OBESITY FRAMES
IN BRITISH AND GERMAN ONLINE NEWSPAPERS, 2009-2011

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by
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Abstract

Obesity frames in British and German online newspapers, 2009-2011

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Obesity affects people worldwide and in Western Europe, Britain and Germany have among the highest rates. It is thus unsurprising that research has tried to identify its causes. The media have been found to play a role - media use correlates with weight gain. The media can also affect obesity in another way - by featuring news articles which discuss certain aspects of obesity rather than others the media can, like a window, frame these aspects as especially applicable to how obesity should be understood and addressed.

Informed by framing theory, this research integrated the study of: 1) news media content with the study of its antecedents - by analysing factors affecting news production; 2) news media content with the study of accompanying readers’ comments to identify correlations that may be used as a starting point for researching the consequences of news media exposure; 3) texts and photographs which together make up news media content.

This study asked: 1) what frames did news articles employ and with what frequency; 2) were news articles in what emerged as the most frequently used frame also driven by the highest number of distinct news values and did significant differences in the use of frames exist between media outlets of different political leanings and reporting styles; 3) was frame use in news articles significantly correlated with frame use in readers’ comments.

It emerged that: 1) among the frames of ‘medical progress’, ‘self-control’, ‘education’, ‘environments’, ‘acceptance’ and ‘coming out’, ‘self-control’ was most frequently used; 2) its use was not explained by the concentration of distinct news values, yet significant differences in frame use between media outlets lent themselves to explanation via political leaning and reporting style; 3) frame use in news articles was significantly correlated with frame use in readers’ comments except ‘self-control’.
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Last but not least, I would like to thank my mother Neika and my significant other Jörg for supporting me in various ways.
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<td>AIDS</td>
<td>Acquired Immunodeficiency Syndrome</td>
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<tr>
<td>AMA</td>
<td>American Medical Association</td>
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<tr>
<td>BAFTA</td>
<td>British Academy of Film and Television Arts</td>
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<tr>
<td>BMI</td>
<td>Body Mass Index</td>
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<tr>
<td>CDU</td>
<td>Christian Democratic Union</td>
</tr>
<tr>
<td>EC</td>
<td>European Commission</td>
</tr>
<tr>
<td>ECEH</td>
<td>WHO European Centre for Environment and Health</td>
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<tr>
<td>EOD</td>
<td>European Obesity Day</td>
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<tr>
<td>EU</td>
<td>European Union</td>
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<tr>
<td>FSA</td>
<td>Food Standards Agency</td>
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<tr>
<td>FTO</td>
<td>Fat Mass and Obesity</td>
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<tr>
<td>HAES</td>
<td>Health at Every Size</td>
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<tr>
<td>IASO</td>
<td>International Association for the Study of Obesity</td>
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<tr>
<td>NAAFA</td>
<td>National Association to Advance Fat Acceptance</td>
</tr>
<tr>
<td>NHS</td>
<td>National Health Service</td>
</tr>
<tr>
<td>NOF</td>
<td>National Obesity Forum</td>
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<tr>
<td>NPR</td>
<td>National Public Radio</td>
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<tr>
<td>PCT</td>
<td>Primary Care Trust</td>
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<tr>
<td>US</td>
<td>United States</td>
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<tr>
<td>WHO</td>
<td>World Health Organization</td>
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Chapter 1  Introduction

1.1 Obesity

Obesity defined as abnormal or excessive fat accumulation to an extent that it may impair health (World Health Organization, 2013) has been identified as a contributor to serious diseases including cancer, diabetes and heart disease (World Health Organization, 2013). While sophisticated methods to measure fat accumulation exist, a simpler, more intuitive measure has been more widely used - the Body Mass Index (BMI). BMI compares a person’s weight to his/her height by dividing one's weight in kilograms by the square of one’s height in metres denoted as kg/m$^2$ (European Association for the Study of Obesity, 2014). This measure has agreed cut-off points for defining the level at which weight becomes unhealthy - a person is considered overweight when his/her BMI is between 25 and 30 kg/m$^2$ and obese when his/her BMI is equal to or over 30 kg/m$^2$ (European Association for the Study of Obesity, 2014).

Recently, the American Medical Association (AMA), the largest physician organisation in the United States (US), pronounced obesity a disease in its own right ‘requiring a range of medical interventions’ to advance treatment and prevention (American Medical Association, 2013). But obesity does not only impact physical health. Research evidence suggests that one's social life and psychological wellbeing may also suffer as obese people tend to be discriminated in employment settings by being denied employment or promotion, in education settings by being ridiculed by peers and in interpersonal relationships by facing difficulties in finding romantic partners (Puhl & Heuer, 2009).

Statistics about the increasing incidence of obesity globally add further urgency. Data from the Word Health Organization (WHO) shows that worldwide obesity has nearly doubled between 1980 and 2008 (World Health Organization, 2013). Such figures have led the WHO to declare that ‘obesity has reached epidemic proportions globally’ (World Health Organization, 2003, p. 1). While the US and Australia are the two countries that are typically cited as having among the highest obesity rates worldwide (Organisation for Economic Co-operation and Development, 2012), obesity has also been steadily on the rise in the WHO European Region (World Health Organization/Europe, 2014). Based on country
estimates, over 50% of both men and women in the WHO European Region were overweight as of 2008 and approximately 20% were obese (World Health Organization/Europe, 2014). Data further shows that within the WHO European Region 30-70% of adults in European Union (EU) member states are affected by overweight and 10-30% by obesity (World Health Organization/Europe, 2009) and that Western Europe in particular exhibits the fastest rising obesity rates (Harvard School of Public Health, 2012).

Among the Western European countries that are also EU member states Britain and Germany appear to be closely ‘competing’ to be ‘the fattest’ (Haynes, 2012; Spiegel Online, 2007a). The latest Health Survey for England showed that the proportion of obese adults increased from 13% of men and 16% of women in 1993 to 24% of men and 25% of women in 2012 (Health & Social Care Information Centre, 2012). The latest Scottish Health Survey detected a significant increase in the proportion of obese adults from 17% in 1995 to 26% in 2012 (Scottish Government, 2012). The most recent Welsh Health Survey reported that in 2012 59% of adults were either overweight or obese, while 23% were obese (Welsh Government, 2013). The most current Health Survey for Northern Ireland showed that in 2012 61% of adults were either overweight or obese, while 23% were obese (Department of Health, Social Services & Public Safety, 2012). Similarly, the latest German Health Interview and Examination Survey for Adults showed that while the proportion of the adult population who are overweight did not change between 1998 and 2011, obesity increased (Mensink et al., 2013). In 1998 19% of men and 23% of women were obese, but the proportions climbed to 23% of men and 24% of women in 2011 (Mensink et al., 2013).

In both Britain and Germany the 2007 release of influential reports including the Foresight Report (Government Office for Science, 2007) and the report of the International Association for the Study of Obesity (IASO) (European Association for the Study of Obesity, 2007), which highlighted the extent of obesity prevalence rates nationally and made predictions about the future, prompted the launch within the next few years of government action plans to achieve downward trends in adult and child obesity by 2020. In Britain, the Foresight Report’s prediction that over half of the adult men and women and approximately a quarter of the children could be obese by 2050 (Government Office for Science, 2007) was
widely reported (Hilton, Patterson, & Teyhan, 2012) under headlines like ‘A sizeable problem’ (Rigby, 2007). The IASO report comparing obesity rates in 25 EU member states which showed that Germany tops the overweight category (European Association for the Study of Obesity, 2007) attracted significant attention from German media (Helmert & Schorb, 2007) and inspired headlines like ‘Germans are one belly ahead in the Chubby League’ (Spiegel Online, 2007b).

In Britain, the most immediate response to the predictions of the Foresight Report was the 2008 launch in England of the Healthy Weight, Healthy Lives government strategy for obesity (Department of Health, 2008). This was followed by the 2009 launch in England and Wales of the ‘Change4Life’ government funded social marketing campaign. The official aim of ‘Change4Life’ is to create a movement so that everyone in society plays a part in helping to change personal behaviour regarding food consumption and physical activity while focusing on those individuals whose current food consumption and physical activity suggest that they are most at risk (National Health Service, 2009). In Germany, a ‘Fit instead of Fat’ (‘Fit statt Fett’) key issues paper was released in 2007 by the Federal Ministry of Food, Agriculture and Consumer Protection and the Federal Ministry of Health declaring plans to promote active lifestyle and encourage Germans to pay closer attention to their food intake (Wirtz, 2010). This was followed by the 2008 launch of the ‘In Form’ national initiative promoting healthy diets and physical activity. The official aims of ‘In Form’ are to target everyone in Germany, foster healthier environments and encourage people to adopt healthier lifestyles with respect to food consumption and physical activity (In Form, 2013; 2014).

The media coverage that the Foresight Report and the IASO report received (see e.g., Helmert & Schorb, 2007; Hilton, Patterson, & Teyhan, 2012) suggests what the role of the media may be in the context of obesity. In what follows this role is examined in greater detail.

1.2 The Media

Associations with serious consequences for physical health and psychosocial wellbeing coupled with data about rising global prevalence rates make it unsurprising that much research attention has focused on determining the causes of obesity. The media has also been implicated as a potential influencing factor
(Boyce, 2007a). Media exposure and use have been blamed for obesity via the physical inactivity that accompanies media use and the increased food consumption due to exposure to food advertising and snacking during media use (Boyce, 2007a). An early study published in 1985 has, for example, found that obesity prevalence increased by 2% in children and young adults for every additional hour of television viewed (Dietz & Gortmaker, 1985). More recent research has arrived at similar findings - the incidence of obesity is lowest among children who watch television for less than 1 hour per day and highest among children who watch television for 4 hours per day or more (Kline, 2005; Taylor, Evers, & McKenna, 2005).

Yet, the media in general and news in particular may have an effect on obesity in two additional ways that are less direct in comparison to the above outlined mechanism. First, by more frequently reporting on obesity as compared to other issues, the media may set the public and policy agenda in such a way that obesity is perceived to be an important issue - one that should be thought about. This is referred to as the agenda-setting effect of the media. Second, by discussing certain aspects of obesity rather than others, much like a window through which we see the world, the media may frame these aspects as especially applicable to how obesity should be understood as an issue and consequently, how it should be addressed by people and policy makers. This latter effect is known as the framing effect of the media.

Back in 2007 after reviewing research on obesity and the media and finding that existing studies had primarily examined the role of the media from the perspective of the aforementioned direct effects approach (see e.g., Dietz & Gortmaker, 1985; Kline, 2005; Taylor, Evers, & McKenna, 2005), Boyce (2007a) called for ‘a “new media effects” model’ (p. 203) based on agenda-setting theory. Yet, given that obesity already occupies the attention of people and policy makers as, for example, suggested by the existence of the ‘Change4Life’ and ‘In Form’ initiatives, similarly to Atanasova, Koteyko and Gunter (2012) the present study calls for a further theoretical development to the one proposed by Boyce (2007a) and offered by framing theory.
1.3 Framing Theory

This study argues that framing theory offers a more useful research programme for understanding the potential effect of the media on obesity than agenda-setting theory. By focusing on the ability of the media in general and of news in particular to create salience for issues but without necessarily explaining how news coverage may affect the way people understand issues, the present study concurs with Atanasova, Koteyko and Gunter (2012) that agenda-setting ‘represents a somewhat blunt concept of media influence’ (p. 554).

In contrast, framing theory offers a more useful research programme as it can accommodate the holistic study of obesity reporting from the production factors that may influence content creation to media content and its potential effect on people's understanding of obesity as an issue (D'Angelo, 2002). D'Angelo (2002) in particular has advised researchers to draw 'liberally' (p. 872) on available theories and research to chart such a research programme. In this spirit, the present study collates avenues of framing theory and research that are concerned with different aspects of communication and integrates the study of: 1) news media content with the study of its antecedents - by analysing factors affecting news production; 2) news media content with the study of accompanying readers' comments to identify correlations that may be used as a starting point for researching the consequences of news media exposure; 3) texts and photographs which together make up news media content.

By bringing these three aspects together, the present study aims to exploit the potential of framing theory to integrate or bridge several areas of research - production, media content and effects (see e.g., Entman, 1993; Riffe & Freitag, 1997). This integrative potential of framing theory has been praised often, yet seldom exploited not only in the context of obesity communication but in framing research more generally (Matthes, 2009).

The bridging work presented in this study is far from complete. Limitations exist particularly in the way that the present study approaches the consequences of media content. As will be discussed throughout the study, rather than evidence for the presence or absence of effects on readers’ understanding of obesity as a result of exposure to media content, the present study offers exploratory analysis of correlations between frame use in news articles and accompanying comment.
sections. Such analysis represents a first step towards isolating especially interesting points (no correlation where correlation would have been expected, unexpected correlation, strong/weak correlation) that may be prioritised in further experimental research which is needed in order to understand the effect of exposure to media content on how people understand obesity.

In brief, it is argued here that attention to the antecedents of media content such as axiomatic characteristics of journalistic and editorial work like news values and axiomatic characteristics of the media outlets for which journalists work like political leaning and reporting style (all three of which represent immutable factors that are beyond the ability of individual journalists and editors to change) may be especially useful in explaining some aspects of media content. News producers have been held accountable for inaccurate and otherwise deficient reporting of events and issues without reflection on the variety of such antecedent factors that may affect their work (Seale, 2003). Regarding media content, this study agrees with views that by seeking to identify frames or interpretive storylines which highlight a certain definition of what the problem is, what causes it, assign moral evaluations to causal agents and propose solutions (Entman, 1993), ‘the concept of framing consistently offers a way to describe the power of a communicating text’ (Entman, 1993, p. 51) and of a communicating visual (Coleman, 2010). Finally, being essentially a media effects theory (Scheufele, 1999), this research argues that framing theory is well positioned to guide the study of the consequences of obesity-related media content in terms of the potential effects of exposure to media content on public understanding of obesity as an issue.

The above described proposal for a further theoretical development constitutes one of the justifications for the present research. In the following section justifications for this study are further elaborated on.

1.4 Justifications for This Research

There are four main aspects on the basis of which the present study can be justified. Three of these aspects have directly to do with specific limitations of past research and include: first, a narrow approach to framing theory; second, a biased geographic focus; and third, a preoccupation with print media outlets. The fourth aspect relates to the identification in the present study of a timeframe that
deserves research attention as it appears to be important for obesity in Europe and is additionally marked by a number of wider key developments related to health and obesity.

1.4.1 Approach to Framing Theory
As the review of existing research that will be presented in this study will show, research on obesity in the media informed by framing theory is nowadays substantial. Yet, past research has adopted a rather narrow approach to framing theory and analysis. This approach is narrow in two ways. First, existing studies have almost exclusively focused on identifying frames in media content by analysing the frequency with which frames of obesity have been used in media content or the frequency with which distinct potential causes of and solutions to obesity have been mentioned in media content to the neglect of the antecedents and consequences of media content. Second, existing studies have almost exclusively focused on identifying and analysing frames of obesity or distinct potential causes of and solutions to obesity within the textual component of media content to the neglect of its visual component.

There have been few exceptions to the overall inattention to the antecedents and consequences of media content. In terms of antecedents, in addition to analysing how obesity has been treated in media content by identifying what causes of and solutions to obesity have been mentioned in obesity-related television news from Australia, Bonfiglioli et al. (2007) coded news reports for news angle or topic. Topics were then analysed in order to determine which established journalistic news values they signify. By identifying the news values driving obesity coverage, Bonfiglioli et al. (2007) showed how factors at the news production stage can shed light on the nature of media content. Additionally, two other studies - an analysis of obesity reporting in Swedish media outlets by Sandberg (2007) and an analysis of obesity reporting in British media outlets by Hilton, Patterson and Teyhan (2012) - showed how accounting for the different political leanings (e.g., liberal versus conservative) and reporting styles (e.g., tabloid versus broadsheet) of media outlets may explain why obesity may have been treated differently across media outlets.

Further, little attention has been devoted to the consequences of media content. A review of existing research undertaken in preparation for the present
study identified a single example - an experimental study conducted in the US by Major (2009) in which participants were exposed to mock news articles about obesity. One of the mock news articles discussed a study reporting how areas with less recreational facilities and worse access to nutritious foods have less healthy, more obese residents. The other mock news article followed an obese person's weight loss efforts. Major (2009) found that experiment participants who had been exposed to the former news article were significantly more likely than experiment participants who had not been exposed to it to state that wider, societal factors like living environments cause obesity.

Finally, in contrast to: recent calls encouraging researchers to investigate frames in visuals as well as in narratives in those media formats where the two channels of communication co-exist - to ensure that the full meaning of what is being communicated is captured (Coleman, 2010; Messaris & Abraham, 2001); the growing number of visual framing studies overall (see e.g., Borah, 2009; Fahmy, 2010; Parry, 2010); and the growing interest in visual framing particularly with the goal of reviewing this body of research in order ‘to systemize existing approaches of analysis, to highlight definitional and methodological similarities and discrepancies, and to clarify key terms’ (Hans-Bredow-Institut, 2013) existing studies of obesity in the media informed by framing theory have almost exclusively engaged with text analysis. Research of obesity frames in YouTube video clips by Yoo and Kim (2012) based on the examination of ‘visual, audio, and text presentation’ (p. 89) was identified as the only example of research that did not exclusively focus on texts.

