48	7.65	10.43	4.98	0.40
SD	0.76	0.66	10.61	8.57	4.57	1.91	0.49

*Notes:* Correlations greater than .12 are significant at p < .05. IPV = intimate partner violence.

other indicators of fit are good. RMSEA values less than .08 and NFI, NNFI, and CFI values above .90 indicate good fit (Browne and Cudeck, 1993; Hoyle, 1995).

Measurement model. As can be seen in Table 1, most of the concepts shown in Figure 1 used single-variable indicators; however, alcohol was estimated by four separate indicators. All of the estimated standardized  $\lambda$  were of reasonable magnitude, ranging from .56 to .93.

Structural path model. The hypothesized structural path model was tested such that paths not represented by solid lines in Figure 1 were fixed to zero. As can be seen in Figure 1, the proposed model fit the data relatively well,  $\chi^2$  (11, N = 313) = 32.19, p = NS; RMSEA = .079; NFI = .95; NNFI = .93; CFI = .96. In these data, controlled and autonomous orientations were significantly and positively correlated. Although the model fit the data well, it explained a relatively small amount of variance in both alcohol consumption (5%) and perpetration (7%).

With respect to our specific hypotheses, and consistent with expectations, problematic drinking was positively associated with IPV perpetration (H1). Higher controlled orientation was significantly and positively associated with both alcohol consumption (H2) and perpetration (H3). Conversely, having a higher autonomous orientation was significantly and negatively associated with both alcohol consumption (H5) and IPV (H6).

Formal tests of mediation were evaluated using the *ab* products method, described by MacKinnon and colleagues, which has been found to be the most powerful approach for

testing mediation in simulations (MacKinnon et al., 2002). Although constituent coefficients in the *ab* product (*a* and *b*) are normally distributed, their product term is not; therefore, approaches that assume normality tend to underestimate mediation effects (MacKinnon et al., 2002). In the present study, we evaluated mediation effects using the PRODCLIN program, which provides asymmetric confidence intervals for ab products as detailed by MacKinnon et al. (2007). Statistical significance was indicated by the absence of zero within the 95% asymmetric confidence intervals. The ab product for the indirect effect of controlled orientation on IPV perpetration through alcohol consumption was significant (ab = .026, 95% CI [.003, .058]), indicating support for mediation (H4). Similarly, the ab product for the indirect effect of autonomy orientation on IPV perpetration through alcohol consumption was significant (ab = -.036; 95% CI [-.072, -.009]), again indicating support for mediation (H7). Given the concurrent presence of direct effects of both controlled orientation and autonomy orientation on IPV perpetration, the significant indirect effects might best be interpreted as partial mediation.

#### **Discussion**

The present study examined the relationships among autonomous and controlled orientations, alcohol consumption, and IPV perpetration. This study extends previous research regarding the positive association between alcohol consumption and IPV in college populations. In addition,

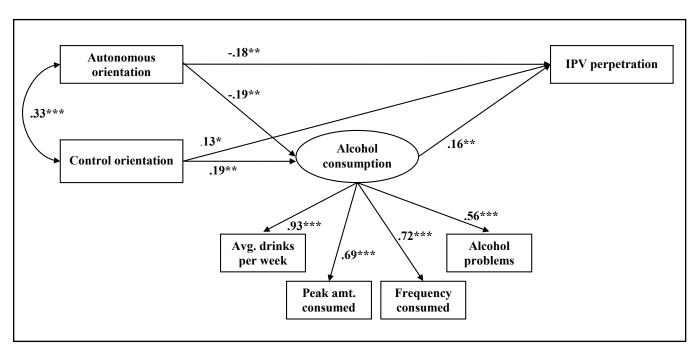


FIGURE 1. Structural path model. The betas presented are standardized. IPV = intimate partner violence; avg. = average; amt. = amount. \*p < .05; \*\*p < .01; \*\*\*p < .001.

the current investigation sought to elucidate some of the nomothetic relationships among alcohol consumption and IPV perpetration.

Consistent with Deci and Ryan's (1985) theory of self-determination, we found a significant association between autonomous and controlled orientations. This was not unexpected, given the original conceptualization of these constructs as compatible and even congruous motivational constructs. Despite this mutuality, it is interesting that our results clearly delineate between those high in autonomous and controlled orientations, and the impact such orientation had on alcohol consumption and IPV perpetration.

