

Article

# The Frequency and Content of Discussions About Alcohol Use in Primary Care and Application of the Chief Medical Officer's Low-Risk Drinking Guidelines: A Cross-Sectional Survey of General Practitioners and Practice Nurses in the UK

Jack M. Birch<sup>1,2,3,\*</sup>, Nathan Critchlow<sup>2,4</sup>, Lynn Calman<sup>3</sup>, Robert Petty<sup>2</sup>, Gillian Rosenberg<sup>2</sup>, Harriet Rumgay<sup>5</sup>, and Jyotsna Vohra<sup>2</sup>

<sup>1</sup>MRC Epidemiology Unit, University of Cambridge School of Clinical Medicine, Box 285 Institute of Metabolic Science, Cambridge Biomedical Campus, Cambridge, CB2 0QQ, UK, <sup>2</sup>Cancer Policy Research Centre, Cancer Research UK, 2 Redman Place, London, EC20 1JQ, UK, <sup>3</sup>Macmillan Survivorship Research Group, School of Health Sciences, University of Southampton, Southampton, SO17 1BJ, UK, <sup>4</sup>Institute for Social Marketing and Health, University of Stirling, Stirling, FK9 4LA, UK, and <sup>5</sup>Cancer Intelligence, Cancer Research UK, 2 Redman Place, London, EC20 1JQ, UK

\*Corresponding author: MRC Epidemiology Unit, University of Cambridge School of Clinical Medicine, Box 285 Institute of Metabolic Science, Cambridge Biomedical Campus, Cambridge, CB2 0QQ, UK. Tel: +44 (0)1223 330315; Fax: +44 (0)1223 330316; E-mail: jack.birch@mrc-epid.cam.ac.uk

Received 13 March 2020; Revised 18 September 2020; Editorial Decision 12 October 2020; Accepted 12 October 2020

## Abstract

**Aims:** To examine how often general practitioners (GPs) and practice nurses (PNs) working in primary care discuss alcohol with patients, what factors prompt discussions, how they approach patient discussions and whether the Chief Medical Officers' (CMO) revised low-risk drinking guidelines are appropriately advised.

**Methods:** Cross-sectional survey with GPs and PNs working in primary care in the UK, conducted January–March 2017 ( $n = 2020$ ). A vignette exercise examined what factors would prompt a discussion about alcohol, whether they would discuss before or after a patient reported exceeded the revised CMO guidelines (14 units per week) and whether the CMO drinking guidelines were appropriately advised. For all patients, participants were asked how often they discussed alcohol and how they approached the discussion (e.g. used screening tool).

**Results:** The most common prompts to discuss alcohol in the vignette exercise were physical cues (44.7% of participants) or alcohol-related symptoms (23.8%). Most practitioners (70.1%) said they would wait until a patient was exceeding CMO guidelines before instigating discussion. Two-fifths (38.1%) appropriately advised the CMO guidelines in the vignette exercise, with PNs less likely to do so than GPs (odds ratio [OR] = 0.77,  $P = 0.03$ ). Less than half (44.7%) reportedly asked about alcohol always/often with all patients, with PNs more likely to ask always/often than GPs (OR = 2.22,  $P < 0.001$ ). Almost three-quarters said they would enquire by asking about units (70.3%), compared to using screening tools.

**Conclusion:** Further research is required to identify mechanisms to increase the frequency of discussions about alcohol and appropriate recommendation of the CMO drinking guidelines to patients.

## INTRODUCTION

In the UK, alcohol is the sixth largest contributor of disability-adjusted life years (Forouzanfar *et al.*, 2015). Three percent of cancers in the UK are attributable to alcohol (Brown *et al.*, 2018), and alcohol is also causally linked to a number of conditions including cardiovascular disease and liver cirrhosis (Rehm *et al.*, 2009; Griswold *et al.*, 2018). It is estimated that the total cost of alcohol-related harm to society in England and Wales is £21 billion, of which £3.5 billion is to the National Health Service (NHS; HM Government, 2012; Angus *et al.*, 2016). It is estimated that, in 2017, 24% of adults across England and Scotland consumed alcohol at a level exceeding the revised Chief Medical Officer's (CMO) low-risk guidelines (Alcohol Change UK, 2020).

As of October 1, 2019, the majority of the population of England (over 60 million patients) was registered at general practitioner (GP) practices (NHS Digital, 2019). Primary care settings offer an accessible location for approaching the population about their alcohol consumption. Interventions for alcohol consumption in primary care, such as very brief advice, have been shown to be particularly cost-effective at reducing high-risk alcohol consumption (Govier and Rees, 2013; Purshouse *et al.*, 2013; Alvarez-Bueno *et al.*, 2015; Public Health England, 2016; Kaner *et al.*, 2018). Modelling evidence suggests that national-level screening and brief advice in England are likely to be health-improving, leading to a reduction of alcohol-attributable deaths and hospital admissions (Angus *et al.*, 2015).

In the UK, health bodies provide guidance to practitioners about how alcohol should be discussed in primary care (Scottish Intercollegiate Guidelines Network, 2003; Mably and Jones, 2010; National Institute for Health and Care Excellence [NICE], 2010; NHS Health Scotland, 2017). For example, NICE (2010) guidelines suggest that all adults and young people (aged 16 and 17 years) who are not seeking treatment for alcohol-related problems should be screened for an alcohol use disorder, such as when registering at a new practice or when screening for other health conditions. Furthermore, in England, GPs are contractually obliged by NHS England to ask newly registered patients about their alcohol consumption using either the Alcohol Use Disorders Identification Test-Concise (AUDIT-C) or FAST, both of which are abridged versions of the full AUDIT (NHS England, 2019). Practitioners should carry out the full AUDIT (which categorizes patients into low-risk, increasing risk, high-risk or possible alcohol dependence) if a patient scores positive on the AUDIT-C or FAST. Public Health England (2017) suggests that all patients categorized as increasing risk or high risk on the full AUDIT should receive very brief advice. This demonstrates the potential importance of using appropriate screening tools, ensuring that patients receive appropriate and timely intervention.

The advice provided by health practitioners in primary care is also dictated by population-level stipulations about low-risk alcohol consumption. Prior to 2016, the UK's national guidelines recommended that men consume no more than 21 units of alcohol per week (also sometimes phrased as not exceeding 3–4 units per day) and women up to 14 units per week (or phrased as not exceeding 2–3 units per day). One unit is defined as 10 ml or 8 g of pure alcohol. In 2016, the CMO of the UK released revised guidelines for low-risk alcohol

consumption that harmonized the guidelines for men and women (Department of Health, 2016). These revised guidelines took effect on January 8, 2016 and, principally, advised that individuals should not consume more than 14 units of alcohol in a week, that consumption should be spread evenly over 3 or more days and those who are pregnant should avoid alcohol entirely.