### 1.4.2 Geographic Focus

Additionally, past research on obesity in the media, whether informed by framing theory or not, has been rather biased in terms of the geographies that have been targeted for analysis. Most existing studies have analysed media outlets originating from the US or Australia. This is unsurprising given that these countries’ obesity prevalence rates are among the highest worldwide (Organisation for Economic Co-operation and Development, 2012). It is, however, surprising that media outlets from Western Europe have received little research attention despite concerns that the region exhibits the fastest rising rates in Europe (Harvard School of Public Health, 2012). The treatment of obesity in British and German media outlets in
particular has attracted modest interest. A review of existing literature conducted in preparation for this study identified three studies focusing on Britain (Hilton, Patterson, & Teyhan, 2012; Inthorn & Boyce, 2010; Rich, 2011) and one focusing on Germany (Hilbert & Ried, 2009).

As well as being biased towards studies of US and Australian media outlets, past research has been characterised by a strong ethnocentric bias - most existing research has reported findings from one country, sometimes one media outlet from that country - the literature review revealed. Such research has been said to suffer from ‘naïve universalism’ (Gurevitch & Blumler, 1990, p. 308) as it offers general theoretical propositions based on single-country data.

1.4.3 Target Media Type

Further, it emerged from the literature review conducted in preparation for this study that existing research has predominantly focused on print media outlets. This interest in print media can be attributed to beliefs that print media receives more attention from individuals than, for example, broadcast media which tends to be used as a background noise while engaging with other activities (Gunter, 1987; Lupton, 1994). It could also be attributed to beliefs that print media is an agenda-setter for other media types (Durrant et al., 2003) or even the practical aspect of print media being easier to collect compared to other media types (Bastian, 2011). At the same time, this focus on print also points to a disconnect of research on obesity in the media and: general developments within media and communication studies and particularly, the increasing interest in online developments; the modern day reality of news provision, referring to the successful transition of major print newspapers online; and the modern day reality of news consumption, referring to evidence that both global and European audiences are increasingly reading news online (Chisholm, Kilman, Milosevic, & Henriksson, 2013; Interactive Advertising Bureau Europe, 2012).

1.4.4 Period of Analysis

Finally, this study identified a timeframe - 1 January 2009 until 31 December 2011 - that appears to be important for obesity as a European issue and deserves research attention. This period was marked by a 2009 proposal for holding a European Obesity Day (EOD) to raise awareness about obesity threatening to ‘create an epidemic of diabetes and heart disease’ (Moss, 2009), the 2010 launch of
the EOD (Cambre, 2012) and calls by EOD’s president to recognise obesity as a chronic disease in Europe in 2011 (EurActiv, 2011). In short, it can be said that while excess weight has long been associated with ill-health in medicine (Lupton, 2013), this timeframe witnessed an unprecedented intensification of focus on the negative health effect of obesity on Europeans.

This timeframe also witnessed the emergence of television series, at least in Britain, which tackled obesity as a medical issue. In 2011 a spin-off of the British Academy of Film and Television Arts (BAFTA) award-winning reality medical series ‘Embarrassing Bodies’ went on air. The series called ‘Embarrassing Fat Bodies’ showed obese and overweight people making doctor’s visits and receiving medical advice on weight loss options (mostly surgery) or getting tested for genetic predisposition to obesity. The series, it has been argued, offered not only a glimpse into one way of dealing with obesity, but also a platform for people to ‘make sense of and frame their experiences’ (Monaghan, Hollands, & Pritchard, 2010, p. 53).

Another television series running at the time in both Britain and Germany were the British and German versions of the American reality television show ‘The Biggest Loser’. The German version started airing in 2009 and is still on air. The British version first aired from 2005 to 2006 and then it re-launched in 2009 to again go off air in 2012. Rather than the giving of medical advice these series focused on the competition between teams of overweight and obese people to lose the highest percentage of their starting weight under the guidance of trainers who offered instructions about what nutrition and exercise regimes should be followed. It is unsurprising given this focus that ‘The Biggest Loser’ has been described as a format which stresses individualist, self-inflicted accounts of obesity (Khuu, 2013).

This focus on individuals was not only characteristic of television series aired at the time. In 2009 a new National Health Service (NHS) Constitution was published in Britain which for the first time in the history of the NHS introduced health-related responsibilities for individuals (Schmidt, 2009). A section in this Constitution titled ‘Patients and the public - your responsibilities’ calls on people to take personal responsibility for their health (NHS Choices, 2014). In Germany where personal responsibility for health has been part of federal health law since 1988, the most recent healthcare reform placed even greater emphasis on the
concept. As part of this healthcare reform, a 2007 amendment of Article 52 of Volume 5 of the German Social Security Code stated that the insured person may be asked to pay an equivalent contribution to the cost of treatment if s/he requests treatment for health complications arising from personal behaviour such as cosmetic surgery, tattoos or piercing (Schmidt, 2008).

In parallel with these developments in Britain and Germany which strengthened the focus on individual responsibility for health there were other developments which suggested abandoning this focus. The year of 2007 saw the publication of a report presenting findings from the ‘Tackling obesity by creating healthy residential environments’ project which ran from 2006 to 2007 (Schoeppe & Braubach, 2007). This project led by the WHO European Centre for Environment and Health (ECEH) and the German Ministry of Health found that various characteristics of residential environments can promote obesity by discouraging physical activity. Attention was drawn to the availability of footpaths and cycle trails, the accessibility of physical activity facilities (e.g., playgrounds, outdoor and indoor sports facilities) and the level/perceived level of crime in a neighbourhood (Schoeppe & Braubach, 2007).

Also in 2007 the European Commission (EC) published ‘A strategy for Europe on nutrition, overweight and obesity-related health issues’ which outlined the need for: 1) better informed consumers (through food labelling and education/information campaigns); 2) more accessible healthy food (by improving the availability of healthy food in school and instituting awareness raising campaigns to encourage fruit and vegetable consumption); 3) more physical activity (by means of changes to urban transport planning and improvements in living environments) (European Commission, 2007).

To meet these needs, the EC adopted a proposal in 2008 according to which most processed foods should feature front-of-pack labelling of energy, fat, saturates, carbohydrates, sugars and salt. This proposal stressed the need for consumers to have access to clear information about the nutritional content of processed foods in order to enable them to make informed choices (European Commission, 2010). In 2009 the School Fruit Scheme was launched which aimed to encourage healthy eating habits in young people by providing fruits and vegetables at school. The School Fruit Scheme also required EU member states to set up
strategies including information campaigns to teach young people the importance of healthy eating (European Commission, 2010).

Yet another noteworthy development during roughly this timeframe was the surge into prominence of a perspective on obesity that has been variously referred to as ‘critical obesity studies’ (Gard, 2009), ‘critical weight studies’ (Monaghan, Hollands, & Pritchard, 2010) or ‘fat studies’ (Cooper, 2011). This perspective questions the degree to which weight has a negative effect on physical health (Monaghan, Hollands, & Pritchard, 2010) as well as research linking weight loss and improved physical health (Aphramor, 2005) and it calls for more reflection on the effect of physical activity on the health-related impact of obesity (Monaghan, 2005).

This latter perspective maintains that the science which reports the existence of a global obesity epidemic is uncertain (Campos, 2004) and has more to do with existing moral beliefs about the meaning of excess weight (Gard & Wright, 2005). Scholars sharing this view typically dismiss propositions about the existence of a global obesity epidemic as ‘obesity discourse’ (Monaghan, Hollands, & Pritchard, 2010, p. 39). Here ‘obesity discourse’ stands for offering certainty about the extent of the obesity problem and the negative effect of weight on physical health which allegedly are not found in obesity science (Rich & Evans, 2005). With particular relevance to the present study was the publication in 2010 by one of the key scholars within this perspective - Lee Monaghan - of a paper which conceptualised media as amplifiers of ‘obesity discourse’ (Monaghan, Hollands, & Pritchard, 2010). Monaghan and colleagues (2010) stated that ‘this is not to suggest that media coverage is somehow “responsible” for the obesity epidemic (...) but that it has a clear role in framing the debate’ (p. 51).

1.4.5 Summary of the Justifications for This Research

In sum, in contrast to the above observations that past research has adopted a narrow approach to framing theory and analysis, has targeted a limited geography and has allocated disproportionate attention to print media, the present study proposes to adopt an integrative approach to framing theory, to focus on two Western European, EU member states that are closely competing to be ‘the fattest’ in Europe and to analyse online newspapers, while also focusing on a period of analysis that is important for obesity in Europe. These four aspects that justify the
present study also suggest how it is unique in comparison to existing research and well positioned to make a significant contribution to research on how obesity is communicated in the media. The following section further elaborates on the areas within which the present study makes significant contributions.

1.5 The Significance of This Study

This research makes unique contributions in two key areas - the study of obesity communication in the media and framing research more generally.

The present study expands our understanding of obesity communication by: 1) adopting an integrative approach to framing theory and analysis; 2) focusing on two geographies which represent key sites of rising obesity but have been understudied (by focusing on two geographies this study also redresses the ethnocentric bias of past research); 3) analysing online newspapers - a media type that has increasingly been referred to as a main source of news for European and global audiences but has been under-researched; and 4) targeting a time period marked by concerted efforts to position obesity as a European issue.

By adopting an integrative approach to framing theory and analysis which has not been done in existing research on obesity in the media informed by framing theory and which approach is rarely adopted in framing analyses in general, the present study contributes both to better understanding obesity communication in the media and to framing research more generally - by presenting a research design that future studies can use as a template.

This study's approach is integrative in two ways. First, it integrates the study of news media content with the study of its antecedents - by analysing factors affecting news production and it integrates the study of news media content with the study of accompanying readers' comments to identify correlations that may be used as a starting point for researching the consequences of news media exposure. Second, it integrates the analysis of texts and photographs which together make up news media content.

In brief, the present study examines the antecedents of frames by coding news articles against a pre-defined list of established journalistic news values so that their potential to explain aspects of the use of obesity frames in media content could be assessed and it samples media outlets in such a way that the potential of their political leanings and reporting styles to explain aspects of the use of obesity
frames in media content could be investigated. When examining the nature of media content, the present study analyses both news article texts and photographs, thus allowing for a fuller understanding of the obesity frames used in news articles to emerge (as compared to analyses that focus exclusively on news article texts). Finally, by analysing readers’ comments to online news articles in order to detect whether significant correlations exist between the use of frames in news articles and readers’ comments this study offers a starting point for researching the consequences of news media exposure.

1.6 Study Aims and Research Questions

To reiterate, this study treats framing as a research programme that has the potential to offer an integrative view of communication and to serve as a lens for simultaneously studying the frames that manifest in obesity-related media content as well as their antecedents and consequences. With regard to antecedents, some avenues of framing theory and research have shown that axiomatic characteristics of media outlets - their political leaning (Carvalho, 2007) and style (Semetko & Valkenburg, 2000) as well as axiomatic characteristics of journalistic work such as news values (Gans, 1979; van Gorp, 2007) could be helpful in understanding certain aspects of the use of obesity frames. With regard to consequences, framing is essentially a media effects theory (Scheufele, 1999) and thus, well positioned to guide the study of the potential consequences of obesity frames in terms of possible effects on audience members’ understanding of obesity as an issue as a result of media exposure.

In line with this approach, the first core aim of the present study is to shed light on the nature of obesity-related media content by establishing what frames are used to discuss obesity in news articles (RQ1.1) and with what frequency (RQ1.2). When analysing news articles this study examines their textual and visual component which approach offers a fuller understanding of what is being communicated in comparison to analyses that only focus on one or the other channel (Coleman, 2010; Messaris & Abraham, 2001).

Second, this study aims to expand understanding of the antecedents of frames in terms of axiomatic characteristics of journalistic work like news values and axiomatic characteristics of the media outlets for which journalists work like political leaning and reporting style. Specifically, this study investigates whether
news articles in what emerges as the most frequently used obesity frame are also the ones that are driven by the highest number of distinct journalistic news values (RQ2.1) and looks for evidence for significant differences in the use of frames between media outlets of different political leanings (RQ2.2) and reporting styles (RQ2.3). Such a reflective outlook has been called for as much needed in research on health and the media more generally (Seale, 2003).

Finally, this study takes steps towards understanding the consequences of frames (RQ3). These steps constitute in analysing readers’ comments to news articles published online and comparing the use of frames by news producers in news articles to the use of frames by readers in comment sections. Rather than evidence for the presence or absence of effects on readers’ understanding of obesity as a result of exposure to media content, this study offers a way of prioritising further experimental research. The present study looks for significant correlations between frame use in news articles and accompanying readers’ comments. Further experimental research could then prioritise especially interesting points - instances of no correlation where correlation would have been expected, unexpected correlation, strong/weak correlation.

The above described core aims and research questions are presented in Figure 1.1 below.

**Figure 1.1 Research Questions**

<table>
<thead>
<tr>
<th>Antecedents</th>
<th>Obesity frames</th>
<th>Towards understanding consequences</th>
</tr>
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<tbody>
<tr>
<td><strong>RQ2.1</strong>: Are news articles in what emerges as the most frequently used obesity frame also the ones driven by the highest number of news values?</td>
<td><strong>RQ1.1</strong>: Which obesity frames are used in news articles?</td>
<td><strong>RQ3</strong>: Is there a significant relationship between the use of obesity frames by news producers in news articles and by readers in comment sections?</td>
</tr>
<tr>
<td><strong>RQ2.2</strong>: Are there significant differences in the use of obesity frames between conservative and liberal media outlets?</td>
<td><strong>RQ1.2</strong>: With what frequency are obesity frames used in news articles?</td>
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<tr>
<td><strong>RQ2.3</strong>: Are there significant differences in the use of obesity frames between broadsheet and tabloid media outlets?</td>
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### 1.7 Thesis Outline

This study has two main parts. The first part which is comprised of Chapter 1 to 4 sets the stage for the analysis by providing an introduction to the study,
elaborating on its theoretical framework, reviewing existing research on obesity in the media and describing the study in methodological terms.

Chapter One provides an introduction to the issue of obesity and the role of the media while also introducing the theoretical perspective from which the role of the media is approached. It also offers justifications for the study, explains its significance, summarizes its core aims and research questions and gives an overview of the study’s organisation.

Chapter Two elaborates on the theoretical foundation for understanding the role of the media in the context of obesity and reviews framing theory and analysis in theoretical and methodological terms. It provides background on the meaning of framing in the context of media and communication research, discusses definitional issues around the concept of a frame, summarizes key frame types, reviews existing approaches to frame identification and analysis and concludes with a specification of the approach to framing, frames, frame identification and analysis adopted in the present study.

Chapter Three reviews existing research that has studied obesity in the media with two aims. The more general aim is to demonstrate the range of geographies that have been studied, the variety of media types and genres that have been analysed, the scope of theories which have informed existing studies and the key methods that have been used in past research. The more specific aim is to establish the extent to which existing studies informed by framing theory have exploited framing theory’s integrative potential to shed light on the nature of obesity-related media content in terms of the use of frames and on the antecedents and consequences of these frames as well as to evaluate more closely how research informed by framing theory has fared in methodological terms.

Chapter Four describes the research method. It lays out the study’s research design, describes decisions regarding the sampling of media outlets and news articles and describes the two phases of analysis of the present study - an initial inductive phase and a second deductive phase of analysis.

The second part of this study which is comprised of Chapter 5 to 8 reports and discusses the results of this study.

Chapter Five describes the distinct obesity frames that were discovered at the inductive phase of frame identification. It then discusses the steps that were
followed in order to enable the subsequent quantitative study of the inductively identified frames at the second, *deductive phase* of frame analysis.

Chapter Six reports the frequency with which the inductively identified obesity frames were used. Findings reported in this chapter draw on the second, *deductive phase* of frame analysis.

Chapter Seven is dedicated to the two remaining core aims of this study - to expand understanding of the *antecedents* of obesity frames and to isolate (via exploratory correlation analysis) especially interesting points that may be prioritised in further experimental research which is needed in order to understand the *consequences* of media content. Findings reported in this chapter also draw on the second, *deductive phase* of analysis.

Finally, Chapter Eight revisits the core research questions that were posed in this study, summarises the key findings to these core research questions and discusses them against the background of past research and relevant wider developments as well as, to some extent, with respect to their implications for the future of the obesity discussion.
Chapter 2 Framing

2.1 Introduction

This chapter elaborates on the theoretical foundation for understanding the role of the media in the context of obesity and reviews framing theory in theoretical and methodological terms. The chapter starts with an introduction to 'Framing in Media and Communication'. This is followed by the 'Definitions of a Frame' section which discusses definitional issues around frames and summarizes key frame types. The following ‘Frame Identification and Analysis’ section reviews existing approaches to frame identification and analysis. The chapter concludes with a section specifying the 'Approach to Framing, Frames, Frame Identification and Analysis' adopted by the present study.

2.2 Framing in Media and Communication

The roots of framing theory can be traced back to the disciplines of sociology and psychology (Pan & Kosicki, 1993), particularly the work of Goffman (1974) and Kahneman and Tversky (1984). Goffman (1974) has suggested that people cannot fully understand the world and constantly struggle to interpret what is happening around them and has argued that, when confronted with new information, people apply interpretative schemas or ‘frameworks’ (Goffman, 1974, p. 24) to understand it. Kahneman and Tversky (1984) have built on this by conducting experiments to understand how different presentations or framings of identical decision-making scenarios could influence people’s choices and understanding of scenarios.

