An evaluation of an action-planning intervention to reduce the incidence of high-risk single-session alcohol consumption in high risk drinkers.

Authors:

Dr. Vered Murgraff*, Dr. Mark McDermott*, and Professor Charles Abraham.**

A project funded by the Alcohol Education and Research Council.

Grant Number: 71D M212. Amount of Grant Awarded: £40,654

Start data: 01.10.01 End date: 30.04.04

* University of East London, School of Psychology.

** Sussex University, School of Social Sciences.

Contents

List of Tables

List of Appendices

1. Summary (Abstract)

A randomised controlled trial was used to evaluate an intervention designed to promote sensible drinking amongst high risk drinkers who exceed the daily recommended alcohol units of three units per session for women and four for men on an average day. The two page written intervention targeted intention, subjective norm, attitude, and self-efficacy as specified by the Theory of Planned Beaviour (TPB) (Ajzen, 1991) and Bandura (1977), affect as specified by Janis and Mann (1977), goal priority, and, goal planning processes as specified by Gollwitzer (1993) and Schwarzer (1992).

It was hypothesised that: (1) Participants receiving the intervention will report more positive attitudes, self-efficacy, intention, anticipated regret and goal priority in relation to drinking within daily limits at post intervention follow-up, than control participants who have not received the intervention; (2) participants receiving the intervention condition will report fewer incidents of risky single session drinking (RSSD) which exceed daily limits than those in the control condition; and, (3) any differences in post intervention RSSD between intervention and control condition (as specified in hypothesis one) will be accounted for by positive changes in cognitions (as specified in hypothesis two).

Of the 347 respondents in the study, 91% reported drinking within the recommended units on weekdays and 93% reported drinking within the recommended guidelines on Sundays. In contrast, 37% engaged in RSSD on Friday, and 47.5% engaged in RSSD on Saturday. In this sample, thus, RSSD takes place primarily on Fridays and Saturdays. The intervention was evaluated in relation to RSSD on these two days. Effects were considered for three groups: those who reported RSSD on Fridays at pre- intervention (N=128); those who reported RSSD on Saturdays at pre-intervention (N=165); and those who reported RSSD on Fridays and Saturdays at pre-intervention (N=102). Cognitions and behaviour were measured at pre-intervention at a two week follow-up and at an eight week follow-up.

The results show a statistically significant difference in the incidence of RSSD at an eight week follow-up between the intervention and control groups for those who reported pre-intervention RSSD on Friday, with the intervention group reporting a statistically significant lower incidence of RSSD on Fridays at eight week follow-up. The actual reported change in drinking was modest, with drinking reduction limited to half a unit of alcohol per drinking occasion. No other post-intervention differences between the intervention and control groups were found for those who reported pre-intervention RSSD on Saturdays or for those who reported pre-intervention RSSD on Fridays and Saturdays together.

Post hoc analyses show that when the data for men and women were analysed separately, only women showed a statistically significant reduction in eight week post intervention Friday RSSD. In addition, amongst women who reported RSSD on both pre-intervention Friday and Saturday, we observed lower combined RSSD in the intervention group than in the control group at eight week follow-up. This suggests that the intervention was effective for women but not for men who engage in RSSD on both Friday and Saturday. The study findings thus show limited support for

hypothesis two. The results provided partial information as to the cognitive mechanism by which the intervention promoted a reduction in women student's risky weekend drinking. Some cognitive change in goal priority and self-efficacy at follow-up was observed for those reporting pre-intervention Friday RSSD. When this variation was incorporated as a covariate in ANCOVA, gains in self-efficacy at least partially account for a statistically significant reduction in drinking for men and women. However, the effects of the intervention remained significant, suggesting that other factors are implicated in this RSSD behaviour change.

Overall, the study shows that the brief, theory based, persuasive, action planning intervention used here, and which promotes gains in self-efficacy, has modest beneficial effects in relation to student's RSSD on Fridays but that these effects may not generalise to RSSD on Saturdays. Given that the modest beneficial effects were limited to women, the results also suggest that more intensive interventions may be required to change RSSD among male students.

2. Introduction

2.1 Risky single session drinking (RSSD) – The problem.

In the past most alcohol-related health education has focused on weekly alcohol unit totals (Health Education Authority [HEA], 1995) but recent government guidelines have highlighted the dangers of high consumption in a single drinking session, otherwise known as 'binge drinking'. (HEA, 1999). This change follows reports that harm may be associated with such RSSD, including physiological damage to the heart, liver, brain and immune system, as well as through behavioural effects such as increased risk of unwanted pregnancies, of contracting sexually transmitted diseases, being involved in road traffic accidents and in crimes against persons such as assault (HEA, 1999). Safe limits for single session drinking have now been set by the UK HEA and recommend consumption of up to three units of alcohol or less a day for women and four for men.

Unlike consistent heavy drinking, RSSD is engaged in by large numbers of people and so may contribute disproportionately to the incidence of alcohol-related problems (HEA, 1995). RSSD is especially common amongst young people and students (Harzler & Fromme, 2003: Kellner, Webster, & Chanteloup, 1996; and, Quigley & Marlatt, 1996) and has increased in the last decade (HEA, 1995; Parker, 1995). For example, in one study 50% of male students (aged 18-25 years) report consuming five or more drinks in succession, 39% of female respondents report drinking four or more drinks in a row (Wechsler, Moeykens, Davenport, Castillo, & Hansen, 1995). Cross national research suggests higher rates of RSSD in the UK than elsewhere. For example, Delk and Meilman (1996) carried out a study on 18-25 year olds both in Scotland and in the USA. RSSD, defined as 5 or more drinks in one sitting in the previous two weeks, was reported by 62% of the Scottish students and by 40% of the American students. A further 31% of the Scottish and 16.5% of the USA sample had engaged in RSSD three or four times in the previous fortnight. However, these dissimilarities also reflect the different legislative contexts in the two countries. Encouragingly, Murgraff, McDermott & Walsh (2001) report that young people in the UK have positive attitudes towards the new single-session recommended alcohol consumption limits. The challenge, then, is to translate positive attitudes into behaviour change.

2.2 How effective are interventions to promote non-hazardous single session drinking among young people?

To date, attempts to reduce RSSD are still in their infancy, especially in the UK. It is only latterly that single occasion drinking has been recognised as a legitimate target of health promotion campaigns. The acceptability of the new limits needs to be established for students and other at risk groups, thereby illuminating the attitudes and beliefs of drinkers toward these new set limits, as well as their effects on subsequent consumption. Moreover, intervention programmes promoting low risk single occasion drinking among young people - usually in colleges and universities – have had only limited success (Foxcroft, Lister-Sharp, & Lowe, 1997), especially amongst high risk groups. Typically these interventions combine social skills training with knowledge

based education. This has led authors to conclude that *'findings from the empirical literature suggest that universal prevention programmes may delay onset of drinking among low risk baseline abstainers; however, there is little evidence supporting their utility for high risk adolescents…'* (Mastersham & Kelly, 2003, p. 347). Similarly, Gorman (1996) has called for refinement of preventative programmes and identification of effective components.

Research in other areas of health promotion suggests that interventions which are effective in changing theory-specified cognitive antecedents of health behaviours (such as attitudes and intentions) are more successful than campaigns that fail to promote such cognitive antecedents (Jemmott & Jemmott, 2000). Thus, interventions which target such cognitive antecedents could be effective in limiting young people's drinking to recommended daily limits.

2.3 Modelling cognitive antecedents of health behaviour.

Social cognition models in health psychology have been used to explore the psychological antecedents of individual preventive health behaviour. The most commonly used model of the cognitive antecedents of health behaviour is the theory of planned behaviour (TPB: Ajzen, 1991; 2001). The TPB was designed to permit prediction of behaviours that present problems of volitional control (Ajzen, 1991). The theory proposes that the best predictor of behaviour is the person's intention or decision to perform it (e.g., *"I intend to drink within daily limits*"). Intentions, in turn, are determined by peoples' evaluations or attitude towards performing behaviour (e.g. *"Drinking within daily limits would be good/bad*"), by their perceptions of social pressure to perform it, that is, subjective norm (e.g. *"People who are important to me think that I should drink within daily limits"*), and by perceived behavioural control (PBC) (e.g., *"I could drink within daily limits if I wanted to"*).

Ajzen (1998) derived PBC from Bandura's (1977, 1997) concept of self-efficacy, which refers to the confidence people have about undertaking a goal successfully (e.g., `*Drinking within daily limits would be easy/difficult for me*'). At present, there is no consensus regarding the theoretical relationship between PBC and self-efficacy or their distinct operationalisations. Research has indicated that they refer to discrete sets of beliefs which have different effects on behaviour (Sparks, Guthrie, & Shepherd, 1997; Terry & O'Leary, 1995). For example, Terry (1993) argued that perceived self-efficacy refers to internal barriers such as a lack of skills while PBC reflects perceptions of internal and external factors which may interfere with performance. Other researchers such as Godin and Kok (1996) have regarded the two constructs as synonymous. There is a substantial body of evidence showing that self-efficacy is an important predictor of health behaviours, both in relation to intention formation and the translation of intentions into behaviour, for example, by prompting detailed plans for change (Schwarzer, 1992). Such evidence in relation to health behaviour generally and RSSD specifically (Murgraff, McDermott & Walsh, 2003) formed the basis of our decision to focus on self-efficacy, rather than PBC.

Goal achievement may depend not only on self regulatory processes such as self-efficacy but also on the importance that is attached to the achievement of the goal. For example, Orbell, Johnston, Rowley, Davey, & Espley (2001) reported that goal

importance predicted physical disability in people following hospitalisation. Consequently, the measurement of goal priority is a much needed feature of studies in this area.

Despite impressive correlational support from the TPB (Armitage & Conner, 2001) only a small number of studies have tested it in terms of evaluations of TPB-based interventions designed to change behaviour. These small number of studies reported significant effects of the TBP based intervention on subsequent behaviour with reported effect sizes varying between small to medium (Hardeman, Johnston, Johnston, Bonetti, Wareham, & Kinmonth, 2002). Kelley and Abraham (2004), for example, who tested a TPB based intervention reported medium effect sizes of the intervention condition on subsequent healthy eating and increased physical activity. Consequently, further studies that target the cognitive antecedents of behaviour specified by the TPB and examine the relationship between changes in these cognitions and subsequent changes in behaviour are warranted.

Ajzen (1991) has noted that the TPB could be extended if further constructs are found to enhance the prediction of intention or behaviour. Other theorists have proposed that emotional experiences following a decision can influence motivation by changing the subjective utilities of potential outcomes (Janis & Mann, 1977). Loomes and Sugden (1982) for example, highlighted the effects of experiencing regret as a result of perceived discrepancies between "what is" and "what might have been". Consequently, the impact of anticipated affect on decision-making may be underestimated by the model of attitudes included in the TPB (van der Pligt, Zeelenberg, van Dijk, de Vries & Richard, 1998). Drawing upon the work of Janis and Mann, (1977), Richard, van der Pligt & de Vries (1995, 1996) and Richard, de Vries and van der Pligt (1998) have investigated the extent to which measures of anticipated affect, and in particular anticipated regret (AR) enhance the level of prediction achieved by the TPB. Richard et al. (1996) showed that AR explained additional variance in expectations regarding eating junk food, using soft drugs, and drinking alcohol. Consequently, it seems plausible that AR might also influence decisions regarding drinking within recommended daily limits.

Intention is a powerful cognitive determinant of behaviour. Sheeran (2002), for example, found that, across six studies of preventive health behaviours, the median percentage of non-intenders who actually undertook the target behaviour was 7%. However, intention is not a sufficient prerequisite for action to occur, since Sheeran (2002) also found that the median percentage of intenders who did not act was 47%. Goal theory (Austin & Vancouver, 1996) may help to clarify cognitive processes that account for this "gap" between intention and behaviour (Sheeran & Abraham, 2003). For example, goal theorists agree that many goals entail sequences of hierarchically organised actions so that envisaging and planning actions may be necessary to the translation of intentions into action (Bagozzi & Edwards, 1998: Gollwitzer & Brandstatter, 1997). Gollwitzer (1993) has proposed that planning when and where to undertake goal-related actions, referred to as 'implementation intentions', leads to automatic elicitation of the planned actions in the specified environment. This model of 'implementation intention' formation provides a convincing account of how action planning and rehearsal affect behaviour regulation.

Paper-and-pencil interventions designed to prompt such implementation intention formation have been found to be effective in laboratory settings (Gollwitzer, 1993) and in the promotion of a number of health behaviours, such as breast self examination (Orbell, Hodgkins, & Sheeran, 1997), taking vitamin C (Sheeran & Orbell, 1997), and exercise behaviour (Milne, Orbell & Sheeran 2002). These studies show that participants who form implementation intentions by specifying when and where they will enact their intentions to change their behaviour will be more likely to act on their intentions than those who do not form such detailed plans. A recent meta-analysis (Sheeran & Gollwitzer, 2002) found that out of ten implementation intention interventions, nine produced significant increases in the target behaviour. A medium effect size was observed, suggesting that these interventions could have an important population impact, if widely applied. Their combined efficacy and ease-of-use underlines their potential to enhance health promotion practice.

Few studies have applied these techniques to alcohol consumption but available evidence suggests that action planning interventions can be effective in reducing RSSD amongst moderate drinkers. For example, Murgraff, White and Phillips (1996) found that moderate drinkers who only 'occasionally' engage in RSSD who were asked to plan where and when to implement a desired drinking reduction reported fewer high-risk drinking sessions (defined as 6 units or more).

In addition to these cognitive antecedents, Booth-Kewley and Vickers (1994) suggest that personality traits may partially determine the extent to which people engage in general clusters of health-related behaviours, such as substance use. Research has highlighted the potential role of conscientiousness and rebelliousness in relation to alcohol and other health behaviours. For example, Friedman, Tucker, Tomlinson-Keasey, Schwartz, Wingard, and Criqui (1993) found that childhood conscientiousness predicted longevity whilst, in a later study, this was found to be partly accounted for by the effect of conscientiousness on smoking and alcohol use (Friedman, Tucker, Schwartz, Martin, Tomlinson-Keasey, Wingard, & Criqui, 1995). Similarly, Ellickson, Tucker, Klein and McGuigan (2001) showed that rebelliousness significantly predicted alcohol misuse in young people. Rebelliousness was also found to have an effect on other paradoxical health behaviour such as smoking with intervention studies showing that rebelliousness mediated the effects of anti-tobacco advertisements on intention to quit smoking after watching realistic fear ads (Lee & Furguson, 2002). Proactive rebelliousness (a state in which the feeling is one of wanting to oppose a perceived requirement in order to obtain fun and excitement) was found to play a significant role in smoking cessation, with smoking relapse being greater in respondents who were in such a state (O'Connell, Cook, Gerkovich, Potocky, & Swan, 1990). This suggests that a readiness to rebel represents a form of psychological vulnerability in so far as smoking relapse is concerned. Thus, while the TPB proposes that personality traits have their effect on behaviour through intention, it seems prudent to consider these personality traits as potential antecedents of alcohol use. A number of researchers have suggested that explanatory models would benefit from combining personality and cognition models (Burmúdez, 1999: Conner & Abraham, 2001).

