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Print and online textual news media coverage of UK low-risk drinking guidelines from 2014 to 2017: A review and thematic analysis

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Abstract

Introduction. *The UK low-risk drinking guidelines were revised in 2016. Drinkers were primarily informed about the guidelines via news media, but little is known about this coverage. This study investigated the scale and content of print and online textual news media coverage of drinking guidelines in England from February 2014 to October 2017.* **Methods.** *We searched the Nexis database and two leading broadcasters' websites (BBC and Sky) for articles mentioning the guidelines. We randomly selected 500 articles to code for reporting date, accuracy, tone, context and purpose of mentioning the guidelines, and among these, thematically analysed 200 randomly selected articles.* **Results.** *Articles mentioned the guidelines regularly. Reporting peaked when the guidelines revision was announced (7.4% of articles). The most common type of mention was within health- or alcohol-related articles and neutral in tone (70.8%). The second most common was in articles discussing the guidelines' strengths and weaknesses, which were typically negative (14.8%). Critics discredited the guidelines' scientific basis by highlighting conflicting evidence and arguing that guideline developers acted politically. They also questioned the ethics of limiting personal autonomy to improve public health. Criticisms were partially facilitated by announcing the guidelines alongside a 'no safe level of drinking' message, and wider discourse misrepresenting the guidelines as rules, and highlighting apparent inconsistencies with standalone scientific papers and international guidelines.* **Discussion and Conclusions.** *News media generally covered drinking guidelines in a neutral and accurate manner, but in-depth coverage was often negative and sought to discredit the guidelines using scientific and ethical arguments.* [Kersbergen I, Buykx P, Brennan A, Brown J, Michie S, Holmes J. Print and online textual news media coverage of UK low-risk drinking guidelines from 2014 to 2017: A review and thematic analysis. *Drug Alcohol Rev* 2022]

Key words: alcohol drinking, guidelines as topic, public health, printed media.

Introduction

Health authorities in most high-income countries publish low-risk drinking guidelines [1]. In January 2016, the UK's Chief Medical Officers (CMO) announced proposals to update their drinking guidelines to say that men and women are safest if they do not drink more than 14 units of alcohol per week (1 UK unit = 8 g ethanol). After a public consultation on the wording, the revised guidelines were officially adopted in August 2016. They replaced the previous 1995 guidelines, which recommended men and women should not regularly consume more than 3–4 or 2–3 units per day, respectively [2].

The guidelines revision did not lead to sustained or substantial changes in drinkers' awareness or knowledge of the guidelines, preparedness to change drinking or alcohol consumption levels [3–5]. This failure may reflect limited promotion of the revised guidelines. The guidelines announcement received considerable media attention and the majority of people aware of the revised guidelines reported hearing about them through news media [3]. However, no large-scale promotional activity took place until two brief campaigns in September 2018 (by Drinkaware and Public Health England) and March 2019 (by NHS Health Scotland). Additionally, most alcohol producers did not update the guidelines on product labels and the Portman

Group, a key industry social responsibility organisation, removed the guidelines from its mandatory requirements for product labelling [6]. Therefore, news coverage was a key communication medium.

The guidelines were announced in a press release titled 'New alcohol guidelines show increased risk of cancer' alongside a report describing increased cancer risks at even low levels of alcohol consumption. The CMO for England reinforced this emphasis on cancer risks by telling a UK parliamentary committee that people should: 'Do as I do when I reach for my glass of wine—think "Do I want the glass of wine or do I want to raise my own risk of breast cancer?" I take a decision each time I have a glass' [7]. The report on cancer risks and the CMO's statements were extensively covered in news reports and frequently linked to the guidelines.

News media play an important, but complex role in communicating and shaping public perceptions of alcohol-related issues [8–10]. Widespread reporting of drinking guidelines may aid recall [11–13] and influence public support and behavioural intentions [14], but these effects are mediated by how news media frame alcohol stories in ways that reflect particular views on harmful drinking [15], gender [16,17], alcohol policy [18–20] and the wider political and economic landscape [21,22]. As news organisations' editorial and commentary perspectives are often unsupportive of public health arguments, they tend instead to discuss alcohol problems with an underlying view that liberalised alcohol markets are desirable [21,22]. Therefore, it is important to examine to what extent news media cover drinking guidelines and how the guidelines are positioned within broader narratives around alcohol. To our knowledge, only one study has examined how news media report on drinking guidelines [23]. This showed that Australian drinking guidelines received minimal media attention, potentially due to a lack of promotional activity, but offered little insight into broader narratives.

The present study aims to describe the scale and content of news media coverage of drinking guidelines in England. As this was a retrospective study, broadcast media reports were inaccessible. Therefore, we reviewed print and online textual news media. We also reviewed text articles on the news websites of two leading UK broadcasters as these articles likely reflect the content and tone of these organisations' broadcast news reports. The review had three stages: first, a systematic search to identify all news articles published in England mentioning drinking guidelines; second, a quantitative analysis to develop a timeline of reporting and to summarise the main content of articles; and third, a qualitative analysis to identify salient themes in news coverage of drinking guidelines.