While the roots of framing theory are in sociology and psychology, more recently framing theory has been referred to as ‘one of the most fertile areas of current research’ (Riffe, 2004, p. 2) in media and communication and ‘the most utilized mass communication theory of the present era’ (Bryant & Miron, 2004, p. 695). This status of framing theory in media and communication has largely been fuelled, according to Matthes (2009), by Entman's (1993) seminal paper outlining the four functional features of a frame - to define an event or issue, suggest its causes, propose solutions and assign moral evaluations to causal agents.

In order to better explain what framing means in the context of media and communication and to highlight the potential of framing theory to make a unique
contribution to understanding obesity communication, framing is first briefly described here in comparison to agenda setting.

Agenda setting refers to the notion that there is a correlation between how much the media emphasise a certain issue - by means of prominence of placement and/or volume of coverage - and how much importance people attribute to this issue (McCombs & Shaw, 1972). Agenda setting draws on an accessibility model of information processing which posits that people form attitudes based on the information that is easiest brought to mind and therefore, more accessible (Scheufele & Tewksbury, 2007). In this respect, framing ‘differs significantly’ (Scheufele & Tewksbury, 2007, p. 11) from agenda setting, as it does not rely on memory-based models of information processing, but rather ‘on the assumption that how an issue is characterized in news reports can have an influence on how it is understood by audiences’ (Scheufele & Tewksbury, 2007, p. 11).

Framing and agenda setting also differ with respect to the amount of attention that people could be assumed to have to pay to media messages in order for an effect to occur and with respect to the ‘locus’ (Scheufele & Tewksbury, 2007, p. 14) of effect. In order for framing effects to occur people should pay ‘substantial attention’ (Scheufele & Tewksbury, 2007, p. 13), whereas ‘mere exposure’ (Scheufele & Tewksbury, 2007, p. 14) may be a sufficient condition for agenda setting effects to take place. With respect to the locus of effect, agenda setting assumes that it is the amount of attention that has been given to an issue that carries the effect, while framing assumes that it is the information about the issue that carries the effect (Scheufele & Tewksbury, 2007). As Scheufele and Tewksbury (2007) put it, the difference between agenda setting and framing is ‘the difference between whether we think about an issue and how we think about it’ (p. 14).

Despite these differences, framing has been referred to as a second level agenda setting (McCombs, 2004). Arguments that framing should be subsumed under agenda setting have also been advanced (McCombs & Ghanem, 2001) on the grounds that framing is only a refined version of agenda setting (McCombs, 2004). McCombs and Ghanem (2001) in particular have argued that a merger could bring theoretical advantages, as agenda setting and framing complement each other: 1) because agenda setting has been mostly used to inform research into media effects on public attitudes, but seldom to study the potential influence on the creation of
media content of various production factors; and 2) framing has been mostly used to inform research into the factors that may influence the production of media content, but seldom to investigate media effects on public understanding, the two complement each other and a merger can beget a ‘unified theoretical framework’ (p. 68) which links media content to its antecedents and potential consequences.

There are, however, strong arguments, including the differences between agenda setting and framing that were presented above, against subsuming framing under agenda setting (Price & Tewksbury, 1997; Scheufele, 2000; van Gorp, 2007). Price and Tewksbury (1997), for example, have argued that a merger is inappropriate, because framing is not a version of agenda setting but something fundamentally different - agenda setting is concerned with accessibility and framing with applicability effects. While agenda setting posits that by placing news articles about certain issues more prominently or giving them more coverage media can make those issues more accessible in people's minds and influence people's attitudes about their relative importance (accessibility effects), framing posits that as a result of exposure to a news article which links an issue to certain concepts and thus, suggests that certain concepts are especially applicable to this issue, people may understand the issue through these concepts (applicability effects) (Price & Tewksbury, 1997).

Further, as the present study will argue next, framing theory can on its own offer ways of linking media content to its antecedents and potential consequences in terms of media effects on public understanding of events and issues. In the following discussion attention is drawn to: 1) avenues of framing theory and research interested in how factors at the news production stage may influence different aspects of the use of frames by news producers (Scheufele, 1999) - attention is paid to axiomatic characteristics of journalistic work like news values (Gans, 1979; van Gorp, 2007) and axiomatic characteristics of the media outlets for which journalists work like liberal and conservative political leaning (Carvalho, 2007) and broadsheet and tabloid reporting style (Semetko & Valkenburg, 2000); 2) the vast body of framing research that focuses exclusively on the identification and analysis of frames in media content (see e.g., Matthes, 2009); and finally, 3) avenues of framing theory and research which emphasise that framing essentially is, as Scheufele (1999) has put it, a media effects theory and thus, well positioned
to guide the study of potential effects on people’s understanding of events and issues as a result of exposure to media content.

2.2.1 Antecedents of Frames

To start with, avenues of framing theory and research have recognised that various factors may impose constraints on journalists and editors at the news production stage so that certain interpretations of an event or issue may have a greater chance of informing a news article. Journalistic and editorial work may be influenced by, without aiming to present an exhaustive list, pressure from interest groups, media ownership, wider business interests, advertising revenue, the way in which journalists imagine their audience(s) and/or axiomatic characteristics of the media outlet (see e.g., Harcup, 2009; Shoemaker & Reese, 1996; Tuchman, 1978). Among such influencing factors, axiomatic characteristics of media outlets like their liberal or conservative political leaning and their broadsheet or tabloid reporting style have attracted the attention of framing scholars who have shown how or argued that these can play a role not only in what is being reported but also how it is being reported (see e.g., Carragee & Roefs, 2004; Carvalho, 2007; Semetko & Valkenburg, 2000).

Starting with the claim that certain strands in framing theory and research have been concerned with the relationship between a media outlet’s political leaning and frames, one example is research by Carvalho (2007) in which news articles about climate change were studied and it emerged that the framing of developments around climate change was ‘strongly entangled’ (p. 223) with media outlets’ ‘ideological standpoints’ (p. 223). Particularly, Carvalho (2007) observed that the conservative The Times was lukewarm towards the role for governments in reducing greenhouse emissions while the liberal The Guardian encouraged government action in that direction. Carvalho (2007) concluded that these distinct framings of the solution to climate change reflected conservative and liberal calls for less or more government involvement respectively and resonated with the political leanings of the two media outlets.

Further, regarding the claim that certain strands in framing theory and research have been concerned with the relationship between reporting style and how an event or issue is framed in a given media outlet, research by Semetko and Valkenburg (2000) provides an example. Semetko and Valkenburg (2000) studied
the use of frames in television and print news coverage of the 1997 Eurotop meetings (meetings of the heads of government of the EU member states held in Amsterdam) and found that the use of frames depended more on the reporting style of the media outlet than on its type, where type is meant as television or print. Semetko and Valkenburg (2000) reported that the most significant differences in the use of frames was between ‘sensationalist vs. serious types of news outlets’ (p. 93).

Finally, news values - another axiomatic characteristic of journalistic and editorial work - constitute an additional factor which may explain certain aspects of the use of frames in news articles. Numerous empirical analyses have confirmed the usefulness of the theory of journalistic news values for explaining why some events or issues are more likely to be covered than others (see e.g., Maier & Ruhrmann, 2008). In comparison, scholarly reports recognising the role of news values in framing or, in other words, in explaining why events and issues may be more likely to be covered in certain ways, are less numerous. Yet, there are examples of framing scholars drawing attention to the relevance of journalistic news values in the context of frame analysis. Gans (1979) has proposed that journalistic news values may shape how events and issues are presented in the news, while van Gorp (2007) has stated that news values held by journalists and editors can be ‘tied in with frame packages’ (p. 67). There also are examples of news values scholars discussing how news values may lead to events and issues being framed in a particular way (Bell, 1991).

In sum, although journalists and editors may be expected to present reports which reflect all sides of an event or issue (Gunter, 1997), avenues of framing theory and research have recognised that journalists and editors are also expected to report events and issues in a manner that conforms to and sustains the identity of the media outlet for which they work and is in line with established criteria of what is newsworthy. These examples are scattered in the body of framing theory and research, but when brought together they demonstrate the potential of framing theory and research to link the study of media content to that of its antecedents.
2.2.2 Frames

Further, as mentioned earlier, a vast body of framing research has focused exclusively on the identification and analysis of frames in media content (see e.g., Matthes, 2009). This focus is unsurprising given that Entman (1993), for example, has written that ‘the concept of framing consistently offers a way to describe the power of a communicating text’ (p. 51). In addition to text, the conceptual and methodological advancement of frame identification and analysis in visuals has also been receiving growing attention (Hans-Bredow-Institut, 2013; The British Sociological Association, 2012). The potentially significant role of visuals in framing is recognised in some of the earliest framing research including Goffman’s (1979) study of gender in advertising images and Gitlin’s (1980) argument in favour of investigating instances of both visual and verbal framing. More recently, framing researchers have also warned that verbal only and visual only frame analyses may give an incomplete idea of what is being communicated - visual and verbal messages occur simultaneously in many media formats and should both be studied to gain a holistic understanding of what is being communicated about an event or issue (Coleman, 2010; Messaris & Abraham, 2001).

2.2.3 Consequences of Frames

Finally, in terms of the consequences of frames referring to the potential effects of exposure to media content on public understanding of events and issues, the basic idea behind framing effects is that by making propositions about the definition of an event or issue, its causes and solutions and by assigning moral evaluations to causal agents frames can shape people’s understanding of these events and issues (Entman, 1993; Entman, Matthes, & Pellicano, 2009; Matthes, 2012). According to Entman (1993), it can be expected that a frame ‘has a common effect on large portions of the receiving audience’ (p. 54). According to Druckman (2001), a framing effect could be said to have occurred when following exposure to media content (which promotes a certain definition of an event or issue, suggests certain causes and solutions and assigns moral evaluations) a portion of the readers/viewers who had been exposed to this media content brings up the same considerations as expressed in the media content when presenting their own understanding of the event or issue. This understanding about framing as a theory
of media effects demonstrates how the study of the nature of media content can be linked to its consequences.

2.2.4 Integrative Approach to Framing

In sum, various avenues of framing theory and research have addressed: 1) the antecedents that may influence and consequently, help to explain different aspects of the use of frames in media content; 2) the identification and analysis of frames in media content (in written/spoken narratives and visuals); and 3) the potential consequences of frames in terms of effects on people’s understanding of events and issues as a result of exposure to media content that presents certain aspects of an event or issue as especially applicable to it. This richness in terms of avenues of framing theory and research makes framing theory a potent tool for simultaneously understanding at least some of the antecedents influencing the production of media content, the nature of the media content itself and its possible consequences. In fact, framing theory as ‘an integrative concept’ (Matthes, 2012, p. 248) and its potential to ‘bridge’ (Matthes, 2012, p. 247) research of production, content and effects has been widely praised (see e.g., D’Angelo, 2002; D’Angelo & Kuypers, 2010; Entman, 1993; Matthes, 2009; Matthes, 2010; Reese, 2007) even though, as Matthes (2012) has put it, ‘hardly any research has attempted to draw a complete picture’ (p. 247).

Having introduced framing in media and communication while focusing on the potential of framing theory to uniquely contribute to the study of obesity communication by integrating the study of the nature of media content with the study of its antecedents and consequences, the following section takes a step back and discusses what exactly constitutes a frame.

2.3 Definitions of a Frame

As already noted, various definitions of what constitutes a frame exist (see e.g., D’Angelo, 2002; Matthes, 2009; Matthes, 2012). Put simply, frames are the product of a framing process (Entman, 1993), which according to Entman (1993) is about ‘selection and salience’ (p. 52). Also according to Entman (1993), to frame means ‘to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation’ (p. 52). Particular aspects of an event or issue can be made more salient in a
communicating text by means of placement, repetition or association with familiar cultural symbols (Entman, 1993). By selecting and drawing attention to particular aspects of an event or issue frames divert attention from other aspects, leading Entman (1993) to argue that ‘the omission of potential problem definitions, explanations, evaluations, and recommendations may be as critical as the inclusions’ (p. 54).

Further to the question of what exactly a frame is, propositions about problem definitions, explanations, evaluations and recommendations have been referred to by Entman (1993) as functional features or elements of a frame. Entman (1993) has argued that these four functional features together constitute a frame, but they need not necessarily all be present in a particular communicating text. Others have additionally noted that some frame elements may even be shared between several frames and that any given frame can thus have unique as well as shared frame elements (van Gorp, 2005).

Thus, frames are the product of a framing process which constitutes in selecting and making more salient certain aspects of events and issues. Since, however, there rarely is agreement in society about the meaning of an event or issue and which among all aspects that possibly characterise it should be given more salience, it is plausible to expect that in addition to processes of framing there will also be processes of reframing or redefining events or issues that are already meaningful in some way and that already are understood in some way in such a manner that they will be seen as ‘quite something else’ (Goffman, 1974, p. 44). According to Snow, Rochford, Worden and Benford (1986) the process of reframing involves jettisoning existing meanings and understandings. The outcomes of such processes of reframing have been referred to in the literature as reframes (see e.g., Bales, 2009).

Finally, to return to the statement that various definitions of what constitutes a frame exist, the above-presented definition by Entman (1993) is not the only one but it has been identified as the most widely used one (Matthes, 2009). It also is an example of a rather specific definition of what constitutes a frame and definitions of this kind are regarded as especially potent for driving framing research forward because they enable the direct translation of the definition into a research design (Matthes, 2009). More general definitions of
frames also exist which describe frames as: ‘principles of selection, emphasis, and presentation composed of little tacit theories about what exists, what happens and what matters’ (Gitlin, 1980, p. 6); ‘organizing principles that are socially shared and persistent over time, that work symbolically to meaningfully structure the social world’ (Reese, 2001, p. 11); ‘interpretative packages’ (Gamson & Modigliani, 1989, p. 3) at the core of which lies ‘a central organizing idea, or frame, for making sense of relevant events’ (Gamson & Modigliani, 1989, p. 3). Such general definitions do not suggest clear guidelines for operationalisation, but this is not to say that they are not useful - their usefulness lies in giving an overall idea of what frames are (Matthes, 2009).

The fact that various definitions of frames exist also suggests that various different frames have been identified by researchers, which has spurred efforts to systematise them, resulting in two common typologies: 1) issue-specific versus generic frames; and 2) media versus audience frames.

### 2.3.1 Issue-specific versus Generic Frames

The issue-specific versus generic frames typology is based on the concreteness of frames in relation to the event or issue under study (de Vreese, 2002). Issue-specific frames apply to specific events or issues, while generic frames should transcend events, issues, cultural contexts and time periods (de Vreese, 2005). The specificity of issue-specific frames has been often perceived as a weakness because issue-specific frames imply that unique sets of frames need to be generated for practically every event or issue, thus complicating comparisons across events and issues (Hertog & McLeod, 2001; Vliegenthart & van Zoonen, 2011). Generic frames, in contrast, should occur across events and issues and make comparisons across events and issues easier.

Possibly the most frequently researched set of generic frames are the so-called episodic versus thematic frames (Iyengar, 1990; 1991). Episodic frames are said to focus on concrete instances or cases and thematic frames are understood to present events and issues in terms of wider outcomes, debates or trends (Iyengar, 1991). It may be that these two types of frames are especially attractive to researchers as they are believed to result in specific cognitive outcomes in audience members, which promises to salvage content analyses investigating frame mentions from the ‘So what?’ questions that they are often criticised of
leaving unanswered. If an event or issue is presented through an episodic frame, there should be a higher likelihood that audience members attribute responsibility for the event or issue to individuals (Iyengar, 1991). Alternatively, if an event or issue is presented through a thematic frame, responsibility for the event or issue should be more likely to be attributed to society at large (Iyengar, 1991).

Generic frames, of which episodic and thematic frames are an example, although tempting because they promise to make comparisons across events, issues and time periods easy, are not especially useful in telling exactly how an event or issue was covered (van Gorp, 2007). Van Gorp's (2007) example with an analysis which concluded that the conflict between Hong Kong and China around the handover of Hong Kong to China had been covered in a conflict frame, which is an example of a common generic frame, demonstrates exactly how generic frames may be of little use in telling precisely how, in this case, this conflict was reported. Further, the conflict frame and another common generic frame - that of human interest - better reflect established journalistic news values (see e.g., Badii & Ward 1980; Corrigan, 1990; Gant & Dimmick, 2000; Major & Atwood, 2004; Shelton, 1978) while the episodic and thematic frames come closer to the notion of scripts, genres or formats of reporting rather than frames because they essentially reflect media content structure (van Gorp, 2007).

With respect to generic frames, Matthes (2009; 2012) has further argued that the notion of generic frames becomes especially questionable when framing is conceptualised and operationalised in an integrative way with studies looking at all stages of the communication process to understand the antecedents of frames, the nature of the frames based on the analysis of media content and the consequences of frames. In such cases it becomes clear that 'the key idea of framing is one of strategic communication' (Matthes, 2012, p. 252), meaning that frames are very specific, strategic positions on events and issues (Matthes, 2012).

