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Context matters: student-perceived binge drinking norms at faculty-level relate to binge drinking behavior in higher education

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ABSTRACT

BACKGROUND: Binge drinking in higher education is an important problem. To target binge drinking in students, studying the social context of students is necessary. Faculties (i.e., colleges or schools in Northern American education) are social contexts in which students behave, but little is known about how the faculty structure relates to monthly binge drinking. In this study, the relationship with student-perceived binge drinking norms at faculty-level are investigated in addition to known personal determinants.

METHODS: Data were collected from 7,181 students in 22 faculty-level units, using an anonymous online survey. Multilevel analyses were used to investigate the relationship of both individual-level determinants (e.g., perceived norms, social drinking motives) and student-perceived binge drinking norms at faculty-level, with monthly binge drinking.

RESULTS: Two-third (62.2%) of the sample was female, the mean age was 21.06 (SD = 2.85) years. In males, significant faculty-level variance in monthly binge drinking was found. At faculty-level only same-sex student-perceived binge drinking norms showed a positive relationship (OR=2.581; 95%CI=[1.023,6.509]). At individual level, both opposite- and same-sex perceived binge drinking norms, and social drinking motives positively related to monthly binge drinking. In females, no significant faculty-level variance was found. Only individual-level determinants positively related to monthly binge drinking. No cross-level interactions were found.

CONCLUSION: Besides individual determinants, faculties are, especially in men, relevant environmental structures and networks to take into account when targeting binge drinking in higher education.

Keywords

Social environment, student, binge drinking, peer group, university, perceived norm

1. INTRODUCTION

Binge drinking (i.e., drinking a large amount of alcohol in a short period of time) is a well-established behavior in higher education and a major cause of problematic health-related outcomes (e.g., premature mortality, injury), anti-social behaviors (e.g., vandalism), and decreased academic performance among students [1-3]. Many students mature out of binge drinking, but some persist in heavy drinking patterns as an adult [4].

A popular strategy to target these problems is the use of individual-based interventions through personal channels (e.g., computers, face-to-face) that focus on personal determinants, such as perceived norms [5, 6]. However, the socio-ecological approach describes health as an outcome of both individuals' behavior and the environments in which these individuals live, which implies that interventions should focus on both personal determinants and environmental factors [7, 8].

At individual level, heavy drinking in students is strongly influenced by the **perceived** social drinking norms from the network (i.e., reference group) in which students **are active and** drink alcohol [9, 10]. Students want to fit **in** these networks in search for friendship, support or intimacy, **and therefore** **drink according to what they believe that important others drink (i.e., descriptive norm) and find acceptable (injunctive norm).** However, students often overestimate the actual drinking norms in these networks [9-11], which often encourage them to drink more alcohol than they normally would do [9, 10]. **Male students usually have higher misperceptions of the drinking norm than female students [12] and these misperceptions generally** handle about same-sex referents [13, 14]. **In students, peers are important referents,** since students spend **many** hours with peers compared to other referents like parents [9, 11], and peers often play an active role in alcohol offerings through peer pressure or provocations during social events [11, 15-18] **Therefore,** a clear relation exists between the perceived norms about peers' drinking and a student's own drinking behavior [9, 12, 19]. However, besides these direct observations of **peers'** behavior or expressed opinions, individuals also extract normative information from summary information about a reference group (e.g., in

74 newspapers) and from signals spread by institutions like schools (e.g., through (the absence of)
75 policies or denouncements) [20].

76 The relation between perceived norms and alcohol use is mediated and moderated by social drinking
77 motives [21, 22]. Drinking motives are the actual reasons someone is drinking for [23]. When
78 students drink for social drinking motives, they drink to enhance their experience with an external
79 trigger, like peers (e.g., to celebrate something with friends, or to be sociable) [24, 25]. Social
80 drinking motives are the most prevalent motives in students [23, 26], which indicates that drinking
81 alcohol is mainly a social event [1, 17]. This social character explains why perceived norms more
82 often motivate students to drink for social reasons, and why perceived norms stronger relate to
83 alcohol use in those students who more often drink for social motives [21, 22].

