Fear and responsibility: discourses of obesity and risk in the UK press

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ABSTRACT
This paper examines how the UK print media represents risk in reporting about obesity. Using corpus linguistics methods (keywords, collocations and consideration of concordance lines) combined with qualitative discourse analysis, references to risk were analysed in a 36-million-word corpus of articles from the national British press about obesity, published between 2008 and 2017. Two main analytical directions were followed: differences between newspapers (in terms of political affiliation and format) and change over time. Obesity was found to be both a risk factor for diseases like cancer but also itself the consequence of risk factors such as over-eating or not getting enough sleep. When talking about risk, tabloid newspapers tended to discuss the former type of risk, whereas broadsheets focussed on the latter. Left-leaning newspapers tended to focus on the role of powerful institutions, while right-leaning newspapers wrote more about risk in terms of individuals, either focussing on personal responsibility or the role of biological factors in determining an individual’s risk. References to risks relating to obesity increased both in terms of raw frequency and proportional frequency over the decade examined, with the largest increase occurring between 2016 and 2017. The year 2017 was characterised by more reference to scientific research and risks of health conditions that were referred to in dramatic terms (e.g. as a deadly risk), as well as containing more personalised language (e.g. more use of the second person pronoun your). The analysis indicates how notions of risk intersect with neoliberal principles of illness and self-management. In addition, readers receive different messages about risks relating to obesity depending on which newspapers they read, and there is evidence for an increasing reliance on a discourse of fear around obesity in the British national press overall.

1. Introduction

Obesity is a major health issue that has been linked to a wide variety of illnesses including heart disease, cancer and diabetes. The media plays an important role in framing how people understand and respond to obesity-related risk. Accordingly, this paper examines how the UK print media represents notions of risk within the wider context of reporting about obesity. ‘Obesity’ is a diagnostic label applied to people who are severely overweight and have a body mass index (BMI) score of 30 or above. Obesity is interesting to examine in relation to risk because it appears
within a ‘chain’ of risk, wherein it can be conceptualised as the outcome of certain ‘risky’ behaviours (e.g. consuming high calorie food) as well as being a ‘risky’ condition in and of itself, linked to the development of certain health problems (e.g. diabetes).

In this paper, we examine the discourses used to construct obesity-related risk in the British press, including in terms of the two senses outlined above. We take a post-structuralist view of discourse, inspired by Foucault (1969, 954) who observed the power of discourses to ‘systematically form the objects of which they speak.’ Thus, Foucault-inspired approaches to risk are concerned with the ways in which the ‘discourses, strategies, practices and institutions around […] risk serve to bring it into being, to construct it as a phenomenon’ (Lupton 2013, 114), since it is through these that we come to know ‘risk’ and understand what it means. From such approaches, analyses of risk do not involve unearthing any nature of risk but, rather, are concerned with the ways in which discourses construct ‘truths’ around risk which can then form the basis for individual and societal action. Therefore, of particular interest to such analyses – the present study included – is the way in which risk operates in late modernity and in particular the political ethic of neoliberalism and governmentality (Turner 2002) which, throughout the twentieth and twenty-first centuries, have increasingly dominated in Western societies like the UK (Brown and Baker 2012). From the social constructionist perspective which underpins Foucauldian theorising of risk, the intensification of risk-related discourses within a society can be viewed as at once being the outcome of such social changes as well as contributing to them (Lupton 2013).

Our study adopts a corpus-based approach to discourse analysis (Baker 2006), based on a large collection (or ‘corpus’) of British national newspaper articles about obesity published between 2008 and 2017 (inclusive). Combining quantitative corpus linguistic techniques with qualitative discourse analysis, we compare the discourses used to constitute obesity-related risk across different sections of the press (grouped by newspaper format and political leaning) and over time. In line with Foucauldian theorisations of risk, our analysis is concerned not with determining the accuracy of representations of obesity-related risk but, rather, with identifying the discourses through which the press brings notions of obesity-related risk into being and on the basis of which certain ‘truths’ on risk become established and (likely) viewed as the basis for obesity-related action (Lupton 2013).

Following this introduction, we outline our theorisation of the (British) print media and its role in representing public health issues, before providing a brief overview of existing research on obesity-related discourses in the news media. In Section 3 we introduce our materials and methods of analysis. The results of our analysis are presented in Section 4 and then discussed in the concluding Section 5.

2. Obesity in the media

We view the press as having a dialectical relationship with society. News outlets influence their readers’ opinions but must also try to reflect readers’ views, otherwise they risk losing those readers. Different newspapers cater for different readerships, for example being distinguished between broadsheet and tabloid reporting styles or socialist, liberal and conservative political perspectives. Gerbner et al. (1986) have shown that the media can have a long-term effect on audiences, compounding over time as a result of the repetition of images and concepts. The news is one of the chief ways that people gain information about their society, its values and what counts as a norm or a transgression, including views about health and illness (Seale 2003). Although print-based newspapers have generally been declining in sales since the start of the twenty-first century, most have become multi-platform, having online versions which help to maintain their relevance and stretch their influence to international audiences. It is important, then, to understand the discourses through which the media makes sense of and communicates...
health issues and their attendant risks, obesity included, as these have the power to shape health-related beliefs and outcomes at an individual and population level.

A large body of research has interrogated the ways in which the media represents obesity. This work is both theoretically and methodologically diverse, as it originates in a wide range of fields and sub-disciplines. While a large number of discourses or representations of obesity circulate, Atanasova, Koteyko, and Gunter (2012), in their review of studies of media representations of obesity, note the predominance of three in particular: i) the bio-medical frame (obesity as a disease that can be remedied by medical or surgical solutions); ii) the societal responsibility frame (foregrounds the role of government and manufacturers in creating conditions for people to develop obesity); and iii) the individual responsibility frame (foregrounds personal lifestyle choices (especially diet and exercise) in contributing to the development of obesity). This third frame has tended to be the most dominant (Boero 2013). However, previous research has also noted the propensity for distinct representations to be used concurrently and in contradictory ways within a single text (e.g. Boero 2007).