2.3.2 Media versus Audience Frames

Frames have also been categorised into media versus audience frames (see e.g., de Vreese, Peter, & Semetko, 2001; Entman, 1993; Scheufele, 1999). Studies examining media frames traditionally focus on how events or issues have been covered, take a constructionist approach and rely on the method of content analysis (see e.g., Entman, 1991; Semetko & Valkenburg, 2000). Studies
investigating audience frames typically focus on how individuals perceive events or issues, take a constructivist approach and rely on experiments (see e.g., Price, Tewksbury, & Powers, 1997). The constructionist approach allows for the presence of frames in news articles to be analysed independently of the interpreting public because news articles are conceptualised as systems of meaningful elements - that is meaningful on their own (Gamson & Modigliani, 1989). From a social constructivist perspective, however, the presence of frames in a news article cannot be analysed independently of the interpreting public because elements contained in news articles only become meaningful as a result of the interaction between the media content and the receiver and their previous knowledge and experiences (Pan & Kosicki, 1993).

Both of these perspectives - constructionism and constructivism - have merit. Yet, instead of overemphasising the fact that news articles contain meaningful elements which condition how meaning is ascribed or overemphasising the importance of an individual’s prior knowledge and experience with an event or issue, a more productive approach might be offered by a middle way which conceptualises frames as culturally-embedded (van Gorp, 2007; 2010). A proponent of this conceptualisation, van Gorp (2007; 2010) has argued that by investigating media frames or audience frames the impression is created that frames are everywhere and nowhere. Alternatively, frames could be seen as connected to culture or culturally-shared beliefs, narratives or values that are part of the collective memory of a society (van Gorp, 2007). Individuals - whether journalists, editors or audience members - cannot change this set of shared cultural phenomena, but only use it as a resource to draw on in order to interpret events and issues (van Gorp, 2007). This alternative conceptualisation of frames is described below in more detail.

2.3.3 Culturally-embedded Frames

Culturally-embedded frames are frames in which cultural themes or concepts have been used to define an event or issue (van Gorp, 2010). For example, the norm that a person should exercise self-control over their body - a norm shared by Western societies (Lakoff, 1995) - has been invoked to ascribe meaning to and frame various events and issues (van Gorp, 2010). Discussions of the issue of abortion in
terms of pro-life or pro-choice also draw on different, but powerful culturally-shared phenomena - the belief in the sanctity of life and the value of choice.

A conceptualisation of frames as culturally-embedded, it will be argued here, resolves the tension inherent in the juxtaposition of media versus audience and generic versus issue-specific frames. In the first place, a conceptualisation of frames as culturally-embedded suggests that whether applied in a media context or in public discourse frames are ultimately shared among individuals and originate in culture which itself is the product of communication carried out both in the media and in public discourse. In the second place, conceptualising frames as culturally-embedded suggests that even if a frame is reconstructed in the context of a specific event or issue, because it is associated with a cultural theme or concept it satisfies a certain level of generalizability and it should, therefore, be possible to apply it to other events and issues.

The conceptualisation of frames as culturally-embedded finds support in the seminal work of Entman (1993). Entman (1993) has argued that frames define problems in terms of common cultural values and has described culture as a ‘stock of commonly invoked frames (…) exhibited in the discourse and thinking of most people in a social grouping’ (p. 53), which makes it possible for a frame to have a common effect on the majority of people sharing a culture. Conceptualising frames as culturally-embedded also finds support in framing practitioners’ experiences. Framing practitioners have discovered that communication strategies ‘built around shared cultural models are likely to affect all of those individuals who belong to that group’ (Arvizu, 2012). With the US in mind, the FrameWorks Institute has, for example, advised communication practitioners to link frames of events and issues to deeply held myths, values or other cultural concepts shared by all Americans for maximum effect of their messages (FrameWorks Institute, 2002).

In sum, culturally-embedded frames are frames which resonate with cultural themes shared in a society and appeal to ideas familiar to the public. A conceptualisation of frames as culturally-embedded resolves the tension inherent in the juxtaposition of media versus audience and generic versus issue-specific frames by: 1) suggesting that frames are shared among news producers and audience members; and 2) suggesting that frames satisfy a certain level of
generalizability and it should therefore be possible to apply them to various events and issues.

2.3.4 Diversity: Good or Bad?

Finally, as the above presentation has demonstrated, there are diverse definitions of what constitutes a frame which definitions may be of a more specific or of a more general nature. This diversity in definitions has inspired efforts to organise and systematise frames which have resulted in two common typologies of issue-specific versus generic and media versus audience frames. This diversity of frame definitions has, however, also inspired criticism. Entman (1993), in particular, has criticised framing theory over the fact that there is no shared, universally accepted statement in the framing literature as to what constitutes a frame and over the eclectic use of framing theory and past framing research to inform frame analysis studies. Entman (1993) has argued that diversity makes framing theory a ‘fractured paradigm’ (p. 51) and has expressed a vision of growth and potential for framing theory that is contingent on the development of ‘a consistent concept of framing’ (p. 55) and the systematisation of framing as a research paradigm, meaning a unified, consistent general theory.

To the contrary, D'Angelo (2002) has argued that framing theory should not aim to be a research paradigm and that it is and should stay a ‘multiparadigmatic research program’ (p. 870). D'Angelo (2002) has expressed a vision of growth and potential for framing theory in which theoretical and research diversity is harnessed to gain a comprehensive understanding of the framing process. Specifically, D'Angelo (2002) has argued that ‘liberally’ (p. 872) drawing on available theories and research in order to examine and explicate a particular aspect of communication - the antecedents of frames in media content, the frames of an event or issue in media content or the consequences of frames in media content - or all of these aspects at once, is permissible and even recommended.

This said, diversity, as the following section will demonstrate, does not only characterise frame definition but also frame identification and analysis. It is therefore pertinent to discuss these aspects as part of explicating this study's theoretical framework.
2.4 Frame Identification and Analysis

Various approaches to frame identification and analysis exist, but they can be grouped into three major types - deductive, inductive and mixed. The deductive approach uses an analytical framework of pre-defined frames to scrutinise and match media content against those frames. The inductive approach can be further broken down into hermeneutic, linguistic and computer-assisted (Matthes & Kohring, 2008). There are distinct advantages and disadvantages associated with each of these approaches and it appears that none of them, on their own, can guarantee both validity and reliability (Matthes & Kohring, 2008). Mixed approaches which use a combination of inductive and deductive techniques and can be broken down into a manual holistic approach (Matthes & Kohring, 2008) and what this study refers to as a manual atomistic approach should ensure both high validity and reliability.

2.4.1 Deductive Approach

Within the deductive approach frame identification consists in locating and borrowing generic or issue-specific frames from existing research, while frame analysis relies on content analysis to study media content for mentions of the pre-defined frames (Matthes & Kohring, 2008). The key strength of this approach is that, in addition to being capable of providing descriptions of the frames that have been borrowed for analysis, it shows the frequency with which frames have been used. However, because frames are borrowed and not developed on the basis of the data under study, concerns have been expressed that the validity of research adopting this approach is seriously compromised as it cannot be ensured that the pre-defined frames coded in a content analysis actually suit the event or issue under study (Matthes & Kohring, 2008). Even if the same issue is studied for which the pre-defined frames had originally been developed, the deductive approach still raises validity concerns because events and issues evolve, whereas this approach is incapable of registering change.

2.4.2 Inductive Approach

In comparison, inductive approaches - hermeneutic, linguistic and computer-assisted - are capable of capturing change.

The hermeneutic approach, in which frames are reconstructed using critical discourse analysis, is among the most frequently adopted (Matthes & Kohring,
2008). The core strength of this approach is that it offers deep descriptions of frames, but its core weakness is that due to the depth and labour intensive nature of critical discourse analysis, studies using this approach are typically limited to small samples. As Matthes and Kohring (2008) have reported, it is not unusual for studies using this approach to base the identification and description of frames on as many as 30 documents. Matthes and Kohring (2008) have identified a further problem with research relying on this approach - the steps of frame identification tend to be presented with vague statements along the lines of ‘a deep reading (…) informed the authors of the emergent frames’ (p. 259). Such failure to detail the procedures of frame identification has provoked criticism that frames are ‘arbitrarily’ (Tankard, 2001, p. 98) that is, unsystematically identified which undermines reliability.

To the contrary, the linguistic approach based on the analysis of features like syntax, script, rhetoric is very systematic, which also represents its key strength (Matthes & Kohring, 2008). Its weakness is that analyses utilising this approach tend to be vague as to exactly how linguistic features were brought together to identify a frame (Matthes & Kohring, 2008). Further, ‘the inordinate complexity’ (Esser & D’Angelo, 2003, p. 624; Matthes & Kohring, 2008, p. 260) of the method makes linguistic analysis of large samples impractical. Additionally, if a researcher chose to accept that frames can be communicated not only in texts but also in visuals (Coleman, 2010), this approach would only generate limited results based on text analysis.

Finally, a prominent example of the computer-assisted approach is ‘frame mapping’ (Matthes & Kohring, 2008, p. 261) which is based on the notion that words that co-occur in some texts do not co-occur in others. The main goal of this approach is to identify frames by comparing the vocabularies of different texts. A clear advantage of this approach is its objectivity as frames are, in the words of Matthes and Kohring (2008), ‘computed’ (p. 261) rather than subjectively ‘found’ (p. 261). However, this approach may generate frames that rather resemble article topics. For example, Matthes and Kohring (2008) studied frames of biotechnology in The New York Times using this approach and identified the frames ‘economic prospects’, ‘biomedical prospects’, ‘research benefit’, ‘genetic identity’, ‘biomedical research’ and ‘agri-food: pros & cons’. On a closer inspection, these frames rather
resemble article topics or themes. This tendency to identify frames that better reflect the notion of article topics or themes has been critiqued elsewhere (Carragee & Roefs, 2004).

2.4.3 Mixed Approach

By combining deductive and inductive techniques, mixed approaches promise to alleviate problems with validity and reliability that plague deductive-only and inductive-only approaches. Mixed approaches can be broken down into a manual holistic approach (Matthes & Kohring, 2008) and a manual atomistic approach which is based on work by van Gorp (2005; 2007; 2010) and van Gorp and van der Goot (2012). It should be noted that the latter approach has not so far been named. The label ‘manual atomistic’ is proposed and used here for the first time to make references to the approach easier.

Within the manual holistic approach, frames are generated in an inductive phase of qualitative analysis where a small sample of media content is analysed. Next, the reconstructed frames are defined in a codebook and coded as holistic variables in a second deductive phase of analysis which explains the label manual holistic (Matthes & Kohring, 2008). This approach has the advantages that: it ensures that the investigated frames are applicable to the exact data under study; it allows for rich descriptions of the identified frames to emerge; and it indicates the frequency with which frames were used. The key weakness of this approach is that the holistic coding of frames as present/not present tends to vary widely between coders and acceptable levels of reliability measured with inter-coder agreement are typically hard to achieve (Matthes & Kohring, 2008).

The manual atomistic approach also constitutes of an initial, inductive phase of frame identification that is based on the constant comparative method known from grounded theory and a second, deductive phase of frame analysis that is based on the method of content analysis. Yet, in contrast to the manual holistic approach, it is mentions of the frame elements describing each frame that are coded as present/not present rather than the frames as holistic variables. This is why it was proposed here to use the name manual atomistic to refer to this approach. The strengths of this approach are that: it ensures validity by ensuring that the studied frames are useful for understanding the specific event or issue being analysed; it results in detailed descriptions of frames; it ensures reliability, as the second stage
consist of the systematic coding of the frame elements describing each identified frame; and it indicates the frequency with which frames were used. These and additional aspects of the manual atomistic approach are described in more detail below.

2.4.4 Manual Atomistic Approach

Within the manual atomistic approach the initial, *inductive phase* of frame identification uses open coding and the constant comparative method in a similar manner as in grounded theory to reconstruct frames through the identification of framing and reasoning devices, which are then related to a culturally-shared ‘condensing symbol’ (van Gorp, 2010, p. 92). Framing devices may include metaphors, catchphrases or visual images (van Gorp, 2010). Reasoning devices derive from Entman’s (1993) four functional features of a frame and include problem definition, causes, solutions and moral evaluations. These framing and reasoning devices are referred to here as frame elements. A condensing symbol is a belief, narrative, value or any other common cultural ground on the basis of which members of a culture can be expected to draw when attributing meaning to events and issues (van Gorp & van der Goot, 2012).

Within this approach, the researcher is advised during open coding to look for and note down parts of the texts or visuals in the analysed documents that can be said to function as framing or reasoning devices. The researcher should then group codes from this open coding in a meaningful way (van Gorp, 2010). If in this process of grouping codes around common meanings it turns out that a document cannot be filed under any frame this means that the document either is ‘frameless’ (van Gorp, 2010, p. 97), and documents can be considered frameless if they do not contain propositions about problem definitions, causes, solutions and/or moral evaluations, or the frame the document conveys has not been identified yet and more open coding and constant comparison are needed (van Gorp, 2010).

Once open codes have been grouped in meaningful ways, frames can be described and evaluated against two criteria: completeness, which comes across from the comprehensiveness of the description of each identified frame and generalizability, which can be ascertained by checking if each identified frame can be or has been used to give meaning to other issues (van Gorp & van der Goot, 2012).
The final output of the inductive phase of frame identification takes the form of a summary table in which the most representative framing and reasoning devices for each frame, referred to in this study as frame elements, are listed and the frame is named (van Gorp, 2007). Following this, the wider literature on the investigated topic may also be consulted to contextualise the identified frames and to establish if they find support and/or have analogies in past research (van Gorp, 2010).

This is followed by a second, deductive phase at which the framing and reasoning devices describing each identified frame, referred to in this study as frame elements, are presented as variables to be coded in a content analysis of a wider sample (van Gorp, 2007). As mentioned earlier, it is framing and reasoning devices that are coded as present/not present and not holistic frames, for which purpose van Gorp (2007) recommends that framing and reasoning devices are presented in a coding protocol in an unordered list.

The final aspect of the second, deductive phase is to bring frame elements together in order to interpret the prevalence of frames in the wider sample. This is done by counting whether at least some frame elements associated with a frame had shown up in a document (van Gorp, 2010).

In sum, this systematic approach to frame identification should minimise if not eliminate subjectivity or the possibility that different researchers identify different frames based on the same data (van Gorp & van der Goot, 2012). Van Gorp (2010) has argued that since the second, deductive stage involves writing coding rules and instructing an independent coder to identify the presence of frame elements, the subjectivity of frame identification is eliminated.

The advantages of the manual atomistic approach are further bolstered by wider discussions of how the preoccupation of quantitative content analysis researchers with reliability checks and meticulous development and testing of coding schemes have often resulted in the coding of large amounts of data while still ‘missing the frame’ (van Gorp, 2005, p. 488), whereas qualitative approaches might be better suited for this. Past the stage of frame identification qualitative approaches to frame analysis are, however, problematic especially in the light of critiques that qualitative researchers have tended to present long quotes and describe the content of limited samples without conveying how widespread a
given frame is (Reese, 2007), whereas a quantitative approach might be better equipped for this. Beyond a specific focus on framing theory and research, the merit of combining qualitative and quantitative approaches has been recognised as possibly offering the best of both worlds - high validity and high reliability (see e.g., Hansen, Cottle, Negrine, & Newbold, 1998; Macnamara, 2005).

Given the diversity of approaches to framing, frames, frame identification and analysis, the question arises: What is the approach to framing, frames, frame identification and analysis that the present study adopts?

2.5 Approach to Framing, Frames, Frame Identification and Analysis

This study treats framing as a *research programme* that has the potential to offer an integrative view of communication and to serve as a lens for simultaneously studying the frames that manifest in obesity-related *media content* as well as their *antecedents* and *consequences*. With regard to *antecedents*, avenues of framing theory and research have shown that axiomatic characteristics of media outlets - their political leaning (Carvalho, 2007) and reporting style (Semetko & Valkenburg, 2000) as well as axiomatic characteristics of journalistic work like news values (Gans, 1979; van Gorp, 2007) could be helpful in understanding certain aspects of the use of obesity frames. With regard to *consequences*, framing is essentially a media effects theory (Scheufele, 1999) and thus, well positioned to guide the study of possible consequences of obesity frames in terms of potential effects on audience members’ understanding of obesity as an issue as a result of media exposure.

In this study frames are understood as ‘organizing principles’ (Reese, 2001, p. 11) or ‘interpretative packages’ (Gamson & Modigliani, 1989, p. 3), which give meaning to events and issues 1) by connecting an event or issue with a culturally-shared belief, value, narrative or other culturally-shared phenomenon (e.g., van Gorp, 2007; van Gorp & van der Goot, 2012) and 2) by defining what is at the heart of a problem, identifying causes, proposing solutions and expressing moral evaluations of causal agents (Entman, 1993) via both texts and visuals (Coleman, 2010).

For the purposes of frame identification and analysis, this study adopts a mixed approach along the lines of the manual atomistic approach suggested by van
This approach incorporates an initial, *inductive phase* of frame identification followed by a second, *deductive phase* of frame analysis. The selection of this approach for the identification and analysis of obesity frames in the present study was motivated by the belief that research ought to ensure both high validity and reliability of findings.

