AN INVESTIGATION OF PUBLIC KNOWLEDGE OF THE LINK BETWEEN ALCOHOL AND CANCER

The University Of Sheffield.

CANCER RESEARCH UK

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CANCER RESEARCH UK

Cancer Research UK is the world's largest independent cancer charity dedicated to saving lives through research. We support research into all aspects of cancer through the work of over 4,000 scientists, doctors and nurses. In 2014/2015, we spent £434 million on research institutes, hospitals and universities across the UK – including a £41 million contribution we made to the Frances Crick Institute. We receive no funding from Government for our research.

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http://www.cancerresearchuk.org/

FOREWORD

I am delighted to introduce this report exploring public knowledge of alcohol guidelines, awareness of alcohol as a risk factor for cancer and public attitudes towards health labelling.

Alcohol consumption is responsible for 5.9% of all global deaths and is linked to more than 60 health conditions including 7 types of cancer. In the UK, between 2012 and 2013, alcohol was responsible for over 333,000 hospital admissions and 22% of these were due to cancer.

Although there have been some recent declines in alcohol consumption in the UK, per capita consumption is still more than double what it was in the 1960s. As a result we are seeing increasing numbers of alcohol-related cancers, such as oral and breast cancers.

This report, which is based on data collected before the new Chief Medical Officer (CMO) guidelines were released, found public knowledge and use of alcohol guidelines was low. There was also poor public awareness of the alcohol and cancer link, which suggests that lack of knowledge may be one barrier to individuals making informed decisions about their health.

The research shows the public are supportive of changes in alcohol policies. In particular, there is support for health information being made more easily available, such as on alcohol containers. The findings provide useful insights to help shape alcohol policy development.

The 2016 CMO alcohol guidelines reflect the most up-to-date evidence on cancer risk and alcohol consumption. The recommendations focus on raising public awareness of the health harms caused by alcohol, particularly around cancer. The information in the guidelines needs to be effectively communicated, and easy to understand and apply, to help us all make informed decisions around alcohol consumption.

This report was commissioned by Cancer Research UK's Policy Research Centre for Cancer Prevention. This new Centre is part of Cancer Research UK's commitment to support high quality research to help build evidence to inform policy development on topics relevant to cancer prevention, including alcohol.

Professor Linda Bauld,

Director of the Institute for Social Marketing, University of Stirling and Cancer Prevention Champion, Cancer Research UK

LIST OF ACRONYMS

ABV	Alcohol by Volume
APISE	Alcohol Policy Interventions in Scotland and England
AUDIT	Alcohol Use Disorders Identification Test
CCNSW	Cancer Council New South Wales
IMD	Index of Multiple Deprivation
NDSHS	(Australian) National Drug Strategy Household Survey
NHS	National Health Service
ONS	Office for National Statistics

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EXECUTIVE SUMMARY

There is increasing evidence of links between alcohol consumption and specific types of cancer (1, 2). Alcohol is believed to be responsible for approximately 12,800 cancer cases annually in the UK (3). Levels of public understanding of alcohol as a risk factor for cancer is low in England (4) and there is limited recent data about this. The Policy Research Centre for Cancer Prevention, Cancer Research UK (CRUK) commissioned the University of Sheffield to undertake a study to gather evidence relevant to these issues.

KEY FINDINGS

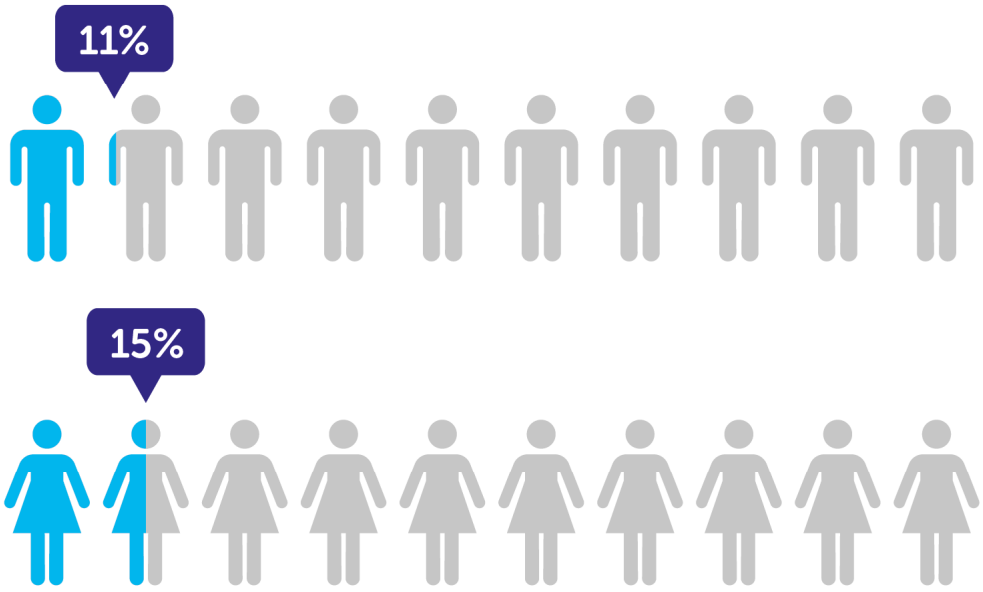
- When prompted, only one in two people are aware of the link between alcohol consumption and cancer. Without prompting, only 13% identify cancer as a potential health outcome of consumption

- When asked in more detail about specific cancers, levels of awareness range from 18% (breast cancer) to 80% (liver cancer) with uncertainty about the level of drinking at which risk of different cancer types increases

- Approximately one in five people can correctly identify the maximum number of alcohol units that it is recommended should not be exceeded in a day[1]
- Among drinkers, only 10-15% can correctly identify their own gender drinking guideline and at least sometimes use it to keep track of their alcohol consumption (when surveyed before the release of the new CMO guidelines)

GUIDELINE AWARENESS

Amongst drinkers 11% of men and 15% of women could both accurately identify the maximum daily units and used this guideline to keep track of their own drinking.*



*When asked, "Do you know how many alcohol units it is recommended that men/women should not exceed in a day?" and "Do you use these guidelines to keep track of your own drinking?"

The CMO alcohol guidelines need to be easily accessible and understandable to the public.

[1] when surveyed before the release of the new CMO guidelines

- Primary responsibility for tackling alcohol related harms is seen to rest with individuals, the alcohol industry and the national government
- Health information labelling (e.g. standardised display of alcohol by volume percentage) is supported, with only 10% or less indicating they oppose or strongly oppose each health information label presented
- Health warning statements (e.g. *Warning: Alcohol increases your risk of cancer*) are considered believable and acceptable by about half of respondents
- There is a diversity of opinion as to which warning statements are the most and least persuasive, suggesting that should health warning labelling be implemented, a range of messages may be required

EVIDENCE

This is the first of two reports on the results of an online survey of 2100 people conducted in July 2015 which provides up-to-date evidence for England concerning: knowledge and use of drinking guidelines; knowledge of the link between alcohol use and various health conditions including specific cancer types, opinions on labelling and health guidance and responsibility for tackling alcohol-related health harms.

POLICY AND PUBLIC HEALTH

The data presented in this report give a useful summary of public knowledge of the health risks associated with drinking (particularly in relation to cancer) and public health guidance regarding alcohol consumption. Furthermore, the report includes a detailed examination of public acceptability of labelling and health warning statements. Many of these findings are of immediate relevance to policy and public health practice. For example, many people's uncertainty about link between alcohol and specific cancer types is an important finding for public health advocates.

INTRODUCTION

1.1. BACKGROUND

Alcohol is a significant contributor to the global burden of mortality and disease, accounting for 3.8% of deaths and 4.6% of disability-adjusted life years (5). In England, alcohol has been estimated to contribute (either partially or wholly) to mortality and morbidity from 43 different conditions, including heart disease, liver disease, diabetes and seven types of cancer (6) (Figure 1). Alcohol use may also contribute to factors such as obesity and high cholesterol, which also increase the risk of developing an alcohol-related disease.

