Revisiting the rationale for social normative interventions in student drinking in a UK population

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Abstract

Objectives
Social normative re-education interventions are based on the premise that harmful student drinking is caused by misperceptions of campus drinking norms. They have become dominant despite little evidence for effectiveness, especially with heavy drinkers. The objective of this study was to explore the relative importance of social norms and other key cognitive constructs in predicting single occasion alcohol consumption in undergraduates

Methods:
Design: A cross sectional survey design was utilised. **Setting**: Three UK universities. **Participants**: 367 1st year undergraduate students. **Measures**: Frequency and quantity of alcohol consumed; Hazardous drinking; Descriptive and injunctive normative perceptions of alcohol consumption were measured at 3 proximal-distal levels

Results Participants in this study were drinking at much higher levels than previously reported (means of 20 units for males, 16 units for females on a single drinking occasion); 85% exceeded the UK government's definition of binge drinking of 8 units or more on a single occasion. Norm perceptions, which form the basis of social normative interventions, were not significant predictors of individual consumption. Cognitive appraisal of oneself as a drinker and volitional behavioural control on drinking occasions are the most important constructs in predicting heavy drinking in this sample of UK undergraduate students. The model that emerges explains 40% of the variance in single occasion consumption.

Conclusions Students are consuming levels of alcohol that will result in accumulative harm if unchecked. This study provides an explanation as to why social normative interventions are not effective. An alternative focus for reducing alcohol consumption in UK undergraduates is suggested.

Introduction

Considerable investment has been put into understanding the antecedents of excessive alcohol consumption in student populations, and in developing intervention programmes aimed at behaviour change.

There has been a dominance of USA college campus-based research, and the ascendancy of a model based around social norms, specifically the misperception by students of campus drinking patterns. Enthusiasm for this model has transferred to the UK, resulting in endorsement by leading politicians (Cabinet Office, 2010).

The basic premise of social norm theory is that when asked to compare their own alcohol consumption levels with others, students perceive that other people drink more than they do themselves (descriptive norms), and approve of drinking levels more than they do themselves (injunctive norms) (Perkins, 2002; McAlaney & McMahon, 2007). This phenomenon is widely reported. The theoretical interpretation by proponents of the model is that it is a result of misperceiving and elevating the incidence of others' behaviour; this 'normalises' heavy consumption, and either increases individual drinking levels in lighter drinkers, or serves as a justification for maintaining high levels of consumption. The foci of social normative interventions (SNIs) are to re-educate and dispel norm misperceptions, and thus reduce excessive drinking behaviour.

The rationale for the current study emerged from a review into the efficacy of interventions to change student drinking behaviour on behalf of Alcohol Research UK and the Welsh Government (John & Alwyn, 2010) which highlighted a lack of clear evidence to justify the predominance of the social norm model, both as a theoretical explanation for the cognitive and behavioural antecedents to the prevailing patterns of alcohol consumption on UK university campuses, and importantly, in the efficacy/effectiveness of SNIs in changing behaviour. The possibility that the theoretical model that is underpinning the intervention focus is flawed would clearly impact on the latter.

Alternative explanations for the misperception phenomenon are emerging, although the defence of the model by its proponents is robust (see for example, Pape plus commentaries (*Addiction,* 2012). Misperception may be an artefact of the underestimation of personal consumption, through lack of knowledge or self presentational bias (e.g. Stockwell et al, 2008). Perkins (2012) asserts that students *'do not, on average, under-report their own consumption'. (p. 888).* There is evidence to the contrary in the UK, and this is supported when biological measurements are utilised (Delayney-Black & Hennigen, (2010). The misperception phenomenon could develop through social comparison or other self-serving biases (e.g Davis, Thake & Vilhena, 2010; DiDonato, Ullrich & Krueger, 2011). Removing or changing the self-other consumption comparator has been shown to result in the virtual disappearance of the misperception phenomenon (Melson, Davies & Martinus, 2011; Pahl and Eiser 2006).

There are important differences in US/UK campus alcohol consumption and in definitions of 'heavy drinking'. Most US undergraduates cannot drink legally, and campuses have strict regulation on sales outlets and campus alcohol policies (Babor et al, 2010). UK students can legally drink alcohol at 18, and often arrive at university with well-established consumption patterns (John & Alwyn, 2010). Researchers in a recent SNI study on Welsh campuses reported that 're-education' messages around actual consumption (as per SNI protocol) would have risked *'further normalizing hazardous drinking'* (Moore, Williams, Moore & Murphy, 2013 p.3).

The dangers of heavy student drinking have perhaps been underestimated. Warnings by liver experts (Sheron, Hawkey & Gilmore, 2011; Shipton, Whyte & Walsh, 2013) are increasingly urgent regarding this population, but persistently high drinking levels appear to be illustrative of ineffective interventions.   The messages behind the social norm movement that *'people aren't actually drinking as much as you think'* may inadvertently be preventing consideration of the serious nature of the potential accumulated harm to young adults.