The theme of risk has been observed in previous studies of media representation of obesity. For example, Lawrence (2004) examined the framing of risk in news coverage of obesity dating back to 1985. Lawrence reports evidence of a ‘frame contest’ between arguments which emphasise personal responsibility for obesity risk and those which foreground social environment factors, such as corporate and public policies. Risk has also emerged as a theme in studies of the framing of obesity in the UK press, too, including focusing on more recent data. For instance, in their comparative analysis of obesity frames in British and German newspapers, Atanasova and Koteyko (2017) linked the frames they identified to the broader construction of obesity as ‘risky’. The present study is part of a larger project in which we have analysed the discourses used to represent obesity in the British press. As a part of this research, we have found that the word ‘risk’ is a keyword (i.e. it occurs with statistically salient frequency) in coverage of obesity across all sections of the British press (see Brookes and Baker, 2021). However, the concept of risk – or indeed the word ‘risk’ itself – has yet to be subjected to any explicit focus in discourse-based studies of UK press representations of obesity.

While the aforementioned study by Lawrence (2004) represents the most direct investigation of media representation of obesity and risk to-date, it is distinct from the present study regarding the context (the present study focuses on the UK), time period (the present study being based on more recent data), and methodology (the present study takes a discourse-based approach and is driven by (corpus) linguistic methods). These differences in data and approach, which are described in more detail in the next section, mean that the present study is able to provide novel insights into the ways in which linguistic choices contribute to discourses around obesity risk in contemporary British press reporting. Furthermore, the structure of the data facilitates the exploration of two hitherto under-investigated areas of variation in this context; namely, how obesity-related risk discourses differ over time and between different types of newspapers (which tend to attract different readerships).

3. Materials and methods

We adopt a corpus-based approach to discourse analysis. The term ‘corpus linguistics’ largely refers to a collection of methods for analysing linguistic patterns in large collections of digitised, naturally occurring language (McEnery and Wilson 2001). Using the online news archive LexisNexis, we built a corpus consisting of the text from a decade of newspaper articles about obesity from the UK national press published between 2008 and 2017 (inclusive). For inclusion in the corpus, articles had to contain at least one mention of obese or obesity. Table 1 gives a breakdown of the corpus by newspaper. Note that information for Sunday and online editions and ‘sister’ newspapers are subsumed under one heading (e.g. Mail includes the print Daily Mail,
the online MailOnline and the Sunday edition, Mail on Sunday, while the heading Independent includes its sister paper, i).

Our corpus is imbalanced as some newspapers contributed many more articles than others (e.g. the Mail comprises around 30% of words in the corpus while the Morning Star contributes only 0.17%). A similar pattern emerges for time, with 33% of articles published between 2008 and 2012 compared to 67% between 2013 and 2017. These figures belie the fact that the newsworthiness of obesity has differed across newspapers and time. To take this into account, our analysis is divided into two sections, one which compares obesity-related risk discourses across different newspapers and the other, which considers how obesity risk is characterised across the whole corpus (over time).

The corpus was stored on an online analysis tool called CQPweb (Hardie 2012). The word risk appears in 13,502 texts in the corpus (almost 31% of articles), indicating that the concept is relatively common when obesity is discussed. However, there are cases in our corpus where obesity is only mentioned ‘in passing’ in an article and/or is not discussed anywhere near the concept of risk. To focus more intently on articles that discuss risk, we have used numerous techniques. One is to examine collocates (words which co-occur within close proximity of one another within the texts) of risk, while another is to consider the contexts in which risk and obesity appear, or ‘collocate’, together. A third method was to create sub-corpora consisting of sentences from texts which contain both the words risk and obesity/obese and to analyse this smaller subset of the data. The precise methods by which we accessed risk discourses vary across the sections of our analysis and are described as and where relevant in the analysis.

Our examination of the obesity-related risk discourses is based on three techniques in corpus linguistics: keywords, collocation analysis and concordance analysis. In corpus linguistics, a keyword is a word which occurs significantly more frequently in one corpus compared against another which acts as a ‘reference’. Keywords can act as ‘signposts’ to discourses (Baker 2006), as they reflect the most characteristic forms of language used in the corpus. Two important considerations here are the choice of reference corpus and statistic. Since the reference corpus acts as a benchmark for determining what is characteristic about the language in our corpus, we want to select one that resembles the texts we are analysing in terms of register. We utilise several reference corpora at different points in our study, so we will note and justify our choices, where relevant, in the analysis. We generated and ranked our keywords using the log-likelihood statistic (Dunning 1993) – a confidence measure which indicates the strength of confidence the analyst can have that a keyword is in fact key and has not arisen due to a sampling error.

Mentioned briefly above, collocation is a linguistic device whereby words, by associating strongly with one another, become bearers of meaning by virtue of co-occurrence. For example, in general language, as represented by the BE06 corpus of general written English (Baker 2009), the word bank collocates frequently with words such as river, reeds and water, yet bank also collocates with words like money, lend and mortgage (see: Baker 2017). These distinct sets of collocates can help us to understand the different meanings that this word takes on in a language.

| Newspaper | Articles | Words   | Mean article length (in words) |
|-----------|----------|---------|-------------------------------|
| Express   | 5193     | 3,265,741 | 629                          |
| Guardian  | 5008     | 5,238,062 | 1046                         |
| Independent | 4336     | 3,303,269 | 762                          |
| Mail      | 12,805   | 11,890,340 | 929                          |
| Mirror    | 3398     | 2,202,323 | 648                          |
| Morning Star | 152     | 63,641   | 419                          |
| Sun       | 2286     | 1,082,808 | 474                          |
| Star      | 1072     | 370,818  | 346                          |
| Telegraph | 5680     | 4,804,351 | 846                          |
| Times     | 3948     | 3,831,868 | 971                          |
| Total     | 43,878   | 36,053,221 | 822                          |

Table 1. Breakdown of the corpus by newspaper.
with different corpora representing distinct contexts of use. Analysing those words with which a word of interest frequently collocates can thus help to shed further light on the discourses that surround and constitute that word and the concept(s) it denotes (Brookes and McEnery 2020), in our case helping us to understand the discourses that surround the concept of risk in British press reporting around obesity. Collocation is usually judged to exist using a word association measure that tells us how often two or more words occur alongside one another in our corpus and whether this association is notable as a sizeable effect.

