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Regulation Strategies Mediate Associations between Heavy Drinking and Relationship Outcomes in Married Couples

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Abstract

Heavy drinking patterns during marriage can be problematic for both spouses and relationship. Moreover, spouses use different strategies in an attempt to change their partner's drinking behavior, which can impact the relationship in different ways. The current research examined whether associations between heavy drinking and marital adjustment are mediated by partner regulation strategies (i.e., punishment and reward). Married couples ($N=123$ dyads) with at least one spouse who consumed alcohol regularly and at least one undergraduate spouse completed web-based assessments at baseline and three and six months later. Mediation hypotheses were tested using a repeated-measures version of the Actor-Partner Interdependence Model. As predicted, a significant partner effect emerged suggesting that heavy drinking was associated with greater use of punishment strategies, which were in turn associated with diminished satisfaction. Another significant partner effect revealed that heavy drinking also predicted greater use of reward strategies, which were positively associated with satisfaction. However, the magnitude of the indirect effects via punishment were more than twice as large as the mediated effect via reward. Results underscore the importance of an interdependent, dyadic perspective in understanding associations between heavy drinking and marital outcomes as well as differences between punishing and rewarding regulation strategies in these associations.

Keywords

Alcohol use; marriage; punishment; reward; social control

Contributors

Author 1 designed the study, collected the data, analyzed the results, and wrote pieces of all major sections. Author 2 wrote pieces of the introduction that summarized previous research studies and compiled the tables. Author 3 participated in analyses and wrote sections of the discussion. All authors contributed to and have approved the final manuscript.

Conflict of Interest

All three authors have declared no conflict of interest.

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1. Introduction

Romantic partners are among the first to observe the consequences related to heavy drinking and may use regulation strategies in an attempt to limit or restrict their partner's drinking. The purpose of this study is to examine the direct and indirect effects of alcohol use on marital quality through partner regulation strategies.

1.1 Alcohol and the Marital Relationship

Heavy drinking is often recognized as a source of problems in romantic relationships (Leonard & Eiden, 2007; Marshal, 2003). Studies using cross-sectional and longitudinal designs have demonstrated that spouses having a partner with alcohol problems experience higher levels of marital distress, physical and emotional abuse, separation, and divorce (Homish, Leonard, & Kearns-Bodkin, 2006; Leonard & Jacob, 1988; Leonard & Senchak, 1993, 1996; Maisto, McKay, & O'Farrell, 1998; Marshal, 2003; McCrady, 2012). Generally, research has shown the association between heavy drinking and marital discord to be bidirectional (Levitt & Cooper, 2010; Marshal, 2003). The current research focuses on better understanding interpersonal processes that explain the association between one person's heavy drinking and his or her spouse's relationship functioning. Specifically, we examined drinking-specific regulation strategies as mediators of this association.

1.2 Partner Regulation Strategies

Literature from both social psychological and clinical fields has shown that partners in close relationships sometimes try to regulate each other's healthy (or unhealthy) behavior, ranging from dietary habits and exercise to household chores and tasks. Moreover, because attempts to change a partner can potentially be perceived as dissatisfaction, they can result in poorer relationship outcomes (Overall et al., 2006; Overall & Fletcher, 2010). Regulation strategies have often been distinguished based on their positive (e.g., positive reinforcement, encouragement, modeling) and negative (e.g., pressuring, punishing) dimensionality, with positive attempts being more strongly associated with beneficial change and functioning, and negative attempts more strongly associated with deleterious outcomes (Fekete, Stephens, Druley, & Greene, 2006; Okun, Huff, August, & Rook, 2007; Tucker & Anders, 2001).

1.2.1 Partner regulation and alcohol use—Family members, particularly spouses, are often the first to try to manage an individual's alcohol use (Raitasalo & Holmila, 2005). Spouses may try to reduce the drinking with a variety of direct and indirect regulation attempt strategies, such as persuasion, ignoring the drinker when drunk, pouring out drinks, criticizing, nagging, threatening, and turning to clinicians for help (for review, see Rotunda & Doman, 2001; Thomas & Ager, 1993). These attempts are sometimes ineffective and may elicit more problems if followed by increased conflict and confrontation (O'Farrell & Bayog, 1986; Thomas & Ager, 1993). Rodriguez and colleagues (2013) found that the association between perception of partner drinking problem and relationship functioning was mediated by punishing, not rewarding, strategies. The current work provides an extension by examining actual partner-reported drinking in married couples over time.