Methods

Search strategy

We searched the 'UK publications' database on Nexis, which contains all print and online textual news articles published by UK newspapers and magazines. We also used Google to search the BBC News and Sky News websites to capture coverage from broadcasters. To align with the study period of this paper's parent project, which evaluated the impact of the guidelines revisions [5], we searched for articles published between 1 February 2014 and 31 October 2017. We used the following search terms: alcohol guidelines OR drinking guidelines OR alcohol units OR 14 units OR 21 units OR 2–3 units OR 3–4 units OR alcohol recommendations OR alcohol limits OR alcohol guidance OR alcohol advice. Nexis' news search did not allow users to build complex search strategies with more than four search terms, and did not present results for searches with >3000 results, so we divided the search terms across three different searches and multiple, smaller subsections of the search period with <3000 results each (e.g. 1 February 2014–30 September 2016; 1 October 2016–31 October 2017). We restricted the Google search on the BBC news website to pages created in the United Kingdom to exclude stories from overseas broadcasters (e.g. BBC Africa).

Inclusion and exclusion criteria

Articles were included in the final sample if they fully or partially mentioned the guidelines (e.g. guidelines for women but not men) or if they commented on the process of developing the guidelines or their content without stating what the guidelines were. Articles were excluded if they did not mention the guidelines or if they only discussed guidelines for drinking in pregnancy or drink-driving, as these engage with debates that only partially overlap with the scope of this paper [24,25]. We also excluded articles in local newspapers and Scottish editions of UK newspapers, as the parent project focused on the national impact of drinking guidelines in England [5], and articles appearing in Associated Press planners (i.e. collections of press releases that are disseminated to journalists and news publications).

Article selection and data extraction

Headline and full-text screening were undertaken by IK who discussed difficult cases with JH. We automatically extracted publication name, source type

(broadsheet/quality press, middle-market, tabloid, online only, other), publication date and period (i.e. before or after the revised guidelines were announced).

We developed a coding frame for quantitative content analysis via inductive coding of an initial random sample of 50 articles, stratified by source type. As there was substantial repetition of content across articles, we did not attempt to code all articles. Instead, we selected a final random sample of approximately half ($n = 500$) of the identified articles, again stratified by source type, and coded them for the following characteristics (all coding undertaken by IK; see Table S1, Supporting Information, for example quotes for all categories).

Primary topic. Four mutually exclusive categories based on their primary topic are: (i) articles primarily discussing drinking guidelines; (ii) articles primarily discussing alcohol, but not focussing on the drinking guidelines; (iii) articles primarily discussing health, but not focussing on alcohol or the drinking guidelines; and (iv) any other articles.

Purpose of mentioning guidelines. Five mutually exclusive categories based on the primary purpose of mentioning guidelines in the article are: (i) articles mentioning the guidelines to inform people of the forthcoming or actual change in drinking guidelines, but not discussing their merits in detail; (ii) articles discussing the strengths and/or weaknesses of the old and/or revised guidelines and the guideline development process; (iii) articles mentioning the guidelines in the context of promoting health or preventing ill-health; (iv) articles mentioning the guidelines to illustrate consumption levels of specific groups or individuals; and (v) any other articles.

Overall tone. Three mutually exclusive categories based on whether the broad tone in which the guidelines were discussed was positive, negative or neutral. An article was coded as positive if a reader unfamiliar with the argument was expected to have a positive impression of the guidelines after reading the article. This included articles rebutting criticism of the guidelines or illustrating how scientific evidence supports them. A similar approach was taken for articles with a negative tone, which included articles criticising the guidelines without balancing this out with support for the guidelines. Articles were coded as neutral if they merely stated the guidelines, or balanced supporting and critical information relating to the guidelines.

Guidelines content. In addition to recommending drinkers do not consume more than 14 units per week,

the revised guidelines provided the following additional recommendations: spread drinking evenly over 3 or more days, having several drink-free days per week can help reduce consumption, limit total consumption per drinking occasion, drink more slowly, drink with food and alternate alcoholic drinks with water. We coded all aspects of the guidelines and auxiliary advice that were stated and whether this accurately represented the government advice at that time. Although not part of the guidelines, we also coded for the message that there is 'no safe level' of drinking for cancer as health authorities emphasised this when discussing the guidelines. If articles discussed multiple guidelines (e.g. compared the 1995 and 2016 guidelines), we only coded aspects that were presented as current advice, meaning we did not consider the tone towards previous guidelines.

Quantitative analysis

We plotted descriptive trends showing how many articles mentioned the guidelines between 1 February 2014 and 31 October 2017. We created separate trends for tone and purpose to describe how these shifted over time. We then used χ^2 tests to compare how often different aspects of the guidelines were communicated before and after the guidelines revisions. Finally, we used χ^2 tests to investigate how article characteristics (source type, primary topic, and purpose of mentioning the guidelines) and timing (before/after guidelines revision) were associated with tone. As only 2.2% of articles discussed the guidelines positively, we excluded positive articles from this analysis and only compared articles with a neutral or negative tone.

Qualitative analysis

We conducted a reflexive thematic analysis [26,27] on a subset of 200 articles. First, we coded a random sample of 100 articles (from the 500 articles selected for quantitative analysis), again stratified by source. As saturation had not been reached, we coded another randomly sampled 100 articles. This satisfied the requirement for data saturation as we were confident that no new themes would arise in further samples. Codes were organised into themes that described how the guidelines were covered in the media. Articles were coded for quantitative and qualitative analysis concurrently.