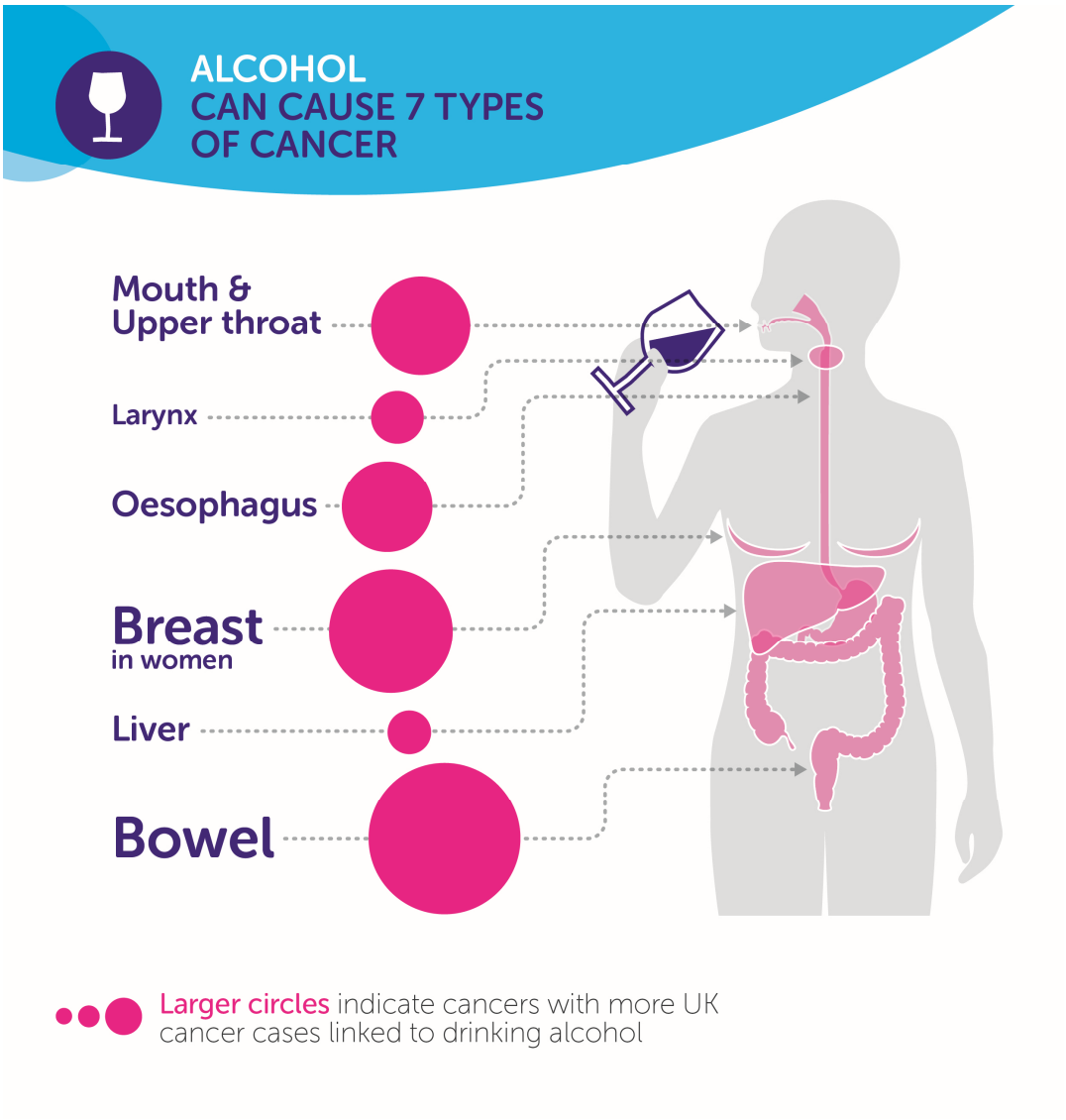


FIGURE 1 CANCER CASES LINKED TO DRINKING ALCOHOL

Regarding cancer, it is estimated that in 2012, 5.5% of cancer cases and 5.8% of cancer deaths were attributable to alcohol worldwide (2). However, the proportion of cancer attributable to alcohol varies both according to the cancer type and the amount of alcohol consumed (1). For example, while less than 10% of breast cancer cases are attributable to alcohol use, the risk of developing this cancer type among women increased at low levels of alcohol use (≤12.5 g/day, or the equivalent of a glass of wine) (2). Despite the substantial contribution of cancer to avoidable deaths, previous research has highlighted poor knowledge of the link between alcohol consumption and cancer among the UK population. For example, when participants in a 2009 study were asked to identify risk factors for cancer (unprompted), only 14% mentioned alcohol. (4) This lack of awareness may be partly because alcohol is only one risk factor of many potentially contributing to the development of cancer, and also because cancer is a chronic harm which may accrue over many years, rather than as an immediately obvious consequence of drinking. Therefore the relevance of strategies to reduce overall levels of alcohol consumption to cancer prevention may not be immediately apparent to many people.

The UK drinking guidelines have been recently reviewed: at the time this study was conducted the recommended daily limits were 3-4 units for men and 2-3 units for women, whereas the new drinking guidelines (released January 2016) do not distinguish by sex and recommend that both men and women not exceed 14 units per week (7).

A key policy focus of the current UK Alcohol Strategy is to "support individuals to change", through strategies intended to help the public in "understanding the risks" of alcohol (8, p. 21). This element of the strategy identified the intention to not only review the drinking guidelines (as mentioned above), but also to improve public health information, potentially by extending current government healthy lifestyle social marketing campaigns to include alcohol. The strategy also promotes "shared responsibility with industry", which included an undertaking by industry to increase the proportion of products with health labelling to 80% (8, p. 17). There is currently little evidence for the effectiveness of social marketing or health labelling and warning messages in reducing alcohol consumption, although intervening variables such as awareness and intentions may be positively affected (9). However, it can be argued that the public have a right to information about the products they consume and that action in this area is therefore an important part of a comprehensive alcohol strategy. Policies of this type have already been shown elsewhere to be highly acceptable to the public (10-13). However, it is important to better understand which specific types of labelling and health messages appeal to the public, including content of such messages (e.g. nutrition labelling, drinking guidelines) (14) and their structure (e.g. positively or negatively framed, specific versus general) (15).

1.2. AIM

The aim of this study was to explore understanding of the relationship between alcohol consumption and different health conditions (especially different cancers), attitudes to health information and labelling and perceptions of who is responsible for reducing alcohol related harm.

1.3. OBJECTIVES

We conducted an online survey to:

1. Measure public knowledge of the link between alcohol consumption and cancer, including understanding of the risk for different levels of alcohol use and different types of cancer
2. Assess awareness and use of current UK drinking guidelines
3. Assess the perceived believability, acceptability and persuasiveness of different alcohol health warning statements
4. Determine which sectors and individuals people perceive to have responsibility for tackling alcohol-related harm

METHODS

2.1. SURVEY DEVELOPMENT

We developed an online survey tool based on the alcohol questions from the Community Survey on Cancer Prevention conducted by the Cancer Council New South Wales (CCNSW) as reported in Buykx et al 2014 (10) and incorporated items from other survey tools where relevant (see Appendix 1). For sections of the survey where no suitable existing tools could be found, questions were developed in consultation with colleagues and key stakeholders. Respondents were informed that the survey was about health and lifestyle behaviours, and that their answers would help inform public health policy. The survey consisted of the following sections:

DEMOGRAPHIC INFORMATION

Demographic information was sought regarding respondents' age, gender, education, geographical location, and household income. Post code data were used to calculate Index of Multiple Deprivation (IMD) decile.

ALCOHOL AND TOBACCO USE

Current alcohol use was tested using the 3-item Alcohol Use Disorders Identification Test (AUDIT C) (16). The AUDIT C is a screening tool used to identify potentially hazardous drinkers. Each item is scored from 0 to 4 (total score range 0-12), with a score of zero indicating the person is a current non-drinker, 1-4 indicating lower risk, and 5 or above indicating increasing risk (17). Respondents were asked to specify their current smoking status, the time since they had given up (if applicable) and their use of e-cigarettes.

KNOWLEDGE AND RISK PERCEPTION

Respondents were asked to indicate which, if any, health conditions they thought could result from drinking too much alcohol. This question was first asked unprompted (and respondents asked to complete a free text field) and then asked in relation to seven specific health conditions. To test respondents' risk perceptions concerning alcohol use and specific cancer types, respondents were shown a list of eight different types of cancer and asked whether or not they thought the risk of developing each type of cancer was increased by drinking alcohol. For those cancers they believed to be alcohol-related, respondents were asked to indicate the lowest level of alcohol consumption at which they thought the risk of developing each cancer

started to increase. We included cancers which are not known to have any risk from drinking alcohol, those which carry a significant risk from light drinking (e.g. breast cancer), and those which carry a significant risk from heavy drinking (e.g. liver cancer). We developed the questions following discussions with colleagues and Cancer Research UK and drew on existing literature to identify significant and non-significant relationships between alcohol and particular types of cancer (1).

KNOWLEDGE AND USE OF DRINKING GUIDELINES

Respondents were shown a graphic indicating the alcohol unit content of different types of alcohol in a variety of measures (e.g. one pint of beer; one single measure of spirits) and asked if they knew how many alcohol units it is recommended that men / women should not exceed in a day. Those who said 'yes' were then asked to indicate the recommended amount on a sliding scale (from 0 to 10 where each point was half a unit) and asked if they used the guidelines to keep track of their own drinking.

ATTITUDES TOWARDS HEALTH INFORMATION

We assessed respondents' level of support for, or opposition to, five different types of health information labelling (e.g. standardised display of alcohol by volume) (14). They were then shown seven health warning statements, selected from a previous study to include a mix of positively and negatively framed statements (e.g. Positive framing: *Reduce your drinking to reduce your risk of cancer* and negative framing: *Alcohol increases your risk of cancer*)(15). While Pettigrew et al (2014) examined the 'believability', 'convincingness' and 'personal relevance' of each message; we modified our questions so that respondents were asked to indicate the extent to which they thought each statements was 'believable' and 'acceptable'. Respondents were also asked to select which statements they found most persuasive and least persuasive. These statements were presented in random order to reduce the possibility of order bias.

