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Peer Group Belonging, Group Norms and Alcohol Consumption in Emerging Adulthood

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PEER GROUP BELONGING, GROUP NORMS AND ALCOHOL CONSUMPTION
IN EMERGING ADULTHOOD

by
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Submitted in Partial Fulfillment
of the requirements for the degree of
Bachelor of Arts
in
Honours Psychology

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CERTIFICATE OF EXAMINATION

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Peer Group Belonging, Group Norms and Alcohol Consumption in Emerging Adulthood

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Abstract

Emerging adults' alcohol consumption is strongly influenced by the behaviour and beliefs of their peer group (Arnett, 2005), with individuals tending to behave in ways that are consistent with their peer group's *norms* for drinking (Dumas, Wells, Flynn, Lange, & Graham, 2014). Little research, however, has been conducted on moderators of this relationship. Such research is important in order to determine which group members are most at risk of adopting group drinking behaviour. Two studies were conducted to examine emerging adults' *sense of peer group belonging* as a moderator of the relationship between peer group and individual drinking behaviour. Study 1 is a concurrent study, with 249 emerging adult participants ($M_{age} = 26.33$ years; 49.5% female) who completed an online survey, including a measure of *perceived* peer group drinking norms. Consistent with hypotheses, results demonstrate that for both alcohol use and binge drinking, the relationship between group norms and individual drinking was stronger for individuals with higher rather than lower group belonging. Study 2 is a longitudinal study, with 72 undergraduate student participants ($M_{age} = 19.40$ years; 69% female), recruited in their natural drinking groups ($N = 25$ groups). Group drinking norms were calculated as the average drinking behaviour of participants' group members. Again, consistent with hypotheses, results demonstrated that the relationship between group norms and individual alcohol consumption was significant only for individuals with higher group belonging. This finding was not replicated for binge drinking, however. Implications of these findings are discussed, including their importance for informing intervention strategies.

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Introduction

In the last 30 years, a period of human development between adolescence and young adulthood has been identified and labelled *emerging adulthood*. Between the ages of 18 and 29 years, it is a period of instability, change and exploration; a time when identity develops and becomes more fully formed (Arnett, 2000). During this time, individuals perceive themselves as no longer teenagers but not yet as adults. Perhaps due to the instability and exploration associated with this developmental period paired with increased independence from parents, emerging adulthood is also a period that is marked by an increased participation in risk behaviour (Arnett, 2005).

In the investigation of drinking behaviour, emerging adults are an important subgroup that perform more risky behaviours, such as substance use, risky sexual activity, and dangerous driving, when compared to the general public (Canadian Alcohol and Drug Use Monitoring Survey (CADUMS), 2012; Arnett, 2000). According to the 2012 Canadian Alcohol and Drug Use Monitoring Survey, over 70% of individuals aged 15-25 reported drinking alcohol in the past year. Of these youth, one in four exceeded the chronic risk guideline, drinking more than 15 drinks in one week (10 for women), and more than 3 drinks in one day (2 for women). Further, 17.9% had exceeded the guidelines for acute risk, drinking more than 4 drinks on a single occasion (3 for women). Although this analysis included some individuals outside the age range of emerging adulthood, these statistics still suggest that it is a salient period in development for risk behaviour associated with alcohol. Thus, gaining a clear understanding of the factors that influence this alcohol use and abuse, as well as the factors that make this age group especially vulnerable to risky alcohol behaviour is important.

As emerging adults explore their new, autonomous identities partly through distancing themselves from their parents and postponing more committed adult relationships (e.g., marriage), their network of support shifts and relationships with their friend groups become more important (Arnett, 2005). These peers provide a form of social control in that they become markers and guides for appropriate behaviour, and to gain peer approval, individuals behave in ways that align with their peer group's values (Arnett, 2005). This social control has been examined in emerging adult drinking behaviour, and peer norms have been found to be a strong factor in shaping individuals' alcohol consumption habits (Borsari & Carey, 2001).

In the present study, the alcohol consumption habits of emerging adults were examined with the expectation that peer group drinking norms would be an important predictor of personal alcohol consumption, and that emerging adults' sense of belonging to their peer group would play a role in strengthening the aforementioned relationship. These relationships were explored using *Natural Drinking Groups* (NDGs), a relatively unstudied type of peer group argued to be a salient network in the context of drinking behaviour (Lange et al., 2011). The following literature review will discuss past research in the areas of normative behaviour and group belonging, both generally and in reference to alcohol use. Further, the categorization of NDGs will be conceptualized and discussed.

Normative Group Behaviour

Peer influence can be discussed in two forms, direct and indirect (Kandel, 1985). Direct peer influence involves actions explicitly performed by the group, their habits and behaviours specifically to induce others to participate in these behaviours. Indirect peer influences, the focus in this study, are a more nuanced factor, conceptualized through peer modeling and communication of normative information. The influence of modeling references the learned or

induced behaviour of an individual, after observing the behaviour and consequences of another individual's actions (Borsari & Carey, 2001). In addition to modeling behaviour, the influence of peer groups has been discussed through the mechanism of social norms, information about peers that motivates and guides the behaviour of the individual.

Cialdini, Kallgren and Reno (1990) proposed further distinction of indirect peer influence into descriptive and injunctive norms. Descriptive norms are the actual behaviours of the individual's peers, how most members of their group act, and injunctive norms are the information about the attitudes of their peers, what is typically approved of and/or disapproved of by the group. Both of these types of social norms motivate individual behaviour, both generally and more specifically to alcohol consumption (Cialdini, Kallgren & Reno, 1990; Rimal & Real, 2005). For instance, in a study by Rimal and Real (2005), injunctive norms (i.e., social approval) and descriptive norms (i.e., perceived behaviour of peers) significantly predicted emerging adults' intentions to consume alcohol. These results are in line with prior research and theory suggesting that individuals will often behave in ways that they believe will follow perceived group norms, in desire to act appropriately and maintain their positions within the group (Borsari & Carey, 2001).

In the majority of past literature, peer drinking norms are often measured through the perception of the individual (Neighbors et al., 2010; Reed et al., 2007), and thus the reported norms may be biased. Observed behaviour and assumed attitudes of the individual's peers may be exaggerated or diminished, and will motivate behaviour through these inaccurate interpretations (Perkins, 1997). There are also several studies that use actual, peer-reported norms, which provide a realistic assessment of both descriptive and injunctive norms, and which also predict individual group members' drinking (Dumas et al., 2014). It is important that both

perceived and actual norms are assessed, allowing for researchers to examine the norms from different perspectives, in this study both are considered in the evaluation of peer behaviour.

Rimal and Real (2005), proposed the Theory of Normative Social Behavior as a way to interpret the relationship of descriptive and injunctive norms, and the process of peer influence in motivating behaviour. In the theory, descriptive norms interact with the individual's cognitive mechanisms, affecting the individual's perceived injunctive norms, their assessment of outcome expectations of the behaviour, and how the individual perceives their alignment with the group identity. These cognitive mechanisms have been proposed to mediate the influence of descriptive norms on the individual's own behaviour (Rimal & Real, 2005). Descriptive norms do not immediately effect behaviour, but are processed through several stages before changes to behaviour patterns occur.