Keywords and collocation analysis are useful for identifying words and associations between words that could signal the presence of discourses that the analyst might have been unlikely to spot using hand and eye methods. However, to properly interpret these patterns, a qualitative analysis needs to ensue, with the lists of keywords and collocates largely acting as signposts to point in the corpus where the analyst needs to look in detail. Qualitative analysis involves reading concordance lines (a way of viewing corpus data which displays all uses of a given word or phrase, in context, as a series of rows on the computer screen) and interpreting recurring patterns in terms of obesity-related risk discourses. However, sometimes a concordance line alone is not enough and we have to access the original texts in their entirety to obtain a fuller understanding of the presence and functions of a particular discourse. A problem can sometimes ensue when examining frequent patterns in large corpora where hundreds or thousands of concordance lines are obtained. In such instances we have taken a random sample of 100 cases and noted the main trends accordingly. Finally, interpretation and explanation can be aided by drawing on other forms of context outside the corpus, such as consideration of economic, social, historical and political factors relating to the contexts in which the texts were produced. We have therefore taken into account factors such as newspaper readerships, the recent popularity of online news sites and relevant government policy.

4. Results

4.1. Risk across sections of the press

We begin our analysis with a brief overview of the main linguistic patterns that surround the word risk in our corpus. The word risk occurs 39,438 times in the corpus. It is the 106th most frequent word in the data and the 14th most frequent content word (defined as lexical nouns, verbs or adjectives). This word was therefore chosen for analysis due to its high frequency, as opposed to related words like risky (552 occurrences) and riskiness (1 occurrence). We decided to group the newspapers into four sections, or ‘sub-corpora’, which represent a cross-section of formats and political leanings in order to explore systemic differences. These are: left-leaning broadsheets (Guardian, Independent), right-leaning broadsheets (Telegraph, Times), left-leaning tabloids (Mirror) and right-leaning tabloids (Express, Mail, Star, Sun).

In this first part of our analysis, we want to consider the general patterns surrounding the use of risk in our corpus. From each of the four sections of our corpus, we extracted and analysed 100 cases in which the words risk and obesity occurred within five words of each other. For each sample, we analysed a balanced split between the newspapers involved (e.g. for the left-leaning broadsheets, we analysed 50 uses of risk from the Guardian and 50 uses from the Independent, then for the right-leaning tabloids we analysed 25 uses of risk each for the Express, Mail, Star and Sun). By focusing on cases where these two words co-occurred, or ‘collocated’, we could restrict our focus to those cases where we could be sure that the risk being described was relevant to obesity.

Our analysis of these samples revealed that risk was used in two related ways which map onto the ‘chain’ of risk described in Section 1:(i) risk of developing obesity and (ii) obesity heightening risk of other (health) problems. Although both of these senses of risk were present across all four sections of the corpus, we noted a preference for one or the other depending on the
section we were looking at – in other words, depending on the newspapers’ formats and political leanings, with a particularly notable distinction between tabloids and broadsheets. This is shown in Table 2, which displays the results of this analysis, where the percentages refer to the proportion of each sample which accounted for either pattern.

Thus, while the broadsheets were much more likely to focus on risk in terms of the risk factors that could be attributed to individuals developing obesity, the tabloids were more likely to present obesity as a factor in individuals having heightened risk of other health problems. We have also found tentative evidence for differences according to newspapers’ political leanings, with the left-leaning newspapers exhibiting a slightly higher preference for focus on risk factors in obesity development and the right-leaning newspapers being slightly more likely to focus on risks of other health problems associated with obesity. These differences are much smaller than those for the differences between broadsheets and tabloids, though.

While the precise risk factors for obesity development varied to a large extent both within and across the different newspapers and sections of the press, the range of health problems presented as being brought about by obesity was narrower, with risk of diabetes, heart disease, stroke and cancer all framed as being heightened by obesity across all sections of the press.

To explore in more depth the patterns that are hinted at by our analysis to this point, we need to carry out a more systematic comparison of the types of language that are used in representations of obesity-related risk across the various sections of our corpus. To do this, we used the keywords method to find out which words are key (i.e. characteristic) in the representation of obesity-related risk in each section of the press. For this purpose, we want to treat texts in which risk and obesity co-occur (within a 5-word window to the left and right) as a series of ‘sub-corpora’ (shown in Table 3).

To identify language that was characteristic of the representation of risk and obesity in each of these sections, we generated keywords by comparing each sub-corpus against all of the others, combined. For example, to obtain keywords for the left-leaning broadsheets, we compared the Broadsheet-left sub-corpus against the Broadsheet-right, Tabloid-left and Tabloid-right sub-corpora, combined. We focus our analytical attention on those keywords within the top 20 (when ranked by log-likelihood score) which reveal the most about discourses of obesity-related risk.

Beginning with the left-leaning broadsheets, Table 4 shows the top 20 keywords for articles in this section of the press in which risk and obesity co-occurred within five words of each other.

| Section of the corpus (format-political leaning) | Type of risk |
|-------------------------------------------------|--------------|
| Broadsheet-left                                  | Factors causing risk of obesity (%) | Obesity as a risk factor (%) |
|                                                 | 73           | 27            |
| Broadsheet-right                                 | 67           | 33            |
| Tabloid-left                                     | 44           | 56            |
| Tabloid-right                                    | 41           | 59            |

Table 3. Sub-corpora of texts in which risk collocates with obesity.

| Sub-corpus | Newspapers | Articles | Words  |
|------------|------------|----------|--------|
| Broadsheet-left | Guardian, Independent | 346 | 256,996 |
| Broadsheet-right | Telegraph, Times | 372 | 282,019 |
| Tabloid-left | Mirror | 147 | 101,529 |
| Tabloid-right | Express, Mail, Star, Sun | 866 | 640,626 |

Note: For the reasons described in note 1, the Morning Star is not included in the ‘Tabloid-left’ sub-corpus. However, the 18 texts in which obesity and risk collocate from this newspaper are included in the reference corpora for keyword analysis of the three other sub-corpora.
the consumption of certain types of food, with a focus on meat as heightening risk of obesity, along with alternative diets e.g. a vegan diet and meat alternatives like soylent presented as helping individuals to reduce obesity risk:

The more plants and less meat people ate, the less likely they were to become obese even after adjusting for age, starting weight and other unhealthy habits such as having a sedentary lifestyle. (Independent, May 2017)

As this example demonstrates, the connection between meat and obesity risk is legitimated (van Leeuwen 2008) through scientific studies, which is why the verb finds is key in these articles:

‘Part-time’ vegetarianism can almost halve risk of obesity, says new study; Research finds people who eat twice as much fruit and veg are 43 per cent less likely to become obese. (Independent, May 2017)

Another characteristic feature of the left-leaning broadsheets was a focus on broader, more powerful institutions in increasing populations’ obesity risk, as reflected in keywords which tend to denote actors within the food industry (food, industry, outlets) who are framed as contributing to heightened obesity risk in the population through the production of cheap but nutritionally poor produce, unclear food labelling practices, and the mere scale of the presence of fast food outlets on high streets:

Public health experts have warned that heavy exposure of children to fast food outlets and increased consumption of high-fat nutrient-poor food leads to greater risk of childhood obesity, as well as heart disease and stroke in later life. (Guardian, December 2017)

The Government also receives scrutiny from left-leaning broadsheets, indicated in use of the keywords government, health, public, authorities and department. Health is key for these newspapers because they refer more than the others to organisations and Governmental departments with health in their title (e.g. ‘health select committee’, ‘Department for Health’, ‘Public Health England’). In 169 of its 263 uses, the keyword public occurs within the phrase ‘public health’ and it is through framing obesity risk as a public health issue that the left-leaning broadsheets focus on the role of the Government and its department in terms of assigning responsibility for reducing obesity rates. A similar trend emerges in uses of the keyword local, over half of which (56/80) refer to local authorities (e.g. ‘local authorities’, ‘local government’, ‘local councils’).

The Government tends to be discussed in terms of what it is or should be doing to reduce obesity levels in the country. However, we find a difference between the Guardian and the Independent; where the former is more openly critical of the Government for what is perceived to be an insufficient response to rising obesity rates, the more centrist Independent seems to be less (explicitly) critical of the Government:

The government’s own senior health advisers have called obesity a national risk, requiring a Cobra-style crisis management response. Apart from the government appearing to be resolute about a sugar levy, its intentions are light years away from what is needed. (Guardian, August 2016)

The CMO’s report for 2014, entitled: The Health of the 51%: Women, which for the first time focuses specifically on the health of England’s female population, recommends the Government to include obesity in its national risk planning. (Independent, December 2015)

The Guardian also criticises the Government for its perceived inaction, such as in this example where the Government’s decision to assign responsibility for public health to local authorities is criticised:

The government has given responsibility for public health to the local authorities so that they can focus on the issues that most affect their populations. […] But the British Heart Foundation is among the campaigning health bodies that believe this is not an issue that can be left to local authorities to sort out alone. (Guardian, February 2014)
This characteristic focus on the Government and other institutions in the left-leaning broadsheets is why the possessive pronoun ‘its’ is key for these newspapers – as the referent tends to be these organisations but also the food and drink industry actors described previously.

This construction of obesity risk as often transcending individual control is also evidenced through the keyword air, which tends to refer to ‘air pollution’ and is discussed alongside obesity as an example of a major public health challenge. Likewise, uses of the keywords world and countries indicate a focus on obesity risk as a global health issue and through closer analysis we find that the latter is frequently pre-modified by words denoting economic status (e.g. ‘rich’, ‘wealthy’, ‘developed’, ‘high-income’, ‘middle-income’), where a connection is established or implied between capitalism and obesity risk, in particular through the ‘exposure’ of people to certain types of foodstuffs that have been linked to obesity:

Paradoxically, both maternal under and over-nutrition around the time of conception and during pregnancy increase the risk of childhood obesity, though in rich countries it is the latter that predominates. Children are increasingly exposed to highly processed, energy-dense foods that are high in sugar, salt and saturated and trans-fats. (Guardian, May 2015)

Moving on now to the right-leaning broadsheets, Table 5 shows the top 20 keywords for this sub-corpus.

Like their left-leaning counterparts, the right-leaning broadsheets focus more on the causes of obesity risk rather than the heightened risk of health problems issuing from obesity. This includes consuming certain types of food and drink (palm, coffee, gluten-free, friday). For example, foods which are gluten-free or contain palm oil are linked to heightened obesity risk, with readers advised to reduce their consumption of these:

GLUTEN-FREE diets could be damaging the health of people without coeliac disease, raising the risk of obesity, diabetes and malnutrition, an expert has warned. (Telegraph, May 2016)

The keyword friday tends to refer to ‘Black Friday’ – a term that is used by the British Press to describe the last Friday before Christmas, which is notable because of the generally large amounts of alcohol that many people in the country consume during parties and celebrations on that day (in contrast to the meaning of the word in the U.S.A., where it references the Friday following thanksgiving and is renowned for shopping). Black Friday has gained notoriety because of the strain that these levels of alcohol consumption place on public services like the police and hospitals (Mooney 2008). The focus on Black Friday in these articles constitutes another way in which individuals’ consumption practices are put under the microscope in the context of obesity risk, with readers advised against drinking too much on this day else they increase their risk of obesity and other health conditions:

Don’t get too drunk. This advice may seem in equal parts of obvious and impossible to follow. But, as Alcohol Concern, and countless medical experts, have pointed out, excessive drinking can lead to an increased risk of liver disease, obesity and cancer. Jackie Ballard of Alcohol Concern says that Black Friday shows we have a cultural problem with binge drinking … (Telegraph, December 2014)

Coffee is a more complex case, as consumption of it and different methods of preparation can be presented either as increasing or decreasing risk of obesity, even within a relatively short space of time:

In 2013 an Australian study declared that consuming relatively high amounts of a compound in coffee called chlorogenic acid seemed to raise the risk of obesity, diabetes and cardiovascular disease. (Times, June 2016)
Regular coffee consumption has been associated with a lower risk of type 2 diabetes mellitus and other cardiovascular risk factors such as obesity and depression. (Telegraph, January 2016)

The newspapers in this section also give more pronounced focus to the role of technology in increasing populations’ risk of obesity, particularly mobile phones, which is why mobile is key for this sub-corpus.