RESPONSIBILITY OF ALCOHOL-RELATED HARM

Respondents were asked to indicate the extent to which they thought each of a range of institutions (e.g. national government, individuals, schools) had responsibility for tackling alcohol-related harms. Again, the options were displayed in random order.

2.2. STAKEHOLDER ENGAGEMENT

We liaised regularly with Cancer Research UK during the development of the survey tool and Cancer Research UK arranged for a patient panel group from the Policy and Information

Sounding Board to comment on an initial draft of the survey (e.g. check for clarity of wording, comment on content and style of questions). Following the panel's comments and suggestions we re-drafted the tool in consultation with Cancer Research UK until we produced a finalised version that was agreed by the project team, Cancer Research UK, the patient panel and the market research company commissioned to undertake the survey.

2.3. PILOTING

Before the full survey was launched it was piloted by the market research company on a sample of 46 respondents. The market research company supplied an overview of the data which showed most respondents completed the survey in full and there did not appear to be any problems with response sets. The only change made to the survey following the pilot was to amend the guidance advising respondents of the approximate completion time from 15 minutes to 10-15 minutes.

2.4. SAMPLING/ RECRUITMENT

CRUK commissioned the market research company Vision One to administer the online data collection using the survey tool. Vision One provided a nationally (England) representative sample of 2100 adults aged 18 and over, based on gender, age, location / region and education. The participants were members of Vision One's existing panel (18). An automated sampling system was used, with panel members invited via email to participate in the survey. The survey was conducted in July 2015.

In order to reflect the population profile of England, quota sampling by sex (male/female), age (18-19; 20-29; 30-39; 40-49; 50-59; 60+), region and education was employed. For the quota sampling by region, we used three regions of North (North East, North West, Yorkshire and the Humber), Midlands (West Midlands, East Midlands, East of England) and London/South (London, South East, South West). For quota sampling by education we used three categories: of no qualifications, below degree level, and degree or higher.

2.5. RESPONSE RATE

The stages of recruitment, from initial email invitation through to actual participation in the online survey, are shown in Table 1. Of the panel members emailed the survey invitation, 50% clicked the 'Start your survey' link. Of these 41.8% were eligible to proceed, with the remainder screened out due to full quotas or other eligibility criteria. Of the 2480 who commenced the survey, 84.7% went on to give complete and valid responses. Of those included in the final sample, the average completion time was 13 minutes and median 9.9 minutes.

TABLE 1 STAGES OF RECRUITMENT AND SURVEY COMPLETION

Stages of participant recruitment	n
Email invitations to complete survey delivered to members of market research panel	11846
Email recipients who clicked the 'Start your survey' link	5929
Ineligible Total	-3449
Quota already met (for age, gender, region, or education)	3419
Screened Out (Total)	30
- Screened Out: Age < 18yrs	(24)
- Screened Out: Q4 Region = Other	(5)
- Screened Out: Both Age & Region	(1)
Eligible recipients who commenced survey	2480
Excluded Total	-380
Dropped out	279
Data quality not assured (Total)	101
- Time take to complete survey less than one-third median	(35)
- Nonsense verbatim responses	(35)
- Unrealistic number of household residents	(31)
Number of participants who completed survey	2100

2.6. ANALYSIS

Descriptive statistics (e.g. frequencies, percentages, means and cross-tabulations) were used to understand the IMD and alcohol consumption profile of the sample and to examine the key objectives of the survey. Data were analysed using SPSS version 22. The following variables were recoded or created:

IMD QUINTILE GROUPS

IMD decile groups based on 2015 Indices of Multiple Deprivation (IMD) rankings (19) were collapsed into five groups: Least deprived, low deprivation, average, high deprivation, most deprived.

DRINKER TYPE (BASED ON AUDIT-C SCORE)

Three drinker categories were created: *Non-drinker (AUDIT-C score = 0); Lower risk (AUDIT-C score = 1-4); and Increasing risk (AUDIT-C score = 5+) (17).*

UNPROMPTED AWARENESS OF LINK BETWEEN ALCOHOL CONSUMPTION AND CANCER RISK

Respondents were asked to list in a free text field which, if any, health conditions they thought could result from drinking too much alcohol. This information was recoded into a dichotomous variable: 'no cancer mention' versus 'cancer mentioned'. Responses were coded into the latter category whether the mention was for cancer in general or a specific cancer type.

KNOWLEDGE OF LEVEL OF ALCOHOL CONSUMPTION ASSOCIATED WITH CANCER RISK

New variables were created for each cancer to reflect correct knowledge of the level of weekly alcohol consumption at which the risk of cancer starts to increase, based on data reported in Bagnardi et al 2014 (1) and also with reference to Corrao et al 2004 (20).

KNOWLEDGE OF DRINKING GUIDELINES AND USE OF GUIDELINES

New variables were created to reflect whether responses given on the sliding scale for the estimated recommended maximum daily units for men and women were correct. Responses were coded as correct if respondents reported 3-4 units for men and 2-3 units for women. Frequency of use of drinking guidelines to keep track of own drinking was dichotomised into *At least sometimes* ('sometimes', 'often' and 'always') and *Rarely or never*.

LIKERT SCALE ITEMS

Responses to warning label support on the 5 point Likert scale were dichotomised into *Support* ('support' and 'strongly support') and *Oppose/Neither* ('strongly oppose', 'oppose' and 'neither'). As only 1-4% of responses to these items were 'Don't know', these were recoded as missing for analyses. This approach was consistent with previous research (10). Responses for responsibility for tackling the harm caused by alcohol were dichotomised into *Agree* ('agree' and 'strongly agree') and *Disagree/Neither* ('disagree', 'strongly disagree' and 'neither').

2.7. WEIGHTING

As the quotas for education could not readily be achieved, a sampling weight for education was created by Vision One to adjust for the under-sampling of those without qualifications compared to the general English population (degree or equivalence and above weight = 0.9211, any other level of qualification weight = 0.9330, no qualifications or 'don't know' weight =

1.7697). This weight was applied to data for descriptive statistics (frequency counts, proportions, mean values, and cross-tabulations) in this report, unless specified.

2.8. ETHICAL CONSIDERATIONS

Ethical approval for this study was granted by the University of Sheffield (approval number 003670, dated 07/07/2015). Before beginning the survey respondents were directed to a page requiring them to explicitly give their consent to take part. In line with Vision One's standard practice, respondents received 50 points (equating to 50p) which they may withdraw as cash or redeem for prizes. To ensure confidentiality, individuals were not identified by name at any stage of the research process and were assigned a code number. To ensure data were not identifiable, post code data were removed from the dataset before transfer to the research team (post code data were used to derive an Index of Multiple Deprivation (IMD) decile score by Vision One). The data set did not contain any other identifiable information. At the conclusion of the survey, contact details for relevant services were provided to all participants in the event that some may have wanted further information or support regarding either alcohol consumption or cancer.

RESULTS

3.1. DEMOGRAPHICS

Quota sampling ensured demographic representativeness for the sample compared to the English population; 51% were female and the mean age (weighted) of the sample was 47.8 years (range: 18-80, SD=16.62). After applying weighting to adjust for under sampling of those with no qualifications, the proportion of those without qualifications increased from 9% to 15%. Gender, age distribution, region, and other socio-economic measures were only slightly affected by the weighting. Unless indicated, all estimates presented in this report are weighted (Table 2).

3.2. PERSONAL EXPERIENCE OF CANCER

In the unweighted sample, 146 respondents (7.0%) had previously been diagnosed with cancer by a doctor. Of those, almost 29% (n=42, 2% of whole sample) were currently in treatment. Bivariate analysis revealed no significant difference in the responses of this group compared to the rest of the sample on knowledge of cancer risk associated with alcohol consumption (54% and 48% respectively, survey question 18) (χ^2=5.80, p=0.215). This analysis was conducted because in a similar previous study people receiving treatment for cancer were ineligible to participate (10). As we found no difference between the groups in terms of a key variable relating to knowledge of cancer risk, data from these respondents were combined with the rest of the sample for all subsequent analyses.

3.3. ALCOHOL AND TOBACCO USE

- The most common frequency of drinking was 2 or 3 times a week, reported by just over a quarter of respondents.
- 1 in 5 reported drinking less than once a month
- 12% reported they 'never drink' alcohol
- Of drinkers, 42% reported drinking only one or two units on a typical day when drinking and 1 in 3 reported typically exceeding four units.
- 1 in 3 drinkers reported drinking heavily (>6 units if female, >8units if male) at least once a month.

- 41% of respondents were classified as 'increasing risk' according to their AUDIT C score. More males reported drinking alcohol (and more frequently and in higher quantities) than females. (Table 3).
- 1 in 4 reported to be daily smokers, while just over a third had never smoked (Table 4). A higher proportion of males reported being current or former smokers than females.
- Among former smokers (n=523), 70% reported quitting more than five years ago, 19% between one to five years ago, and 10% less than one year ago.
- Just over 1 in 5 (22%) of the sample reported smoking electronic cigarettes, 38% of these on a daily basis.