1.3 Current Study

When individuals perceive that their spouse's drinking is creating problems within the relationship, they may engage in various behaviors to reduce consumption. If partners are effortfully attempting to change their spouse's drinking, they may experience greater levels of distress when their partner drinks heavily. Thus, we expected that individuals with a heavy drinking partner would display increased attempts to regulate the partner's behavior. We also expected that regulation attempts would be differentially associated with marital adjustment (i.e., punishment with lower adjustment and reward with higher adjustment). Thus, we hypothesized that the association between partner heavy drinking and marital adjustment would be mediated by both punishing and rewarding strategies, in opposing directions. In other words, we expected partner heavy drinking to be associated with lower satisfaction through punishment, and with higher satisfaction through reward.

2. Materials and Method

2.1 Participants

2.1.1 Inclusion criteria and sample characteristics—Inclusion criteria for participation in the study included that couples must have been heterosexual, married, and 18–50 years old. Additionally, it was required that at least one spouse report consuming alcohol at least once per week, and that at least one spouse be an undergraduate student. Finally, in order for Actor-Partner Interdependence Models to test moderation of actor and partner paths by gender, dyads were required to be heterosexual.

Participants were, on average, 29.76 ($SD=6.14$) years old. The majority (69.6%) classified themselves as Caucasian, with 9.2% African American, 7.7% Asian, 12.3% Other or Multi-ethnic, .8% Native American/American Indian, and .4% Native Hawaiian/Pacific Islander. About a quarter of the sample (26.5%) identified as Hispanic/Latino. Couples reported having been married, on average, for 4.26 ($SD=5.08$) years. Approximately half (52.0%) of the participants reported being an undergraduate student. More than half of the participants (58.9%) worked full-time, with 20.4% working part-time and 20.8% not working at all. With regard to education status, the sample was relatively evenly divided among high school education (24.2%), Associate's degree (26.5%), Bachelor's degree (27.7%), and Master's or doctorate (19.2%).

Almost all spouses (93.3% of husbands; 90.2% of wives) reported meeting the drinking inclusion criteria. AUDIT scores were examined to identify hazardous drinkers (AUDIT scores of 8+ for males, 7+ for females): 17.1% of husbands and 14.6% of wives met AUDIT hazardous drinking criteria. Of the heavy drinking husbands ($n=21$), six (28.6%) were undergraduates (five full-time, one part-time). Of the heavy drinking wives ($n=18$), 12 (66.6%) were undergraduates (two full-time, ten part-time). This is consistent with the student status rates across the entire sample (37.3% of husbands and 63% of wives were undergraduates). Although undergraduates typically report much higher drinking rates compared to the rest of the population, the campus at which this data was collected is considered more of a commuter than a traditional campus (i.e., its students are typically older, tend to have full-time jobs, do not live on campus). Additionally, implementing the

marital status inclusion requirement further restricted the sample away from traditional undergraduates.

2.1.2 Recruitment and attrition—Individuals and their spouses were invited to participate via flyers, classroom recruitment, and department listserv emails. The baseline assessment was completed by 133 dyads ($N=266$). Three check questions were placed at various places in each survey to assess whether participants were paying attention. Couples in which one or both partners answered two or more check questions incorrectly were removed from the analyses. Ten couples were dropped; thus, the final dataset was comprised of 123 couples ($N=246$). This study was funded by a graduate student training grant which did not provide funding for participant payment. Of the individuals who completed baseline, 200 (81%) completed the three-month follow-up and 159 (65%) completed the six-month follow-up. Those who dropped participation were more likely to be male (41.4% women and 58.6% men were non-completers, $p < .05$). Individuals who did not complete the follow-ups did not differ from completers in their age, alcohol use, or marital satisfaction (all $ps > .20$).

2.2 Procedure

Participants determined whether they met the inclusion criteria and contacted the researcher via email to indicate their interest in participating in the study. Spouses were asked to complete the web-based survey at a time and place where they were alone. Follow-ups, identical to baseline, were collected three and six months later. Couples were compensated \$15 in giftcards (and extra credit if desired) for each assessment.

