At Northumbria University : Dr Fran Longstaff is Lecturer in Coaching Science, Department of Sport, Exercise and Rehabilitation; Professor Nick Heather is Emeritus Professor of Alcohol and Other Drug Studies within the Department of Psychology; Mark Jankowski is a Graduate tutor in the Department of Sport, Exercise and Rehabilitation; Susan Allsop is a PhD student at the School of Health and Life Sciences; Dr Sarah Partington is Principal Lecturer in the Department of Sport, Exercise and Rehabilitation; Dr Elizabeth Partington is a Senior Lecturer in Sport, Exercise and Rehabilitation.
At University of the Free State, South Africa : Professor Alan St Clair Gibson is Head of Medicine.
At Durham University : Helen Wareham is a Research Postgraduate in the School of Medicine, Pharmacy and Health.
For communication, please email: fran.longstaff@northumbria.ac.uk

Fran Longstaff, Nick Heather, Mark Jankowski, Susan Allsop, Helen Wareham, Sarah Partington, Elizabeth Partington, and Alan St Clair Gibson

Readiness to change drinking behaviour among heavy-drinking university students in England

There is growing literature on possible ways of reducing alcohol consumption and alcohol-related harm among university students (Larimer and Cronce, 2002; Siegers and Carey, 2010). However, interventions with this aim might be made more effective by information on students' readiness to change their drinking behaviour (Carey et al., 2007a), where an assessment of readiness to change might influence the kind of approach that is thought most likely to be successful. For example, it has been found that readiness to change moderated the effects of a brief intervention among heavy-drinking students (either brief motivational intervention or alcohol expectancy challenge) such that high readiness to change made an expectancy challenge relatively more effective in reducing drinking (Capone and Wood, 2009). This study also reported an association between higher readiness to change and greater reductions in alcohol consumption in the overall sample, thus supporting previous findings (Fromme and Corbin, 2004; Carey et al., 2007b).

Although high readiness to change may increase the chances of successful brief intervention among heavy-drinking students, it has been found that, even among individuals referred to a university-based alcohol intervention programme, there was limited acknowledgement of a drinking problem or interest in changing behaviour (Caldwell, 2002; Vik et al., 2000). Such research has been conducted mainly in the USA and, with the exception of one study (Hosier, 2001), it is unknown whether a comparable lack of concern about heavy drinking is true of students in England. Moreover, there is limited understanding of the different factors associated with, and predictive of, readiness to change in heavy-drinking students.

The aims of this paper are therefore (i) to assess levels of readiness to change among heavy-drinking students at universities in England, (ii) to identify variables predictive of readiness to change among heavy-drinking students and (iii) to generate hypotheses that could be tested in further research.

Method

Sample

The wider aim of this study was to examine the association between university sport participation and alcohol consumption. Therefore, universities were purposively sampled to represent varied participation and success in sport, and a range of degree types and geographical locations, both by area within England and proximity to city centres. 770 students completed questionnaire batteries. However, data from only 439 students who were classified as heavy drinkers were analysed.

Procedure

Ethical approval was granted from each institution and data collection took place between March, 2008 and March, 2009 during periods of typical drinking behaviour. All participants provided informed consent and completed a questionnaire booklet either at the start or end of a lecture.

Measures

Demographic information. Students provided information on their sex, age, ethnicity, term-time accommodation status, degree course, and year of study.

Alcohol Use Disorders Identification Test (AUDIT; Saunders et al., 1993). The AUDIT is a 10-item screening tool for the detection of alcohol use disorders (World Health Organization). Scores of 8+ on the AUDIT are classified as AUDIT-positive (drinking at least hazardously and, for the purpose of this study, heavy drinking). Support for the use of the AUDIT for detecting high-risk drinking has been found (Kokotailo et al., 2004). In our data; Cronbach's alpha for the AUDIT was 0.70, indicating acceptable internal consistency.