2.4 The current study

Given what has been found from the preceding review of relevant literature, the current study undertaken and reported here involved the development of a low cost, leaflet-like intervention to promote drinking within proscribed daily limits for university students. The intervention was designed to inform readers of recommended daily limits. This is important because knowledge of the new daily limits is poor (Murgraff, Parrott, & Bennett, 1999: Walsh, Bondy, & Rehm, 1998) and knowledge that a particular behaviour promote or risk health is prerequisite to health behaviour change (Weinstein, 1988). In addition, in accordance with recent research, the intervention used persuasive arguments targeting the most proximal cognitive antecedents of action specified by the TPB (Ajzen, 1991: Bandura, 1997) as well as encouraging respondents to focus on the regret they might experience if they did not change their behaviour (Richard et al, 1995). The intervention also promoted readers to make a decision (i.e., formulate an intention) and implement this decision by specifying when and where they would initiate a change in their drinking behaviour (i.e. formulate an implementation intention, as after Gollwitzer, 1993).

Measures of conscientiousness (Benet-Martinez & John, 1998) and proactive rebelliousness, as taken from McDermott & Apter's (1985) rebelliousness questionnaire, were included in this study. These personality traits were not, however, change targets for the intervention but included to establish whether any observed behaviour change could be attributed to personality differences. Also, importantly, goal priority was measured alongside other predictor variables as indicated to be relevant by previous literature.

This intervention evaluated this using a randomised control trial (RCT) and testing the following hypotheses:

(1) Participants receiving the intervention will report more positive attitudes, self-efficacy, intentions, anticipated regret and goal priority in relation to drinking within daily limits at post-intervention follow-up, than control participants (who have not received the intervention);

(2) Participants receiving the intervention condition will report fewer incidents of RSSD which exceed daily limits than those in the control condition; and,

(3) Any differences in post-intervention RSSD between intervention and control conditions (as specified by hypothesis two) will be accounted for by positive changes in cognitions (as specified by hypothesis one).

3. Method

3.1 Design & Procedure

3.1.1. Pilot study.

Following ethical approval from the University of East London ethics committee and that of the Department of Social Psychology at Sussex University, a pilot questionnaire was conducted to develop appropriate TPB and 'additional' measures for RSSD. The pilot study tested 65 items corresponding to those in previous TPB studies (such as that of Conner & Norman, 1996) and used a sample of 30 students (15 men and 15 women). The data from the pilot study were used to identify and eliminate or modify questionnaire items prior to development of study measures.

3.1.2. Randomised Controlled trial.

The subsequent randomised controlled trial compared the impact of an action planning intervention with that of a no-intervention control condition on self-reported risky single-occasion drinking and cognitive correlates thereof. Data collection took part on three occasions: at pre-intervention (a questionnaire which was administered to both the control and intervention groups immediately prior to the presentation of the intervention); two weeks after administration of the intervention; and, eight weeks after administration of the intervention.

The pre-intervention questionnaire asked respondents in both the control and experimental groups about previous alcohol consumption and measured cognitions and personality traits. The intervention group then was presented with the intervention, including written information relating to RSSD and prompts to form concrete plans for change (see *'the intervention'* section below). Follow-up questionnaires administered at two and eight weeks later asked respondents to provide information about their alcohol consumption during the intervening periods and a range of cognitions (see Appendices one and two for copies of the pre and post intervention female questionnaires and Appendices three and four for copies of the pre and post intervention male questionnaires).

After listening to a brief description of the aims of the study and given time to withdraw, university students in lectures were asked to complete the pre-intervention questionnaire, and (for those randomised to the intervention condition) the intervention. Intervention and control questionnaires were distributed according to a random number sequence. Students were asked to record a personal code on questionnaires, ensuring data collection was anonymous while allowing matching of pre- and post intervention questionnaires.

3.1.3 Participants

The pre-intervention questionnaire was distributed to 1,100 individuals. 481 non-drinkers declined to participate, leaving 619 respondents who completed the pre-intervention questionnaire. Of these 619, only 366 completed both of the post intervention questionnaires (at week two and week eight). Attrition was largely due to students being absent at follow-up data collection sessions. Subsequent analyses were conducted on the longitudinal sample of 366 respondents consisting of 102 males and 262 females. The mean age of this sample was 26.43 years (SD=7.73), with a range of 18 to 52 years**.**

3.1.4 The intervention

The intervention consisted of two sides of A4 containing persuasive messages targeting cognitions which previous research had suggested would enhance motivation and action planning. This experimental intervention provides a prototype for a leaflet encouraging young people to drink within daily guidelines (see Appendix five).

The intervention group received a double sided A4 sheet with the follow heading: *'Did you know that even moderate levels of alcohol consumption can damage your health?'* (see Appendix five for a copy of the intervention). This was followed by written information about the current recommended safer limits for single occasion drinking for men and women. Readers were informed that *'...these guidelines are based on evidence showing that drinking more than these daily amounts can permanently damage your health. Keeping to these recommended levels allows you to enjoy light drinking (one to two units per session) while avoiding the health risks that follow from higher consumption'.*

The text then targeted antecedents of intention. First, normative beliefs were addressed by asserting that drinking in accordance to daily recommendations is an accepted form of behaviour amongst their peers. *"...many people are now cutting down on their consumption. A third of all students do not drink at all or drink within the recommended limits."* In order to engender positive attitudes towards drinking within daily limits this was followed by a listing of the advantages of drinking within these set limits ('*More money for other things; fewer headaches and hangovers; being able to get up in the morning feeling refreshed and energetic; sounder sleep; lower blood pressure; less risk of liver disease; less risk of road accidents').* Next, targeting anticipated regret, respondents were encouraged to *'consider how you'll feel in the future if you do damage your health by exceeding the recommended daily limits. You may regret damaging your health later if you exceed these limits now'.* The text also attempted to boost reader's self-efficacy, noting the ease with which alcohol intake could be reduced by drinking just a little less every day: *"It would be easy for you to reduce your daily alcohol intake. Just drink a little less every day and soon you'll be enjoying drinking without the risk of harm to yourself".*

The intervention then focused on post-motivational or volitional processes, encouraging readers to stop and think about exceeding the newly recommended units and to reduce their alcohol intake by enhancing their self-efficacy to reduce their

consumption and to make plans for change. Six possible strategies for reducing alcohol consumption were provided: *stock up at home on soft drinks and alcohol free drinks; tell other people that you are cutting down so that they avoid putting pressure on you; keep a diary of how much you drink; do not let anyone pressure you into having another drink; have clear reasons for refusing a drink such as 'no thanks, I have had enough', or 'I have a lot on tomorrow'; and, when you are in a round choose alcohol free drinks.* Finally, to prompt formation of implementation intentions readers were reassured that *'it does not take much effort to reduce your consumption. What you can do is: make concrete plans to reduce your drinking'.* This was followed by the presentation of items targeted to elicit implementation intentions:

(a) 'If you want to reduce your drinking, when will you start to reduce your alcohol intake?' ...'this week', `next week', 'in three week's time', ` in 4 week's time', `in 5 to 8 week's time'. Then respondents were asked, *'And, on what day will you start?',* a list of possible days being provided *(i.e. Monday, Tuesday, Wednesday and so on).*

(b) 'If you want to reduce your drinking, where do you intend to start reducing it?' Respondents were asked to tick one of the following options: *'home'* ; *'pub'* ; *'club'* ; *'bar'* ; *'restaurant'* ; *'party'* ; *'friend's house'* ; *'relative's house'* ; *'other place' (please specify).*

3.1.5 Measures

All items were formulated in a Likert scale format in which statements were followed by a seven point response scale anchored at opposing ends by "strongly agree" and "strongly disagree". Items were designed to measure each of the cognitions specified by the TPB as follows: behavioural intentions - five items; drinking reduction intentions - five items; control belief items - five items; attitude towards LRSOD - five items; subjective norm - five items; perceived behavioural control - five items; and behavioural beliefs - five items). Items were also designed to measure 'additional variables' as follows: goal priority - five items; LRSOD action-specific self-efficacy - five items; regret - five items; behavioural willingness in relation to drinking dangerously - five items; behavioural willingness in relation to LRSOD - five items; drinking reduction self-efficacy - five items; and action-specific self-efficacy - five items; The internal consistency of these measures was assessed using Cronbach's Alpha (α) and subsequently reduced to a forty item questionnaire for use in the longitudinal study. For each scale, items with the lowest item-total correlations were excluded sequentially in order to maximise the magnitude of Alpha. This process resulted in: a three item behavioural intentions scale (α = .82) ; a three item drinking reduction intentions scale (α = .74); a three item control belief items scale (α = .74); a three item attitude towards LRSOD scale (α = .74); a three item subjective norm scale (α = .64); a three item perceived behavioural control scale (α =.77); a three item behavioural beliefs scale (α = .66); a three item regret scale (α = .85); a three item behavioural willingness in relation to drinking dangerously scale (α = .84); a three item behavioural willingness in relation to LRSOD scale (α = .89); a three item drinking reduction self-efficacy scale (α =.43); a three item action-specific self-efficacy scale (α =.82) ; a three item goal priority (general) scale (α =.60); and, a one item goal priority (drink) measure. For the purpose of this study, only a selection of these 40 items were included in further analyses. Specifically, measures of PBC,

control beliefs, behavioural beliefs and behavioural willingness were omitted from any further analyses leaving twenty five items. PBC items were omitted because they were replaced with self-efficacy measures (as explained in the Introduction) and because the Alpha for this scale was low. Control beliefs and behavioural beliefs scales were omitted because of low alpha coefficients. Behavioural willingness items were was omitted in order to reduce the number of questions at follow-up where only those for intentions were included. It was possible to delete these items since they were not necessary for testing of the study aims.

Table 1 provides a listing of measures, illustrative items, response options, and number of items. Cronbach's Alpha coefficients, scale means and standard deviations for the sample of 366 respondents who completed questionnaires at all three data collection points are also shown therein.

Table 1: A listing of measures, illustrative items, response options, number of items, alpha coefficients, means and SD's for the longitudinal For the longitudinal sample of 366 respondents.

Measure	Illustrative Item	Response Options	No. of items	Alpha	Mean	SD
TPB variables:						
Attitude	*For you personally drinking no more than 3 units[1] of alcohol a day would be…*	*Unpleasant-Pleasant*[2]	2	.60	4.83[3]	1.35
Intention	*I intend to drink no more than 3 units of alcohol a day during the next two weeks*	*Strongly disagree-Strongly agree*	2	.59	4.08	1.81
Subjective norm	*Most of my friends with whom I go out think that I should drink no more than 3 units of alcohol a day during the next two weeks*	*Strongly disagree-Strongly agree*	2	.56	2.83	1.98
Additional cognitive variables:						
Reduction in intention	*It is likely that I will reduce he amount of alcohol I drink in the next two weeks*	*Strongly disagree-Strongly agree*	2	.63	2.98	1.53

[1] The illustrated example items presented in this table are taken from the female questionnaires where LRSSD was defined as dinking no more than 3 units of alcohol per session. In the males' questionnaires, LRSSD was defined as drinking no more than 4 units per session.
[2] Scores were changed so that across all measures higher scores reflect more positive attitude towards LRSSD.
[3] Mean scores for males and females combined and across all items in each subscale are reported across all measures.

Self-efficacy (drinking reduction)	*For me during the next two weeks reducing my regular alcohol consumption when out with a group of friends for an evening would be quite difficult*	*Strongly agree-Strongly disagree*	3	.68	5.10	1.49
Self-efficacy (action-specific)	*For me during the next two weeks refusing an offer of a drink once I have drunk 4 units of alcohol during an evening would be*	*Extremely difficult—Extremely easy*	3	.68	5.10	1.49
Goal priority (general)	*How important is it to you to loose you inhibitions when you are with friends during the next two weeks?*	*Extremely important-Extremely unimportant*	3	.66	4.33	1.42
Goal priority (drink)	*How important is it to you to drink no more than 3 units of alcohol a day during the next two weeks?*	*Extremely important-Extremely unimportant*	1	n/a	3.43	2.09
Regret	*If I were to drink more than3 units of alcohol on any day during the next two weeks I would feel upset*	*Strongly agree-Strongly disagree*	3	.76	2.59	1.55

Personality variables:						
Rebelliousness	*When you are told that you are breaking a rule (for example, no smoking) is your first reaction to*	*(a) stop breaking the rule any further,* *or,* *(b) go a head and still break the rule,* *or,* *(c) not sure*	7	.66	.48	.44
Conscientiousness	*I see myself as someone who does a thorough job*	*Strongly disagree-Strongly agree*	9	.77	3.80	.63

Demographics. Age, sex, partner status, ethnic origin, father's and mother's occupation were recorded.

TPB measures. Measures of attitude, subjective norms, and intention were included as well as measures of self-efficacy and action-specific self-efficacy.

Additional cognitions. Measures of reduction in behavioural intentions, behavioural drinking reduction self-efficacy, action-specific self-efficacy, goal priority (general), goal priority (drinking), and regret were included.

Personality. A standard measure of *Conscientiousness* as defined within the five factor model of personality was employed (Benet-Martinez & John, 1998). Proactive rebelliousness was measured using a subscale from McDermott and Apter's (1985) `Rebelliousness Questionnaire', which is labelled in administration the *Social Reactivity Scale* to minimise social desirability response bias. This measure has been shown to be a replicable factor, to have good internal reliability and construct validity (McDermott 1988: McDermott, 1987; and, Robinson, Weaver, & Zillman, 1996).

All questionnaires began by defining a unit of alcohol and providing a table converting measures of alcoholic drinks into units of alcohol, specifically, the following measures contain one unit of alcohol:

* half a pint of ordinary strength lager/beer/cider=1 unit
* a single 25ml pub measure of spirit=1 unit
* a small glass of wine = 1 unit
* a pub measure of fortified wine (e.g. sherry, martini)= 1 unit

Alcohol consumption. At pre-intervention, respondents were asked to record the average number of units consumed last month on Fridays, Saturdays, Sundays, and the average week day. These were categorised: (a) drinking below the maximum recommended units (i.e. drinking less than three units per occasion for women and less than four for men); (b) drinking at the recommended limits (i.e. three units per drinking for women and four units for men); or, (c) drinking above the recommended limits (drinking above three units per occasion for women and above four units for men). This third category was the criterion used to identify those who engaged in risky single occasion drinking (RSSD).