TABLE 2 DEMOGRAPHIC CHARACTERISTICS

	N=2100	
	Unweighted n (%)	Weighted n (%)
Gender		
Male	1021 (48.6)	1030 (49.0)
Female	1079 (51.4)	1070 (51.0)
Age		
18-19	63 (3.0)	62 (3.0)
20-29	339 (16.1)	325 (15.5)
30-39	351 (16.7)	332 (15.8)
40-49	394 (18.8)	385 (18.3)
50-59	334 (15.9)	330 (15.7)
60+	619 (29.5)	667 (31.8)
Region of residence		
North	634 (30.2)	643 (30.6)
Midlands	586 (27.9)	586 (27.9)
London/South	880 (41.9)	872 (41.5)
Education		
No qualifications/Don't know	178 (8.5)	315 (15.0)
Below degree level	1238 (59.0)	1155 (55.0)
Degree level or above	684 (32.6)	630 (30.0)
Income (monthly combined household after tax)		
Less than £500	84 (4.0)	95 (4.5)
£500-999	210 (10.0)	226 (10.8)
£1000-1499	303 (14.4)	316 (15.1)
£1500-1999	276 (13.1)	272 (12.9)
£2000-2999	425 (20.2)	404 (19.2)
£3000-3999	228 (10.9)	216 (10.3)
£4000-4999	93 (4.4)	89 (4.2)
£5000+	163 (7.8)	154 (7.4)
I don't know	112 (5.3)	115 (5.5)
Prefer not to say	206 (9.8)	212 (10.1)
Index of Multiple Deprivation quintile group		
Most deprived	461 (22.0)	479 (22.8)
High deprivation	469 (22.3)	474 (22.6)
Average	430 (20.5)	426 (20.3)
Low deprivation	356 (17.0)	350 (16.7)
Least deprived	362 (17.2)	349 (16.6)
Missing*	22 (1.0)	21 (1.0)

* These data had missing IMD scores because the post-code provided (from which IMD score is derived) is new and not yet included in IMD data

TABLE 3 SELF-REPORTED ALCOHOL USE: AUDIT C

	N=2100		
	Males (%)	Females (%)	Total (%)
How often do you have a drink containing alcohol?			
Never	9.6	14.1	11.9
Monthly or less	17.9	25.0	21.5
2 to 4 times a month	22.2	24.8	23.5
2 to 3 times a week	29.9	23.9	26.9
4 or more times a week	20.4	12.2	16.2
How many units of alcohol do you drink on a typical day when you are drinking? (if ever drink)*			
1 or 2	33.9	49.6	41.7
3 or 4	25.2	27.5	26.4
5 or 6	18.8	13.3	16.0
7, 8, or 9	11.2	6.0	8.6
10 or more	10.8	3.6	7.2
How often have you had 6 (if female) or 8 (if male) units on a single occasion in the last year? (if ever drink)*			
Never	31.0	39.2	35.1
Less than monthly	31.9	38.2	35.0
Monthly	16.5	11.5	14.1
Weekly	17.0	8.6	12.8
Daily or almost daily	3.6	2.5	3.1
Audit Score (range: 0-12)			
0 (Non-drinkers)	9.6	14.1	11.9
1-4 (Lower risk)	40.0	53.5	46.9
5-12 (Increasing risk)	50.4	32.4	41.2
Mean (SD)	4. 8 (3.18)	3.5 (2.72)	4.1 (3.02)

*The baseline count ≠ 2100. This is because those who answered 'Never' (n=250) to 'How do often do you have a drink containing alcohol?' were counting as missing for these questions. The sample size for both of these questions is 1850.

TABLE 4 SELF-REPORTED SMOKING STATUS

	N=2100		
	Males (%)	Females (%)	Total (%)
Which of the following best describes your smoking status?			
I smoke daily	29.2	22.1	25.5
I smoke occasionally	6.7	5.0	5.9
I don't smoke now but I used to	26.5	23.4	24.9
I've tried it a few times, but never smoked regularly	6.7	8.2	7.5
I've never smoked	30.9	41.3	36.2
How often, if at all, do you currently use an electronic cigarette (e-cigarette)?			
Not at all	73.2	81.3	77.3
Daily	9.4	7.1	8.2
Less than daily but at least once a week	8.6	4.3	6.4
Less than weekly, but at least once a month	3.0	2.9	3.0
Less than monthly	4.5	4.0	4.2
Don't know	1.4	0.5	0.9

3.4. KNOWLEDGE OF HEALTH CONDITIONS LINKED TO ALCOHOL

- Unprompted, 12.9% of respondents identified cancer as a potential health outcome of alcohol consumption (Figure 2).
- When prompted, 47% identified cancer as a potential health outcome and almost 1 in 3 (29%) reported not knowing (Table 5).
- Most respondents correctly identified that drinking too much alcohol can result in liver disease, being overweight or obese, and heart disease (73-95%).

When asked about which specific cancer types are associated with increased drinking:

- Levels of knowledge were highest for liver cancer (80%) (Table 6).
- Less than half of respondents were aware of the cancer link for two cancer types where there is an increased risk at low drinking levels (<50% breast, mouth/throat)
- Levels of knowledge were particularly low for breast cancer.

FIGURE 2 PUBLIC AWARENESS OF THE LINK BETWEEN ALCOHOL AND CANCER

As breast cancer is much more common in women, we examined this item by sex to see whether there appeared to be a large difference in responses by men and women. The results were broadly similar, with slightly more women aware of the link (Females: Yes 20%, No 40%, DK 40%, Males: Yes 16%, No 38%, DK 47%). The proportion of endorsing 'don't know' for each

cancer type suggests a general lack of certainty among respondents on whether or not alcohol is a risk factor.

Table 7 shows respondents' perceptions of the level of alcohol consumption at which the risk of developing different cancers begins to increase. While current evidence for breast and mouth/throat cancer suggests risk is increased when drinking at any level, only between a quarter and a third of respondents identified the risk as increasing at less than 10 units a week (1).

TABLE 5 PROPORTION WHO BELIEVE HEALTH CONDITION 'CAN RESULT FROM DRINKING TOO MUCH ALCOHOL

Health condition	N=2100		
	Yes (%)	No (%)	Don't know (%)
Liver disease	94.6	2.4	3.0
Being overweight or obese	83.8	7.4	8.7
Heart disease	73.3	10.0	16.7
Diabetes	58.5	15.9	25.6
High cholesterol	52.1	19.7	28.1
Cancer	46.9	24.1	29.0
Arthritis	14.3	46.2	39.5

TABLE 6 PROPORTION WHO BELIEVE RISK OF SPECIFIC CANCER TYPE IS INCREASED BY DRINKING ALCOHOL

Cancer type	N=2100		
	Yes (%)	No (%)	Don't know (%)
Cancers where increased risk is evident at heavy drinking level			
Liver	80.0	5.8	14.2
Cancers where increased risk is evident at moderate drinking level			
Colon and rectal	38.5	23.0	38.5
Cancers where increased risk evident at low drinking level			
Breast	17.8	38.7	43.5
Mouth and throat	48.1	19.5	32.4
Cancers where no evidence for increased risk from drinking			
Bladder	54.3	15.0	30.7
Brain	31.8	27.2	41.1
Ovarian	16.5	38.0	45.5

TABLE 7 PROPORTION ENDORSING LEVEL OF ALCOHOL CONSUMPTION AT WHICH THEY BELIEVE RISK OF DEVELOPING CANCER STARTS TO INCREASE

\Cancer type	< 10 units a week (%)	10 -30 units a week (%)	30-50 units a week (%)	>50 units a week (%)	Don't know (%)
Cancers where increased risk is evident at heavy drinking level					
Liver (n=1681)	23.7	31.8	11.6	4.1	28.8
Cancers where increased risk is evident at moderate drinking level					
Colon and rectal (n=809)	25.5	31.0	11.3	3.6	28.5
Cancers where increased risk is evident at low drinking level					
Breast (n=374)	32.2	27.2	10.8	2.5	27.3
Mouth & throat (n=1009)	26.5	30.3	11.3	3.6	28.3
Cancers where no evidence for increased risk from drinking					
Brain (n=668)	29.8	26.9	11.5	5.9	25.9
Bladder (n=1141)	23.4	33.1	11.7	3.0	28.9
Ovarian (n=346)	28.5	29.5	10.1	3.7	28.2

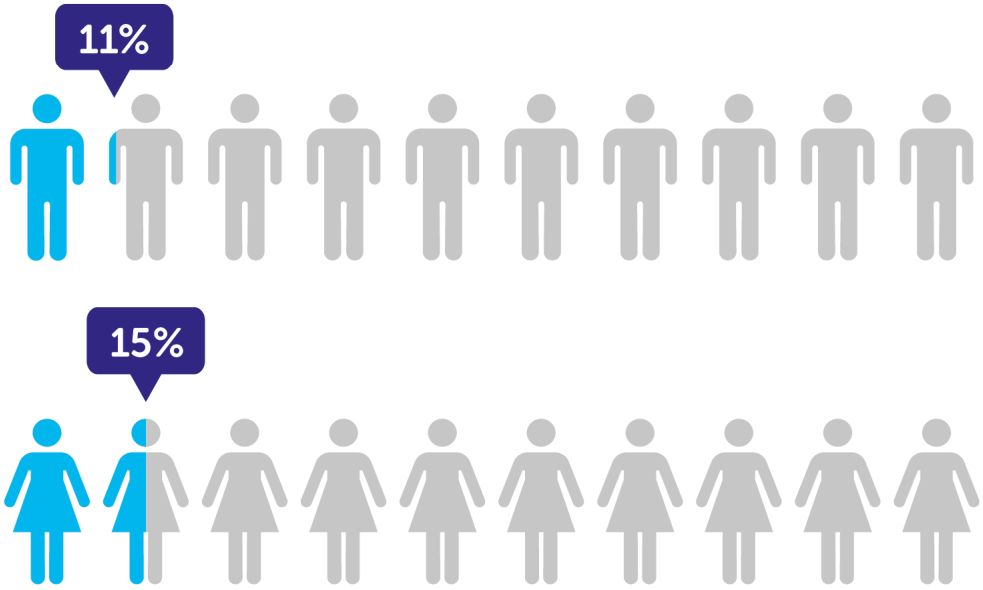
'Sample sizes vary because only respondents who said 'Yes' to 'Do you think your risk of developing the following types of cancer is increased by drinking alcohol?' were asked this question for each cancer