**2.6 Summary**

Framing theory is regarded as ‘one of the most fertile areas of current research’ (Riffe, 2004, p. 2) in media and communication. It can also uniquely contribute to understanding obesity communication. Framing theory’s unique contribution constitutes in its integrative potential or its ability to suggest a *research programme* within which the *antecedents* of media content (political leaning, reporting style, journalistic news values), the nature of *media content* and the *consequences* of media content can be studied simultaneously.

This integrative potential of framing theory has, however, rarely been exploited (Matthes, 2009), which is understandable because already the study of only one aspect of communication - frames in media content - appears to be fraught with challenges. There are different definitions of what constitutes a frame and different approaches to frame identification and analysis. The existence of various definitions of frames has resulted in the identification of diverse frames and efforts to systematise them have followed. Ironically, such efforts have fuelled more confusion rather than eliminated it. For example, the common typology of media versus audience frames, as van Gorp (2007) has noted, conveys uncertainty as to where ultimately researchers should look for frames. Further, among the various approaches to frame identification and analysis purely inductive approaches have been criticised over reliability issues, purely deductive approaches over validity issues and not all mixed approaches appear to be devoid of problems either.

In the light of these challenges, conceptualising frames as culturally-embedded and adopting a manual atomistic approach to frame identification and analysis which incorporates an initial, *inductive phase* of frame identification and a second, *deductive phase* of frame analysis (van Gorp, 2005; 2007; 2010; van Gorp & van der Goot, 2012) may be fruitful ways to move framing research forward.
In sum, clear benefits of studying obesity-related media coverage through the lens of framing theory exist. As the following chapter will show, many researchers have already done this. But have they exploited framing theory’s integrative potential?
Chapter 3  Existing Research on Obesity in the Media

3.1  Introduction

This chapter reviews existing research that has studied obesity in the media with two aims. The first, more general aim is to establish the geographies that have been studied, the media types and genres that have been analysed, the theories that have been used and the methods that have been employed. The second, more specific aim is to establish the extent to which existing studies informed by framing theory have exploited its potential to offer an integrative view of obesity communication by shedding light on the nature of obesity-related media content as well as on its antecedents and consequences and to evaluate how this body of research has fared in methodological terms.

In line with these two aims, this chapter starts with the ‘General Characteristics of Existing Research’ section which gives a broad overview of existing research on obesity in the media in terms of its geographic focus and the media types and genres that have been analysed. This is followed by the sections ‘Theoretical Frameworks Informing Existing Research’, ‘Existing Research Informed by Framing Theory’ and finally, ‘Methodological Issues in Existing Research’.

Research reviewed in this chapter was identified by first running keyword searches in English in the ‘Social Sciences’ general category in Thomson Reuters Web of Knowledge for ‘obesity’, ‘obese’, ‘weight problem’ or ‘fatness’ in combination with ‘media’ or ‘media representation’ for all available years and then repeating the same search in Google Scholar for completeness. To be included for review, studies had to focus on obesity and investigate any step of the communication process - production of media content, media content, audience reception or a combination of these. Relevant studies’ bibliographies were also examined against the above-stated inclusion criteria and further relevant research which emerged on this basis was also reviewed. Appendix 1 lists all studies which met the inclusion criteria and were reviewed. The goal has been to constantly update this review with new studies as they emerge, but due to the dynamism of the issue there is a chance that this review may still be incomplete.
3.2 General Characteristics of Existing Research

Starting with geography, it emerged that most existing studies analysed media originating from the US or Australia, which is unsurprising given that these countries’ obesity prevalence rates are among the highest worldwide (Organisation for Economic Co-operation and Development, 2012). It is, however, surprising that media from Western Europe received little attention despite evidence that the region exhibits the fastest rising rates in Europe (Harvard School of Public Health, 2012). The representation of obesity in British and German media in particular attracted modest interest with the exception of one study focusing on Germany (Hilbert & Ried, 2009) and three on Britain (Hilton, Patterson, & Teyhan, 2012; Inthorn & Boyce, 2010; Rich, 2011). Multi-country studies were also rare with one exception - research into the representation of obesity in American and French media outlets (Saguy, Gruys, & Gong, 2010). The absence of multi-country studies in a European context is especially surprising, given the EU’s research environment which encourages country-comparative research and cross-country collaboration in research (Atanasova, Koteyko, & Gunter, 2012).

When divided into three main types - print (e.g., newspapers, magazines), broadcast (e.g., radio, television) and online (e.g., blogs, online newspapers, Twitter) - it emerged that existing studies predominantly analysed the representation of obesity in print media particularly in newspapers followed by broadcast media and television in particular. Interest in print media can be attributed to beliefs that it receives more attention from individuals than broadcast media which tends to be used as a background noise while engaging with other activities (Gunter, 1987; Lupton, 1994), beliefs that print media is an agenda-setter for other media types (Durrant et al., 2003) and/or the practical aspect of print media being easier to collect compared to other media types (Bastian, 2011). The focus on newspapers in particular can be attributed to the identification of newspapers already in early research as primary sources of health news for individuals (Reagan & Collins, 1987).

The fact that online media emerged as the least researched media type with only two studies examining the representation of obesity online - one in online newspapers (Maher, Fraser, & Wright, 2010) and one on the video-sharing website YouTube (Yoo & Kim, 2012) - points to a disconnect between the body of research
on obesity in the media and general developments within media and communication studies where there is marked interest in online developments (Atanasova, Koteyko, & Gunter, 2012). The focus on print in existing research is also in disconnect with the modern day reality of news provision, referring to the successful transition of major print newspapers online (Atanasova, Koteyko, & Gunter, 2012) and of news consumption, referring to evidence that both global and European audiences are increasingly reading news online (Chisholm, Kilman, Milosevic, & Henriksson, 2013; Interactive Advertising Bureau Europe, 2012).

In terms of media genres, past research almost exclusively studied the representation of obesity in the news. Such a focus is warranted given existing evidence that news are major sources of information about health and illness for the general public (Chapman & Lupton, 1994; Feeley & Vincent, 2007; Martinson & Hindman, 2005; Thorson, 2006) and health practitioners (Gellert, Higgins, Lowery, & Maxwell, 1994) as well as given evidence that the news reporting of health issues has the capacity to influence policy (Asbridge, 2004; Wahl, 2003) and personal health behaviour (Chapman, McLeod, Wakefield, & Holding, 2005; Li, Chapman, Agho, & Eastman, 2008). In addition to news, obesity representations were studied in video clips (Yoo & Kim, 2012), a mix of news, documentaries and lifestyle programmes (Inthorn & Boyce, 2010), a mix of talk and reality shows (Shugart, 2011) and in reality shows alone (Rich, 2011).

3.3 Theoretical Frameworks Informing Existing Research

Since Lawrence (2004) published the first analysis of obesity in the media - an analysis informed by framing theory - the study of obesity in the media has been approached from various theoretical perspectives but framing theory remains the single, most frequently referred to theory. Before focusing on those studies that were informed by framing theory, which is in line with the more specific aim of this review, this section discusses the key outcomes of studies informed by other theories. These key outcomes allow for observations to be made which reinforce the advanced here argument that framing theory is especially apt to uniquely contribute to the study of obesity communication. Because there were no two studies which shared the same theoretical framework, studies and their key outcomes are presented in chronological order. Purely for ease of browsing studies
were grouped into those published before 2009 (the start year of the present analysis) and those published thereafter.

It should be mentioned that it was not always possible to say what theory had informed a study. In one case, Armstrong (2011) stated the study's goals - to discover themes of obesity in the news and compare mentions of the two genders - following a discussion of the real-life prevalence of obesity in the US. Armstrong (2001) reported ‘food’ to be the most predominant theme and women to be significantly more often mentioned than men. Armstrong (2011) warned that a focus on food may engender the view that weight can be regulated solely by adjusting food consumption which view neglects the role of physical activity and environments. In another case Maheshwar and Rao (2011) stated their objective - to identify key themes of overweight and obesity in the news - following a summary of the real-life prevalence of obesity in India. Maheshwar and Rao (2011) reported that overweight was primarily discussed as a ‘beauty dilemma’, obesity as a ‘health risk’. These two cases provide interesting results, but the lack of a guiding theoretical framework hampers the interpretation of the results. Criticism of this kind is not novel - there is a more longstanding view that ‘content analysis should be enriched by a theoretical framework, especially one offered by more qualitative approaches’ (Hansen, Cottle, Negrine, & Newbold, 1998).

Apart from the above two studies it was possible to identify a theoretical framework in all remaining ones and Table 3.1 below lists the theories - other than framing - that had been used. The researcher relied on the exact terms that studies used to describe their theoretical framework when compiling Table 3.1.
Table 3.1 Theories Other Than Framing Theory That Informed Existing Research

<table>
<thead>
<tr>
<th>Theory</th>
<th>Author</th>
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<tr>
<td>Agenda-setting</td>
<td>Evans, Renaud and Kamerow (2006)</td>
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<tr>
<td>Discourse and Power</td>
<td>Carvalho (2010)</td>
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<tr>
<td>Discourse Theory</td>
<td>Inthorn and Boyce (2010)</td>
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<tr>
<td>Evidence-informed Policy</td>
<td>Nathan, Develin, Grove and Zwi (2005)</td>
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<td>Master Narratives</td>
<td>Shugart (2011)</td>
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<td>Moralisation of Health</td>
<td>Townend (2009)</td>
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<tr>
<td>Moral Panic</td>
<td>Saguy (2006)</td>
</tr>
<tr>
<td>Natural History of Health Communication</td>
<td>Roy, Faulkner and Finlay (2007)</td>
</tr>
<tr>
<td>Pedagogy and Surveillance Studies</td>
<td>Rich (2011)</td>
</tr>
<tr>
<td>Problem Representation</td>
<td>Bastian (2011)</td>
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<tr>
<td>Social Constructionism</td>
<td>Boero (2007)</td>
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<tr>
<td>Stigma</td>
<td>Hilbert and Ried (2009)</td>
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<tr>
<td>Women's Work and Care</td>
<td>Maher, Fraser and Wright (2010)</td>
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3.3.1 Existing Research Not Informed by Framing and Published before 2009

Among the studies published before 2009, Nathan, Develin, Grove and Zwi (2005) drew on the theory of evidence-informed policy which divides the evidence on the basis of which policies are formulated into empirical research, ideas/opinions and economic data (see e.g., Bowen & Zwi, 2005) to analyse the types of evidence used in media content published before the 2002 Australian Childhood Obesity Summit and in transcribed debates during the summit. It emerged that the evidence base for action was predominantly of the ideas/opinions type, leading Nathan, Develin, Grove and Zwi (2005) to warn that the infrequent use of empirical research in obesity discussions may give politicians ‘a freer hand in choosing actions which have wide appeal and are less controversial, rather than those which may produce greatest health benefit’ (p. 17).

Research by Evans, Renaud and Kamerow (2006) was informed by agenda-setting theory, which posits that news media may influence the issues about which people think (see e.g., Dearing & Rogers, 1996). The study investigated the effects of exposure to obesity-related news on people’s beliefs about the causes of and
solutions to obesity. It emerged that people with higher self-reported exposure to news from various media types and higher BMI were more likely to believe that obesity is caused by wider, societal-level factors like the high cost of healthy foods. The authors concluded that these findings bode well for the potential of media advocacy to influence public attitudes about obesity to raise support for societal-level solutions like changes to food prices.

Saguy (2006) borrowed ideas from the moral panic literature (see e.g., Campos, 2004; Campos et al., 2006) to study whether news reporting links obesity to moral failure and certain social groups. The study found that obesity was significantly more likely to be explained with moral failure when news articles focused on people of certain nationalities or poor people. This led Saguy (2006) to warn that if obesity among certain social groups comes to be understood primarily as a function of moral failings, the incidence of obesity in those groups may be used to justify their socio-economic status rather than conceive policies to improve it.

Boero (2007) drew on social constructionism - a theory concerned with the manner in which issues become recognised as problematic (see e.g., Spector & Kitsuse, 1977) to explore key themes in obesity-related news. The following themes were identified: ‘chaos and containment’ conveyed that people are out of control with regard to their weight to an extent that has reached crisis proportions; ‘professionalism and common sense’ reported medical research which identified the causes of obesity in genetics but offered solutions drawing on common sense notions about sensible eating; ‘nature and culture’ discussed the existence of a natural way of eating that has gone out of control due to the influence of a culture of super-sizing and sedentary living. Boero (2007) warned that all three themes place responsibility on individuals and absolve governments from responsibility for health.

Campo and Mastin (2007) analysed news from women’s magazines through the lens of social cognitive theory, which seeks to explain human behaviour via a mix of: behaviours (e.g., eating, exercise); personal determinants (e.g., health beliefs); and environmental factors (e.g., availability of products/services) (see e.g., Bandura, 1986). Findings that the behavioural component was most frequently mentioned and the environmental component least led Campo and Mastin (2007) to suggest that public health advocates should more effectively promote the
inclusion in the news of information about how environments affect individual behaviour.

A study by Roy, Faulkner and Finlay (2007) was informed by the literature on a natural history approach to health communication, which views news as the product of a process of inception, production and mediation (see e.g., Finlay & Faulkner, 2005). Roy, Faulkner and Finlay (2007) studied how a health advocacy group’s press release about research into childhood obesity had become news and found that news articles largely replicated the information from the press release, leading them to critique journalists’ uncritical reporting.

A study by Whitehead and Kurz (2008) informed by feminist post-structuralist theory concerned with the construction of reality and power via language (see e.g., Gavey, 1989) analysed the extent to which anorexia nervosa and obesity are differently constructed as feminine or aesthetically abhorrent in women’s magazines. It emerged that obesity was surrounded by discourses of lack of control and unrealised femininity, anorexia nervosa by discourses of being in control and victimisation. The authors observed that constructing anorexia nervosa as more feminine than obesity justifies the diet and exercise advertisements featured in women’s magazines.

3.3.2 Existing Research Not Informed by Framing and Published after 2009

Among the studies published after 2009, Hilbert and Ried (2009) drew on the literature on stigma - obesity stigma (see e.g., Hilbert, Rief, & Brächler, 2008) and its potential effect on individuals (Puhl, Moss-Racusin, & Schwartz, 2007) - to evaluate the quality and favourability of obesity-related news. Quality was defined as comprehensiveness and measured by recording whether news articles mentioned the definition, aetiology, prevalence, medical co-morbidity, psychosocial consequences, treatment and prevention of obesity. Favourability was measured by recording whether news articles presented catastrophizing, negative or stigmatising information about obesity. Findings about the scarcity of definitions of obesity and the predominance of catastrophizing information led the authors to warn that news reporting sustains obesity stigma.

Townend (2009) drew on the literature about the moralisation of health (see e.g., Crawford, 1994; Crawford, 2006) to study media coverage for evidence of linking obesity and morality. Evidence for the moralisation of obesity was
discovered, which led Townend (2009) to warn that such discussions may encourage preferences for behaviourist solutions (e.g., change in eating) which focus financial responsibility on individuals rather than structural policy solutions (e.g., bans on certain foods) which spread financial responsibility to industry and government.

Carvalho (2010) drew on Foucault’s (1986) discussion of discourse and power to research how obesity among poor people is reported in the news. The study identified a predominant discourse of risk control stressing individual self-control and a minimum role of the state. It also found that the relationship between obesity and poverty was used to question social policies, which led Carvalho (2010) to warn that by linking poverty to obesity poverty is being subsumed under a health issue, which may ultimately cause poverty ‘to be removed from the political agenda’ (p. 13).

Inthorn and Boyce (2010) drew on discourse theory (see e.g., Fairclough, 2001) to conceptualise as discourses and analyse media narratives, both factual and fictional, as well as government press releases in order to understand the extent to which media and government discourses on obesity sustain each other. They concluded that media and government discourses on obesity sustain each other while emphasising an approach to health that views people as active patients responsible for their own health. The authors warned that such discourses absolve the government from responsibility for people’s health.

A study by Maher, Fraser and Wright (2010) that sought to identify the key themes of childhood obesity in news articles was informed by the feminist literature on women’s work and care concerned with women’s place in society and the individualisation of the gendered burden for child care (see e.g., Lewis, 2001). Maher, Fraser and Wright (2010) discovered two key themes - ‘mothers’ responsibility for food’ and ‘women’s responsibility during pregnancy’ - and concluded that childhood obesity has provided a location for airing concerns about child care and women’s place in society. They warned that both themes present obesity as a problem created by women, which presentation diverts attention from what governments could do to alleviate obesity.

Zivkovic, Warin, Davies and Moore (2010) drew on the concept of child politics which posits that the notion of children as innocent and representing the
future carries political and cultural agendas (see e.g., Baird, 2008) to analyse how children were discussed in obesity-related news. The authors found that children were presented as victims of poor parenting in a gendered discussion of parenting which placed responsibility for food on mothers. The authors warned that within this view of children as vulnerable, those viewed as harming children - in this case mothers - may be at risk of being made liable to regulation and criminalisation.

Bastian (2011) drew on the notion of problem representation concerned with the solutions that are proposed to resolve problems and the values that underpin them (see e.g., Bacchi, 1999). The study identified one problem representation of childhood obesity per each analysed news article and concluded that news articles most frequently represented childhood obesity as an issue of individual and parental responsibility. Bastian (2011) interpreted this finding as posing a challenge for public health professionals and their efforts to draw public attention to social-structural influences on childhood obesity.