Post intervention questionnaires focused on "the last two weeks", rather than "last month" i.e., respondents were asked *"estimate the average number of units consumed in the last two weeks on an average (i) Friday, (ii) Saturday, (iii) Sunday, and (iv) week day"*.

4. RESULTS

4.1 Data reduction: removal of heavy drinkers

The aim of this study was to evaluate an intervention designed to reduce RSSD amongst moderate drinkers. Consequently, prior to analyses, respondents who reported consuming 60 units a week or more were removed from the data set. Of the 366 participants 19 (5%) were removed. This heavy drinking sub-sample had a mean age of 25 years and included 10 females and 9 males. The mean age of the remaining 347 respondents was 26.5 years, with data from 254 females and 93 males being retained for further statistical analyses.

4.2 Extent of RSSD and data reduction

Table 2 shows the number of participants (out of the remaining 347) who reported engaging in RSSD on any of Friday, Saturday, Sunday, or an average weekday. Any participant could, theoretically, be engaged in no RSSD, RSSD on one day or RSSD on multiple days, including all four daily categories. Thirty-four participants (i.e., 9.8% of 347) reported RSSD on an average week day, and 23 (6.6%) on Sunday. By contrast, 128 (37%) engaged in RSSD on Friday and 165 (47.5%) on Saturday. In addition 102 (29%) reported RSSD on both Friday and Saturday.

These data clarify that, for this sample, RSSD takes place primarily on Fridays and Saturdays with most occurring on Saturday night. 91% report drinking within recommended limits on weekdays and 93% report drinking within them on Sundays. The power of the trial would be greatly reduced if the intervention had been evaluated in relation to RSSD on days other than Fridays and Saturdays. Consequently, the intervention was evaluated only in relation to its capacity to reduce RSSD on Friday and Saturday. Thus, effects were considered for three groups: (i) those who reported RSSD on Fridays at pre-intervention; (ii) those who reported RSSD on Saturdays at pre-intervention: and, (iii) those who reported RSSD on Fridays and Saturdays (thus being the riskiest group).

Table 2: Number of participants who engaged in RSSD on week days and weekend days.

	Friday		*Saturday*		*Sunday*		*Week day*		*Friday & Saturday*	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Control	17	35	24	52	3	8	4	14	15	28
Intervention	19	57	24	65	5	7	3	13	16	43
Total	**128**		**165**		**23**		**34**		**102**	

4.3 Randomization checks

Intervention and control groups were compared at pre-intervention to assess the success of randomisation in controlling for potentially confounding differences at baseline.

A MANOVA was conducted for each one of the three sample groups. These showed no significant differences between the intervention and control groups for RSSD Friday drinkers ($F(1/127) = 1.73$, $p>.08$), Saturday drinkers ($F(1/163)=.99$, $p>.45$) or for those who reported RSSD on both Friday and Saturday ($F(1/100)=1.30$, $p>.24$). Univariate comparisons revealed that the Friday group were not matched in relation to RSSD. The control group reported significantly more RSSD on Fridays than the intervention group ($F(1/127) = 4.46$, $p<.05$) before receiving the intervention. Amongst those reporting RSSD on Saturday alone and Friday-and-Saturday significant differences was found on attitudes towards RSSD with the control group reporting more positive attitudes to RSSD (Saturday, $F(1/163) = 6.90$, $p<.05$; Friday-and-Saturday, $F(1,100) = 7.09$, $p<.05$).

4.4 Intervention Evaluation.

4.4.1 Whole sample evaluation

ANCOVAs were conducted to compare follow-up scores controlling for pre-intervention scores for each of the three RSSD samples. It can be seen from Table 3 that, for those reporting Friday RSSD, controlling for pre-intervention scores[4], the intervention group had significantly higher self-efficacy ($F(1,127) = 3.90$, $p=.05$) and goal priority for drinking within recommended daily limits ($F(1,127) = 3.88$, $p=.05$) at eight (but not two) weeks follow-up. The intervention group also reported less RSSD at eight weeks follow-up ($F(1,127) =3.99$, $p=.048$)[5].

Table 4 shows that for those reporting Saturday RSSD, controlling for pre-intervention scores the intervention group had significantly higher goal priority for drinking within recommended daily limits ($F(1,164) = 4.10$, $p=.044$) at eight (but not two) weeks follow-up. However, no other, significant differences were observed for this group.

[4] Pre-intervention means for behaviour measures are entered in alcohol units, whereas the post intervention means for behaviour were calculated from the recoded behaviour measures (i.e. 1 , 2, 3 indicating drinking under the recommended levels, drinking at the maximum recommended levels, and drinking more than the recommended levels respectively) as the recoded pre-intervention measures were used to define the sample groups.

[5] note that although the groups were not matched on pre-intervention Friday drinking as indicated in the above section, past behaviour was used as a covariate thus controlling for the pre-intervention differences between the two groups.

Table 5 shows that for those reporting Friday and Saturday RSSD, controlling for pre-intervention scores, the intervention group had significantly more positive attitudes towards the recommended newly limits ($F(1,101)=5.36$, $p=.023$) at two weeks (but not at eight weeks) and significantly higher goal priority for drinking within recommended daily limits ($F(1,101) = 4.79$, $p=.03$) at two week but not at eight weeks. However, no other significant differences were observed for this group.

Table 3: Single occasion drinking: pre-intervention and follow-up means of male and female participants who reported RSSD on pre-intervention Friday.

Measure	Mean (SD) Intervention (N = 76)	Control (N = 52)	F Pre-intervention	Ancova
Attitude				
Pre-intervention	4.39 (1.16)	4.79 (1.20)	3.6	
Post intervention (week 2)	4.52 (1.20)	4.36 (1.02)		3.77
Post intervention (week 8)	4.47 (1.22)	4.43 (1.04)		1.22
Behavioural intentions				
Pre-intervention	3.57 (1.71)	3.56 (1.38)	.00	
Post intervention (week 2)	3.73 (1.74)	3.26 (1.51)		2.93
Post intervention (week 8)	3.39 (1.62)	3.06 (1.41)		1.60
Reducing intentions				
Pre-intervention	3.00 (1.27)	2.96 (1.52)	.02	
Post intervention (week 2)	3.07 (1.52)	2.65 (1.27)		2.63
Post intervention (week 8)	2.73 (1.36)	2.69 (1.39)		.01
Goal priority (general)				
Pre-intervention	3.07 (1.72)	4.01 (1.42)	1.13	
Post intervention (week 2)	4.50 (1.52)	4.15 (1.34)		.86
Post intervention (week 8)	4.67 (1.55)	4.08 (1.36)		3.88*
Goal priority (drink)				
Pre-intervention	2.93 (1.80)	3.07 (1.72)	.20	
Post intervention (week 2)	3.14 (1.99)	2.58 (1.61)		3.44
Post intervention (week 8)	3.18 (1.92	3.00 (1.95)		.40

Self-efficacy (reduction)				
Pre-intervention	5.10 (1.50)	5.06 (1.38)	.02	
Post intervention (week 2)	5.12 (1.47)	5.23 (1.19)		.36
Post intervention (week 8)	5.18 (1.53)	5.20 (1.25)		.03
Self-efficacy (action)				
Pre-intervention	4.45 (1.53)	4.72 (1.44)	1.01	
Post intervention (week 2)	4.77 (1.45)	4.58 (1.45)		2.14
Post intervention (week 8)	4.75 (1.56)	4.42 (1.61)		3.90*
Regret				
Pre-intervention	2.14 (1.22)	2.42 (1.23)	1.50	
Post intervention (week 2)	2.22 (1.43)	2.18 (1.13)		1.41
Post intervention (week 8)	1.95 (1.17)	2.22 (1.33)		.68
Single occasion drinking (Friday)				
Pre-intervention	6.75 (3.32)	8.06 (3.56)	4.46*	
Post intervention (week 2)	2.14 (.92)	2.27 (.88)		.58
Post intervention (week 8)	2.05 (.89)	2.44 (.85)		3.99*

* P< .05

Table 4: Single occasion drinking: pre-intervention and follow-up means of female and male participants who reported RSSD on pre-intervention Saturday.

Measure	Mean (SD) Intervention (N = 89)	Control (N = 76)	F Pre-intervention	Ancova
Attitude				
Pre-intervention	4.38 (1.16)	4.87 (1.24)	6.90**	
Post intervention (week 2)	4.50 (1.29)	4.42 1.17)		2.58
Post intervention (week 8)	4.50 (1.13)	4.34 (1.27)		2.34
Behavioural intentions				
Pre-intervention	3.49 (1.65)	3.72 (1.52)	.85	
Post intervention (week 2)	3.53 (1.69)	3.48 (1.58)		.40
Post intervention (week 8)	3.37 (1.66)	3.33 (1.35)		.34
Reducing intentions				
Pre-intervention	3.09 (1.38)	3.21 (1.59)	.25	
Post intervention (week 2)	3.06 (1.59)	2.87 (1.52)		1.09
Post intervention (week 8)	2.88 (1.55)	3.03 (1.68)		.17
Goal priority (general)				
Pre-intervention	4.30 (1.28)	4.26 (1.39)	.04	
Post intervention (week 2)	4.61 (1.53)	4.28 (1.41)		2.39
Post intervention (week 8)	4.68 (1.52)	4.24 (1.55)		4.10*
Goal priority (drink)				
Pre-intervention	2.92 (1.88)	3.30 (1.89)	1.68	
Post intervention (week 2)	3.15 (1.96)	2.80 (1.80)		2.82
Post intervention (week 8)	3.17 (1.95)	3.13 (1.97)		.26

Self-efficacy (reduction)				
Pre-intervention	4.98 (1.43)	5.31 (1.39)	2.18	
Post intervention (week 2)	4.98 (1.53)	5.30 (1.23)		.65
Post intervention (week 8)	4.99 (1.57)	5.17 (1.41)		.01
Self-efficacy (action)				
Pre-intervention	4.38 (1.58)	4.68 (1.47)	1.55	
Post intervention (week 2)	4.62 (1.61)	4.56 (1.52)		1.33
Post intervention (week 8)	4.72 (1.55)	4.47 (1.65)		4.39
Regret				
Pre-intervention	2.25 (1.26)	2.39 (1.36)	.44	
Post intervention (week 2)	2.40 (1.52)	2.44 (1.40)		.03
Post intervention (week 8)	2.17 (1.31)	2.58 (1.59)		2.96
Single occasion drinking (Saturday)				
Pre-intervention	6.90 (3.05)	7.13 (2.96)	.24	
Post intervention (week 2)	2.13 (.92)	2.25 (.92)		.64
Post intervention (week 8)	2.18 (.92)	2.26 (.94)		.10

* P< .05
** P<.01

Table 5: Single occasion drinking: pre-intervention and follow-up means of female and male participants who reported RSSD on pre-intervention Friday and Saturday.

Measure	Mean (SD) Intervention (N = 59)	Control (N = 43)	F Pre-intervention	Ancova
Attitude				
Pre-intervention	4.31 (1.09)	4.91 (1.18)	7.09**	
Post intervention (week 2)	4.56 (1.14)	4.38 (1.02)		5.36*
Post intervention (week 8)	4.46 (1.14)	4.38 (106)		2.86
Behavioural intentions				
Pre-intervention	3.47 (1.68)	3.56 (1.46)	.06	
Post intervention (week 2)	3.63 (1.72)	3.24 (1.58)		1.83
Post intervention (week 8)	3.38 (1.61)	3.09 (1.39)		1.35
Reducing intentions				
Pre-intervention	2.86 (1.15)	3.09 (1.57)	.72	
Post intervention (week 2)	2.97 (1.56)	2.64 (1.35)		1.87
Post intervention (week 8)	2.77 (1.39)	2.67 (1.46)		.35
Goal priority (general)				
Pre-intervention	4.22 (1.30)	4.12 (1.32)	.13	
Post intervention (week 2)	4.52 (1.55)	4.21 (1.30)		1.01
Post intervention (week 8)	4.59 (1.55)	4.12 (1.28)		2.59
Goal priority (drink)				
Pre-intervention	2.68 (1.66)	3.12 (1.81)	1.59	
Post intervention (week 2)	3.27 (2.03)	2.58 (1.56)		4.79*
Post intervention (week 8)	3.30 (1.96)	3.05 (1.99)		.91

Self-efficacy (reduction)				
Pre-intervention	4.98 (1.48)	4.84 (1.36)	.24	
Post intervention (week 2)	4.98 (1.50)	5.06 (1.21)		.31
Post intervention (week 8)	4.97 (1.57)	5.03 (1.25)		.21
Self-efficacy (action)				
Pre-intervention	4.30 (1.60)	4.45 (1.37)	.24	
Post intervention (week 2)	4.65 (1.55)	4.39 (1.45)		1.67
Post intervention (week 8)	4.63 (1.59)	4.27 (1.61)		2.53
Regret				
Pre-intervention	2.10 (1.28)	2.48 (1.27)	2.18	
Post intervention (week 2)	2.27 (1.51)	2.25 (1.14)		.67
Post intervention (week 8)	2.06 (1.24)	2.30 (1.40)		.13
Single occasion drinking (Friday)				
Pre-intervention	7.04 (3.44)	7.91 (3.30)	1.62	
Post intervention (week 2)	2.13 (.92)	2.34 (.84)		1.43
Post intervention (week 8)	2.12 (.91)	2.58 (.76)		6.09
Single occasion drinking (Saturday)				
Pre-intervention	7.26 (3.36)	7.80 (2.74)	.75	
Post intervention (week 2)	2.27 (.89)	2.37 (.90)		.32
Post intervention (week 8)	2.17 (.92)	2.50 (.80)		3.55

* P< .05
** P<.01

4.4.2 Do cognition differences account for observed differences in RSSD?

To test hypothesis 3, cognition measures that revealed significant differences at follow-up (indicating change) were included in ANCOVAs testing RSSD (i.e., behaviour) change. If the observed behaviour change is rendered-non significant by the addition of changes in cognition, this suggests that cognition change may mediate the observed behaviour change. Thus, the ANCOVA for eight week follow-up of RSSD for the Friday group was re-run with follow-up self-efficacy and goal priority scores included a covariates (as well as pre-intervention RSSD). Only self-efficacy emerged as a significant covariate, ($F(1/127)=10.35$, $p<.01$). However, condition (intervention versus control) remained significant, ($F(1/127)=8.19$, $p<.01$). Thus, the effect of the intervention on Friday RSSD is only partially mediated by the effect on self-efficacy, suggesting that changes in self-efficacy do not fully capture the impact of the intervention on drinking.