2.3 Measures

2.3.1 Alcohol use and problems—The Alcohol Use Disorders Identification Test (AUDIT; Saunders, Aasland, Babor, de la Fuente, & Grant, 1993) is a brief measure of hazardous drinking developed by the World Health Organization (Allen, Litten, Fertig, & Babor, 1997). The AUDIT consists of 10 items asking about consumption and consequences of drinking behaviors. The AUDIT has been used widely as a screening tool for hazardous drinking and has demonstrated well-established and sound psychometric properties (Reinert & Allen, 2002, 2007).

2.3.2 Marital satisfaction—The Quality of Marriage Index (QMI; Norton, 1983) is a six-item scale that asks spouses to report the extent to which they agree with general statements about their marriage. Five items (e.g., “We have a good marriage”) ask spouses to indicate their agreement on a 1 (*Very strong disagreement*) to 7 (*Very strong agreement*) scale, and one item (i.e., “indicate the point which best describes the degree of happiness, everything considered, in your marriage”) asks spouses to respond from 1 (*Very unhappy*) to 10 (*Perfectly happy*) ($\alpha_{\text{wife}}=.98$, $\alpha_{\text{husband}}=.97$).

2.3.3 Partner regulation attempts—The Partner Management Scale (PMS; Rodriguez et al., 2013) assessed ways individuals try to change their partner’s drinking. The measure contains two subscales that ask participants how much they have engaged in several possible regulation behaviors, some of which are based on reward (e.g., suggesting positive activities that don’t involve alcohol), others based on punishment (e.g., threatening), from 1 (*Not at*

all) to 7 (*Very often*). Reliability was acceptable for the punishment ($\alpha_{\text{wife}}=.91$, $\alpha_{\text{husband}}=.91$) and reward subscales ($\alpha_{\text{wife}}=.88$, $\alpha_{\text{husband}}=.89$).

2.4 Analysis Strategy

The primary analysis strategy for the current data included mediation utilizing the actor-partner interdependence model (APIM; Kenny, 1996; Laurenceau & Bolger, 2013). We also examined whether the paths comprising the indirect effects were moderated by gender. A repeated-measures design in which the variables of interest were assessed at three timepoints over the course of approximately six months was utilized. Attrition was higher than expected, rendering lagged-effects models infeasible. Additionally, it was expected that associations among alcohol use, punishment, and adjustment are best measured more closely in time. As a result, the present analyses focus on the concurrent associations among alcohol consumption (AUDIT), reward and punishment strategies, and perceived relationship quality (QMI). To account for non-independence within dyads and over time, we utilized a repeated-measures version of the APIM that incorporates data from all participants, regardless of the number of follow-up responses provided. This approach allowed us to examine the extent to which the self-reported drinking behavior of one individual was associated with the self-reported use of punishment and reward strategies by his or her spouse, and ultimately both partners' perceived relationship quality. Consistent with Wickham and Knee's (2012) recommendations, the actor $\times$ role and partner $\times$ role interactions were also included to evaluate the extent to which these processes may vary as a function of gender. Analyses were conducted using SAS PROC MIXED 9.4 (SAS Institute, 2013).

The first stage of the mediation (i.e., *a*-paths) linking problem drinking to punishment and reward strategies can be described by the following equations:

$$\text{Punish}_{ijt} = a_0 + a_1 * \text{Time2} + a_2 * \text{Time3} + a_3 * \text{RelLt}_j + a_4 * \text{Gender}_i + a_5 * \text{AUDIT}^{\text{Actor}}_{ijt} + a_6 * \text{AUDIT}^{\text{Partner}}_{ijt} + a_7 * \text{AUDIT}^{\text{Actor}}_{ijt} \times \text{Gender}_i + a_8 * \text{AUDIT}^{\text{Partner}}_{ijt} \times \text{Gender}_j + e^{\text{Punish}}_{ijt} \quad (1)$$

$$\text{Reward}_{ijt} = a_9 + a_{10} * \text{Time2} + a_{11} * \text{Time3} + a_{12} * \text{RelLt}_j + a_{13} * \text{Gender}_i + a_{14} * \text{AUDIT}^{\text{Actor}}_{ijt} + a_{15} * \text{AUDIT}^{\text{Partner}}_{ijt} + a_{16} * \text{AUDIT}^{\text{Actor}}_{ijt} \times \text{Gender}_i + a_{17} * \text{AUDIT}^{\text{Partner}}_{ijt} \times \text{Gender}_j + e^{\text{Reward}}_{ijt} \quad (2)$$