While we noted some focus on individual action to reduce obesity risk in the left-leaning broadsheets, this seems to be more characteristic of the right-leaning broadsheets, then, with more keywords dedicated to this type of representation. This also manifests in keywords denoting exercise and physical activity (running, workouts). In most cases, running is presented as a form of exercise that can help people to reduce their risk of developing obesity and other health issues. The keywords Matt and Roberts refer to a personal trainer and author, Matt Roberts, who wrote a book about the health benefits of running and he is quoted in articles on this topic:

Factor in the evidence that an inactive lifestyle increases the risk of obesity, hypertension and heart disease and the ill-effects of running are suddenly much less convincing. “Regular running reverses many of these risks,” Roberts says. (Times, February 2015)

The right-leaning broadsheets also seem to draw more characteristically upon scientific research when reporting on risk factors associated with obesity, as indicated in uses of the honorific keyword, prof, the proper nouns rogers and espie which refer to researchers, the quotative says and the noun audit which denotes audits carried out by the Government or other health authorities. In contrast to their left-leaning counterparts, the right-leaning broadsheets also appear to adopt a more nationalistic focus on obesity risk, which is why britain is key for this sub-corpus where world and countries were key for the left-leaning broadsheets.

All the broadsheets therefore focus characteristically on risk in terms of what causes obesity, rather than the risks that follow from it. Yet there are also interesting differences between the left- and right-leaning newspapers in this format; where the former focus on the role of food manufacturers, the government and health authorities, these institutions are less prominent in the right-leaning broadsheets where more page space is devoted to informing individuals about how they can modify their behaviours and which habits they should curb to reduce their risk of obesity.

Having explored the broadsheets, we now move onto the tabloids, beginning with the left-leaning data. As a reminder, due to the small number of articles in which risk collocated with obesity in the Morning Star, this analysis focuses solely on the Mirror. The top 20 keywords from this sub-corpus are displayed in Table 6.

In the previous section, we noted that the tabloids tended to focus more on risk as applied to certain health problems to which individuals are rendered more susceptible by developing obesity (though in the case of the Mirror, this difference was only very slight (56% of cases)). For this reason, breast and cancer are key as obesity is linked to an increased risk of developing breast cancer while, relatedly, aspirin is presented as having the potential to reduce risk of cancer in people with obesity:

…weight gain increases the risk of breast cancer (obese women are 50 percent more likely to develop this), high blood pressure, diabetes and arthritis. (Mirror, December 2014)

Professor Sir John Burn said: “Lots of people struggle with their weight and this suggests the extra cancer risk can be cancelled by taking an aspirin.” (Mirror, August 2015)

Keywords denoting parents (dads, mums, mum) indicate a focus on genetic factors in increasing obesity risk. This could be likened to the left-leaning broadsheets analysed earlier. However, there is an important difference; where the focus on genetics in those newspapers was relatively

| Rank | Keyword | Frequency |
|------|---------|-----------|
| 1    | med     | 17        |
| 2    | phillips| 12        |
| 3    | aspirin | 33        |
| 4    | dads    | 15        |
| 5    | trans   | 34        |
| 6    | repeat  | 14        |
| 7    | mums    | 39        |
| 8    | repeat  | 14        |
| 9    | trans   | 34        |
| 10   | 're     | 116       |
| 11   | your    | 491       |
| 12   | breast  | 124       |
| 13   | cancer  | 398       |
| 14   | med     | 17        |
| 15   | phillips| 12        |
| 16   | aspirin | 33        |
| 17   | dads    | 15        |
| 18   | trans   | 34        |
| 19   | breast  | 124       |
| 20   | cancer  | 398       |
depersonalised (i.e. through the keyword epigenetic), it is deeply personalised in the Mirror where it is characteristically attributed to particular social actors (i.e. mothers and fathers) and presented as resulting from their life choices and behaviours. In other words, parents’ obesity is framed as causing heightened risk of obesity (and other health problems) in their children:

Fat mums and dads pass on their weight problems to their children, according to new research. (Mirror, March 2016)

Cases such as this are interesting because they demonstrate a kind of dual risk associated with obesity, whereby obesity in one person (i.e. a parent) is framed as heightening the risk of it being developed by another (i.e. their child). Yet for mothers this relationship of risk was not just genetic, as they were also framed as heightening obesity risk in their children by overfeeding them or by feeding them certain types of food, thereby implicating them within a gendered discourse of mother as familial care-giver:

Mums overfeeding babies to help them sleep ‘risk making kids become obese.’ (Mirror, May 2015)

The parent keywords thus reveal a mixed focus on risk in the Mirror, where it is presented both in terms of what causes obesity and what obesity itself causes. This is also reflected in the keywords med, trans and binge. Med is an abbreviation of Mediterranean and is used in articles extolling the benefits of a Mediterranean diet for reducing obesity risk while trans and binge, on the other hand, refer to trans fats and binge drinking, respectively, which are both framed as things to be avoided to reduce obesity risk:

Why Med wins: A diet high in processed foods tends to be higher in fat and sugar but lower in vitamins, increasing the risk of obesity and many cancers. (Mirror, March 2017)

Binge drinking as a teen increases risk of depression and obesity in CHILDREN. (Mirror, November 2016)

We now move onto the final sub-corpus, the right-leaning tabloids, the keywords for which are given in Table 7.

Almost half of these keywords (n = 9) denote diseases and other health complications: blood [pressure], heart [disease], condition, type 2 diabetes, bacteria, inflammation and gout. This attests the fact that, in contrast to the broadsheets, the right-leaning tabloids focused heavily upon the health risks that follow from obesity, rather than the risk of developing obesity itself:

Storing fat around your middle – central obesity – increases your risk of heart disease by 70 per cent and your risk of developing type 2 diabetes by 80 per cent. (Mail, January 2009)

As this example also shows, another feature of these articles is that the risks they describe are expressed through quantification, which is why the words percent, cent and per all emerge as key, indicating another way that science underpins reporting on obesity. Another characteristic of these articles is the framing of obesity-related health risks using the modal verb could. In contrast to a modal verb like will, which expresses a high degree of epistemic modality and implies certainty of future actions or events, the comparatively weaker could instead expresses possibility. This more nuanced framing might seem at odds with tabloid style overall but it betrays the fact that the types of health risks these newspapers focus on in relation to obesity are often extreme or even worst case scenarios, so there is a trade-off between severity and likelihood.