The effect of group norms on behaviour has been understood through a two-step process. First, individuals compare their personal attitudes and behaviours to that of their peers and identify any differences. Then, in response, they will adapt their behaviour to be more congruent to that of the group (Borsari & Carey, 2001). The effects of social norms in alcohol-related behaviour is seen in that descriptive norms, information about the consumption habits of direct peers, predicts individual-level consumption (Rimal & Real, 2005). Emerging adults behave in ways that follow their groups' attitudes to avoid the risk of social consequences, such as being alienated from the group or losing their influence on the group due to behavioural deviations (Borsari & Carey, 2001; Hartzler & Fromme, 2003). The individual also considers the social consequences to their behaviour, attempting to act in ways that will have the maximum benefits with the least amount of negative consequences. In the case of alcohol consumption, an appearance of being "cool" could be deemed a benefit of drinking behaviour, but a consequent

hangover would then be a negative consequence (Rimal & Real, 2005). Outcomes can also be assessed in their effect on the group's evaluation of the person, acceptance or exclusion, not solely the primary effects on the individual. Group identity involves factors like the individual's desire for group approval and aspiration to become similar to other group members, and has been found to have an influence in behaviour, specifically alcohol consumption (Rimal & Real, 2005). In their study, Rimal and Real (2005) found that feelings of similarity to their university peers and aspirations to be like their peers were significant predictors of university students' intentions to consume alcohol. It was suggested then, that an individual's sense of group identity might be a moderator of the internalization and influence of descriptive norms.

Peer Group Belonging

Group belonging refers to the extent that individuals feel connected to their group and satisfied with their group membership. It encompasses group affiliation, desire to be involved with the group, and perceived acceptance in the group (Newman et al., 2007). Often seen as synonymous in past literature, a sense of belonging differs from group identification in that it implies that the individual actually belongs and has been accepted by other members, and is not solely identification. In other words, someone may strongly identify with a group, without having a sense of belonging in the group. Differing from general group association, a sense of belonging implies closeness and strength of ties to other members, a high value placed on the group and its beliefs, and the individual strongly identifies with this group. In Rimal and Real's (2005) theory, group identification is suggested as a moderator of the effect of descriptive norms on behaviour, specifically in alcohol consumption. It could be argued that a sense of belonging could be a stand-alone moderator of alcohol consumption like group identification, given that because of their sense of belonging, individuals would feel closer to the group and desire to

continue a part of the group, making the consequences of being rejected by their peers to be perceived as more detrimental. Among group members with high group belonging, the motivation to maintain a positive relationship with their peers will be increased due to the greater perceived social loss as the result of deviancy from group norms. Further, because they feel more attached and have stronger ties to the group, high group belonging individuals may be more open to accepting the values and attitudes of their peers, which would reflect in similar behaviour to their peers. This has not been examined within the field of alcohol consumption research, however some studies have supported the proposal that sense of belonging could be a moderator of other behaviours (Newman et al., 2007).

The strength of perceived peer drinking norms on university students' own alcohol use have been found to be stronger when peers are seen as closer in relationship to the individual, a best friend for example, as compared to a peer seen as an average member of individuals' cohort (Reed et al., 2007). This was also demonstrated when normative information about the drinking behaviour of both friends (and best friends) was more predictive of individual drinking than the norms of "typical" students at the institution (Yanovitsky et al., 2006). In their study on Greek student groups, Reed et al. (2007) examined normative behaviour surrounding alcohol consumption through their social identity measures, including measures of the closeness of bonds between group members and the importance of the group to their identity. It was found that group identification moderated the relationship between perceived approval of heavy drinking by the group and heavy personal drinking, in which in groups with higher acceptability of heavy drinking, those who identified more strongly with their group reported more heavy drinking (Reed et al., 2007).

Similarly, Neighbors and colleagues' (2010) research demonstrates that university students are more affected by the perceived drinking norms of the groups with whom they identify more strongly, including same-sex, same-race, and same-Greek-status groups. This study highlights the importance of the reference group when providing normative information; the more salient the group, the more strongly individuals internalize perceived norms and the more strongly they want to align with these norms. A sense of belonging, having close ties, could be another way that an individual's reference group is more specific, allowing for more observation and internalization on normative behaviour as well as openness to the group's attitudes. This increase could make the presented norms more salient to the individual, thus strengthening the influence on individual behaviour.

Natural Drinking Groups

The salience of the reference group is related to the internalization and strength of the presented normative behaviour (Neighbors et al., 2010). In the examination of the environments in which emerging adults consume alcohol, they tend to have specific friend groups with whom they drink. *Natural Drinking Groups* (NDGs), are the groups that participate in activities that are centered on drinking and share relationship bonds together (Lange et al., 2011). Different from novel groups formed at parties, NDGs contain members that have specific relationships or friendships with each other, and compared to a typical friend group, NDGs are focused on activities involving alcohol. In a study conducted by Lange et al. (2011), several secondary characteristics of NDGs were found, such as pre-existing bonds within the group, and organized roles including leaders and decision makers. The use of NDGs in research on emerging adults' drinking behaviour is a very recent occurrence, with most past research focused on friendship pairs or peers in general (Borsari & Carey, 2001; Rimal & Real, 2005; Yanovitzky et al., 2006).

It is important to account for the specific reference group from which an individual will receive normative information when considering the subsequent motivated behaviour. This relationship with a group would result in individuals identifying more strongly and acting more in line with group drinking norms. Past research in drinking behaviour among emerging adults has been successful in the use of this reference group when discussing other influencing factors (Dumas et al., 2014). It is important to examine these relations within NDGs as opposed to more general groups of peers given the particularly salient and proximal role that NDGs play in young people's alcohol-related decisions (Dumas et al., 2014). As of yet, however, the relationship between group belonging and alcohol consumption has not been explored within NDGs.

The Current Project

The current project examines the impact of group norms for alcohol consumption within NDGs on individual alcohol consumption, moderated by individuals' perceived feelings of belonging to their NDG. This project was made up of two separate studies. Study 1 used a large, representative sample of emerging adults to examine perceived NDG drinking norms and their relationship with individual levels of alcohol consumption. In this concurrent study, sense of group belonging was examined as a moderator of this relationship. Study 2 used a small sample of university students, recruited in their NDGs. For peer drinking norms, the actual calculations of averaged consumption levels of the entire NDG based on peer-reports were used, and thus should be more representative of the norms modelled to the individual, than the perceived group norms measured in Study 1. It was hypothesized that group drinking norms would predict individual drinking two months later, similar to the expected results of Study 1. Further, in both Study 1 and Study 2, this relationship was expected to be moderated by the individuals' feelings of group belonging, in which the relationship between group norms and individual drinking

would be stronger for those that have a stronger sense of peer group belonging than those with a weaker sense of group belonging.