3.5. KNOWLEDGE AND USE OF DRINKING GUIDELINES

- Approximately 1 in 3 men and women reported knowing the recommended number of units their own gender should not exceed in a day according to drinking guidelines (Table 8 and Table 9).
- Of these respondents, 61% correctly estimated the maximum number of units recommended for men and 69% for women.
- Of those who reported knowing the recommended amount and at least 'sometimes' used them to track their own drinking, 56% of men and 69% of women estimated the correct amount.
- Excluding non-drinkers 11% of men and 15% of women who drank correctly identified the recommended maximum daily amount of units AND used the guidelines to keep track of their own drinking (Figure 3 and Table 10).

GUIDELINE AWARENESS

Amongst drinkers 11% of men and 15% of women could both accurately identify the maximum daily units and used this guideline to keep track of their own drinking.*



*When asked, "Do you know how many alcohol units it is recommended that men/women should not exceed in a day?" and "Do you use these guidelines to keep track of your own drinking?"

The CMO alcohol guidelines need to be easily accessible and understandable to the public.

FIGURE 3 PUBLIC KNOWLEDGE AND USE OF DRINKING GUIDELINES

TABLE 8 KNOWELDGE AND USE OF RECOMMENDED MAXIMUM DAILY UNITS FOR MEN

Do you know how many alcohol units it is recommended that *men* should not exceed in a day?	Male (n=1030)	Female (n=1070)	Total (n=2100)
Yes	35.0%	24.5%	29.6%
Of those who said Yes:	(n=360)	(n=262)	(n=622)
Mean number of daily units estimated (SD)	3.8 (1.52)	4.0 (1.54)	3.9 (1.53)
Underestimate (<3 units)	16.0%	10.9%	13.8%
Correct estimate (3-4units)	62.3%	59.4%	61.1%
Overestimate (4.5+units)	21.7%	29.7%	25.1%
Of those who said Yes and who at least 'sometimes' use guideline to keep track of own drinking	(n=184)	NA	NA
Underestimated (<3 units)	16.8%		
Correct (3-4units)	56.0%		
Overestimated (4.5+units)	27.2%		

TABLE 9 KNOWELDGE AND USE OF RECOMMENDED MAXIMUM DAILY UNITS FOR WOMEN

Do you know how many alcohol units it is recommended that *women* should not exceed in a day?	Male (n=1030)	Female (n=1070)	Total (n=2100)
Yes	28.8%	35.8%	32.3%
Of those who said Yes:	(n=296)	(n=383)	(n=679)
Mean number of daily units estimated (SD)	2.8 (1.41)	2.7 (1.26)	2.7 (1.33)
Underestimate (<2 units)	13.1%	10.8%	11.8%
Correct estimate (2-3units)	66.4%	70.6%	68.8%
Overestimate (3.5+units)	20.5%	18.6%	19.5%
Of those who said Yes and who at least 'sometimes' use guideline to keep track of own drinking	NA	(n=216)	NA
Underestimated (<2 units)		6.9%	
Correct (2-3units)		68.5%	
Overestimated (3.5+units)		24.5%	

TABLE 10 PROPORTION OF TOTAL SAMPLE CORRECTLY IDENTIFYING RECOMMENDED DAILY UNITS OF ALCOHOL

	Male %	Female %	Total %
Total sample	(n=1030)	(n=1070)	(n=2100)
Correctly identified recommended maximum daily units for *men* (3-4 units)	21.8	14.5	18.1
Correctly identified recommended maximum daily units for *women* (2-3 units)	19.1	25.3	22.2
Self-reported drinkers (AUDIT C score >0)	(n=931)	(n=919)	(n=1850)
Correctly identified recommended maximum daily units for men (3-4 units) AND reported using guidelines to keep track of own drinking*	10.8	NA	NA
Correctly identified recommended maximum daily units for women (2-3 units) AND reported using guidelines to keep track of own drinking*	NA	15.2	NA

*Considered to have kept track of their own drinking if they reported 'always', 'often', or 'sometimes' to using guidelines to track own drinking.

3.6. OPINIONS ON LABELLING AND WARNING STATEMENTS

In general, health information labelling was supported with only 10% or less indicating they opposed or strongly opposed each health label presented (Figure 4). Standardised displays of alcohol by volume (ABV) percentage and the number of units on labels of alcoholic drinks were the two forms of health information labelling with greatest support (75-78%) (see Appendix 2).

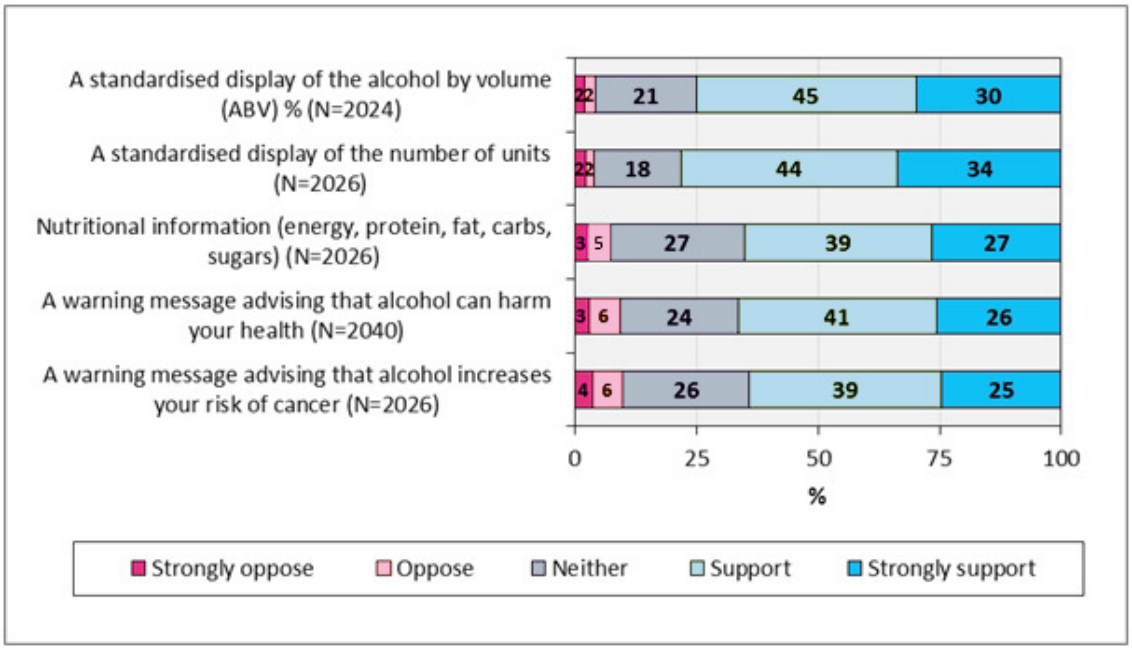
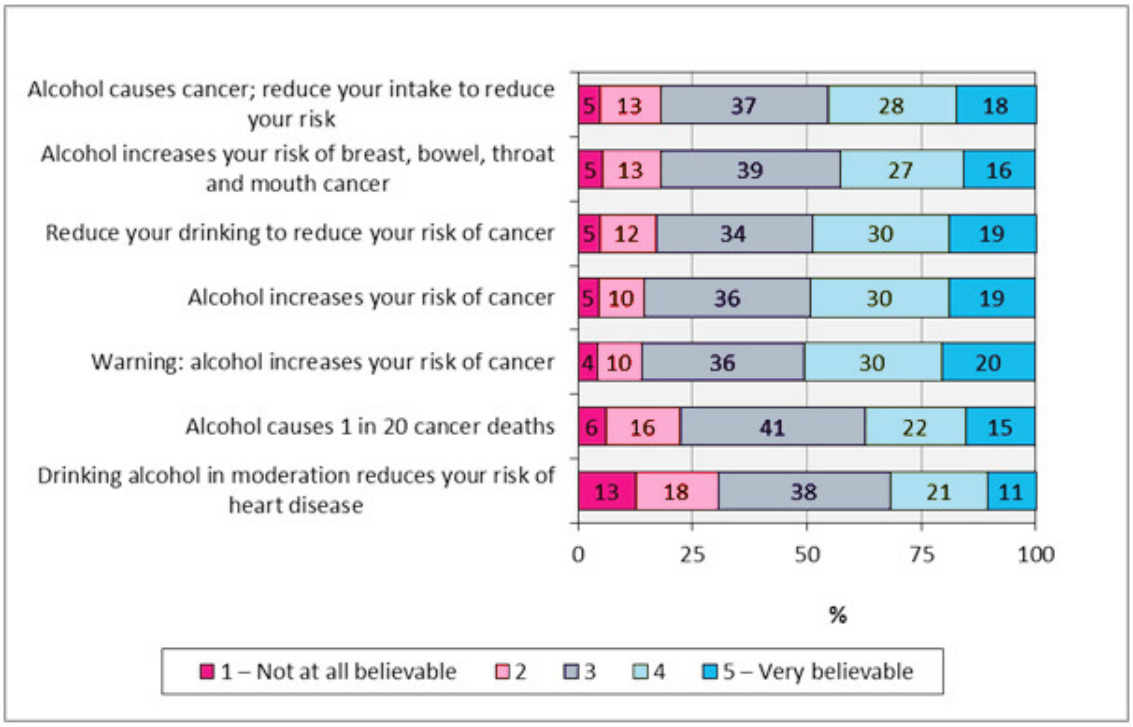