84 At environmental level, a relevant structure that relates to alcohol consumption in higher education
85 is the faculty (i.e., the college or school in Northern American education) in which students study.
86 Alcohol use is found to vary between faculties [11, 27, 28]. This variation may be due to
87 compositional differences between faculties, since students with similar characteristics tend to
88 cluster in faculties. For example, in some faculties the majority of students is male or female [29],
89 and in most faculties students share common personality traits [30]. Such compositional differences
90 lead to variations between faculties in norm reference groups, which may explain the variance in
91 alcohol use between faculties [9]. Besides these compositional differences, real environmental
92 characteristics may also play a role. Differences between faculties exist in the connections between
93 students in faculties, which also relates to alcohol use. For example, in higher density faculties (i.e.,
94 with many connections between students) drinking behavior and drinking norms are easier spread
95 than in lower density faculties [29]. Furthermore, variations between faculties also exist in the
96 behavioral and personal values communicated to students by staff members in those faculties [1, 9].
97 Even misperceptions of the social norms exist in these staff members, which might also affect e.g.,
98 attitudes towards campaigns or policies [10]. Such factors contribute to whether an environment is

99 more permissive or more restrained towards alcohol, which affects how students perceive norms
100 and affects their drinking behavior [19, 20]. However, to our knowledge, only a handful of European
101 studies investigated differences in alcohol use between faculties [27-29], while insights into this
102 matter are important to develop interventions that focus both on personal determinants and
103 environmental factors and structures.

104 As a first aim, this study wants to investigate the variance in frequent binge drinking at faculty-level,
105 in all faculties of a large Flemish (northern Belgium) university. We expect to find such variance,
106 because drinking behavior is found to vary between faculties [27, 28]. As a second aim, this study will
107 investigate the differential relationship of individual- and faculty-level factors with frequent binge
108 drinking in different faculties, through multilevel analyses differentiated by sex. We expect to find a
109 compositional effect of socio-demographical factors and personal determinants (i.e., perceived
110 norms and social drinking motives) [1, 9, 24], and a relation with the average student-perceived norm
111 at faculty-level. This latter variable serves as a proxy for the environmental factors of a faculty that
112 collectively influence the perceived norms of students in that faculty [20].

2. MATERIAL AND METHODS

2.1. Participants and recruitment

Participants were 7,181 students (response 22.0%) from a large Belgian university, who anonymously responded to an email-invited online survey on substance use. The invitation contained a link to the survey and was sent to the official university email addresses by the vice-chancellor. No reminders were sent, but to raise the response rate, participants could voluntarily enter a lottery. This cross-sectional survey ran from mid-March 2013 until end-April 2013 and was approved by the ethics committee of the Ghent University Hospital.

2.2. Materials and measurements

2.2.1. Demographics

Questions include the assessment of sex, age, living status (i.e., with their parents, at a student apartment, on their own), fraternity/sorority membership (i.e., yes/no), faculty (i.e., Arts and Philosophy, Law, Sciences, Medicine and Health Sciences, Engineering and Architecture, Economics and Business Administration, Veterinary Medicine, Psychology and Educational Sciences, Bioscience Engineering, Pharmaceutical Sciences, and Political and Social Sciences) and program (i.e., bachelor or master).

2.2.2. Binge drinking

Binge drinking was assessed by the question 'How frequently do you drink four or more drinks (for women) or six or more drinks (for men) within a two hours period?'. This question is based on the National Institute on Alcohol Abuse and Alcoholism (NIAAA) standard on binge drinking, adjusted to the Belgian context where a standard drink contains 10 grams of alcohol instead of 14 grams like in the USA [31]. Five answering categories were given: never, less than monthly, monthly, weekly,

daily/almost daily. Answers were dummy coded to 'less than monthly' (coded zero) and 'monthly or more' (coded one). This recoding was done to identify a pattern of regular binge drinking.

2.2.3. Perceived binge drinking norm

Perceived binge drinking norm was measured by the questions 'How frequently do you think a regular male student drinks six or more alcoholic consumptions within a two hours period?' and 'How frequently do you think a regular female student drinks four or more alcoholic drinks in a two hour period?'. For both questions the same five answering categories as for binge drinking were given. Based on these questions and the participants' sex, two new variables were created that describe same-sex and opposite-sex individual-level perceived binge drinking norm, respectively. These latter variables were used in the analyses. For the average student-perceived binge drinking norms at faculty-level, separate mean scores for these individual-level variables (i.e., same-sex perceived binge drinking norm, and opposite-sex perceived binge drinking norm) were calculated for each level-2 unit (i.e., faculties). Bachelor (i.e., first three years of university) and master (i.e., final year(s) of university) degree students of the same faculty were seen as two distinct level-2 units, because of differences in terms of e.g., study program, maturity, social context. In total 22 level-2 units (11 faculties x 2 programs) with an average of 327 students per unit (SD=182, min=72, max=712) were distinguished.