Reflexive statement on author perspectives. The thematic analysis was conducted by IK in consultation with JH and was informed by these researchers' prior knowledge. JH attended most of the meetings of the UK

CMO's guidelines development group as an advisor who led two epidemiological modelling reports that informed the guidelines' development. However, he was not involved in the final decision making, advised only on epidemiological matters during development and execution of the media strategy, and did not give any news interviews relating to the guidelines. IK conducted a study on labelling alcohol products with guidelines when the revisions were announced. She was broadly aware of apparent negative media commentary on the revised guidelines, particularly around the sense that the guidelines were 'too low' but did not have a detailed knowledge of the reporting prior to the current project.

As lead author and analyst, IK's interpretations of data and development of themes were therefore informed in part by her previous understanding but also by discussions with JH that provided wider context to events mentioned briefly within news articles (e.g. the CMO for England saying that people should consider the risk of cancer before drinking alcohol). More generally, JH's involvement in the guideline development process prompted emphases on certain points that appeared salient from an insider perspective (e.g. the inconsistent use of the 'no safe level' message relating to alcohol and cancer and the impact on public debate of a paper reporting international differences in guidelines [1]).

Results

Identified articles

The Nexis searches yielded 10 983 articles (Figure 1). We excluded 7070 articles published in local publications or Associated Press planners, 1702 duplicates and 1261 articles that did not discuss the guidelines. The Google searches yielded 70 results from BBC News and six from Sky News. We excluded 29 articles (28 from the BBC) that did not discuss the guidelines. After combining all searches, our final dataset included 997 eligible articles from 29 publications, 500 of which were sampled for analysis.

Reporting of guidelines over time

News articles mentioned the drinking guidelines regularly across the study period (median = 2 times per week; range = 0–40) (Figure 2). Forty (7.4%) articles were published in the week of the guidelines announcement in January 2016. The most common purposes of mentioning the guidelines during this week were to inform the public of the guidelines change ($n = 15$) or to discuss the strengths and weaknesses of the guidelines in detail ($n = 19$; mutually exclusive categories). Articles informing the public of
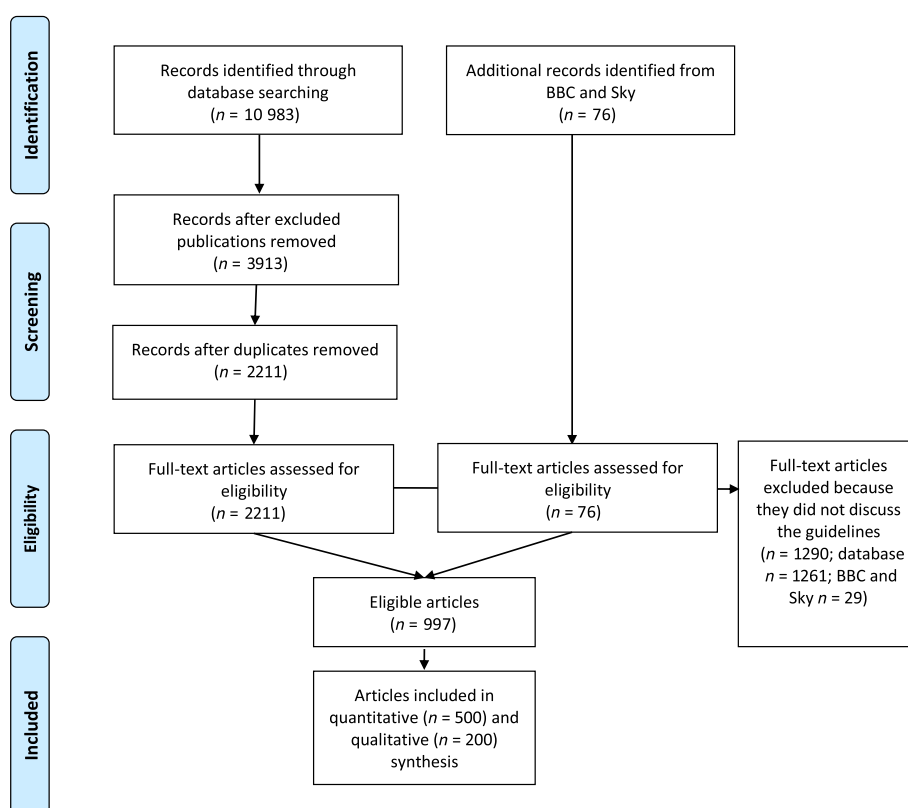