FIGURE 4 LEVEL OF SUPPORT FOR STATEMENTS TO BE INCLUDED ON LABELS OF ALCOHOLIC DRINKS

BELIEVABILTY OF HEALTH WARNING STATEMENTS

Almost half of respondents rated the believability of most of the potential health (warning) labels presented as either 4/5 or 5/5, where 5 is 'Very believable' (Figure 5). The two exceptions were *alcohol causes 1 in 20 cancer deaths* and *drinking alcohol in moderation reduces your risk of heart disease* (rated 4-5/5 by 37% and 33% respectively). The latter statement was rated as not believable by almost one third of the sample (i.e. rating of 1-2/5) (see Appendix 3).

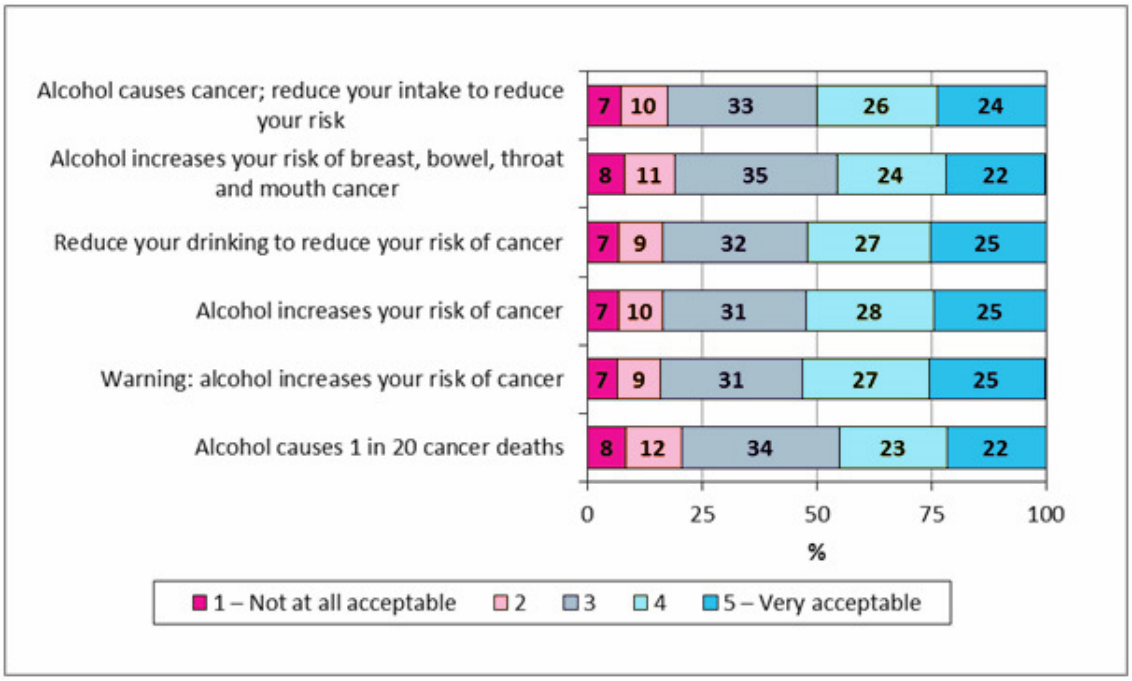


N=2100

FIGURE 5 EXTENT TO WHICH POTENTIAL ALCOHOLIC DRINK HEALTH LABELS PERCEIVED TO BE BELIEVABLE

ACCEPTABILITY OF HEALTH WARNING STATEMENTS

Acceptability for each statement followed similar patterns in believability (Figure 6). Approximately half of respondents reported each statement to be acceptable (i.e. either 4/5 or 5/5, where 5 is 'Very acceptable'). All statements were rated as neutral to acceptable (i.e. rating of 3-5/5) by 80% or more of respondents (see Appendix 3).



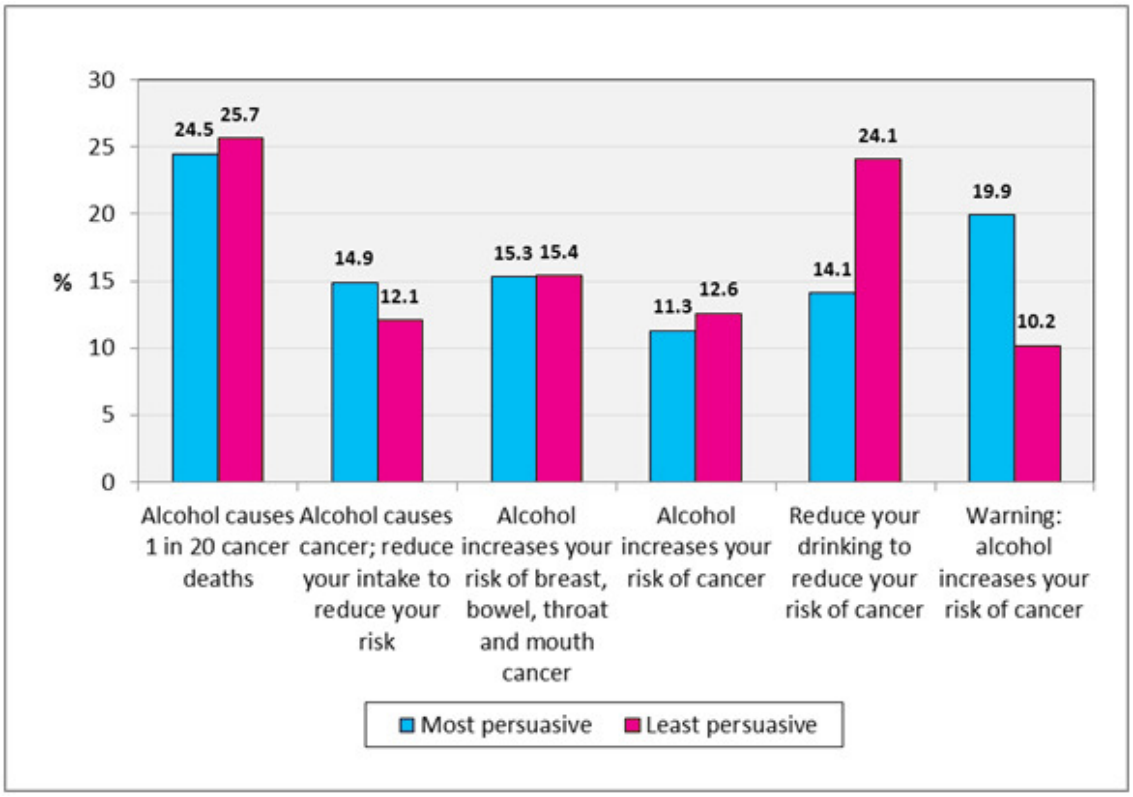
N=2100

FIGURE 6 EXTENT TO WHICH POTENTIAL ALCOHOLIC DRINK HEALTH LABELS PERCEIVED TO BE ACCEPTABLE

MOST AND LEAST PERSUASIVE HEALTH WARNING STATEMENTS

Respondents were asked to report which statement they found to be the most persuasive and then which they believed to be the least persuasive. Those who did not find any statement to be persuasive (n=329) were excluded. A further 248 respondents who reported all of the statements to be persuasive were also excluded (see Appendix 4).

There was no clear consensus on which statement was found to be the most or least persuasive (Figure 7). The statement *Alcohol causes 1 in 20 cancer deaths* was endorsed as both the most and the least persuasive statement by approximately a quarter of respondents in each case. *Warning: alcohol increases your risk of cancer* was found to be the next most often endorsed 'most persuasive' statement (20%) while *Reduce your drinking to reduce your risk of cancer* was found to be the second most often endorsed 'least persuasive' statement (24%).