2.2.4. Social drinking motives

Social drinking motives were assessed with the Drinking Motivation Questionnaire-Revised Short Form (DMQ-R SF) social motives subscale [32]. This subscale consists of three items about the past-year frequency of different social drinking motives: 'to make gatherings more fun', 'to help you enjoy a party', and 'to improve parties and celebrations'. Each item was rated on a five-point Likert scale, ranging from 'never/almost never' (coded zero) to 'almost always/always' (coded four). A mean social drinking motives score was calculated (Cronbach's alpha = 0.90). A comparable internal consistency was found in other large cross-national studies [33, 34].

2.3. Statistical analyses

Descriptive statistics, which compared males and females, were performed using chi-squared and independent-sample-t tests.

Given the nested structure of the data (i.e., students in faculties) we performed multilevel regression analysis [35]. Students were defined as level-1 units and faculties, divided in bachelor and master students, as level-2 units. For the first aim, an intercept-only model without predictors was estimated to investigate the variance in regular binge drinking at faculty-level. For the second aim, socio-demographic variables (i.e., age, living status, fraternity/sorority membership) and social drinking motives were added in model 2, and individual-level perceived binge drinking norms were added in model 3. For this third model, effects of same-sex and opposite-sex individual-level perceived binge drinking norm were separately estimated (in model 3a and 3b, respectively), because of multicollinearity between these variables. In a fourth model student-perceived binge drinking norms at faculty-level were added. For this fourth model, effects of same-sex and opposite-sex perceived binge drinking norms at faculty-level were also separately estimated (in model 4a and 4b, respectively), also because of multicollinearity between these variables. All analyses were performed separately for male and female students, because students are mainly influenced by sex-specific norms and differently perceive norms according to sex [12-14]. The variance partition coefficient (VPC) was calculated with the formula $\sigma^2_{uo}/(\sigma^2_{uo}+\pi^2/3)$, in which σ^2_{uo} is the variance of the faculty-level error (u_{0j}) and $\pi^2/3$ equals the variance of a logistic distribution (i.e., the individual-level error (e_{ij}) distribution under a link function) [36]. Cross-level interactions were investigated. Abstainers were included in the analyses, because of their presence in the social environment investigated in this study and because they also perceive binge drinking norms without affecting their drinking behavior.

Bayesian inference was used to estimate all parameters, because this method is less biased compared to quasi-likelihood methods in logistic multilevel analyses [37, 38]. All estimations were

185 done with Markov-Chain-Monte-Carlo (MCMC) simulations in MLwiN 2.31 [39]. Therefore,
186 Metropolis-Hasting sampling was used with non-informative prior distributions (set by the iterative-
187 generalized-least-squares (IGLS) algorithm), because little was known about the model parameters in
188 advance. The required MCMC chain-length for convergence after a burn-in of 5000 simulations was
189 monitored by the Raftery-Lewis diagnostic. Model estimates in the tables are presented as log odds
190 and are converted to odds ratios (OR) with a 95% credible interval (CI) when discussed in the text.
191 Model fit was tested with the Deviance Information Criterion (DIC), with lower values indicating
192 better fit.

3. RESULTS

Descriptive statistics in Table 1 show no differences in age between males and females (mean=21.06 years). Significant differences were found for the dependent variable, with more males (39.9%) being involved in monthly binge drinking than females (20.9%). For the independent variables significant differences in sex were also found. Slightly more females live in student apartments (58% versus 56.8%) or on their own (12.8% versus 10.9%), while males more often are member of a fraternity/sorority (49.9% versus 34.2%) and drink more often for social motives.