A potentially related finding is an apparent suppression effect, whereby controlled orientation was not significantly related to perpetration at the zero-order level but was in the context of the model. The association between autonomous and controlled orientations provides a potential explanation. In the context of the model, the association between controlled orientation and perpetration controls for the overlap between autonomy and perpetration. Thus, in the context of the model, the shared variance between controlled orientation and autonomy, which probably represents general motivation, is accounted for. The result is that controlled orientation more precisely represents factors associated with perpetration (e.g., hostility, focus on control, ego involvement; Deci and Ryan, 1985; Neighbors et al., 2008).

We found that individuals with higher autonomous orientations reported significantly less alcohol consumption and were less likely to perpetrate IPV. We also found that the association between autonomous orientation and IPV perpetration was at least partially mediated by alcohol consumption. The presence of a significant direct effect of autonomy on IPV perpetration and a significant indirect effect of autonomy on IPV perpetration through alcohol consumption suggests the possibility of multiple potential interpretations. One interpretation is that a higher autonomous orientation may act protectively against both alcohol and IPV and that the influences of autonomy on drinking and IPV are at least to some extent independent. The direct protective effects of an autonomous orientation on drinking and IPV may be a reflection of a more internalized sense of right and wrong, which is less vulnerable to contextual and environmental influences (Deci and Ryan, 2002). Within this conceptualization, higher autonomous orientations may provide both indirect and direct protective benefits against IPV perpetration. Alternatively, individuals with higher autonomous orientations appear to drink less problematically, which in turn promotes less IPV perpetration. The indirect effect may thus speak more clearly to IPV perpetration that occurs specifically in connection with drinking. Although individuals high in autonomous orientation are generally less likely to engage in IPV perpetration, they may be particularly less likely to engage in alcohol-related IPV perpetration, in part because they are less likely to drink problematically. It is also possible that one or more unanticipated, uncontrolled variables may account for both autonomy and alcohol use. Alternatively, alcohol use may make some individuals less autonomous. Alcohol-induced reductions in autonomy might produce greater vulnerability to external pressures and potentially IPV perpetration.

Mirroring the results related to the autonomous orientation, we found that college students in our study, who reported higher controlled orientation, reported drinking more alcohol and perpetrating more incidents of IPV. The former of these findings, regarding relatively increased alcohol consumption, is consistent with previous research that found that individuals with higher controlled orientations are more vulnerable to peer influences, have more positive alcohol expectancies, and drink more (Knee and Neighbors, 2002; Neighbors et al., 2004, 2006a). Not surprisingly, in our study, higher alcohol consumption was also associated with greater number of general alcohol-related problems. As with the autonomous orientation, results provided evidence for a direct effect of controlled orientation on IPV perpetration and an indirect effect of controlled orientation on IPV perpetration through alcohol consumption. The direct effect suggests that individuals higher in controlled orientation reported significantly more episodes of IPV perpetration against a female partner independent of their drinking. This finding is consistent with previous research suggesting that individuals higher in controlled orientation tend to be more hostile, more defensive, and may have more rigid expectations within interpersonal relationships, thus leading to greater incidents of IPV (Neighbors et al., 2008). The indirect effect further suggests that participants who scored higher in controlled orientation were not only more likely to perpetrate IPV, but also they were more likely to consume alcohol and—vis-àvis the influence of alcohol—perpetrate violence against a female partner. In conjunction, these two findings suggest that individuals higher in controlled orientation may be at particular risk for perpetrating alcohol-related IPV.

Consistent with a growing body of research (Caetano et al., 2005; Fossos et al., 2007; White and Chen, 2002; White and Widom, 2003), our study revealed a positive association between alcohol-related problems and IPV perpetration. As alcohol consumption and alcohol-related problems increased, so did the frequency of IPV perpetration. We believe this finding is particularly interesting, given the high rate of comorbid alcohol-related problems and IPV in the young adult population. These findings contribute to a growing body of literature dedicated to gaining a better understanding of the factors that influence alcohol consumption and IPV perpetration.

All conclusions should be tempered by the limitations of the study. Because participants were studied in the course of a standardized, multiphase research trial, the level of rigor in patient sampling and assessment was high. However, the population sampled consisted of college students from a large northwestern university, who may not reflect the diversity to be found in a multigenerational or national sample. As such, future research is required to extrapolate these findings to a more diverse sample of individuals. Such research may provide additional insight into the phenomena of motivational orientation, alcohol consumption, and IPV perpetration, as well as generational and geographic effects on such variables. In addition, although a host of research supports the validity of self-report measures, the use of such measures may have allowed unanticipated variations in reporting (i.e., underreporting, overreporting, or misreporting), likely dependent on social desirability characteristics. Finally, longitudinal assessment investigating these relationships should also be conducted.