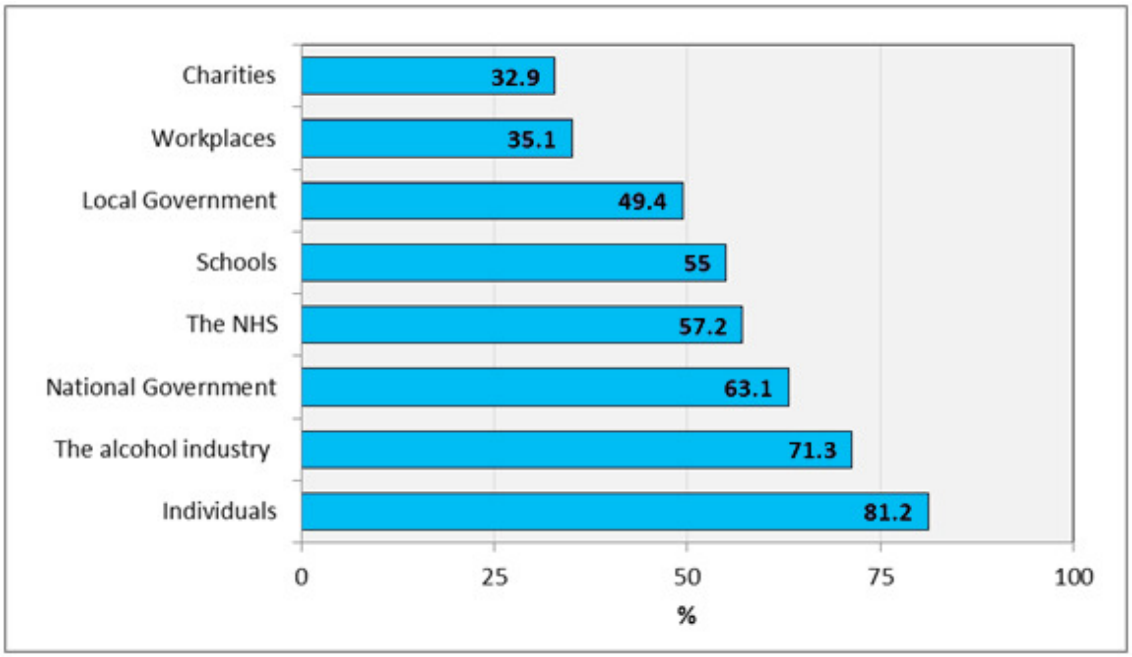


*N=1771 for 'Most persuasive' due to exclusion of 329 respondents who reported none of the statements as being persuasive. N=1524 for 'Least persuasive' due to exclusion of 576 respondents who reported no statement or all of the statements as being persuasive.

FIGURE 7 PROPORTION ENDORSING EACH POTENTIAL ALCOHOLIC DRINK HEALTH LABEL AS 'MOST PERSUASIVE' AND 'LEAST PERSUASIVE'

3.7. RESPONSIBILITY FOR ALCOHOL-RELATED HARM

- The majority of respondents either 'agreed' or 'strongly agreed' that individuals and alcohol industry have responsibility for tackling harms caused by alcohol (Figure 8).
- More than 50% of the sample agreed the national government was responsible.
- Workplaces and charities were least frequently endorsed as responsible for tackling alcohol-related harms, by about a third of respondents (see Appendix 5).



N=2100

FIGURE 8 PROPORTION RESPONDENTS WHO 'AGREE' OR 'STRONGLY AGREE' THAT EACH HAS RESPONSIBILITY FOR TACKLING ALCOHOL HARMS

DISCUSSION

The data presented in this report provides a useful summary of public knowledge about the health risks associated with drinking, particularly in relation to cancer, and general public health guidance regarding alcohol consumption. Furthermore, the report indicates current levels of support for labelling and health warning statements. Many of these findings are of immediate relevance to policy and public health practice. For example, the uncertainty regarding the link between alcohol and specific cancer types is an important finding for public health advocates.

4.1. HEALTH KNOWLEDGE

This study highlights that the knowledge of alcohol consumption as a risk factor for cancer is low, especially when compared with that of other conditions. Only 13% of this sample (which is representative of the English population) when unprompted were able to identify cancer as a risk. Even when prompted, less than half the sample (47%) were aware of this link. This strongly indicates that there has been little change in the awareness of alcohol consumption as a cancer risk since the 2009 study (4), where unprompted awareness was only found in 14% of the sample, and shows the same level of prompted awareness as in an equivalent Australian study (10). There is, it can be safely said, room for improved public awareness of alcohol as a cancer risk factor that causes around 12,800 cases of cancer each year in the UK alone.

When the population within the study were asked about specific cancer types and alcohol (only four for which alcohol is a known risk factor), most respondents indicated they knew that drinking too much alcohol increased the risk of liver cancer (80%). However, even when prompted, less than half realised alcohol was a risk factor for cancers of the mouth and throat, colon and rectum, and breast. This is despite evidence such as Bagnardi (2014) (1) which shows that the risk for liver cancer only starts to increase at higher levels of alcohol consumption (more than 50g ethanol/day, or approximately 8 units) over prolonged periods, whereas there is an established risk relationship between alcohol consumption at far lower levels for the other cancers mentioned (1). In particular, knowledge of the link between alcohol and breast cancer was especially low (18%) with fewer people endorsing this than the three cancers for which there is no current evidence that alcohol is a causal factor (bladder, ovarian and brain). These results, in conjunction with the high proportion of 'don't know' responses for each cancer (from 14%-46%) and the number of people incorrectly identifying alcohol as a risk factor for bladder, brain, and ovarian cancers (from 17%-54%), suggest there is widespread uncertainty about the relationship between alcohol consumption and cancer. This is perhaps unsurprising given the

complexity of risk factors which may contribute to cancer and also the differing levels at which risk starts to increase. Accurately reflecting the cancer risk posed by alcohol therefore can present a challenge for public health messaging. In addition, public health researchers and advocates in this area must consider how or if they should communicate cancers where the risk may not yet be confirmed. For example, an eighth cancer type, stomach cancer, was included in the survey. However, as the evidence for a relationship between alcohol use and this cancer is equivocal (e.g. no significant relationship was found by Corrao et al 2004 (20), while Bagnardi et al (1) note that the increased risk of stomach cancer among people who drink heavily found by their meta-analysis may be due to confounding factors), we did not report findings for stomach cancer in this report (although responses followed a similar distribution as for other cancers).

4.2. DRINKING GUIDELINES

Approximately a fifth of respondents correctly identified the recommended maximum number of alcohol units to be consumed per day, with a slightly higher proportion of women than men knowing their own gender guideline. Of those who self-report knowing the guideline, a third incorrectly estimated the actual figure, with the majority over-estimating the upper consumption threshold. Only 10-15% of people who drink report using guidelines to keep track of their drinking at least sometimes and also identified the correct drinking guideline thresholds. The apparently low level of adoption of this alcohol moderation strategy is interesting in the context of the relatively high levels of support shown for unit content and drinking guideline labelling policies in our sample. Further, the drinking guidelines for England have recently been reviewed and new thresholds recommended (7). This received considerable media attention in January 2016; they may also be further publicised through awareness campaigns. Our findings suggest confusion about the previous guidelines and low levels of use. Continued monitoring of awareness and use of guidelines (i.e. policy reach) would be important baseline data for evaluating the effect of the change to the guidelines on alcohol consumption and harms. It is vital that the publicity associated with the release of the new drinking guidelines drives improved knowledge of recommended limits; particularly improved knowledge of alcohol unit content of alcohol products (Figure 9). It is also important to monitor any unintended consequences, such as people using the information provided not to moderate their drinking, but rather to ensure they obtain the best unit to price ratio in their alcohol purchase (21).

FIGURE 9 CANCER RESEARCH UK'S VISUAL TOOL FOR UNDERSTANDING ALCOHOL UNITS

4.3. HEALTH INFORMATION AND WARNING STATEMENTS

In addition to assessing broad levels of support for policies requiring the inclusion of specific health warnings, drinking guideline information or the number of alcohol units to be displayed on alcohol products (57%-75%), we also sought more details on support for five different types of health information labelling and preferences among seven potential health warning statements. There were high levels of support for all types of health information labelling (alcohol by volume, number of units, nutrition, general health warning, cancer-specific health warning), with two thirds or more supporting such labelling and 10% or less opposing it. While this is of course not evidence for the effectiveness of such labels, it appears that the introduction of such health information labelling would have community support (although the level of support in this sample was somewhat lower than the 80-90% reported in the Australian study from which the items were drawn (14)).

Six of the health warning messages included in this survey were selected from a previous study Pettigrew et al (2014) (15) to include two positively and four negatively framed messages. The messages were rated as believable and acceptable by approximately half of respondents. On average, the study population rated each statement about 3.4-3.5/5, for both believability and acceptability. This is higher than a previous study where this was 3.2-3.3/5. In both the England and Australia studies, the negatively framed statement *Alcohol causes 1 in 20 cancer deaths* had a lower average rating believability rating (3.2 and 3.0 respectively) than other statements, even though it is correct information (2). This statement was also rated as both the most AND least persuasive statement in this study.