STUDY 1

Method

Participants

The participant sample was taken from a pool of 429 emerging adults who completed an online survey using an online crowdsourcing portal (Amazon Mechanical Turk). The criteria for eligibility in the study was that participants must have a group with whom they attend social drinking events (i.e., bars and parties), and that either the participant or a member of his/her group had consumed alcohol at least once in the past year. A majority (65%) of the original participants were eligible for this study, forming a final sample of 277 participants. The sample was evenly distributed in terms of gender with 50.5% male participants. The ages of the participants ranged from 18 to 29 years with a mean age of 26.33 ($SD = 2.66$). The ethnic makeup of the sample was for the majority Caucasian 77%, with 9% African American, 10% Hispanic, and 8% Asian American. Less than 1% identified as Native American, and 2% identified as other.

Measures

Peer Group Belonging. Nine items from the *Group Belonging Scale* (Newman & Newman, 1993) were used to measure participants' perceived sense of belonging to their group. The individuals' attitudes about their group were reported by the level of agreement on a 5-point Likert-type scale ranging from *strongly disagree* to *strongly agree*. Example items include, "I have strong ties to my group" and "I see myself as an important part of the group". An individual's score would be the calculated average of his/her scores on the 9 items. Higher scores

on this measure indicates a stronger sense of group belonging. The reliability of this measure was found to be strong ($\alpha = .87$).

Alcohol Consumption. To measure participants' frequency of alcohol consumption, they were asked to report the number of days in the past 30 days that they had used any kind of alcohol. To measure participants' perception of the alcohol consumption of their group members, they were asked to report the number of days in the past 30 days that their group members had used any type of alcohol.

Binge Drinking. The Center for Addiction and Substance Abuse defines binge drinking as consuming more than five drinks, four for women, on one occasion (Butt et al., 2011). To measure participants' frequency of binge drinking, they were asked to record the number of days that they had gotten drunk or consumed 5 or more drinks (4 for women) in one sitting in the last 30 days. Participants were also asked to report the frequency of this behaviour of their group members in the last 30 days. To aid in their reporting, participants were provided with a definition of a standard drink, being 12 oz. of 5% alcohol (beer), 5 oz. of 12% alcohol (wine), 1.5 oz. of higher alcohol content beverages (spirits and liquors), following the Canadian Center for Substance Abuse's definition. The definition of a drink was provided in written as well as visual forms.

Procedure

Participants were recruited through Amazon Mechanical Turk in September 2015. Participants received a link to the online survey and completed the measures on their computers or mobile devices. Letters of information, consent forms and debriefing forms were all included in the online survey format. The measures of peer group belonging, individual and group alcohol

consumption and binge drinking were nested within a larger survey. All participants were instructed to complete the surveys in a quiet and independent area. The completion of the survey required approximately 30 minutes. As reimbursement, participants were given 3 dollars in online store credits to Amazon.

Analysis

Two linear regressions were conducted to test the study hypotheses. Group members' alcohol consumption and binge drinking were examined as predictors of individual alcohol consumption and binge drinking, respectively. Group belonging was also included as a predictor in each regression, as well as the interaction between group belonging and group members' alcohol use/binge drinking. The variables of age and gender were controlled for in the analysis. For the interaction terms, the guidelines of Aiken and West (1991) were followed; all predictor variables were centered and any significant interaction terms were graphed at one standard deviation above and below the mean of each predictor. To test simple slopes, an online simple slopes calculator was used (Preacher et al., 2006).

Results

Descriptive Statistics

In the case of alcohol consumption, the number of days that the individual reported using any form of alcohol ranged from 0 to 30 days in the last 30 days, with 82% of participants using alcohol at least once in the past month. The number of days of reported binge drinking in the past month ranged from 0 to 30 days, with almost half of participants (47%) reporting at least one binge drinking episode. In Table 1, the means and correlations of variables of interest, including drinking behaviour and group belonging, are outlined. Gender differences were examined

	Correlations					
	Mean (<i>SD</i>)	1	2	3	4	5
1. Age	26.33 (2.66)	-	-	-	-	-
2. Group Belonging	4.13 (.65)	.077	-	-	-	-
3. Alcohol Consumption	6.45 (7.49)	.063	-.108	-	-	-
4. Binge Drinking	2.11 (4.32)	-.135*	-.105	.549*	-	-
5. Perceived Peer Alcohol Consumption	8.26 (7.37)	.113	-.170*	.518*	.178*	-
6. Perceived Peer Binge Drinking	3.17 (4.24)	-.086	.222*	.252*	.451*	.558*

Table 1: Means and Correlations of Individual Drinking Behaviour (Study 1)

*the correlation is significant with a p value less than .05

through two independent samples *t*-tests. No significant difference gender was found for individual alcohol consumption. However, men tended to binge drink more ($M = 3.14$, $SD = 5.62$) than women ($M = 1.06$, $SD = 1.86$), $t(275) = 4.11$, $p < .001$.

Hypothesis Testing

Alcohol Consumption. The linear regression was found to be significant, $f(6,277) = 69.34$, $p < 0.001$, accounting for 61% of the variance in alcohol consumption. The complete results of the regression are shown in Table 2. Age and gender were not significant predictors of individual alcohol consumption. Consistent with hypotheses, the interaction between group alcohol consumption and group belonging was significant. As can be seen in Figure 1, simple slope tests revealed that the positive relationship between group alcohol consumption and individual consumption was stronger among participants with high group belonging ($b = .78$, $t = 9.39$, $p < .001$) than participants with low group belonging ($b = .38$, $t = 5.77$, $p < .001$).

Binge Drinking. The linear regression predicting individual binge drinking was found to be significant, $f(6, 271) = 33.58$, $p < .001$. The predictors accounted for 43% of the variance in binge drinking. The complete results of the regression are identified in Table 3. Gender was found to be a significant predictor of individual binge drinking, in that men participated in more binge drinking behaviour than women. However age was not found to be a significant predictor. Again, in line with hypotheses, the interaction of group binge drinking and group belonging was significant. Simple slope tests revealed that the relationship between group binge drinking and individual binge drinking was stronger for those participants with high group belonging ($b = .73$, $t = 7.69$, $p < .001$) than those with low group belonging ($b = .35$, $t = 5.60$, $p < .001$) (see Figure 2).

	<i>B</i>	SE	<i>B</i>	<i>t</i>	<i>P</i>
Peer Alcohol Consumption	.576	.054	.430	10.665	.000
Group Belonging	-.551	.598	-.034	-.854	.394
Peer Alcohol Consumption X Group Belonging	.308	.075	.167	4.116	.000
Gender	.463	.760	.033	.609	.543
Age	.035	.143	.095	.247	.805

Table 2: Peer Alcohol Consumption as a Predictor of Individual Alcohol Consumption.