where the Punish_{ijt} and Reward_{ijt} are the regulation strategy scores for person *i* in couple *j* at wave *t*. Time2 and Time3 are dummy-coded vectors reflecting the measurement occasion and the corresponding coefficients (a_1 , a_2 , a_{10} , a_{11}) reflect conditional mean differences in the outcome at Waves 2 and 3 relative to Wave 1. RelLt_j is an integer value reflecting the length (in months) of the respondent's current relationship, and Gender_i is an effect-coded vector describing participant gender (-1 =Female, 1 =Male). The coefficients for $\text{AUDIT}^{\text{Actor}}_{ijt}$ and $\text{AUDIT}^{\text{Partner}}_{ijt}$ represent the association between a respondent's own drinking and his/her own punishment or reward (actor), and the relationship between a respondent's partner's drinking and his/her own punishment or reward (partner). The $\text{AUDIT}^{\text{Actor}}_{ijt} \times \text{Gender}_i$ and $\text{AUDIT}^{\text{Partner}}_{ijt} \times \text{Gender}_j$ interaction terms provide a test of gender differences in the actor and partner effects for AUDIT. Finally, the e^{Reward}_{ijt} and e^{Punish}_{ijt} terms represent unexplained variability in the outcomes.

The second stage of the mediation model (i.e., *b*- and *c*-paths) is described by the following equation:

$$QMI_{ijt} = b_0 + b_1 * Time2 + b_2 * Time3 + b_3 * RelLt_j + b_4 * Gender_i + b_5 * Punish^{Actor}_{ijt} + b_6 * Punish^{Partner}_{ijt} + b_7 * Reward^{Actor}_{ijt} + b_8 * Reward^{Partner}_{ijt} + c_0 * AUDIT^{Actor}_{ijt} + c_1 * AUDIT^{Partner}_{ijt} + e^{QMI}_{ijt}. \quad (3)$$

The outcome variable reflects the relationship quality reported by person *i* in dyad *j* at wave *t*. As Time2, Time3, Gender_{*i*}, and AUDIT_{*ijt*} predictors retain the same interpretation from in the previous equations, and the Punish^{Actor}_{*ijt*}, Reward^{Actor}_{*ijt*}, Punish^{Partner}_{*ijt*}, Reward^{Partner}_{*ijt*}, represent the actor and partner effects (respectively) for reward and punishment strategies.¹ Unbiased confidence intervals for the indirect effects was estimated using the distribution of the product method (MacKinnon, Fritz, Williams, & Lockwood, 2007) implemented in the RMediation package (Tofghi & MacKinnon, 2011). Finally, non-independence among residuals from members of the same dyad across measurement occasion were modeled using the multivariate repeated measures covariance structure described by Laurenceau and Bolger (2012; TYPE=UN@AR(1)).

3. Results

3.1 Descriptive Statistics

Means, standard deviations, and intercorrelations are provided in Table 1. Values for men are provided in the upper diagonal and along the vertical margin, whereas estimates for women are located in the lower diagonal and horizontal margin. Intra-class correlations are listed along the diagonal of the correlation matrix. For both men and women, own AUDIT ratings were unrelated to the utilization of punishment or reward strategies, as well as relationship quality. In contrast, punishment and reward strategies were strongly correlated ($r_{men}=.70$, $r_{women}=.84$), though only punishment was related to relationship quality ($r_{men}=-.35$, $r_{women}=-.18$).

3.2 Primary Analysis

Coefficients for the final moderated mediation model are provided in the path diagram provided in Figure 1, and each stage of the analysis is described in detail below.

3.2.1 Problem drinking predicts regulation strategies—The first stage of the mediation model (equations 1 and 2; *a*-path) describes the relationship between problem drinking behavior (AUDIT) and regulation strategies (i.e., punishment, reward).