4.4. RESPONSIBILITY

Responsibility for tackling alcohol-related harms was primarily seen as being vested in individuals, the alcohol industry and national level government (81%, 71%, and 63% respectively). This study did not investigate what people specifically saw that responsibility as entailing. For example, in relation to individuals it seems likely that people interpreted that to mean self-responsibility for one's own consumption, rather than that of others. For the 70% who saw industry as having responsibility, it would be of interest to know whether the scope of responsibility is confined to the measures already included within the Responsibility Deal (such as introducing labelling), or whether more extensive industry action would be preferred. The Responsibility Deal has been widely criticised by public health advocates and academics as less effective than other available policies and compromised by conflict of interest. (22-24), The contrast between 63% of respondents agreeing that national government has responsibility

compared to only 49% agreeing that local government does is also of interest, given that much of the responsibility for the prevention of alcohol related harm now rests with Local Authorities. This responsibility is exercised through their role in setting local licensing policy and also in commissioning alcohol screening/brief interventions and specialist treatment (25). Neither workplaces nor the charitable sector were strongly endorsed as responsible entities in tackling alcohol-related harm. However from this study we cannot be certain which types of 'charities' respondents had in mind as it did not distinguish the different sectors (health, arts, environmental, social, research etc). It is reasonable to assume that perceptions of responsibility would differ according to charity sector.

4.5. STRENGTHS AND LIMITATIONS

This survey provides comprehensive and up-to-date data for England on current alcohol consumption, knowledge and use of alcohol drinking guidelines, understanding of potential health-related consequences (particularly cancer), and attitudes towards health information and labelling. Care was taken to ensure the sample was representative of the demographics of the English population in terms of age, sex, region of residence and education. Alcohol consumption within the study sample was comparable to the general population as measured by AUDIT score. In our sample, 47% had an AUDIT score indicating 'lower risk' (i.e. 1-4) alcohol consumption and 41% indicating 'increasing risk' (i.e. 5-12). Comparable general population figures calculated from 2007 Adult Psychiatric Morbidity Survey (26) data are 43% and 39% respectively. The distribution of IMD scores also reflects the whole of England. The response rate was reasonable for a survey of this nature, with half those sent the link starting the survey, and 85% of those eligible to complete it doing so. However, it is possible that people who are willing to participate in an online survey differ from the general population in some important respects that were not captured in this study. This survey used primarily Likert scale and yes/no response options, which did not provide the opportunity to explore with participants the reasons for their answers or the meaning they attributed to the questions. Future qualitative work could shed light on some of the issues outlined here.

4.6. INTENDED FUTURE WORK

This study has provided considerable evidence for the need to raise the public awareness of the links with alcohol and cancer. Work is currently underway to examine the association between knowledge of the link between alcohol and cancer and levels of support for various policy options. A second report focussed on public attitudes towards alcohol policy will be published in summer 2016. The finding of low levels of knowledge and use of recommended

daily drinking limits is important in the context of the revised drinking guidelines, as it will be important to monitor the impact of any change to these. The current dataset affords the opportunity to explore the characteristics of those who understand and use guidelines compared to those who don't (e.g. by age, gender, IMD, drinking status, etc.). Similarly, while this report provides more detail on public understanding of the relationship between alcohol and cancer than has previously been available and preferences for health messaging, we intend to explore what personal characteristics are associated with these. Such information will be valuable in identifying which population subgroups may require targeted information.

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APPENDICES

APPENDIX 1 SOURCE OF SURVEY QUESTIONS[2]

Question	Source	Additional notes
Smoking		
5	CCNSW survey , reported in Buykx et al. (10); Australian National Strategy Drug Household Survey (NDSHS) (11)	
7	Brose et al (27)	
Alcohol consumption		
8-10	Audit C (16)	Used UK version of AUDIT (17)
Knowledge and use of drinking guidelines		
12	ONS Omnibus Survey (28)	Q 12 adapted
13, 14	Devised for this survey	
Knowledge of health conditions associated with alcohol use		
18	CCNSW survey reported in Buykx et al. (10)	Arthritis was added to check the discriminant validity of questions
Knowledge of cancers associated with alcohol use		
19, 20	Devised for this survey, based on reported risk relationship between alcohol and specific cancers (1)	
Support for labelling		
21	Thomson et al (14).	Used 3 items: ABV, units (standard drink) & nutritional labelling

[2] Full list of survey questions available on request

Question	Source	Additional notes
21	Pettigrew et al (15)	Adapted 2 items: 'alcohol can harm your health' and 'alcohol increases your risk of cancer'
Health warning believability, acceptability and persuasiveness		
22	Pettigrew et al (15)	The original study tested the believability of 12 warning statements, of which we chose 6 while maintaining a spread of the message types included: positive or negative framing (e.g. 'reduce intake to reduce risk'), fear appeal or not (e.g. 'alcohol increases your risk of…') and specificity of warning (i.e. general or specific cancer). We devised an additional item regarding the popular belief that drinking in moderation reduces the risk of heart disease
23	Pettigrew et al (15)	As above. The original study tested the 'convincingness' and 'personal relevance' of each item. We instead asked to what extent each warning statement was 'acceptable'
24, 25	Pettigrew et al (15)	Using the same items (and with the addition of one on protective effects) we asked which was the most and which the least persuasive
Responsibility for tackling alcohol-related harm		
26	Devised for this survey	
Personal experience of cancer		
30-31	CCNSW survey reported in Buykx et al. (10)	

* CCNSW survey = Community Survey on Cancer Prevention conducted by the Cancer Council New South Wales 2013

** Questions 11.1-11.21 are presented in the same order of the original survey.

APPENDIX 2 SUPPORT FOR HEALTH INFORMATION LABELS ON ALCOHOLIC DRINKS

To what extent do you support or oppose the following information being included on the labels of alcoholic drinks?	% (n=2100)						Mean of valid responses		
	Strongly oppose	Oppose	Neither	Support	Strongly support	Don't Know	N	Mean*	SD
A standardised display of the alcohol by volume (ABV) %	2.1	2.1	20.0	43.5	28.7	3.6	2024	3.98	0.89
A standardised display of the number of units	2.2	1.8	17.3	43.1	32.7	2.8	2041	4.05	0.89
Nutritional information (energy, protein, fat, carbs, sugars)	2.8	4.3	26.4	37.3	25.6	3.5	2026	3.81	0.97
A warning message advising that alcohol can harm your health	2.9	6.2	23.6	39.6	24.9	2.9	2040	3.80	0.99
A warning message advising that alcohol increases your risk of cancer	3.6	5.8	25.2	38.0	23.7	3.5	2026	3.75	1.01

*5 point scale from: 1 'Strongly oppose' to 5 'Strongly support', excluding 'don't know'.

APPENDIX 3 MEAN RATINGS OF THE BELIEVABILITY AND ACCEPTABILITY OF HEALTH WARNING LABELS

	N=2100			
To what extent do you think the following statements are... [believable, acceptable]?	Believable		Acceptable	
	Mean*	SD	Mean**	SD
Warning: alcohol increases your risk of cancer	3.5	1.05	3.6	1.16
Alcohol increases your risk of cancer	3.5	1.05	3.5	1.16
Reduce your drinking to reduce your risk of cancer	3.5	1.08	3.5	1.17
Alcohol causes cancer; reduce your intake to reduce your risk	3.4	1.07	3.5	1.17
Alcohol increases your risk of breast, bowel, throat and mouth cancer	3.4	1.06	3.4	1.18
Alcohol causes 1 in 20 cancer deaths	3.2	1.08	3.4	1.19
Drinking alcohol in moderation reduces your risk of heart disease	3.0	1.15	NA	NA

*5 point scale from: 1 'Not believable at all' to 5 'Very believable'.
**5 point scale ranging from: 1 'Not acceptable at all' to 5 'Very acceptable'.

APPENDIX 4 PROPORTION ENDORSING EACH HEALTH WARNING STATEMENT AS THE MOST AND LEAST PERSUASIVE

	N= 2100			
	n	%	n	%
Alcohol causes cancer; reduce your intake to reduce your risk	264	12.6	184	8.7
Alcohol increases your risk of breast, bowel, throat and mouth cancer	271	12.9	235	11.2
Reduce your drinking to reduce your risk of cancer	249	11.9	367	17.5
Alcohol increases your risk of cancer	201	9.6	191	9.1
Warning: alcohol increases your risk of cancer	352	16.7	156	7.4
Alcohol causes 1 in 20 cancer deaths	434	20.7	390	18.6
I find none of the above persuasive	329	15.7	NA	NA
I find all of the above persuasive	NA	NA	248	11.8
Missing*	NA	NA	329	15.7

*These were respondents who did not report any of the statements as being persuasive from the previous question on 'Most persuasive' statement and therefore did not answer this question

APPENDIX 5 EXTENT OF AGREEMENT OR DISAGREEMENT THAT ORGANISATION/INDIVIDUAL HAS RESPONSIBILTY FOR TACKLING ALCOHOL-RELATED HARM

To what extent do you agree or disagree that each of the following has responsibility for tackling the harm caused by alcohol?	% (n=2100)				
	Strongly disagree	Disagree	Neither	Agree	Strongly agree
National Government	5.0	5.8	26.1	38.7	24.4
Local Government	6.5	10.3	33.8	35.6	13.8
Charities	8.8	16.8	41.4	25.9	7.1
The NHS	6.5	9.0	27.2	39.8	17.5
Individuals	1.8	1.9	15.0	28.1	53.2
The alcohol industry	3.4	4.0	21.3	36.6	34.7
Schools	6.7	9.3	29.0	37.2	17.7
Workplaces	8.8	17.1	39.0	25.9	9.2