The null model (model 1) in males shows a faculty-level variance of 0.156 (SE=0.071), with a VPC of 0.045 which indicates that 4.5% of the variance in binge drinking in males can be explained by differences in faculties (Table 2). DIC statistic also shows better fit for a 2-level-structured model (DIC=3378.552) compared to a single-level model (DIC=3436.762). This difference confirms multilevel analyses for males. For females no significant faculty-level variance was found ($\sigma^2_{u0}=0.067$; SE=0.037), which means that none of the variance in binge drinking in females can be explained on faculty-level (Table 3). However, DIC statistic shows better fit for a 2-level-structured model compared to a single-level model, with DIC being respectively 4380.767 and 4405.529. Therefore, the nested structure of the female data will also be taken into account in further analyses. Model 2 in Tables 2 and 3 presents the model with socio-demographic variables and social drinking motives added for male and female students, respectively. In both sexes DIC statistic decreased after adding these variables, which indicates improved model fit. In males students, faculty-level variance became non-significant when the socio-demographic variables and social drinking motives were added to model 2.

For male students, models 3a and 3b show that respectively the same-sex individual-level perceived binge drinking norm and the opposite-sex individual-level perceived binge drinking norm significantly predict monthly binge drinking (Table 2). The higher male students perceived peer males (OR=2.111; 95%CI=[1.862,2.393]) and females (OR=1.826; 95%CI=[1.620,2.058]) perform in binge drinking, the

higher the odds for monthly binge drinking. When faculty-level variables were added in models 4a and 4b, a significant association was only found for same-sex student-perceived binge drinking norms at faculty-level (Table 2). The higher student-perceived binge drinking norm at faculty-level about males, the higher the odds for monthly binge drinking (OR=2.581; 95%CI=[1.023,6.509]). In both series of analyses (model 2->3a->4a, and model 2->3b->4b), DIC statistic decreased with addition of the individual-level perceived norms and the student-perceived binge drinking norm at faculty-level, which shows improved model fit (Table 2). For female students, only the individual-level same- and opposite-sex perceived binge drinking norm was found being significant. Beliefs about peer males' and females' binge drinking resulted in higher odds for monthly binge drinking (OR=2.034; 95%CI=[1.819,2.274] and OR=1.865, 95%CI=[1.667,2.085], respectively) (model 3a and 3b, Table 3). DIC statistics only decreased when the 'individual-level perceived binge drinking norm' was added to both series of analyses (Table 3). Both in males and females, no cross-level interactions were found.

4. DISCUSSION

This study aimed to investigate the variance in frequent binge drinking at faculty-level in a large Belgian university and to investigate the relationship between individual- and faculty-level factors, and frequent binge drinking. In males, 4.5% of the variance in frequent binge drinking could be ascribed to differences between faculties. These differences were due to compositional differences between faculties, although a significant relationship was found between student-perceived binge drinking norms about males at faculty-level, and frequent binge drinking in males. In females, no significant level-2 variance and no effect of student-perceived binge drinking norms at faculty-level was found.

Consistent with former research, this study found differences in monthly binge drinking behavior between faculties [27, 28]. These differences were only found in men, which is in line with other research that found a larger variation in drinking between faculties in men compared to women [27]. Differences between faculties were mainly caused by a composition effect, since level-2 variance became non-significant when individual-level variables were added. The added individual-level variables are known predictors of alcohol use in higher education and were found to vary between faculties [1, 29]. This phenomenon may be related to differences in student inflow and drinking habits in different faculties [30, 40]. The found relationships with social drinking motives is consistent with another Belgian study in higher education, that also found a positive relation with monthly binge drinking [26]. For individual-level perceived norms positive relationships were found for same- and opposite-sex, both in males and females, which is conform other research [14].

Besides these individual influences, this study found an additional relationship in men with same-sex student-perceived binge drinking norms at faculty-level. In those faculties with higher average perceived norms, men had higher odds for monthly binge drinking. Faculty-level influences on binge drinking were previously reported by Lorant and Nicaise, who found that social networks could be different in different faculties, which was related to binge drinking and the diffusion of norms in

these faculties [29]. Differences between faculties also exist in how faculty staff members behave and communicate personal values, and how they perceive norms about drinking [1, 9, 10]. Our results are consistent with these studies by showing that faculties as environmental structure relate to regular binge drinking, independent from individual factors. However, further research is needed to reveal the exact environmental characteristics of faculties that influence perceived norms and drinking behavior of individuals studying within these faculties.

This study only found a significant association of same-sex student-perceived binge drinking norms at faculty-level in men. This sole effect of same-sex norms is not surprising, since same-sex peers are often an important source for the perception of norms about drinking [12-14]. In female students no such relationship was found. Previous research has been noted that the relationship between sex and social drinking norms can vary by setting and country. In the USA, for example, female students were observed to have greater misperceptions of peer alcohol use than male students, which has been argued to be a result of females visualizing the behavior of males when asked to imagine a 'typical' student [41], while research in Europe has failed to find such sex-effects on norm perceptions [42]. Further research is needed to explain why no relationship with faculty-level determinants was found in females. However, individual-level binge drinking norms in female students were significant predictors, which is consistent with other research [12].

