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THE ROLE OF COMPANIONSHIP AND CONFLICT IN PERCEPTIONS OF A FRIEND'S HEAVY ALCOHOL AND MARIJUANA USE

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Abstract

Individuals have been found to 'project' their own substance use into perceptions of their friends' substance use. This study explores whether companionship and conflict relate to incorrect perceptions of a friend's heavy alcohol and marijuana use, after controlling for the behavior of the respondent and friend. Mixed models demonstrate that having higher levels of companionship, but not conflict, with a friend result in significantly higher perceptual levels of the friend's heavy alcohol and marijuana use. While beneficial for the friendship, higher levels of companionship may result in a person overestimating the heavy alcohol and marijuana use of a friend.

Keywords

Perceptions; heavy alcohol use; marijuana; friendship quality; projection

1. Introduction

Research has consistently established a positive relationship between perceptions of substance use and an individual's substance use behaviors (e.g., Akers et al., 1979; Kandel 1973; Kandel, 1978a; see Warr, 2002). Specifically, those who perceive that others around them are using substances are likely to use substances themselves. Despite these findings, research dating back to the 1960s eludes to the possibility that an individual's perceptions of others' behavior are inaccurate (Byrne and Blaylock, 1963; Newcomb, 1961; more recently, see Boman et al., 2014; Sanders et al., 2014; Young et al., 2014), and perceptions tend to favor the actions of the individual rather than the actions of the peer. This perceptual disjuncture, called 'projection' (e.g., Medtrum et al., 2009; Rebellon and Modecki, 2014; Young et al., 2011; also see Boman and Ward, 2014), has been investigated extensively (e.g., Boman et al., 2016; Weerman and Smeenk, 2005). Generally, researchers understand that projection is occurring and that it carries implications for self-reported behavior, theory testing, and statistical modeling. Drawing on the goals of the current research, the mechanism of projection implies at least two specific limitations that have hindered prior research.

The first limitation concerns the operationalization of perceptions *within* social science research. In many different disciplines, the behavior of friends and peers is often used as a predictor of respondent's behavior. The most common way this occurs is through perceptual measures whereby the behaviors of friends are measured by asking the respondent a series of questions about their friends' behaviors. However, if this perception is synonymous with the respondent's behaviors (e.g., Gottfredson and Hirschi, 1990; Hirschi and Gottfredson, 1993), then the substantive results of subsequent analyses are relatively meaningless because the outcome measure (respondent self-reported behavior) has become confounded – and perhaps substituted – with the primary independent variable of interest (the respondent's perceptions of friend behavior).

The second limitation concerns the fact that substance use tends to be a social event for a significant number of people (Kandel, 1996; Kandel and Davies, 1991; Short, 1997). Warr (2002) refers to group-based behaviors as “groupy” behaviors, which are defined as actions that are far more likely to occur when an individual is surrounded by peers (e.g., alcohol use) than behaviors that are likely to occur by solo actors (e.g., assault). Groupy behaviors are extraordinarily common on college campuses as college students tend to engage in certain behaviors – like alcohol and marijuana use – primarily within, or because of, a group setting. Drawing on the concept of groupy behaviors, ample research suggests that an individual's perceptions of the drinking patterns of friends are likely magnified within a group setting (see Fisher and Bauman, 1988; Kandel, 1996). Since marijuana use is also often done in a group setting (e.g., Warr, 2002), the same processes are likely at work when someone perceives his/her friend's levels of marijuana use.

To address these gaps in existing literature, the goal of this paper is to explore how elements of friendships and behavior relate to an individual's perception of his/her friend's heavy alcohol use and marijuana use. Through the use of a large university-based data set, we seek to expand on the knowledge of how perceptions of substance use are created during a period of the life-course where “groupy” substance use is rather common. Before we go into the nuances of the study, we discuss recent research on how elements of friendships, and perceptions of peer behavior interplay with the use of intoxicants.