4.4.3 Post Hoc Analyses: Gender Effects

The trial was not designed to test for any differential (or moderating) effect of gender on the effectiveness of the intervention. Nonetheless, it remains possible that the intervention may have worked more, or less, effectively for men or women. To test this, the analyses reported above were re-run for men and women, that is: Friday RSSD, men and women; Saturday RSSD, men and women; and, Friday and Saturday RSSD, men and women. These analyses are presented in Tables 6-11.

Table 6 shows that for women reporting RSSD on Friday, controlling for pre-intervention scores, the intervention group had significantly stronger attitudes towards drinking within daily guidelines than the control group ($F(1,91) = 8.08$, $p=.006$) and goal priority for drinking within recommended daily limits ($F(1/91) = 6.49$, $p=.013$) at two (but not eight) weeks follow-up. Women in the intervention group also reported less RSSD at eight weeks follow-up ($F(1,91) = 5.61$, $p=.02$). By contrast, the only effect for men reporting RSSD on Fridays (Table 7) was that at eight (but not two) week follow-up those in the intervention reported greater self-efficacy in relation to drinking within recommended daily guidelines. However, this did not translate into differences in RSSD on Fridays.

Table 10 shows that for women reporting RSSD on Friday and Saturday, controlling for pre-intervention scores, the intervention group had significantly stronger attitudes towards drinking within daily guidelines than the control group ($F(1,70) = 6.83$, $p=.01$) and goal priority for drinking within recommended daily limits ($F(1,70) = 5.73$, $p=.01$) at two (but not eight) weeks follow-up. Women in the intervention group also reported less Friday RSSD at eight weeks (but not two weeks) follow-up Friday ($F(1,70) = 7.35$, $p=.008$) and reported less Saturday RSSD at 8 weeks (but not two weeks) Saturday ($F(1,70)=4.03$, $p=.049$. No differences between the control and intervention groups were observed for men who engaged in RSSD on Friday and Saturday (Table 11).

Table 6: Single occasion drinking: pre-intervention and follow-up means of female participants who reported RSSD on pre-intervention Friday.

Measure	**Mean (SD)**		**F**	
	Intervention (N = 57)	**Control (N = 35)**	**Pre-intervention**	**Ancova**
Attitude				
Pre-intervention	4.44 (1.22)	4.67 (1.10)	.85	
Post intervention (week 2)	4.66 (1.23)	4.17 (1.01)		8.08**
Post intervention (week 8)	4.48 (1.36)	4.36 (.97)		1.25
Behavioural intentions				
Pre-intervention	3.60 (1.70)	3.36 (1.51)	.46	
Post intervention (week 2)	3.76 (1.65)	3.33 (1.57)		1.10
Post intervention (week 8)	3.52 (1.65)	3.06 (1.37)		1.44
Reducing intentions				
Pre-intervention	3.01 (1.36)	2.64 (1.53)	1.42	
Post intervention (week 2)	3.13 (1.55)	2.60 (1.20)		2.07
Post intervention (week 8)	2.69 (1.73)	2.58 (1.26)		.00
Goal priority (general)				
Pre-intervention	4.35 (1.40)	3.98 (1.50)	1.47	
Post intervention (week 2)	4.58 (1.49)	4.18 (1.44)		.66
Post intervention (week 8)	4.74 (1.49)	4.09 (1.42)		2.75
Goal priority (drink)				
Pre-intervention	3.05 (1.86)	3.06 (1.62)	.00	
Post intervention (week 2)	3.26 (1.97)	2.31 (1.45)		6.49*
Post intervention (week 8)	3.21 (1.89)	2.68 (1.65)		1.88

Self-efficacy (reduction)				
Pre-intervention	5.29 (1.47)	5.19 (1.46)	.09	
Post intervention (week 2)	5.23 (1.47)	5.40 (1.08)		.78
Post intervention (week 8)	5.32 (1.42)	5.22 (1.18)		.03
Self-efficacy (action)				
Pre-intervention	4.68 (1.50)	4.86 (1.49)	.31	
Post intervention (week 2)	4.86 (1.45)	4.70 (1.39)		.83
Post intervention (week 8)	4.77 (1.55)	4.54 (1.57)		1.15
Regret				
Pre-intervention	4.35 (1.40)	2.13 (1.32)	.02	
Post intervention (week 2)	2.43 (1.52)	2.17 (1.23)		.81
Post intervention (week 8)	2.02 (1.23)	2.14 (1.22)		.41
Single occasion drinking (Friday)				
Pre-intervention[6]	5.81 (2.74)	6.93 (2.72)	3.59	
Post intervention (week 2)	2.02 (.92)	2.14 (.94)		.39
Post intervention (week 8)	1.91 (.89)	2.43 (.85)		5.61*

* P< .05
** P<.01

[6] Pre-intervention means for behaviour measures are entered in alcohol units, whereas the post intervention means for behaviour were calculated from the recoded behaviour measures (i.e. 1 , 2, 3 indicating drinking under the recommended levels, drinking at the maximum recommended levels, and drinking more than the recommended levels respectively) as the recoded pre-intervention measures were used to define the sample groups.

Table 7: Single occasion drinking: pre-intervention and follow-up means of male participants who reported RSSD on pre-intervention Friday.

Measure	**Mean (SD)**		**F**	
	Intervention (N = 19)	**Control (N = 17)**	**Pre-intervention**	**Ancova**
Attitude				
Pre-intervention	4.26 (.99)	5.05 (1.39)	3.97*	
Post intervention (week 2)	4.10 (1.03)	4.73 (.95)		1.43
Post intervention (week 8)	4.42 (.73)	4.58 (1.17)		.03
Behavioural intentions				
Pre-intervention	3.50 (1.77)	3.97 (.99)	.93	
Post intervention (week 2)	3.63 (2.03)	3.12 (1.41)		2.02
Post intervention (week 8)	3.00 (1.50)	3.06 (1.54)		.04
Reducing intentions				
Pre-intervention	2.97 (.99)	3.61 (1.32)	2.78	
Post intervention (week 2)	2.86 (1.46)	2.76 (1.43)		.68
Post intervention (week 8)	2.84 (1.62)	2.91 (1.66)		.02
Goal priority (general)				
Pre-intervention	4.02 (1.24)	4.05 (1.29)	.01	
Post intervention (week 2)	4.24 (1.60)	4.10 (1.16)		.19
Post intervention (week 8)	4.45 (1.73)	4.04 (1.28)		.81
Goal priority (drink)				
Pre-intervention	2.58 (1.57)	3.12 (1.96)	.83	
Post intervention (week 2)	2.78 (2.04)	3.12 (1.83)		.16
Post intervention (week 8)	3.10 (2.08)	3.64 (2.37)		.25

Self-efficacy (reduction)				
Pre-intervention	4.56 (1.51)	4.80 (1.22)	.27	
Post intervention (week 2)	4.78 (1.48)	4.88 (1.37)		.00
Post intervention (week 8)	4.75 (1.80)	5.13 (1.41)		.27
Self-efficacy (action)				
Pre-intervention	3.75 (1.44)	4.43 (1.32)	2.15	
Post intervention (week 2)	4.47 (1.47)	4.33 (1.58)		2.17
Post intervention (week 8)	4.66 (1.65)	4.16 (1.69)		6.32*
Regret				
Pre-intervention	2.03 (1.11)	3.00 (1.05)	7.10	
Post intervention (week 2)	1.91 (1.06)	2.20 (.91)		.25
Post intervention (week 8)	1.74 (.94)	2.39 (1.57)		1.83
Single occasion drinking (Friday)				
Pre-intervention	9.58 (3.35)	10.38 (4.04)	.42	
Post intervention (week 2)	2.53 (.84)	2.53 (.72)		.00
Post intervention (week 8)	2.47 (.77)	2.47 (.87)		.00

* $P < .05$

Table 8: Single occasion drinking: pre-intervention and follow-up means of female participants who reported RSSD on pre-intervention Saturday.

Measure	**Mean (SD)**		**F**	
	Intervention (N = 65)	**Control (N = 52)**	**Pre-intervention**	**Ancova**
Attitude				
Pre-intervention	4.47 (1.24)	4.86 (1.25)	2.92	
Post intervention (week 2)	4.75 (1.27)	4.35 (1.15)		7.79
Post intervention (week 8)	4.51 (1.23)	4.29 (1.24)		3.13
Behavioural intentions				
Pre-intervention	3.57 (1.73)	3.62 (1.72)	.03	
Post intervention (week 2)	3.71 (1.66)	3.56 (1.72)		.40
Post intervention (week 8)	3.57 (1.68)	3.31 (1.38)		1.24
Reducing intentions				
Pre-intervention	3.03 (1.41)	3.13 (1.66)	.13	
Post intervention (week 2)	3.06 (1.61)	2.93 (1.56)		.34
Post intervention (week 8)	2.88 (1.53)	3.11 (1.71)		.45
Goal priority (general)				
Pre-intervention	4.35 (1.32)	4.31 (1.42)	.02	
Post intervention (week 2)	4.69 (1.54)	4.37 (1.39)		1.58
Post intervention (week 8)	4.71 (1.51)	4.36 (1.51)		2.09
Goal priority (drink)				
Pre-intervention	2.97 (1.99)	3.33 (1.94)	.95	
Post intervention (week 2)	3.31 (2.01)	2.75 (1.80)		4.51*
Post intervention (week 8)	3.17 (1.86)	3.02 (1.84)		.67

Self-efficacy (reduction)				
Pre-intervention	5.10 (1.39)	5.54 (1.42)	2.86	
Post intervention (week 2)	5.07 (1.48)	5.52 (1.11)		1.15
Post intervention (week 8)	5.07 (1.51)	5.36 (1.29)		.09
Self-efficacy (action)				
Pre-intervention	4.53 (1.56)	4.83 (1.49)	1.06	
Post intervention (week 2)	4.70 (1.60)	4.78 (1.45)		.19
Post intervention (week 8)	4.71 (1.55)	4.73 (1.52)		.41
Regret				
Pre-intervention	2.29 (1.28)	2.24 (1.37)	.05	
Post intervention (week 2)	2.55 (1.65)	2.48 (1.44)		.02
Post intervention (week 8)	2.20 (1.30)	2.61 (1.56)		4.07*
Single occasion drinking (Saturday)				
Pre-intervention	6.30 (2.85)	6.33 (2.54)	.00	
Post intervention (week 2)	2.04 (.91)	2.23 (.94)		1.15
Post intervention (week 8)	2.11 (.94)	2.19 (.95)		.23

* $P < .05$

Table 9: Single occasion drinking: pre-intervention and follow-up means of male participants who reported RSSD on pre-intervention Saturday.

Measure	**Mean (SD)**		**F**	
	Intervention (N = 24)	**Control (N = 24)**	**Pre-intervention**	**Ancova**
Attitude				
Pre-intervention	4.14 (.91)	4.89 (1.25)	5.62*	
Post intervention (week 2)	3.81 (1.10)	4.58 (1.21)		2.37
Post intervention (week 8)	4.29 (.81)	4.39 (1.35)		.11
Behavioural intentions				
Pre-intervention	3.29 (1.45)	3.93 (.96)	3.31	
Post intervention (week 2)	3.04 (1.71)	3.31 (1.24)		.00
Post intervention (week 8)	2.81 (1.54)	3.37 (1.33)		.76
Reducing intentions				
Pre-intervention	3.27 (1.31)	3.37 (1.46)	.07	
Post intervention (week 2)	3.06 (1.57)	2.73 (1.45)		1.06
Post intervention (week 8)	2.91 (1.65)	2.87 (1.65)		.04
Goal priority (general)				
Pre-intervention	4.16 (1.16)	4.15 (1.33)	.00	
Post intervention (week 2)	4.40 (1.52)	4.06 (1.47)		.64
Post intervention (week 8)	4.61 (1.55)	4.00 (1.64)		1.86
Goal priority (drink)				
Pre-intervention	2.79 (1.53)	3.25 (1.82)	.89	
Post intervention (week 2)	2.71 (1.80)	2.92 (1.83)		.08
Post intervention (week 8)	3.16 (2.22)	3.37 (2.26)		.03

Self-efficacy (reduction)				
Pre-intervention	4.66 (1.51)	4.80 (1.21)	.12	
Post intervention (week 2)	4.73 (1.65)	4.82 (1.35)		.00
Post intervention (week 8)	4.77 (1.73)	4.76 (1.60)		.03
Self-efficacy (action)				
Pre-intervention	3.97 (1.60)	4.36 (1.41)	.80	
Post intervention (week 2)	4.42 (1.64)	4.09 (1.60)		1.43
Post intervention (week 8)	4.75 (1.56)	3.90 (1.78)		7.01
Regret				
Pre-intervention	2.15 (1.23)	2.72 (1.29)	2.42	
Post intervention (week 2)	1.98 (1.02)	2.36 (1.31)		.45
Post intervention (week 8)	2.09 (1.37)	2.54 (1.70)		.31
Single occasion drinking (Saturday)				
Pre-intervention	8.54 (3.03)	8.87 (3.12)	.14	
Post intervention (week 2)	2.37 (.92)	2.29 (.91)		.09
Post intervention (week 8)	2.37 (.87)	2.30 (.93)		.07

* P< .05

Table 10: Single occasion drinking: pre-intervention and follow-up means of female participants who reported RSSD on pre-intervention Friday and Saturday.