It has been found that awareness of the revised CMO alcohol guidelines among the population did not significantly increase following publication, although there was an observed increase in males recognizing the 14-unit limit (Holmes *et al.*, 2016). However, the participants of this study were the general public rather than clinicians or health professionals. Research has yet to consider to what extent, if at all, the advice that primary care practitioners give in patient consultations reflects the updated guidelines, which is important as practitioners could play a key role in reducing alcohol harm (Lock *et al.*, 2006; Holloway and Donaghy, 2017).

Research, including population surveys (Brown *et al.*, 2016), interviews with GPs (O'Donnell *et al.*, 2016) and examinations of patient records (O'Donnell *et al.*, 2016, 2020), suggest that discussions of alcohol consumption during primary care consultations are infrequent. Prompts occurring prior to a consultation with a patient, such as financial incentives, managerial support and computer prompts, are associated with an increased frequency of discussing alcohol during a consultation (Johnson *et al.*, 2011; Holloway and Donaghy, 2017; O'Donnell *et al.*, 2020). There has been some limited consideration in existing literature of how often practitioners themselves report discussing alcohol with patients, what factors during a consultation are likely to instigate a conversation and how practitioners approach this discussion; however, this has mostly been through qualitative (Hutchings *et al.*, 2006) or non-UK-based studies (Johansson *et al.*, 2002; Manthey *et al.*, 2015; Rehm *et al.*, 2015). Furthermore, to date, there has been no research (to our knowledge) which has examined to what extent primary care practitioners accurately advise patients of the revised CMO guidelines. This study aims to respond to these gaps in the literature.

## METHODS

### Design and sample

An online cross-sectional survey was conducted with primary care health practitioners in England, Scotland, Wales and Northern Ireland ( $n = 2020$ ). The survey considered how alcohol consumption, weight and smoking were discussed during a consultation with patients from the practitioners' perspective (Rosenberg *et al.*, 2019; Critchlow *et al.*, 2020). This study solely considers data concerning alcohol consumption. Only GPs and practice nurses (PNs) were included in the survey; other primary care practitioners such as dentists and physiotherapists were excluded via screening questions. The survey was developed by researchers at Cancer Research UK and administered by a market research company, ResearchNow (now called Dynata). All participants were recruited as a convenience sample from an online panel of members who had previously expressed an interest in completing surveys. Data were collected from January to March 2017. A weighting was applied to the data to ensure that

descriptive data were representative of the four countries of the UK. The survey was developed and refined based on consultation with panel of health professionals who work with primary care practitioners. Piloting was also conducted with 50 health professionals by the market research company to ensure question clarity.

### Survey measures

**Demographics** Participants self-reported their job type (0 = GP or 1 = PN), gender, years qualified (coded 0–5 years, 6–10 years, 11–15 years, 16–20 years,  $\geq 20$  years), age (coded 18–39 years, 40–59 years,  $\geq 60$  years), typical number of days per week worked in general practice (coded 1–2 days, 3–4 days, 5–6 days), approximate list size of their practice (coded < 2000 patients, 2000–4999, 5000–9999, 10,000–19,999,  $\geq 20,000$ ) and the Clinical Commissioning Group or Health Board where they were based. The details were collected during the screening stage of the survey to ensure participant's eligibility. The last variable was used to code country (coded England, Scotland, Wales or Northern Ireland). These variables were considered as predictors of the remaining variables.

**Alcohol advice vignette** Respondents were presented with a brief vignette designed to mimic a typical patient consultation. The use of a vignette allowed data to be elicited from a contextual situation, which may reduce recall bias (Silva *et al.*, 2019). We made the case study patient male to allow consideration of whether advice given by practitioners met the old or current guidelines in the UK, which had changed from not exceeding 21 units per week for males to not exceeding 14 units per week. The guidelines remained at not exceeding 14 units per week for females, so a female case study would not have allowed for consideration of this issue. The text of the vignette was tailored to the participant's job. For GPs, the case scenario read 'Max is a 42-year old male who presents with a rash on his stomach', whereas the case scenario for PNs read 'Max is a 42-year old male who needs travel vaccinations for his holiday'. By adopting issues unlikely to be related to alcohol, this prevented the responses to the survey questions from being affected by bias from the case study.

**Prompts for discussing alcohol** In response to the vignette, participants were asked 'Which of the following are the most likely to result in you discussing alcohol consumption with Max?' and provided with eight response options: (1) previous alcohol-related health condition; (2) alcohol-associated symptoms; (3) physical cues, e.g. appearing hungover or smelling of alcohol in the consultation; (4) computer prompt; (5) incentive payments; (6) high alcohol intake seen in previous medical records; (7) NICE alcohol guidelines and (8) Other, with a free text box where participants could indicate if an alternative factor was most likely to prompt discussion. Participants were only able to select one option, and each of the outcomes was binary coded (1 = Factor most likely to prompt discussion; 0 = Factor not the most likely to prompt discussion).

**Number of alcohol units prompting discussion** In response to the vignette, participants were also asked 'What is the minimum number of weekly units that would typically prompt a conversation with Max about alcohol consumption if he is not reporting alcohol-related problems?' A value between 10 and 40 units could be selected. Responses were binary coded based on whether they met the revised CMO drinking guidelines ( $\leq 14$  units per week, coded = 1) or not ( $\geq 15$  units per week, coded = 0).

**Providing advice about alcohol consumption** To examine whether participants would appropriately apply the revised CMO drinking guidelines, in response to the vignette, participants were asked 'Max asks you what is the maximum amount of alcohol he should drink in a week. How would you respond?' Responses were given in a free text box. Two variables were derived from the free text responses. The first assessed whether the participant had appropriately advised the maximum amount stated in the revised CMO guidelines (14 units) (coded 1 = 14 units, 0 = not 14 units). All responses that were <14 units per week were still coded as inappropriate. Even though at a lower level than the CMO guidelines, and therefore technically compliant with the revised guidelines, these answers were still not accurate to the maximum that is recommended, which was the focus of the question. The second variable assessed whether a participant advised 21 units per week (1 = 21 units; 0 = any other value), the previous and now-replaced CMO guidelines for men.

**Practitioner guidance in routine practice** The remaining questions in the survey did not refer to the vignette, aiming to consider how practitioners approach discussing alcohol consumption more generally in consultations with all patients.