2. Friendship Quality, Substance Use, and Perceptions of Peer Behavior

Prior research has clearly demonstrated that friendship quality – and elements of friendship quality such as companionship and closeness – are related to substance use patterns among friends (Hawkins and Fraser, 1985; Kandel and Davies, 1991; see also Kandel 1978a, 1978b; Krohn et al., 1988; McGloin and Piquero, 2010). These studies have revealed that close friends who engage in substance use together tend to report higher levels of companionship than friends who do not engage in substance use (Kandel and Davies, 1991; Krohn and Thornberry, 1993; also see Giordano et al., 1986). Though there are several possible explanations for why this is the case, a likely reason for this is because individuals who engage in substance use together tend to share more personal information with their friends in their intoxicated state, and in turn, their friends are likely to be empathetic towards them and take a seat of passion with that information (Windle, 1994).

Despite high levels of friendship quality and companionship, ample research suggests levels of conflict are also higher among friends who engage in substance use than those who do not engage in substance use. Studying friendship dyads, Boman and colleagues (2013) concluded that friendships consisting of persons who binge drank and used marijuana had significantly higher levels of conflict than friends who did not use substances or displayed dissimilar usage patterns. Similarly, and studying those in dating relationships, Giordano and colleagues (2010) found that persons who engaged in deviance and substance use also had higher levels of conflict in their relationships than those who did neither. Thus, the literature presents a complex portrait of the relationship among elements of friendship quality and substance use. On one hand, companionship is higher among substance using friends and, on the other hand, conflict is higher in these same groups as well.

Given the limitations highlighted above meshed with important elements of friendship quality, research has not established how peer companionship and conflict may relate to perceptions of a close friend's substance use. This is a significant limitation as 1) research shows that peer relationship characteristics such as companionship and conflict relate to substance use patterns, and 2) individual perceptions of peer substance using behaviors have a robust effect on individual substance using behaviors. However, scholars know little about how perceptions relate to the very friendship processes – companionship and conflict – that are known to shape friendships and substance use patterns. The current study's effort focuses on building a discussion on this topic.

3. Current Study

Using a large, dyadic dataset consisting of university students in self-identified friendships, the broad goal of this study is to explore how an actor's level of companionship and conflict with a friend relate to perceptions of a friend's patterns of heavy episodic alcohol use and marijuana use. The outcome measures in this study are not behaviors, but rather perceptions of a friend's behaviors. As such, our primary interest in the current project lies in perceptual processes that occur when a person thinks about the extent of substance use in which their friends have engaged. We investigate two specific perceptual processes. First, we explore how companionship and conflict relate to perceptions of a close friend's heavy episodic alcohol use (defined as having five or more drinks at once). Second, we examine how these factors relate to an actor's perception of a friend's marijuana use (defined as consuming marijuana through any method). In both cases, we control for the actor's and the peer's self-reported substance use and demographic characteristics.

Since our primary interest lies in how companionship and conflict with a friend relate to substance use-based perceptual processes, we propose two hypotheses. Since both heavy episodic alcohol use and marijuana use are social, group-based activities (e.g., Warr, 2002), we expect (H1A) that an actor's companionship with a friend will relate to higher amounts of heavy alcohol and marijuana use while only characteristics of the actor are in the model. We hypothesize (H1B) that this effect will disappear when controlling for the peer's self-reported heavy alcohol use or marijuana use, as this would indicate that close levels of the actor's companionship to the friend are related to relatively accurate substance use perceptions.

Friends who use substances regularly have high levels of interpersonal conflict with each other (e.g., Boman et al., 2013; Giordano et al., 2010). Since high levels of conflict between friends may exist because of their shared substance use patterns, we believe actors will perceive unreasonably high amounts of substance use when conflict exists in the friendship since they will associate substance use with conflict within their friendship. As such, we generally expect that conflict will be significantly and positively related to the amount of heavy alcohol use and marijuana use perceived. Specifically, we believe that actors who experience high levels of conflict with a friend will perceive very high levels of substance use for a friend regardless of (H2A) their own and (H2B) their friend's substance use.

4. Methods

4.1. Sample

The data source for this study comes from an original data collection conducted in 2009 that had the primary goal of investigating perceptual processes related to crime and substance use. The individuals in the sample are all undergraduate students who are nested within self-identified friendship pairs and who attended a large, southeastern university in the United States. To collect the dyadic sample, the primary investigator of the project contacted the instructors of the largest 50 classes being offered on campus during the spring semester. The instructors were asked if they would be interested in offering extra credit to their students for participation in a large, friendship-level study that was being conducted on campus. Instructors teaching 24 classes, ranging in size from 50 to over 1,500 students, replied affirmatively.