Research by Rich (2011) was informed by the literature on pedagogy (see e.g., Berstein, 2000), public pedagogy which recognises that learning could also take place outside of the school environment (see e.g., Giroux, 2004a), the literature on media as pedagogical sites (see e.g., Luke & Luke, 1997) and surveillance studies (see e.g., Haggerty & Ericson, 2000) and examined the extent to which reality programming on obesity takes an instructional and surveillant format. Rich (2011) found evidence that people are being ‘managed, controlled and “taught” how to live better lives’ (p. 17) and concluded that the employment of surveillant techniques supports a neoliberal approach to health that emphasises individual responsibility.

Shugart (2011) relied on the literature on master narratives as narratives which achieve broad cultural resonance while remaining constantly open to adaptation (see e.g., Harter, Japp, & Beck, 2005) to investigate entertainment programming for evidence of shifts in a master narrative of obesity as an individual and moral problem. Shugart (2011) found evidence for a shift in this master narrative in terms of discussions of obesity as a physical manifestation of emotional suffering which emergent narrative does not, however, challenge the focus on individuals and is inattentive to environmental factors.
De Brún, McKenzie, McCarthy and McGloin (2013) investigated the key themes of obesity in the news through the lens of the literature on the social construction of gender which views gender as a process and a result of human interaction (see e.g., West & Zimmerman, 1987). Three main themes emerged - ‘parent-blaming’, ‘gendered relationship with food and diet’ and ‘women as caregivers’. This led De Brún McKenzie, McCarthy and McGloin (2013) to conclude that the discourse of individual responsibility for obesity is characterised by gendered representations which sustain common perceptions that women are preoccupied with food and diet and are responsible for children’s and men’s health.

### 3.3.3 Support for the Unique Contribution of Framing Theory

As the above summaries demonstrate, each different theoretical framework contributes to elucidating a unique aspect of how obesity is communicated. At the same time similarities also emerge.

First, some researchers were concerned with the antecedents of media coverage. Whitehead and Kurz (2008) considered advertising revenue as a factor at the news production stage that may influence the way in which obesity is covered in news articles. Roy, Faulkner and Finlay (2007) studied the process of news production, but did not reflect on the various factors that may have influenced this process. A more reflective stance on the influence on journalistic and editorial work of various factors at the news production stage (which can be offered by framing theory) is much needed (Seale, 2003). As Seale (2003) has pointed out, newspapers are not published with the sole aim of providing the public with accurate, diverse and otherwise high quality information about health. That is one of the aims, but it is one among others - providing entertainment, sustaining audience rankings, attracting advertising (Seale, 2003). Before criticising media outputs, these factors need to be studied (Seale, 2003).

Second, several studies discussed the nature of media content in terms of whether it conveyed an understanding of obesity as a problem with individual- or societal-level causes and solutions (Armstrong, 2011; Bastian, 2011; Boero, 2007; Campo & Mastin, 2007; De Brún, McKenzie, McCarthy, & McGloin, 2013; Evans, Renaud, & Kamerow, 2006; Inthorn & Boyce, 2010; Maher, Fraser, & Wright, 2010; Rich, 2011) and whether it engaged with making moral evaluations of obese people.
Such questions about whether causal agents were evaluated on moral grounds and whether media content presented individual- or societal-level *causes* and *solutions* to obesity can be answered by framing theory (see e.g., Entman, 1993).

Finally, several studies were concerned with the *consequences* of media coverage and its possible effect on public attitudes about obesity (Evans, Renaud, & Kamerow, 2006; Hilbert & Ried, 2009; Townend, 2009). Framing theory which is essentially a media effects theory (Scheufele, 1999) can also contribute to understanding the potential effect of media coverage on people’s understanding of obesity as an issue.

The above points of convergence in existing research not informed by framing theory support the identification of framing theory as an especially suitable theoretical framework for the study of obesity communication. Framing theory allows the simultaneous study of: 1) the *antecedents* of obesity-related media content or how axiomatic characteristics of journalistic work like news values (Gans, 1979; van Gorp, 2007) and axiomatic characteristics of the media outlets for which journalists work like political leaning (Carvalho, 2007) and reporting style (Semetko & Valkenburg, 2000) may explain some aspects of the use of obesity frames in news articles; 2) the nature of *media content* in terms of how obesity has been covered in news articles via frames that capture the public imagination because they draw on culturally-shared beliefs and values (van Gorp, 2007) and are communicated both verbally and visually (Coleman, 2010; Messaris & Abraham, 2001) via definitions of what the problem is, what *causes* it, what *solutions* exist and what *moral evaluations* of causal agents are made (Entman, 1993); and 3) what the *consequences* of media coverage may be in terms of possible effects of exposure to obesity-related news on individuals’ understanding of obesity (Scheufele, 1999).

In what follows, the extent to which framing theory’s integrative potential has been exploited is evaluated, but before that an additional aspect of the above described research which offers further support for the claim that framing theory can uniquely contribute to the study of obesity communication is discussed - the theorising of media as pedagogical sites (Rich, 2011). Theorising media as educators represents one way of viewing its potential role. Studies (not only those
dealing with obesity) which conceptualise the media as public pedagogies have focused on entertainment programming and almost exclusively on film and newer types of television programming like ‘factual’ reality style television programmes (Giroux, 2004b; Giroux, 2008). The fact that such programmes are characterised by a distinct instructional narrative may make them especially susceptible to such theorising.

This perspective is also worthwhile as it captures an important development - the extension of learning beyond formal education sites (Giroux, 2004b). Yet, it leaves some questions unanswered. What other goals besides education or information provision do media have? How could reflections about these other goals help us better understand media content? Media, especially entertainment media are expected not only to inform but also to entertain. How does an instructional format contribute to high audience ratings? These questions highlight the need for a more reflective outlook on the workings of media outlets which, as discussed earlier, can be offered by framing theory.

### 3.4 Existing Research Informed by Framing Theory

This section addresses the second, more specific aim of the literature review - to establish the extent to which existing research informed by framing theory has exploited its potential to offer a holistic view of obesity communication. In answer to this question, no examples were identified of existing research which took an integrative approach to framing theory and studied simultaneously 1) the antecedents of obesity frames, 2) the use of obesity frames in media content and 3) the consequences of obesity frames. It further emerged that only few studies explored either the antecedents or the consequences of obesity frames. These examples are discussed next.

#### 3.4.1 Antecedents of Frames in Existing Research

Few studies explored the utility of antecedent factors to explain aspects of the use of obesity frames in news articles. This tendency contrasts with the fact that avenues in framing theory and research recognise that antecedent factors including axiomatic characteristics of journalistic work like news values (Gans, 1979; van Gorp, 2007) and axiomatic characteristics of the media outlets for which journalists work like political leaning (Carvalho, 2007) and reporting style
(Semetko & Valkenburg, 2000) may pose restraints on and create expectations from journalists.

Admittedly, framing theory does not provide clear-cut ways of integrating the study of frames and the study of journalistic news values. The statement from framing scholarship that was referred to earlier, namely that journalistic news values may be ‘tied in with frame packages’ (van Gorp, 2007, p. 67), is rather vague. News values theory does, however, offer clues as to how the analysis of news values and the analysis of frames may be integrated so as to enhance our understanding of certain aspects of the use of obesity frames. News values theory posits that the more distinct journalistic news values that an event or issue satisfies, the greater the likelihood that it will be covered (Galtung & Ruge, 1965). Based on this premise, it can be expected that those news articles which meet the criteria for the highest number of distinct journalistic news values will also be the ones that meet the criteria for what emerges as the most prominent obesity frame.

Among the research reviewed here, a single study identified both the journalistic news values driving obesity coverage on Australian television and the obesity causes and solutions mentioned in the coverage (Bonfiglioli et al., 2007). Bonfiglioli et al. (2007) coded the news angles or topics of obesity-related television news based on reading news articles’ headlines and first sentences. News angles or topics were then analysed to determine which established journalistic news values they signify. ‘New surgical or medical solutions’ was identified as the dominant topic signifying the news value of ‘novelty’ followed by ‘unusual research findings’ signifying the news value of ‘unexpectedness’, ‘profiles of successful weight losers’ signifying the news value of ‘human interest’ and finally, ‘the enormity of the obesity epidemic’ signifying the news value of ‘bad news’ (Bonfiglioli et al., 2007, p. 443). Bonfiglioli et al. (2007) did not, however, discuss how these news values related to the causes of and solutions to obesity which the study also identified.

Also a single study explored the potential of political leanings to explain possible differences in the use of frames between media outlets. In this study Sandberg (2007) purposefully sampled Swedish media outlets with different ‘political position’(s) (p. 453) - liberal or social democratic - but did not discuss
differences in the use of frames between media outlets with different political leanings, leading to the assumption that such were not identified.

The potential of a media outlet’s reporting style to shed light on possible differences in the use of frames or frame elements received slightly more attention. In the same study, Sandberg (2007) purposefully sampled media outlets with different reporting styles - tabloid and broadsheet - and found that while the ‘obesity as a beauty dilemma’ frame was present in all analysed media outlets, the tabloid newspaper from the study ‘gives it priority’ (p. 461). Hilton, Patterson and Teyhan (2012) also investigated the explanatory power of reporting style - tabloid (The Sun and The Mirror), mid-market tabloid (The Daily Mail and The Express) and serious (The Guardian, The Independent and The Daily Telegraph). This was done by using chi-square tests to determine whether significant differences existed across the three publication styles with regard to mentions of obesity causes, consequences and solutions. It emerged that: news articles from tabloid style newspapers were significantly less likely to report the causes of obesity than news articles from mid-market tabloid and serious style newspapers; news articles from mid-market tabloid style newspapers were significantly more likely to mention the consequences of obesity for the NHS and the general economic cost of obesity to society than news articles from tabloid and serious style newspapers; news articles from mid-market tabloid and serious style newspapers were significantly more likely to mention risks to health as a consequence of obesity than news articles from tabloid style newspapers; and news articles from serious style newspapers were significantly more likely to mention societal solutions to obesity (e.g., improving nutrition education, regulating food labelling) than news articles from mid-market tabloid style newspapers.

3.4.2 Consequences of Frames in Existing Research

Only one study explored the consequences of obesity frames. In this study, Major (2009) adopted an experimental design combined with a survey to investigate whether exposure to news articles in which lung cancer and obesity had been framed in particular ways influenced attribution of responsibility for these issues. For each issue one mock news article was written in a thematic, one in an episodic frame as per Iyengar’s (1991) conceptualisation. Iyengar (1991) has argued that episodic framing - the construction of social issues around specific
instances/individuals - leads people to attribute responsibility for problems to individuals, while thematic framing - the reporting of social issues as part of broader trends - leads people to attribute responsibility for problems to society at large. In line with these definitions, the thematically framed obesity-related mock news article discussed a study reporting how areas with less recreational facilities and worse access to nutritious foods have less healthy, more obese residents. The episodically framed obesity-related mock news article followed a person’s weight loss efforts.

Experiment participants were required to read one news article per issue and were then asked to complete a survey measuring their understanding about whether lung cancer and obesity solutions should focus on individual efforts (e.g., hard work) or societal-level activities (e.g., policies that influence the environments in which people live). Participants had been asked to complete the survey before exposure to the experimental condition as well and the comparison of their before and after responses showed that those who had been exposed to a thematically framed news article were significantly more likely to attribute responsibility to societal factors in the case of both obesity and lung cancer than participants who had not been exposed to a thematically framed news article.

This study by Major (2009) is especially valuable being the only identified example of research tackling the consequences of exposure to obesity-related media content on people’s understanding of obesity. That said, traditional criticism of experimental designs - their ‘impeded external validity’ (de Vreese, 2004, p. 197) and surveys - the possibility that participants select responses which they think the researcher expects from them (see e.g., Macnamara, 2005) applies. The experiment employed by Major (2009) exemplifies what Chong and Druckman (2007) have referred to as ‘asymmetric one-sided’ (p. 104) experiments which fail to research the effects of frames in a real-life environment where people are normally exposed to several, often conflicting frames of an event or issue. Additionally, the news articles employed in many experiments including Major’s (2009) are not ‘real’ but rather written specifically for the experiment. It is, in sum, issues around the ‘reality’ of the experimental situation that have come under criticism, as it seems intuitive that placed under artificial conditions people will respond unusually (see e.g., Chapanis, 1967; Martin, 1996).
Overall, experiments and surveys have their weaknesses, but the experimental method remains possibly the most appropriate method to study media effects. Combined with a before and after survey, as was done by Major (2009), experiments provide strong evidence for causal interpretations. As Gunter (1987) has argued, experimental studies are studies with ‘captive audiences’ (p. 100) who are exposed to (often mock news articles) in unnatural, laboratory settings and yet, experimental work has its place in investigating media effects.

Of particular importance to investigations of media effects is being able to confirm that exposure to media content actually occurred. Experimental designs are a powerful method in this respect, as they give the researcher control over the media exposure of participants. The experimental method should, therefore, be employed to make conclusions about cause and effect. But experimental research can be time-consuming and expensive (e.g., due to equipment costs, laboratory space). This is also, possibly, one of the explanations for the dearth of research into the effects of exposure to media content on readers’ understanding of obesity.

To encourage more research into the consequences of frames, the present study proposes to 1) analyse readers’ comments to news articles published online and 2) study the correlation between the use of frames in news articles and accompanying comment sections. By means of such exploratory analysis the present study can uncover potentially interesting points to follow up in further experimental research such as lack of correlations where they would have been expected, unexpected correlations, strong/weak correlations. Left- and right-leaning broadsheet and tabloid online newspapers alike increasingly offer various interactive opportunities including journalist blogs, readers’ comment sections and straw polls (Richardson & Stanyer, 2011). Among these readers’ comment sections which offer people the opportunity to respond to a news article and/or hold discussions (Paskin, 2010) are among the most widely adopted interactive features (Domingo et al., 2008).

Readers’ comments are accessible and ‘cheap’ to analyse but much as with experiments and surveys their analysis is not without limitations. It is especially issues of 1) representativeness, 2) completeness, 3) relevance and 4) closeness to reality/reflection of reality that may impose limitations and present challenges. First, representativeness relates to the fact that readers’ comments can hardly be
regarded as representative of the broader public understanding of an event or issue. A relatively small number of readers tend to contribute the majority of comments to a news article (see e.g., Light & Rogers, 1999; Richardson & Stanyer, 2011) and readers’ comments may over-represent people who are deeply interested in an event or issue (Laslo, Baram-Tsabari, & Lewenstein, 2011). Further, it is hard to get a grasp of the reach of media outlets in an online environment. The websites of media outlets are accessible almost globally and are therefore, available to be read and commented on by people the world over. Thus, it is not only that readers who commented are just a small segment of the audience, but it is also difficult to say who the audience is precisely.

Second, in terms of completeness, the pool of readers’ comments available for analysis may be incomplete due to the practice of removing posts that are seen as offensive. The fact that readers’ comments are not enabled for all news articles (Domingo et al., 2008) further limits the range of readers’ comments that can be analysed.

Third, issues of relevance pose challenges especially for studies which approach the analysis of readers’ comments via content analysis. Readers’ comments could be unrelated to the event or issue discussed in the news article (see e.g., Laslo, Baram-Tsabari, & Lewenstein, 2011). In an analysis of readers’ comments to news articles covering different topics Paskin (2010) found that over one third of the analysed readers’ comments were unrelated to the topic of the news article and included anything from comments on unrelated topics to personal attacks on other readers. The challenge here is that the irrelevance of readers’ comments may result in a high number of content analysis variables being coded as not present, resulting in inadequate levels of inter-coder agreement.

Fourth, the issue of closeness to reality/reflection of reality creeps up. One would assume that people post comments to online news articles from the comfort and familiarity of their home or office. Comments produced in such environments should reflect ‘normal’ beliefs about or understanding of events and issues discussed in news articles. It could, therefore, be expected that the analysis of readers’ comments to actual news articles published online would preserve the authenticity of the news article, the reading experience and the reaction of the reader. This has been contested though. The anonymity or rather pseudonymity of
comment sections may encourage exaggerated views and/or readers’ comments may be impulsive reactions that do not reflect the ‘normal’, offline beliefs/understanding of the person who made them (Beninger et al., 2014).

To summarise, the present study offers to analyse readers’ comments and explore correlations between frame use in news articles and readers’ comments. Such exploratory analysis presents no cause-effect evidence. First, the necessary condition of being sure that all readers read the news article they commented on cannot be met (Mancini, 2014; Manjoo, 2013). Second, correlations only indicate the presence or absence of a relationship and its strength, not causation. Intuition would lead to the expectation that the use of all frames in news articles would be associated with use in comment sections - ‘surrounded by the online environment of a mass medium (...) discussions will be related to the content of the mass medium’ (Schultz, 2000, p. 214). Yet, correlation analysis may uncover interesting points to follow up in future experimental research (e.g., no correlations where they would have been expected, unexpected correlations and/or strong/weak correlations).

Before concluding this part of the review, two additional observations should be made.

