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Alcohol related social norm perceptions in university students: effective interventions for change

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Executive summary

There is growing concern and recognition that students' alcohol consumption is impacting on many aspects of university life, such as health, attrition rates and academic achievement. Social normative approaches have been increasingly applied to interventions to attempt to change undergraduate drinking behaviour. This trend developed in the United States and appears to be increasing in popularity in the United Kingdom. However, the research base to date is scant, and methodological weaknesses undermine potential efficacious interventions.

The aim of this project was to implement four key tasks. The first three involved: an international review of the literature on social normative interventions; a scoping and mapping exercise of social normative interventions or initiatives currently being implemented in the United Kingdom; and a consultation exercise with experts in the field and university stakeholders. The fourth task was to synthesise the findings from tasks 1 to 3 to produce an evidence based platform for the next stage of research. Recommendations have been made to that effect. Summary of findings from each key task are set out in the body of the main report.

An overview of key findings is set out below:

➢ The evidence for effectiveness of social normative interventions is mixed to date. The majority of this evidence stems from the United States and its transferability is questionable.

➢ There is a consensus amongst experts that students misperceive drinking norms. However, simply changing these misperceptions will not necessarily result in positive changes in student drinking behaviour. Further, there is some concern about the possible faddish nature of social normative interventions

➢ There is only one published web-based social normative intervention with UK participants but this has limited ecological validity in that student participation and take up is poor. There is very little current evidence of other social normative work in the UK relating to reducing student drinking.

➢ Social normative interventions need to be rigorously evaluated for effectiveness over time in a UK context. Further, they should not be

delivered in isolation but rather should be an element in a multi-dimensional approach that has a clear evidence base for the UK population. The strongest evidence is demonstrated through interventions incorporating a number of social cognition components such as personal feedback of drinking effects, efficacy training and drinker prototype identity. They also need to target different levels of drinking behaviour and employ evidence based methods of delivery. For example, brief motivational interventions demonstrate effectiveness over time.

➢ Injunctive norms (approval) are a better predictor of future drinking than descriptive norms

➢ People working in the higher education sector recognise that student drinking is a problem but universities do not have alcohol–specific policies for students. Cultural norms dictate attitudes to alcohol consumption across the university, including at senior management level. Successful intervention will rely on university commitment to deliver interventions and combat mixed messages.

➢ Students' unions have a pivotal role, in both the problem and the potential solutions. Commercial issues for students' unions are perceived as a driver for maintaining high campus alcohol sales

➢ There is an existing national network of healthy universities which could facilitate 'joined-up' thinking and the sharing of good practice. However, currently, individual agencies and organisations including universities in the UK appear to be working in isolation and do not share information

➢ Young people come to university with pre-existing perceptions and expectations of student drinking behaviour, and often start university with an already established habit of consuming high levels of alcohol,

and there is pressure on students to conform to the stereotype (peers, student union).

Acknowledgements

Glossary of key terms

Brief interventions: may vary in length from a few minutes to 1-5 brief sessions, with goals including recognition of the problem, commitment to change, brief skills training. Can be divided into 2 types: <u>Brief treatment</u> – more likely to be targeted at identified problem drinkers; <u>Brief opportunistic intervention</u> – usually targeted at the general population.

Motivational interviewing approaches: A directive, patient-centred non-confrontational counselling style for increasing intrinsic motivation for health behaviour change.

Blood Alcohol Concentration (BAC): A blood alcohol concentration or blood alcohol level (BAL) reflects the amount of alcohol in the body. Food, type and quantity of beverage, weight, sex, and rate of elimination determine the BAC after the consumption of alcohol. The BAC is a measure of the difference between the rates of absorption and elimination.

Alcohol Expectancy Approaches: established individual beliefs about the effects of alcohol consumption, which have high predictive value in consumption patterns.

Theory of Planned Behaviour (TPB): this model emphasises that behavioural intentions are predicted by 3 beliefs: attitude towards a behaviour (e.g. drinking is fun); subjective norm (my friends approve of me drinking and their approval is important to me); and perceived behavioural control (the union bar is open until late and sells cheap alcohol).

Prototype Willingness model: Is based on the idea of 'social reactivity' with the assumption that young peoples' behaviour is not intentional but a reaction to risk conductive social circumstances. The prototype refers to the social images of a typical individual (whether desirable or undesirable) associated with a specific behaviour. Level of identification with the prototype is predictive of behaviour modelling.

Personalised normative feedback: Comparative feedback of one's own behaviour with the behaviour of others within the same population; that is designed to develop discrepancy and motivation for change.

Self efficacy: expectancy based beliefs about control, and whether an individual believes that a personal goal (e.g. behaviour change) can be achieved.

Social cognition: how people make sense of, and respond to, socially derived situations.

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Section 1: Contextualisation and introduction

1.1 The nature of the problem - drinking patterns in students in Wales

The worrying alcohol consumption patterns of young people in Britain confirm that binge drinking is most likely to occur in the under 25 age group, and that this age group is generally increasing its alcohol consumption year on year, especially amongst females (Cabinet Office, 2004). The student population is specifically highlighted, with excesses in student alcohol consumption also well-established.

United Kingdom Government policy of increasing the number of graduates in the population has resulted in nearly 50% of young people going to university and thus becoming exposed to this high alcohol consuming culture. Also, although students have always been seen as a heavy drinking population, evidence in the past demonstrated a 'growing up' effect, where alcohol consumption decreased as students became graduates and took on adult roles and responsibilities. However, recent trends suggest that excessive drinking patterns that begin during student years are now continuing throughout adulthood (e.g. Newbury-Birch et al, 2002). Further evidence to this effect comes from liver experts reporting worrying changes in the age of onset of alcohol related liver disease (Smith et al, 2006).

Pilot studies with a number of student groups have been conducted by the researchers (the most recent, a mapping exercise on behalf of the Welsh Assembly Government) and suggested trends that need to be further explored with larger student samples. We would suggest that consumption levels are probably significantly underestimated in many studies as students do not have an accurate understanding of the actual alcohol content (in units) of drinks and therefore their individual consumption levels. For example, in the United Kingdom young adults who are identified as 'heavy drinkers' are defined as those consuming more than five drinks consumed per occasion (Hibbell et al., 2001, as cited by Gill, 2002). However, a recent survey of alcohol consumption levels at Welsh universities conducted by the current researchers found that 88% of students were drinking 6 or more units on any

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one occasion, with the mean level being 20 for males, and 17 for females (John & Alwyn, 2009). The prevalence of risk taking behaviour whilst intoxicated is high on a wide range of risk dimensions, all of which have the potential for both acute and chronic health problems (Alwyn & John, submitted for publication). Of further concern are the high levels of heavy episodic or binge drinking within the student population and the negative impact on academic performance, physical and psychological health and anti-social and risky behaviour (Wechsler, Lee, Nelson & Kuo, 2002).

1.2 Background to social norm theory

Social norm models of behaviour are theoretically underpinned by the early work on group processes such as conformity, identity and pluralistic ignorance conducted by social psychologists including Sherif (1936), Festinger (1954) and Newcomb (1966). What is now generally understood by 'social norms theory' was first proposed by Perkins and Berkowitz in 1986, after their investigation into student drinking behaviour appeared to demonstrate a 'pluralistic ignorance effect' (where everyone assesses a situation by observing what other people do, and which is a major influence on normative social behaviour) in relation to misperceptions of behavioural norms. A research base consistently demonstrating this effect has continued to build ever since, with the significance of perceptual norms and expectations of student life, particularly perceptions of drinking levels becoming increasingly evident. Normative beliefs may be 'descriptive norms' which relate to one's perceptions of the quantity and frequency of others' drinking. They may also be 'injunctive norms' which relate to the perceptions of others' attitudes or approval of binge drinking. Alongside the increasing interest in social norms theory, the research base of Social Psychology, specifically social cognition, has continued to develop, and has become increasingly relevant to models of health behaviour change.

Studies conducted on American college campuses consistently demonstrate that students overestimate both the alcohol use and approval of drinking of others (e.g. close friend, typical student) thus producing elevated descriptive and injunctive norms, which together make excessive alcohol consumption

seem common and acceptable (e.g. Borsari and Carey, 2001). We have recently demonstrated a similar pattern in a pilot survey conducted in 3 Welsh universities (John & Alwyn, 2009) where as well as extremely high alcohol consumption, we found clear evidence of self-other (and close-other – distant-other) differences in both descriptive and injunctive drinking norms. We also identified contradictions and gender differences in knowledge and control issues regarding students' own drinking behaviour, suggesting evidence for heuristic cognitive processing, rather than planning or intention, in terms of future drinking behaviour. Other social cognition constructs such as social identity and social image have also been shown to be closely related to perceptual norms as image based antecedents to behaviour (Norman, Armitage & Quigley, 2007). This too was evident in our pilot research, with students reporting a significant increase in self-perception of their own drinking status by their second term at university. Further, the majority of this sample held beliefs that students drink significantly more than other young people, prior to becoming undergraduates themselves. Interestingly, research has demonstrated in the USA (Dawson, 2004) and New Zealand (Kypri, 2005) that young people who are not students actually drink more frequently (but not necessarily more on single occasions) than students, but this has not been investigated in the U.K. to date.

An important caveat to this increasing interest in social norms theory is that it is one theoretical model within the broad area of social cognition, and there are well-established alternative social psychological approaches that would suggest different explanations as to whether these studies are measuring misperceptions of behaviour or other social constructs such as intergroup biases. For example, social identity theory (e.g. Tajfel, 1970; Tajfel & Turner, 1986) demonstrates that a positive sense of self is bound up in one's social identity, and that this motivates individuals to positively differentiate their social in-groups from other out-groups. Therefore, when asked about the drinking habits of different groups, students would perceive those students who are not part of their social group (and therefore an out-group) more negatively, and thus as heavier drinkers who are happier with the levels of campus drinking than themselves. Attribution theory also consistently

demonstrates self-other biases, or the tendency to attribute more negative characteristics and behaviours to others than to oneself (e.g. Fiske, 2004). Thus, being specifically asked to rate the behaviour and attitudes of others in terms of drinking behaviour may evoke attributional biases.

The above examples of alternative theoretical explanations go some way to illustrate the complex nature of social cognitions and behaviours, and the possibility that the *mis*-perceptions that are being documented are actually functional cognitive biases. Thus, whilst the brief and focus of this review is specifically to evaluate the social norms approach, it should be acknowledged that other social psychological models may have equally robust alternative explanations for this behaviour. Further, the reader should be aware that social normative models do not equate with social cognition theories per se.

1.3 Social norm interventions

The consistent picture of the presence of misperception of campus drinking norms by students has led many researchers to consider interventions that attempt to change these erroneous norms, and thus potentially reduce levels of drinking in individual students. The main formats for these social normative interventions fall into two groups:

1. Social marketing approaches, which rely on mass communication methods to inform students about the actual behaviour of their peers and to thus change individual misperceptions. This type of approach universally targets the intended population, and thus may reach large numbers. Disadvantages are that it may be costly and impersonal, and such interventions can be very difficult to evaluate in terms of effectiveness due to lack of control of extraneous variables.

2. Individual feedback approaches, which can include a range of information including actual behavioural norms, individual misperceptions, personal drinking pattern feedback, and associated risks. Delivery can be via a

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number of modes, including e-mail, web-based, paper-and pen and face-to-face. The target population can also range from identified problem drinkers to a universal campus or institution-wide one.

These interventions can be embedded within other behaviour change approaches with good evidence for effectiveness, such as brief opportunistic & minimal interventions and motivational approaches [see literature review, Appendix 1].

The NIAAA (National Institute on Alcohol Abuse and Alcoholism), in a 2007 review of American college and university alcohol interventions, suggest that while social normative approaches are popular, the research evidence is mixed, with inconsistencies in methodology, especially in relation to components of interventions, causing problems for the rigorous evaluation of effectiveness. DeJong, Schneider, & Towvim, (2006) believe that social norms approaches work best when combined with other interventions, and are least effective where there are very high levels of drinking, a factor that probably has higher salience in the U.K.. This suggests that caution must also be expressed in terms of the generalisibility of the existing evidence cross culturally. For the most part, to date this research has come from American college samples, where the majority of students are below the legal age for drinking alcohol, a very different cultural context to that of U.K. undergraduates who may have well-established drinking patterns, alcohol expectancies and perceptual norms.

1.4 Aims and parameters of the current study

Whilst there is a growing literature on social norm perceptions as both predictors of drinking behaviour, and the foci of interventions; as this body of work develops, further questions are inevitably raised and gaps in knowledge identified. The current research will systematically evaluate the evidence for social normative feedback as an effective intervention approach with university students and its potential in Wales through the following research processes, which will seek to address highlighted gaps in the literature and current thinking on normative behaviour:

- Task 1: Generate a systematic review of the international evidence for effectiveness of interventions using social normative feedback approaches in college and university students;

- Task 2: Produce a review of current social normative feedback programmes in the U.K., mapping components to evidence of effectiveness from Task 1;

- Task 3: Establish a consensus on appropriate content using the strongest evidence and expert opinion for a U.K. social normative feedback campaign;

- Task 4: Synthesise the outputs from Tasks 1- 3 above to produce a platform for the next stage of research, i.e. the development of a normative feedback student intervention for Wales, being evidence-based and addressing specific cultural and regional considerations.

The methodologies for each task will be set out with the summary findings in separate sections below.