A number of avenues of future research related to the current investigation remain unaddressed. Although alcohol explains some of the relationship between orientations and IPV perpetration, it does not explain all of it. Further research is needed to elucidate the causal underpinnings of this phenomenon. Research examining alcohol-related IPV perpetration would be particularly helpful. Additionally, exploration of the relationship between autonomous and controlled orientations, other substances, and treatment outcomes would likely provide useful information. Furthermore, to elucidate self-determination theory orientation variability secondary to alcohol use, an interesting future direction of exploration would be to assess controlled and autonomous orientations among individuals in a state of inebriation versus sobriety, as well as relationships between individuals with orientation shifts and IPV perpetration.

To our knowledge, these results are the first published account of the relationship between autonomous and controlled orientations, alcohol consumption, and IPV perpetration. As such, this information provides a broader range of descriptive findings than has previously been available with regard to these constructs and phenomena. Our findings revealed that higher autonomous orientation provided a protective function against excessive alcohol consumption and associated alcohol-related negative consequences and IPV perpetration. Conversely, controlled orientation represented a vulnerability with regard to the aforementioned experiences. We believe that this information promotes a greater understanding of the nomothetic mechanisms that contribute to problem drinking, as well as male-to-female IPV perpetration. In addition to its academic utility, these findings may have potential clinical value in suggesting motivational risk and protective factors of heavy drinking and IPV perpetration in this population. Admittedly, the small effects identified herein suggest that self-determination is only one piece of a very complex puzzle. Nevertheless, characteristics associated with autonomous orientation—including a strong sense of personal values, openness to others, and supportiveness—may, in turn, protect against heavy drinking and IPV perpetration. Characteristics associated with controlled orientation (including susceptibility to external pressure, defensiveness, and hostility) may be associated with a greater likelihood of heavy drinking and IPV perpetration in this population. Additional studies identifying the specific characteristics of orientations that contribute to or protect against heavy drinking and IPV is a clear next step in this line of research. Ultimately, this work may contribute to the development of intervention strategies that attempt to modify characteristics associated with controlled orientation and promote characteristics associated with autonomy orientation as a means of reducing IPV perpetration with and without co-occurring heavy drinking.

#### References

- Barnes, G. E., Greenwood, L., & Sommer, R. (1991). Courtship violence in a Canadian sample of male college students. *Family Relations*, 40, 37-44.
- Bentler, P. M. (1990). Comparative fit indices in structural models. *Psychological Bulletin*, 107, 238-246.
- Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness-of-fit in the analysis of covariance structures. *Psychological Bulletin*, 88 588-606
- Bollen, K. A. (1989). Structural equations with latent variables. Hoboken, NJ: John Wiley & Sons.
- Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen, & J. S. Long (Eds.), *Testing structural equation* models (pp. 136-162). Thousand Oaks, CA: Sage.
- Caetano, R., McGrath, C., Ramisetty-Mikler, S., & Field, C. A. (2005). Drinking, alcohol problems and the five-year recurrence and incidence of male to female and female to male partner violence. *Alcoholism: Clinical and Experimental Research*, 29, 98-106.
- Chou, C. P., & Benter, P. M. (1995). Estimates and tests in structural equation modeling. In R.H. Hoyle (Ed.), Structural equation modeling: Concepts, issues, and applications (pp. 37-55). Thousand Oaks, CA: Sage.
- Cogan, R., & Ballinger, B. C., 3rd. (2006). Alcohol problems and the differentiation of partner, stranger, and general violence. *Journal of Interpersonal Violence*, 21, 924-935.
- Collins, J. J., & Messerschmidt, P. M. (1993). Epidemiology and alcoholrelated violence. Alcohol Health & Research World, 17, 93-100.
- Collins, R. L., Parks, G. A., & Marlatt, G. A. (1985). Social determinants of alcohol consumption: The effects of social interaction and model status on the self-administration of alcohol. *Journal of Consulting and Clinical Psychology*, 53, 189-200.
- Deci, E. L., & Ryan, R. M. (1985). The general causality orientations scale: Self-determination in personality. *Journal of Research in Personality*, 19, 109-134.
- Deci, E. L., & Ryan, R. M. (2002). *Handbook of self-determination research*. Rochester, NY: University of Rochester Press.
- Dimeff, L. A., Baer, J. S., Kivlahan, D. R., & Marlatt, G. A. (1999). Brief alcohol screening and intervention for college students. New York: Guilford Press
- Fals-Stewart, W., Leonard, K. E., & Birchler, G. R. (2005). The occurrence of male-to-female intimate partner violence on days of men's drinking: The moderating effects of antisocial personality disorder. *Journal of Consulting and Clinical Psychology*, 73, 239-248.
- Fossos, N., Neighbors, C., Kaysen, D., & Hove, M. C. (2007). Intimate partner violence perpetration and problem drinking among college students: The roles of expectancies and subjective evaluations of alcohol aggression. *Journal of Studies on Alcohol and Drugs*, 68, 706-713.
- Ham, L. S., & Hope, D. A. (2003). College students and problematic drinking: A review of the literature. Clinical Psychology Review, 23, 719-759.