Readiness to Change Questionnaire (RCQ; Heather et al., 1993; Rollnick et al., 1992). The RCQ is based on the Transtheoretical Model (Prochaska and DiClemente, 1986) and was developed as a 12-item tool to assess readiness to change among individuals who may be drinking excessively but who were not seeking help for an alcohol problem. It provides scores for precontemplation, contemplation and action subscales, with stage of change designated by the subscale on which the respondent scores highest. Evidence of various types of validity has been reported (Heather et al. 1993; Rollnick et al., 1992), along with the following Cronbach alpha coefficients: Precontemplation = 0.73, Contemplation = 0.80, Action = 0.85 (Heather et al., 1993).

Drinking Expectancy Questionnaire (DEQ; Young and Knight, 1989). This instrument measures both positive and negative outcome expectancies for alcohol consumption including: assertion, affective change, dependence, sexual enhancement, cognitive change, and tension reduction. Adequate Cronbach alpha coefficients have been found for all DEQ subscales (Range = 0.70 – 0.86) other than cognitive change (0.58; Young and Oei, 1996).

Statistical analysis

Variables predictive of stage of change were identified through the use of a multinomial logistic regression (MLR) with three-level stage of change (precontemplation/ contemplation/ action) as the dependent variable. Regression analysis was seen as especially relevant because associations between stage of change and predictor variables might have been due to the fact that both were independently related to AUDIT score. It was therefore necessary to extract the effects of AUDIT score in order to identify independent predictors of stage of change. The precontemplation stage was used as the reference category. Potential predictor variables were total AUDIT score and all other variables showing first-order associations with stage of change at the p < 0.1 level.

Results

Sample characteristics

Characteristics of the whole sample by stage of change are presented in Table 1 [p.23]. Significant between-group differences and associations are also highlighted (p < 0.1).

Gender (χ^2 = 11.501, df = 2, p < 0.01), age (F(2,431) = 6.742, p = 0.001), year of study (χ^2 = 12.990, df = 4, p <0.05), term-time accommodation (χ^2 = 16.754, df = 6, p < 0.05), assertion (F(2, 396) = 3.840, p < 0.05), affective change (F(2, 396) = 6.843, p = 0.001), dependence (F(2, 396) = 7.174, p = 0.001) and tension reduction (F(2, 396) = 2.516, p < 0.1) were all associated with stage of change at the 10% level and were therefore included in the MLR.

Predictors of stage of change

Assertion, affective change, dependence and tension reduction outcome expectancies and gender, term-time accommodation and age were not found to be independent predictors of stage of change. However, total AUDIT score and year of study were predictive and were included in the final regression model shown in Table 2 [p.23]. Overall, the final model significantly predicted stage of change (χ^2 = 49.171, df = 6, p <0.001), with 56.6% correct identifications. Pseudo R^2 values showed that 10.8% to 12.4% of the variance in stage of change was explained by the model. Owing to the inclusion of the continuous total AUDIT score in the MLR there were 50 (28.7%) cells with zero frequencies. As a consequence goodness of fit data are not presented (Chan, 2005).

Total AUDIT score was predictive of whether students were in the precomtemplation or contemplation stage of change (B = 0.134, Wald χ^2 (1) = 31.157, p <0.001, OR = 1.143) but not whether they were in precontemplation or action. More specifically, as total AUDIT score increased the chance of being in contemplation