In the current study evidence was found that student-perceived binge drinking norms at faculty-level relates to monthly binge drinking in men. This relationship was found to be additional to individual predictors and confirms the importance of the socio-ecological approach that targets both individual- and environmental-level predictors. In this study individual-level determinants were shown to explain all variance at faculty-level, which suggests that in some faculties risk students cluster. Based on this result, faculties are an interesting vehicle to focus the individual-based section of an intervention (e.g., by focusing on students in specific faculties when targeting individual-level determinants). At environmental-level, our results further suggest that university-broad strategies

can be used, since the found environmental effects did not explain variance at faculty-level. Such university-broad interventions relates to the concept of the Health Promoting University, which has been endorsed by the World Health Organization [43]. This approach argues that educational institutions are ideally suited for health prevention and interventions, as they consist of large populations; help develop professionals and leaders of the future and can set an example to local communities. Effective examples of environmental strategies that influence drinking behavior and norms are given in the 'Study to Prevent Alcohol Related Consequences' (SPARC) intervention [20, 44]. This intervention implemented policies that, e.g., restricted on-campus alcohol paraphernalia, banned the distribution of alcohol flyers, clarified a student code of conduct, adopted dual judicial policies to address off-campus behavior, increased sanction for alcohol violation and provided benefits for students in good standing [44].

Despite the strengths of this study, such as the large variety of students that represents all faculties of a large Belgian university, and the use of a multilevel approach that controlled for important individual determinants and takes into account the nested structure of students within faculties, some limitations need to be mentioned. In this study perceived norms were assessed with a one-item instrument per sex and with a more general reference group. A multi-item assessment and a more specific reference group could enhance accuracy of the results. However, the perceived norm questions in this study differentiated by sex, which already contributes to the accuracy of the results [12]. This study found an association with student-perceived binge drinking norms at faculty-level, but provides no information on how these norms arise. Future research should investigate which environmental factors are of influence, because such information is relevant for future intervention development. This study was open for all students, who could freely participate, which might affect the generalization of the results. However, incentives were given to increase response, and a high number of students from a wide variety of academic disciplines in a large university were recruited. Due to the cross-sectional design we are not able to draw conclusions on causality. Finally, results

306 might be underestimated, because of the self-reported nature of this study that can lead to socially
307 desirable answering.

308 **5. CONCLUSIONS**

309 Frequent binge drinking in higher education relates to both personal determinants and
310 environmental factors. These environmental factors were especially found in men, who were
311 affected by same-sex student-perceived drinking norms at faculty-level. This study stresses the
312 relevance of faculties as an environmental structure and network, and the importance of
313 interventions that target both the individual and the environment.

6. TABLES

Table 1: Descriptive statistics with differences between sex

Variable	Student		Statistics (df)
	Male (n = 2711)	Female (n = 4470)	
Age (mean (SD)) / missings	21.04 (3.00) / 0	21.09 (2.69) / 0	$t = -0.784 (5239.851)$
Living status (missings)	(30)	(47)	$\chi^2 = 10.765 (2)^{**}$
With parents	32.4%	29.3%	
Student apartment	56.8%	58.0%	
On their own	10.9%	12.8%	
Fraternity/sorority (missings)	(373)	(415)	$\chi^2 = 152.747 (1)^{***}$
Being no member	50.1%	65.8%	
Being member	49.9%	34.2%	
Binge drinking Frequency (missings)	(158)	(177)	$\chi^2 = 286.546 (1)^{***}$
< Monthly	60.1%	79.1%	
≥ Monthly	39.9%	20.9%	
Social drinking motives: range: 0-4 ^a (mean (SD)) / missings	2.01 (1.16) / 486	1.41 (1.06) / 630	$t = 19.947 (4330.117)^{***}$
Perceived binge drinking norm: range: 1-5 ^b			
About same sex (mean (SD)) / missings	3.68 (0.90) / 342	3.63 (0.88) / 360	$t = 2.107 (6477)^*$
About opposite sex (mean (SD)) / missings	3.46 (0.91) / 342	3.83 (0.89) / 366	$t = -16.063 (4832.789)^{***}$