Upon receiving confirmation from instructors, the PI and/or a member of the research team conducted in-class visits to tell potential participants about the research project. Specifically, possible respondents were told three things. First, they were informed that the research team was conducting an on-campus study that would require respondents to come to a designated study site and fill out a paper survey. Second, they were told that in order to participate in the study, each respondent would need to attend the study with one of their "five best friends" who were currently also in undergraduate studies at the same university. In asking for as many as five friends, the study's design attempted to capture the fact that the behavioral influence of friends varies based on closeness (see Weerman and Smeenk, 2005). Third, and finally, potential participants were told that they would be compensated with extra credit in the course if they were to attend the study.

The research headquarters operated during designated operating hours over several weeks so that respondents could participate in the study at their convenience. When a friendship pair arrived, they provided informed consent and were then separated into different locations to fill out a paper survey. The paper surveys were pre-coded with matching dyadic identification numbers that identified the two friends as being linked. Each survey was identical to the other and asked questions about the respondent, his/her friend, and their friendship. During survey administration, participants were monitored by a research team member in order to stop unwanted communication between the friends (i.e. text messaging). After completing the instrument, each dyad member was debriefed and left the study's headquarters individually.

In total, data were collected from 2,154 individuals nested within 1,077 friendship dyads. While the total number of people in participating courses was about 5,000, a sampling frame size, and hence response rate, is incalculable since we cannot be sure how many friends each person would have considered bringing to the study. Because of the large number of persons participating in the courses, about one in five friends also received extra credit in a participating course. Consequentially, the most common reason for a friend attending the study was simply to help the actor receive extra credit. All dyads are independent from each other, meaning that no dyad contains the same person nested within multiple friendships. The data are structured in a ‘double-entry datafile,’ which treats each dyad member as the target respondent – called the ‘actor’ – whose characteristics may be influenced by the other (called the ‘friend’; see Campbell and Kashy, 2002; Kenny et al., 2006).

4.2. Dependent variables

The outcome measures in this study are two items that separately capture the actor’s perception of his/her friend’s 1) heavy episodic alcohol use and 2) marijuana use over the past 12 months. The *perceived heavy alcohol use* item asked, “In the past 12 months, how many times has the friend you attended the study with drank five or more alcoholic drinks at once?” This outcome measure is scaled on the National Youth Survey’s 8-point metric (see Elliott et al., 1985). This metric, which is designed to capture frequency of behavior, ranges from ‘0’ to ‘8’ (0 = never; 1 = once or twice a year; 2 = once every two to three months; 3 = once a month; 4 = once every two to three weeks; 5 = once a week; 6 = two to three times a week; 7 = once a day; 8 = two to three times a day). This outcome has a mean of 2.030, a standard deviation of 2.080, and an observed minimum and maximum of 0 and 8, respectively (see Table 1).

The second outcome variable asked actors how often the friend they attended the study with used marijuana over the past 12 months. Measured on the same metric, *perceived marijuana use* has a mean of 0.708 with a standard deviation of 1.547 (observed minimum: 0; observed maximum: 8).

4.3. Independent variables

As outlined previously in this study, friends who use substances tend to share very close friendships with each other (e.g., Kandel and Davies, 1991), although these friendships are often filled with conflict (e.g., Boman et al., 2013). Accordingly, we incorporate two independent variables into this study that capture the actor’s level of *companionship* and *conflict* with the friend. Both of these constructs are adapted for use in a collegiate population from the Friendship Qualities Scale developed by Bukowski and colleagues (1994). Though originally intended for use in childhood-age populations, researchers have demonstrated that the measures used by Bukowski and colleagues are appropriate, valid, and reliable in collegiate samples like the ones in the current study (Brendgen et al., 2001; Saferstein et al., 2005). In university populations, respondents find the questions straightforward and easy to answer (Saferstein et al., 2005), which is advantageous in any survey-based methodology.