Section 2: Task 1. Narrative literature review of social normative feedback interventions in university and college students (Detailed commentary Appendix 1)

2.1 Methodology

Electronic databases were searched for articles specifying the use of the social norms approach and its applications to the student population, up to, and including, March 2010. Data were extracted from 43 relevant papers, the majority being controlled trials, involving college or university students randomly assigned to the social norms intervention or a control group. Relevant articles published up to, and including, March 2010 were identified through electronic databases of Proquest, Psychinfo, Medline, Eric, Wiley Interscience, The Cochrane Library, Science Direct, NIAA .The following journals were hand searched for relevant articles: alcohol and alcoholism; Psychology of Addictive behaviours; Addiction; Addictive Behaviours; Preventive medicine; Health Psychology; Journal of consulting and clinical psychology. Grey literature was searched using sources as SIGLE and major funding organisations (AERC, ESRC, JRF), conference papers index. The following terms were used in the search:

a) perception of norms and intervention and alcohol;
b) intervention and alcohol and university students;
c) university students and drinking behaviour;
d) intervention and social norms and students;
e) alcohol and intervention and social norms;
f) drinking misperceptions.

The papers were examined using the following inclusion criteria:

a) Population: university students
b) Interventions: studies specifying the application of the social norms approach aimed to reduce alcohol consumption.
c) Outcomes: no specific criteria were set. The aim of the review was to identify all effective outcomes.
d) Study designs: The majority were RCTs.

2.2 Critical appraisal (see Table 1 for summary of methodologies and outcomes for studies included in the present review)

The evidence for the effectiveness of social normative interventions is mixed to date, and a number of commentators identify the need for further investigation. Also, the majority of these studies have been conducted in the U.S.A. and rigorous testing of the effectiveness and appropriateness of these types of intervention in the U.K., as well as to demonstrate the generalisability to other student populations and settings is now needed.

A number of methodological issues have been highlighted in the published evidence. These include identified limitations such as the heterogeneity of outcome measures; the need to validate self-report web-based outcome measures (Saitz et al, 2007); small sample sizes at follow-up (Collins, 2002); concerns of failed randomization (Juarez et al, 2006; McAnally, 2003; Walters, 2000); lack of controls; social desirability bias; studies targeted at American or New Zealand student populations; and studies targeted at high risk or designated problem drinkers.

The format of delivery of social normative interventions is important. Interventions delivered in a mail format reported that normative information had limited effects on modifying drinking behaviour and there was no apparent impact on overall reduction of alcohol consumption or reducing alcohol use risk factors (Werch et al, 2000).

Interventions with personalised normative feedback are effective in modifying both behavioural and attitudinal normative perceptions. Interventions that included PNF as a stand-alone intervention (Neighbors et al, 2006) or encouraged participants to compare personal drinking to the norms (McAnally and Palfai, 2003) have demonstrated higher efficacy than generic normative re-education content. In addition, gender specific normative feedback may be more efficacious for women, especially those higher in gender identity (Lewis and Neighbors, 2006).

However, all of the above studies are compromised by either a very limited or absence of follow up.

This review also produces inconsistent evidence on the effectiveness of electronic screening and brief intervention for alcohol use. Web-based personalised interventions may be an effective method of reducing alcohol units consumed per average occasion within the student population, however, more research is needed to understand the relationship between reduction in heavy episodic drinking and maintenance of overall weekly consumption levels. Despite the significant reduction, post-survey results reported levels of engagement in heavy episodic drinking (Bewick et al, 2008a). Web-based interventions are well accepted due to the level of anonymity, however, further controlled trials are needed to fully investigate their efficacy and determine which elements are crucial in producing effective outcomes and to understand if different elements are required in order to engage low and high-risk drinkers (Bewick et al, 2008a). Methodological issues of this study are critically appraised under the parameters of Task 2 below. Further, participant incentives (printing credits) for this study may artificially elevate the likelihood and rates of repeat access to the web site that would not occur in a naturalistic real world context.

Personalised feedback is an important element of effecting change, and the strength of this increases if additional elements are added in combination. Chiauzzi et al (2005) compared a web-based personalised feedback to a personalised interactive website but the results did not favour either intervention. However, the results were promising compared to studies that did not use personalised feedback within the website intervention. Moore et al (2005) suggest that the personalised feedback is more likely than the intervention delivery mode to impact on the individual's behaviour. When web-based personalised feedback was combined with additional self-help material, the results favoured the combined intervention.

A number of issues remain unsolved regarding web-based screening and intervention for unhealthy alcohol use such as widespread effectiveness (impact on alcohol consequences), sufficient components of web-based interventions, duration, frequency and intensity of interventions, effects in sub-groups and comparisons with other approaches.

The mode of delivery of interventions is significant. Research evidence continues to provide strong support for Brief Motivational Interventions (BMI) in terms of student drinking. The evaluation of individual intervention components and their implementation in group or computerized mode is rapidly increasing. Findings suggest that these type of interventions may be more useful when Personal Normative Feedback (PNF), feedback from Blood Alcohol Concentration levels (BAC), skills training and protective behavioural strategies are incorporated. Decisional balance exercises either alone or with other BMI components have also mixed support (Carey et al, 2006) and MI with no personalised feedback was not effective (McNally and Palfai, 2003). Interestingly, in contrast with normative feedback, evidence of mailed or computerised motivational feedback in the absence of an in-person intervention continues to be supported (Chiauzzi et al, 2005).

Interventions were less successful in reducing problems when targeted at heavy drinkers or other high-risk groups. Such students are likely to have heavy drinking peers and be embedded in more alcohol-involved social networks (Reifman, Watson & McCourt, 2006, as cited by Carey et al, 2007) which may also explain why interventions that included skills training or expectancy challenge components were less successful at reducing alcohol-related problems relative to control conditions ,these components were tested in samples of high-risk drinkers which may account for the smaller intervention effects.(Carey et al, 2007). Therefore, there is an increasing need for tailored interventions that address deep structure such as core beliefs, values and norms (Resnicow et al, 2000, as cited by Carey et al, 2007), in particular for those who belong to other at-risk groups such as Greeks and Athletes (American campus societies). It should be noted that methodological

inconsistencies have been noted in the range of definitions for 'heavy drinkers' throughout this review.

In summary, then, this review concludes that social normative feedback is probably an important element to drinking interventions for students, but that further evaluation is necessary, with an emphasis on rigorous methodology including randomisation, objectively validated outcome measures and longer term follow up. This is particularly true in the U.K. context, where the different cultural drinking norms and legal drinking age may limit the success of interventions developed in the U.S.A. Interventions that combine multiple components appear to be the most promising, as do those that use delivery methods that have good evidence of effectiveness such as motivational approaches. Of course, evaluation of individual elements of multi-component interventions is challenging, and there is a danger that combining elements of normative feedback with interventions that already have good evidence of effectiveness will not clarify the particular relevance of the former. Nonetheless, universal alcohol screening and brief intervention online is feasible in that it can reach many college students, is flexible in that feedback intervention can vary in length, and may decrease unhealthy alcohol use. This type of intervention can be implemented relatively inexpensively.

2.3 Key findings from Task 1

➢ The evidence for effectiveness of social normative interventions is mixed to date

➢ It is difficult to draw clear conclusions due to lack of methodological rigour such as little or no follow up data

➢ The majority of evidence stems from the United States and its transferability is questionable

➢ Student take up of web-based interventions is low despite incentives

➢ Cultural context should be taken into account in development of social normative interventions

- The strongest evidence is demonstrated through interventions incorporating a number of social cognition components such as personal feedback, drinker prototype and normative feedback
- Brief motivational interventions demonstrate effectiveness over time
- There is only one published web-based social normative intervention with UK participants but this has limited ecological validity.
- Injunctive norms (approval) are a better predictor of future drinking
- There is inconsistency regarding definition of terms and classification of drinker 'type' (for example, heavy drinking, binge drinking, harmful drinking).

Table 1. Summary of methodologies and outcomes for studies included in the present review.

Study	Sample (N)	Assessment (%retained from recruited sample)	Intervention conditions	Outcomes
Abrams and Hulbert (2005)	288 university students	NR (not reported)	1-Gambling situations(betting preferences alone or as a group) 2-Driving simulation (based on identification of hazards as well as focused on problem-solving).	Participants in group situations felt less tense and self-conscious and overestimated their own drinking Alcohol impaired participants´ ability to be aware and make judgements. Students were more likely to take risks after drinking while participants in groups remained more cautious.
Adewuya (2005)	810 Nigerian students	AUDIT (100)	1. AUDIT 2. Clinical interview (N=248), based on CIDI	43% of the participants were diagnosed as having alcohol related problems. The AUDIT has proven to be a valid measure for alcohol-related problems in Nigerian students.
Andersson et al (2009)	1297 high risk student drinkers	Pre-test (100) 3months (91) 6months (NR)	1.Extensive personalised feedback(information on the caloric value of the highest amount of alcohol consumed at one occasion, average number of calories per day, Normative feedback regarding weekly alcohol consumption and Heavy episodic drinking (findings and advice on modifying alcohol drinking behaviour and illustrations of different types of alcohol servings to aid the interpretation of the advice responses). 2.Control response with minimal	High risk drinkers overestimated their alcohol consumption and experienced more negative consequences as compared to others. High and low-risk drinkers had the belief that alcohol helped them to socialize more. Even though males drank more, females when intoxicated reached the same peak BAC as males.

			amount of feedback(consisting of 3 statements)	
Bewick et al (2008a)	506, university students	Pre-test (100) CAGE measures. 12-week period (63)	1-Electronic personalised feedback and social norms intervention (feedback on the level of alcohol consumption, social norms information, generic information(e.g. health risks) 2-Control (assessment only)	Alcohol consumed per occasion showed a significant difference between pre- to post- test with those in the intervention condition displaying a larger decrease when compared to controls.
Borsary and Carey (2000)	60 student binge drinkers	6 weeks (100)	Baseline assessment: drinking norms rating form; DDQ; RAPI; cognitive appraisal of risky events (expectancies regarding heavy alcohol use). 1. BI (feedback regarding personal consumption, perceived drinking norms, alcohol related problems, situations associated with heavy drinking and alcohol expectancies and facilitation to decrease high-risk drinking situations) 2. No treatment control	At 6 weeks, the brief intervention group exhibited significant reductions on drinks consumed per week , number of times drinking alcohol in the past month and frequency of binge drinking in the past month which were mediated by estimates of typical student drinker.
Borsary and Carey(2005)	64 mandated students	Pre-test (100) 3 months (96) 6 months (84)	Measures: AUDIT, RAPI and BAC. 1. Motivational interview with personalised feedback(included feedback on normative quantity, frequency of drinking, BAC and tolerance and expectancies on drinking; educational information related to personal experiences: harm reduction model to minimize risky behaviours; principles of MI) 2. Alcohol education session, risk reduction strategies	At 6 month follow-up both groups reduced alcohol use. The MI group presented greater reductions regarding alcohol related negative consequences.
Carey et	509 college	Pre-test (100)	Measures: typical risky drinking and	The basic BMI improved all drinking

al.(2006)	students	1month (97.84) 6months (87.23) 12months (77.80)	drinking related problems. 1. Timeline follow back interview, TLFB (based on a 90.day recall event to achieve reconstruction of daily drinking and also involved sequential assessment of alcohol use, drug use and sexual behaviour) 2. TLFB and MI 3. TLBF+MI+decisional balance (DB) 4. BMI (combined PNF and alcohol education to increase awareness of current drinking and its consequences, facilitate comparisons with peer norms and understanding effects of alcohol and its influence on student life with advice for reducing risks). 5. BMI+DB (based on a exercise with focus on organizing thoughts about current drinking and potential changes that the participant would like to make) 6.Assesment only (control)	outcomes beyond the effects of the TLFB interview at 1 month, whereas the enhanced BMI did not. Risk reduction was achieved by brief interventions maintained throughout the follow-up year.
Chiauzzi et al.(2005)	265 heavy drinking college students	Pre-test (100) 1 month (NR) 3 months (80)	1. Web based motivational feedback intervention: My student body.com (MSB), which helps to identify problems and encourages risk-reduction behaviours. 2. Information only control website, AAY (text based education only)	MSB was associated with reduced peak drinks per drinking day and composite drinking index scores compared to AAY at pos-test, but by 3-month follow-up there were no differences between groups. Contrary to the men, women in MSB reported reduced negative consequences.
Collins et al (2002)	100 heavy drinking students	Pre-test (95) 6 weeks (94) 6 months (65)	1. mailed motivational feedback 2. brochure with alcohol information	At 6 months, significant reductions in drinks per heaviest drinking week and frequency of drinking episodes.
Gerrard et al	308	NR	Measures: alcohol consumption,	Results indicated that however image of

(2002)	adolescents (16-18)		prototypes and self-images, contemplation of the prototypes and willingness to drink (Prototype – willingness model)	drinkers and non-drinkers operated in different ways, they were associated with changes in alcohol consumption. Drinker images seemed to represent goal states for adolescents who abstain from drinking.
Glindemann et al (2007)	702 college students attending fraternity parties	NR	Measure: BAC levels assessed with hand-held breathalyzers 1.Intervention party, flyer with specific information on the party (e.g. announcing a prize draw of $100 if the BAC is below .05) 2. Control, flyer with general information on the party (e.g. announcing a prize draw of $100)	Experimental fraternities BAC levels were significantly lower at the intervention party, therefore supporting the efficacy of differential reinforcement in controlling student intoxication at party settings. Also, the percentage of partygoers with BAC levels below .05 was higher at the intervention parties than at baseline parties.
Jamison & Myers (2008)	178, UK under-graduates (90) and post-graduate students	100 response rate	Theory of planned behaviour (TPB) self-report questionnaires assessing attitudes to drinking, subjective norm, perceived behavioural control, intention to drink and situational factors such as drinking behaviour in university.	The TPB explained 7% of the variance in intention to drink. Overall, 43% of the variance in intention, 83% in total weekly consumption and 44% in binge drinking. The frequency of drinking and the drinking behaviour of friends significantly predicted the intention to drink and binge drinking. Pressure to drink was superior for males.
Johnson & Berglund (2006)	177 high-risk drinking Swedish freshmen	1 year follow-up	Baseline: AUDIT 1. ASTP, 10h session over 5 different sessions at 1-week intervals based on AUDIT feedback and an educational programme based on the BASICS manual (identification of high- risk drinking situations, personal risk factors, challenge of myths and positive expectations, establishment of appropriate and safer drinking goals,	There were no overall group differences between ASTP and PMMI groups. Both declined their AUDIT scores.