*p < 0.05; **p < 0.01; ***p < 0.001; a 0='never/almost never' to 4='almost always/always'; b 1='never' to 5='daily or almost daily'

Table 2: Fixed and random parameters of the multilevel monthly binge drinking models in male students

MALE STUDENTS (n=2711)	Model 1		Model 2		Model 3a		Model 4a		Model 3b		Model 4b	
	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>
Fixed parameters												
Constant	-0.394	(0.098)*	-0.765	(0.125)*	-0.823	(0.117)*	-0.862	(0.117)*	-0.813	(0.121)*	-0.839	(0.119)*
<i>Individual level</i>												
Socio-demographics												
Age			-0.083	(0.027)*	-0.092	(0.026)*	-0.092	(0.026)*	-0.087	(0.026)*	-0.087	(0.026)*
Living status ^a												
Student apartment			0.679	(0.117)*	0.673	(0.120)*	0.680	(0.121)*	0.679	(0.120)*	0.684	(0.119)*
On their own			0.446	(0.217)*	0.470	(0.223)*	0.481	(0.226)*	0.441	(0.222)	0.432	(0.222)
Fraternity/sorority ^b												
Being member			-0.152	(0.108)	-0.136	(0.110)	-0.086	(0.112)	-0.123	(0.109)	-0.094	(0.111)
Social drinking motives			0.922	(0.050)*	0.915	(0.052)*	0.909	(0.053)*	0.931	(0.052)*	0.927	(0.052)*
Perceived binge drink norm												
About same sex					0.747	(0.064)*	0.731	(0.064)*				
About opposite sex									0.602	(0.061)*	0.594	(0.061)*
<i>Faculty level</i>												
Aggregated perceived binge drink norm												
About same sex							0.948	(0.472)*				
About opposite sex											0.577	(0.406)
Random parameters												
σ^2_{u0} (Faculty)	0.156	(0.071)*	0.081	(0.058)	0.032	(0.035)	0.025	(0.030)	0.051	(0.048)	0.042	(0.043)
DIC	3378.552		2366.744		2219.406		2217.135		2265.048		2264.857	

a: reference category = with parents; b: reference category = being no member; SE: standard error; b: log odds; *p < 0.05

Table 3: Fixed and random parameters of the multilevel monthly binge drinking models in female students

FEMALE STUDENTS (n=4470)	Model 1		Model 2		Model 3a		Model 4a		Model 3b		Model 4b	
	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>	<i>b</i>	<i>SE</i>
Fixed parameters												
Constant	-1.338	(0.072)*	-1.969	(0.106)*	-2.124	(0.110)*	-2,130	(0.109)*	-2.101	(0.112)*	-2.095	(0.108)*
<i>Individual level</i>												
Socio-demographics												
Age			-0.068	(0.025)*	-0.084	(0.025)*	-0.084	(0.025)*	-0.086	(0.026)*	-0.085	(0.025)*
Living status ^a												
Student apartment			0.543	(0.109)*	0.535	(0.113)*	0.535	(0.112)*	0.534	(0.113)*	0.531	(0.110)*
On their own			0.242	(0.184)	0.312	(0.191)	0.316	(0.188)	0.324	(0.190)	0.318	(0.187)
Fraternity/sorority ^b												
Being member			0.205	(0.094)*	0.269	(0.097)*	0.274	(0.097)*	0.254	(0.095)*	0.251	(0.097)*
Social drinking motives			0.908	(0.106)*	0.889	(0.044)*	0.891	(0.045)*	0.889	(0.044)*	0.889	(0.044)*
Perceived binge drink norm												
About same sex					0.710	(0.057)*	0.709	(0,057)*				
About opposite sex									0.623	(0.057)*	0.625	(0.058)*
<i>Faculty level</i>												
Aggregated perceived binge drink norm												
About same sex							0.130	(0.443)				
About opposite sex											-0.025	(0.395)
Random parameters												
σ^2_{u0} (Faculty)	0.067	(0.037)	0.010	(0.013)	0.009	(0.011)	0.010	(0.012)	0.010	(0.013)	0.011	0.014
DIC	4380.767		3266.182		3092.497		3094.181		3128.623		3130.650	

a: reference category = with parents; b: reference category = being no member; SE: standard error; b: log odds; *p < 0.05

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