**Frequency of practitioners asking about alcohol consumption** Participants were asked 'How often did you ask a patient about their alcohol consumption', with five possible response options: always, often, sometimes, occasionally and never. Responses were binary coded (1 = always/often, 0 = sometimes/occasionally/never).

**How practitioners ask about alcohol consumption** Participants were asked 'How would you typically ask about alcohol consumption?' and presented with six options: (1) Ask how many units of alcohol are drunk in a typical week, (2) Using the AUDIT/AUDIT-C questionnaire, (3) Using the FAST questionnaire, (4) Using the CAGE questionnaire, (5) Other, with a free text box to specify and (6) Unsure. The responses were coded based on whether a participant reported using an established screening tool (e.g. AUDIT/AUDIT-C, FAST or CAGE, Yes = 1) or not (No = 0).

### Analysis

All analyses were conducted using Statacorp Stata Statistical Software: Release 15. Weighted descriptive statistics (counts and percentages) were computed for the demographics and each of the main study variables (e.g. proportion of sample who had alcohol discussions with all patients always/often versus less frequently). For each question, Pearson chi-square tests examined differences by job (GP vs. PN), gender, age group, days spent working in practice in a typical week, years qualified, practice list size and resident country. Five multivariable logistic regression models were performed: (1) whether, in the vignette exercise, a discussion would be prompted at an alcohol consumption level below, or equivalent to, the revised CMO low-risk guidelines or only once this had been exceeded; (2) whether practitioners appropriately recommended the revised CMO guidelines on the maximum number of units a male should drink per week in the vignette exercise; (3) whether practitioners reported giving advice meeting old CMO guidelines for men; (4) whether the practitioner reported asking all patients about alcohol always/often versus less frequently and (5) whether practitioners reported using an established screening tool in discussions or not. The reference categories for each covariate are the baseline group (e.g. youngest

**Table 1.** Weighted demographic and professional details of sample

| Variable                                | Overall ( <i>n</i> = 2020) |    | GPs ( <i>n</i> = 1006) |    | PNs ( <i>n</i> = 1014) |    |
|---|----------------------------|----|------------------------|----|------------------------|----|
|   | <i>n</i>                   | %  | <i>n</i>               | %  | <i>n</i>               | %  |
| <b>Sex</b>                              |                            |    |                        |    |                        |    |
| Male                                    | 681                        | 34 | 627                    | 62 | 54                     | 5  |
| Female                                  | 1339                       | 66 | 378                    | 38 | 960                    | 95 |
| <b>Age</b>                              |                            |    |                        |    |                        |    |
| 18–39 years                             | 680                        | 34 | 400                    | 40 | 280                    | 28 |
| 40–59 years                             | 1216                       | 60 | 554                    | 55 | 662                    | 65 |
| 60+ years                               | 124                        | 6  | 52                     | 5  | 72                     | 7  |
| <b>Country</b>                          |                            |    |                        |    |                        |    |
| England                                 | 1693                       | 84 | 841                    | 84 | 852                    | 84 |
| Scotland                                | 172                        | 9  | 90                     | 9  | 82                     | 8  |
| Wales                                   | 99                         | 5  | 48                     | 5  | 51                     | 5  |
| Northern Ireland                        | 57                         | 3  | 27                     | 3  | 30                     | 3  |
| <b>Days typical in general practice</b> |                            |    |                        |    |                        |    |
| 1–2 days per week                       | 149                        | 7  | 58                     | 6  | 91                     | 9  |
| 3–4 days per week                       | 1184                       | 59 | 565                    | 56 | 619                    | 61 |
| 5–6 days per week                       | 687                        | 34 | 383                    | 38 | 304                    | 30 |
| <b>Years qualified</b>                  |                            |    |                        |    |                        |    |
| 0–5 years                               | 171                        | 8  | 89                     | 9  | 82                     | 8  |
| 6–10 years                              | 308                        | 15 | 188                    | 19 | 120                    | 12 |
| 11–15 years                             | 331                        | 16 | 198                    | 20 | 133                    | 13 |
| 16–20 years                             | 306                        | 15 | 191                    | 19 | 115                    | 11 |
| More than 20 years                      | 905                        | 45 | 340                    | 34 | 565                    | 56 |
| <b>List size at practice</b>            |                            |    |                        |    |                        |    |
| <2000                                   | 76                         | 4  | 18                     | 2  | 58                     | 6  |
| 2000–4999                               | 314                        | 16 | 163                    | 1  | 151                    | 15 |
| 5000–9999                               | 739                        | 37 | 391                    | 39 | 348                    | 34 |
| 10,000–19,999                           | 717                        | 36 | 381                    | 37 | 336                    | 33 |
| ≥20,000                                 | 107                        | 5  | 43                     | 4  | 64                     | 6  |
| Unsure                                  | 67                         | 3  | 9                      | 1  | 58                     | 6  |

age group, fewest years qualified), with all other categories compared to these baselines. The covariates included were as follows: job role, gender, resident country, number of days per week typically spent working in practice, years qualified and list size at practice. Both the chi-square analyses and multivariable logistic regressions were conducted on unweighted data, as the factor used to construct the weight (country of residence) was already included as a covariate in the regression models.

### Ethics

The approval was granted by the University of Stirling NHS, Invasive or Clinical Research Ethics Committee (NICR 16/17 Paper 39) and later by the University of Southampton Ethics and Research Governance Online platform (submission ID: 30323) to allow for the analysis to be conducted as part of an undergraduate degree research project. NHS ethical approval was not required for this study.

## RESULTS

### Sample characteristics

In the weighted sample, there were a similar number of GPs (*n* = 1006) and PNs (*n* = 1014) (Table 1). Most GPs were male (62%), 40–59 years old (55%) and based in England (84%). Similarly, most PNs

were 40–59 years old (65%) and based in England (84%). Almost all PNs were female (95%).

### Questions relating to vignette

**Prompts for discussing alcohol** The most common prompt that would lead to the practitioners discussing alcohol consumption in the vignette exercise was physical cues (29.9%), followed by: alcohol-associated symptoms (23.8%), high alcohol intake seen in previous medical records (15.6%), computer prompt (13.2%), previous alcohol-related health condition (11.0%), NICE alcohol guidelines (2.6%), incentive payment (1.1%) and other prompts (2.8%).