			managing high-risk drinking situations and learning from mistakes. 2. PMMI - written feedback based on AUDIT scores in relation to all other freshmen which also included recommendations to drink less and get in contact with treatment organizations if necessary.	
Juarez et al (2006)	122 "binge drinking" college students	8 week	1. MI with feedback 2. MI 3. mailed feedback 4. MI and mailed feedback 5. assessment only control	At 8-weeks all groups reduced their consumption, peak BAC, consequences and dependence symptoms.
Kypri and Stevenson (2005)	1564 university students	82 response survey 4 weeks	Survey on perceptions of drink-driving (e.g. asked to indicate if they have ever driven after having too much to drink) and drink-riding (e.g. asked if they had been a passenger in a vehicle where the driver had too much to drink to be able to drive safely)	After 4 weeks, drink-riding was reported by 7.0% of women and 11.5% of men. Estimated blood alcohol concentrations from students' reports of how much they could drink in one hour and be below the legal limit of 0.08 g/ml, showed that most respondents dramatically underestimated the permissible consumption; only 5.8% overestimated it.
Kypri et al (2004)	167 students	Post-test (100) 6weeks (86)	1. Interactive website offering assessment (of a 14-day retrospective drinking diary, self-reported weight and perceptions of peer drinking norms and personalised feedback, PNF (consisted of a summary of recent consumptions, risk status, comparison consumption with recommended upper limits and peak BAC) 2. Alcohol facts and effects leaflet	At 6 weeks participants receiving the web based PNF reported lower total alcohol consumption, heavy episodic frequency and fewer personal problems. At 6 months academic problems were lower but consumption did not differ significantly.

Kypri et al (2008)	599 university students	Pre-test (100) 1 month (96.2) 6months (88.6) 12months (86.3)	1. Assessment questions (self-reported weight, 14 day retrospective drinking diary and perceptions of peers drinking norms) and web based motivational intervention, MI, single dose (feedback consisted on risk status, recent consumption and comparison with actual limits and BAC for the heaviest drinking occasion in the preceding 4 weeks, comparison of consumption with national and university norms and correction of misperceptions of norms) 2. Assessment (same as above) questions and web based MI, multidose (same as above) with the participants drinking at 6months compared to against that at baseline and at 1 month in a series of bar charts. 3. Information pamphlet (control)	Compared to the control group, at 6months, participants in the single dose intervention reported a lower frequency of drinking, less total consumption and fewer academic problems. At 12 months differences in total consumption and academic problems remained. At 6months the multidose group reported lower frequency of drinking, less total consumption, reduced heavy episodic drinking and fewer academic problems, as compared to the control group. At 12 months, statistically significant differences in academic problems remained.
LaBrie et al (2008)	1162 college students	Pre-test (100) 1 month 2 months	1. Computer intervention "in vivo" (perceptions of normative group/individual behaviour) 2. Assessment only control	Participants in the intervention group reduced drinking behaviour and misperceptions of group norms at 1- and 2-month follow-ups, mediated by changes in perceived norms.
Larimer et al (2001	120 First year fraternity members	Pledge year 1 year	1. Motivational enhancement intervention (individual and house wide feedback components) 2. Treatment- as- usual control	Participants receiving the intervention reported significant reductions in alcohol use and BAC when compared to controls. There were no significant differences in drinking-related consequences for both groups. Fraternity members who received the individualized feedback from peer interviewers and professional members of

				the research staff reported similar outcomes Participants who were present at follow-up and the fraternity members who received the intervention reported significant reductions in alcohol use and BAC as compared to the control condition.
Larimer et al (2004)	582 student members of fraternities and sororities	Pre-test (98.1) 1 year (68.04)	Measures: DDQ; House acceptability questionnaire; RAPI; alcohol dependence scale. In addition fraternity and sorority members' perceptions of the quantity and frequency of alcohol consumption in their houses (descriptive norms) were evaluated as well as their perceptions of the acceptability of drinking and heavy drinking (injunctive norms). And the contribution of injunctive norms in the prediction of problem drinking behaviour, alcohol-related consequences, and symptoms of physical dependence.	Results suggested that descriptive norms predicted concurrent drinking. After controlling for baseline drinking, injunctive norms predicted drinking , alcohol-related consequences and dependency symptoms 1 year later
Lewis et al (2007)	316 high-risk drinking freshmen (53.8% female)	Pre-test (100) 3months (93.9) 5months (85.3)	Measures: drinking and perceived norms. 1. Freshmen specific PNF(gender specific and gender neutral norms based in responses from the screening survey) ,information on personal drinking behaviour on, personal perceptions of typical student drinking behaviour 2. Assessment only control and normative comparison	Participants exhibited normative misperceptions for typical freshmen drinking behaviour .Perceptions of typical same-sex freshmen drinking were positively associated with riskier drinking behaviour. At follow-up, the PNF group reduced perceptions of typical freshmen drinking behaviour and personal drinking behaviour in comparison to controls.

Lewis and Neighbors (2006)	185 high-risk student drinkers (45.2% women)	Pre-test (100) 1 month (89)	1. gender specific PNF 2. gender-neutral computerized PNF (generic normative re-education) 3. assessment only control	The study purpose was to evaluate how college students perceive the typical student when estimating drinking norms. The vast majority of men and about half of women perceived the typical student as male when estimating drinking norms. At 1 month normative feedback was effective in changing perceived norms and reducing alcohol consumption for both intervention groups, for women and men. There is support for changes in gender-specific norms as a mediator of the effects of normative feedback on reducing alcohol consumption in women especially those who present higher gender identity (gender-neutral feedback).
Marlatt et al (1998)	348 high-risk college students	Post-test (100) 6months 1-year 2-year	Measures: drinking rates, DDQ, RAPI, assessment of family history drinking problems and collateral assessment (experience and frequency of alcohol). 1. Individual MI (students were provided with alcohol consumption monitoring cards on a daily basis for 2 weeks prior to the interview. The focus of the interview was to review the monitoring cards and provide concrete individualized feedback about drinking patterns, risks and beliefs about alcohol effects. 2. No-treatment control group	Over 2 years, there were substantial reductions in alcohol consumption and harmful consequences for the intervention group.
McAlaney and McMahon	500 university students from	100 (responded to the survey)	Web based survey (personal behaviour and perception of behaviour in others)	Correlations were found between respondent's behaviour and perceptions

(2007)	Scotland			of that behaviour in other students, mostly regarding to beliefs about proximal individuals. The majority of respondents seemed to overestimate alcohol consumption in other students.
McAnally and Palfai (2003)	76 college students	Pre-test (100) 4weeks (100)	1. MI (based on self-ideal discrepancy) 2. Normative re-education with alcohol information (NRE) 3. Attention control	At 4 weeks, there was reduction in the frequency of heavy episodic drinking in the NRE group. Reduction of negative consequences in the NRE and control condition. No reductions in MI regarding alcohol consumption or consequences. Results suggested that self-norm discrepancy enhancement strategies may be more effective than actual-ideal discrepancy strategies when used with a mixed drinking group
McShane and Cunningham (2003)	75 Canadian students who were current drinkers	Pre-test (100)	Measures: perceived risk, AUDIT, alcohol consumption during a typical week and drinking consequences. Thee intervention pamphlets" evaluate your drinking" with identical normative drinking data presented in each. 1. Canadian population drinking patterns (Canadian flag on the cover) 2. Canadian university students drinking patterns (Canadian flag on the cover) 3. American university students drinking patterns (American flag on the cover) Further assessment: SOCRATES(recognition and	Participants identified as problem drinkers who read the American university students pamphlet reported significantly higher recognition ratings, compared to problem drinkers who read one of the other two pamphlets.

			ambivalence subscales from the stages of change readiness and treatment eagerness scale)	
Michael et al (2006)	91 freshman students	Pre-test (100)	Baseline assessments, TLFB, RAPI, symptom checklist 90-revised; big five personality traits. 1. MI, psycho-educational intervention (50 min. sessions) 2. Assessment only control	MI group participants reported consuming fewer drinks per occasion and fewer episodes of intoxication as compared to controls.
Murphi et al.(2001)	84 heavy drinkers	Pre-test (100) 3months (94) 9months (94)	Measures: drinking measures(DDQ; RAPI) 1. Basics interview, 50 min. (BMI), information regarding drinking patterns relative to normative college student drinking, BAC, alcohol related problems and risk factors. 2. Alcohol information video/discussion (participants watched "Eddie Talks", a 30 min video that focus on a male student discussing the negative interpersonal and academic consequences resulting from his alcohol abuse and then had an individual session that focused on their reaction to the video according to their thoughts about college student drinking). 3. Assessment only control	At 3 months there were no overall group differences but heavier drinkers in BMI showed greater reductions in weekly consumption and frequency of heavy episodic drinking at 3-month follow-up (trend at 9 months).
Neal and Carey (2004)	92 heavy drinking students	Pre-test (100) 3 weeks (99)	1. PNF 2. Modified values clarification 3. Informational leaflet	Results suggested that only the PNF increased discrepancy and intention to reduce alcohol use, however, there were no significant effects on drinking behaviour in any group

Neighbors et al.(2006)	214 heavy drinking students	Pre-test (100) 2months (86.45)	1. Computer based PNF (modelled on normative components of the BASICS, included students perceived norms on quantity and frequency of alcohol consumption as compared to actual quantity and frequency norms) 2. Assessment only control	At 2-month follow-up, students who received PNF reported drinking fewer drinks per week as compared to controls, and this reduction was mediated by changes in perceived norms. The intervention group also reduced alcohol-related negative consequences in students who were higher in controlled orientation
Norman, Armitage & Quigley (2007)	94, undergraduate students	Pre-test (100) 1 week (78.72)	Assessments: frequency of binge drinking over the previous week was assessed at baseline and one week follow-up.

1. TPB measures(intention, attitudes, self-efficacy and perceived control) 2. Prototype measures(prototype perceptions, prototype evaluation and prototype similarity) 3. Binge drinking assessed at time 1 and time 2 (at one week follow-up). | At one week, he TPB explained 58% of the variance in binge drinking intentions and 22% in binge drinking. The prototype perception measures explained additional variance in binge drinking intentions and behaviour, although only prototype similarity emerged as a significant predictor. Regarding the prediction of binge drinking behaviour, a significant interaction was found between prototype similarity and subjective norm. |
| O'Connor et al (2007) | 180 athletes (119 off-season and 109 in-season) | | Measures: Daily drinking questionnaire, Drinking norms rating form, demographics. | Athletes estimated that others consumed more drinks per week than they did, and perceptions of these social norms predicted personal use. Although the typical athlete norm appeared as the strongest predictor of personal alcohol use, the relative strength of the relationships between individual behaviour and the athlete and non athlete norms varied according to the seasonal status |
| Perkins (2007) | 5280 students | | Surveys were administered either to a | Regardless of the actual norm in each |

			random sample of students through the mail or to students attending a diverse selection of classes.	campus, students commonly overestimated the alcohol consumption norms in terms of quantity and frequency of alcohol in every instance. Student's perception of their campus drinking norm was the strongest predictor of the amount of alcohol personally consumed. Perception of the norm was a stronger predictor of personal use than the actual campus norm for consumption on each campus or the actual norm for compliance with campus regulations.
			Student drinking survey (questions on personal attitudes, behaviours and typical drinking patterns of other students)	
Simão et al (2008)	266, Brazilian students risky drinkers	Pre-test (100) 12months (98.8) 24 months (80.1)	1. AUDIT 2. BASICS (based on principles of MI and harm reduction approach)	Quantity of alcohol consumption decreased per occasion and Audit and RAPI scores declined.
Shealy et al (2008)	49 undergraduates referred to a university based clinic	NR	Measures completed as part of BASICS intervention: 1. RAPI 2. DDQ 3. The readiness to change questionnaire 3. Temporal satisfaction with life scale	Increased alcohol consumption and related problems were positively related to higher levels of motivation, with the strongest relationships seen between alcohol variables and components in the contemplation scale. Conversely, students with low levels of alcohol use and related problems were more likely to endorse statements indicative of little motivation to change Higher levels of motivation were related to increased alcohol consumption and related problems and low levels of life satisfaction.
Saitz et al (2007)	2194 Freshmen students	Pre-test (95) 1 month (74.6)	1. General health assessment 2. Alcohol specific assessment 3. Minimal BI	Extension BI was associated with intention to seek help among men and a greater increase in readiness to change