Figure 1. *Flow diagram showing results of search for news articles mentioning drinking guidelines.*
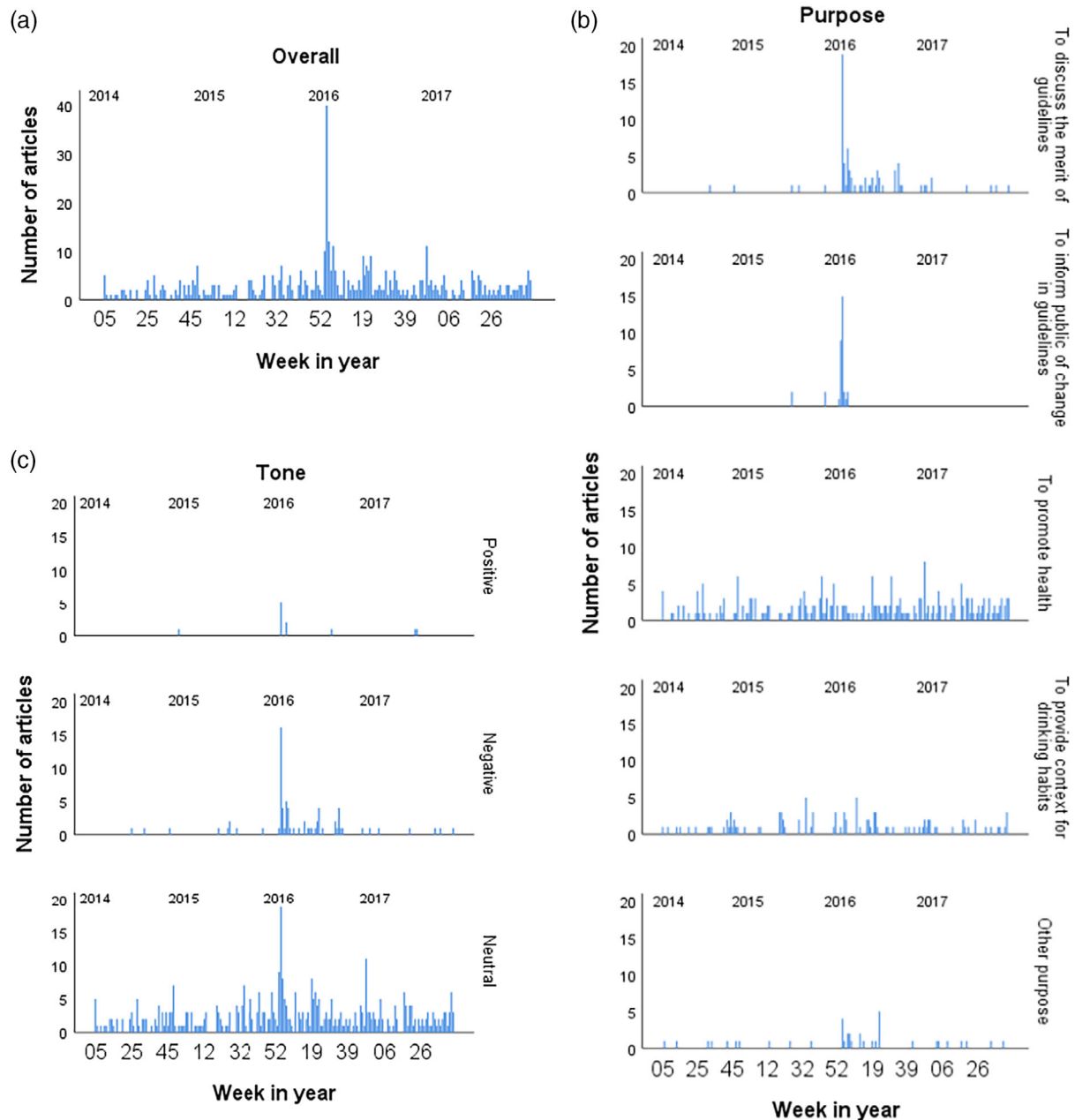
Figure 2. *Number of news articles mentioning guidelines per week within the analysed sample (N = 500) between 1 February 2014 and 31 October 2017 (a), split by purpose of mentioning guidelines in article (b) and tone (c). The guidelines changed in week 2 of 2016.*

the change were most often neutral in tone (12/15) and those discussing the strengths and weaknesses of the guidelines were most often negative (12/19). Articles discussing the strengths and weaknesses were also frequently published during the subsequent 22 weeks.

Table 1 shows the context in which guidelines were mentioned. The guidelines were most often mentioned to promote health, followed by providing context to articles discussing drinking habits. Most articles were neutral in tone (83.4%) and positive articles were rare (2.2%). Negative articles were uncommon (14.4%)

and were primarily published in the 8 weeks after the revisions were announced (40% of articles published in this period were negative; Figure 2).

Table 2 shows that most articles mentioned the recommended consumption level, although sometimes only for one gender. Since the revisions, only 3% of articles mentioned a guideline other than the revised guidelines. Mentioning of auxiliary advice increased after the guidelines revisions but was still only reported in the minority of articles (14% for most reported advice). The message that there is 'no safe level of drinking' was presented in 25.7%

Table 1. *Context in which guidelines were communicated before and after the guidelines change*

	Before ($N = 185$) %	After ($N = 315$) %	Total ($N = 500$) %
Tone			
Positive	0.5	3.2	2.2
Negative	5.4	19.7	14.4
Neutral	94.1	77.1	83.4
Context			
Related to drinking guidelines	8.1	26.0	19.4
Related to alcohol (but not drinking guidelines)	67.6	55.9	60.2
Related to health (but not alcohol)	19.5	14.6	16.4
Not related guidelines, alcohol or health	4.9	3.5	4.0
Role of guidelines within article			
To inform public of change in guidelines (but not discuss their merits in detail)	7.6	6.3	6.8
To discuss the strengths and/or weaknesses of the guidelines and the guideline development process	2.7	21.9	14.8
To promote health	57.8	45.4	50.0
To provide context for drinking	26.5	17.5	20.8
Other	5.4	8.9	7.6

Table 2. *Aspects of the guidelines that were mentioned before and after the guidelines change*