Dementia is preventable: Blood pressure is one of the modifiable risks.

The report has revealed 35 per cent of all dementia cases could be prevented if the following nine modifiable risk factors were fully eliminated. These include education, hearing loss, hypertension – also

Table 7. Top 20 keywords for the Tabloid-right sub-corpus (frequencies in brackets).

| Keyword | Frequency |
|---------|-----------|
| percent | 346       |
| blood   | 1791      |
| cent    | 2578      |
| heart   | 2317      |
| researchers | 1626 |
| per     | 2963      |
| condition | 622  |
| revealed | 403      |
| loss    | 668       |
| weight  | 2941      |
| experts | 888       |
| bacteria | 434      |
| diabetes | 2268     |
| could  | 2498      |
| type   | 1008      |
| inflammation | 237 |
| dr     | 1503      |
| calories | 880     |
| gout   | 149       |
known as high blood pressure, obesity, smoking, depression, physical inactivity, social isolation and diabetes. (Express, July 2017)

This example brings us to another factor which could sit behind the preference for this modal verb; namely that the articles in this section of the press are particularly likely to invoke the authority of expertise (van Leeuwen 2008, 107) by citing researchers and experts (researchers, revealed, experts, doctors) to legitimise the threat of obesity-related health risks. Again, this could be a product of the tendency for these newspapers to focus on more extreme health risks resulting from obesity which may require this type of legitimation to boost their credibility.

The keyword weight tends to function as an alternative to terms like overweight and obese, where the process of gaining weight is framed as increasing individuals’ risk of the aforementioned health problems, while weight loss (another keyword for this sub-corpus) is presented as a means for individuals to mitigate those risks:

Professor Sanders went on to say: As the risk of diabetes is associated with weight gain, it makes sense to replace high-calorie beverages with those with fewer calories. (Mail, May 2015)

How 10% weight loss slashes risk of developing diabetes. (Express, June 2016)

This latter example demonstrates particularly well how notions of risk and risk management intersect with neoliberal principles of illness and risk self-management, whereby it is individuals who are responsibilised (Burchell 1993) for mitigating the health risks that are associated with obesity by losing or controlling their weight.

This analysis has highlighted differences but also similarities in the representation of obesity-related risk across different sections of the press. The keywords examined have provided insight into the specific factors that underpin risk in broadsheets and the precise health risks that are discussed in the tabloids. We will return to these points in the discussion.

4.2. Change over time

A question which is raised by our comparison of different types of newspapers, however, is the extent to which the patterns found are static or have changed over time. If there has been change over time, then it is also worth considering whether the change appears to be due to yearly fluctuations that do not indicate a trend, or whether there is evidence of an increase or decrease in a particular pattern. This would be indicative of a more substantial shift in the way that risks around obesity are framed, indicating the potential that newspapers may be contributing to a shift in readers’ understandings of obesity.

As our analysis has demonstrated, obesity appears in the centre of a ‘chain’ of risk, wherein it is either the outcome of certain risk factors or itself a risk factor for other health problems. To examine the relative frequencies of both types of risk representation in relation to obesity over time, we carried out concordance line analyses of cases where risk and obesity collocated (within five words) for each year of our corpus. Figure 1 shows the frequencies per million words for each category across the 10 years examined.

Figure 1 shows that, proportionally, discussion of obesity in terms of risk increased over time. There is a steady increase between 2009 and 2014, as well as a pronounced increase between 2016 and 2017. Discussion of risk in the context of obesity therefore appears to have become more popular over time and this hypothesis is strengthened by the fact that there were both larger numbers of articles and references to risk in the later articles in the corpus as well.

Comparing the differently coloured lines, apart from 2009, newspapers have tended to focus more on the risk factors for obesity as opposed to risks of obesity. This trend has become more marked over time, with the largest differences in relative frequency between the two types of risk occurring in the final year of our data - 2017. The figure indicates evidence for increasing personal responsibilisation over time, particularly as across the whole corpus the majority of
references to risks resulting in obesity tended to relate to matters of personal choice (74% of cases), as opposed to biological factors (18%) or socio-political factors (8%).

To further investigate the unusually large number of articles about risk and obesity in 2017, we created two sub-corpora which helped us to focus specifically on the contexts within which risk was talked about in that year. One sub-corpus contained all the sentences containing the word risk from articles about obesity published in 2017, the other contained a similar set of sentences from 2008–2016. We compared these two sets of data against each other to generate keywords. The top 50 keywords in the 2017 dataset (ranked using log-likelihood) included sets of words that related to scientific studies (research, study, found, finds) and health conditions (condition, symptoms, cancer, dementia, epilepsy, prostate, bowel, liver), typified by the following example:

Weight gain over adult life linked to greater digestive cancer risk, says study. (Guardian, February 2017)

The keyword new, while not ostensibly referring to research, was used in 75% of cases to refer to new studies, reports or research relating to obesity, while three other keywords, revealed, reveals and linked also had a strong prosody for obesity-related research:

Asthmatic children FAR more likely to become obese, new study reveals – but inhalers reduce their risk by 50%. (Mail, January 2017)

Two other keywords suggested that articles in 2017 employed a strategy of emphasising fear when they referred to risks linked to obesity; deadly and warning:

Going from overweight in your 20s to obese in 50s triples deadly cancer risk. (Mail, February 2017)

OBESITY WARNING: Overweight people ‘at much greater risk of getting cancer.’ (Express, February 2017)

The language around risk also appears to be more personalised in 2017, with another keyword being the second-person pronoun, your. Articles containing this pronoun were directly addressed to the reader, sometimes constructing them in ways that positioned them as certain types of people, e.g. a mother or a smoker, with these indexed aspects of identity then linked to obesity and risk in some way:

Drinking diet soda while pregnant nearly DOUBLES the risk of your child becoming obese. (Mail, June 2017)
Obesity can increase your risk of stroke by at least 64 per cent, however simple lifestyle changes, like eating healthier meals, taking regular exercise and stopping smoking along with checking your blood pressure regularly can greatly reduce your risk. (Telegraph, May 2017)

These articles tended to foreground the personal responsibility of their readers in terms of stressing that lifestyle choices could be made to either increase or reduce the risk of developing obesity or having health conditions associated with obesity.