The chi-square tests found that GPs were more likely than PNs to report being prompted by alcohol-associated symptoms (38.6 vs. 9.5%,  $\chi^2 = 235.51$ ,  $P < 0.001$ ). Conversely, PNs were more likely than GPs to report being prompted by high alcohol intake seen in previous medical records (20.0 vs. 10.9%,  $\chi^2 = 32.25$ ,  $P < 0.001$ ), computer prompt (20.9 vs. 5.3%,  $\chi^2 = 107.32$ ,  $P < 0.001$ ), NICE alcohol guidelines (4.4 vs. 0.8%,  $\chi^2 = 26.37$ ,  $P < 0.001$ ) and other prompts (4.4 vs. 1.1%,  $\chi^2 = 21.09$ ,  $P < 0.001$ ). There were no differences by job category for remaining prompts (physical cues, previous alcohol-related health condition or incentive payment).

**Number of alcohol units that would prompt discussion and compliance with CMO guidelines** Most of the sample (70%) said they would only instigate a discussion about alcohol if their patient was

**Table 2.** Binary logistic regression of prompting a discussion about alcohol consumption at 14 units of alcohol or less

| Variable                         | Minimum number of units to prompt a discussion about alcohol consumption |      |           |         |
|----------------------------------|--|------|-----------|---------|
|                                  | % Prompting discussion<br>≤14 units <sup>a</sup>                         | OR   | 95% CI    | P value |
| Overall                          | 30.0   | -    | -         | -       |
| Job                              |  |      |           |         |
| GP                               | 23.0   | REF  | -         | -       |
| PN                               | 36.8   | 1.92 | 1.49–2.48 | <0.001  |
| Sex                              |  |      |           |         |
| Male                             | 22.7   | REF  | -         | -       |
| Female                           | 33.7   | 1.19 | 0.91–1.57 | 0.203   |
| Country                          |  |      |           |         |
| England                          | 30.3   | REF  | -         | -       |
| Scotland                         | 28.3   | 0.91 | 0.64–1.28 | 0.573   |
| Wales                            | 27.5   | 0.90 | 0.57–1.42 | 0.645   |
| Northern Ireland                 | 27.9   | 0.91 | 0.52–1.58 | 0.729   |
| Days typical in general practice |  |      |           |         |
| 1–2 days per week                | 31.6   | REF  | -         | -       |
| 3–4 days per week                | 29.9   | 0.97 | 0.66–1.44 | 0.895   |
| 5–6 days per week                | 29.7   | 1.03 | 0.68–1.55 | 0.891   |
| Years qualified                  |  |      |           |         |
| 0–5 years                        | 36.9   | REF  | -         | -       |
| 6–10 years                       | 36.7   | 1.05 | 0.70–1.57 | 0.815   |
| 11–15 years                      | 28.9   | 0.72 | 0.48–1.08 | 0.114   |
| 16–20 years                      | 25.6   | 0.62 | 0.41–0.94 | 0.025   |
| More than 20 years               | 28.1   | 0.59 | 0.41–0.84 | 0.004   |
| List size at practice            |  |      |           |         |
| <2000                            | 31.5   | REF  | -         | -       |
| 2000–4999                        | 33.4   | 1.41 | 0.82–2.41 | 0.218   |
| 5000–9999                        | 29.9   | 1.21 | 0.73–2.02 | 0.458   |
| 10,000–19,999                    | 27.9   | 1.08 | 0.64–1.80 | 0.777   |
| ≥20,000                          | 30.3   | 1.11 | 0.58–2.11 | 0.759   |
| Unsure                           | 34.3   | 1.12 | 0.55–2.27 | 0.755   |

All participants ( $n = 2020$ ) included in the model. 95% CI = 95% confidence interval. Log likelihood =  $-1196.36$ ; likelihood ratio  $\chi^2 (16) = 71.77$ ,  $P < 0.001$ ; pseudo  $R^2 = 0.028$ .

<sup>a</sup>Percentages taken from cross-tabulations.

consuming above the CMO low-risk drinking guidelines. Job role was significant in the multivariable model, with PNs more likely than GPs to initiate a discussion about alcohol if the patient was consuming  $\leq 14$  units of alcohol per week (odds ratio [OR] 1.92,  $P < 0.001$ ) (Table 2). The other significant variable was years qualified; those qualified for 16–20 years (OR 0.63,  $P = 0.028$ ) or 20+ years (OR 0.60,  $P = 0.005$ ) reported being less likely to initiate a discussion with patients about alcohol if they were consuming  $<14$  units than those qualified for 0–5 years.

**Providing advice about alcohol consumption** Overall, 38.1% of GPs and PNs reported that they would advise that males should consume no more than 14 units of alcohol per week, compared to those who provide guidance not in accordance with CMO low-risk guidelines (including those who suggest  $<14$  units) (Table 3). Just over a quarter (26.7%) of the sample reported that they would give advice meeting previous guidelines, advising a male patient they could consume a maximum of 21 units of alcohol per week, despite the guidelines having changed over a year previous to data collection. In the logistic regression, PNs were less likely than GPs to report giving advice meeting guidelines (OR 0.77,  $P = 0.030$ ) and those qualified for more than 20 years were less likely than those

qualified for 0–5 years to give advice meeting guidelines (OR 0.60,  $P = 0.003$ ).

### Practitioner guidance in routine practice

**Frequency of asking about alcohol consumption** Less than half (44.7%) of practitioners said that they asked patients about their alcohol consumption always or often (Table 4). In the logistic regression model, PNs were more likely to ask always or often than GPs (OR 2.22,  $P < 0.001$ ); those who were 5–6 days per week in general practice were more likely than those working 1–2 days (OR 1.62,  $P = 0.014$ ); and those who were unsure of their practice list size were less likely to always/often ask than those with a practice list size of  $<2000$  (OR 0.47,  $P = 0.032$ ).

**How practitioners ask about alcohol consumption** Most practitioners said they would enquire about a patient's alcohol consumption by asking about the number of units consumed (70.3%); 1.2% were unsure about how they would ask about alcohol consumption; 5.0% would ask in a method not listed. The remaining 23.6% of practitioners would use a validated tool (Audit-C 15.2%, FAST 5.9% and CAGE 2.5%).