			4. Extensive BI	among women.
Walters et al (2000)	37 moderate to heavy student college drinkers	6 months	1. Treatment and feedback 2. Feedback only	The feedback only group decreased alcohol consumption per month.
Walters et al (2007)	106 heavy drinking freshman	Pre-test (100) 8 weeks (71.7) 16 weeks (77.4)	Assessment at baseline, 8 weeks and 16 weeks (alcohol consumption, RAPI and BAC) 1. PNF (personalised report) 2. Waitlist control (received feedback after the 16-week assessment)	At 8 weeks, the feedback group showed a significant decrease in drinks per week and peak BAC as compared to controls. By 16 weeks, the control group also declined to a point where there were no differences between groups. The intervention effect was mediated by changes in estimates of normative drinking. An additional 245 abstainers and light drinkers who were also randomized to condition did not show any intervention effect.
Werch et al (2000)	634 1st year college residential students	NR	1. 2 phase social norm intervention 2. Psycho-educational prevention program	No differences found between groups. Differences were found by stage of initiating binge drinking behaviours for frequency/quantity of alcohol use and social norms.
Wiers et al (2005)	96 college students	Pre-test (95.8) 1 week (NR) 1 month (NR) 5 months (NR)	Assessments: explicit alcohol cognitions were assessed with paper-and-pencil measures. Alcohol use prior to the experiment and during 1 month follow-up. Implicit alcohol-related cognitions assessed with the Implicit Association Test (IAT; assesses arousal associations with alcohol). 1. Alcohol expectancy challenge, AEC	The AEC resulted in decreased explicit positive arousal expectancies in men and women alike. There was some evidence for a differential reduction in implicit arousal associations, but findings depended on the version of the IAT. In men but not in women) there was a short-lived differential reduction in prospective alcohol use (significant at 3 weeks of the

			(in this experiment participants were given either 2 glasses of an alcoholic drink or a placebo (participants were deceived when told they were drinking alcohol) sexual expectancies were targeted to be used in mixed gender groups, men had to rate the attractiveness of female movie stars on pictures and in the mean time women had to guess which movie star would be judged most attractive by the men, based on their reactions. The game was then reserved. Next, participants had to guess who drunk alcohol and/or placebo). Participants were asked to write a summary regarding expectancies in the media and in their own lives and to keep an alcohol diary. Finally breath alcohol level was measured and participants who signed for it were instructed to be extra careful. No participant left above the legal limit. 2. Attention control (a pretence alcohol experiment in the same bar-laboratory where half of the participants received alcohol and half a non-alcoholic drink)	follow-up), and this reduction was partially mediated by the decrease in explicit positive arousal expectancies. At 1 month after the post-test (one week after the intervention) participants handed in their diaries and received a monetary reward.
Wood et al (2007)	335 university students	Pre-test (100) 1 month (NR) 3 months (NR) 6 months (NR)	1. AEC (2 sessions conducted at night in a simulated bar environment with groups from 8-10 participants of the same gender led by student co-facilitators. The sessions included a placebo manipulation followed by an	BMI produced significant decreases in alcohol use, heavy drinking, and problems, while AEC produced significant decreases in alcohol use and heavy drinking. There was no evidence of an additive effect of combining the

			interactive discussion regarding alcohol expectancies). The 1st session focused on positive and negative dose-related effects of alcohol in relation to social situations and the 2nd session focused on sexual contexts. 2. BMI (individual sessions of 45-60 min. feedback provided on audio taped sessions. Drinking was monitored for 2 weeks before the session to calculate student's typical peak blood alcohol levels and facilitate discussion regarding the differing effects of alcohol. A feedback report was generated and was focused on normative information, alcohol-related consequences and risk factors and also average weekly calories consumed from alcohol and money spent on alcohol per semester) 3. AEC and BMI 4. Assessment only control	interventions. Intervention effects declined somewhat for BMI and completely for AEC over 6 months. BMI effects on alcohol problems were mediated by perceived norms
Young et al (2006)	N=174, Australian Art students	72 return rate	Survey of attitudes towards drinking, Alcohol dependence scale; AEQ; DEP (DEQ and drinking refusal self-efficacy questionnaire)	Positive expectancies from the AEQ and DEQ were associated to frequency, quantity and alcohol dependence. Negative expectancies did not add variance to the prediction of drinking behaviour. Drinking refusal self-efficacy and dependence beliefs added additional variance over positive and negative expectancies of all drinking parameters(frequency, quantity and alcohol dependence severity)

Section 3: Task 2. A Scoping Exercise of current U.K. primary interventions engaging with social normative approaches to drinking behaviour in student populations

3.1 Methodology

Relevant articles published up to, and including, March 2010 were identified through electronic databases of PubMed; Emabase Medline, Eric, Psychinfo, Database of Abstracts of Reviews of Effects (DARE), The Cochrane Library, Science Direct, BioMed and CINAHL. Relevant secondary sources from articles were located and included in the review. A search of the grey literature was also undertaken using the System for Information on Grey Literature in Europe database (SIGLE) along with the websites of major funding organisations for current and previous relevant funded projects, for example, the Alcohol Education and Research Council (AERC), the Economic and Social Research Council (ESRC), The Joseph Rowntree Foundation (JRF) and the Welsh Office for Research and Development (WORD). Specific substance misuse organisations, e.g. Society for the Study of Addiction, Drugscope, Drinkaware, and Alcohol Concern were also reviewed along with local initiatives published by The Hub of Commissioned Alcohol Projects and Policies (HubCAPP), universities and student unions.

The following terms were used in the search:
 a) student drinking intervention;
 b) student drinking UK;
 c) student drinking social norms;
 d) university students drinking behaviour UK;
 e) alcohol intervention and social norms UK;
 f) normative drinking students UK;
 g) brief interventions students UK;
 h) higher education student drinking.

3.2 Critical appraisal (see Tables 2 and 3 for studies and literature of UK campaigns and interventions and summary of findings)

The scoping exercise picked up very little in terms of interventions activity in the UK to reduce student drinking and of those, there are a relatively small number of projects which have been evaluated. The scoping exercise has shown some encouraging findings but it also highlights some pressing questions:

The Bewick (2008) study is cited as the first feasibility study of a social normative intervention in the UK and therefore merits a critical analysis of its methodology. As a consequence a number of questions have been raised in terms of both the methodology and results:

The initial pool of 3075 university students who were approached to participate resulted in a final sample of 506 participants who were randomised and 317 were followed up following the 12 weeks implementation period. Despite being offered incentives to participate (printer vouchers) engagement in the intervention was low, suggesting poor ecological validity. Increasing student engagement will be essential if this type of intervention is to be useful. A further issue is that the screening measure CAGE was used in this study. This has been found by others to be inappropriate for this population (see Dhalla and Kopec, 2007).

The findings appear promising in that consumption per occasion demonstrates a significant effect over time for the intervention group. However, only 8 students in the intervention group state that the feedback would initiate them to change their behaviour and drink less and the authors advise caution in interpreting these results.

Another web-based delivery intervention which emerged from the scoping was the Unitcheck social normative intervention for sixth form high school students (Bewick et al, 2009). The Unitcheck intervention was part of a larger project,

however, we are only reporting on the analysis of the Unitcheck social normative intervention. The findings are reported on the Drinkaware website but have not been published in the peer-reviewed literature. However, the results lack generalisibility due to the high attrition rate and low level of engagement with the web site.

Two studies (as yet unpublished) by Hagger et al compare a web-based delivery approach over a pen and paper delivery approach for social normative interventions embedded within a mental simulation model. The first study is UK based and the second is a cross cultural study (UK, Finland and Estonia). Initial findings show some promise but the work is yet to be published.

McCambridge and Strang (2004, 2005) evaluate the effectiveness of a brief motivational intervention. On the strength of this, and the findings of other American studies, Raistrick et al (2006) conclude that brief motivational interventions are effective in reducing alcohol consumption and the frequency of binge drinking amongst students who are heavy drinkers. Despite these promising results the McCambridge and Strang intervention in its current form (a one hour session), is unlikely to be applicable on a university wide basis.

We concur with Raistrick et al (2006) who conclude that the beneficial effects of using an internet-based assessment and brief intervention programme with university students who misuse alcohol is short-term only and that internet programmes require further evaluation for effectiveness.

Other studies which have been included strengthen the theoretical base for social normative interventions through testing components of other social cognition models which impact on social norms, such as the Theory of Planned Behaviour (Norman, et al, 2007; Cox, et al 2006; Jamison and Myers 2008).

In terms of other initiatives and interventions there are a number of 'healthy message' campaigns in the UK, however, few have evaluated whether they

reduce the intake of alcohol in the student population. It appears that evaluating effectiveness is not built into the planning and implementation of such campaigns. However, there is an opportunity to build on the 'Healthy Universities' and 'Healthy Further Education' initiatives in the UK where a holistic model of health promotion is proposed for students and staff. A 'National Network of Healthy Universities' has been developed and with growing international interest there are discussions in place to develop a European Network. Some universities in the UK are in the process of writing strategies and protocols and populating web pages to take forward the Healthy University agenda (Dooris and Doherty, 2009). However, the authors acknowledge that the initiative is challenging because the aim of the work is to introduce and integrate 'health within a sector that does not have this as its central aim' within institutions that are 'experiencing resource constraints' (ibid: iii).

The analysis of the scoping exercise demonstrates that student participation in interventions is limited, students are reluctant to acknowledge that their drinking is a problem as they associate this with the stereotype of an 'alcoholic' and students do not regard their behaviour as any different to their peers. As a consequence they are reluctant to address their drinking behaviours.

Another important finding is that individual agencies and organisations, including universities in the UK appear to be working in isolation as they are not sharing information regarding student drinking and interventions that have been utilised in an attempt to reduce drinking, such as the use of appropriate screening measures. Sharing good practice would be a useful starting point for many and might alleviate potential methodological difficulties.

3.3 Key findings from Task 2

➢ There is very little evidence of current activity in the UK relating to reducing student drinking

- Ecological validity of Bewick's feasibility study of web-based social normative intervention is questionable
- The evaluation of the Unicheck intervention does not appear to directly compare intervention and control groups and therefore it is difficult to draw conclusions
- Screening instruments should be appropriate to the population they are intended for
- There is a lack of evaluation of current interventions
- Student participation and take up is poor
- Individual agencies and organisations, including universities in the UK appear to be working in isolation and do not share information
- There is an existing national network of healthy universities which could facilitate 'joined-up' thinking and the sharing of good practice

Table 2: UK Campaigns and interventions

Author/Contact	Intervention/ Programme	Participants/ Sample	Information
Action on Alcohol and Drugs in Edinburgh, the Edinburgh Community Safety Partnership, Heriot-Watt University and the Borders Drug and Alcohol Action Team (unpublished)	'Boozy Betty'. Poster: "Don't let your drinking define you!"	Female students (n=29)	Aim: To address female students' alcohol use Year: 07/08 Campaign resources: A package of communication materials were developed based on research conducted with female students the previous academic year and included a poster, a leaflet, and a catch up card. A weekly drop in session, lasting 1½-2hours was also introduced and run on the Edinburgh campus by Edinburgh and Lothian Council on Alcohol. Female students were recruited through a flyer circulated by Heriot-Watt University Campus wardens and Student Welfare Services. Results: Of the 29 female students that provided feedback on the campaign, 72% said that it made them consider the level of their drinking and how it was affecting their studies. The two statements (on cards) that had the most impact were: 'partying a bit too hard lately?' and 'think your drinking might be getting out of hand?'. Three participants said that the resources would prompt them to reduce their alcohol use, mainly because of the impact on their course of study and falling behind and two students said the resources had actually changed their behaviour and they had reduced their alcohol use as result. Peer pressure and lack of confidence was cited as reasons why it was difficult to change. When asked if they would use the drop in service, 80% said no because they felt it was only for people who were alcoholics. The project has since been rolled out across Scotland but there are no further details available.
Bewick et al (2008)	Electronic feedback and social norms intervention	Students (n=506)	Aim: To establish the effectiveness of an electronic web-based personalised feedback intervention through the use of a randomised control trial (RCT). Methods: 506 participants were stratified by gender, age group, year of study, self-reported weekly consumption of alcohol and randomly assigned to either a control or intervention condition. Intervention participants received electronic personalised feedback and social norms information on their drinking behaviour which they could

			access by logging onto the website at any time during the 12-week period. CAGE score, average number of alcoholic drinks consumed per drinking occasion, and alcohol consumption over the last week were collected from participants at pre- and post-survey. Result: Sixty-three percent (n=85) of intervention participants agreed that the feedback was very useful but only 6% (n=8) agreed that it would reduce the amount they drink
Bewick et al (2009)	Unitcheck Web based social norms interventions for Sixth Form Students	Baseline survey (n=870) Evaluation of Unitcheck (n=810)	Aim: To investigate the level of alcohol consumption and related behaviours within Sixth Form students in Leeds and to investigate the feasibility and potential effectiveness of using Unitcheck (a web-based personalised feedback and social norms intervention) within this population. Twenty Sixth Form Schools and Colleges in Leeds participated in the baseline survey and 13 schools took part in the evaluation of Unitcheck. Alcohol use was measured using AUDIT and CAGE scores. Results: Students overestimate how many, and how much, other Sixth Form students are drinking alcohol. Students' estimations of how many students had experienced negative consequences of alcohol were more accurate than their perceptions of the level of drinking. Within the Unitcheck evaluation there was a significant effect of condition on units consumed during the last week with a larger decrease over time being observed amongst students in the intervention. However, the authors warn that the findings should be interpreted with caution due to the high attrition rate and low level of engagement with the site (90 students (n=407) in the intervention group).
Cox et al (2006)	Motives for drinking, alcohol consumption, and alcohol-related problems	Secondary school students (n=328) & university students (n=74)	Aim: To assess the relationships among reasons for drinking, alcohol consumption, and drinking-related problems Measures: The ability of drinking reasons to predict drinking problems was tested in both age groups. Khavari Alcohol Test, Quantity-Frequency-Variability Index, Reasons for Drinking Questionnaire, and Rutgers Alcohol Problems Index were used to measure the variables of interest. Results: Regression and mediational analyses indicated that negative reasons were stronger predictors of drinking problems than were positive reasons among both secondary-school and university students. Results also showed that the effect of both positive and negative drinking reasons on alcohol-related problems was partially

			mediated by alcohol consumption among both secondary-school students and university students. Outcome: Drinking for negatively reinforcing reasons is the most problematic pattern of drinking; hence it would seem advisable to intervene early in students' transition from secondary school to university in an effort to reduce this motive for drinking. There were different correlates of problematic drinking among younger and older students, which suggest that different interventions should be used with the two age groups.
Hagger et al (unpublished)	Theory-Based Intervention Using Online and Pen-and-Paper Communication Methods	Online: students from 19 academic schools (n=238) Pen-and-paper: Undergraduate psychology lectures (n=163)	Aim: A theory-based intervention to reduce alcohol drinking in excess of guideline limits in undergraduate students using online and pen-and-paper communication methods Design: 2x2 including implementation intention (present vs. absent) and mental simulation (present vs. absent) using a pen-and-paper based delivery or a web based delivery. Outcome measures: self-reported number of units and occasions of binge drinking; psychological measures such as intentions, attitudes, perceived control, subjective norms, and motivation; Fast Alcohol Screening Test (FAST) Conclusions: Mental simulations were most effective in the online intervention for both outcomes; implementation intentions seemed to be most effective in the pen-and-paper intervention for units; both interventions were effective for binge drinking; in contrast to cross-cultural study, mental simulations seemed to be effective; unclear why the different interventions seemed to have effects for different means of delivery; and from a public health perspective hybrid interventions seem to be most effective
Hagger et al (unpublished)	Implementation Intentions and Mental Simulations	Undergraduate Students from Estonia, Finland and the UK (n=718)	Aim: A Cross-National randomized controlled trial to reduce alcohol consumption in undergraduate students using implementation intentions and mental simulations Design: 2x2x3 including implementation intention (present vs. absent); mental simulation (present vs. absent); and nationality (Estonia vs. Finland vs. UK). Outcome measures: self-reported number of units and occasions of binge drinking; psychological measures such as intentions, attitudes, perceived control, subjective norms, and motivation; Fast Alcohol Screening Test (FAST) Methodology: questionnaires for baseline data (n=718) and four weeks follow up (n=478)