To capture the actor's level of companionship with the friend, the actor was asked to indicate their agreement with four declarative statements that inquired whether 1) the actor spends all his/her free time with the friend, 2) if the friends do fun things together, 3) whether the friends spend time in each other's homes, and 4) if the friends talk to each other frequently in informal settings. Items were measured on a five point Likert-type scale where higher scores indicate higher agreement with the declarative statement (1: not true; 2: mostly not true; 3: somewhat true; 4: mostly true; 5: really true), and coincidentally a higher level of companionship with the friend. These four items, which scale consistently (Cronbach's $\alpha = .73$), were added together and averaged to capture the mean item response ($M = 3.603$, $SD = 0.846$, observed range 1–5).

The actor's perception of conflict within the friendship is also captured using four items. The items asked whether the actor thought the friends could 1) get into fights (an item left intentionally vague), 2) whether the friend annoys the actor, 3) whether the friends argue a lot, and 4) whether the friends disagree about many things. Again scaling consistently ($\alpha = .78$) on the same five-point metric, this average-item-score scale is coded so that higher scores capture higher levels of conflict within the friendship ($M = 3.663$, $SD = 0.876$, observed range 1–5).

4.4. Control variables

To ensure robustness of results, we include several control variables in an attempt to protect against spuriousness. Perhaps the most important of these control variables is self-reported heavy alcohol use and marijuana use. Though we elaborate more on this in the next subsection of this study, the models we use allow for the use of measures from both the actor and the friend in the same model. As such, we control for *self-reported heavy alcohol use* of both the actor and the friend in the upcoming models. Drawing on precedent from the National Youth Survey (e.g., Elliott et al., 1985) and the College Alcohol Study (e.g., Wechsler et al., 2002), this measure asked respondents to report the number of times they had drank five or more drinks at once in the past 12 months and was measured on the same '0' to '8' point scale as the perceptual items. The average self-reported heavy alcohol use in this study is slightly higher than the perceptions of it ($M = 2.200$, $SD = 2.151$, observed range is 0–8).

The actor's and the friend's *self-reported marijuana use* is controlled in models which investigate perceptions of marijuana use. Again measured on the same eight point metric, self-reported marijuana use has a mean of 0.914 ($SD = 1.762$, observed range 0–8).

Additionally, we included measures that capture the *sex* of the actor and friend. Specifically, we examine whether the actor and friend are male ('1') compared to female ('0'). We also capture the *age* of the actor and friend ($M = 19.339$, $SD = 1.433$), whether the actor and friend were non-white (about 37% of the sample; 'white' comparison), and whether the actor and friend identified as being of Hispanic ethnicity (about 19%; non-Hispanic comparison).

4.5. Analytical strategy

To analyze this project, we draw upon a form of dyadic data analysis called the ‘actor-partner interdependence model’ (the APIM; see Kenny et al., 2006). This model, which is used in conjunction with the double-entry file (Campbell and Kashy, 2002), is a robust way of estimating how not only characteristics of an actor may relate to his/her substance use perceptions, but also how characteristics of the friend can relate to the actor’s perceptions. From a conceptual standpoint, this analytical approach makes considerable sense because perceptions of a peer’s behavior may contain not only characteristics of an actor (e.g., projection), but also could be heavily impacted by characteristics and self-reported substance use patterns of the friend. To provide for the ability to directly compare coefficients for independent variables, all measures were standardized via the z-score method. This technique gives all measures a mean of 0 and a standard deviation of 1, thus putting the measures on the same metric and allowing for a comparability of effect sizes.

Though there are many different ways through which APIMs can be implemented, the current study uses APIM-class 2-level mixed models to capture elements contained in an actor’s perceptions of a friend’s heavy alcohol use and marijuana use. The mixed modeling approach is advantageous in the current application because friends may be different from each other (within-dyad variance) while friendships are different from each other (between-dyad variance). Since our primary interest is in the actor’s and friend’s variables, our focal level of concern is at level 1. Level 2, which is in this case called a grouping level, accounts for between-dyad differences by including the dyadic identification number for the equation to group around.

With the exception of variables capturing sex, age, race, and Hispanic ethnicity, all measures had minor amounts of missing data. Namely, all measures had less than 1% missingness except for three items measuring conflict (fights: 1.2% missing; annoying: 2.1% missing; arguing: 1.3% missing). No differences were detected between people who replied to these items in terms of perceptual substance use of a friend or behavior. To keep the full sample size, models were imputed using the multiple-imputation-based Markov-Chain Monte Carlo technique using 20 random draws from 200 burn-in iterations. All modeling was conducted in Stata (v. 14.2).