- Hingson, R., Heeren, T., Winter, M., & Wechsler, H. (2005). Magnitude of alcohol-related mortality and morbidity among U.S. college students ages 18-24: Changes from 1998 to 2001. *Annual Review of Public Health*, 26, 259-279.
- Hingson, R. W., Heeren, T., Zakocs, R. C., Kopstein, A., & Wechsler, H. (2002). Magnitude of alcohol-related mortality and morbidity among U. S. college students ages 18-24. *Journal of Studies on Alcohol*, 63, 136-144.
- Hoyle, R. H. (1995). Structural equation modeling: Concepts, issues, and applications. Thousand Oaks, CA: Sage.
- Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2007). Monitoring the Future: National survey results on drug use, 1975-2007: Volume I, Secondary school students. Bethesda, MD: National Institute on Drug Abuse.
- Jöreskog, K. G., & Sörbom, D. (1999). LISREL 8.30. Chicago, IL: Scientific Software International.
- Kantor, G. K. (1993). Refining the brushstrokes in portraits of alcohol and wife assaults. In S. E. Martin (Ed.), Alcohol and interpersonal violence: Fostering multidisciplinary perspectives (pp. 281-290). NIAAA Research Monograph No. 24, NIH Publication No. 93-3496. Bethesda, MD: National Institute on Alcohol Abuse and Alcoholism.
- Klostermann, K. C., & Fals-Stewart, W. (2006). Intimate partner violence and alcohol use: Exploring the role of violence and its implications for intervention. Aggression and Violent Behavior, 11, 587-597.
- Knee, C. R., & Neighbors, C. (2002). Self-determination, perception of peer pressure, and drinking among college students. *Journal of Applied Social Psychology*, 32, 522-543.
- Leonard, K. E., & Quigley, B. M. (1999). Drinking and marital aggression in newlyweds: An event-based analysis of drinking and the occurrence of husband marital aggression. *Journal of Studies on Alcohol*, 60, 537-545
- Luthra, R., & Gidycz, C. A. (2006). Dating violence among college men and women: Evaluation of a theoretical model. *Journal of Interpersonal Violence*, 21, 717-731.
- McCarty, C. A., Ebel, B. E., Garrison, M. M., DiGiuseppe, D. L., Christakis, D. A., & Rivara, F. P. (2004). Continuity of binge and harmful drinking from late adolescence to early adulthood. *Pediatrics*, 114, 714-719.
- MacKinnon, D. P., Fritz, M. S., Williams, J., & Lockwood, C. M. (2007).
  Distribution of the product confidence limits for the indirect effect:
  Program PRODCLIN. Behavior Research Methods, 39, 384-389.
- MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods*, 7, 83-104.
- Martens, M. P., Neighbors, C., Dams-O'Connor, K., Lee, C. M., & Larimer, M. E. (2007). The factor structure of a dichotomously scored Rutgers Alcohol Problems Index. *Journal of Studies on Alcohol and Drugs*, 68, 597-606.
- Neighbors, C., Dillard, A. J., Lewis, M. A., Bergstrom, R. L., & Neil, T. A. (2006b). Normative misperceptions and temporal precedence of perceived norms and drinking. *Journal of Studies on Alcohol*, 67, 290-299.
- Neighbors, C., Larimer, M. E., Geisner, I. M., & Knee, C. R. (2004). Feeling controlled and drinking motives among college students: Contingent self-esteem as a mediator. Self and Identity, 3, 207-224.
- Neighbors, C., Lewis, M. A., Bergstrom, R. L., & Larimer, M. E. (2006a). Being controlled by normative influences: Self-determination as a moderator of a normative feedback alcohol intervention. *Health Psychology*, 25, 2120-2126.
- Neighbors, C., Walker, D. D., Roffman, R. A., Mbilinyi, L. F., & Edleson, J. L. (2008). Self determination theory and motivational interviewing: Complementary models to elicit voluntary engagement by partner-abusive men. *American Journal of Family Therapy, 36*, 126-136.
- Nicholson, M. E., Maney, D. W., Blair, K., Wamboldt, P. M., Mahoney, B. S., & Yuan, J. (1998). Trends in alcohol-related campus violence:

Implications for prevention. *Journal of Alcohol and Drug Education*, 43, 34-52.