**Table 3.** Binary logistic regression of practitioners advising the updated CMO guideline of 14 units per week (vs. other guidance)

| Practitioners advising 14 units  |                                  |      |           |         |
|----------------------------------|----------------------------------|------|-----------|---------|
| Variable                         | % Advising 14 units <sup>a</sup> | OR   | 95% CI    | P value |
| Overall                          | 38.1                             | -    | -         | -       |
| Job                              |                                  |      |           |         |
| GP                               | 40.8                             | REF  | -         | -       |
| PN                               | 35.3                             | 0.77 | 0.61–0.98 | 0.030   |
| Sex                              |                                  |      |           |         |
| Male                             | 38.3                             | REF  | -         | -       |
| Female                           | 37.9                             | 1.22 | 0.95–1.55 | 0.115   |
| Country                          |                                  |      |           |         |
| England                          | 37.7                             | REF  | -         | -       |
| Scotland                         | 38.4                             | 1.10 | 0.80–1.49 | 0.565   |
| Wales                            | 46.1                             | 1.42 | 0.95–2.14 | 0.090   |
| Northern Ireland                 | 35.3                             | 0.96 | 0.57–1.60 | 0.868   |
| Days typical in general practice |                                  |      |           |         |
| 1–2 days per week                | 32.5                             | REF  | -         | -       |
| 3–4 days per week                | 38.2                             | 1.14 | 0.79–1.66 | 0.478   |
| 5–6 days per week                | 39.0                             | 1.21 | 0.82–1.78 | 0.336   |
| Years qualified                  |                                  |      |           |         |
| 0–5 years                        | 47.1                             | REF  | -         | -       |
| 6–10 years                       | 40.4                             | 0.74 | 0.50–1.09 | 0.123   |
| 11–15 years                      | 38.9                             | 0.70 | 0.48–1.02 | 0.066   |
| 16–20 years                      | 40.0                             | 0.72 | 0.49–1.05 | 0.091   |
| More than 20 years               | 34.6                             | 0.60 | 0.43–0.84 | 0.003   |
| List size at practice            |                                  |      |           |         |
| <2000                            | 27.1                             | REF  | -         | -       |
| 2000–4999                        | 34.1                             | 1.33 | 0.76–2.34 | 0.324   |
| 5000–9999                        | 40.0                             | 1.70 | 0.99–2.90 | 0.054   |
| 10,000–19,999                    | 39.9                             | 1.70 | 0.99–2.92 | 0.052   |
| ≥20,000                          | 38.0                             | 1.65 | 0.86–3.17 | 0.129   |
| Unsure                           | 27.6                             | 1.02 | 0.49–2.14 | 0.949   |

All participants ( $n = 2020$ ) included in the model. 95% CI = 95% confidence interval. Log likelihood =  $-1326.24$ ; likelihood ratio  $\chi^2$  (16) = 31.70,  $P = 0.011$ ; pseudo  $R^2 = 0.012$ .

<sup>a</sup>Percentages taken from cross-tabulations.

In the multivariable logistic regression, PNs were more likely than GPs to report using a validated tool (OR 1.55,  $P < 0.001$ ) (Table 5). Practitioners working in Wales (OR 0.22,  $P < 0.001$ ) and Northern Ireland (OR 0.42,  $P = 0.023$ ) were less likely than those working in England to report that they would assess alcohol consumption using one of the validated tools listed in the question. Size of practice was also statistically significant (Table 5).

## DISCUSSION

This study is the first to examine how often primary care health practitioners self-report discussing alcohol with their patients and application of national low-risk alcohol guidelines during consultations since the CMO guidelines were revised in 2016. The findings show that the proportion of GPs and PNs who report frequently discussing alcohol with patients is limited and, even when conversations occur, the advice recommended is not always consistent with the CMO revised low-risk drinking guidelines; a quarter of practitioners reported they would advise the previous CMO low-risk alcohol guideline of 21 units per week for males.

The low level of application of CMO guidelines by practitioners is consistent with previous research, suggesting that GPs may need improved training to more effectively implement very brief inter-

vention for excessive alcohol consumption (O'Donnell and Kaner (2017). The training that practitioners receive should therefore place strong emphasis on the revised CMO guidelines, to ensure advice given to patients reflects up-to-date evidence. Certain groups of practitioners may need targeting with such training, such as those we found to have a lower level of CMO guideline application (e.g. PNs and older practitioners).

Although research provides tentative support that population-level campaigns can successfully promote consumption guidelines (Holmes *et al.*, 2016; Rosenberg *et al.*, 2017), such as the Count 14 campaign launched by NHS Health Scotland (<https://www.count14.scot/>), it is unclear to what extent (if at all) these are successful in increasing awareness among health practitioners. Communication of these guidelines would benefit from research with the practitioners themselves to assess how best to reach and engage them with such information. National guidelines in the UK recommend screening for harmful alcohol consumption in primary care in all adults and young people (16- and 17-year olds) who are not seeking treatment for an alcohol-related issue with a particular focus on screening groups who are likely to be at an increased risk of alcohol-related harm (NICE, 2010), while GPs in England are contractually obliged to ask all newly registered patients about their alcohol consumption (NHS England, 2019). We found that less than half of the sample

**Table 4.** Binary logistic regression of practitioners always/often asking a patient about their alcohol consumption

| Practitioners asking a patient about their alcohol consumption |                                    |      |           |         |
|--|------------------------------------|------|-----------|---------|
| Variable   | % Asking always/often <sup>a</sup> | OR   | 95% CI    | P value |
| Overall  | 44.7                               | -    | -         | -       |
| Job  |                                    |      |           |         |
| GP   | 34.8                               | REF  | -         | -       |
| PN   | 54.6                               | 2.22 | 1.76–2.81 | <0.001  |
| Sex  |                                    |      |           |         |
| Male   | 34.3                               | REF  | -         | -       |
| Female   | 50.0                               | 1.27 | 0.99–1.63 | 0.054   |
| Country  |                                    |      |           |         |
| England  | 44.1                               | REF  | -         | -       |
| Scotland   | 51.0                               | 1.35 | 0.99–1.84 | 0.054   |
| Wales  | 45.1                               | 1.03 | 0.68–1.57 | 0.873   |
| Northern Ireland   | 42.7                               | 0.88 | 0.53–1.46 | 0.622   |
| Days typical in general practice                               |                                    |      |           |         |
| 1–2 days per week  | 39.2                               | REF  | -         | -       |
| 3–4 days per week  | 44.0                               | 1.30 | 0.90–1.87 | 0.159   |
| 5–6 days per week  | 47.2                               | 1.62 | 1.10–2.37 | 0.014   |
| Years qualified  |                                    |      |           |         |
| 0–5 years  | 47.7                               | REF  | -         | -       |
| 6–10 years   | 45.1                               | 0.94 | 0.64–1.39 | 0.762   |
| 11–15 years  | 41.1                               | 0.81 | 0.55–1.19 | 0.280   |
| 16–20 years  | 47.3                               | 1.08 | 0.73–1.59 | 0.712   |
| More than 20 years   | 44.5                               | 0.75 | 0.53–1.05 | 0.094   |
| List size at practice  |                                    |      |           |         |
| <2000  | 54.3                               | REF  | -         | -       |
| 2000–4999  | 47.8                               | 0.99 | 0.59–1.67 | 0.967   |
| 5000–9999  | 45.2                               | 0.91 | 0.55–1.49 | 0.700   |
| 10,000–19,999  | 42.4                               | 0.82 | 0.50–1.34 | 0.429   |
| ≥20,000  | 45.6                               | 0.85 | 0.46–1.57 | 0.608   |
| Unsure   | 37.8                               | 0.47 | 0.24–0.94 | 0.032   |

All participants ( $n = 2020$ ) included in the model. 95% CI = 95% confidence interval. Log likelihood =  $-1331.77$ ; likelihood ratio  $\chi^2(16) = 114.89$ ,  $P < 0.001$ ; pseudo  $R^2 = 0.041$ .