Aspect of guidelines communicated	Before ($N = 185$) %	After ($N = 315$) %	Total ($N = 500$) %	$\chi^2(1)$
Recommended consumption levels (at least one of the following)	97.8	94.0	95.4	4.0*
14 units per week for men (Guideline: 2016 onwards)	6.5	88.6	58.2	322.8**
3–4 units per day for men (Guideline: 1995–2016)	56.8	0.6	21.4	214.9**
21 units per week for men (Guideline: pre-1995)	35.7	1.9	14.4	107.8**
14 units per week for women (Guideline: pre-1995 and 2016 onwards)	36.8	88.9	69.6	149.7**
2–3 units per day for women (Guideline: 1995–2016)	59.5	1.0	22.6	228.1**
Spread weekly limit over multiple days	1.1	13.7	9.0	22.5**
No alcohol on at least 2 days per week	9.2	10.2	9.8	0.1
No safe level of drinking	7.1	25.7	18.8	26.6**
Communicated as part of guidelines	2.2	23.2	15.4	39.5**
Communicated separate from guidelines	4.9	2.5	3.4	1.9

Percentages are the proportion of articles that mention each aspect. Aspects are not mutually exclusive. Only aspects communicated in at least 5% of articles are reported. *$P < 0.05$; **$P < 0.001$.

of articles published after the revisions. 23.2% of articles stated or implied that this message was part of the guidelines, even though it is not, whereas a further 2.5% mentioned the 'no safe level' message but clarified it was separate to the guidelines.

Relationship between timing, tone and other article characteristics

Table S2 (Supporting Information) summarises the relationships between timing, tone and other article characteristics. Articles were more likely to be negative after the guidelines revision than before (χ^2 (1) = 20.3,

$P < 0.001$). However, articles were only more likely to be negative if the purpose of mentioning the guidelines was to discuss their strengths and/or weaknesses compared to informing the public of the change, promoting health, provide context for drinking habits and other reasons (χ^2 (4) = 179.2, $P < 0.001$). There were no significant differences in the likelihood of the guidelines being discussed negatively across source types (χ^2 (4) = 4.76, $P = 0.31$).

Thematic analysis

We developed two themes with two subthemes each describing the broader content of news media coverage

Table 3. *Quotes illustrating the developed 'explicit criticisms' and 'wider discourse' themes*

Theme	Subtheme	Quote
Explicit criticisms of the guidelines	Scientific criticisms	'[H]ead of lifestyle economics of the Institute of Economic Affairs think-tank, yesterday accused officials of ignoring the benefits of alcohol. He said 'decades of evidence' had shown adults who drank small amounts of alcohol lived longer than teetallers and it was "scientifically incorrect" for guidelines to imply the safest drinking level was zero'. (News article, *Daily Mail*, 9 January 2016). 'Sir David Spiegelhalter […] said: "These guidelines define low-risk drinking as giving you less than a 1 per cent chance of dying from an alcohol-related condition. So should we feel ok about risks of this level? An hour of TV watching a day, or a bacon sandwich a couple of times a week, is more dangerous to your long-term health"'. (News article, *Daily Mail*, 2 February 2016)
	Moral criticisms	'These guidelines are not intended to stand alone. They are twists of a ratchet. Public health zealots […] work always to construct a net of public policies that will eventually ensnare whatever group it is they dislike'. (Opinion piece, *The Daily Telegraph*, 9 January 2016) 'Dr Smith […], believes the best solution is to issue a sliding scale of drinking against perceived risk— then let Brits decide what they consume. He added: "Quite small amounts of alcohol can raise cancer risks, but it is for each of us to decide how much we care. There is no doubt the more you drink, the more risk you run. But life is full of dangers. The idea we can insulate ourselves against all risks is clearly nonsense"'. (News article, *The Sun*, 9 January 2016)
Wider discourse around the guidelines facilitates criticism	Framing of guidelines as rules	'If you're worried about the amount you are drinking though, it's always a good idea to stick to the recommended 14 units per week. […] Anything more than that is defined as alcohol misuse by the NHS—and a shocking seven in ten drinkers ignore official booze limits'. (News article, *The Sun*, 26 October 2017) 'There is, says the Chief Medical Officer, no safe limit. Adults can indulge in 14 units a week (basically a bottle of wine), but even that's not advisable. Anything over that and you will find yourself on a seriously steep slope towards terminal illness. […] [Most drinkers] will probably feel a bit guilty for a bit, stop the sauce, and then quietly slip back to previous lifestyle habits […], because the habit of opening a few beers at the end of a working day […] is far more deeply ingrained […] than the notion of meekly obeying state sanctions as proposed by the Chief Medical Officer'. (Opinion piece, *The Independent*, 9 January 2016)
	Guidelines as part of ever-changing alcohol advice	'Drinking up to two small 330 ml cans (1.4 pints) of beer a day—equivalent to 21 units a week—is not only unlikely to damage your health, but will also reduce your risk of heart and circulation diseases by about a quarter'. (News article, *The Times*, 11 May 2016) 'One alcoholic drink a day could be enough to increase the risk of heart disease, according to research contradicting claims that low to moderate consumption has a protective effect'. (News article, *The Guardian*, 11 July 2014) 'Henry Ashworth, of drinks industry body the Portman Group, said: "Saying there is no safe level flies in the face of international evidence. The US and most European countries have much higher limits, based on the same evidence"'. (News article, *The Sun*, 26 August 2016)

of drinking guidelines. Our first theme was 'nature of explicit criticism', containing two subthemes: 'scientific criticism' and 'moral criticism'. As most articles mentioned the guidelines incidentally, these subthemes were strongly informed by 39 articles discussing guidelines in more detail, which tended to be negative and published shortly after the announcement of the revised guidelines. Our second theme was 'wider discourse around the guidelines facilitates criticism' containing two subthemes: 'framing of guidelines as rules' and 'guidelines as part of ever-changing alcohol advice'. These subthemes are reflective of the entire set of articles. Table 3 shows quotes for each subtheme.