First, inattention to the antecedents and consequences of obesity frames that the present review discovered confirms existing observations about frame analyses in general. In his influential review of frame analysis studies, Matthes (2009) similarly concluded that frame analyses rarely examined ‘the ways frames are connected to antecedents and consequences’ (p. 351) and recommended for this to change if the much touted potential of frame analysis to bridge several areas of research - production, content and effects (see e.g., Entman, 1993; Riffe & Freitag, 1997) - is to be realised. Additionally, with respect to the study of antecedents, results from comprehensive reviews of the framing literature have shown that there is a considerable lack of research into the production of frames and the factors that may affect their production (Borah, 2011).

Second, while reviewing existing research of obesity in the media informed by framing theory for evidence as to whether the integrative potential of framing theory has been exploited, it emerged that existing studies could be grouped into two types: ones that identified frame elements, such as obesity causes and
solutions; and ones that identified obesity frames. It further emerged that studies from both groups almost exclusively focused on news texts to the neglect of news visuals. The merits of studies identifying frame elements or frames while in both cases predominantly focusing on news texts are discussed below in more detail.

3.4.3 Frame Elements in Existing Research

One group of existing studies informed by framing theory did not identify obesity frames understood as ‘organizing principles’ (Reese, 2001, p. 11) or ‘interpretative packages’ (Gamson & Modigliani, 1989, p. 3) which give meaning to an event or issue and fulfil the functions of defining a problem, identifying its causes and solutions and assigning moral evaluations (Entman, 1993) and which specify the relationship between frame elements and ‘give them coherence and meaning’ (van Gorp, 2005, p. 503) but rather identified what constitute frame elements according to Entman’s (1993) definition of the four functional features of a frame. The key outcomes of these studies are presented below in chronological order which is followed by observations about their contribution to understanding how obesity is communicated in the media.

Bonfiglioli et al. (2007) coded news articles for mentions of ‘nutrition’ or ‘inactivity’ as causes of obesity and of ‘reduced energy intake’, ‘improved nutrition’, ‘physical activity’ or ‘medical interventions’ as solutions to obesity. It emerged that causes related to ‘nutrition’ including eating too much or eating junk food were more frequently mentioned than causes related to ‘inactivity’ including not walking or having televisions in bedrooms. In terms of solutions, ‘improved nutrition’ and ‘reduced energy intake’ were most frequently mentioned followed by ‘physical activity’ and ‘medical interventions’. Bonfiglioli et al. (2007) concluded that an individual-focused understanding of obesity’s causes and solutions predominated.

Kim and Willis (2007) coded news articles for mentions of obesity causes and solutions which were categorised as either personal or societal. Personal causes included ‘unhealthy diet’, ‘sedentary lifestyle’ and ‘genetic conditions’. Societal causes included ‘the food industry’, ‘schools/education’ referring to the availability of unhealthy foods at school cafeteria and ‘socioeconomic factors’. Personal solutions included ‘healthy diet’, ‘physical activities’ and ‘medical progress’, societal solutions - ‘regulations of the food industry’, ‘changes in
schools/education' referring to offering healthier food in school cafeterias and 'socioeconomic changes'. It emerged that personal causes and solutions predominated over societal ones – 'unhealthy diet' was the most frequently mentioned cause followed by 'sedentary lifestyle' and 'the food industry', while 'healthy diet' was the most frequently mentioned solution followed by 'physical activities' and 'medical progress'. Yet, mentions of societal causes and solutions rose over time.

Saguy and Almeling (2008) coded the content of journal articles reporting the results of obesity-related scientific studies, the content of press releases about those studies and news articles covering the studies in question for mentions of obesity causes and solutions. 'Individual choices' (e.g., diet, exercise), 'social-structural factors' (e.g., restaurant portions) and 'genetic factors' were among the investigated causes and 'individual changes' (e.g., dieting, exercise), 'policy changes' (e.g., passing laws that would require insurers to cover the cost of weight loss programmes) and 'drugs/surgery' among the investigated solutions. It emerged that all three types of texts were most likely to mention 'individual choices' as a cause of obesity and to recommend 'individual changes' to solve it.

Furrer Pasquali (2010) coded news articles for whether it could be said that they contained a discussion of obesity's causes, consequences or solutions rather than whether specific causes, consequences or solutions had been mentioned. The study found that the highest proportion of news articles focused on solutions and the lowest on causes. Both in terms of the causes of and the solutions to obesity the discussion was individualised with an emphasis on nutrition. Furrer Pasquali (2010) observed that this individualised discussion of obesity protects the economic interests of the food industry by giving it the opportunity to continue selling the same foods and drinks under the motto that there are no bad foods only bad eating habits.

Saguy and Gruys (2010) analysed news articles to determine whether they exhibited evidence for discussing the causes of obesity in terms of 'disease', 'individual choices' (e.g., overeating), 'biological', 'cultural', 'psychological' or 'structural' (e.g., restaurant portions) factors and whether news articles exhibited evidence for discussing the solutions to obesity in terms of 'behavioural changes' (e.g., dieting, increasing exercise), 'medical interventions' or 'policy' described as
any policy interventions that aim to educate people. Saguy and Gruys (2010) found that news articles predominantly mentioned ‘individual choices’ when discussing the causes of obesity followed by ‘structural’, ‘biological’ and ‘cultural’ factors, ‘disease’ and ‘psychological’ factors. When proposing solutions, news articles most frequently discussed ‘behavioural changes’ followed by ‘medical interventions’ and ‘policy’.

Saguy, Gruys and Gong (2010) coded news articles from France and the US for whether they suggested that obesity is caused by ‘individual choices’ (e.g., diet, exercise), ‘social-structural factors’ (e.g., restaurant portions) or ‘biological factors’ (e.g., the prenatal environment). News articles were also coded for whether they proposed that obesity should be solved by ‘changes in individual behaviour’ (e.g., dieting, exercise), ‘medical solutions’ (e.g., weight loss drugs, weight loss surgery) or ‘policy solutions’ described as policy interventions aiming to educate people. It emerged that US news media mostly mentioned individual choices as causes of obesity and French news media mostly social-structural causes. In terms of solutions, US news media discussed mostly ‘changes in individual behaviour’, while French news media was equally likely to mention ‘changes in individual behaviour’ and ‘policy solutions’. Saguy, Gruys and Gong (2010) also found that the proportion of news articles discussing ‘biological factors’ as causing obesity decreased over time in both countries.

Barry et al. (2011) coded the presence in news articles of obesity causes and solutions which were classified as either individual-level or system-level. Individual-level causes included, among others, ‘family heritage/cultural factors’ and ‘the consumption of unhealthy foods’. System-level causes included ‘school environments’ and ‘food/beverage portion sizes’ to name a few. Individual-level solutions included ‘behaviour change related to diet’ and ‘weight loss surgery’ among others and system-level solutions included ‘food/beverage tax’ and ‘school changes that affect personal diets’ among others. ‘The consumption of unhealthy foods’ and ‘exercise’ defined as children playing too many video games were the most frequently mentioned causes while ‘behaviour change related to diet’ and ‘exercise’ meaning being more physically active were the most frequently mentioned solutions.
De Brún, McKenzie, McCarthy and McGloin (2011) coded the presence in news articles of either of three types of causes, consequences and solutions. These included ‘diet’, ‘inactivity’ and ‘socioeconomic status’ as causes, ‘diabetes’, ‘psychological disorder’ and ‘economic costs’ as consequences and ‘healthier diet’, ‘exercise’ and ‘government action’ as solutions. ‘Inactivity’, a personal-level factor, was the most frequently mentioned cause of obesity, ‘diabetes’ the most frequently mentioned consequence and ‘healthier diet’, a personal-level solution, the most frequently mentioned solution. The authors also found that the reporting of behavioural causes of obesity - ‘diet’ and ‘inactivity’ - had declined over time.

Hilton, Patterson and Teyhan (2012) coded the presence in news articles of obesity causes, consequences and solutions. Obesity causes included ‘poor diet/overeating’, ‘lack of exercise’, ‘inadequate parenting’, ‘poor food labelling/education’, ‘abundance of fast food’, ‘lack of health services and facilities’, ‘food/drink advertising/promotions’ and ‘technological changes/modern living’. Obesity consequences included ‘a risk to health’, ‘a cosmetic problem’, ‘a burden to the NHS’ and ‘an economic cost to society’. Obesity solutions included ‘biological’ (e.g., pharmaceutical or surgical treatment), ‘individual’ (e.g., changing eating and exercise behaviours) and ‘societal’ (e.g., regulating food labelling) solutions. ‘Poor diet/overeating’ was the most frequently mentioned cause, ‘risk to health’ the most frequently mentioned consequence and ‘societal’ solutions the most frequently mentioned solutions. The authors also observed a significant decline over time in the proportion of news articles which mentioned individual causes of obesity including ‘poor diet/overeating’, ‘lack of exercise’ and ‘inadequate parenting’.

Finally, Yoo and Kim (2012) analysed YouTube video clips for the presence of three types of causal claims - ‘behavioural’, ‘biological’ and ‘systematic’. ‘Behavioural’ causal claims were defined as claims that obesity is caused by individual choices. ‘Biological’ causal claims were understood as claims that obesity is due to hormonal problems. ‘Systematic’ causal claims were defined as propositions that obesity is caused by environmental influences and policies. Video clips were also coded for whether they contained information about solutions to obesity, specifically ‘behavioural’, ‘medical’ or ‘systematic’ solutions. ‘Behavioural’ solutions were defined as involving physical activity or healthy diet, ‘medical’ solutions as referring to diet pills or surgery and ‘systematic’ solutions as
recommending interventions at the broader level, for example, removing vending machines from schools. It emerged that 'behavioural' causal claims and solutions were most frequently mentioned.

In sum, this group of research was concerned with identifying the causes of and solutions to obesity (see Barry et al., 2011; Bonfiglioli et al., 2007; Kim & Willis, 2007; Saguy & Almeling, 2008; Saguy & Gruys, 2010; Saguy, Gruys, & Gong, 2010; Yoo & Kim, 2012) and sometimes also its consequences (see De Brún, McKenzie, McCarthy, & McGloin, 2011; Furrer Pasquali, 2010; Hilton, Patterson, & Teyhan, 2012). Mentions of unhealthy diets, physical inactivity and genetic conditions as causes of obesity were consistently identified (Bonfiglioli et al., 2007; De Brún, McKenzie, McCarthy, & McGloin, 2011; Hilton, Patterson, & Teyhan, 2012; Kim & Willis, 2007; Saguy & Almeling, 2008; Saguy & Gruys, 2010; Saguy, Gruys, & Gong, 2010) as were mentions of eating less, being more physically active and undergoing medical treatment as solutions (Barry et al. 2011; Bonfiglioli et al., 2007; De Brún, McKenzie, McCarthy, & McGloin, 2011; Kim & Willis, 2007; Saguy & Almeling, 2008; Saguy & Gruys, 2010; Saguy, Gruys, & Gong, 2010). Findings also converged around observations that when reporting obesity causes and solutions news articles and video clips prioritised the role of individuals (Barry et al., 2011; Bonfiglioli et al., 2007; De Brún, McKenzie, McCarthy, & McGloin, 2011; Furrer Pasquali, 2010; Kim & Willis, 2007; Saguy & Almeling, 2008; Saguy & Gruys, 2010; Saguy & Gruys, 2010; Yoo & Kim, 2012).

While studies in this group provide valuable information as to what specific obesity causes, consequences and solutions are featured in media content, it is known that the same causes, consequences and solutions may be brought up in the context of different frames (van Gorp, 2007). Mentions of the same cause, consequence or solution may be modified by expressions of (dis)agreement, thus enabling different perspectives on an event or issue to be communicated (van Gorp, 2005; 2007). Also, as van Gorp (2007) has put it, causes, consequences and solutions are only part of the ‘cluster of logical organized devices that function as an identity kit for a frame’ (p. 64) and it is the frame that organises devices and specifies the relationship between them on the basis of which an event or issue may be understood. Consequently, while research into the specific obesity causes, consequences and solutions that people may be exposed to has merit, it also has a
key limitation. By focusing on frame elements in isolation, studies that adopt this approach fail to grasp the general views on obesity that these frame elements have been employed to communicate.

3.4.4 Frames in Existing Research

The discussion here turns to the second group of studies which identified obesity frames. Studies are evaluated against three criteria partially inspired by Matthes’ (2009) review of framing research. Firstly, similarly to Matthes (2009) it was marked whether studies defined what constitutes a frame. Second, also similarly to Matthes (2009) the provided definition was classified as either general or specific. Third, in the light of this study’s argument that a conceptualisation of frames as culturally-embedded may be a fruitful way to move framing research forward, attention was paid to whether past research conceptualised frames in this way.

First, most studies offered some definition of how a frame was understood in the context of the conducted research. There were few exceptions. While repeatedly mentioning frames and framing, Lawrence (2004), Shugart (2013) and Zhe, Rui Qing, Kun and Ji (2012) did not explain how a frame was understood in the context of the reported research.

Second, among the studies which provided definitions of frames most gave general definitions. Gearhart, Craig and Steed (2012) defined frames as ‘schemas of interpretation individuals rely on to understand and respond to events’ (p. 655). Hawkins and Linvill (2010) described frames as ‘easy-to-understand interpretive packages that lead audience members to draw different conclusions’ (p. 710). For Henderson, Coveney, Ward and Taylor (2009) frames were persistent patterns of cognition, interpretation and presentation, which determine what becomes news, how it is covered and should be understood. Holmes (2009) described frames as ‘cultural phenomena, providing shared meaning among society’s members and inviting the public to view the world and social relations in a certain way’ (p. 225). Saguy and Almeling (2005) wrote that frames ‘imply not only different ways of understanding social problems but also different courses of action’ (p. 10).

A more specific definition of frames as organising principles which have four functional features as defined by Entman (1993) was offered by Sandberg (2007), while Lambert et al. (2007) specified that ‘keywords, metaphors, catch-phrases, discussion of the root of a problem or issue, concepts, discussion of the
consequences of a problem or issue, and moral appeals all combine to build frames’ (p. 7) and Holland et al. (2011) wrote that frames organise discourse according to a certain point of view by drawing on ‘metaphors, exemplars, catchphrases, depictions and visual images’ (p. 35), referring to Gamson and Modigliani’s (1989) five framing devices.

Third, no study conceptualised frames as culturally-embedded in terms of being connected to culture or culturally-shared beliefs, narratives or values that are part of the collective memory of a society (van Gorp, 2007).

The key outcomes of these studies are presented next in chronological order.

To start with, Lawrence (2004) identified three obesity frames: ‘biological’, ‘behavioural’ and ‘environmental’. News articles within the biological frame claimed that obesity is a biological disorder best approached with science and emphasised the importance of scientific discovery. The main propositions within the behavioural frame were that obesity is the result of individual behaviour such as eating more food than is burned off and Lawrence (2004) noted that, when such individualised solutions are offered instead of changes in the health environment, the involvement of governments is limited to providing informational solutions. News articles in the environmental frame attributed obesity to a ‘toxic food environment’ (Lawrence, 2004, p. 63) created by companies and governments by allowing highways and shopping malls to be “flooded” with fast foods’ (Lawrence, 2004, p. 63), implying a need for government involvement (Lawrence, 2004).

Saguy and Almeling (2005) investigated the presence in news articles of three theoretically-derived frames. The ‘individual moral failings’ frame was most extensively described as one attributing obesity to bad individual behaviour and as derived from the literature on moral panics which suggests that fear about some issues may be impossible to discuss directly and may be displaced onto other issues (Cohen, 1972). The ‘genetics’ frame was only mentioned once - in the context of explicating the individual moral failings frame in the following way: ‘framing obesity as a product of bad individual behaviors, such as poor eating practices or sedentary lifestyles, rather than, say genetics’ (Saguy & Almeling, 2005, p. 9-10). The ‘corporate irresponsibility’ frame was derived from the writing of Kersh and Morone (2002) who described it as unhealthy products (e.g., tobacco,
food) being offered by the food industry to make money ‘out of human suffering’ (p. 165).

Lambert et al. (2007) identified three obesity frames - ‘blame/responsibility’, ‘impact/significance’ and ‘prevention/solution’. The ‘blame/responsibility’ frame was reported to have been present in nearly every news article. News articles classified in this frame sought to identify ‘the obesity “culprit”’ (Lambert et al., 2007, p. 10). The ‘impact/significance’ frame was described as presenting obesity as a grave problem that needs to be urgently addressed. The ‘prevention/solution’ frame which sought to identify ways to address obesity was found to often co-exist with the ‘blame/responsibility’ frame.

Sandberg (2007) discovered two frames - ‘obesity as a health problem’ and ‘obesity as a beauty dilemma’. News articles within the ‘obesity as a health problem’ frame were packed with scientific and medical jargon referring to ‘genetic models’, ‘double-blind tests’, ‘AD-36 virus’ (Sandberg, 2007, p. 459). News articles in this frame presented researchers as ‘a savior, or a modern knight in shining armour in the “Obesity crusade”’ (p. 461) and sent the message: ‘Hang in there! Wait for a miracle solution! The doctors and the engineers are working on it. The break-through is close’ (p. 461). News articles within the ‘obesity as a beauty dilemma’ frame had sensational headlines, were rich in illustrations and were written in an entertaining style presenting obesity as a cosmetic problem that a popular diet can solve.