			Conclusions: no main effects of intervention for psychological variables; identical effects after excluding participants who did not consume any alcohol at baseline; mental simulations had no effects on motivation levels; and majority of sample formed appropriate implementation intentions and mental simulations
Jamison and Myers (2008)	Theory of Planned Behaviour	Students (n=178)	Aim: To evaluate the Theory of Planned Behaviour (TPB) as a framework for understanding binge drinking among university students. Measures: Attitude measurement, subjective norm, perceived behavioural control, intention to drink, peer influence and social situational factors. Consumption was calculated by units and 1 pint was cited as being equal to 2 units of alcohol thus an underestimation. Conclusions: The TPB appears to be a weak predictor of student drinking but this may be a result of how constructs were measured. With friends' drinking behaviour emerging as a significant predictor of alcohol consumption, interventions seeking to reduce excessive drinking should target the role of peers and the university environment in which drinking occurs.
McCambridge and Strang (2004 & 2005)	Single-session brief motivational interviewing (MI)	Young people from ten further education colleges (n=200)	Aim: To test whether a single session of motivational interviewing would lead successfully to reduction in use of drugs (including alcohol, cigarettes and cannabis) or in perceptions of drug-related risk and harm among young people in ten further education colleges across inner London. The young people recruited for this study were currently using illegal drugs. Component: One hour single session brief motivational interviewing (MI) v control 'education as usual'. MI session consisted of a menu of topics for discussion from which selections were made and explored during the course of the interview e.g. drug use, areas of risks, problems or concerns, actual and potential drug consequences and non drug values and goals. Three month follow up: students who received the MI intervention reduced the use of alcohol, cannabis, other drugs and cigarettes compared to students who received 'education as usual'. Indeed the effect was greater amongst those who were heavier users. Twelve month follow up: the positive effects of the intervention had almost entirely disappeared, however, the authors attribute this, in part, to be as a result of an improvement in the control group (which could be due to the Hawthorne effect) as

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			opposed to deterioration in the control group.
National Union of Students (NUS) Wales & Addaction (unpublished)	Don't Let Your Drinking Define You campaign	Student Unions in Wales	NUS Wales and Health Challenge Wales launched a joint alcohol awareness campaign 'Don't Let Your Drinking Define You' during the Autumn 2009, however this has not been evaluated to date. Posters outlining the effects of alcohol on education, finance, relationships and heath were given to Student Unions to display and leaflets were given to students. Plastic pint glasses which indicated the number of units on the side were given to Student Unions and managers and staff have been trained to deliver brief interventions, as and when situations arise.
Norman et al (2007)	The theory of planned behaviour and binge drinking: Assessing the impact of binge drinker prototypes	Undergraduate students (n=94)	Aim: to assess the value of including prototype perceptions within the theory of planned behaviour (TPB) when predicting young people's binge drinking intentions and behaviour. Methodology: questionnaires assessing the main constructs of the TPB along with measures of prototype evaluation and prototype similarity. Results: Binge drinking behaviour was assessed at one-week follow-up (n=79). The TPB explained 58% of the variance in binge drinking intentions and 22% of the variance in binge drinking at one-week follow-up. The prototype perception measures explained additional variance in both binge drinking intentions ($\Delta R2$ =.04) and behaviour ($\Delta R2$ =.09), although only prototype similarity emerged as a significant predictor. In addition, a significant interaction was found between prototype similarity and subjective norm in relation to the prediction of binge drinking behaviour, suggesting that the perception of supportive norms may enhance the impact of prototype perceptions on health-risk behaviour. The??? Outcomes: Interventions should target attitudes towards binge drinking by focusing on the negative consequences of binge drinking and by challenging the positive consequences associated with binge drinking. Interventions should attempt to alter the social environment in order to reduce the influence of such external pressures, or cues, to engage in binge drinking.

Table 3: Other UK campaigns and interventions that have not been evaluated/published to date

Author/Contact	Intervention/ Programme	Information
Alcohol Concern	Down your drink www.downyourdrink.org.uk	An internet-based programme has been developed in the UK to help individuals who misuse alcohol. An evaluation of the programme has not been published to date
Association of Managers of Student Services in Higher Education (AMOSSHE)	Guidance on drug and alcohol issues for HEIs	The Association of Managers of Student Services in Higher Education has the following published on its website: We intend publishing guidance on drug and alcohol issues for HEIs following collaboration between AMOSSHE members and the Executive Committee and the Drug and Alcohol Education Prevention Team (a joint project run by Drug Scope and Alcohol Concern) http://www.amosshe.org.uk/content.asp?ContentID=26
Bewick et al (unpublished)	Electronic feedback and social norms intervention	Aim: To evaluate the effectiveness of a web-based intervention (Unitcheck) for student alcohol use across four UK universities. Sample: University students (n=1112) This project is currently being submitted for publication.
Dempster S and Houghton A (2009)	SPECIALS Project	Investigation into student drinking in Lancashire, exploring the transition to university and peer group influence. Research was undertaken to gain understanding of the influences on and impact of student drinking. There was no intervention
Dooris and Doherty (2009)	Healthy University initiative	Aim: To scope and report on the potential for a national programme on Healthy Universities that could contribute to health, well-being and sustainable development Methodology: 117 HEIs received invitations by email to complete and overview survey and 64 (55%) responded. Results: Of the 64 HEIs that responded, 28 stated that they had established the Healthy University initiative, however the interpretation of the initiative varied. Some have included information regarding alcohol, however their effectiveness have not been reported to date.
Leeds Institute of Health Sciences	PhD Studentships 2010	Call for PhD Studentships to commence October 2010 Title: Social networks and reducing student alcohol intake Alcohol use amongst University students is an issue of concern. Our funded research shows the effectiveness of a web-based personalised feedback and social norms intervention. To enhance the intervention, ways of improving student engagement need to be examined that increase the numbers

		who visit the site(s) and the numbers of times students return. Social network approaches have been applied to a variety of health related issues. This proposal is to use social networks to develop an understanding of the norms young people use to make sense of their own behaviour and identify mechanisms by which social networks support/deter alcohol consumption. The overall aim of the studentship therefore will be to use social network approaches to enhance an existing norms-based web-intervention to reduce student alcohol intake. The work is divided into three phases: (1) A conceptual and methodological review of the application of social network approaches to the health behaviour of young people; (2) Qualitative and quantitative studies of social network processes in students alcohol intake investigating associated behaviours, patterns and levels of drinking; (3) The application of these outcomes to existing web-based interventions in order to improve existing uptake and on-going engagement and to develop the personalised norm-based feedback.
Marks et al (unpublished)	A health psychology group-based intervention	Evaluation of a health psychology group intervention for college students (n=75) who binge drink. Aim: To evaluate a health psychology group-based intervention designed to alter attitudes towards binge drinking, and actual binge drinking behaviour The project evaluation is in its initial stages therefore there is no data regarding potential changes in binge drinking behaviour. However, the author reports that there are significant changes in attitude has been observed pre to post intervention. The findings have not been published to date.
Nottingham Crime and Drugs Partnership (unpublished)	Integrated model of reducing alcohol use amongst university students	A good integrated model where university staff are engaged with the Crime and Drugs Partnership (CDP) on two groups: Night time economy and the prevention group. Health promotion students from Nottingham Trent University lead on campaigns (alcohol awareness) but these have not been evaluated.
Oliver Smith	Social norms project	Awaiting information
Stockton on Tees Borough Council	Think B4U Drink Campaign	Although it has been reported that the campaign was successful in reducing drinking, it was not specific to students

Section 4: Task 3. Delphi consultation exercise with local, national and international experts engaged with young people, cultural norms, alcohol interventions and student well-being

4.1 Parameters and methodology of the consultation

The Delphi consultation aimed to establish the most appropriate method of implementing an alcohol intervention with undergraduates through harnessing the knowledge and experience of both the research community and those either working or studying in different higher education contexts. In order to give this research authenticity and the authority to make recommendations to policy makers, a parallel consultation exercise was conducted with two defined groups. The outcome of the narrative literature review on social normative approaches to reduce student drinking, and the current work being done in the United Kingdom as identified by the scoping exercise, established the need for discrete foci for the two consultation groups.

The **Stakeholder Group** comprised individuals within the university context who are engaged with student well-being within the university context, such as senior management, accommodation staff, student support services including health, student representatives, academic staff and pastoral services.;

The second group comprised national and international **'experts'** who, for the purpose of this consultation, are defined as individuals who have published either theoretical or experimental research in the broad area of students and young people and alcohol; social norm research; social cognition and social psychology.

The expertise and knowledge falls into two distinct categories; the focus for the expert survey was to establish the evidence base for social normative interventions and other related psychological models, the theoretical framework underpinning the research, and other alcohol related findings that can be related to student populations; the focus for the stakeholder group was to establish the perception of the problem and aetiology, feasibility and

relevance of implementing social normative interventions, and experience of such interventions.

Individuals from the two groups were invited to participate through e mail contact, with an explanation of the aims of the consultation exercise, and a web link to the surveys, which consisted of open-ended questions with no limit on response content.

Approximately 60 experts and 60 stakeholders were contacted. To date, 12 experts and 21 stakeholders have responded. The low response rate may be due to the consultation taking place during the month of the Easter vacation. Many of those who did respond also sent personal messages indicating their support for this research exercise. Phone interviews with experts and stakeholders have also taken place in order to clarify and expand on information received. The survey questions can be found in Appendix 2.

A content analysis on the responses from the two consultations was conducted by two researchers working independently to ensure objectivity and rigour. These analyses were then checked against each other, and challenged with the assistance of a third independent researcher. The findings are set out below:

4.2 Findings of the consultation

4.2.1 Survey 1: University stakeholders

There were responses from a range of individuals who have a vested interest in student wellbeing:
- Student representatives
- Residential services
- Student services including counselling and student well being groups
- Pro Vice chancellors
- Mental health advisors
- University chaplains
- Academic and lecturing staff

Respondents in this consultation represent a broad cross-section of university life. Responses therefore reflect a range of issues and concerns about student alcohol consumption and roles and responsibilities in addressing this.

Perception of the problem

All respondents to the survey recognised that student drinking is an issue. The majority felt that excessive alcohol consumption among students is a growing problem which impacts negatively on universities. However, it was also felt that "*the culture of drinking is, of course, partly due to the development of the binge drinking culture in society at large*".. Thus, "*Peer pressure and an engrained student drinking culture create an environment that is almost impossible to avoid and difficult to participate in a moderate manner*". This belief also appears to impact on the way universities deal with the issues relating to excessive drinking. One respondent reported that a Vice Chancellor, in a discussion had stated that "*they didn't have a problem with students drinking heavily as he had done so when he was a student*". These mixed messages suggest that the issues are not taken seriously enough by the universities. There is also a feeling that university drinking culture cannot be looked at in isolation: "*It is a norm for young people in general and not exclusive to students in particular,*" however, it is also the case that students (exclusively) do get access to events which promote drinking i.e. student nights, cheap drink promotions, etc.