Theme 1: Nature of explicit criticism

Subtheme 1.1.: Scientific criticism. Four main criticisms were levelled at the science underpinning the guidelines. First, critics argued that the guidelines do not reflect the scientific evidence on alcohol-related health risks and often drew on alternative evidence or interpretations of findings. Although the cancer risk was not disputed, critics used the prominent 'no safe level' message to argue that the guidelines ignored important evidence of alcohol's benefits to cardiovascular health and that these benefits might outweigh any increased cancer risk.

Second, critics questioned the idea of a single consumption level that ignores physiological differences, and particularly sex differences, between individual drinkers. Further commentators argued that this level should be higher because the public would accept higher risks from drinking.

Third, critics questioned the integrity of the guidelines development process and those involved. Four members of the guideline development group were affiliated with the Institute for Alcohol Studies (IAS), a public health charity that emerged from and is primarily funded by the Alliance House Foundation (formerly the UK Temperance Alliance, although IAS has never advocated for temperance). The guideline development group also drew extensively on evidence provided by researchers at the University of Sheffield, who had also provided evidence supporting minimum unit pricing for alcohol [28]. Critics claimed that the Sheffield researchers and those with links to IAS had acted politically in advocating for a lower guideline [Note: The IAS contested the accuracy of news reports on the details of this influence, but this complaint was not upheld [29].] and sometimes argued that the alcohol industry should have been consulted to provide balance.

Finally, critics questioned the need for the guidelines review and implementation of the revised guidelines. They argued that the review was unnecessary because alcohol consumption was declining in the UK and that the guidelines were unlikely to change behaviour because they were not persuasive. In some cases, all the above criticisms were drawn together:

> '*Critics of the new guidelines have already pointed out some of their defects—how they depend too heavily upon research at the University of Sheffield conducted by those committed to the minimum pricing of alcohol (another entirely political, unscientific cause); how they concentrate so much on cancer risk that they play down alcohol benefits for the heart; how they show no sense of proportion about what we mean by risk; how binge-drinking is less of a problem than it was 20 years ago*'. (Opinion piece, *The Daily Telegraph*, 9 January 2016)

Criticism of the science behind the guidelines and the consumption level often came from alcohol industry actors, free market think-tanks and pro-alcohol consumer groups, but also reputable scientists and lay people. Sometimes, the reasoning behind the guidelines was published alongside these criticisms, but more often the criticism stood alone.

Subtheme 1.2.: Moral criticism. Moral criticisms focused on the guidelines' role in the broader political landscape. The guidelines were frequently framed as a 'nanny state' policy that impeded personal autonomy and would lead to more extreme policies in the future. Critics were not alone in viewing guidelines as means to an end within public health. A member of the guideline development group used the same argument in favour of the guidelines in a BMJ article, arguing that '[The guidelines may alter] social attitudes towards alcohol, increasing the public's and in turn the political acceptability of policies that reduce alcohol consumption' [30]. However, critics prioritised personal autonomy and argued this was incompatible with the guidelines.

Critics of the guidelines used the (perceived) agenda of public health officials to question their credibility when they behaved contrary to this agenda. Public health officials were called hypocritical for consuming alcohol, even when it conformed to the guidelines they promoted. This was facilitated by the conflict between the consumption guideline and the 'no safe level' message, which allowed critics to suggest it was hypocritical for public health professionals to consume any alcohol at all, despite abstinence not being the intention of the guidelines, as illustrated here:

> '*Britain's top doctor has been terrorising moderate drinkers into giving up wine and lecturing women to consider every sip of alcohol a deadly step towards breast*

cancer. But it appears Dame Sally Davies—the UK's "nanny in chief" who only this week urged others to "do as I do"—has relaxed her killjoy approach to booze at home. New photographs show the Chief Medical Officer clutching a half-full champagne flute'. (News article, *Daily Mail*, 4 February 2016)

In many cases, scientific and moral criticisms were intertwined. For example, the criticism that the guidelines were too risk-averse cannot be separated from the argument that consumers should be given autonomy to decide which risks levels are acceptable for them. Conversely, the belief that the guidelines were a tool to further a wider political agenda and the involvement of individuals with links to organisations with particular alcohol policy goals led to scepticism of the scientific underpinning of the guidelines, as shown here:

'*I sense a political motive rather than a medical one. Not party-political, of course* […]. *I mean politicised campaigners who see industry as bad, consumers as stupid, government as good, and themselves as legislators to compel the public to behave in certain ways. Since I suspect such people's motives, why should I accept the objectivity of what they say about health?*' (Opinion piece, *The Daily Telegraph*, 9 January 2016)

Theme 2: Wider discourse around the guidelines facilitates criticism

Subtheme 2.1.: Framing of guidelines as rules. Articles often referred to the guidelines as 'rules' or 'limits' and described exceeding the guidelines with terminology, such as 'misuse', 'harmful drinking' or 'unsafe', which lay people may equate to having serious alcohol problems. Whilst this is clearly incorrect, this terminology invites and facilitates criticisms that the consumption level 'makes no sense'. Similarly, the framing of the guidelines as a rule reinforced the criticism that guidelines were too risk-averse and that the consumption level ought to reflect physiological differences between individuals: If people are not *allowed* to exceed the guidelines, it becomes more important that the risk level is set at a point that the public would consider acceptable. The following quote from a consumer rights group shows how interpreting the guidelines as rules led to resistance to being told what to do and discontent that the guidelines were the same for everyone:

'*In January last year, the chief medical officer* […] *introduc*[ed] *the same limit for women and men at*

14 units a week. "It's ridiculous." People that are significantly different in weight and stature carry alcohol differently. Women respond to alcohol differently so it doesn't make sense. […] We want to represent people who are saying "I know my limits and I don't need them to be dictated to me" and I don't want to feel guilty for having a drink'. (News article, *The Times*, 10 September 2017)

Subtheme 2.2.: Mixed messages around alcohol advice. Even though the guidelines had not been formally revised since 1995, many articles suggested that alcohol advice had changed frequently and was inconsistent. Articles in our sample indeed reported widely varying advice, usually in response to recently published research. The guidelines were often given the same weight as other health advice. For example, they were presented side-by-side with unsubstantiated health claims as apparent equals, particularly in articles presenting multiple ways to prevent disease. In other cases, the guidelines were contrasted with apparently contradictory scientific evidence. Thus, the distinction between official guidelines and recommendations from health-related research is often unclear from a casual reader's perspective.

'[M]*iddle aged people should go teetotal to reduce their risk of developing dementia*'. (News article, *Express*, 21 October 2015)
'[T]*hree glasses of bubbly a week could help ward off dementia*'. (Other article type, *Daily Mail*, 27 December 2015)

'*Contrary to UK Government advice suggesting keeping several days "alcohol free", a new study from researchers in Finland* […] *found several glasses of wine per day with an evening meal could actually be good for you*'. (News article, *The Independent*, 1 May 2016)
'*The spice of the moment, turmeric—said to have a number of health benefits—could offset some of the damage of drinking.* […] *Additionally, keeping within the government's recommended alcohol intake of 14 units each week can also help reduce workload on the liver*'. (News article, *The Express*, 15 August 2017)

Another cited inconsistency in advice was that UK drinking guidelines differed from the guidelines in other countries. This was partly because a widely reported scientific paper had recently highlighted large international variation in guidelines and showed that the revised UK guideline for men was relatively low [1]. Again, the inclusion of the 'no safe level' message in discussion of the revised UK guidelines amplified the difference with other countries. Together, this

supports a critical narrative that one day alcohol is represented as good for you and the next day alcohol as bad, and critics drew on this when arguing the guidelines do not take all evidence into account:

'*The way that public health officials have flip-flopped about the amounts people should, and shouldn't, be drinking is, to my mind, a textbook case in how not to do it. The messages are contradictory, keep changing and lack any credible evidence base. I'm a doctor, yet I'm now confused about the safe limit for drinking*'. (Opinion piece, *Daily Mail*, 20 May 2017)

Discussion

This study found that the drinking guidelines were regularly mentioned in print news coverage in England from February 2014 to October 2017. We coded mentions of drinking guidelines in UK news articles into four general forms. The most common were incidental mentions within articles about broader alcohol- or health-related topics, accounting for 70.8% articles (20.8% and 50%, respectively). These mentions occurred continually and were generally neutral in tone. The second most common articles mentioned the guidelines when discussing their strengths and/or weaknesses. These mentions accounted for 14.8% of articles, occurred primarily in the 23 weeks after the revisions were announced and were often negative in tone. Next, 7.6% of articles mentioned the guidelines for purposes unrelated to the guidelines, alcohol or health. Finally, the least common were articles that reported the revisions to the guidelines (6.8% of articles). These occurred immediately after the announcement in January 2016 and were typically neutral in tone.

Criticisms focused on the guidelines' scientific basis and the ethics of limiting personal autonomy to benefit public health. Our findings are in line with previous research [31,32] showing that unsupportive responses from industry and on social media revolved around the scientific underpinning of the guidelines and objections to government interference in individual behaviours. Social media responses also discussed the guidelines were seen as another case of inconsistent alcohol advice [32]. Some of these criticisms may be unavoidable (e.g. concerns about government intervention in individual behaviours are long-standing), but other criticisms show that guideline developers need to carefully balance scientific and ethical considerations in their decision making, particularly regarding alcohol-related risk acceptability and how individuals should use population guidance. The setting of drinking guidelines is a necessarily value-laden

and pragmatic process [33], but our analysis shows that the resulting choices shape how guidelines are communicated and understood.

Critics of the revised guidelines used common industry strategies within policy debate, such as selectively highlighting evidence [34] and questioning the integrity and motives of public health actors [35]. However, our analysis showed that actions by public health actors sometimes facilitated these criticisms. For example, announcing the revised guidelines alongside a report on cancer (and later statements by England's CMO) led to the guidelines being conflated with the 'no safe level' message. Critics subsequently used the 'no safe level' message to show that the guidelines developers ignored health benefits from alcohol, to suggest that the guidelines recommended abstinence and would lead to more restrictive policies and to question public health actors' credibility if they consumed any alcohol themselves. In a second example, public health scientists also facilitated criticisms over the longer-term by using news media to disseminate results relating to risks or benefits of alcohol that are at odds with the guidelines, including findings related to particular health conditions (e.g. dementia) or findings from single studies as opposed to meta-analyses. Previous studies suggest exposure to conflicting and frequently changing nutritional advice leads reduces the credibility of that advice and nutritional advice in general [36–38], and our results suggest that the perception of conflicting and changing evidence on alcohol may have similar effects. Therefore, while criticism of drinking guidelines may partially be a strategic response by commercial actors to a threat to their interests, it can also be interpreted as the consequence of decisions taken by public health actors when engaging with policy debates and disseminating research.