The aim of the current study was to investigate the relevance of key psychological constructs in predicting excessive undergraduate alcohol consumption in the UK. The specific research questions were: Is social norm misperception a robust phenomenon that predicts student alcohol consumption? Are other cognitive and behavioural factors more useful in predicting consumption and thus more salient to intervention focus?

Methods

A cross sectional survey design was utilised.

Participants: 374 first year undergraduates were recruited as a purposive sample from 3 universities in Wales. Seven questionnaires were incomplete, leaving 120 male, 247 female particpants. There is no reason to believe that these students were not representative of first year students on UK campuses.

Measures

Demographic data on gender, age and year of study.

Frequency and quantity of alcohol consumption: assessment of units of alcohol consumed on a typical drinking occasion; number of drinking days per week. To address the limitations of self assessment, students were asked to list specific drinks consumed (by type and brand), quantity and strength (e.g. standard or premium beers) and converted to units by the researchers. Participants were also asked to self-estimate units consumed.

Hazardous drinking was assessed using Question 1 of the Fast Alcohol Screening Test (FAST). (Hodgson, Alwyn, John, Thom & Smith, 2002).

Norm perceptions was assessed by asking participants to rate level of approval of student drinking behaviour (injunctive norms) to self, close friends and the average/typical same-sex student on campus; and drinking status

(descriptive norms: non drinker, light social drinker, moderate social drinker, heavy social drinker and problem drinker) in self, close friends and the average/typical same sex-student on campus. Participants were also asked to rate their own pre-university drinking status.

Eight items assessed cognitive-behavioural antecedents, including self-regulation and control: patterns of drinking behaviour (e.g. pre-loading, participation in drinking games); cognitive volitional control (e.g. drinking more than intended, alternating alcoholic and non-alcoholic drinks).

Two items measured the intention to engage in risky single occasion drinking in the near future (drink to get drunk, drink until 'pass out')

Two items measured self-efficacy for reducing consumption levels and giving up drinking alcohol in the future.

Procedure

In order to minimise potential contamination, data were collected in formal teaching sessions, rather than electronically. 7 questionnaires were incomplete and excluded, leaving 367 participants in the analysis.

FINDINGS

Descriptive statistics

247 females and 120 males 1st year undergraduates. The majority of participants (n=304) were aged between 18 and 22. Using UK government definitions of binge drinking (for men) as 8 units or more, 85% of this sample exceeded this, with over 50% drinking at least twice these limits. All drank at these levels at least one day a week; 128 drinking twice weekly; 94 three times weekly; and 58 drinking more than 4 times weekly.

All students screened positive for hazardous drinking on Q1 of the FAST '*drinking 6 or more drinks on one occasion'*. Personal consumption levels were significantly underestimated when compared with the actual unit consumption calculation (t(274) = 3.078, p=.002).There were gender differences in accuracy of consumption estimation (t (273) = 2.429, p =.016) with females more likely to underestimate their drinking. Gender differences were observed in actual mean single occasion unit consumption (t (365) = 3.724, P <.001) and weekly unit consumption (t (360) = 4.165, P < .001), with males drinking more than females.

Participants were asked to rate the type of drinker they see themselves as (both before becoming students, and currently) using 5 commonly used descriptions of alcohol consumers: *non-drinker; light social drinker; moderate social drinker; heavy social drinker; problem drinker*. Perceptions of personal drinking status increased significantly after four months at university (*t*(366) = -3.439, p <.001).

Table 1: Alcohol consumption patterns

	Pre-university drinking patterns			Current drinking patterns		
	Males	Females	Total	Males	Females	Total
Unit consumption						
Self estimation of unit consumption	-	-	-	18 (SD:14.61)	14 (SD:9.11)	15 (11.44)
Actual unit consumption	-	-	-	20 (SD:10.11)	16 (SD:7.62)	17 (SD:8.64)
Weekly unit consumption	-	-	-	56 (SD: 3.61)	40 (SD:30.10)	45 (SD:35.91)
Type of drinker						
Non drinker	4 (3.3%)	8 (3.2%)	12 (3.3%)	0	0	0
Light social	37 (30.8%)	78 (31.6%)	115 (31.3%)	24 (20%)	68 (27.5%)	92 (25.1%)
Moderate social	57 (47.5%)	121 (49%)	178 (48.5%)	65 (54.2%)	142 (57.5%)	207 (56.3%)
Heavy social	21 (17.5%)	39 (15.8%)	60 (16.3%)	30 (25%)	37 (15%)	67 (18.3%)
Problem drinker	1 (0.8%)	1 (0.4%)	2 (0.5%)	1 (0.8%)	0	1 (0.3%)

A one-way within-subjects analysis of variance was performed for both descriptive and injunctive norms to establish whether the 'normative misperception phenomenon' was present in this sample. There was a statistically significant effect in perceived drinking status (*descriptive norms*) (F(2,732) = 107.138, p < .0001, η^2= .23). A significant linear trend emerged (F(1,366) = 179.181, p< .0001) with level of perceived drinking status increasing across self, friend and typical student.