3.2.1.1 Punishment: Referring to equation 1, the coefficients for Time2, Time3, and RelLt_{*j*} were all non-significant (*all ps* > .15), and the effect of Gender_{*i*} was marginal ($a_4=-0.05$, $t(144)=-1.71$, $p=.09$, $pr=-.14$). Although the AUDIT^{Actor}_{*ijt*} ($a_5=-0.00$, $t(265)=-0.44$, $p=.66$, $pr=-.03$) and AUDIT^{Actor}_{*ijt*}×Gender_{*i*} ($a_7=-0.00$, $t(266)=-0.10$, $p=.92$, $pr=-.01$) coefficients failed to reach significance, the hypothesized AUDIT^{Partner}_{*ijt*} effect emerged ($a_6=0.05$,

¹All of the Gender interactions for the actor and partner effects in equation 3 were non-significant and were excluded to simplify the model.

$t(318)=9.26, p<.01, pr=.34$), and was qualified by a significant $AUDIT^{Partner}_{ijt} \times Gender_i$ interaction ($a_8=-0.03, t(318)=-5.44, p<.01, pr=-.23$) suggesting the magnitude of the $AUDIT^{Partner}_{ijt}$ effect differed as a function of gender. Dummy-coded vectors obtained gender-specific coefficients for the $AUDIT^{Partner}_{ijt}$ effect. For females, the observed partner effect was strong and positive ($a_6 - Female=0.09, t(196)=9.62, p<.01, pr=.41$), suggesting that wives report greater utilization of punishment strategies as their husband's AUDIT scores increase. Though still statistically significant this effect was weaker among men ($a_6 - Male=0.02, t(174)=2.91, p<.01, pr=.18$).

3.2.1.2 Reward: Turning to equation 2, the coefficients for Time2, RelLt_j and Gender_i were all non-significant (*all ps* > .11), but the effect of Time3 was significant ($a_{11}=-0.17, t(165)=-2.12, p=.04, pr=-.14$), suggesting that participants were somewhat less likely to endorse reward strategies at the third wave. As before, the $AUDIT^{Actor}_{ijt}$ ($a_{14}=0.01, t(306)=0.42, p=.68, pr=.02$) and $AUDIT^{Actor}_{ijt} \times Gender_i$ ($a_{16}=-0.00, t(299)=-0.13, p=.90, pr=-.01$) coefficients failed to reach significance, and the hypothesized $AUDIT^{Partner}_{ijt}$ effect emerged ($a_{15}=0.07, t(395)=6.15, p<.01, pr=.24$). However, the $AUDIT^{Partner}_{ijt} \times Gender_i$ interaction failed to reach significance ($a_{17}=-0.00, t(373)=-0.39, p=.70, pr=-.02$), so the pooled effect was retained for this path.

3.2.2 Regulation strategies predict relationship quality—The second stage of the mediation model describes the association between regulation strategies (punishment, reward), and relationship quality (QMI), controlling for problem drinking (AUDIT). Referring to equation 3, the coefficients for Time2, Time3, RelLt_j, and Gender_i were all non-significant (*all ps* > .13), as were the *c*-paths describing the actor ($c_0=-0.02, t(324)=-0.25, p=.81, pr=-.01$) and partner ($c_1=0.02, t(345)=0.22, p=.83, pr=.01$) effects for $AUDIT_{ijt}$. A significant actor effect emerged for the *b*-paths describing the relationship between Punish_{ijt} and QMI_{ijt} ($b_5=-1.93, t(269)=-2.40, p=.02, pr=-.13$), indicating that greater self-reported use of these punishing strategies was associated with lower self-reported relationship quality. The Punish^{Partner}_{ijt} effect was also marginally significant ($b_6=-1.33, t(254)=-1.72, p=.09, pr=-.10$), suggesting that individuals may also report lower levels of relationship quality when their partners report greater utilization of these punishing strategies. In contrast, both the actor ($b_7=0.38, t(310)=0.89, p=.39, pr=.05$) and partner ($b_8=0.62, t(280)=1.50, p=.14, pr=.08$) effects for Reward_{ijt} failed to reach significance.

3.2.3 Tests of Indirect Effects—The actor effects for both Reward (a_5) and Punish (a_{15}) were zero, which means that the indirect effects involving these paths must also be zero. Consequently, indirect effects and bias-corrected confidence intervals (MacKinnon et al., 2011) for the set of six unique indirect paths are provided in Table 2.