<sup>a</sup>Percentages taken from cross-tabulations.

reported discussing alcohol consumption with their patients always or often, suggesting that the recommended screening may not be consistently taking place. Most of the sample was only prompted to discuss alcohol consumption with their patients if they were already exceeding the recommended maximum of 14 units of alcohol per week. Therefore, alcohol may be consumed at a level exceeding low-risk before practitioners consider initiating a discussion about alcohol use. Although there is limited evidence from the UK, a study from Ireland found that almost all GPs surveyed felt they had the right to ask patients about their alcohol consumption (Collins *et al.*, 2018). Hence, other factors may be preventing discussion of alcohol during a consultation. Primary care consultations are often extremely time-pressured, due to the number of consultations practitioners have on a working day (Hobbs *et al.*, 2016; Robinson, 2019), the administrative load (Robinson, 2019) and the workforce 'crisis' (British Medical Association, 2014), which may explain the limited consideration of a patient's alcohol consumption by practitioners.

Our study also identified that PNs were more likely to ask about alcohol consumption during a consultation than GPs. This could be due to the differing contexts to consultations that GPs and PNs face. PNs consider discussing lifestyle factors as part of their role (Hall, 2016), while common occasions for discussing lifestyle risk factors such as alcohol consumption are NHS health checks, which

are most likely to be carried out by PNs (Shaw *et al.*, 2016). Financial incentives may be especially helpful in maintaining the current level of alcohol screening (O'Donnell *et al.*, 2020), although they may have a more limited role as a way of increasing the level of screening (O'Donnell *et al.*, 2016). We also observed differences in what prompts the different practitioner roles surveyed; GPs were more likely to be prompted by symptoms displayed by a patient during a consultation. This could indicate that GPs may find a targeted screening approach more feasible to implement in practice.

A related finding is that when practitioners are asking about alcohol consumption, our data suggest that they are not frequently doing so using validated tools such as AUDIT-C or FAST, which supports evidence suggesting that alcohol screening and brief interventions may not yet be adequately embedded into GP routine practice (O'Donnell and Kaner, 2017). Our study adds consideration of variation in the utilization of screening tools across the UK, where utilization was particularly low in Wales and Northern Ireland, as well as among GPs. NICE guidance suggests that a validated tool should be used when screening patient's alcohol consumption (NICE, 2010). This study suggests that this is not taking place. Individuals frequently underreport their own alcohol consumption (Boniface and Shelton, 2013; Stockwell *et al.*, 2016), so relying on units consumed as a measure to initiate further intervention or advice may lead to

**Table 5.** Binary logistic regression of practitioner using a validated tool to assess alcohol consumption (vs. all other approaches)

| Practitioners using a validated tool to assess alcohol consumption |                                     |      |           |         |
|--|-------------------------------------|------|-----------|---------|
| Variable   | % Using validated tool <sup>a</sup> | OR   | 95% CI    | P value |
| Overall  | 23.6                                | -    | -         | -       |
| Job  |                                     |      |           |         |
| GP   | 18.0                                | REF  | -         | -       |
| PN   | 29.3                                | 1.55 | 1.34–1.79 | <0.001  |
| Sex  |                                     |      |           |         |
| Male   | 20.2                                | Ref  | -         | -       |
| Female   | 25.4                                | 0.84 | 0.62–1.14 | 0.257   |
| Country  |                                     |      |           |         |
| England  | 24.6                                | Ref  | -         | -       |
| Scotland   | 26.8                                | 1.11 | 0.78–1.57 | 0.570   |
| Wales  | 6.9                                 | 0.22 | 0.10–0.47 | <0.001  |
| Northern Ireland   | 13.2                                | 0.42 | 0.20–0.89 | 0.023   |
| Days typical in general practice                                   |                                     |      |           |         |
| 1–2 days per week  | 24.0                                | Ref  | -         | -       |
| 3–4 days per week  | 22.1                                | 0.87 | 0.57–1.34 | 0.526   |
| 5–6 days per week  | 26.2                                | 1.16 | 0.74–1.81 | 0.511   |
| Years qualified  |                                     |      |           |         |
| 0–5 years  | 20.7                                | Ref  | -         | -       |
| 6–10 years   | 23.2                                | 1.12 | 0.70–1.79 | 0.637   |
| 11–15 years  | 25.6                                | 1.38 | 0.87–2.19 | 0.172   |
| 16–20 years  | 21.3                                | 1.13 | 0.70–1.81 | 0.625   |
| More than 20 years   | 24.4                                | 1.08 | 0.71–1.64 | 0.717   |
| List size at practice  |                                     |      |           |         |
| <2000  | 19.9                                | Ref  | -         | -       |
| 2000–4999  | 28.3                                | 2.14 | 1.11–4.12 | 0.024   |
| 5000–9999  | 23.8                                | 1.77 | 0.94–3.34 | 0.077   |
| 10,000–19,999  | 23.8                                | 1.71 | 0.91–3.23 | 0.098   |
| ≥20,000  | 19.0                                | 1.13 | 0.52–2.47 | 0.757   |
| Unsure   | 10.4                                | 0.48 | 0.17–1.30 | 0.148   |

All participants ( $n = 2020$ ) included in the model. 95% CI = 95% confidence interval. Log likelihood =  $-1055.69$ ; likelihood ratio  $\chi^2 (16) = 94.49$ ,  $P < 0.001$ ; pseudo  $R^2 = 0.043$ .

<sup>a</sup>Percentages taken from cross-tabulations.

fewer potentially harmful or high-risk consumers being considered for future intervention.