Our findings have important implications for practice. Firstly, greater consistency in the message and language used to communicate the guidelines may improve understanding of the guidelines. This would include incorporating positive information on the guidelines within press releases, providing supportive quotes and ensuring appropriate language is used (e.g. 'low risk', 'increasing risk'). These strategies may prevent conflation or comparison of drinking guidelines with other findings relating to alcohol and avoid feeding critical narratives that exploit absolutist language (e.g. 'safe', 'harmful'). Nevertheless, our analysis showed that most articles were factual and neutral in tone, and thus likely supported effective communication of the guidelines. Secondly, linking the guidelines to alcohol-related cancer risks (through the joint announcement and later statements by England's CMO) facilitated criticisms of the guidelines. Future guideline communication plans should ensure that

media strategies fully explain the purpose and content of the guidelines, and should consider how media reporting may facilitate the effective communication and uptake of guidelines by stakeholders, including the general public. Thirdly, guideline developers consider existing risk perceptions when setting guidelines. For example, lay people commonly believe that women should drink less than men [39] and the decision to have a single guideline for men and women was used to discredit the guidelines. Therefore, the guideline development process should take into account how people will interpret the guidelines and compare them against their existing beliefs [33]. If guidelines contradict lay beliefs, the reason behind these discrepancies should be explained to prevent people from favouring their own risk perceptions over the guidelines. Finally, media campaigns to communicate drinking guidelines increase awareness of the guidelines [40] and intentions to reduce drinking [41]. Large-scale media campaigns would ensure consistent communication of the guidelines and the reasoning behind the guidelines.

The main strengths of this analysis are that it used mixed methods to analyse how news media communicated the guidelines and covered periods when revised guidelines were discussed in the news media and status quo periods, whereas many previous articles focussed only on a specific policy debate [19,42–44]. The analysis also has limitations. First, it was unfeasible to examine broadcast or social media, which is common in studies of news coverage of alcohol policy questions [9,18,19,21,22,42]. However, we captured an understanding of the reporting of two major broadcasters by examining their news websites. Second, we searched only for articles that mentioned the guidelines. Therefore, we cannot assess how frequently news media discussed alcohol-related news without mentioning the guidelines, nor can we compare the coverage of drinking guidelines with other alcohol-related advice that may be reported. Nonetheless, we captured extensive evidence of alternative alcohol-related health recommendations and incorporated this into our analysis. Third, the reach of individual articles is unknown and therefore we cannot examine the public's exposure to different types of reporting on drinking guidelines. Thus, although neutral articles were most common, these may have attracted a different or lower readership than negative articles that were, for example, widely circulated on social media. Negative articles [45] and editorials [46] are shared more widely on social media, suggesting that detailed critiques of the guidelines may have had a wider readership than the more common neutral articles. Fourth, our search focused on the guideline consumption levels. Other elements of the guidelines, such as drink-free days, were not covered in the search terms and we may therefore have missed some aspects of the news media's discussion of the guidelines. Fifth, the articles were coded by a single coder. However, all authors agreed on the coding scheme for the quantitative analysis and in the qualitative analysis themes were checked with another author with a strong knowledge of the media coverage.

Conclusion

To conclude, articles mentioning UK drinking guidelines appear routinely in print media and most frequently report the guidelines in a neutral and factual manner. However, in-depth coverage of the guidelines was more negative, with critics using both scientific and ethical arguments to discredit the guidelines. Public health officials and advocates could use the regular reporting of the guidelines in alcohol- and health-related stories to shape how the guidelines are discussed and should be mindful of the problems outlined above regarding their role in constructing criticism of the guidelines.

Acknowledgements

Conflict of Interest

PB was commissioned by the UK Chief Medica Officers' expert advisory group that developed the low-risk drinking guidelines, via Public Health England, to provide epidemiological modelling that informed the guidelines. AB was commissioned by the UK Chief Medica Officers' expert advisory group that developed the low risk drinking guidelines, via Public Health England, to provide epidemiological modelling that informed the guidelines. He has also conducted advisory work on health economic modelling methods with the following companies: Vifor Fresenius Medical Care Renal Pharma Ltd., GSK, Sanofi, BMS, Wickenstones (contracted by Novo Nordisk), RTI (contracted by UCB), SIRTEX, Janssen, Wickenstones (contracted by Kyowa Kirin), Wickenstones (contracted by SOBI), Duchenne UK (charity), Grünenthal, Lilly, Takeda and Pfizer. He has also conducted contracted work with

Takeda, Novo Nordisk, Lilly, Sanofi and Medtronic. JB has received unrestricted funding to study smoking cessation from pharmaceutical companies who manufacture smoking cessation medications. JH was a member of, and later advisor to, the UK Chief Medica Officers' expert advisory group that developed the low risk drinking guidelines. He was also commissioned by the group, via Public Health England, to provide epidemiological modelling that informed the guidelines. IK and SM have none to declare.

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Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher's website:

Table S1. Example quotes for each coding category.
Table S2. Context in which guidelines were communicated between 1 February 2014 and 31 October 2017.