Measure	**Mean (SD)**		**F**	
	Intervention (N = 43)	**Control (N = 28)**	**Pre-intervention**	**Ancova**
Attitude				
Pre-intervention	4.44 (1.19)	4.73 (1.10)	1.07	
Post intervention (week 2)	4.77 (1.15)	4.27 (1.07)		6.83*
Post intervention (week 8)	4.50 (1.27)	4.34 (1.00)		1.53
Behavioural intentions				
Pre-intervention	3.63 (1.73)	3.32 (1.64)	.55	
Post intervention (week 2)	3.78 (1.66)	3.32 (1.65)		.82
Post intervention (week 8)	3.64 (1.63)	3.07 (1.34)		1.76
Reducing intentions				
Pre-intervention	2.84 (1.20)	2.77 (1.59)	.04	
Post intervention (week 2)	3.01 (1.57)	2.59 (1.28)		1.34
Post intervention (week 8)	2.71 (1.27)	2.57 (1.32)		.15
Goal priority (general)				
Pre-intervention	4.26 (1.33)	4.15 (1.39)	.11	
Post intervention (week 2)	4.67 (1.54)	4.31 (1.43)		.89
Post intervention (week 8)	4.68 (1.52)	4.25 (1.29)		1.54
Goal priority (drink)				
Pre-intervention	2.74 (1.70)	3.11 (1.71)	.77	
Post intervention (week 2)	3.32 (2.04)	2.39 (1.52)		5.73*
Post intervention (week 8)	3.30 (1.89)	2.78 (1.77)		1.79

Self-efficacy (reduction)				
Pre-intervention	5.21 (1.41)	4.92 (1.44)	.71	
Post intervention (week 2)	5.10 (1.49)	5.20 (1.09)		.57
Post intervention (week 8)	5.11 (1.45)	5.03 (1.17)		.02
Self-efficacy (action)				
Pre-intervention	4.59 (1.57)	4.53 (1.41)	.02	
Post intervention (week 2)	4.79 (1.55)	4.53 (1.40)		.51
Post intervention (week 8)	4.69 (1.58)	4.43 (1.55)		.48
Regret				
Pre-intervention	2.12 (1.34)	2.13 (1.25)	.00	
Post intervention (week 2)	2.38 (1.62)	2.23 (1.27)		.30
Post intervention (week 8)	2.11 (1.33)	2.18 (1.28)		.05
Single occasion drinking (Friday)				
Pre-intervention	6.10 (3.03)	6.87 (2.66)	1.20	
Post intervention (week 2)	2.02 (.91)	2.21 (.92)		.74
Post intervention (week 8)	2.00 (.92)	2.60 (.74)		7.35**
Single occasion drinking (Saturday)				
Pre-intervention	6.43 (3.07)	7.36 (2.85)	1.63	
Post intervention (week 2)	2.12 (.90)	2.32 (.94)		.84
Post intervention (week 8)	2.02 (.94)	2.53 (.79)		4.03*

* P< .05
** P<.01

Table 11: Single occasion drinking: pre-intervention and follow-up means of male participants who reported RSSD on pre-intervention Friday and Saturday.

Measure	***Mean (SD)***		***F***	
	Intervention (N = 16)	***Control (N = 15)***	***Pre-intervention***	***Ancova***
Attitude				
Pre-intervention	3.97 (.72)	5.27 (1.29)	12.13**	
Post intervention (week 2)	4.00 (1.00)	4.60 (.93)		.03
Post intervention (week 8)	4.37 (.74)	4.47 (1.20)		.41
Behavioural intentions				
Pre-intervention	3.06 (1.51)	4.00 (.94)	4.20*	
Post intervention (week 2)	3.22 (1.89)	3.10 (1.48)		.31
Post intervention (week 8)	2.69 (1.36)	3.13 (1.53)		.13
Reducing intentions				
Pre-intervention	2.93 (1.01)	3.70 (1.37)	3.12	
Post intervention (week 2)	2.87 (1.57)	2.73 (1.51)		.91
Post intervention (week 8)	2.93 (1.70)	2.90 (1.73)		.13
Goal priority (general)				
Pre-intervention	4.10 (1.23)	4.07 (1.23)	.01	
Post intervention (week 2)	4.10 (1.54)	4.02 (1.05)		.02
Post intervention (week 8)	4.33 (1.64)	3.89 (1.25)		.71
Goal priority (drink)				
Pre-intervention	2.50 (1.59)	3.13 (2.06)	.92	
Post intervention (week 2)	3.12 (2.06)	2.93 (1.62)		.15
Post intervention (week 8)	3.31 (2.18)	3.53 (2.32)		.00

Self-efficacy (reduction)				
Pre-intervention	4.35 (1.54)	4.69 (1.23)	.44	
Post intervention (week 2)	4.67 (1.54)	4.80 (1.41)		.00
Post intervention (week 8)	4.60 (1.87)	5.02 (1.44)		.19
Self-efficacy (action)				
Pre-intervention	3.54 (1.46)	4.29 (1.34)	2.19	
Post intervention (week 2)	4.29 (1.52)	4.13 (1.54)		1.88
Post intervention (week 8)	4.46 (1.66)	3.97 (1.73)		4.77
Regret				
Pre-intervention	2.04 (1.16)	3.13 (1.05)	7.49*	
Post intervention (week 2)	1.95 (1.11)	2.29 (.92)		.52
Post intervention (week 8)	1.87 (.96)	2.53 (1.62)		1.76
Single occasion drinking (Friday)				
Pre-intervention	9.56 (3.28)	9.83 (3.60)	.05	
Post intervention (week 2)	2.43 (.89)	2.60 (.63)		.34
Post intervention (week 8)	2.43 (.81)	2.53 (.83)		.10
Single occasion drinking (Saturday)				
Pre-intervention	9.50 (3.104)	8.63 (2.39)	.74	
Post intervention (week 2)	2.68 (.70)	2.47 (.83)		.64
Post intervention (week 8)	2.56 (.72)	2.43 (.85)		.22

* P<.05
** P<.01

5. Discussion

The present study tested the utility of a theory-based intervention employing persuasive communication and action-planning prompts designed to reduce the incidence of RSSD in student drinkers. Prevalence analyses led to a focus on RSSD on Friday and Saturday evenings. The intervention was based on the Theory of Planned Behaviour (Ajzen, 1991) and Gollwitzer's (1993) theory of implementation intention formation. Persuasive messages focused on perceived benefit of drinking within daily limits, others' expectations regarding drinking, the enhancement of self-efficacy, anticipated regret following exceeding daily limits, as well as instructions on steps needed to reduce alcohol consumption. Thereafter, the intervention invited participants to make concrete plans for alcohol reduction specifying when and where they would take action.

Analyses focused on three groups: those who reported RSSD on Fridays at pre-intervention, those who reported RSSD on Saturdays at pre-intervention, and those who reported RSSD on Fridays and Saturdays. Despite equivalent pre-intervention motivation to reduce RSSD to the recommended number of units, a statistically significant difference, although a modest one, was observed in the incidence of RSSD at follow-up between the intervention and (no-intervention) control groups for those who reported pre-intervention RSSD on Friday (see Table 3). Thus, the intervention appeared to have produced a half unit per drinking occasion reduction, in Friday RSSD, at eight week follow-up. However, no post-intervention differences in RSSD between intervention and control groups were observed for those who reported pre-intervention RSSD on Saturday (Table 4), or those who reported pre- intervention RSSD on Friday and Saturday (Table 5). There were no other statistically significant differences on any of the behavioural (drinking) measures. These findings demonstrate limited support for hypothesis two. Thus, overall, the study suggests that the brief, theory-based, leaflet-like persuasive and action planning intervention developed here may have modest and limited effects on drinking behaviour.

Post hoc analyses (reported in Table 6 and Table 7) show that, when the men and women were analysed separately, only women showed a statistically significant reduction in eight week post intervention Friday RSSD. In addition, among women who reported RSSD on pre-intervention Friday and Saturday, we observed lower combined RSSD in the intervention group than the controls at eight week follow-up. This suggests that the intervention was effective for women, but not men, who engage in RSSD on Fridays and Saturdays (Table 10). Thus, the intervention appeared to have modest effectiveness for women but no effect on men.

One possible explanation for the gender differences in the study findings may be related to evidence showing women's increased compliance to social influence (Gudjonsson & Sigurdsson, 2003). Alternatively, there is some evidence to suggest that women experience more problems as a result of alcohol consumption per drinking session than men (Wechsler, Dowdall, Davenport, & Rimm, 1995). This may render young women more open to interventions than young men. Clearly, something more than the type of intervention tested here will be required to change RSSD amongst young men. An interesting alternative was reported by Graham, Tatterson, Roberts and Johnston (2004) who targeted both the social acceptability of risky

behaviours and willingness to intervene to change peers' behaviour. Students were provided with prerequisite perceptions, motivations and skills to intervene within their peer group and make proactive harm avoidance plans with friends prior to social occasions that involve using alcohol. The program was well received by students and showed significant effects on drinking behaviour for both men and women.

The results suggest that it may be easier to prompt a modest change among women who only engage in RSSD on Fridays, and not Saturdays or both Fridays and Saturdays. Future research on factors discriminating between risky Friday and Saturday night drinking would be interesting. More importantly, our results suggest that women students are more amenable to the theory-based leaflet-like interventions tested here. Effects were found for two of the three RSSD groups when women were considered separately. More intensive interventions may be required to change RSSD among male students.

Our results have implications for theory and practice. This is the first study to demonstrate that a theory-based leaflet-like persuasive and action planning intervention aimed at reducing RSSD can affect young people who are drinking over recommended limits. Thus, from a practical perspective our findings suggest that this approach is worthy of further investigation, particularly amongst women. For example, would the approach work with teenage girls and older women? Could an augmented theory-based leaflet produce larger reductions amongst women and/or be effective with male students, including those who also engage in RSSD on Saturdays? Further research on the effectiveness of longer, more intensive leaflet-like interventions with additional self-efficacy enhancement and planning tasks would be valuable, especially given increases in the frequency and quantity of young people's drinking (Harvard School of Public Health, 1995; Parker & Hardford, 1992) and government targets for alcohol reduction. The recent White Paper notes that the UK government is already *'making the sensible drinking message easier to understand and apply'* and *'targeting groups such as binge drinkers'* (Choosing Health, 2004). In this context, further experimental research on which low cost leaflet-like interventions are effective is warranted.

At a theoretical level, the albeit limited success of the intervention lends tentative support to recent extensions of social cognition models (such as that of Gollwitzer, 1993) proposing that motivational interventions (such as the use of persuasive arguments) should be supplemented with making detailed plans or implementation intentions. The study design does not, however, allow us to assert if any particular component of the intervention (for example, implementation intention formation) was crucial to the effect on Friday RSSD.

The study provided only partial information as to the cognitive mechanism by which the intervention promoted a reduction in women students' risky weekend drinking. Some cognitive change (in goal priority and self-efficacy) at follow-up was observed for those reporting pre-intervention Friday RSSD (i.e., differences between the intervention and control group, controlling for pre-intervention scores) (see Table 3). When this variation was used as a covariate in the RSSD ANCOVA, gains in self-efficacy appeared to, at least partially, account for the significant reduction in drinking for men and women (Table 3). However, condition (i.e. intervention vs. control) remained significant, suggesting that other factors are implicated in this

RSSD behaviour change. The intervention may have increased perceived severity or perceived susceptibility of the health threats associated with exceeding the recommended daily limits, two components which have been found by Rogers (1983) to be important precursors of behaviour change and were not included in this study. Future research on the mechanism by which an action planning intervention promotes goal achievement would be valuable.

The high prevalence of weekend RSSD in the study, with 37% engaging in RSSD on Friday at pre-intervention and 48% engaging in RSSD on Saturday 29% engaging in RSSD on both days, is consistent with previous research on students such as that of Harzler and Fromme (2003). The low level of intention and behavioural willingness to limit consumption to the new set limits coupled with low perceived importance to limit consumption to the new set limits, low anticipated regret associated with exceeding such limits, and the perception that significant others do not expect them to drink within the recommendations confirm the need for health promotion campaigns to focus on young people in this high risk environment where motives for intoxicated weekends relate to maintaining successful work-hard play-hard lifestyles (Parker & William, 2003). Moreover, given the low percentages of students engaging in RSSD on days other than Friday and Saturday, our results suggest that it may be profitable for health promotion campaigns to target Friday and Saturday drinking.

A number of limitations of the present study should be acknowledged. Follow-up was limited to eight weeks so it is unclear how long observed effects would have been maintained beyond this time. Studies with longer term follow-up would provide useful data on this point. Also, our data is based solely on self reports of drinking behaviour. While self report data was found to be a reliable method of data collection in alcohol-related studies (Wechsler & Isaac, 1992), it would be prudent to replicate these results with more objective drinking measures, for example, using blood alcohol tests within sub-samples and interviewing drinking companions of participants.

Existing interventions for reducing alcohol misuse rarely address RSSD. The present findings extend the available literature by testing a low cost, readily produced intervention focusing specifically on new recommended daily limits. Recent changes in government guidelines have meant that safer drinking is now set at lower levels than previously assumed. The anticipated difficulty of introducing these new levels makes this a particularly salient health-related issue. If such a leaflet-like intervention can affect women's drinking behaviour, then more intense interventions that encourage greater self-efficacy development and more detailed planning are worthy of further experimental investigation.

In summary, the results of the study provide evidence to support the efficacy of a brief action planning intervention to reduce by a modest amount RSSD in women. Further work is needed to identify the effective components of the intervention in order to maximise their utility on RSSD and extend it to the drinking behaviour of males.

6. References

Ajzen, I. (2001) Nature and operation of attitudes. *Annual review of Psychology, 52,* 27-58.

Ajzen, I. (1998) Models of human social behaviour and their application to health psychology. *Psychology and Health, 13,* 735-739.

Ajzen, I. (1991) The theory of planned behaviour. *Organisational Behaviour and Human Decision Processes, 50,* 179-211.

Armitage, C. J., & Conner, M. (2001). Efficacy of the Theory of Planned Behaviour: A meta-analytic review. *British Journal of Social Psychology, 40*, 471-500.

Austin, J., T., & Vancouver, J. B. (1996). Goal constructs in psychology: Structure, process, and content. *Psychological Review, 120,* 338-375.

Bagozzi, R.P. & Edwards, E.A. (1998) Goal setting and goal pursuit in the regulation of body weight. *Psychology and Health, 13,* 593-622.

Bandura, A. (1977) Self-efficacy: Toward a unifying theory of behavioural change, *Psychological Review, 84,* 191-215.

Bandura, A. (1997) *Self-efficacy; the exercise of control*. New York: Freeman.

Benet-Martinez, V. & John, O.P. (1998) Los Cinco Grandes Across Cultures and Ethnic Groups: Multi-trait Multi-method Analyses of the Big Five in Spanish and English. *Journal of Personality and Social Psychology, 75,* 729-750.

Booth-Kewley, S. & Vickers, R. (1994) Associations between major domains of personality and health behaviour. *Journal of Personality, 62,* 281-298.

Burmudez, J. (1999) Personality and health protective behaviour. *European Journal of Personality, 13,* 83-103.

Choosing Health (2004) *Choosing Health: A consultation to improve people's health.* HMSO, London.

Conner, M. & Abraham, C. (2001). Conscientiousness and the Theory of Planned Behaviour: Towards a more complete model of the antecedents of intentions and behavior. *Personality and Social Psychology Bulletin*, *27*, 1547-1561.

Conner, M. & Norman, P. (1996) *Predicting health behaviour*. Oxford, UK: Oxford University Press.