5. Results

Table 2 presents a series of 2-level mixed models that regress perceptions of a friend’s heavy episodic alcohol use onto actor effects (at level 1), friend effects (also at level 1), and grouping around the dyad (at level 2). Model 1, which regresses perceptions of a friend’s heavy alcohol use onto actor effects, demonstrates that actors who perceive higher levels of companionship with the friend perceive significantly higher amounts of heavy alcohol use for the friend. Though conflict does not reach significance, the actor’s self-reported heavy alcohol use is strongly related to higher perceptions of a friend’s heavy alcohol use. No demographic controls reach statistical significance aside from the race variable, which suggests non-whites are less likely to perceive high levels of friend heavy alcohol use.

Model 2 in Table 2 is a similar model, although friend effects are included. Although the friend's self-reported heavy alcohol becomes highly significant, the relationship does not eliminate the associations between heavy alcohol perceptions, companionship, and self-reported heavy alcohol use. However, upon the inclusion of the friend variables, the actor's race drops to non-significance while actor ethnicity becomes significant, indicating that Hispanics perceive significantly lower levels of friend heavy alcohol use after accounting for friend effects. And while conflict still remains non-significant, it is noteworthy that companionship remains significantly related to higher amounts of perceived friend heavy alcohol use after controlling for the friend's self-reported use.

Table 3 presents a similar set of models for perceptual marijuana use. In Model 1, companionship to the friend and self-reported marijuana use both emerge as being significantly related to perceptions of a friend's marijuana use, much like in the alcohol models. Again, conflict does not approach significance. Further, the actor's race is again statistically significant, suggesting that white respondents report significantly more friend marijuana use than non-whites.

Model 2 in Table 3 adds in friend effects. Though the friend's self-reported marijuana use is highly significantly related to increased perceptions of marijuana use, it does not eliminate the effect of companionship or self-reported marijuana use, both of which remain highly significant in a positive direction. Once again, conflict remains non-significant and the actor's race drops out of the model after the inclusion of friend effects. Again, however, it is important to note that high levels of companionship remain related to higher levels of marijuana use after controlling for the friend's self-reported marijuana use.

5.1. Supplemental analysis of companionship's and conflict's relationship with perceived friend substance use

Although results demonstrate that companionship is consistently related to higher levels of perceived substance use, conflict did not emerge in a single mixed model as being significant. To further investigate the relationships of these variables on perceptions, a series of supplemental analyses (correlations and ANOVAs) were conducted. Although the same significance patterns emerged for companionship, in no case was conflict related to perceptions. Additionally, by subtracting the actor's perception of the friend's substance use from the friend's self-reported substance use, we created a series of variables that captured accuracy in the perceptions. Using similar supplemental analytical procedures, results again demonstrated that higher levels of companionship were significantly related to perceptions of a friend's heavy episodic alcohol use and marijuana use. Specifically, a series of ANOVAs demonstrated that higher levels of companionship towards the friend were related to perceptions of the friend's heavy alcohol ($p < .001$) and marijuana use ($p < .05$) *when the friend actually used alcohol and marijuana*. Coupled with the findings from the mixed models, the results collectively demonstrate that actors who share high levels of companionship with a friend tend to believe that their friends use significantly more alcohol and marijuana than actors who share low levels of companionship with the friend. Despite this tendency to estimate higher overall amounts of substance use for their friends, actors with high levels of companionship are effective at estimating that a friend has used alcohol

and marijuana when the friend in fact has done so. Collectively, higher companionship is related to accurately perceiving that a substance-using friend does indeed use substances while also being related to incorrectly perceiving that a non-substance-using friend uses substances. Similar analyses using the accuracy variable again echoed that conflict is unrelated to all perceptual processes. As such, it seems that instead of conflict, the element of companionship carries the importance for perceptual processes of a friend's substance use.

6. Discussion

Although perceptions of substance use are critical in understanding patterns of self-reported substance use, this project is among the first to explore the relationship between companionship and conflict within friendships and perceptions of peer substance use. This is a notable limitation as companionship and conflict have been shown to relate to friendship-based substance use patterns. Results of APIM modeling reveal that companionship is positively and consistently related to increased perceptions of a friend's heavy alcohol use and marijuana use, even after controlling for both actor and friend self-reported binge drinking and marijuana use, respectively.