Student expectations

Almost all of the stakeholders who responded to the survey agreed that excessive drinking behaviour for students is accepted culturally as normative behaviour, and more specifically, students themselves come to university with "*already well-established binge drinking patterns*". There is also evidence to suggest that, for some students the university drinking culture is seen "as part of the attraction" when choosing a university, and this also extends to particular halls of residence, and to certain sports teams where initiation ceremonies involving dangerous drinking practices are customary (one example described '*snorting vodka.*')

Many feel that students' unions play a central role in encouraging students to have certain expectations about the university culture: "*Student union web sites and publications appear to suggest that drinking is the central element of the student experience.*" Further responsibility was laid at the door of the media, and also university marketing departments, who also exploit the 'social side' of university life in that "*the image is also reinforced by prospectuses which tend to have thinly veiled references to the idea that the local area has plenty of places in which you can go and get p****d [sic].*" Universities also have a role in developing normative drinking behaviour: "*The very worst influence in programming students to a drinking culture is 'welcome fortnight' or freshers ... it sets up the expectation that such behaviour is acceptable.*" The fact that over recent years freshers' week has become freshers' fortnight and even freshers' month in some institutions is indicative of the culture to which new students are being introduced. Student unions and other organisations (such as Carnage U.K.) are central to these emphases

Impact on University students

The alcohol related expectations that students have of university life can impact heavily in a number of ways. There is some suggestion that students' grades are directly affected by excessive consumption, but more significantly there are a cluster of factors that create poor grades: behaviours such as wasting money on alcohol; valuing going out over study; over indulgence of alcohol creating hangovers which affects attendance at lectures and seminars: "*Ironically, much of the revenue (from student union sales)is then spent working with students with debt and academic issues – many of them stemming from alcohol use'.* The majority of disciplinary issues appear to be alcohol related, and include "*serious injury, sexual assault and violence.*"

Impact on International students

There appears to be a polarised effect on international students: "*we have a lot of American students who are not allowed to drink at home...therefore, they get very excited ….and go overboard.*" Other students from countries with different cultural drinking norms may also be negatively affected. They are often excluded, socially, with *"an increasingly significant clash between the drinking culture of the UK students and their international counterparts"*

Responsibility and accountability:

➢ **The university**

It is relevant to point out that all Vice Chancellors of universities in Wales were contacted for their views on the subject of student drinking levels as part of this consultation, and none has responded to date.

The majority of stakeholders do not believe that their universities take this issue as seriously as they should, exemplified by the fact that for the most part, there are no alcohol policies in place. One respondent suggests that there is "*passive disapproval"* and a reluctance to address the consequences of excessive alcohol consumption. For example, "*There is an unwillingness to take the more serious disciplinary action against students when they repeatedly cause problems.*" This issue appears to arise partly from the disconnection of day workers to the problems caused by drinking. Further, there are misunderstandings about the potential harm of dangerous drinking levels: "*if we intervened on alcohol we would also need to intervene on many other issues e.g. drugs and sexual intercourse.*" The clear contradiction in this statement demonstrates the entrenched nature of attitudes to alcohol consumption and also a level of ignorance in its relationship with other risky health behaviours in young people.

Overall, the majority of stakeholders are unaware of any university-wide alcohol policy regarding students and hazardous drinking. One institution has

a Substance Misuse Policy that will *'be reviewed in line with WAG guidance once it is published'.* One respondent describes alcohol as having a *'cursory presence'* in the institution's drug policy. The survey reveals that there are some localised initiatives such as a collaboration between the Chaplaincy and the Students' Union that focuses on safety, and a Students' union *'policy on initiation ceremonies,"* along with a range of isolated health or wellbeing initiatives. This is illustrative of the fragmented nature of alcohol initiatives both within and across institutions.

There is also the view that an institution that developed a reputation as punitive in terms of '*becoming a temperance university would lead to losing out to competitor institutions.'* This reinforces the idea that students select universities on alcohol related factors.

➤ **The Students' Union**

The student union is seen by many as both the cause and the solution to the issues and problems resulting from excessive drinking. Respondents cite factors such as buying into 'Bar Foste' programmes which allows the student union to purchase large quantities of alcoholic drinks at cheap wholesale prices - this is felt to encourage student alcohol consumption. Some students' unions were felt to hold very irresponsible events involving cheap alcohol promotions. External organisations such as Carnage U.K. were also cited as a major factor in student drinking. As Carnage U.K. was not included in our original survey we contacted them directly for their comments in order to explore this further. They view students' unions as their biggest competitors and confirmed that over 250,000 students attend Carnage U.K. events across Britain annually, and that these events are external to, and independent of the university campuses. This demonstrates the lucrative and competitive nature of this business and potential commercial exploitation of students.

It was pointed out that "*many* [student] *events seem to have commercial tie-ins between student unions and bars and clubs*, with the problem being that alcohol is a major funding stream for the unions. Despite this, union

representatives see a clear role for unions in addressing student drinking as "*students will respond better to unions talking about alcohol interventions.*"

Are interventions necessary - and if so what, when, how and whom?

The majority of respondents think that having some level of intervention is a necessary step. However, there is also scepticism due to the general acceptance that drinking is a cultural problem, and debate as to what type of intervention would be effective pragmatically. Further, would they be too late in the students' drinking career.

Stakeholders suggest a range of interventions including public health messages, raising awareness, the promotion of non-drinking activities and the promotion of positive alternatives. It was felt that for an intervention to work there is a need for "*everyone (in the university) to be included*" and that "*any campaign should be a joint exercise between the university and the student union.*" Involving the student union appears to be crucial on many counts, including identifying alternative revenue streams.

Barriers to implementing initiatives and interventions

Barriers to intervention appear to range from the societal (why pick on students?) to institution specific. One of the reasons cited why many universities are reluctant to take a proactive role in reducing student drinking appears to be the external cultural norms. Obvious issues which arise from this include peer pressure and an overall cultural influence and acceptance of binge drinking. "*It is a national cultural issue amongst young people. The student lifestyle and lack of structure simply facilitates a culture that exists amongst students and non-students alike.*"

Potential solutions

The acknowledgement by the various stakeholders that alcohol is a campus wide problem is reflected in individual responses. For example, the development of a *'joined up'* student health and well-being policy that

involves linking the various facets of the student experience i.e. academic, residence and support services such that minor problems across these domains can be identified as a pattern that could be predictive of more serious problems. The anecdotal evidence suggests that excessive alcohol consumption is often a common thread in these cases.

With universities struggling to deal with issues relating to student retention and international students providing much needed revenue, it is now apposite to address excessive alcohol consumption. One respondent feels that this *'does rely on senior management to be able to understand the real determinants of academic achievement, rather than the narrowly focussed preoccupations of most initiatives on student retention'.* Further, it could be an incentive for a sector-wide approach, *'there needs to be some public health requirements placed on HEIs to consider the issues. For example, they could be required to demonstrate that they have a retention strategy for students that shows that they have considered lifestyle issues'.*

4.2.2 Key findings of the consultation with university stakeholders

- ➢ People working in the sector recognise that student drinking is a problem
- ➢ Universities do not have alcohol –specific policies for students
- ➢ Students' unions have a pivotal role, in both the problem and the potential solutions
- ➢ Young people come to university with pre-existing perceptions and expectations of student drinking behaviour
- ➢ Students often start university with an already established habit of consuming high levels of alcohol
- ➢ Student drinking should not be considered in isolation
- ➢ Cultural norms dictate attitudes across the university including at senior management level
- ➢ There is pressure on students to conform to the stereotype (peers, student union)
- ➢ Interventions need to be broader than the individual

> ➤ Commercial issues for students' unions are perceived as a driver for maintaining high campus alcohol sales

4.2.3 Survey 2: Expert consultation

Experts were asked their views about the importance of students' misperceptions of drinking norms and of the effectiveness of social normative and other evidence based approaches.

Opinions vary from experts as to the significance of student misperceptions of drinking norms. A number of respondents felt that although the "*perceptions of norms are important,*" it should not be the only focus in developing interventions: "*it does not follow that if you change the misperceptions that students will change their own behaviour.*" Many felt that social identity and social image should also be included as important factors: "*norms are clearly important but social identity, drinker 'prototypes' and social image (particularly, the need to 'fit in' and be seen as part of the crowd) are very important.*" Further, "*interventions should be multi-faceted*". Further, it was felt that to consider normative behaviour in isolation may not be sufficient *"unless you know the degree to which the students identify with the group, including group identification and self-categorisation would be more beneficial."* Experts who believe that addressing student misperceptions is important, also feel that the "*approach is somewhat over-sold.*" One respondent cites the work of leading social norms researcher Clayton Neighbors who commented that "*use of social norms approaches has to some degree out-stripped the evidence base'.*

There is also the important recognition that "*most of the explanations for misperceptions are largely derived from theory instead of experimental study ..... if these issues were better understood it would be easier to design campaigns which incorporated other constructs and theory.*" Other experts concur, stating that *'more work needs to be done on understanding why effective social norms campaigns are effective.'* However, there are contradictory views emphasising the importance of other social cognition

constructs such as, prototype willingness. There is also outright scepticism *'I think the whole thing could be an artefact created by people underestimating their own consumption.'*

In terms of effective intervention components, many of the respondents did not feel that there is a straight forward simple answer: "*I am not sure that there is a one size fits all."* There is also the feeling that that the issue of excessive drinking is a cultural problem and not just a student issue: "*Students are not, as a group, the main problem are they?* This suggests that students are also a product of their wider culture. There is also some concern raised as to the legitimacy of using the social normative approach: "*I also fear that social norms approach might be just the latest flavour of the month."* Further, there is recognition that the research evidence for this approach is limited, as one respondent comments: "*Given that social normative interventions alone are unlikely to be effective – it seems sensible to integrate other perspectives."* This view is echoed by other respondents who suggest that social normative interventions should be combined with other approaches such as "*motivational interviewing techniques* [which] *have been established as an excellent way of getting people to confront issues around hazardous drinking behaviour and are more likely to be successful in getting students to change ...also expectancy approaches are also useful in getting students to understand consequences and engage in alternative scenarios in relation to drinking with peers."* A central element of motivational approaches involves strategies to avoid resistance, which would be appropriate in dealing with the "*usual teenage resistance to information from 'those who know better'".*

There is a consensus that intervention messages "*should be positive rather than negative… so towards a healthier lifestyle rather than restricting problem behaviour... aspects need to perhaps focus on the social functioning (embarrassment and creating anticipated regret)."* It was also felt that "*normative components of interventions can be embedded in the other messages"* for example, given through a motivational approach. This notion of combining social norms with other approaches is not one that all respondents subscribe to. For example, one expert reports: "*expectancy approaches for*

instance will often use the 'health terrorism' strategy to depict negative consequences of heavy drinking... which runs counter to the model on which the social norms approach is based". However there is agreement that "*it might be possible to use social norms with more targeted approaches like motivational interviewing.*" Although "*the successful derivation of a universal approach is unlikely*", experts agree that *"tailored interventions with messages that focus on issues relevant to undergraduate students are relevant and effective"* . They need to be seen as *"topical and informative, rather than patronising and attempting to coerce".* It is also suggested that students should be engaged with the design, content and delivery of interventions in order to establish salience.

The majority of experts concur that the most effective delivery format is through electronic media and that this is a cost-effective way of delivering an intervention to a large student population: "*Research appears to suggest that online feedback is especially effective in young adult populations. I would say that web-site feedback is better than email feedback. Participants may find email feedback on sensitive topics such as alcohol use intrusive (even if they have previously consented to receive it), whereas, on a website can perhaps feel more anonymous.*"

Other experts hold the opposite view, favouring e-mailed feedback, highlighting that the drawback with using a web-based delivery approach is that "*participants don't use them".*

There are also advocates for a combination approach in intervention format where: "*electronic media are supplemented with face to face information"* that is *"interactive and focused not just on consequences and attitudes but on means to achieve to behaviour change."* Web-based interventions are also seen as "*a window of opportunity for students who are having some form of crisis as a consequence of their drinking"* who want to acquire information about an issue or problem and they want to remain anonymous. Experts also raised the issue of how web-based interventions are monitored and quality controlled.

Barriers

The expert consensus is that in the broadest sense, identified barriers come down to the drinking culture in our wider society, suggesting that politicians and policy makers need to be delivering clear and consistent messages. As one expert puts it *'a great many of our compatriots drink enough to kill an elephant daily. I doubt whether student only interventions are likely to be effective'*.

Another barrier to the delivery of interventions is "*getting their [students] attention in the first place which is a major issue.*" This expert suggests that getting other students involved is one solution: "*they are more likely to take notice of other students.*" Interestingly, one expert cited an example of the implementation of the intervention itself caused barriers to reducing student drinking. Their experience used an approach that fed accurate feedback [consumption levels] back to the target population. However, administrators were reluctant to allow the figures to be made public due to concerns about negative press. This suggests that there is a need for wider training of key staff as part of any intervention. Experts had also experienced interventions actually encouraging students to drink more. An example included an intervention to raise awareness on how much alcohol students were drinking (through the use of diary records) resulted in students comparing competitively to see how high they could get their 'units' score.

When is the most apposite time for an intervention?

The general consensus on timing (for implementing interventions) appears to be at multiple points across students' high school and undergraduate education. Experts note that the optimum time(s) for interventions is unclear based on existing evidence, but the general view favours an approach that is not given as a single intervention, *'as the durability of these interventions is still open to question, multiple interventions over time may be necessary to sustain effects'.* Another view is that it [the intervention] *'should be there all the time, just humming along in the background.'* The majority of experts who responded to the survey agree that "*Targeting them* [students] *in the initial*

weeks of the degree would help to reduce the perception and acceptance of a 'universal student drinking culture'."

Targeting students in high school could be beneficial, as "*individuals are especially vulnerable to social norms when entering a new environment, so interventions could also be aimed at freshers – but also in school in the weeks leading up to the summer".* However, it was also recognised that "*freshers are bombarded with information in the first two weeks of university life, so messages are likely to slip through the net at this time or have reduced effectiveness."* This could be addressed by initiating interventions during freshers weeks and "*then follow up at potential peak drinking times (after main assessment periods and major varsity sports competitions)."*

What is the most appropriate intervention to reduce student drinking?