There was also a statistically significant effect in perceived approval of campus drinking levels *(injunctive norms)* (F(2, 724) = 8.793, p< .0001, η^2 =.024). A significant linear trend emerged (F(1, 362) = 8.468, p=.003), with perceived approval of drinking increasing across self, friend and typical student. Both are consistent with the normative misperception effect.

Bivariate analyses were conducted to investigate the relationships between the key variables and single occasion consumption (DV). A Non-parametric Spearman's Rho test was used, as some variables were not normally distributed. As multiple correlations were being undertaken, the significance level for p was set at .01, rather than the usual .05 for 2-way tests.

To test the predictive effects of individual variables on single occasion student alcohol consumption, those variables that significantly correlated with the DV were entered into a stepwise multiple regression analysis. Table 2 sets out the significant independent variables in predicting single occasion student alcohol consumption. This model was statistically significant ($F (6, 360) = 40.136$, $p <$ .001) and explains approximately 40% of the variance in single occasion alcohol consumption in first year students ($R^2 =.405$, adjusted $R^2 =.395$). The strongest predictor of individual consumption was self-perceived drinking status, with intention to drink heavily in the near future and personal approval of campus drinking levels explaining an additional 10% of the variance. Perceiving oneself as a heavier drinker pre- university; playing drinking games and inability to control the amount of alcohol consumed on a drinking occasion received lower weights in the model.

Table 2: Predictive analysis of key influences on consumption

Step	Variable(s) entered	β	β	β	β	β	β
1	*Type of drinker now*	.514***	.366***	.359***	.287***	.249***	.244***
2	*Intention to get drunk in next 2 weeks*		.290***	.250***	.238***	.207***	.174**
3	*Approval of campus drinking levels*			.195***	.184***	.174***	.169***
4	*Type of drinker before university*				.167***	.166***	.160**
5	*Play drinking games*					.133**	.114*
6	*Drink more than intended*						.098*
R^2		.264	.327	.363	.384	.398	.405
ΔR^2		.264	.062	.036	.021	.014	.007
Model F		128.89***	86.84***	67.76***	55.53***	46.89***	40.14***

The latent factor represented by this model appears to be a combination of cognitive appraisal of self as a drinker, including 'type' of drinker and heavy drinking intentions, along with control behaviours on a drinking occasion. Perception of the actual drinking levels and approval of drinking by others, or descriptive and injunctive norms, (both friends and average students) were not predictors of individual consumption.

Discussion

The current findings suggest that students are consuming more alcohol than has been reported in previous studies. Approximately half the sample was drinking at least twice binge levels with mean single occasion consumption of 20 units for males, and 16 for females. This is much higher than previous studies suggest. Moore et al (2013) report means of around 8 units for men and 6 for women. Women were drinking less than men, but many were drinking well above weekly guidelines on a single occasion. Evidence

suggests that young women are at increasing risk of alcohol related liver disease (Sheron et al, 2011; Shipton et al, 2013). Estimates of personal drinking levels were significantly lower than actual consumption, contradicting the assertion by Perkins (2012) that this does not occur.

As predicted, the 'social norm misperception phenomenon' was present in this sample. The standard comparator questions asked in relation to both descriptive and injunctive norms produced the well-documented 'self' – 'close other' – 'distant other' differences that are interpreted as 'social norm misperceptions' (Perkins, 2002; McAlaney & McMahon, 2007). However, these did not predict individual consumption, and were not significant constructs in the model being tested. This might go some way to explain the lack of effectiveness of interventions that set out to right 'norm misperception' on actual drinking behaviour.

The model that emerges from this study suggests that cognitive appraisal of oneself as a drinker (both current and pre-university), and volitional behavioural control (intention and efficacy) on drinking occasions appear to be the most important constructs in predicting heavy drinking in this sample of UK undergraduate students.

This sample was recruited purposively, through first year undergraduate classes. There was no reason to assume that participants were not typical of this population. Indeed, as research suggests that excessive alcohol consumption is a predictor of non-engagement with studies (Martinez, Sher &

Wood, 2008), one might speculate that the heaviest drinkers were not present in the recruitment lectures, and that consumption means reported here could be underestimates.

The drinking data are self-reported, and there is, therefore, the possibility that the high consumption is exaggerated. That the participants were asked for detailed lists of alcohol consumed should provide a more accurate record than merely asking about 'numbers of drinks'. The large discrepancy between reported consumption and actual alcohol sales across the UK (Bellis, Hughes, Cook & Morleo, 2009) could imply that the levels reported in the current study are more accurate.

Implications: The findings reported here provide a number of explanations why social normative interventions are not effective in reducing excessive levels of alcohol consumption in UK universities, and consequently, why resources for the development of interventions should be focused elsewhere.

Levels of drinking are even higher than previously reported, with the majority of these first year undergraduates drinking extremely high amounts of alcohol on single drinking occasions. Social normative interventions are least effective with heavy drinkers.

Descriptive and injunctive misperceptions were not predictive of individual consumption. Interventions that focus on effecting cognitive and behavioural change in relation to constructs that predict risky drinking might be more

successful than those that attempt to change a phenomenon that is not actually impacting on drinking behaviour.

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