	<i>B</i>	SE	<i>B</i>	<i>t</i>	<i>P</i>
Peer Binge Drinking	.543	.062	.479	8.716	.000
Group Belonging	-.221	.353	-.030	-.626	.532
Peer Binge Drinking X Group Belonging	.295	.075	.216	3.943	.000
Gender	-1.318	.475	-.193	-2.881	.004
Age	-.149	.084	-.819	-1.779	.076

Table 3: Binge Drinking as a Predictor of Individual Binge Drinking

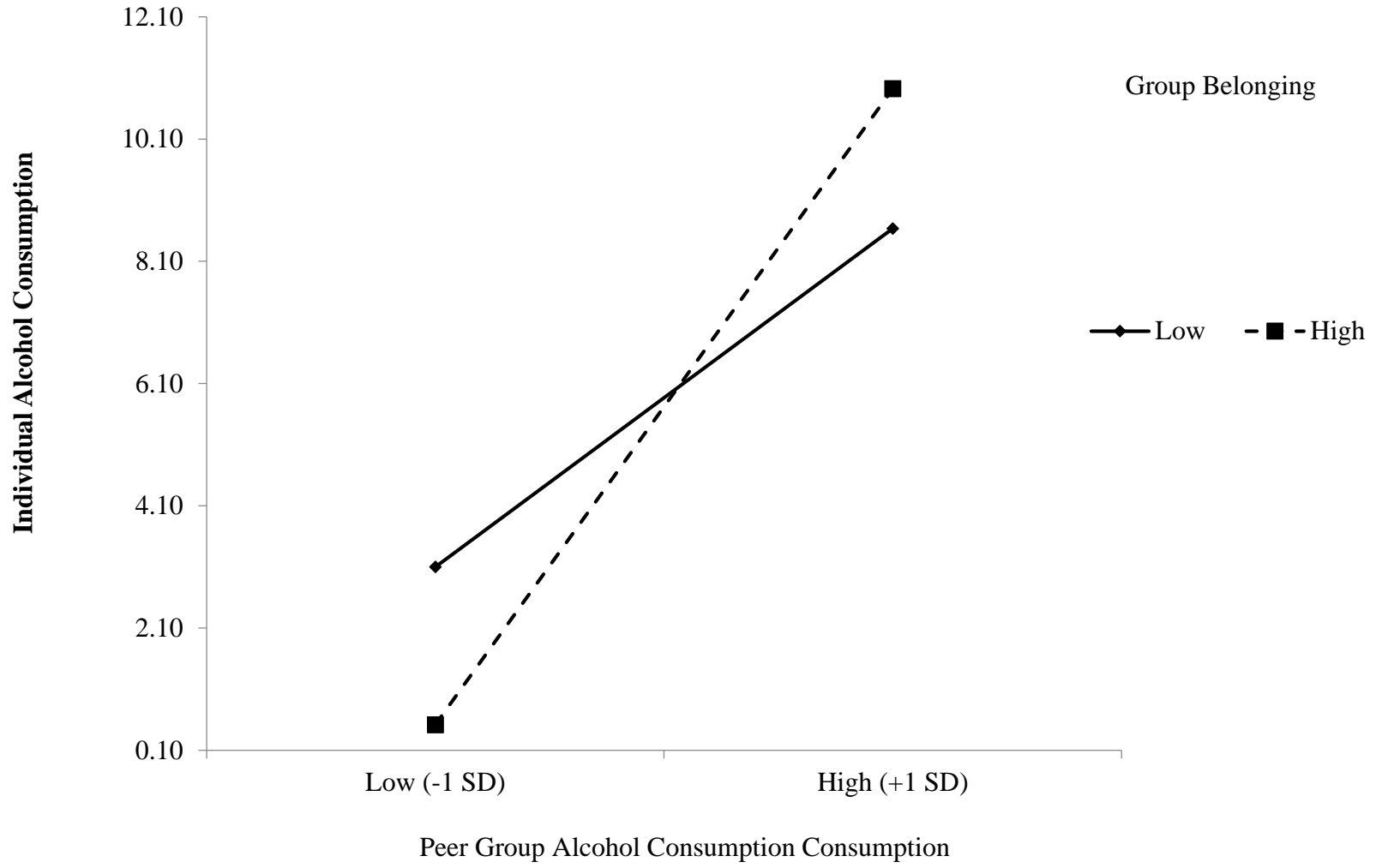


Figure 1, Interaction of Peer Group Alcohol Consumption and Group Belonging.

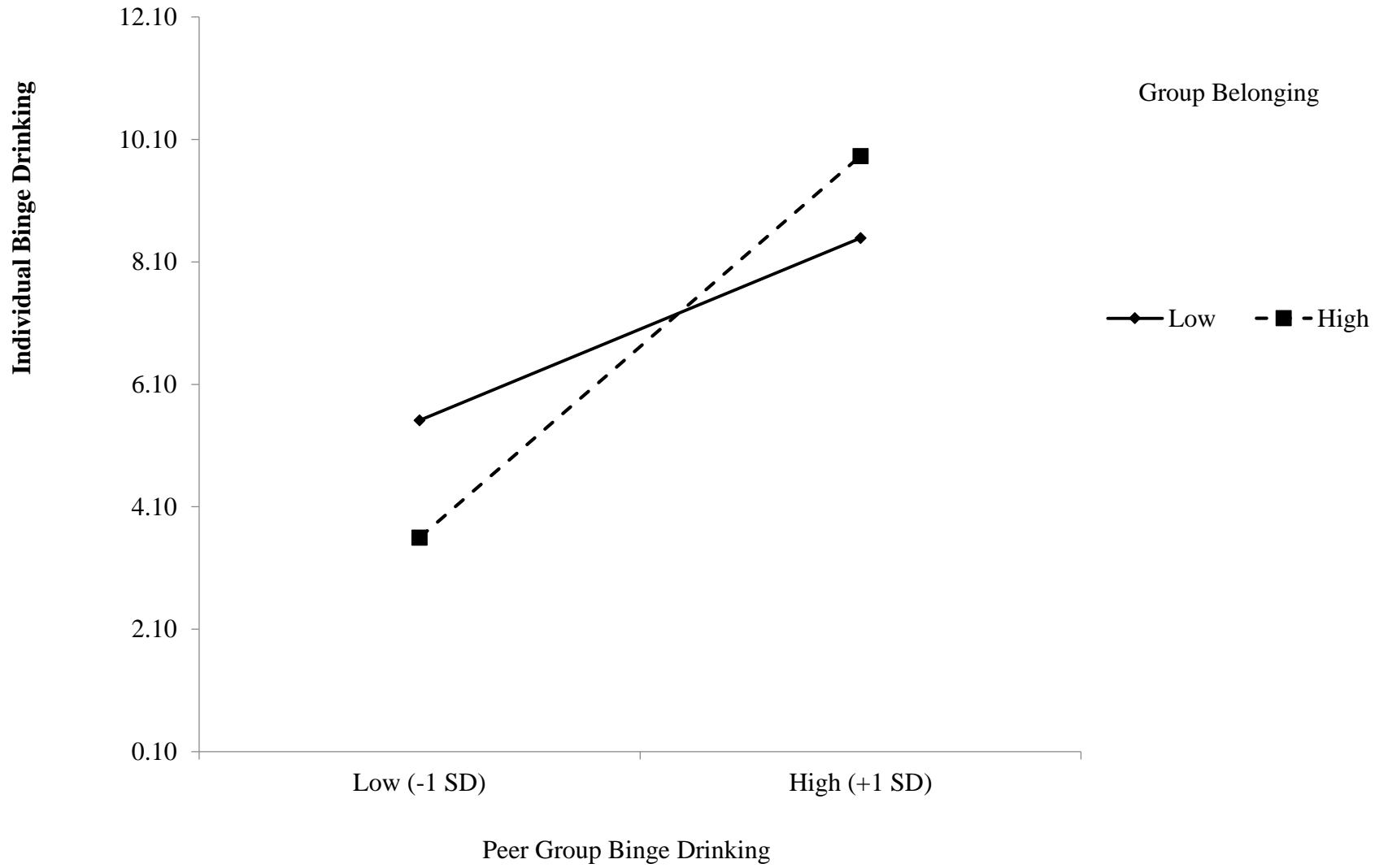


Figure 2, Interaction of Peer Group Binge Drinking and Group Belonging.