Future research should consider why there is low uptake of assessment tools in practice in the UK, including qualitative research with practitioners to explore the underlying reasons for this. We identified a qualitative study from Australia which considered, from the GP's perspective, the role of alcohol screening tools such as CAGE and AUDIT-C (Tam *et al.*, 2013). The study found that GPs rarely used screening tools at all, supporting the findings in this study. Where screening tools were used, it was rarely for their intended purpose; rather, screening tools were used either in a practice research setting or to explore alcohol use in patients which the GP had already identified had an alcohol use disorder. This suggests that alcohol disorder screening tools may lack practical utility, and GPs in that study suggested they could not and would not consistently use screening tools—perhaps due to perception that such tools 'over-identify patients with at-risk drinking' (Tam *et al.*, 2013). However, identification of at-risk alcohol consumption by GP assessment—via a checklist asking if the patient has any of several health risks including risky alcohol consumption—is much lower than asking through the use of a screening tool such as the AUDIT-C (Paul *et al.*, 2014), so it is necessary for screening tools to be better utilized to ensure that patients drinking harmful levels of alcohol are identified.

There are some limitations to this study. For example, physical cues and alcohol-associated symptoms were identified as the two most common prompts for discussing alcohol. However, the closed nature of the question asked did not allow for exploration into what those physical cues and symptoms were, and future research should consider the exact physical cues and alcohol-associated symptoms practitioners are prompted by. Furthermore, we were unable to consider which patient groups' practitioners would focus screening and delivery of brief advice to. Hence, we could not consider if patient groups specified in the NICE guidelines were targeted.

The analysis of whether the advice given by practitioners met current CMO guidelines only focused on the alcohol unit aspect of the guidance. This meant that the guideline that units should be spread over 3 or more days was not considered. Similarly, the use of a male case study meant that we could not consider if practitioners applied the recommendation that the safest approach for women who are pregnant was to not drink at all, although this has been considered elsewhere (Schölin *et al.*, 2019). This study considered the unprompted application of CMO guidelines in primary care consultations. Hence, practitioners' responses were unlikely to be biased to include the CMO guidelines in their responses. It may have been useful, once this information had been elicited, to have asked a prompted question to consider if practitioners were aware of the



CMO guidelines. Finally, this study used self-reported cross-sectional data. Application of CMO guidelines may have positively or negatively changed due to a lag effect following the initial introduction and campaigns around the guidelines. Finally, data were not available to determine how composition of the online market research panel compared to wider population of primary care clinicians in the UK, or whether it over- or underrepresents specific groups. Data were also not available to examine response rate, completion rate or non-response from panel members.

## CONCLUSION

Conversations about patients' alcohol consumption are not happening regularly in consultations with GPs and PNs in the UK. Validated assessment tools are underutilized in discussions on alcohol consumption in primary care, and practitioner advice may not reflect contemporary national guidelines. Further research is required to identify mechanisms that can increase the frequency of discussions about alcohol use and appropriate recommendation of the CMO drinking guidelines to patients.

## FUNDING

This research was supported by funding from Cancer Research UK. J.M.B. is supported by the Medical Research Council (MRC) (Grant MC\_UU\_12015/4).

## AVAILABILITY OF DATA AND MATERIALS

The data used and analysed in this study are available from the corresponding author, or the Cancer Policy Research Centre at Cancer Research UK, on reasonable request.

## CONFLICT OF INTEREST STATEMENT

N.C. is on the board of directors at Alcohol Focus Scotland. The other authors declare no conflicts of interest.

## REFERENCES

- Alcohol Change UK. 2020. *Alcohol Statistics [Online]*. London: Alcohol Change UK. <https://alcoholchange.org.uk/alcohol-facts/fact-sheets/alcohol-statistics> (22 July 2020, date last accessed).
- Alvarez-Bueno C, Rodríguez-Martin B, García-Ortiz L, et al. (2015) Effectiveness of brief interventions in primary health care settings to decrease alcohol consumption by adult non-dependent drinkers: a systematic review of systematic reviews. *Prev Med* 76 Suppl:S33–8.
- Angus C, Gillespie D, Ally A, et al. (2015) *Modelling the Impact of Minimum Unit Price and Identification and Brief Advice Policies Using the Sheffield Alcohol Policy Model Version 3*. Sheffield: University of Sheffield.
- Angus C, Holmes J, Pryce R, Meier P, Brennan A. (2016) Alcohol and cancer trends: Intervention Studies. *University of Sheffield and Cancer Research UK*.
- Boniface S, Shelton N. (2013) How is alcohol consumption affected if we account for under-reporting? A hypothetical scenario. *Eur J Pub Health* 23:1076–81.
- British Medical Association. 2014. *Survey Reveals Extent of GP Workforce Crisis [Online]*. London: BMA. <https://www.bma.org.uk/news/2014/may/survey-reveals-extent-of-gp-workforce-crisis> (24 October 2019, date last accessed).
- Brown J, West R, Angus C, et al. (2016) Comparison of brief interventions in primary care on smoking and excessive alcohol consumption: a population survey in England. *Br J Gen Pract* 66:e1–9.
- Brown KF, Runggay H, Dunlop C, et al. (2018) The fraction of cancer attributable to modifiable risk factors in England, Wales, Scotland, Northern Ireland, and the United Kingdom in 2015. *Br J Cancer* 118:1130–41.
- Collins C, Finegan P, O'riordan M. (2018) An online survey of Irish general practitioner experience of and attitude toward managing problem alcohol use. *BMC Fam Pract* 19:200.
- Critchlow N, Rosenberg G, Runggay H, et al. (2020) Weight assessment and the provision of weight management advice in primary care: a cross-sectional survey of self-reported practice among general practitioners and practice nurses in the United Kingdom. *BMC Fam Pract* 21:1111.
- Department of Health. (2016) *Alcohol Consumption: Advice on Low Risk Drinking*. London: Department of Health.
- Forouzanfar MH, Alexander L, Anderson HR, et al. (2015) Global, regional, and national comparative risk assessment of 79 behavioural, environmental and occupational, and metabolic risks or clusters of risks in 188 countries, 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013. *Lancet* 386:2287–323.
- Govier A, Rees C. (2013) Reducing alcohol-related health risks: the role of the nurse. *Nurs Stand* 27:42–6.
- Griswold MG, Fullman N, Hawley C, et al. (2018) Alcohol use and burden for 195 countries and territories, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016. *Lancet* 392:1015–35.
- Hall J. (2016) *Nurse Practice*. Sheffield: Sheffield Hallam University.
- HM Government. (2012) *A Minimum Unit Price for Alcohol Impact Assessment*. London: Home Office.
- Hobbs FDR, Bankhead C, Mukhtar T, et al. (2016) Clinical workload in UK primary care: a retrospective analysis of 100 million consultations in England, 2007–14. *Lancet* 387:2323–30.
- Holloway A, Donaghy E. (2017) *Practices and Attitudes of General Practitioners in the Delivery of Alcohol Brief Interventions in Scotland*. Edinburgh: Scottish Health Action on Alcohol Problems.
- Holmes J, Brown J, Meier P, et al. (2016) Short-term effects of announcing revised lower risk national drinking guidelines on related awareness and knowledge: a trend analysis of monthly survey data in England. *BMJ Open* 6:e013804.
- Hutchings D, Cassidy P, Dallocio E, et al. (2006) Implementing screening and brief alcohol interventions in primary care: views from both sides of the consultation. *Prim Health Care Res Dev* 7:221–9.
- Johansson K, Bendtsen P, Åkerlind I. (2002) Early intervention for problem drinkers: Readiness to participate among general practitioners and nurses in Swedish primary health care. *Alcohol Alcohol* 37:38–42.
- Johnson M, Jackson R, Guillaume L, et al. (2011) Barriers and facilitators to implementing screening and brief intervention for alcohol misuse: a systematic review of qualitative evidence. *J Public Health* 33:412–21.
- Kaner EF, Beyer FR, Muirhead C, et al. (2018) Effectiveness of brief alcohol interventions in primary care populations. *Cochrane Database Syst Rev* 2:Cd004148.
- Lock CA, Kaner E, Heather N, et al. (2006) Effectiveness of nurse-led brief alcohol intervention: a cluster randomized controlled trial. *J Adv Nurs* 54:426–39.
- Mably S, Jones C. (2010) *Briefing Paper Delivering Alcohol Brief Advice*. Cardiff: Public Health Wales.
- Manthey J, Probst C, Hanschmidt F, et al. (2015) Identification of smokers, drinkers and risky drinkers by general practitioners. *Drug Alcohol Depend* 154:93–9.
- NHS Digital. 2019. *Patients Registered at a GP Practice October 2019; Special Topic - Practices That Have Closed since October 2018 [Online]*. Leeds: NHS Digital. <https://digital.nhs.uk/data-and-information/publications/statistical/patients-registered-at-a-gp-practice/october-2019> (29 October 2019, date last accessed).
- NHS England. (2019) *Standard General Medical Services Contract 2018/19*. Leeds: NHS England.
- NHS Health Scotland. (2017) Delivering an ABI: process, screening tools and guidance notes. In *Alcohol Brief Interventions. Primary Care Pack*. Edinburgh: NHS Health Scotland.
- NICE. (2010) Alcohol-use disorders: prevention [PH24]. In *Public Health Guideline*. NICE: London.
- O'Donnell A, Angus C, Hanratty B, et al. (2020) Impact of the introduction and withdrawal of financial incentives on the delivery of alcohol screening and brief advice in English primary health care: an interrupted time-series analysis. *Addiction* 115:49–60.