Delk, E. & Meilman, P.W. (1996) Alcohol use among college students in Scotland compared with norms from the United States. *Journal of American College of Health*, *44,* 27-281.

Ellickson, P.L., Tucker, J.S., Klein, D.J., & McGuigan, K.A. (2001) Prospective risk factors for alcohol misuse in late adolescence. *Journal of Studies on Alcohol*, *62(6),* 773-782.

Friedman, H.S., Tucker, J.S., Tomlinson-Keasey, C., Schwartz, J.E., Wingard, D.L., & Criqui, M.H. (1993) Does childhood personality predict longevity? *Journal of Personality and Social Psychology, 65,* 176-185.

Friedman, H.S., Tucker, J.S., Schwartz, J.E., Martin, L.R., Tomlinson-Keasey, C., Wingard, D.L., & Criqui, M.H. (1995) Childhood Conscientiousness and Longevity Health Behaviours and Cause of Death. *Journal of Personality and Social Psychology, 68,* 696-703.

Foxcroft, D.R., Lister-Sharp, D., & Lowe, J. (1997) Alcohol misuse prevention for young people: A systematic review reveals methodological concerns and lack of reliable evidence for effectiveness. *Addiction, 5,* 531-537.

Godin, G., & Kok, G. (1996) The theory of planned behaviour: A review of its applications to health related behaviours. *American Journal of Health Promotion, 11,* 87-97.

Gollwitzer, P.M. & Brandstatter, V. (1997) Implementation intentions and effective goal pursuit. *Journal of Personality and Social Psychology, 73,* 186-199.

Gollwitzer, PM. (1993) Goal achievement: The role of intentions. In W. Stroebe & M. Hewstone (Eds.), *European review of social psyc*hology (Vol. 4, pp. 144-185). Chichester, UK: John Wiley & Sons.

Gorman, D.M. (1996) Do school based social skills training programs prevent alcohol use among young people? *Addiction Research, 4*, 191-210.

Graham, J.W., Tatterson, J.W., Roberts, M.M., & Johnston, S.E. (2004) Preventing alcohol related harm in college students: Alcohol related harm prevention program effects on hypothesized mediating variables. *Health Education Research*, 19, 71-84.

Gudjonsson, G., & Sigurdsson, J.F. (2003) The relationship of compliance with coping strategies and self-esteem. *European Journal of Psychological Assessment, 19(2)*, 117-123.

Hardeman, W., Johnston, M., Johnston, D.W., Bonetti, D., Wareham, N.J., & Kinmonth, A.L. (2002). Application of the theory of planned behaviour in behaviour change interventions: A systematic review. *Psychology and Health, 17*, 123-158.

Harvard School of Public Health (1995) *Binge drinking on American college campuses: A new look at an old problem.* College Alcohol Study, Harvard School of Public Health, Department of Health and Social Behaviour, Harvard, MA.

Harzler, B. & Fromme, K. (2003) Heavy episodic drinking and college entrance. *Journal of Drug Education*, *33(3),* 259-274.

HEA (1995) *Sensible drinking: the report of an inter-departmental working group.* Department of Health, Wetherby.

HEA (1999) *Think Abut Drink. Alcohol and health: all you need to know*. Health Education Authority.

Janis, I.J. & Mann, L. (1977) *Decision making: A psychological analysis of conflict choice and commitment.* New York: Free Press.

Jemmott, J.B. & Jemmott, L.S. 2000. HIV risk reduction behavioral interventions with heterosexual adolescents. *AIDS*, *vol. 14* (suppl. 2), p. S40-S52.

Kellner, F., Webster, I., & Chanteloup, F. (1996) Describing and predicting alcohol use related harm- an analysis of the Yukon alcohol and drug survey. *Substance Use and Misuse, 31,* 1619-1638.

Kelley, K. & Abraham, C. (2004). RCT of a theory-based intervention promoting healthy eating and physical activity amongst out-patients over 65. *Social Science & Medicine, 59,* 787-797.

Lee, M.J. & Furguson, M.A. (2002) Effects of anti-tobacco advertisements based on risk taking tendencies: realistic fear vs. vulgar humor. *Journalism & Mass Communication Quarterly, 79(4),* 945-963.

Loomes, G. & Sugden, R. (1982) Regret theory: An alternative theory of rational choice under uncertainty. *Economic Journal, 92,* 805-824.

Milne, S., Orbell, S., & Sheeran, P. (2002) Combining motivational and volitional interventions to promote exercise participation: protection motivation theory and implementation intentions. *British Journal of Health Psychology, 7,* 163-184.

Masterman, P.W. & Kelly, A.B. (2003) Reaching adolescents who drink harmfully: fitting intervention to developmental reality. *Journal of Substance Abuse Treatment, 24(4),* 347-355.

McDermott, M.R. (1987) Measuring rebelliousness: The development of the negativism dominance scale. In M.J. Apter, J.H., Kerr, and M. Cowles, (Eds.) *Progress in Reversal Theory*. Amsterdam: North Holland.

McDermott, M.R. (1988) Measuring rebelliousness; the development of negativism dominance scale, in M.J. Apter, J.H. Kerr, and M. Cowles (Eds.) *Progress in Reversal Theory*. Amsterdam: North Holland.

McDermott, M.R. & Apter, M.J. (1985) The rebelliousess questionnaire ('social ractivity scale'/'ngativism dominance scale'), in M.R. McDermott (1987) *Rebelliousness in adolescence and young adulthood*. PhD thesis, University of Wales, Cardiff; and in, (Eds.) M.J. Apter, J.H., kerr, M.P., Cowles, (1988) *Progress in Reversal Theory*. Amsterdam: North Holland.

Murgraff, V. White, D., & Phillips, K. (1996) Moderating binge drinking; I is possible to change behaviour if you plan it in advance. *Alcohol and Alcoholism*, *31,* 577-582.

Murgraff, V., Parrott, A., & Bennett, P. (1999) Risky single-occasion drinking amongst young people-definition correlates, policy and intervention: A broad overview of research findings. *Alcohol & Alcoholism,* ***34(1),*** 3-14.

Murgraff, V., McDermott, M.R., & Walsh, J. (2001) Exploring attitude and belief correlates of adhering to the new guidelines for low risk single occasion drinking: An application of the theory of planned behaviour. *Alcohol and Alcoholism, 36,* 135-140.

Murgraff, V., McDermott, M.R., & Walsh, J. (2003) Self-efficacy and behavioural enactment: The application of Schwarzer's health action process approach to the prediction of low risk single occasion drinking. *Journal of Applied Social Psychology, 33,* 339-361.

O'Connell, K., Cook, M.R., & Gerkovich, M.M. (1990) A state-based approach to ex-smokers' highly tempting situations. *Journal of Consulting and Clinical Psychology,, 58,* 489-494.

Orbell, S., Hodgkins, S., & Sheeran, P. (1997) Implementation intentions and the theory of planned behaviour. *Personality and Social Psychology Bulletin, 23,* 945-954.

Orbell, S., Johnston, M., Rowley, D., Davey, P., & Espley, A. (2001) Self-efficacy and goal importance in the prediction of physical disability in people following hospitalisation: A prospective study. *British Journal of Health Psychology, 6,* 25-40.

Parker, H. (1995) Youth culture and the changing patterns of drinking by young people. In *Alcohol and the Young,* NCB/Alcohol Concern Conference 14 December, Delegates' pack. National Children Bureau, London.

Parker, D.A., & Hardford, T.C. (1992) Gender role attitudes, job competition, and alcohol consumption amongst women and men. *Alcoholism-Clinical and Experimental Research, 16,* 159-165.

Parker, H., & Williams, L. (2003) Intoxicated weekends: Young adults' work hard play hard lifestyles, public health and public disorder. *Drugs, Education, Prevention & Policy, 10,* 345-367.

Quigley, L.A. & Marlatt, G.A. (1996) Drinking among young adults – prevalence, patters, and consequences. *Alcohol, Health and Research World, 20,* 185-191.

Richard, R., van der Pligt, J., & de Vries, N. (1996) Anticipated affect and behavioural choice. *Basic and Applied Social Psychology, 18,* 111-129.

Richard, R.,van der Pligt, V.D., & de Vries, N.D. (1995) Anticipated affective reactions and prevention of AIDS. *British Journal of Social Psychology, 34,* 9-21.

Richard, R. de Varies, N.K. & van der Pligt, J. (1998) Anticipated regret and precautionary sexual behaviour. *Journal of Applied Social Psychology, 28,* 1411-1428.

Robinson, T.O., Weaver, J.B. & Zillman, D. (1996). Exploring the relation between personality and the appreciation of rock music. *Psychological Reports, 78,* 259-269

Rogers, R.W. (1983) Cognitive and physiological processes in fear appeals and attitude change: a revised theory of protection motivation. In: J.T. Capcioppo and R.E. Petty (Eds). *Social Psychophysiology: A Source Book*. New York: Guilford Press.

Schwarzer, R. (1992) Self-efficacy in the adoption and maintenance of health behaviours: Theoretical approaches and new model. In R. Schwarzer (Ed.) Self-efficacy: Thought control of action (pp. 217-243). Washington, DC: Hemosphere.

Sparks, P., Guthrie, C., & Shepherd, R. (1997) The dimensional structure of the perceived behavioural control construct. *Journal of Applied Social Psychology, 27,* 418-438.

Sheeran, P. (2002) Intentions – behaviour relations: A conceptual and empirical review. In W. Stroebe and M. Hewstone (Eds), *European Review of Social Psychology, 12,* 1-36.

Sheeran, P., & Abraham, C. (2003) The importance of temporal stability of intention relative to other moderators of the intention-behaviour relation. *Personality and Social Psychology Bulletin, 29,* 205-215.

Sheeran, P. & Gollwitzer, P.M. (2002) *Meta-analysis of the impact of implementation intentions on performance.* 13th General Meeting of the European Association of Experimental Social Psychology, San Sabastian, Spain, June.

Sheeran, P. & Orbell, S. (1999) Implementation intentions and repeated behaviour: augmenting the predictive validity of the theory of planned behaviour. *European Journal of Social Psychology, 29,* 349-369.

Terry, D. J., & O'Leary, J. E. (1995). The theory of planned behavior: The effects of perceived behavioral control and self-efficacy. *British Journal of Social Psychology, 34,* 199-220.

Terry, D. J. (1993). Self-efficacy expectations and the theory of reasoned action. In D. J. Terry, C. Gallois & M. McCamish (Eds.) *The theory of reasoned action: its application to AIDS-preventive behavior* (pp. 135-151). Oxford: Pergamon.

Van der Pligt, J., Zeelenberg, M., van Dijk, W.W., de Varies, N.K., and Richard, R. (1998) Affect, attitudes, and decisions: Let's be more specific. *European Review of Social Psychology, 8*, 33-66.

Wechsler, H. & Isaac, N. (1992) 'Binge' drinkers at Massachusetts colleges. *Journal of the American Medical Association*, *267,* 2929-2931.

Wechsler, H., Dawdall, G.W., Davenport, A., & Rimm, E.B. (1995) A gender specific measure of binge drinking among college students, *American Journal of Public Health*, 85, 982-985.

Wechsler, H, Moeykens, B., Davenport, A., Castillo, S., & Hansen, J. (1995) The adverse impact of heavy episodic drinkers on other college students. *Journal of Studies on Alcohol, 56,* 628-634.

Walsh, G.W., Bondy, S.J., & Rehm, J. (1998) Review of Canadian low-risk drinking guideines and their effectiveness. *Canadian Journal of Public Health*, *89(4),* 241-27.

Weinstein, N.D. (1988) The precaution adoption process, *Health Psychology, 7, 355-*386.

7. Appendices

7.1 Appendix 1: A copy of the pre-intervention female questionnaire.

A questionnaire about drinking

Please answer the following questions:

(a) Do you drink alcohol? Yes [ ] No [ ] (tick one)

(b) What day of the week is today (e.g. if it is Monday please write `Monday')?_____

Please read the following carefully before continuing.

The following measures contain 1 unit of alcohol:

- half a pint of ordinary strength lager/beer/cider = 1 unit
- a single 25ml pub measure of spirit = 1 unit
- a small glass of wine = 1 unit
- a pub measure of fortified wine (e.g. sherry, martini) = 1 unit

Instructions:

Think carefully about what you drank on each of the last 3 days and estimate how many units you consumed. Remember there are no right or wrong answers as people drink different amounts. Of interest is only how much alcohol you drank on each of the last three days. Please answer the following questions.

(a) Number of units consumed yesterday: _____
(b) Number of units consumed the day before yesterday: _____
(c) Number of units consumed 3 days ago: _____

Please estimate the average number of units you consumed last month on:
1. an average Friday _____
2. an average Saturday _____
3. an average Sunday _____
4. an average weekday (i.e. on a Monday/Tuesday/Wednesday/ or Thursday) _____

Please indicate your response to the following items over the page by placing a tick in the space that best represents how you feel.

For example:

'I never know what drink I am going to ask for as I approach the bar in a pub'

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

1. It is likely that I will reduce the amount of alcohol I drink in the next two weeks

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

2. During the next two weeks, if drinking does not cost me anything financially, I would be willing to drink far in excess of 3 units at one sitting.

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

3. Attending a party during the next two weeks would mean that I would be much more likely to drink more than 3 units of alcohol on that day

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

4. During the next two weeks most of my friends with whom I go out I expect will think that they should not drink much more than 3 units of alcohol a day.

strongly disagree:_____:_____:_____:_____:_____:_____:_____:strongly agree

5. Drinking more than 3 units of alcohol a day during the next two weeks would make me feel tired.

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

6. If I were to drink more than three units of alcohol on any day during the next two weeks, I would feel upset.

definitely yes:_____:_____:_____:_____:_____:_____:_____:definitely not

7. For me, during the next two weeks, reducing my regular alcohol consumption when out with a group of friends for an evening would be quite difficult

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

8. I intend to drink no more than 3 units of alcohol a day during the next two weeks.

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

9. During the next two weeks if I was enjoying drinking with friends and even if I'd already had more than 3 units of alcohol, I would be willing to have another drink.

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

10. On those occasions when I drink alcohol during the next two weeks, I intend to drink less than is usual for me.

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

11. How important is it to you to drink no more than 3 units of alcohol a day during the next two weeks?

extremely important:_____:_____:_____:_____:_____:_____:_____:extremely unimportant

12. If I were to drink more than three units of alcohol on any day during the next two weeks, I would feel regretful.

definitely yes:_____:_____:_____:_____:_____:_____:_____:definitely not

13. During the next two weeks, if I was enjoying drinking with friends, I would be willing to drink to the point where I felt hungover the next morning.