STUDY 2

Method

Participants

Participants consisted of students from a small liberal arts college associated with a larger university in Southwestern Ontario. The eligibility criterion for study participation was that students must have and sign up for the study with a peer group with whom they attend social drinking events (i.e., bars and parties). These groups were defined as Natural Drinking Groups (NDGs), composed of 3 to 8 participants that participated in social drinking events together (Lange et al., 2011). One hundred and eight participants from 29 NDGs were recruited to participate in the study; 66.7% completed both surveys (72 participants from 27 NDGs), 8.3% only completed the first survey and 25% only completed the second survey. The majority (69%) of the participants were women. The age of participants ranged from 17 to 27 years, with an average age of 19.40 years ($SD = 1.66$). In terms of ethnicity, 64% identified as Caucasian, 3.7% East Indian, 1.9% Asian, and 5.6% identified as other, with 25% of participants who did report their ethnicity. The natural drinking groups recruited in the study included both single gender groups (4 men-only groups and 10 women-only groups) and mixed gender groups (10 groups), one groups not identifying their gender. Further, the groups recruited had been together for an average of 18.81 months ($SD = 17.20$), with a range of 2 months to 84 months (7 years). The groups remained generally stable between Time 1 and Time 2 with only 4.6% of the sample reporting change in the group between time points; one individual was reported to have left a group and 11.1 % of participants reported that new members joined their group.

Measures

Peer group belonging. The questionnaire used to measure group belonging at Time 1 is the same one that was used in Study 1. Again, the reliability of the measure was very strong ($\alpha = .89$).

Alcohol Consumption. At both Time 1 and Time 2, individual alcohol consumption was measured as the reported number of days that participants used any kind of alcohol in the last two months, with the two time points being separated by two months. Group alcohol consumption was calculated as the mean of the alcohol consumption scores of participants' drinking group members, not including themselves.

Binge Drinking. Similar to the measures of binge drinking in Study 1, at both Time 1 and Time 2, participants' frequency of binge drinking was measured as the number of days that the individual reported drinking five or more drinks (4 for women) in the last two months, with the two time points being separated by two months. Group binge drinking was measured as the mean of all group members' binge drinking scores, not including that of the individual. To aid in their reporting, participants were provided with a definition of a drink written and in a visual aid, as defined by the Canadian Center for Substance Abuse.

Procedure

A portion (43%) of participants were recruited at a student formal event that they attended with their Natural Drinking Groups. The rest of the participants were recruited through a poster campaign at the university. After showing interest in participation and having all group members affirm that their group was a NDG, (i.e., a friend group that drinks together and attends social events that involve drinking together; Lange et al., 2011), participants were sent a link to

an online survey (Survey 1). The survey included the letter of information, consent and debriefing forms as well as the measures among others not discussed in this study. Participants completed the measures on their computers or mobile devices. They were instructed to complete the surveys independently of other members of their drinking groups. The survey took approximately 30 minutes to complete. After a period of approximately two months, a link to the second online survey (Survey 2) was sent to the participants. This survey included the same measures as the first. Again the participants were instructed to complete the survey independently, taking approximately 30 minutes. After completing both surveys, participants were compensated with a 20 dollar online gift card.

Analysis

Similar to Study 1, two models were run to examine if group belonging moderates the relationship between group members' and individual alcohol consumption and the relationship between group members' and individual binge drinking. Instead of using linear regressions, like in Study 1, hierarchical linear modelling (HLM) was used. Given that one assumption of linear regression is that participants' scores are independent of each other and because participants in this study participated with their drinking group members, their scores on drinking are not independent of each other. HLM accounts for this dependence or "nested" data.

Individual alcohol consumption and binge drinking at Time 2 was predicted by the following variables at Time 1: group alcohol consumption and binge drinking, respectively, group belonging, the interaction between group drinking and group belonging, and control variables (age and gender). Any significant interactions were examined using the guidelines of Aiken and West (1991) and simple slopes were tested using the procedure of Preacher et al. (2006).

Results

Descriptive Statistics

In terms of alcohol consumption at Time 2, the number of days that individuals reported using any form of alcohol ranged from 0 to 40 days in the last 60 days, with 97% of participants using alcohol at least once in the past month. The number of days with reported binge drinking in the past two months ranged from 0 to 30 days, with the majority (95%) reporting participating in at least one binge drinking episode. In Table 4, the means and correlations of variables of interest, including drinking behaviour at Time 2 and group belonging at Time 1 are outlined. Gender differences were examined through two independent samples *t*-tests. Men tended to report more frequent alcohol consumption ($M = 14.10$, $SD = 11.58$) than women ($M = 8.31$, $SD = 5.21$), $t(68) = 2.90$, $p = .005$. No significant difference for gender was found for individual binge drinking.

Hypothesis Testing

In the HLM analysis, two groups were removed due to missing data on key variables, further reducing the sample to 25 drinking groups.

Alcohol Consumption. The complete results of the HLM are shown in Table 5. Age and gender were found to be significant predictors of individual alcohol consumption, with men drinking more frequently ($p < .01$), and older individuals drinking more frequently ($p = .05$). Further, the interaction between group alcohol consumption and group belonging was approaching significance ($p = .07$). Simple slopes tests revealed that, consistent with hypotheses, the effect of group alcohol consumption at Time 1 on individual alcohol

	Mean (<i>SD</i>)	Correlations				
		1	2	3	4	5
1. Age	19.40 (1.66)	-	-	-	-	-
2. Group Belonging	4.10 (.70)	.006	-	-	-	-
3. Alcohol Consumption	10.13 (7.29)	-.009	-.128	-	-	-
4. Binge Drinking	6.26 (5.41)	-.083	.023	.694*	-	-
5. Group Alcohol Consumption	15.74 (6.09)	.088	.236*	.316*	.324*	-
6. Group Binge Drinking	8.93 (5.43)	-.136	.221	.221	.373*	.726*

Table 4: Means and Correlations of Individual Drinking Behaviour (Study 2)

*the correlation is significant with a p value less than .05

	<i>B</i>	<i>SE</i>	<i>t</i>	<i>p</i>
Peer Alcohol Consumption	.037	.017	2.089	.043
Group Belonging	-.065	.091	-.714	.479
Peer Alcohol Consumption X Group Belonging	.032	.017	1.861	.069
Gender	-.542	.108	-5.041	.000
Age	-.101	.051	-1.995	.052

Table 5, Peer Alcohol Consumption at Time 1 as a Predictor of Individual Alcohol Consumption at Time 2.

consumption at Time 2 was significant for participants with high group belonging ($b = .06$, $t = 2.93$, $p = .005$), but not for participants with low group belonging ($b = .02$, $t = .88$, $p = .38$) (see Figure 3).