Table 1: Characteristics of the whole sample and by stage of change

	Precontemplation 224 (51.9%)	Contemplation 122 (28.2%)	Action 86 (19.9%)	Total 439 (100%)
Gender[c]				
Women	138 (55.2%)	76 (30.4%)	36 (14.4%)	254 (58.0%)
Men	85 (47.0%)	46 (25.4%)	50 (27.6%)	184 (42.0%)
Age (Mean, SD)	20.1 (2.6)[a b]	21.2 (3.9)	21.4 (4.4)	20.6 (3.4)
Degree studied				
Science	55 (57.3%)	28 (29.2%)	13 (13.5%)	96 (21.9%)
Arts	69 (50.7%)	42 (30.9%)	25 (18.4%)	137 (31.2%)
Sport	100 (50.0%)	52 (26.0%)	48 (24.0%)	206 (46.9%)
Year of study[c]				
One	127 (52.5%)	65 (26.9%)	50 (20.7%)	245 (55.9%)
Two	52 (47.7%)	27 (24.8%)	30 (27.5%)	112 (25.6%)
Three	44 (55.0%)	30 (37.5%)	6 (7.5%)	81 (18.5%)
Term-time accommodation[c]				
Family	71 (59.7%)	29 (24.4%)	19 (16.0%)	122 (27.8%)
On-campus	74 (53.6%)	39 (28.3%)	25 (18.1%)	140 (31.9%)
Off-campus	72 (50.0%)	43 (29.9%)	29 (20.1%)	145 (33.0%)
Other	7 (22.6%)	11 (35.5%)	13 (41.9%)	32 (7.3%)
Ethnicity				
White	205 (53.4%)	106 (27.6%)	73 (19.0%)	389 (88.6%)
Black	6 (40.0%)	5 (33.3%)	4 (26.7%)	17 (3.9%)
Chinese	1 (33.3%)	1 (33.3%)	1 (33.3%)	3 (0.7%)
Mixed	6 (46.2%)	4 (30.8%)	3 (23.1%)	13 (3.0%)
Asian	5 (38.5%)	5 (38.5%)	3 (23.1%)	13 (3.0%)
Other	1 (25.0%)	1 (25.0%)	2 (50.0%)	4 (0.9%)
Total AUDIT score (Mean, SD)	13.2 (4.2)[b]	16.4 (6.1)[a]	14.0 (4.9)	14.2 (5.1)
DEQ (Mean, SD)				
Assertion	3.5 (0.6)	3.7 (0.6)[a]	3.5 (0.5)	3.6 (0.6)
Affective change	1.9 (0.5)[a b]	2.1 (0.6)	2.2 (0.6)	2.0 (0.6)
Dependence	2.0 (0.6)[b]	2.3 (0.6)	2.1 (0.6)	2.1 (0.6)
Sexual enhancement	3.5 (0.6)	3.5 (0.7)	3.5 (0.6)	3.5 (0.6)
Cognitive change	2.1 (0.6)	2.0 (0.6)	2.1 (0.6)	2.1 (0.6)
Tension reduction	2.8 (0.9)	3.0 (0.8)	2.7 (0.8)	2.8 (0.8)

a = significantly different to action (p<0.05), b = significantly different to contemplation (p<0.05), c = significant association with stage of change (p<0.1), NB tension reduction significantly different at <0.01 but follow up Bonferroni corrections not significant.

Table 2: Final regression model for the prediction of stage of change

		B	SE	Wald	df	Sig.	OR
Precontemplation vs. Contemplation	Intercept	-2.148	0.400	28.781	1	0.000	
	Total AUDIT score	0.134	0.024	31.157	1	0.000	1.143
	Year of study: 3	-0.6.19	0.303	4.183	1	0.041	0.539
	Year of Study: 2	-0.327	0.349	0.876	1	0.349	0.721
	Year of study: 1						
Precontemplation vs. Action	Intercept	-2.446	0.555	19.421	1	0.000	
	Total AUDIT score	0.037	0.028	1.786	1	0.181	1.038
	Year of study: 3	0.980	0.470	4.336	1	0.037	2.663
	Year of Study: 2	1.428	0.492	8.412	1	0.004	4.171
	Year of study: 1						

rather than precontemplation increased.

Year of study was found to be predictive of whether students were in precontemplation or contemplation, with those in year three more likely to be in contemplation than pre-contemplation than those in year one (B = -0.619, Wald χ^2 (1) = 4.183, p <0.05, OR = 0.539). In contrast, those in years one (B = 0.980, Wald χ^2 (1) = 4.336, p <0.05, OR = 2.663) and two (B = 1.428, Wald χ^2 (1) = 8.412, p <0.01, OR = 4.171) were more likely to be in action than precontemplation than those in their third year.