For the punishment mediator, the moderated effect on the *a*-paths leads to four distinct indirect effects, all of which are significant and negative in sign. Recall that the *a*-paths corresponding to the partner effects linking AUDIT to punishment strategies were notably stronger (i.e., more negative) for women, as indicated by the significant $AUDIT^{Partner}_{ijt} \times Gender_i$ interaction. Consequently, the indirect effect linking men's problem drinking to women's relationship quality via women's punishment strategies was

stronger ($a_6 - Female * b_5 = -0.166$, $pr = -.05$), than the corresponding indirect effect linking women's problem drinking to men's relationship quality via men's punishment strategies ($a_6 - Male * b_5 = -0.043$). The moderated *a*-path also means that the indirect effect linking women's problem drinking to their own relationship quality via men's punishment strategies was notably *weaker* ($a_6 - Male * b_6 = -0.029$), than the corresponding indirect effect linking men's problem drinking to their own relationship quality via their partner's punishment strategies ($a_6 - Female * b_6 = -0.113$).

Because the *a*-path linking partner AUDIT to reward strategies and the *b*-paths linking actor and partner reward strategies to satisfaction did not vary as a function of gender, these indirect effects were identical for husbands and wives. Results (shown in Table 2) revealed significant indirect effects through reward, such that greater utilization of reward strategies was associated with higher levels of relationship satisfaction.

4. Discussion

The current research examined the role of regulation strategies in the association between heavy drinking and marital adjustment. Specifically, this research tested whether punishment and reward strategies mediated the drinking-adjustment link. Results supported expectations in that there were significant partner effects for drinking on regulation strategies for both husbands and wives; as one partner's heavy drinking increased, so did the partner's punishing and rewarding strategies. The association between partner drinking and punishment was stronger among wives.

As expected, results showed that punishment was significantly associated with poorer adjustment. Results also showed significant indirect effects of partner drinking on adjustment through punishing strategies. Particularly strong indirect effects were present for male heavy drinking on male and female adjustment through female punishment. Looking at the overall model (Figure 1) and summation of indirect effects (Table 2), it can be seen that partner heavy drinking was associated with lower satisfaction (i.e., the overall indirect effect—summation of all indirect effects—was negative); however, the use of reward strategies mitigate this negative effect. In other words, partners who use only punishing strategies are likely less satisfied than partners who use both punishing and rewarding strategies.

Rodríguez and colleagues (2013) found that perceiving one's partner's drinking to be a problem was associated with poorer relationship functioning, which was mediated by punishment, but not by reward. The current research goes beyond Rodríguez et al. (2013) by incorporating partner data to show that the *partner's* drinking behaviors were associated with increased regulation strategies, and that both of the drinking-adjustment partner effects were mediated by partner punishment. Moreover, the actor effect of own drinking on own adjustment was also mediated by partner punishing behaviors. In other words, own drinking was associated with partner punishment, which was then associated with lower own adjustment. Partner mediators of actor paths are powerful because they demonstrate the dynamic and interdependent nature of relationship processes. In summary, although the intentions behind punishing behaviors are to ameliorate the drinker's health and/or the relationship, the behaviors themselves are actually deleterious, damaging rapport and

positive interactions that organically occur in healthy relationships and are necessary for strong relationship functioning.

The results of the current study are also important when placed within a larger context. In particular, alcohol abuse affects couples' relationships in a variety of negative ways, including communication problems, increased conflict, and intimate partner violence. Moreover, families of individuals with alcohol use disorders are often characterized by conflict, chaos, communication problems, unpredictability, and emotional and physical abuse (Connors, Donovan, & DiClemente, 2001). These results represent an important step in better understanding the associations between alcohol use and negative interpersonal outcomes. Moreover, the results underscore the importance of not only examining the associations between alcohol use and negative outcomes but also evaluating other relationship-specific patterns that help to explain this association.