Binge Drinking. The complete results of the HLM are shown in Table 6. Age and gender were not significant predictors of individual binge drinking behaviour. Again, the interaction between group binge drinking and group belonging approached significance ($p = .07$). Results of the simple slopes tests revealed that, in contrast to hypotheses, the relationship between Time 1 group binge drinking and Time 2 individual binge drinking was not significant for participants with high group belonging ($b = .02$, $t = .60$, $p = .55$) and was marginally significant for participants with low group belonging ($b = .08$, $t = 1.93$, $p = .06$) (see Figure 4).

Discussion

This project hypothesized that a sense of peer group belonging would moderate the relationship between descriptive peer group drinking norms and individual drinking behaviour in emerging adults. This was supported by Study 1, in which the interaction of group belonging and peer group drinking behaviour significantly predicted individual behaviour for both general alcohol consumption and binge drinking. Peer group drinking behaviour was a significant predictor of individual drinking for individuals with both high and low group belonging, with the relationship being stronger for those who reported a stronger sense of group belonging. The results of Study 2 partially support the hypothesis in that group belonging moderated the relationship between group and individual drinking for both general alcohol consumption and binge drinking. For alcohol consumption, those with high group belonging drank more frequently in instances when their group drank more frequently, behaving more in line with

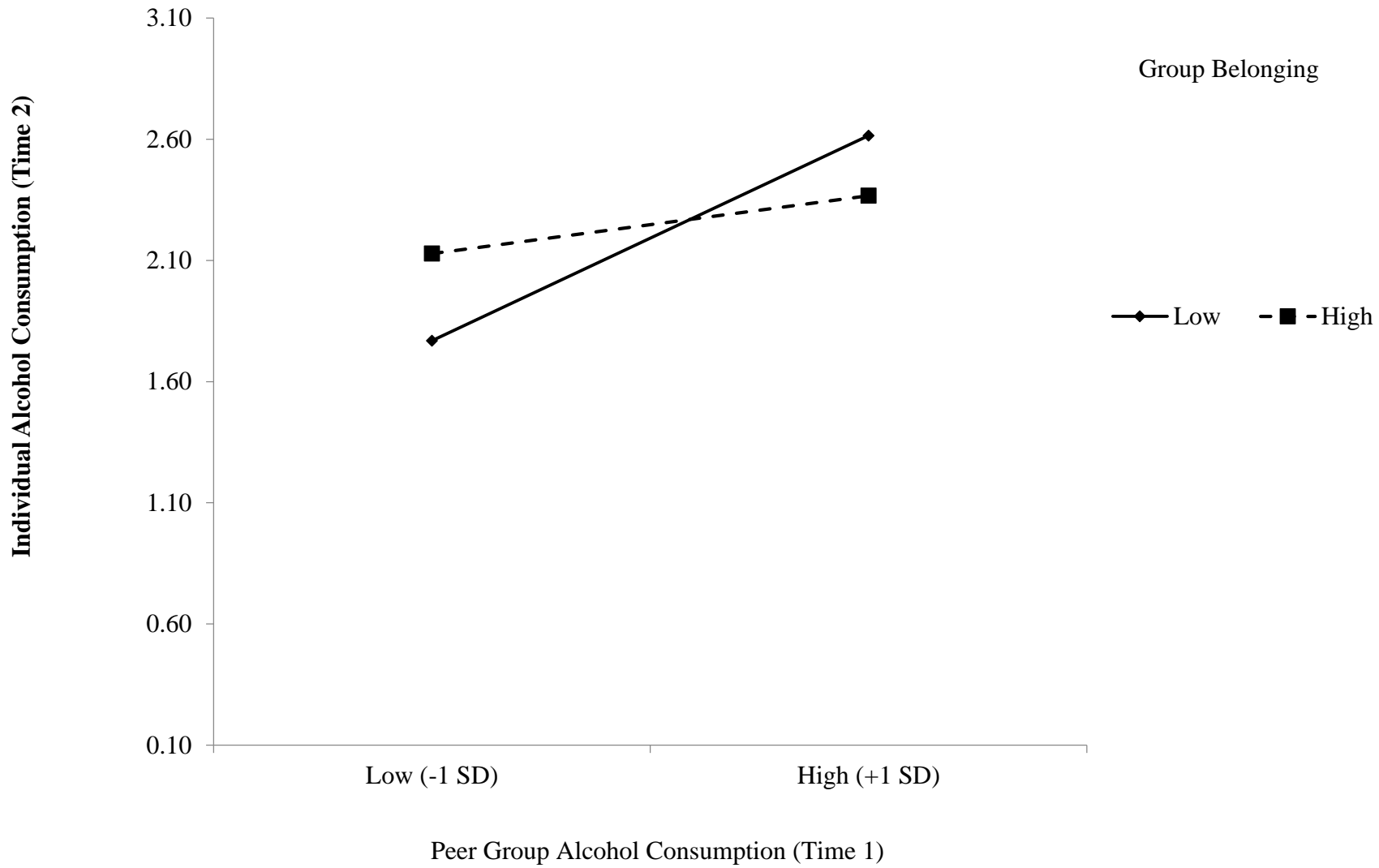


Figure 3, Interaction of Peer Group Alcohol Consumption and Group Belonging.

	<i>B</i>	SE	<i>t</i>	<i>p</i>
Peer Binge Drinking	.046	.024	1.956	.057
Group Belonging	.040	.115	.350	.728
Peer Binge Drinking X Group				
Belonging	-.044	.024	-1.861	.069
Gender	-.245	.139	-1.771	.083
Age	-.120	.064	-1.880	.067

Table 6, Peer Binge Drinking at Time 1 as a Predictor of Individual Binge Drinking at Time 2