There is a consensus within the expert group that there is no easy solution to reducing alcohol consumption in students, and that the evidence of effectiveness in such interventions is scant at present. The majority advocate multi-component approaches that:

- Utilise a range of models of cognition and behaviour
- Target different levels of drinking behaviour.
- Employ evidence based methods of delivery

These views are summarised below:

One expert believes that the "*social norms approach is the most appropriate*", although acknowledges that it is a *'new intervention which needs to be further developed'.* A more common position is that social norms should be incorporated with other components that will address other important cognitive processes such as group identity, comparative optimism, expectations and self efficacy. This is summed up by one respondent *'Personalised normative feedback is a component of many other intervention models, most notably brief motivational interventions'.* Further, *'Personalised normative feedback does appear to be a necessary, but not always sufficient, element.'*

The degree of individual identity with the prototype of the 'student drinker' is an important aspect of targeted approaches. *'Interventions should also be tailored to existing level of identification'* with the group, as those with high identification will need a different emphasis. Efficacy is an important aspect of health behaviour change, and students need the skills to *'engage in some sort of planning to seek alternatives when they are confronted with pressure to drink'.* The available evidence demonstrates that '*the research base most strongly supports the efficacy of brief motivational interventions'.*

Other considerations relate to the type of student drinker, and the timing of the intervention(s). Universal approaches at high school or at salient points during the university year are considered appropriate as one element of an overall intervention. There are also views where the emphasis would be on students flagged up as having potential problems with alcohol; the heavier end of the student drinking spectrum; the students who are not drinkers but feel under pressure to conform; developing an instrument to identify those at high risk of harm.

4.2.4 Key findings from the expert consultation

- There is a consensus that students misperceive drinking norms
- Changing students misperceptions will not necessarily result in positive changes in student drinking behaviour
- Evidence for social normative interventions is scant
- There is some concern about the possible faddish nature of social normative interventions
- Interventions should be delivered through a combination of media
- Social normative interventions should not be delivered in isolation but rather should be an element in a multi-dimensional approach that has a clear evidence base for the UK population
- There is a need to address the wider cultural issues of drinking in the UK
- Successful intervention will rely on university commitment to deliver interventions and combat mixed messages

➢ The most appropriate interventions will utilise models of cognition and behaviour, target different levels of drinking behaviour and employ evidence based methods of delivery.

Section 5: Task 4. A commentary and general discussion of findings and their implications for the research requirements for the development of normative feedback provision as part of a student drinking initiative across universities

The various data gathering phases of this project have produced rich, insightful and constructive findings. Tasks 1-3 have provided a wide range of evidence and views regarding the key aims.

The international literature review demonstrates that the majority of published work evaluating the social normative approach stems from the United States and has been undertaken with American students. Some of this evidence is promising, but like Moreira et al (2009), we urge caution in that there is a clear need for further investigation in order to establish an evidence base. The majority of studies that have been published to date in the U.S.A. are limited in methodological rigour. Specifically, short or no follow up periods undermine confidence in potentially efficacious interventions. Further, other methodological issues include small samples, randomisation failure, the validity and reliability of web-based outcome measures. Additionally, objective consumption instruments, clarification of the definition of 'heavy drinker' and standardisation of screening and outcome measures would facilitate confidence in generalisability of findings. This is obviously also important in terms of consistency in defining social norms for the student.

A key finding relevant to the potential implementation of these interventions in the UK context is the relative differences in drinking culture for students in these two countries. It is apposite to develop an evidence base for student drinking interventions that takes into account the cultural context of both the drinking culture and university systems in the United Kingdom. This should draw on existing knowledge and promising preliminary findings.

The format of social normative interventions appears to be important, with web based studies appearing more promising, although for the most part it is difficult to extract the 'social normative component' as the active ingredient, as

opposed to the delivery mode used. For example, delivery in some studies is through Motivational Interviewing which has a lot of evidence for effectiveness in changing behaviour.

There is only one published web-based social normative intervention with UK participants; there is clearly a lack of evidence for this approach in the UK to date. Further, there are a number of methodological problems that undermine confidence in the findings of this particular study. For example, the use of incentives to access the website is acceptable for research purposes, but may mask ecological validity issues for 'real world' use. Even with incentives, only a minority of the targeted student population participated, and only 8 said that they would change their behaviour as a result.

The majority of the reviewed studies' interventions focus on descriptive norms (the perception of what is normal drinking behaviour for university students), whereas injunctive norms relate to the perception of the attitudes or approval of other students for those particular behaviours. The latter are an important element of the Theory of Planned Behaviour where 'subjective norms' are a predictor of drinking behaviour.

Whilst there is a broad consensus from the experts consulted that students do misperceive campus drinking norms, there is also scepticism that merely changing these misperceptions will result in positive changes to behaviour. There is a sense of 'faddishness' in the social norm approach expressed by some experts in relation to the current enthusiasm around this area. Further, a number of experts believe that the misperceptions are actually related to a misunderstanding of one's own consumption rather than an over-estimation of the consumption of others. This particular criticism would be less applicable if interventions focused on changing injunctive norms rather than descriptive norms. Larimer et al confirm the different predictive value of descriptive and injunctive norms, with the former predicting concurrent drinking levels, and the latter predicting drinking levels 1 year on. Further doubt is cast by the lack of consideration of other social psychological explanations for self-other differences, such as Social Identity Theory.

The research evidence and the expert views concur that social normative perceptions should be incorporated as an important element of multi-component interventions, rather than a stand alone intervention. These should also utilise other models of cognition with established evidence of effectiveness for behaviour change, such as protective strategies and skills training (elevating self efficacy), blood alcohol concentration levels (BAC) and their implications. Importantly, these multi-component interventions also need to be tailored to target different levels of drinking behaviour in a stepped approach, and to use delivery methods that have good evidence of effectiveness such as motivational approaches. A caveat to be considered here is the difficulty in evaluating the role of discrete elements to a multiple component intervention – what is or are the 'active ingredients'?

Reducing levels of drinking appears to be more successful in those approaches that are incorporating a number of social cognition components. Brief motivational interventions have demonstrated effects that last to 12 month follow up when they also include personal normative feedback. For example, Norman and colleagues found a significant interaction between subjective norms and perceptions of drinker prototype and drinking levels. However, more work is required regarding the underlying processes through which prototype perceptions impact on behaviour, by using other measures of prototype intention, such as the role of self-consistency and self-enhancement processes. Combining elements such as positive expectancy and skills to bolster drinking refusal self-efficacy could form the basis of novel and effective mass targeted programmes to reduce alcohol related harm and binge drinking

A number of salient factors emerged from the university stakeholders' consultation. There was a clear consensus that there is a problem with student alcohol consumption, and that interventions need to be put in place to deal with it. There was a sense that the most effective approach might be one that involved joined up thinking and applicability across universities.

However, there are many mixed messages within the university context in relation to student drinking. There are individuals and groups working on small initiatives in relative isolation within the university sector, ranging from health message campaigns in student bars to preventive information in halls of residence. These health message campaigns are not usually evaluated for effectiveness in alcohol consumption reduction, and some university stakeholders report that they sometimes result in students increasing their drinking levels to be 'top of a unit league table', or whatever the focus of the campaign is.

The general consensus is that universities and their students exist within the wider U.K. social context, and that this obviously includes the drinking culture. Therefore, attempting to change the behaviour of students should also consider the wider societal context, which will involve addressing the established drinking expectancies and consumption patterns before students arrive at university. Alongside this view, the reinforcement of the perception of a heavy student drinking culture is seen as mainly the responsibility of the students' unions, but also partly the way that university prospectuses set out their marketing material.

University staff believe that in many ways senior university management pay lip service to the problem. They are happy to lay fault at the door of the student unions, whilst avoiding developing alcohol policies in relation to student drinking. It is believed that individual universities are reluctant to be identified by potential students as being intolerant of drinking and the general sense of young people being able to have fun. There is also the belief that the universities prefer student intoxication to happen on rather than off campus due to concerns about potential bad publicity.

This view (of these mixed messages) is reinforced in that none of the Welsh universities' Vice Chancellors participated in this consultation, although all were invited to do so. It is fair to say that a number of Pro Vice Chancellors and Deans of Students did respond. There is also an element of a "rite of

passage" philosophy from certain strata of academia. This demonstrates that staff perceptions play a role in the university drinking culture.

Current practice suggests that alcohol related issues and problems are dealt with in very few ways: student support services, including health and counselling, take the identified 'problem individual' approach; and secondly, a disciplinary approach; student union initiatives such as 'don't let your drinking define you.'

Stakeholders concur with experts with regard to the scope and breadth of interventions in that they should be delivered at a number of salient points from high-school through university career; they need to be targeted to varying degrees of drinking levels (excessive through to harmful) and they need to be student relevant, even peer-designed. The sense of 'student as consumer' is very clear from the university perspective. This could be harnessed as a potential cognitive intervention in terms of 'not utilising what you have paid for.'

The views from stakeholders suggest that if universities are to successfully change student alcohol consumption they will have to initiate and develop institution and sector wide co-operation and strategy. In fact, one institution indicated that they are hoping the Welsh Assembly Government will take a lead and offer guidance. There is enough evidence from the findings of this study to inform and recommend a clear alcohol strategy for the higher education sector in Wales.

Section 6: Recommendations

1. Interventions need to be developed to address the broad spectrum of student drinking problems (from universal to more targeted interventions for heavy and harmful drinking)

2. Further research need to be undertaken, with methodologically rigorous evaluation of the usefulness of social normative feedback over time, before it can be said with confidence that this is an effective approach. If social normative elements are embedded in other approaches, evaluation of relative effectiveness will be difficult.

3. Universal web-based interventions that are informed by evidence (for example addressing expectancy effects and self-efficacy skills training) should be developed and administered at strategic times through high school to graduation (e.g. UCAS application, open days, induction days, enrolment and re-enrolment).

4. Interventions should be multi-component, reflecting current evidence and should be delivered through an evidence-based approach (such as brief motivational interventions).

5. The commissioners need to take on board that the social normative approach has been 'somewhat oversold,' almost as a universal solution. However, there are promising elements that should be further tested in the U.K cultural context.

6. There must be specific alcohol-related policy and strategy development within universities that is supported across the institution from directorate level to student representation

7. Training initiatives should be implemented to challenge and change the prevailing attitudes regarding alcohol consumption as a cultural norm across the institution, to include senior management and key university stakeholders

8. Student representatives should be involved in the content development and delivery of interventions.

9. The Healthy Universities Initiative should be utilised as a vehicle for sharing of information and good practice

10. This report has been commissioned by policy makers, and we therefore include a more general recommendation that has emerged from the research: in that to encourage overseas students and reduce student attrition rates universities should be supported by government in developing and implementing effective safe drinking initiatives

Section 7: References

Abrams, D &L. Hulbert(2005). The impact of alcohol consumption on group processes. ESRC.

Andersson.A, Wirehn. A-B, Olvander.C, Ekman, D.S and Bendtsen. P(2009). Alcohol use among university students in Sweden measured by an electronic screening instrument. *BMC Public Health*, **9**:229.

Ball. A, Todd.M, Tennen Howard, Armeli.S, Mohr.C, Affleck.G & Kranzler, H.R(2007).Motivational enhancement and coping skills interventions for heavy drinking. *Addictive Behaviors*, **32**:1105-1118.

Bewick B M, Trusler K, Mulhern B, Barkham M, Hill AJ. (2008) The feasibility and effectiveness of a web-based personalised feedback and social norms alcohol intervention in UK university students: A randomised control trial. *Addictive Behaviors*. **33** 1192-1198.

Bewick, B.M., Mulhern, B. and Hill, A.J. (2009) Unitcheck and Sixth Form Students: Understanding young peoples' alcohol related behaviour and perceived social norms.
http://www.drinkaware.co.uk/__data/assets/pdf_file/0003/21000/NHS-Leeds-Sixth-Form-Project-Report_Bewick-et-al.pdf

Boland. M, Fitzpatrick. P, Scallan. E, Daly. L, Herity.B, Horgan.J & Bourke. G (2007). Trends in medical student use of tobacco, alcohol and drugs in an Irish university, 1973-2002. *Drug and Alcohol Dependence*, **85:**123-128.

Borsari B,& Carey, K.B (2005).Two brief alcohol interventions for mandated college students. *Psychology of Addictive Behaviors*,**19**:296–302.

Borsari. B& Carey, K.B (2000). Effects of a brief motivational intervention with college student drinkers. *Journal of Consulting and Clinical Psychology* **68(4):**728–33.

Borsari, B. & Carey, K.B. (2001) Peer influences in college drinking: a review of the research. *Journal of Substance Abuse*, **13,** 391-424

Carey, K.B., Scott-Sheldon, L.J.A., Carey, M.P. & DeMartini, K.S. (2007) Individual-level interventions to reduce college drinking: a meta-analytic review. *Addictive Behaviours*, **32 (11):** 2469-2494

Carey KB, Carey MP, Maisto SA, Henson JM (2006). Brief motivational interventions for heavy college drinkers: A randomized controlled trial. *Journal of Consulting and Clinical Psychology,***74(5**): 943–54.

Cashell-Smith, M.L, Connor, J.L & Kypri.K (2007). Harmful effects of alcohol on sexual behaviour in a New Zealand university community. *Drug and Alcohol Review,***26**:645-651.

Chiauzzi.E, Green, T.C, Lord.S,Thum.C & Goldstein.M(2005). My student body: a high risk drinking prevention web site for college students. *Journal of American College Health*, **53:**263-274.

Collins, S.E, Carey, K.B & Sliwinski M.J(2002).Mailed personalized normative feedback as a brief intervention for at-risk college drinkers. *Journal Studies on Alcohol,***63(5)**:559–67.

Cox W M; Hosier S G; Crossley S; Kendall B; Roberts K L (2006) Motives for drinking, alcohol consumption, and alcohol-related problems among British secondary-school and university students *Addictive Behaviors.* **31** 2147–2157

Crundall, I.A(1995). Perceptions of alcohol by student drinkers at university. *Drug and Alcohol review*,**14(4):**363-368.