4.1 Limitations and Future Research Directions

Findings from this research should be considered in light of several limitations, including the inclusion criteria of one partner being an undergraduate student and relatedly, the attrition rate. The undergraduate requirement was in place because this project was a graduate student training grant that did not provide funds for participant payment and was thus anticipated to incur difficulties with regard to recruitment of married couples. Additional grant support was obtained to fund very limited participant payment (\$15/couple per timepoint), which likely contributed to the follow-up rate that did not allow for ideal power to detect lagged effects, particularly given the complexity of the dyadic mediation models. Moreover, the sample was not randomly drawn, and given the inclusion criteria, caution is warranted in considering to whom these findings generalize. Because these individuals are married, older than typical undergraduates, and students at a largely commuter campus, the sample may be more representative of younger married couples—some of whom are in school—as compared to typical undergraduate samples (aged 18–26) seen in the literature. We believe this may explain the relatively lower drinking rates in the current sample. Indeed, undergraduate status was not associated with drinking, regulation strategies, or relationship functioning, and results were unchanged when undergraduate status was included in the models. Future research may wish to explore these constructs in general community samples as well as dating undergraduate samples in traditional university settings to better understand the complex relationships among heavy drinking, partner punishment and reward, and relationship functioning in committed couples.

Additionally, couples who display similar (i.e., concordant) levels of alcohol use tend to show better relationship outcomes than couples with dissimilar patterns (Homish & Leonard, 2007; Homish, Leonard, Kozlowski, & Cornelius, 2009; Leonard et al., 2014; Mudar, Leonard, & Soltysinski, 2001). A fruitful avenue of future research may explore concordance between partner drinking as a moderator of the effects presented here (e.g., perhaps couples who drink similar amounts—even heavy drinkers—may be less likely to regulate each other's drinking). Relatedly, implications of the current findings for both alcohol and marital interventions include helping partners better understand constructive ways to discuss acceptable drinking patterns.

4.2 Conclusion

In conclusion, the current research adds to the existing literature by furthering our understanding of the dynamic nature of alcohol and relationships through the use of dyadic data. It shows that partners do engage in social control behaviors in response to partner heavy drinking, and that there are consequences of these behaviors for the relationship. Finally, and importantly, these results underscore the significance of examining how couples communicate about the acceptability of drinking behavior.

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Highlights

- Examined how partner drinking is associated with satisfaction in marriage.
- Punishment and reward were evaluated as mediators of this association.
- Married couples with one undergraduate completed surveys over six months.
- Partners punished and rewarded in response to their spouse's heavy drinking.
- Drinking predicted lower satisfaction through punishment and higher through reward.

Figure 1.
APIM model of drinking on marital adjustment through punishment and reward strategies.

Table 1
Means, Standard Deviations, and Correlations Among Primary Study Variables by Gender

Variable	1	2	3	4	5	<i>M_{Male}</i>	<i>SD_{Male}</i>
1. AUDIT	.38**	.13	.04	-.05	.01	5.46	4.97
2. Reward Strategies	.13	.02	.70**	-.15 [†]	-.08	1.39	0.87
3. Punishment Strategies	.16 [†]	.84**	.03	-.35**	-.10	1.08	0.34
4. QMI	-.02	-.06	-.18*	.67**	.08	40.40	6.60
5. Relationship Length	-.10	-.09	-.06	.02	--	--	--
<i>M_{Female}</i>	3.76	1.67	1.24	39.57	51.08		
<i>SD_{Female}</i>	3.58	1.20	0.70	7.86	61.02		

Note.

**
 $p < .01$,

*
 $p < .05$,

[†]
 $p < .10$.

Correlations among for male respondents are provided above the diagonal, and female respondents are provided below. Intra-class correlations are provided along the diagonal.

Table 2

Estimates of Indirect Effects and 95% Confidence Intervals for Associations Between Drinking and Marital Adjustment Through Punishment and Reward

	Paths		95% CIs		Sum of a^*b
	<i>a-path</i>	<i>b-path</i>	a^*b	Lower Upper	
Indirect Via Punishment (Moderated)	AUDIT _M → Punish _F → QMI _F		-.166	-.276	-.057
	AUDIT _F → Punish _M → QMI _M		-.043	-.071	-.015
	AUDIT _F → Punish _M → QMI _F		-.029	-.055	-.003
	AUDIT _M → Punish _F → QMI _M		-.113	-.217	-.013
Indirect Via Reward	AUDIT _M → Reward _F → QMI _F		.028	.002	.054
	AUDIT _F → Reward _M → QMI _M				
	AUDIT _F → Reward _M → QMI _F		.045	.021	.069
	AUDIT _M → Reward _F → QMI _M				.146

* *Note.* All indirect effects presented here are significant at $p < .05$ (i.e., 95% CIs do not contain 0). M and F subscripts identify Male and Female variables. Unstandardized indirect effects with 95% CIs computed using the RMediation procedure.