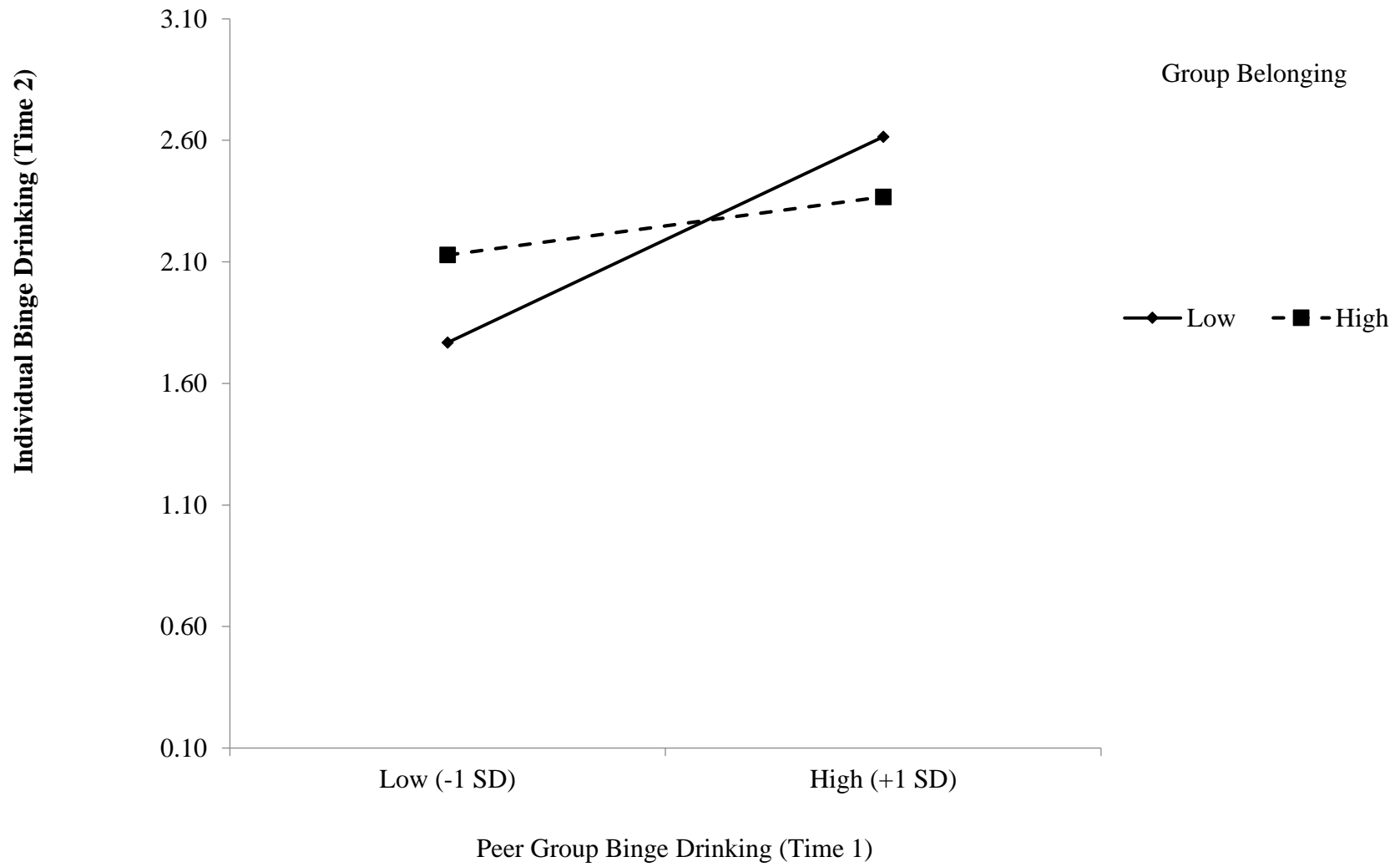


Figure 4, Interaction of Peer Group Binge Drinking and Group Belonging

group norms. For binge drinking, however, group drinking norms were a predictor of individual drinking for those with low group belonging, but not those with a stronger sense of group belonging. This is contrary to the hypothesis and potential explanations for this divergence are discussed later

The results of this project generally support the hypothesis that group belonging acts as a moderator in the relationship between group drinking norms and individual drinking behaviour. These results can be added to the understanding of how group norms are moderated, as understood through the Theory of Normative Social Behaviour (Rimal & Real, 2005). Group belonging was found to moderate this relationship in a large, representative sample of emerging adults and in a university student sample. The predictor of the actual behaviour of drinking groups on the individual's interpretation of their peers' drinking was moderated by the individual's sense of group belonging. It appears that individuals' feelings of closeness to a group, desire to be part of the group, and their feelings of being accepted by the group may affect how they internalize the norms of the group. Those that feel more closely attached to the group in this project tended to behave in ways that are more consistent with the drinking behaviour of the other group members than those less close to the group. More research is necessary to confirm the process that underlies the relationship of normative information on individual drinking, and to fully understand the how group belonging moderates this relationship.

It is interesting to note that high group belonging strengthened the relationship between peer drinking norms and individual alcohol consumption and binge drinking when using *perceived* group norms, but only strengthened the relationship between peer group drinking norms and individual alcohol consumption when using *actual* drinking norms. This may be due to how group norms were measured in each study. How individuals perceive their drinking

group's binge drinking behaviour may differ from actual group binge drinking behaviour, given that perceived norms often differ from actual peer behaviour (Perkins, 1997). Binge drinking may be more difficult to properly evaluate given the specificity of the concept (4+/5+ or more drinks consumed), it would be challenging to assess the exact number of drinks consumed by each group member. In contrast the more general perceived alcohol consumption, being only the frequency of consuming any alcohol, can be more clearly modelled by peers. There would be less discrepancy between perceived and actual peer alcohol consumption than peer binge drinking. Behaviour is influenced by the individuals perceived group norms, regardless of the actual group norms, making the use of actual group norms in Study 2 possibly less predictive of the relationship between group binge drinking and individual binge drinking, than the relationship for alcohol consumption. The use of actual group norms in Study 2, may also be why the relationship between group norms and individual drinking behaviour was generally weaker than in Study 1.

Further, the use of a university student sample may have been a factor that contributed to the unexpected results in Study 2. A large variety of social events and opportunities involving alcohol are present in the university environment, such as on campus drinking establishments, Greek life events, student union events, and athletic and student organization events. Those students that have higher peer group belonging feel more accepted and have stronger ties to the group. In this way, these individuals may be invited to participate in more events with their group, and attending more drinking events together may cause the frequency of individual alcohol consumption to be more similar to that of their drinking group. Group belonging might moderate the number of invitations to events, making the frequency of individual drinking more similar to that of group drinking, this effect may not transfer to the relationship between group

and individual binge drinking because although these social drinking events warrant some form of alcohol consumption, they do not necessitate heavier drinking at every occasion. Therefore, it is possible that group belonging as a moderator of the relationship of individual and group alcohol consumption is stronger than the relationship for binge drinking.

It is also a possibility that university students with low peer group belonging may binge drink more in attempts to fit in with the group. In past research, the desire for affiliation with peers, specifically among male university students, was predictive of individual levels of binge drinking (Hartzler & Fromme, 2003). These students behaved in ways that coincided with group norms as well as norms from their general university student cohort. This is similar to a McShane and Cunningham (2003) study, in which Canadian university students were more motivated to change their drinking behaviour to coincide with the drinking norms of a more salient reference group (American university students) over reference group that they are more affiliated with (Canadian university students). It is possible in the current project, individuals with low group belonging binge drank in similar ways to the behavioural pattern of the “average” student drinkers at the college as a means of fitting in, in this way drinking in concordance with their group’s norms although not feeling as accepted by their own group and not internalizing the group norms. Emerging adults attending post-secondary institutions tend to binge drink more than those not attending, although no difference for general alcohol consumption in between post-secondary attendees and non-attendees was found (Johnston et al., 2005). This suggests that increased binge drinking is a norm on university campuses. University students with low group belonging may increase their binge drinking behaviour to act more consistently with peer norms due to their desire to fit in, with their general frequency of alcohol consumption not changing due to the less salient norms. However, it is noted that in Study 2, the

slope for low group belonging was only marginally significant, and the sample size used in Study 2 was quite small. Thus, this assessment is merely speculation and more research is necessary to understand this relationship.