High levels of companionship are consistently related to increased perceptions of a friend's heavy alcohol consumption and marijuana use. Further, this finding persists after controlling for the actor's and friend's levels of self-reported substance use. While this finding lends support to H1A, we are forced to reject H1B. The implications of rejecting H1B are that higher levels of companionship in a friendship are related to increased perceptions of the friend's heavy alcohol and marijuana use while controlling for both the actor's and the friend's behavior. In other words, companionship within the friendship is related to increased perceptions of a friend's substance use regardless of the friend's actual levels of substance use. To this point, supplemental analyses demonstrated that perceptions of a friend's substance use from actors with high levels of companionship are fairly accurate, but only if the friend has also used the substance. Given that the main analyses suggest that actors with high levels of companionship perceive high levels of alcohol and marijuana use while controlling for the friend's behavior, it seems that actors with high levels of companionship believe their friends use alcohol and marijuana regardless of what the friend actually does. As such, it appears that companionship increases perceptions of alcohol and marijuana overall, and this increase tends to err on the side of accuracy only when the friend coincidentally has used alcohol or marijuana. Accordingly, higher levels of companionship, while beneficial to a relationship, may result in unreasonably high perceptions of a friend's heavy alcohol and marijuana use.

While we received partial support for our hypotheses concerning the relationship between companionship and peer substance use perceptions, the same cannot be said for conflict. Conflict was consistently nonsignificant throughout the mixed models, leading to a rejection of H2A and H2B. This indicates that after controlling for the actor's and the friends' behavior, conflict within the relationship has no significant bearing on the actor's perceptions of the friend's heavy alcohol and marijuana use. Given this surprising finding, supplemental analyses also showed no relationship between perceptual accuracy and conflict

within a friendship. Despite researchers having established that high levels of substance use do relate to higher levels of conflict within a friendship, our analysis suggests that the same cannot be said about the relationship between perceptions of a friend's substance use and conflict.

Although we treated self-reported heavy alcohol and marijuana use as control measures within the models, findings relevant to these variables bear an impact on elements contained within the perceptual processes. Most notably, the actor's self-reported heavy alcohol and marijuana use was significantly and robustly related to perceptions of the friend's behavior. This remained true when the friend's self-reported behavior – which also reached high levels of significance – was stepped into each model. Accordingly, it seems that actors draw upon their own behavior and their friend's behavior approximately equivalently when perceiving the heavy alcohol and marijuana use patterns of their friends. This implies that projection is occurring. However, similar standardized coefficient magnitudes between the actor's self-reported heavy alcohol and marijuana use and the friend's heavy alcohol and marijuana use alludes to the possibility that perceptions of a friend's substance use may rely as much on projection-based mechanisms as they do the friend's actual substance use patterns.

7. Limitations

Despite the contributions of this project, there are some notable limitations that hinder the ability to definitively draw results. First, this analysis is limited to just one university located in the southeastern United States and, consequentially, lacks generalizability to other university settings. Second, and within this vein, the extent to which companionship affects perceptions of peer substance use in non-college samples should be examined in future work. For example, though some researchers find that there are not significant behavioral differences between college students and those in more 'high risk' samples (Wiecko, 2010), we cannot dismiss the possibility that there may be differences in the way that companionship and conflict relate to perceptions of friend substance use between this sample and others. Third, although questions from the survey asked respondents about alcohol use in the previous twelve months and then asked about instantaneous perceptions of friend substance use at the time of the survey, the data are still cross-sectional. As a result, findings of this study are unable to examine casual mechanisms, specifically. Future research should examine how friendship qualities affect perceptions of peer substance use over time. Fourth, this study has only included one of the actor's friends. Because the majority of people have several friends (e.g., Weerman and Smeenk, 2005), this study is limited in that we could not capture the larger social network. This limitation could be amplified by the fact that the substances under consideration are groupy (see Warr, 2002). Although research on this specific issue is badly needed, people may potentially project their idea of the group's behavior onto the one friend about whom they were asked. Finally, this study relies on a College Alcohol Study-based, older definition of heavy episodic alcohol use (defined as 5 or more drinks for both males and females). Although there is considerable contention on how to measure heavy alcohol use (Wechsler and Nelson, 2008), future research should examine this issue using a more up-to-date definition.