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

14. Experiencing high levels of stress during the next two weeks would make me more likely to drink more than 3 units of alcohol a day

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

15. For you personally, drinking no more than 3 units of alcohol a day would be:

harmful:_____:_____:_____:_____:_____:_____:_____:beneficial

16. Most of my friends, with whom I go out, think that I should drink no more than 3 units of alcohol a day during the next two weeks.

strongly disagree:_____:_____:_____:_____:_____:_____:_____:strongly agree

17. During the next two weeks how much control do you believe you have over limiting your alcohol consumption to no more than 3 units of alcohol a day?

no control:_____:_____:_____:_____:_____:_____:_____:_____:complete control

18. For me, during the next two weeks, suggesting drinking no more than 3 units to someone I have been drinking with in the past would be

extremely difficult:_____:_____:_____:_____:_____:_____:_____:_____:extremely easy

19. It would not be easy for me, in the next two weeks, to reduce my alcohol consumption

strongly agree:_____:_____:_____:_____:_____:_____:_____:_____:strongly disagree

20. During the next two weeks, if I was having a really good time at a party and even if I have already consumed 3 units of alcohol at one sitting I would be willing to carry on drinking.

strongly agree:_____:_____:_____:_____:_____:_____:_____:_____:strongly disagree

21. If I were to drink more than three units of alcohol on any day during the next two weeks, I would feel worried.

definitely yes:_____:_____:_____:_____:_____:_____:_____:_____:definitely not

22. How important is it to you to loose your inhibitions when you are with friends during the next two weeks?

extremely important:_____:_____:_____:_____:_____:_____:_____:_____:extremely unimportant

23. Drinking no more than 3 units of alcohol a day during the next two weeks would enable me to get up early each morning.

strongly agree:_____:_____:_____:_____:_____:_____:_____:_____:strongly disagree

24. Going out with a group of friends for an evening during the next two weeks would make me more likely to drink more than 3 units of alcohol on that occasion

strongly agree:_____:_____:_____:_____:_____:_____:_____:_____:strongly disagree

25. For you personally, drinking no more than 3 units of alcohol a day would be:

unpleasant:_____:_____:_____:_____:_____:_____:_____:pleasant

26. If I wanted to, I could restrict my drinking to 3 units of alcohol a day during the next two weeks.

definitely true:_____:_____:_____:_____:_____:_____:_____:definitely false

27. How important is it to you to be able to talk uninhibitedly with close friends during the next two weeks?

extremely important:_____:_____:_____:_____:_____:_____:_____:extremely unimportant

28. For me, during the next two weeks, drinking only non-alcoholic drinks when out with a group of friends for an evening would be

extremely difficult:_____:_____:_____:_____:_____:_____:_____:extremely easy

29. It would be difficult for me, in the next two weeks, to reduce my alcohol consumption

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

30. I plan to drink no more than 3 units of alcohol a day during the next two weeks.

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

31. During the next two weeks, even if I particularly liked the type of drink that was available, then I would definitely not be willing to drink more of it than I should

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

32. I am confident that I can restrict myself to 3 units of alcohol a day during the next two weeks.

strongly disagree:_____:_____:_____:_____:_____:_____:_____:strongly agree

33. On those occasions when I drink alcohol during the next two weeks, I expect to drink more than is usual for me.
very likely:_____:_____:_____:_____:_____:_____:_____:very unlikely

34. How important it is to you to 'let go' when you are with friends during the next two weeks?

extremely important:_____:_____:_____:_____:_____:_____:_____:extremely unimportant

35. During the next two weeks my friends will disapprove if I drink much more than 3 units a day.

strongly disagree:_____:_____:_____:_____:_____:_____:_____:strongly agree

36. Drinking no more than 3 units of alcohol a day during the next two weeks will enable me to concentrate well when at work.

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

37. For you personally, drinking no more than 3 units of alcohol a day would be:

enjoyable:_____:_____:_____:_____:_____:_____:_____:unenjoyable

38. For me, during the next two weeks, refusing the offer of a drink once I have drunk 3 units of alcohol during an evening would be

extremely difficult:_____:_____:_____:_____:_____:_____:_____:extremely easy

39. During the next two weeks, if I particularly liked the type of drink that was available, then I would be willing to drink more of it than I should

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

40. I intend to drink more than 3 units of alcohol a day on some days during the next two weeks.

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

Please go to Page 7

The following seven items are about the way in which you react in certain social situations. For each of these items three possible responses are given. For each item choose the response which is most true of you. Put an 'X' in the circle next to the response which is most true of you. Try to use the '*not sure*' response as little as possible.

1. When you are told that you are breaking a rule (for example, 'no smoking'), is your first reaction to

a) stop breaking the rule any further O
or, b) go ahead and still break the rule? O
c) not sure O

2. "I enjoy the thrill I get from being difficult and awkward". Do you

a) agree O
or, b) disagree ? O
c) not sure O

3. Do you find it exciting to do something shocking?

a) yes, often O
or, b) no, hardly ever O
c) not sure O

4. If you are asked particularly NOT to do something, do you feel the urge to do it?

a) no, hardly ever O
or b) yes, often O
c) not sure O

5. Do you tease people unnecessarily just so as to have some fun at their expense?

a) yes, often O
or, b) no, hardly ever O
c) not sure O

6. How often do you do something you shouldn't just to get some excitement?

a) not often at all O
or, b) often? O
c) not sure O

7. How often do others say that you are a difficult person?

a) rarely O
or, b) often O
c) not sure O

Please go to Page 8

Please respond to the next series of items by ticking one circle for each statement which best represents the extent of your agreement or disagreement with the statement.

	Disagree strongly	Disagree a little	Neither agree or disagree	Agree a little	Agree strongly
I see myself as someone who…					
1) does a thorough job	O	O	O	O	O
2) can be somewhat careless	O	O	O	O	O
3) is a reliable worker	O	O	O	O	O
4) tends to be disorganised	O	O	O	O	O
5) tends to be lazy	O	O	O	O	O
6) perseveres until the task is finished	O	O	O	O	O
7) does things efficiently	O	O	O	O	O
8) makes plans and follows through with them	O	O	O	O	O
9) is easily distracted	O	O	O	O	O

Please go to Page 9

Please give the following information about yourself:

(1) Your age: _____ (years)

(2) Are you?: female [ ] male [ ] *(please tick one)*

(3) What is your partner status? *(please tick one)*

Single [ ] Co – habiting [ ] Married [ ] Divorced [ ]

Separated [ ] Widowed [ ] Dating [ ]

(4) What is your ethnic origin? *(please tick one)*

White UK [ ] Bangladeshi [ ] Kurdish [ ]

Black Caribbean [ ] Chinese [ ] Irish [ ]

Black African [ ] Other Asian [ ] Turkish [ ]

Black UK [ ] European [ ] Turkish [ ]

Indian [ ] Greek [ ] Pakistani [ ]

Green Cypriot [ ] other (please specify) [ ]_____

(5) What is your father's occupation?_____

(6) What is your mother's occupation?_____

(7) Please write down:

(a) the first two letters of
your mother's first name here: _____

(b) and your house number here:_____

PLEASE MAKE SURE YOU HAVE GIVEN AN ANSWER TO ALL ITEMS & QUESTIONS. *THANK YOU* FOR YOUR RESPONSES.

7.2 Appendix 2: A copy of the post intervention female questionnaire

A questionnaire about drinking

Please answer the following questions:
Please read the following carefully before continuing.

The following measures contain 1 unit of alcohol:

- half a pint of ordinary strength lager/beer/cider = 1 unit
- a single 25ml pub measure of spirit = 1 unit
- a small glass of wine = 1 unit
- a pub measure of fortified wine (e.g. sherry, martini) = 1 unit

Instructions:
Think carefully about what you drank on each of the last 3 days and estimate how many units you consumed. Remember there are no right or wrong answers as people drink different amounts. Of interest is only how much alcohol you drank on each of the last three days. Please answer the following questions.

(a) Number of units consumed yesterday: _____
(b) Number of units consumed the day before yesterday: _____
(c) Number of units consumed 3 days ago: _____

Please estimate the average number of units you consumed in the last two weeks on:
1. an average Friday _____
2. an average Saturday _____
3. an average Sunday _____
4. an average weekday (i.e. on a Monday/Tuesday/Wednesday/ or Thursday) _____

Please indicate your response to the following items by placing a tick in the space that best represents how you feel.

1. It is likely that I will reduce the amount of alcohol I drink in the next two weeks

strongly agree:_____:_____:_____:_____:_____:_____:_____:_____:strongly disagree

2. If I were to drink more than three units of alcohol on any day during the next two weeks, I would feel upset.

definitely yes:_____:_____:_____:_____:_____:_____:_____:_____:definitely not

3. For me, during the next two weeks, reducing my regular alcohol consumption when out with a group of friends for an evening would be quite difficult

strongly agree:_____:_____:_____:_____:_____:_____:_____:_____:strongly disagree

4. I intend to drink no more than 3 units of alcohol a day during the next two weeks.

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

5. On those occasions when I drink alcohol during the next two weeks, I intend to drink less than is usual for me.

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

6. How important is it to you to drink no more than 3 units of alcohol a day during the next two weeks?

extremely important:_____:_____:_____:_____:_____:_____:_____:extremely unimportant

7. If I were to drink more than three units of alcohol on any day during the next two weeks, I would feel regretful.

definitely yes:_____:_____:_____:_____:_____:_____:_____:definitely not

8. For you personally, drinking no more than 3 units of alcohol a day would be:

harmful:_____:_____:_____:_____:_____:_____:_____:beneficial

9. For me, during the next two weeks, suggesting drinking no more than 3 units to someone I have been drinking with in the past would be

extremely difficult:_____:_____:_____:_____:_____:_____:_____:extremely easy

10. It would not be easy for me, in the next two weeks, to reduce my alcohol consumption

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

11. If I were to drink more than three units of alcohol on any day during the next two weeks, I would feel worried.

definitely yes:_____:_____:_____:_____:_____:_____:_____:definitely not

12. How important is it to you to loose your inhibitions when you are with friends during the next two weeks?

extremely important:_____:_____:_____:_____:_____:_____:_____:extremely unimportant

13. For you personally, drinking no more than 3 units of alcohol a day would be:

unpleasant:_____:_____:_____:_____:_____:_____:_____:pleasant

14. How important is it to you to be able to talk uninhibitedly with close friends during the next two weeks?

extremely important:_____:_____:_____:_____:_____:_____:_____:extremely unimportant

15. For me, during the next two weeks, drinking only non-alcoholic drinks when out with a group of friends for an evening would be

extremely difficult:_____:_____:_____:_____:_____:_____:_____:extremely easy

16. It would be difficult for me, in the next two weeks, to reduce my alcohol consumption

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

17. I plan to drink no more than 3 units of alcohol a day during the next two weeks.

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

18. On those occasions when I drink alcohol during the next two weeks, I expect to drink more than is usual for me.
very likely:_____:_____:_____:_____:_____:_____:_____:very unlikely

19. How important it is to you to 'let go' when you are with friends during the next two weeks?

extremely important:_____:_____:_____:_____:_____:_____:_____:extremely unimportant

20. For you personally, drinking no more than 3 units of alcohol a day would be:

enjoyable:_____:_____:_____:_____:_____:_____:_____:unenjoyable

21. For me, during the next two weeks, refusing the offer of a drink once I have drunk 3 units of alcohol during an evening would be

extremely difficult:_____:_____:_____:_____:_____:_____:_____:extremely easy

22. I intend to drink more than 3 units of alcohol a day on some days during the next two weeks.

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

(7) Please write down:

(b) the first two letters of your mother's first name here: _____

(b) and your house number here:_____

THANK YOU FOR YOUR RESPONSES.

7.3 Appendix 3: A copy of the pre-intervention male questionnaire

A questionnaire about drinking

Please answer the following questions:

(a) Do you drink alcohol? Yes [ ] No [ ] (tick one)

(b) What day of the week is today (e.g. if it is Monday please write `Monday')?_____

Please read the following carefully before continuing.

The following measures contain 1 unit of alcohol:

- half a pint of ordinary strength lager/beer/cider = 1 unit
- a single 25ml pub measure of spirit = 1 unit
- a small glass of wine = 1 unit
- a pub measure of fortified wine (e.g. sherry, martini) = 1 unit

Instructions:

Think carefully about what you drank on each of the last 3 days and estimate how many units you consumed. Remember there are no right or wrong answers as people drink different amounts. Of interest is only how much alcohol you drank on each of the last three days. Please answer the following questions.

(a) Number of units consumed yesterday: _____
(b) Number of units consumed the day before yesterday: _____
(c) Number of units consumed 3 days ago: _____

Please estimate the average number of units you consumed last month on:
1. an average Friday _____
2. an average Saturday _____
3. an average Sunday _____
4. an average weekday (i.e. on a Monday/Tuesday/Wednesday/ or Thursday) _____

Please indicate your response to the following items over the page by placing a tick in the space that best represents how you feel.

For example:
'I never know what drink I am going to ask for as I approach the bar in a pub'

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

1. It is likely that I will reduce the amount of alcohol I drink in the next two weeks

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

2. During the next two weeks, if drinking does not cost me anything financially, I would be willing to drink far in excess of 4 units at one sitting.

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

3. Attending a party during the next two weeks would mean that I would be much more likely to drink more than 4 units of alcohol on that day

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

4. During the next two weeks most of my friends with whom I go out I expect will think that they should not drink much more than 4 units of alcohol a day.

strongly disagree:_____:_____:_____:_____:_____:_____:_____:strongly agree

5. Drinking more than 4 units of alcohol a day during the next two weeks would make me feel tired.

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

6. If I were to drink more than four units of alcohol on any day during the next two weeks, I would feel upset.

definitely yes:_____:_____:_____:_____:_____:_____:_____:definitely not

7. For me, during the next two weeks, reducing my regular alcohol consumption when out with a group of friends for an evening would be quite difficult

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

8. I intend to drink no more than 4 units of alcohol a day during the next two weeks.

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

9. During the next two weeks if I was enjoying drinking with friends and even if I'd already had more than 4 units of alcohol, I would be willing to have another drink.

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

10. On those occasions when I drink alcohol during the next two weeks, I intend to drink less than is usual for me.

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

11. How important is it to you to drink no more than 4 units of alcohol a day during the next two weeks?

extremely important:_____:_____:_____:_____:_____:_____:_____:extremely unimportant

12. If I were to drink more than four units of alcohol on any day during the next two weeks, I would feel regretful.

definitely yes:_____:_____:_____:_____:_____:_____:_____:definitely not

13. During the next two weeks, if I was enjoying drinking with friends, I would be willing to drink to the point where I felt hungover the next morning.