Examining the keywords in the second dataset (sentences containing risk from the years 2008–2016) indicated contexts that were less popular in 2017. Only eleven keywords were obtained, most of which were grammatical words like at, there and he. Two were non-grammatical keywords (children and government), suggesting that the increased discourse around obesity and risk in 2017 was not significantly driven by references to government policy around obesity or increased concern for children. In Brookes and Baker (2021), we found that in the corpus as a whole, references to words relating to government policy had decreased over time more generally, not just around specific references to risk – our analysis here echoes this point, suggesting a backgrounding of discussion around the government’s role in terms of risk and obesity in 2017, despite this being the year in which there was most discussion of risk and obesity.

5. Concluding discussion

In this paper we have analysed the discourses around obesity-related risk in a large collection of British newspaper articles. At the beginning of the article, we introduced the idea of a ‘chain’ of risk, within which obesity could be positioned either as the outcome of certain ‘risky’ behaviours or practices or, alternatively, as a risk factor itself, in the development of other health problems. Our analysis noted a distinction between the broadsheets and the tabloids; where the broadsheets tended to focus on the risk factors that could lead to the development of obesity, the tabloids tended to describe the risks of health problems caused by having obesity. We also observed political differences between the newspapers, particularly the broadsheets, regarding the types of risk factors that tended to be presented. Where the left-leaning broadsheets tended to focus on the social and political determinants of obesity risk, such as poverty and the role of the Government in reducing the population’s obesity risk, the right-leaning broadsheets instead place emphasis on individuals to reduce their risk of developing obesity by exercising more and monitoring what and how much they eat and drink. Apart from the socio-political risk factors presented in the left-leaning broadsheets, the depictions of risk that were prominent in all other sections of the press are all underpinned by, and arguably propagate, a discourse of individual obesity risk responsibility. This discourse can be linked to Foucault’s (1997) notion of governmentality, as readers are positioned as rational decision-makers who are responsibilised for managing and reducing their risk of developing obesity in the first place and then of developing associated health problems like heart disease and diabetes, as well as passing on obesity to their children.

These differences between the sections of the press can be viewed as reflecting differences between the worldviews that their constituent newspapers propagate and which they assume to be shared with their respective (imagined) audiences (Bell 1991). In particular, the commitment of left-leaning newspapers (particularly broadsheets) towards reporting on issues of social inequality (reflected, for example, in their tendency to support parties on the left of the political spectrum) and the tendency of the right-leaning press to favour policies associated with the centre and right of the political spectrum, including economic liberalism and the reduction of state intervention in people’s lives. These differences, both in terms of newspaper format and political leaning, are consistent with those we have observed in our more general study of obesity discourses in the press (Brookes and Baker 2021) and provide further indication of the ways in which our very understandings of obesity and the risks involved (both in terms of what causes obesity and what follows from it) are likely to differ, to an extent, in accordance with the type of
media we engage with. Viewed from a public health perspective, these differences between the various sections of the press suggest that readers are likely to receive different messages about obesity-related risks and how and by whom these should be managed, depending on which newspaper(s) they read.

The individual responsibility discourses that dominate the majority of the press have been referred to as ‘structural violence’ in that they have compromised access to healthcare and subordinated people’s needs to those of markets (Sakellariou and Rotarou 2017). It could also be argued that a focus on personal responsibility can only work up to a point and may not be so helpful for certain sections of the population, particularly those towards the bottom of the socio-economic ladder, who are less likely to possess the material resources to enact the types of lifestyle changes that newspapers, along with other types of media and public health texts, implore them to make in order to reduce their risk.

The predominance of neoliberal discourses around obesity noted here echoes our more comprehensive analysis of this corpus in Brookes and Baker (2021). Yet in this paper we have found that, when such neoliberal discourses intersect with representations of obesity-related risk, the product is a potentially fear-inducing rhetoric which enjoins readers to stave off the risk of obesity for fear of visiting upon themselves and their relatives a host of life-changing and even fatal health problems. Altheide (2002) has discussed how news media has produced a ‘discourse of fear’ which results in a heightened awareness of danger in societies. The appeal of such scare tactics is that they are deemed by many mass media and public health text creators to be effective at securing audience’s attention and for subsequently instigating attitude and behaviour change under the premise that ‘the greater the amount of fear that can be aroused in the audience, the greater the audience’s intention to execute the recommended course of action’ (Brookes and Harvey 2015, 560). However, the ethics and effectiveness of scare tactics can be disputed, with an unintended consequence of their use being that audiences can be left frightened and misled by the exaggeration of risk (Guttman and Salmon, 2004). Furthermore, it has been convincingly argued that scare tactics are only ever likely to be successful with individuals who possess the social and economic resources to implement the lifestyle changes that such health messages demand; for those who do not, such fear-inducing discourses are more likely to make them feel guilty, angry and even defensive (Hastings, Stead, and Webb 2004, 975).

We have also seen that in the press as a whole, the discursive framing of risk as associated with obesity has become more prominent over time. This echoes the finding by Zinn and McDonald (2018) of the long-term increase of risk language in the domain of health and, with that, focus on risk as something that is dangerous, personalised, and legitimated through reference to scientific research. This greater personalisation of risk arguably reflects an increasingly neoliberal British society in which individuals are charged with the responsibility for making sure that they and their families remain healthy and economically productive citizens who do not place a financial burden on the state (see also Baker 2017 for discussion of how words like risk and danger have increased over time in American news reporting). The emphasis on personal behaviours that can increase or reduce risks associated with obesity also fits well with the political climate under study – one where discussion of government policy around obesity appears to be increasingly backgrounded in news reporting, in favour of a more intense focus on what individuals can do to reduce their risk.