8. Conclusions

Despite researchers having a foundational knowledge that higher levels of substance use instill high levels of companionship – and also conflict – between friends *and* that perceptions are extremely important for behavior, it is surprising that less attention has been placed on how elements of friendship quality relate to perceptual processes. Surprisingly, we find that companionship results in higher levels of perceived friend's substance use after controlling for a friend's self-reported substance use. Though future research must investigate this issue further, this finding is alarming because it may imply that positive elements of friendships could be a driving factor behind heightened perceptions of substance use patterns of friends. Unfortunately, those increased perceptions may, in turn, increase self-reported substance use patterns among those in friendships. Accordingly, criminal justice practitioners and counselors should consider trying to adjust these overestimates of peer substance use with the hopes of decreasing substance use levels among clients who are in close friendships.

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Table 1

Summary statistics of dyadic sample (N = 2,154 people nested within 1,077 dyads).

<i>Dependent Variables</i>	M	SD	Min.	Max.
Perceived friend's binge drinking	2.030	2.080	0	8
Perceived friend's marijuana use	0.708	1.547	0	8
<i>Independent Variables</i>				
Companionship	3.603	0.846	1	5
Conflict	3.663	0.876	1	5
<i>Control Variables</i>				
Self-reported binge drinking *	2.200	2.151	0	8
Self-reported marijuana use *	0.914	1.762	0	8
Male (=1) *	0.336	0.472	0	1
Age *	19.339	1.433	18	42
Non-white (=1) *	0.369	0.483	0	1
Hispanic (=1) *	0.186	0.389	0	1

* *Note:* Because of the way the double-entry file is situated, descriptive statistics for selected measures are identical for the actor and the friend (see Kenny et al., 2006).

Table 2

Mixed models regressing perceptions of a friend's heavy episodic alcohol use onto predictors of the actor and friend; standardized effects reported (N = 2,154).

	Model 1		Model 2	
	b	SE	b	SE
Level 1				
<i>Actor Effects</i>				
Companionship to friend	.040	.017 [*]	.036	.015 ^{**}
Conflict with friend	-.010	.017	.011	.015
Self-reported heavy alc. use	.628	.017 ^{***}	.439	.016 ^{***}
Male	-.022	.017	-.029	.016
Age	.028	.017	.000	.016
Non-white	-.080	.018 ^{***}	-.004	.017
Hispanic	-.010	.017	-.030	.015 [*]
<i>Friend Effects</i>				
Self-reported heavy alc. use	--	--	.451	.016 ^{***}
Male	--	--	.026	.016
Age	--	--	.038	.016 [*]
Non-white	--	--	-.027	.017
Hispanic	--	--	.001	.015
Constant	-.001	.016	.001	.014
Level 2				
τ		.756		.636
σ		0.000		0.000
Model Statistic				
F		226.38 ^{***}		260.33 ^{***}

*
p .05

**
p .01

p .001

Table 3

Mixed models regressing perceptions of a friend's marijuana use onto predictors of the actor and friend; standardized effects reported (N = 2,154).

	Model 1		Model 2	
	b	SE	B	SE
Level 1				
<i>Actor Effects</i>				
Companionship to friend	.054	.018 **	.041	.015 **
Conflict with friend	-.016	.018	.006	.015
Self-reported marijuana use	.575	.018 ***	.374	.016 ***
Male	.013	.018	-.013	.017
Age	-.023	.018	-.020	.017
Non-white	-.061	.018 ***	-.025	.017
Hispanic	-.005	.017	-.014	.016
<i>Friend Effects</i>				
Self-reported marijuana use	--	--	.494	.016 ***
Male	--	--	.021	.016
Age	--	--	-.020	.017
Non-white	--	--	-.011	.017
Hispanic	--	--	.016	.016
Constant	-.000	.017	-.001	.014
Level 2				
τ		.806		.669
σ		0.000		0.000
Model Statistic				
F		163.59 ***		220.16 ***

*
p .05

**
p .01

p .001