Although the study mainly focuses on the moderating factor of group belonging, it was also hypothesised that members of groups with higher levels of normative drinking would consume more alcohol. Following the Theory of Normative Social Behaviour (Rimal & Real, 2005), descriptive norms, filtered through cognitive mechanisms, influence the behaviours of the individual. In terms of drinking behaviour, perceived group alcohol consumption and binge drinking should influence the drinking behaviour of the individual, in which individuals will act in concordance with the drinking behaviour of their peer groups. This was supported by the findings; in Study 1 perceived peer group norms significantly predicted individual behaviour for both general alcohol consumption and binge drinking. This relationship was again found in Study 2, in which actual group norms at Time 1 predicted individual alcohol consumption at Time 2. These findings are consistent with past research (Cialdini, Kallgren & Reno, 1990; Rimal & Real, 2005) and support the importance of social networks including peers and friends in drinking behaviour.

This study used Natural Drinking Groups (NDGs) as a reference for individual reports of peer behaviour in Study 1 and to calculate the actual group norms of recruited groups in Study 2. Young adults participate in the majority of their drinking behaviour with these groups, attending parties and other drinking events together (Lange et al., 2011), and are therefore a group of special interest for those studying drinking behaviour in emerging adulthood. Minimal past research uses NDGs as the peer groups examined when investigating the effects of peers on drinking behaviours. The peers in Study 1 were described as the friend group of the individual

with whom they attend social events (e.g., bar nights and parties), although not specifically indicated, this group is likely their drinking group. In Study 2, friends in the NDG were peers with whom the participant specifically drank, these friends also participated in the study, allowing for the calculation of actual drinking norms of the NDG. Thus the normative information assessed was more true to actual group behaviour, than the perceived group norms in Study 1. The study of NDGs has been minimal in past research (Lange et al., 2011), potentially due to logistical limitations such as ability to recruit full NDGs, statistically group the reported data for each group, and the necessary resources to compensate all group members. However this study and the others in past literature (Dumas et al., 2014) affirm that this form of research is possible and can be successful. It is noted that the sample size in this study was small, only 27 NDGs, and this may partially explain the failure to reach significant results. It is therefore suggested that in future research using NDGs larger samples are necessary to find more subtle effects such as moderators to the relationship.

There are several limitations to this study. To begin, the design of the first study limits the information that can be yielded from the results. Given that all the measures were taken at one time, there is no possibility to examine the effects of group norms and group belonging over time. This is typical of most drinking behaviour studies (Yanovitsky et al., 2006; Reed et al., 2007) The longitudinal design was used for the second study, examined how group behaviour predicted future behaviour of the individual. However there are concerns that the two month period separating the data collection time points were too close and there was not enough time for the individuals' behaviours to be predicted by that of their peers. In this way, it is possible that the failure to find significance was due to the lack of time between data collection points. It also must be noted that both studies, the results were correlational, and thus causation cannot be

implied. An increased use of longitudinal experimental designs in the field of drinking behaviour is necessary to assume the causality of the results found in this study.

Further, the measure used for alcohol consumption may not have been explicit enough to properly investigate drinking behaviour. The measure for alcohol consumption for both studies was the amount of days that individuals consumed any alcohol in a specified time period. In this way, the actual volumes of alcohol consumed on these occasions is unclear. This ambiguousness was avoided by using the measure for binge drinking, the amount of days consuming more than 5 drinks (4 for women), assessing the consumption of more extreme volumes of alcohol. In addition, these measures were all self reports, the use of this type of assessment can cause some unreliability of data due to participant bias. Being intoxicated may alter the individual's ability to accurately report the amount that they consumed, this could affect the individual's estimates of binge drinking frequency in this study. Although self-report is a common approach, measures such as blood alcohol level can be used to assess drinking behaviour (Dumas et al., 2014). Objective measures should be used in addition to self-report measures in cases of future research.

It has been mentioned in other sections that the sample size for Study 2 was fairly small, and this likely resulted in low statistical power for finding significant relationships. It is noted that in the larger sample of Study 1, the effects of the interaction between group belonging and group drinking norms were significant whereas they were only reaching significance in Study 2. It is suggested that given a larger sample of NDGs, the same effects might become more apparent.

Having identified group belonging as a possible moderator of the relationship between group norms and individual behaviour, it is possible that there are other moderators. Other characteristics of the group may affect the internalization of group norms and how the individual

behaves. For example, Dumas and colleagues (2014) found that group members with higher status (e.g., more powerful) positions in the group's social hierarchy were more likely to act in line with group drinking norms. Also, gender distribution and the possibility for romantic relationships among the drinking group members may moderate the effects of group norms on individual drinking patterns. Individuals may be more influenced by the norms of a person they have romantic interest or relationships with, given their increased closeness or salience, than by the more general norms of the group. Future research in these areas is needed gain a more comprehensive understanding of which group members are most at risk of acting in accordance with group drinking norms.

The support for the relationship between group drinking norms and individual drinking patterns among emerging adults may have some implications for possible intervention strategies. The use of normative feedback as an intervention strategy relies on the salience of this relationship. Normative feedback interventions have resulted from research demonstrating that young people tend to overestimate the drinking behaviour of their peers (Perkins et al., 2005). In normative feedback interventions, individuals that engage in risky drinking behaviours are provided with accurate normative information about the drinking habits of their peers. Research demonstrates that after receiving this information, individual drinking rates decrease significantly (Cunningham & Wong, 2013). This strategy is often used in interventions with university students, who are provided with the normative information of a typical student at their institution (LaBrie et al., 2009). However, given the salience of NDGs in young people's drinking and the predictive value of perceptions of NDG drinking on individuals' alcohol consumption it may be beneficial to also provide participants with accurate normative information of their NDGs actual drinking patterns. Future research is necessary to determine the

importance of a more personalized intervention on resulting drinking behaviour. Further, with the moderating factor of group belonging, those with a stronger sense of group belonging could be targeted in this form of intervention, given that, in most cases, they tend to act more in line with other group members.

In the results of this study, the range of drinking behaviour is quite astonishing. It is important to note that although there were a large number of participants in Study 1 that did not drink alcohol, there were participants in both studies that consumed alcohol at what could be qualified as more extreme rates. Many participants surpassed the criteria for chronic risk behaviours when it came to alcohol, with an even larger group surpassing the acute alcohol risk threshold. This appears to follow the reports collected by the Canadian Alcohol and Drug Use Monitoring Survey (2012), showing an increase of risky drinking behaviour during the years of emerging adulthood. It is clear that this is a time when individuals are more vulnerable to the negative consequences of over-intoxication, given their increased rates and amounts consumed. It is therefore extremely important to have a full understanding of the influences and moderators of drinking behaviours among this age group. More exploration of the factors associated and possible intervention and prevention methods are necessary and encouraged.

Normative information about the drinking behaviours of emerging adults' peer groups is related to their own drinking habits. Peer group belonging was found to moderate this relationship, in that those with a stronger sense of group belonging tended to consume alcohol and binge drink at frequencies more consistent with their peer groups. This was supported in a large, representative sample for both alcohol consumption and binge drinking and in a smaller university sample for alcohol consumption, reflecting drinking behaviour over time. Future research is necessary to support the hypothesis and establish a more in depth understanding of

how the closeness of ties, feelings of acceptance and desire to be involved in a group, moderates drinking behaviour.

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