DeJong .W, Schneider, S.K, Towvim, L.G, Murphy, M.J, Doerr ,E.E, Simonsen,N.R, et al(2006)A multisite randomized trial of social norms marketing campaigns to reduce college student drinking. *Journal of Studies on Alcohol ,***67(6**):868–79.

DeJong. W, Scheider, S.K, Towvim, L.G, Murphy, M.J, Doerr ,E.E, Simonsen, N.R, et al(2008).A multi-site randomized trial of Social Norms Marketing Campaigns to Reduce College Student Drinking: A replication Failure.

Dempster S and Houghton A (2009) Students' and Professionals' Experience, Concerns and Issues regarding Alcohol use by Lancaster Students (SPECIALS) Project. Lancaster: *Researching Equity, Access and Participation,* Lancaster University/ NHS North Lancashire.

Dhalla S and Kopec JA (2007) The CAGE questionnaire for alcohol misuse: a review of reliability and validity studies. *Clinical and Investigative Medicine* **30** 33-41

Dooris M and Doherty S (2009) National Research And Development Project On Healthy Universities. University Of Central Lancashire Higher Education Academy Health Sciences and Practice Subject Centre & the Department of Health
http://www.health.heacademy.ac.uk/publications/miniproject/2009mdooris.pdf

Fiske, S.T. (2004) *Social Beings: a core motives approach to Social Psychology.* New York. Wiley

Esch .L & Ubbes, V. A (2009). A culturally appropriate framework for educating collegiate international students about alcohol. *International Electronic Journal of Health Education*,**12:**244-252.

Gerrard.M,Gibbons,F.X,Reis-Bergan,M,Trudeau, L, Vande Lune,L.S&Buunk.B(2002). Inhibitory effects of drinker and non-drinker prototypes on adolescent alcohol consumption. *Health psychology*, **21(6):**601-609.

Gibbons, F.X., Gerrard, M., Ouellette, J.A. & Burzette, R. (1998) Cognitive antecedents to adolescent health risk: discriminating between behavioural intention and behavioural willingness *Psychology and Health*, **13:** 319-339

Gill, J.S (2002). Reported levels of alcohol consumption and binge drinking within the UK undergraduate student population over the last 25 years. *Alcohol and Alcoholism* ,**37(2):** 109-120.

Glindemann, K.E, Erhart, I.J., Drake, E.A &Geller, E.S (2007). Reducing excessive alcohol consumption at university fraternity parties: a cost-effective incentive/reward intervention. *Addictive Behaviours*, **32**:39-48.

Hansson, H., Rundberg, J., Zetterlind, U(2006) An intervention program for university students who have parents with alcohol problems: a randomized controlled trial. *Alcohol and Alcoholism*, **41:**655–663.

Jamshid. A & Hasani. M(2003). Prevalence of substance abuse among Iranian high-school students. *Addictive Behaviors*,**28(2**):375-379.

Jamison J and Myers L B (2008) Peer-Group and Price Influence Students Drinking along with Planned Behaviour. *Alcohol and Alcoholism* **43(4):** 492-497

John, B. & Alwyn, T. (2009) Mapping student alcohol consumption & drinking patterns, and the factors influencing this behaviour in students at Higher Education Institutions in Wales. *A report to the Wales Assembly Government*

John, B. Alwyn, T. & Rees, J. (2007) The clinical implications of hazardous alcohol consumption in dental students. *A report to the Chief Medical Officer, Wales Assembly Government*

Johnson, K.O & Berglund. M (2006). Comparison between a behavioural alcohol programme and post- mailed minimal intervention in high-risk drinking university freshmen: results from a randomized control trial .*Alcohol and Alcoholism*,**41(2**):174-180.

Juarez. P, Walters, S.T, Daugherty. M& Radi (2006).A Randomized Trial of Motivational Interviewing and Feedback With Heavy Drinking College Students. *Journal of Drug Education*,**36 (3):**233–246.

Karam. E, Kypri K& Salamoun. M (2007). Alcohol use among college students: an international perspective. *Current Opinion in Psychiatry*,**20**:213-221.

Koski-Jännes, A, Cunningham, J.A,, Tolonen , K .,& Bothas , H (2007).Internet- based self-assessment of drinking- 3-month follow-up data. *Addictive Behaviors*, **32**:533-542.

Kypri .K, Langley. J.D, Saunders J.B, Cashell-Smith ,M.L, Herbison P (2008).Randomized Controlled Trial of Web-Based Alcohol Screening and Brief Intervention in Primary Care. *Archives of Internal Medicine*;**168(5):**530–36.

Kypri .K & McAnally ,H.M(2005).Randomized controlled trial of a web based primary care intervention for multiple health risk behaviors. *Preventive Medicine*, **41(3-4):**761–6.

Kypri, K.& Stephenson, S.C.R.(2005). Drink-driving and perceptions of legally permissible alcohol use. *Traffic Inj Prev*, **65**:219–224.

Kypri. K, Saunders. J, Williams. S, McGee ,R.O, Langley, J.D, Cashell-Smith, M.L, Gallagher, S.J (2004). Web-based screening and brief intervention for hazardous drinking: a double-blind randomised controlled trial. *Addiction,* **99**:1410–7.

Kypri, K., Saunders, J.B. & Gallagher, S.J. (2003) Acceptability of various brief intervention approaches for hazardous drinking among university students. *Alcohol & Alcoholism*, **38: (6)** 626-628

Labrie, J.W., Hummer, J.F, Pedersen, E.R & Neighbors. C (2008). Live interactive group-specific normative feedback reduces misperceptions and drinking in college students: a randomized cluster trial. *Psychology of Addictive Behaviors*, **22(1)**:141-148.

Larimer, M.E, Turner, A.P,Mallet, K.A.&Geisner I.M(2004). Predicting Drinking Behavior and Alcohol-Related Problems Among Fraternity and Sorority Members: Examining the Role of Descriptive and Injunctive Norms .*Psychology of Addictive Behavious,***18(3):**203-212.

Larimer, M.E, Turner, A.P, Anderson, B.K, Fader, J.S, Kilmer,J.R, Palmer, R.S & Cronce, J.M (2001).Evaluating a brief alcohol intervention with fraternities. *Journal of studies on alcohol*, **62(3):**370-380.

Larimer, M.E. & Cronce, J.M. (2007) Identification, prevention and treatment revisited: Individual focused college drinking prevention strategies 1999-2006. *Addictive Behaviours* **32:** 2439-2468

Lewis, M.A & Neighbors, C. (2004) Gender specific misperceptions of college student drinking norms. *Psychology of Addictive Behaviours*, **18:** 340-349

Lewis, M.A, Neighbors .C (2006). Who is the typical college student? Implications for personalised normative feedback interventions. *Addictive Behaviors ,***31**:2120-2126.

Lewis ,M.A, Neighbors. C, Oster-Aaland .L, Kirkeby .B, Larimer, M.E (2007). Indicated prevention for incoming college freshmen: Personalized feedback and high risk drinking. *Addictive Behaviors*,**32(11):**2495–2508.

Lorent, F.O, Peretti-Watel. P, Griffet. J & Grélot. L(2003). Alcohol use and intoxication in sport university students. *Alcohol and Alcoholism,***38(5):**427-430.

Marlatt GA, Baer JS, Kivlahan DR, Dimeff LA, Larimer ME, Quigley LA, et al. (1998) Screening and Brief Intervention for High-Risk College Student Drinkers Results From a 2-Year Follow-Up Assessment. *Journal of Consulting and Clinical Psychology*;**66 (4):**604–7.

McAlaney, J & McMahon, J (2007). Normative beliefs, misperceptions and heavy episodic drinking in a British student sample. *Journal of Studies on Alcohol and drugs,* **68(3):**385-392.

McCambridge J and Strang J (2004) The efficacy of single-session motivational interviewing in reducing drug consumption and perceptions of drug-related risk and harm among young people: results from a multi-site cluster randomized trial. *Addiction,* **99:** 39–52

McCambridge J and Strang J (2005) Deterioration over time in effect of Motivational Interviewing in reducing drug consumption and related risk among young people. *Addiction,* **100:** 470–478

McNally, A.M& Palfai ,T.P (2003). Brief group alcohol interventions with college students: examining motivational components. *Journal of Drug Education*,**33(2):**159–76.

McShane, K.E. &Cunningham, J.A(2003). The role of relevancy in normative feedback for university students' drinking patterns. *Addictive Behaviors*, **28:**1523-1528.

Michael, K.D, Curtin. L, Kirkley, D.E, Jones, D.L ,Harris R.Jr(2006) Group-Based Motivational Interviewing for Alcohol Use Among College Students: An Exploratory Study. *Professional Psychology: Research and Practice,***37(6):**629–34.

Moreira,M.T., Smith, L.A. & Foxcroft, D. (2009) Social norms interventions to reduce alcohol misuse in university or college students. *Cochrane Database of Systematic Reviews* 2009, Issue 3. Art. No: CD006748.DOI.10.1002/14651858.CD006748.pub2

Murphy, J.G, Duchnick, J.J, Vuchinich ,R.E, Davison, J.W, Karg. R, Olson, A,M, et al(2001).Relative efficacy of a brief motivational intervention for college student drinkers. *Psychology of Addictive Behaviors*,**15(4):**373–9.

Neal DJ, Carey KB (2004).Developing discrepancy within self -regulation theory: Use of personalized normative feedback and personal strivings with heavy-drinking college students. *Addictive Behaviors* ;**29(2)**:281–97.

Neighbors .C, Lewis, M.A, Bergstrom, R.L, Larimer, M.E(2006).Being controlled by normative influences: Self-determination as a moderator of a normative feedback alcohol intervention. *Health Psychology*,**25 (5):**571–9.

Newbury-Birch, D., Lowry, R. & Kamali, F. (2002) The changing patterns of drinking, illicit drug use, stress, anxiety and depression in dental students in a UK dental school: a longitudinal study. *British Dental Journal* **192 (11):** 646-9

Norman, P., Armitage, C.J. & Quigley, C. (2007) The theory of planned behaviour and binge drinking: assessing the the impact of binge drinker prototypes. *Addictive Behaviours*, **32,** 1753-1761

O'Connor, K.D, Martin. J & Martens. M.P (2007). Social norms and alcohol consumption among intercollegiate athletes: the role of athlete and nonathlete reference groups. *Addictive Behaviours*, **32:**2657-2666.

Ouellette, J. A., Gerrard, M., Gibbons, F.X. & Reis-Bergan, M. (1999) Parents, peers and prototypes: antecedents of adolescent expectancies, alcohol consumption and alcohol related life problems on rural youth. *Psychology of Addictive Behaviours,* **13:** 183-197

Perkins, H.W (2007). Misperceptions of peer drinking norms in Canada: another look at the "reign of error" and its consequences among college students. *Addictive Behaviours,* **32(11):**2645-2656.

Saitz. R, Palfai, T.P, Freedner. N, Winte, M.R, McDonald. A, Lu. J, Ozonoff. Al, Rosenbloom, D.L & Dejong. W (2007). Screening and brief intervention online for college students: the ihealth study. *Alcohol and Alcoholism ,* **42(1**):28-36.

Shealy, A.E, Murphy, J.G ,Borsari, B.,& Correia, C.J (2007). Predictors of motivation to change alcohol use among referred college students. *Addictive Behaviours*, **32:**2358-2364.

Perkins, H.W & Berkowitz, A. (1986). Perceiving the community norms of alcohol use among students. *International Journal of the Addictions* **21,** 961-976

Raistrick D; Heather N and Godfrey C (2006) Review of the effectiveness of treatment for alcohol problems. *The National Treatment Agency for Substance Misuse.*
http://www.nta.nhs.uk/publications/documents/nta_review_of_the_effectiveness_of_treatment_for_alcohol_problems_fullreport_2006_alcohol2.pdf

Smith. S, White, J., Nelson, C., Davies, M., Lavers J. and Sheron, N. (2006) Severe alcohol-induced liver disease and the alcohol dependence syndrome. *Alcohol and Alcoholism* **41(3):**274-277

Tajfel, H. (1970) Experiments in intergroup discrimination. *Scientific American,* **223,** 96-102.

Tajfel, H. & Turner, J.C. (1986) The social identity theory of intergroup relations. In S. Worchel & W.G.Austin (Eds.) *Psychology of intergroup relations.* (pp. 7-24). Monteray, CA. Brooks/Cole

Walters,S.T, Vader, A.M, Harris, T.R. A(2007). A Controlled Trial of Web-Based Feedback for Heavy Drinking College Students. *Prevention Science,***8(1)**:83–8.

Walters ,S.T, Bennett, M.E&Miller, J.E(2000).Reducing alcohol use in college students: a controlled trial of two brief interventions. *Journal of Drug Education,***30(3):**361–72.

Werch ,C.E, Pappas, D.M, Carlson,J.M, DiClemente C.C, Chally P.S& Sinder JA(2000) .Results of a Social Norm Intervention To Prevent Binge Drinking among First-Year Residential College Students. *Journal of American College Health,***49(2):**85–92.

Wiers ,R.W, Van de Luitgaarden, J-, Van den Wildenberg, E& Smulders ,F.T(2005). Challenging implicit and explicit alcohol-related cognitions in young heavy drinkers. *Addiction,* **100**:806–819.

Wood, Mark.D, Capone, C, Laforge, R, Erickson , D.J & Brand, N.H(2007). Brief motivational intervention and alcohol expectancy challenge with heavy drinking college students: A randomized factorial study. *Addictive Behaviors,* **32(11):**2509-2528.

Young,R.Mcd,Connor,J.P,Ricciardely, L.A& Saunders,J.B(2006).The role of alcohol expectancy and drinking refusal self-efficacy beliefs in university student drinking. *Alcohol and Alcoholism,* **41(1**):70-75.