- O'Donnell A, Haighton C, Chappel D, *et al.* (2016) Impact of financial incentives on alcohol intervention delivery in primary care: a mixed-methods study. *BMC Fam Pract* 17:165–5.
- O'Donnell A, Kaner E. (2017) Are brief alcohol interventions adequately embedded in UK primary care? A qualitative study utilising normalisation process theory. *Int J Environ Res Public Health* 14: 350.
- Paul C, Yoong SL, Sanson-Fisher R, *et al.* (2014) Under the radar: a cross-sectional study of the challenge of identifying at-risk alcohol consumption in the general practice setting. *BMC Fam Pract* 15:74–4.
- Public Health England. (2016) *The Public Health Burden of Alcohol and the Effectiveness and Cost-Effectiveness of Alcohol Control Policies: An Evidence Review*. London: Public Health England.
- Public Health England. 2017. *Guidance on the 5 Alcohol Use Screening Tests* [Online]. London: Public Health England. <https://www.gov.uk/government/publications/alcohol-use-screening-tests/guidance-on-the-5-alcohol-use-screening-tests> (29 October 2019, date last accessed).
- Purshouse RC, Brennan A, Rafia R, *et al.* (2013) Modelling the cost-effectiveness of alcohol screening and brief interventions in primary care in England. *Alcohol Alcohol* 48:180–8.
- Rehm J, Allamani A, Della Vedova R, *et al.* (2015) General practitioners recognizing alcohol dependence: a large cross-sectional study in 6 European countries. *Ann Fam Med* 13:28–32.
- Rehm J, Mathers C, Popova S, *et al.* (2009) Global burden of disease and injury and economic cost attributable to alcohol use and alcohol-use disorders. *Lancet* 373:2223–33.
- Robinson A. (2019) Can GPs find time for a million extra appointments a year? *BMJ* 365:11999.
- Rosenberg G, Bauld L, Hooper L, *et al.* (2018) New national alcohol guidelines in the UK: public awareness, understanding and behavioural intentions. *J Public Health* 40:549–56.
- Rosenberg G, Crawford C, Bullock S, *et al.* (2019) *Smoking Cessation in Primary Care: A Cross-Sectional Survey of Primary Care Health Practitioners in the UK and the Use of Very Brief Advice*. London: Cancer Policy Research Centre, Cancer Research UK.
- Schölin L, Watson J, Dyson J, *et al.* (2019) *Alcohol Guidelines for Pregnant Women. Barriers and Enablers for Midwives to Deliver Advice*. London: Institute of Alcohol Studies, The University of Edinburgh and University of Hull.
- Scottish Intercollegiate Guidelines Network. (2003) Guideline 74. The management of harmful drinking and alcohol dependence in primary care. In *A National Clinical Guideline*. Edinburgh: Scottish Intercollegiate Guidelines Network.
- Shaw RL, Lowe H, Holland C, *et al.* (2016) GPs' perspectives on managing the NHS health check in primary care: a qualitative evaluation of implementation in one area of England. *BMJ Open* 6:e010951.
- Silva AS, Campos-Silva WL, Gouvea MA, *et al.* (2019) Vignettes: A data collection technique to handle the differential operation of items in surveys. *Braz Bus Rev* 16:16–31.
- Stockwell T, Zhao J, Greenfield T, *et al.* (2016) Estimating under- and over-reporting of drinking in national surveys of alcohol consumption: identification of consistent biases across four English-speaking countries. *Addiction* 111:1203–13.
- Tam CWM, Zwar N, Markham R. (2013) Australian general practitioner perceptions of the detection and screening of at-risk drinking, and the role of the AUDIT-C: a qualitative study. *BMC Fam Pract* 14:121.