The rise of increasingly personal and fear-based articles around obesity risk, in a context where obesity rates have remained relatively flat, raises questions regarding the motivation for the amount and type of reporting observed in this paper. Indeed, while we would not dismiss the effectiveness of scare tactics out of hand (their effectiveness is likely to vary on an individual-to-individual basis), we are nevertheless critical of the use of fear-inducing discourse when it is combined with apparent commercial motivations (i.e. the sale of new and, by extension, news outlets’ advertising space). If the majority of the press is committed to the neoliberal model of obesity risk management, the public may be better served by more positive appeals to
behaviour change that are underscored by hope and reward rather than fear and the threat of danger (Hastings, Stead, and Webb 2004). However, emphasising reward over risk would, it seems to us, be less likely to grab readers’ attention and accordingly generate less in the way of sales and ‘clicks’ (and so, advertising revenue) for newspapers, ultimately rendering such an approach less appealing to news outlets. All of this boils down, then, to a question that sits beyond the scope of this paper; whether the role of the mass media is purely to generate profits or if it has a duty of care to the physical and emotional wellbeing of its audiences, or something in-between.

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**References**

Altheide, D. 2002. *Creating Fear: News and the Construction of Crisis*. Hawthorne, NY: Aldine de Gruyter.

Atanasova, D., and N. Koteyko. 2017. “Obesity Frames and Counter-Frames in British and German Online Newspapers.” *Health* 21 (6): 650–669. doi:10.1177/1363459316649764.

Atanasova, D., N. Koteyko, and B. Gunter. 2012. “Obesity in the News: Directions for Future Research.” *Obesity Reviews: An Official Journal of the International Association for the Study of Obesity* 13 (6): 554–559. doi:10.1111/j.1467-789X.2012.00985.x.

Baker, P. 2006. *Using Corpora in Discourse Analysis*. London: Continuum.

Baker, P. 2009. “The BE06 Corpus of British English and Recent Language Change.” *International Journal of Corpus Linguistics* 14 (3): 312–337. doi:10.1075/ijcl.14.3.02bak.

Baker, P. 2017. *American and British English. Divided by a Common Language?* Cambridge: Cambridge University Press.

Bell, A. 1991. *The Language of News Media*. Oxford: Blackwell.

Boero, N. 2007. “All the News That’s Fat to Print: The American ‘Obesity Epidemic’ and the Media.” *Qualitative Sociology* 30 (1): 41–60. doi:10.1007/s11133-006-9010-4.

Boero, N. 2013. “Obesity in the Media: Social Science Weighs in.” *Critical Public Health* 23 (3): 371–380. doi:10.1080/09581596.2013.783686.

Brookes, G., and P. Baker. 2021. *Obesity in the News: Language and Representation in the British Press*. Cambridge: Cambridge University Press.

Brookes, G., and K. Harvey. 2015. “Peddling a Semiotics of Fear: A Critical Examination of Scare Tactics and Commercial Strategies in Public Health Promotion.” *Social Semiotics* 25 (1): 57–80. doi:10.1080/10350330.2014.988920.

Brookes, G., and T. McEnery. 2020. “Correlation, Collocation and Cohesion: A Corpus-Based Critical Analysis of Violent Jihadist Discourse.” *Discourse & Society* 31 (4): 351–373.

Brown, B., and S. Baker. 2012. *Responsible Citizens: Individuals, Health and Policy under Neoliberalism*. London: Anthem Press.

Burchell, G. 1993. “Liberal Government and Techniques of the Self.” *Economy and Society* 22 (3): 267–282. doi:10.1080/03085149300000018.

Dunning, T. 1993. “Accurate Methods for the Statistics of Surprise and Coincidence.” *Computational Linguistics* 19 (1): 61–74.
Foucault, M. 1969. *The Archaeology of Knowledge*. London: Routledge.

Foucault, M. 1997. “Governmentality.” In *Power*, edited by P. Rabinow, 201–222. New York: The New Press.

Gerbner, G., L. Gross, M. Morgan, and N. Signorielli. 1986. “Living with Television: The Dynamics of the Cultivation Process.” In * Perspectives on Media Effects*, edited by J. Bryant and D. Zillman, 17–40. Hilldale, NJ: Lawrence Erlbaum Associates.

Hardie, A. 2012. “CQPweb – Combining Power, Flexibility and Usability in a Corpus Analysis Tool.” *International Journal of Corpus Linguistics* 17 (3): 380–409. doi:10.1075/ijcl.17.3.04har.

Hastings, G., M. Stead, and J. Webb. 2004. “Fear Appeals in Social Marketing: Strategic and Ethical Reasons for Concern.” *Psychology and Marketing* 21 (11): 961–986. doi:10.1002/mar.20043.

Lawrence, R. G. 2004. “Framing Obesity: The Evolution of News Discourse on a Public Health Issue.” *Harvard International Journal of Press/Politics* 9 (3): 56–75. doi:10.1177/1081180X04266581.

Lupton, D. 2013. *Risk*. 2nd ed. London: Routledge.

McEnery, T., and A. Wilson. 2001. *Corpus Linguistics: An Introduction*. 2nd ed. Edinburgh: Edinburgh University Press.

Mooney, H. 2008. “Warning Over Alcohol at Christmas Parties as ‘Black Friday’ for 999 Calls Looms.” *Nursing Times*. https://www.nursingtimes.net/archive/warning-over-alcohol-at-christmas-parties-as-black-friday-for-999-calls-looms-18-12-2008/.

Sakellariou, D., and E. S. Rotarou. 2017. “Access to Healthcare for Men and Women with Disabilities in the UK: Secondary Analysis of Cross-Sectional Data.” *BMJ Open* 17 (8): e016614. doi:10.1136/bmjopen-2017-016614.

Seale, C. 2003. *Media and Health*. London: Sage.

Turner, B. S. 2002. “Foreword: From Governmentality to Risk: Some Reflections on Foucault’s Contribution to Medical Sociology.” In *Foucault, Health and Medicine*, edited by R. Brunton and A. Petersen, ix–xxii. London: Routledge.

van Leeuwen, T. 2008. *Discourse and Practice: New Tools for Critical Analysis*. London: Routledge.

Zinn, J., and D. McDonald. 2018. *Risk in the New York Times (1987-2014)*. Basingstoke: Palgrave McMillan.