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

14. Experiencing high levels of stress during the next two weeks would make me more likely to drink more than 4 units of alcohol a day

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

15. For you personally, drinking no more than 4 units of alcohol a day would be:

harmful:_____:_____:_____:_____:_____:_____:_____:beneficial

16. Most of my friends, with whom I go out, think that I should drink no more than 4 units of alcohol a day during the next two weeks.

strongly disagree:_____:_____:_____:_____:_____:_____:_____:strongly agree

17. During the next two weeks how much control do you believe you have over limiting your alcohol consumption to no more than 4 units of alcohol a day?

no control:_____:_____:_____:_____:_____:_____:_____:complete control

18. For me, during the next two weeks, suggesting drinking no more than 4 units to someone I have been drinking with in the past would be

extremely difficult:_____:_____:_____:_____:_____:_____:_____:extremely easy

19. It would not be easy for me, in the next two weeks, to reduce my alcohol consumption

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

20. During the next two weeks, if I was having a really good time at a party and even if I have already consumed 4 units of alcohol at one sitting I would be willing to carry on drinking.

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

21. If I were to drink more than 4 units of alcohol on any day during the next two weeks, I would feel worried.

definitely yes:_____:_____:_____:_____:_____:_____:_____:definitely not

22. How important is it to you to loose your inhibitions when you are with friends during the next two weeks?

extremely important:_____:_____:_____:_____:_____:_____:_____:extremely unimportant

23. Drinking no more than 4 units of alcohol a day during the next two weeks would enable me to get up early each morning.

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

24. Going out with a group of friends for an evening during the next two weeks would make me more likely to drink more than 4 units of alcohol on that occasion

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

25. For you personally, drinking no more than 4 units of alcohol a day would be:

unpleasant:_____:_____:_____:_____:_____:_____:_____:pleasant

26. If I wanted to, I could restrict my drinking to 4 units of alcohol a day during the next two weeks.

definitely true:_____:_____:_____:_____:_____:_____:_____:definitely false

27. How important is it to you to be able to talk uninhibitedly with close friends during the next two weeks?

extremely important:_____:_____:_____:_____:_____:_____:_____:extremely unimportant

28. For me, during the next two weeks, drinking only non-alcoholic drinks when out with a group of friends for an evening would be

extremely difficult:_____:_____:_____:_____:_____:_____:_____:extremely easy

29. It would be difficult for me, in the next two weeks, to reduce my alcohol consumption

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

30. I plan to drink no more than 4 units of alcohol a day during the next two weeks.

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

31. During the next two weeks, even if I particularly liked the type of drink that was available, then I would definitely not be willing to drink more of it than I should

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

32. I am confident that I can restrict myself to 4 units of alcohol a day during the next two weeks.

strongly disagree:_____:_____:_____:_____:_____:_____:_____:strongly agree

33. On those occasions when I drink alcohol during the next two weeks, I expect to drink more than is usual for me.
very likely:_____:_____:_____:_____:_____:_____:_____:very unlikely

34. How important it is to you to 'let go' when you are with friends during the next two weeks?

extremely important:_____:_____:_____:_____:_____:_____:_____:_____:extremely unimportant

35. During the next two weeks my friends will disapprove if I drink much more than 4 units a day.

strongly disagree:_____:_____:_____:_____:_____:_____:_____:_____:strongly agree

36. Drinking no more than 4 units of alcohol a day during the next two weeks will enable me to concentrate well when at work.

strongly agree:_____:_____:_____:_____:_____:_____:_____:_____:strongly disagree

37. For you personally, drinking no more than 4 units of alcohol a day would be:

enjoyable:_____:_____:_____:_____:_____:_____:_____:_____:unenjoyable

38. For me, during the next two weeks, refusing the offer of a drink once I have drunk 4 units of alcohol during an evening would be

extremely difficult:_____:_____:_____:_____:_____:_____:_____:_____:extremely easy

39. During the next two weeks, if I particularly liked the type of drink that was available, then I would be willing to drink more of it than I should

strongly agree:_____:_____:_____:_____:_____:_____:_____:_____:strongly disagree

40. I intend to drink more than 4 units of alcohol a day on some days during the next two weeks.

strongly agree:_____:_____:_____:_____:_____:_____:_____:_____:strongly disagree

Please go to Page 7

The following seven items are about the way in which you react in certain social situations. For each of these items three possible responses are given. For each item choose the response which is most true of you. Put an 'X' in the circle next to the response which is most true of you. Try to use the '*not sure*' response as little as possible.

1. When you are told that you are breaking a rule (for example, 'no smoking'), is your first reaction to

a) stop breaking the rule any further O
or, b) go ahead and still break the rule? O
c) not sure O

2. "I enjoy the thrill I get from being difficult and awkward". Do you

a) agree O
or, b) disagree ? O
c) not sure O

3. Do you find it exciting to do something shocking?

b) yes, often O
or, b) no, hardly ever O
c) not sure O

4. If you are asked particularly NOT to do something, do you feel the urge to do it?

a) no, hardly ever O
or b) yes, often O
c) not sure O

5. Do you tease people unnecessarily just so as to have some fun at their expense?

b) yes, often O
or, b) no, hardly ever O
c) not sure O

6. How often do you do something you shouldn't just to get some excitement?

a) not often at all O
or, b) often? O
c) not sure O

7. How often do others say that you are a difficult person?

a) rarely O
or, b) often O
c) not sure O

Please go to Page 8

Please respond to the next series of items by ticking one circle for each statement which best represents the extent of your agreement or disagreement with the statement.

	Disagree strongly	Disagree a little	Neither agree or disagree	Agree a little	Agree strongly
I see myself as someone who…					
1) does a thorough job	O	O	O	O	O
2) can be somewhat careless	O	O	O	O	O
3) is a reliable worker	O	O	O	O	O
4) tends to be disorganised	O	O	O	O	O
5) tends to be lazy	O	O	O	O	O
6) perseveres until the task is finished	O	O	O	O	O
7) does things efficiently	O	O	O	O	O
8) makes plans and follows through with them	O	O	O	O	O
9) is easily distracted	O	O	O	O	O

Please go to Page 9

Please give the following information about yourself:

(1) Your age: _____ (years)

(2) Are you?: female [ ] male [ ] *(please tick one)*

(3) What is your partner status? *(please tick one)*

Single [ ] Co – habiting [ ] Married [ ] Divorced [ ]

Separated [ ] Widowed [ ] Dating [ ]

(4) What is your ethnic origin? *(please tick one)*

White UK [ ] Bangladeshi [ ] Kurdish [ ]

Black Caribbean [ ] Chinese [ ] Irish [ ]

Black African [ ] Other Asian [ ] Turkish [ ]

Black UK [ ] European [ ] Turkish [ ]

Indian [ ] Greek [ ] Pakistani [ ]

Green Cypriot [ ] other (please specify) [ ]_____

(5) What is your father's occupation?_____

(6) What is your mother's occupation?_____

(7) Please write down:

(c) the first two letters of
your mother's first name here: _____

(b) and your house number here:_____

PLEASE MAKE SURE YOU HAVE GIVEN AN ANSWER TO ALL ITEMS & QUESTIONS. *THANK YOU* FOR YOUR RESPONSES.

7.4 Appendix 4: A copy of the post intervention male questionnaire

A questionnaire about drinking

Please answer the following questions:

Please read the following carefully before continuing.

The following measures contain 1 unit of alcohol:

- half a pint of ordinary strength lager/beer/cider = 1 unit
- a single 25ml pub measure of spirit = 1 unit
- a small glass of wine = 1 unit
- a pub measure of fortified wine (e.g. sherry, martini) = 1 unit

Instructions:

Think carefully about what you drank on each of the last 3 days and estimate how many units you consumed. Remember there are no right or wrong answers as people drink different amounts. Of interest is only how much alcohol you drank on each of the last three days. Please answer the following questions.

(a) Number of units consumed yesterday: _____
(b) Number of units consumed the day before yesterday: _____
(c) Number of units consumed 3 days ago: _____

Please estimate the average number of units you consumed in the last two weeks on:
1. an average Friday _____
2. an average Saturday _____
3. an average Sunday _____
4. an average weekday (i.e. on a Monday/Tuesday/Wednesday/ or Thursday) _____

Please indicate your response to the following items by placing a tick in the space that best represents how you feel.

1. It is likely that I will reduce the amount of alcohol I drink in the next two weeks

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

2. If I were to drink more than four units of alcohol on any day during the next two weeks, I would feel upset.

definitely yes:_____:_____:_____:_____:_____:_____:_____:definitely not

3. For me, during the next two weeks, reducing my regular alcohol consumption when out with a group of friends for an evening would be quite difficult

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

4. I intend to drink no more than 4 units of alcohol a day during the next two weeks.

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

5. On those occasions when I drink alcohol during the next two weeks, I intend to drink less than is usual for me.

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

6. How important is it to you to drink no more than 4 units of alcohol a day during the next two weeks?

extremely important:_____:_____:_____:_____:_____:_____:_____:extremely unimportant

7. If I were to drink more than four units of alcohol on any day during the next two weeks, I would feel regretful.

definitely yes:_____:_____:_____:_____:_____:_____:_____:definitely not

8. For you personally, drinking no more than 4 units of alcohol a day would be:

harmful:_____:_____:_____:_____:_____:_____:_____:beneficial

9. For me, during the next two weeks, suggesting drinking no more than 4 units to someone I have been drinking with in the past would be

extremely difficult:_____:_____:_____:_____:_____:_____:_____:extremely easy

10. It would not be easy for me, in the next two weeks, to reduce my alcohol consumption

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

11. If I were to drink more than four units of alcohol on any day during the next two weeks, I would feel worried.

definitely yes:_____:_____:_____:_____:_____:_____:_____:definitely not

12. How important is it to you to loose your inhibitions when you are with friends during the next two weeks?

extremely important:_____:_____:_____:_____:_____:_____:_____:extremely unimportant

13. For you personally, drinking no more than 4 units of alcohol a day would be:

unpleasant:_____:_____:_____:_____:_____:_____:_____:pleasant

14. How important is it to you to be able to talk uninhibitedly with close friends during the next two weeks?

extremely important:_____:_____:_____:_____:_____:_____:_____:extremely unimportant

15. For me, during the next two weeks, drinking only non-alcoholic drinks when out with a group of friends for an evening would be

extremely difficult:_____:_____:_____:_____:_____:_____:_____:extremely easy

16. It would be difficult for me, in the next two weeks, to reduce my alcohol consumption

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

17. I plan to drink no more than 4 units of alcohol a day during the next two weeks.

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

18. On those occasions when I drink alcohol during the next two weeks, I expect to drink more than is usual for me.

very likely:_____:_____:_____:_____:_____:_____:_____:very unlikely

19. How important it is to you to 'let go' when you are with friends during the next two weeks?

extremely important:_____:_____:_____:_____:_____:_____:_____:extremely unimportant

20. For you personally, drinking no more than 4 units of alcohol a day would be:

enjoyable:_____:_____:_____:_____:_____:_____:_____:unenjoyable

21. For me, during the next two weeks, refusing the offer of a drink once I have drunk 4 units of alcohol during an evening would be

extremely difficult:_____:_____:_____:_____:_____:_____:_____:extremely easy

22. I intend to drink more than 4 units of alcohol a day on some days during the next two weeks.

strongly agree:_____:_____:_____:_____:_____:_____:_____:strongly disagree

(7) Please write down:

(d) the first two letters of your mother's first name here: _____

(b) and your house number here:_____

THANK YOU FOR YOUR RESPONSES.

7.5 Appendix 5: A copy of the intervention leaflet.

DID YOU KNOW THAT EVEN MODERATE LEVELS OF ALCOHOL CONSUMPTION CAN DAMAGE YOUR HEALTH?

The currently recommended limits for alcohol consumption are no more than 3 units of alcohol a day for women and no more than 4 units of alcohol a day for men.

These guidelines are based on evidence showing that drinking more than these daily amounts can permanently damage your health. Keeping to these recommended levels allows you to enjoy light drinking (1-2 units per session) while avoiding the health risks that follow from higher consumption.

Many people are now cutting down their alcohol consumption.

A third of students do not drink at all or drink within the recommended limits. If you always drink within these recommended limits then you don't need to worry about your alcohol consumption

Drinking within the recommended limits has many advantages.

- More money for other things.
  (...think how much you spent on alcohol in the last week.)
- Fewer headaches & hangovers.
- Being able to get up in the morning feeling refreshed & energetic.
- Sounder sleep.
- Lower blood pressure.
- Less risk of liver disease.
- Less risk of road accidents.

Consider how you'll feel in the future if you do damage your health by exceeding recommended daily limits.

You may regret damaging your health later if you exceed these limits now.

If you are exceeding these limits - stop and think!

It would be easy for you to reduce your daily alcohol intake. Just drink a little less every day and soon you'll be enjoying drinking without the risk of harm to yourself.

Please continue on the next page

So, make plans to reduce your alcohol consumption today.

You could reduce your consumption in a number of ways:

1.	- stock up at home on soft drinks & alcohol free drinks;
2.	- tell other people that you are cutting down so that they avoid putting pressure on you;
3.	- keep a diary of how much you drink;
4.	- by not letting anyone pressure you into having another drink;
5.	- have clear reasons for refusing a drink such as '*no thanks, I have had enough*', or '*I have a lot on tomorrow*';
6.	- when you are in a round, choose alcohol free drinks;

It does not take much effort to reduce your consumption.
What you can do is: make concrete plans to reduce your drinking.

Please respond to the following items:

(a) If you want to reduce your drinking, when will you start reducing your alcohol intake?

this week: ❑
next week: ❑
in three week's time: ❑
in four week's time: ❑
in 5 to 8 week's time: ❑

And, on what day will you start?

Monday ❑ Tuesday ❑ Wednesday ❑ Thursday ❑
Friday ❑ Saturday ❑ Sunday ❑

(b) If you want to reduce your drinking, where do you intend to start reducing it? (*please tick one box only*)

home ❑ pub ❑ club ❑ bar ❑ restaurant ❑ party ❑ friend's house ❑
relative's house ❑ other place ❑_____(*please specify*)

(c) On those occasions when I drink alcohol during the next two weeks, I intend to drink less than is usual for me

Strongly agree ;_____;_____;_____;_____;_____;_____;_____; Strongly disagree

(d) How many units do you think is a reasonable daily upper limit for you?
1❑ 2❑ 3❑ 4❑ 5❑ 6❑ 7❑ 8❑ 9❑ 10❑ (*tick one box only*)

Thank you