- O'Leary, K. D., & Schumacher, J. A. (2003). The association between alcohol use and intimate partner violence: Linear effect, threshold effect, or both? *Addictive Behaviors*, 28, 1575-1585.
- Riggs, D. S., & O'Leary, K. D. (1989). A theoretical model of courtship aggression. In M. A. Pirog-Good, & J. D. Stets (Eds.), *Violence in dating relationships* (pp. 53-71). Westport, CT: Praeger.
- Riggs, D. S., & O'Leary, K. D. (1996). Aggression between heterosexual dating partners: An examination of a causal model of courtship aggression. *Journal of Interpersonal Violence*, 11, 519-540.
- Rockafellow, B. D., & Saules, K. K. (2006). Substance use by college students: The role of intrinsic versus extrinsic motivation for athletic involvement. *Psychology of Addictive Behaviors*, 20, 279-287.
- Ryan, K. M. (1998). The relationship between courtship violence and sexual aggression in college students. *Journal of Family Violence*, 13, 377-394
- Ryan, R. M. (1989). *The revised general causality orientation scale*. Unpublished manuscript, University of Rochester, Rochester, NY.
- Ryan, R. M. (1995). Psychological needs and the facilitation of integrative processes. *Journal of Personality*, 63, 397-427.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68-78.
- Schulenberg, J., Wadsworth, K. N., O'Malley, P. M., Bachman, J. G., & Johnston, L. D. (1996). Adolescent risk factors for binge drinking during the transition to young adulthood: Variable- and pattern-centered approaches to change. *Developmental Psychology*, 32, 659-674.
- Shook, N. J., Gerrity, D. A., Jurich, J., & Segrist, A. E. (2000). Courtship violence among college students: A comparison of verbally and physically abusive couples. *Journal of Family Violence*, 15, 1-22.
- Straus, M. A., & Douglas, E. M. (2004). A short form of the Revised Conflict Tactics Scales, and typologies for severity and mutuality. *Violence and Victims*, 19, 507-520.
- Stuart, G. L. (2005). Improving violence intervention outcomes by integrating alcohol treatment. *Journal of Interpersonal Violence*, 20, 388-393.
- Stuart, G. L., Moore, T. M., Kahler, C. W., & Ramsey, S. E. (2003). Substance abuse and relationship violence among men court-referred to batterers' intervention programs. Substance Abuse, 24, 107-122.
- Tabachnick, B. G., & Fidell, L. S. (2007). Using multivariate statistics (5th ed.). New York: Harper Collins.
- Thompson, M., & Kingree, J. (2006). The roles of victim and perpetrator alcohol use in intimate partner violence outcomes. *Journal of Interper-sonal Violence*, 21, 163-177.
- Tjaden, P., & Thoennes, N. (2000). Full report of the prevalence, incidence, and consequences of violence against women: Findings from the National Violence Against Women Survey. Washington, DC: National Institute of Justice, Department of Justice.
- White, H. R., & Chen, P. H. (2002). Problem drinking and intimate partner violence. *Journal of Studies on Alcohol*, 63, 205-214.
- White, H. R., & Labouvie, E. W. (1989). Towards the assessment of adolescent problem drinking. *Journal of Studies on Alcohol*, 50, 30-37.
- White, H. R., & Widom, C. S. (2003). Intimate partner violence among abused and neglected children in young adulthood: The mediating effects of early aggression, antisocial personality, hostility and alcohol problems. Aggressive Behavior, 29, 332-345.
- White, J. W., & Koss, M. P. (1991). Courtship violence: Incidence in a national sample of higher education students. *Violence and Victims*, 6, 247-256.
- Williams, J. G., & Smith, J. P. (1994). Drinking patterns and dating violence among college students. Psychology of Addictive Behaviors, 8, 51-53.
- Yi, H., Williams, G. D., & Smothers, B. A. (2004). Trends in alcohol-related fatal traffic crashes, United States, 1977-2002 (Surveillance Report No. 69). Bethesda, MD: Division of Epidemiology and Prevention Research, National Institute on Alcohol Abuse and Alcoholism.