Discussion

In relation to the first aim of the study, to assess levels of readiness to change drinking behaviour in this sample, it was found that 52% of heavy-drinking students were in the precontemplation stage of change, indicating that many students whose drinking is endangering or actually harming their health and welfare fail to acknowledge that there is a problem with their alcohol consumption. This is broadly in line with previous research in the USA (Shealy et al., 2007; Vik et al., 2000). A further 28% of the sample were in the contemplation stage of change and therefore concerned to varying degrees about their drinking but only 20% of this sample were in the action stage and reported taking action to cut down drinking. Despite this overall lack of concern with the negative consequences of heavy drinking in the sample, there was an association between the seriousness of the alcohol use disorder and stage of change, such that those with higher total AUDIT scores were more likely to be in advanced stages of change. Total AUDIT score was a strong predictor of stage of change (precontemplation versus contemplation) after the effects of other variables had been accounted for in a multinomial logistic regression analysis. It should be noted, however, that the highest mean AUDIT score was found among those in the contemplation rather than the action stage of change, suggesting that some of those in action had already taken steps to reduce their level of consumption.

A second aim of the study was to identify independent predictors of stage of change. Only year of study was found to be predictive of stage of change once the effects of total AUDIT scores had been taken into account. Year of study predicted the contrast between both precontemplation and contemplation, and precontemplation and action. Those in year three were more likely to be in contemplation relative to precontemplation than those in year two. In contrast, first and second year students were more likely to be in action relative to precontemplation than third year students. It should be noted that year of study predicted stage of change independently of age. It is possible that, despite being concerned about their alcohol consumption, third year students are less likely to take action to cut down their drinking than those in earlier years because of a preoccupation with preparing for final year examinations. It is also prudent to report that third year students had lower total AUDIT scores than those in years one and two (data by request from the first author). Thus third year students may be less likely to take action to cutdown their alcohol consumption simply because they drink less than those in years one and two.

Our findings have implications for interventions aimed at changing students' alcohol consumption. The majority who are in the precontemplation stage of change may benefit most from interventions designed to raise awareness of the negative consequences of heavy drinking (Caldwell, 2002; Connors et al., 2001; Gretchen et al., 2000; Shealy et al., 2007).

While fewer heavy-drinking students in our sample were in the more advanced stages of change with regard to their alcohol consumption, those in contemplation may benefit more from motivational techniques and strategies based on motivational interviewing (Miller and Rollnick, 2002). Those already in action may benefit more from cognitive behavioural interventions aimed at changing behaviour (Conners et al., 2001; Gretchen et al., 2000). A recent overview of stage-based interventions (Heather and Hönnekopp, 2013) concluded that the 'expert system intervention' for smoking cessation (Velicer et al., 1993) was supported by robust evidence of effectiveness (eg, Prochaska et al., 2001). This intervention could be adapted for alcohol use disorders and tested among the heavy-drinking student population.

The medium in which these interventions are

delivered warrants consideration. A recent systematic review by White and colleagues (2010) suggests that online alcohol interventions might be particularly useful for groups, such as women and young people, who are less likely to go to alcohol-related services. Online interventions among students have already been evaluated, with promising results (Bewick et al., 2010; Carey et al., 2009; Hustad et al., 2010; Kypri et al., 2013). A refinement of these interventions would be the development and testing of a stage-tailored online intervention programme among heavy-drinking students.

Although this research adds to the knowledge base on readiness to change drinking behaviour among students in England, it is not without limitations. First, owing to the wider aims of the study, the sampling method used in this study was not random and so the obtained sample cannot be considered representative of the student population in England. As such, findings cannot provide a true picture of readiness to change alcohol-related behaviour in the student body in England as a whole. Secondly, although we included a measure of alcohol outcome expectancies in the study, there was no measure of efficacy expectancies, the other crucial variable for predicting movement through the stages of change (Dijkstra et al., 2006). Thirdly, although the Readiness to Change Questionnaire is widely used, it has been suggested that it may be inappropriate for younger drinkers (Carey and Hester, 2009). We propose to investigate this issue by psychometric exploration of the RCQ using data collected in this project and this will form the basis for a further communication.

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