Henderson, Coveney, Ward and Taylor (2009) discovered the frames ‘government regulation’, ‘industry regulation’ and ‘individual regulation’ and two opposing positions within each. Within the ‘government regulation’ frame, the position of ‘protection’ consisted of news presenting children as vulnerable to marketing practices and a counter-position of ‘the nanny state’ consisted of news articles advocating minimal food marketing regulation. Within the ‘industry regulation’ frame, the ‘ethical self-regulation’ position presented the food industry as appropriately regulating itself while a counter-position of ‘exploitation’ presented fast food companies as aggressively marketing their products. Within the ‘individual regulation’ frame, the ‘irresponsible’ position presented junk food consumption by children as a result of parenting and a ‘responsible’ counter-
position presented banning junk food as necessary support for parents in their efforts to discourage junk food consumption.

Holmes (2009) discovered the ‘scientific advances’, ‘back to basics’, ‘national or global health threat’, ‘government intervention’ and ‘empathy’ frames. News articles in the ‘scientific advances’ frame focused on medical discoveries and the need for more medical research on obesity. News articles in the ‘back to basics’ frame encouraged individuals to exercise and consume healthy food. News articles exemplifying the ‘national or global health threat’ frame presented obesity as a major health problem requiring immediate action. The main proposition of the ‘government intervention’ frame was that obesity must be addressed by governments. The news article in which the ‘empathy’ frame was identified called for showing understanding for obese people.

Hawkins and Linvill (2010) analysed news articles about childhood obesity for mentions of a theoretically-derived ‘public health frame’. This ‘public health frame’ was developed from the writing of Gruhn and Hawkins (2004) who have suggested that a public health frame is one that identifies the causes of a problem and two types of solutions - corrective which suggest how to remedy the given problem once it has occurred and preventive which suggest how to avoid the given problem or how to prevent it from occurring in the first place.

Holland et al. (2011) investigated the framing of a specific report on obesity prevalence prepared by a leading Australian health and medical research institute. The study identified the ‘fattest nation’ frame which suggested that Australians are the fattest country in the world, created a sense of urgency about rising obesity rates in Australia and emphasised the health-related costs of obesity and the ‘challenging the fattest nation rhetoric’ frame where authors of the released report on prevalence rates of obesity in Australia were questioned about the veracity of the reported data in terms of methods used and vested interests behind the sponsorship of the report.

Gearhart, Craig and Steed (2012) studied the presence in news articles of episodic and thematic frames of obesity. In line with Iyengar’s (1991) conceptualisation, episodic frames were defined as discussing specific, isolated instances or events and thematic frames as discussing broad social contexts and presenting statistical data. News articles emphasising individual responsibility for
weight and reporting isolated events or individual efforts to lose weight were considered to express an episodic frame and news articles which emphasised social responsibility and societal efforts for obesity prevention and treatment were considered to express a thematic frame.

Zhe, Rui Qing, Kun and Ji (2012) identified the ‘extent of obesity problem’ frame characterised by discussions of obesity as an epidemic, a health or an economic crisis; the ‘definition of obesity’ frame which the authors did not elaborate on; the ‘causes of obesity’ frame discussing physiological, individual behaviour or social-structural causes; the ‘solutions of obesity’ frame discussing medical interventions, behaviour modifications or social-structural solutions; the ‘attitudes towards obesity’ frame discussing fat acceptance or fat discrimination; and the ‘body weight stories’ frame discussing the weight of severely obese lay people and celebrities.

Finally, Shugart (2013) read news articles with the aim to determine whether a ‘personal responsibility’ frame of obesity and an ‘environmental’ frame of obesity, derived and defined based on a literature review of existing studies of obesity in the media informed by framing theory, were present in the coverage. The analysis showed that these two theoretically derived obesity frames were featured, but Shugart (2013) also identified an additional, ‘cultural’ frame of obesity, described as ‘a hybrid explanation that acknowledges historical and contemporary conditions as well as individual choices and practices’ (p. 740). Shugart (2013) warned that this latter frame may be problematic because it continues to ‘elide a role for governing entities’ (p. 741).

In sum, a variety of obesity frames have been identified in past research, but some commonalities also emerge. The ‘biological’ frame as described by Lawrence (2004), the ‘genetics’ frame as mentioned by Saguy and Almeling (2005), the ‘obesity as a health problem’ frame as discussed by Sandberg (2007) and the ‘scientific advances’ frame as described by Holmes (2009) make similar propositions about obesity being a biological disorder best approached with science. Similarly, the ‘behavioural’ frame as described by Lawrence (2004), the ‘individual moral failings’ frame as described by Saguy and Almeling (2005), the ‘back to basics’ frame as discussed by Holmes (2009) and the ‘personal responsibility’ frame as defined based on past research by Shugart (2013)
converge around the idea that measures at the individual level like exercise and consumption of healthy foods are needed to address obesity. Finally, the ‘environmental’ frame as described by Lawrence (2004), the ‘government intervention’ frame as discussed by Holmes (2009) and the ‘environmental’ frame as defined based on past research by Shugart (2013) emphasise the role of government and sometimes industry in creating environments that lead to obesity and/or encourage government involvement to solve obesity.

Following this presentation of studies which identified frame elements and studies which identified frames, the discussion turns to their common limitation - the focus on texts to the neglect of visuals.

### 3.4.5 A Focus on Texts in Existing Research

Whether aiming to identify frame elements or frames, studies of obesity in the media informed by framing theory almost exclusively engaged with text analysis. The study of obesity frames in YouTube video clips by Yoo and Kim (2012), which was based on the analysis of ‘visual, audio, and text presentation’ (p. 89) was the only example of research that did not exclusively focus on texts. This analysis has the problem of withholding information about precisely what visual occurrences were considered as indicators that the studied obesity causes and solutions were present in the visual channel of communication, but it still has the merit of expanding the focus of analysis beyond textual representations of obesity.

The preoccupation with texts that was identified here confirms observations about frame analyses in general. A review in which frame analyses were categorised into three types - analysing texts and ignoring visuals, analysing visuals and ignoring texts or analysing both in some way - showed that over 80% belonged to the first type (Matthes, 2009). More recently, however, there have been calls encouraging researchers to investigate frames in visuals (Coleman, 2010; Messaris & Abraham, 2001), visual framing studies have been growing over the recent years (see e.g., Borah, 2009; Fahmy, 2010) and there has been growing interest in visual framing, particularly with the goal of reviewing this body of research so as ‘to systemize existing approaches of analysis, to highlight definitional and methodological similarities and discrepancies, and to clarify key terms’ (Hans-Bredow-Institut, 2013).
This growing body of visual framing studies has, as the name indicates, been focusing on the visual channel of communication (see e.g., Borah, 2009; Fahmy, 2010), although some studies have content-analysed both visuals and their verbal context - captions to photographs (see e.g., Parry, 2010). Such growth in visual-only frame analyses is perhaps warranted after the longstanding neglect of the framing potential of visuals and observations that news photographs in particular have been severely understudied (Parry, 2010). At the same time, arguments have been made that rather than research frames in visuals only or in texts only, frame analysis studies should integrate the analysis of the two communication channels. Visual-only research is as incomplete as text-only research given that visuals are rarely presented on their own be it in television, print or online news. Coleman (2010) in particular has called for ‘integrative work on framing visual and spoken or written texts’ (p. 235-6).

Some of the earliest frame analyses have, in fact, engaged with such integrative work by drawing attention to the framing potential of visuals (Gitlin, 1980; Goffman, 1979) or by listing visuals as framing devices (Gamson & Modigliani, 1989; Entman, 1991). An understanding of visuals as framing devices alongside other framing devices like metaphors and catchphrases (Gamson & Modigliani, 1989; van Gorp, 2010) implies that visual and verbal content should be analysed simultaneously towards the identification of frames, which approach advances the goal of doing integrative work.

To conclude, while various theories have informed past research on obesity in the media, framing theory is the single most frequently referenced theoretical framework in existing research. Does a particular method similarly emerge as being the most frequently applied to the study of obesity in the media and how well has past research informed by framing theory fared methodologically?

### 3.5 Methodological Issues in Existing Research

In answer to the question whether a particular method was most frequently applied, content analysis emerged as the most frequently employed method in existing studies of obesity in the media both in general and within the group of studies informed by framing theory (see Appendix 1). This wide use of content analysis confirms observations that it is the fastest-growing research method in media and communication studies (Neuendorf, 2002; Riffe & Freitag, 1997). Few
studies relied on constant comparative, critical, discourse, exploratory, rhetorical or thematic analysis, experiments, interviews or surveys.

To answer the question as to how past research informed by framing theory fared methodologically, studies were evaluated against three criteria inspired by Matthes' (2009) review of framing research. These include: firstly, evaluating how frames or frame elements were arrived at meaning whether this was done by using inductive or deductive techniques; second, evaluating whether studies reported inter-coder agreement; and third, only with respect to those studies which identified frames - evaluating whether the steps of the analysis and the description of the final set of frames matched the provided definition of a frame.

Firstly, there were two examples - research by Kim and Willis (2007) and Saguy and Almeling (2008) - in which no discussion was provided as to how the frames or frame elements that were analysed had been arrived at in the first place. Failure to disclose how frames or frame elements had initially been identified is problematic from a methodological viewpoint as it hampers replicability by making it impossible for future researchers to repeat the exact procedures that had been employed. Apart from these two examples, most studies identified frames or frame elements by relying on inductive techniques with few studies adopting a deductive or a mixed approach - using previous research as a basis for coding but also allowing new codes to emerge. Table 3.2 below lists studies against the approach to frame identification that was adopted.

Table 3.2 Frame Identification Techniques in Existing Research

<table>
<thead>
<tr>
<th>Frame Identification Technique</th>
<th>Author</th>
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<tbody>
<tr>
<td>Inductive</td>
<td>Barry et al. (2011); Bonfiglioli et al. (2007); Henderson, Coveney, Ward and Taylor (2009); Hilton, Patterson and Teyhan (2012); Holland et al. (2011); Holmes (2009); Lambert et al. (2007); Lawrence (2004); Saguy and Gruys (2010); Saguy, Gruys and Gong (2010); Sandberg (2007)</td>
</tr>
<tr>
<td>Deductive</td>
<td>Gearhart, Craig and Steed (2012); Hawkins and Linvill (2010); Saguy and Almeling (2005); Yoo and Kim (2012)</td>
</tr>
<tr>
<td>Mixed</td>
<td>De Brún, McKenzie, McCarthy and McGloin (2011); Shugart (2013); Zhe, Rui Qing, Kun and Ji (2012)</td>
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</tbody>
</table>
Second, most studies including research by Bonfiglioli et al. (2007), Furrer Pasquali (2010), Gearhart, Craig and Steed (2012), Hawkins and Linvill (2010), Kim and Willis (2007), Lawrence (2004), Saguy and Almeling (2005), Saguy and Almeling (2008) and Saguy and Gruys (2010) reported inter-coder agreement as an overall value for all coded variables together. Others including Barry et al. (2011), Hilton, Patterson and Teyhan (2012), Saguy, Gruys and Gong (2010) and Yoo and Kim (2012) reported a range of inter-coder agreement for all coded variables together. A group of studies neither reported inter-coder agreement nor discussed issues of reliability. Studies in this group included research by Henderson, Coveney, Ward and Taylor (2009), Holland et al. (2011), Holmes (2009), Lambert et al. (2007), Sandberg (2007), Shugart (2013) and Zhe, Rui Qing, Kun, & Ji (2012). Research by De Brún, McKenzie, McCarthy and McGlone (2011) was an example of good practice (see e.g., Lombard, Snyder-Duch, & Bracken, 2002; Neuendorf 2009; 2011) - inter-coder agreement (Cohen’s kappa) was reported for each variable individually.

Third, with respect specifically to those studies which identified obesity frames, it was mostly impossible to evaluate their methodological rigour in terms of the extent to which frame operationalisation was informed by framing theory. As mentioned earlier, a number of studies including research by Lawrence (2004), Shugart (2013) and Zhe, Rui Qing, Kun and Ji (2012) featured no definition of a frame and a number of other studies including research by Gearhart, Craig and Steed (2012), Hawkins and Linvill (2010), Henderson, Coveney, Ward and Taylor (2009), Holmes (2009) and Saguy and Almeling (2005) gave general definitions of what constitutes a frame. Because such general definitions are open to interpretations, it is impossible to judge to what extent the steps of the analysis and the operationalisation of frames had been informed by the definition of what constitutes a frame.

Further, among the three studies which provided specific definitions of frames including research by Holland et al. (2011), Lambert et al. (2007) and Sandberg (2007), evidence emerged for a disconnect between frame definition and the description of the final set of frames. In research by Lambert et al. (2007) the ‘blame/responsibility’ frame which sought to identify ‘the obesity “culprit”’ (p. 10), the ‘impact/significance’ frame which presented obesity as a grave problem that
urgently needs attention and the ‘prevention/solution’ frame which sought to identify ways to address obesity rather resembled specific functional features of a frame according to Lambert et al.’s (2007) definition that ‘keywords, metaphors, catch-phrases, discussion of the root of a problem or issue, concepts, discussion of the consequences of a problem or issue, and moral appeals all combine to build frames’ (p. 7).

In conclusion, existing research on obesity in the media informed by framing theory has a clear methodological merit - most studies adopted an inductive approach to the identification of frames or frame elements rather than a deductive one, which carries the danger that frames or frame elements may not fit the analysed coverage (Matthes & Kohring, 2008). Yet, existing research also suffers from three key limitations. First, reporting of inter-coder agreement has been inadequate with studies reporting overall values for all coded variables together or altogether failing to report inter-coder agreement. As Riffe and Freitag (1997) have argued, while worries about reliability should not take precedence over the validity of research, reliability is a ‘necessary condition for validity’ (p. 522). Second, studies failed to provide definitions of how a frame was understood or when frames were defined only general definitions were offered which are useful for giving an overall idea of what frames do, but do not offer clear guidelines for operationalisation (Matthes, 2009) and make it impossible for subsequent researchers to evaluate the extent to which theory had informed analysis. Third, even when specific definitions of frames were put forward, there was a disconnect between frame definition and the description of the identified frames.

3.6 Summary

A large body of research has already studied obesity in the media. Much of this past research has focused on the US and Australia with little attention paid to European countries like Britain and Germany where obesity rates are among the highest in Europe. No multi-country studies have been conducted in a European context, which is in dissonance with the EU research environment that encourages collaboration in research and cross-country analysis. Much research has investigated obesity coverage in print media outlets, which focus is in disconnect with the general interest in media studies in online media developments and the reality of news provision and consumption. The study of obesity in the media has
also been, to date, approached from a variety of theoretical frameworks, but framing theory emerges as the single most frequently referenced theory in past research.

While much research has already used framing theory as a theoretical lens to study obesity in the media, its integrative potential has not yet been realised. Not only that, but also few studies have researched either the antecedents of frames or their consequences. Framing research has not always fared well methodologically either, especially in a number of aspects: the majority of past studies have been characterised by inadequate reporting of inter-coder agreement; much past research has provided no definitions or only general definitions of how frames had been understood in the reported research, which makes it impossible for future researchers to evaluate the extent to which framing theory had informed frame operationalisation; and finally, among the research that has provided specific definitions of how frames had been understood there was evidence for a disconnect between frame definition and the described frames.

Thus, while much valuable research has already been done on obesity in the media, much remains still to be done. The present study is set to do this additional bit and make a unique contribution to the study of obesity in the media by: focusing on an understudied geography - Europe and examining two countries competing to be the ‘fattest’ in Europe - Britain and Germany; analysing an understudied media type - online; approaching framing theory as a research programme that allows researchers to glean information about 1) the antecedents of frames, 2) frames in media content and 3) their consequences; and as the following chapter will demonstrate by devising a comprehensive research design and addressing the key methodological problems of past research in the present study’s methodological execution.
Chapter 4  Methods

4.1  Introduction

This chapter outlines the present study’s research design, the specific steps of the analysis and the methods used in order to address the study’s three core aims: 1) to explore whether certain aspects of the use of obesity frames in news articles can be explained with axiomatic characteristics of journalistic and editorial work, specifically news values and axiomatic characteristics of the media outlets for which journalists work including the liberal or conservative political leaning and the broadsheet or tabloid reporting style of media outlets; 2) to produce a comprehensive classification of the nature of obesity reporting by drawing on a frame analysis approach and to explore the frequency with which obesity frames are manifested in news articles; and 3) to test if the use of obesity frames by news producers in news articles is significantly correlated with the use of obesity frames by readers in accompanying readers’ comments.

In addition to being conceived to address these core aims, the research design, the specific steps of the analysis and the use of methods described in this chapter were also informed by the key methodological strengths and weaknesses of past research. To recap, the inductive identification of frames and frame elements, an approach which ensures that the studied frames or frame elements fit the analysed coverage, was identified as the key strength of existing research. The key weaknesses of existing research included: 1) inadequate reporting of inter-coder agreement; 2) failure to define how frames had been understood in the reported research or the provision of general definitions that are open to interpretation and preclude the evaluation of the extent to which frame operationalisation had been informed by framing theory; 3) a disconnect between frame definition and frame operationalisation in studies which offered specific definitions of a frame.

In terms of organisation, this chapter starts with an introductory ‘The Study’s Research Design at a Glance’ section. This is followed by a section titled ‘Sample’ in which decisions regarding the sample that was analysed are described and justified. A section which describes the initial ‘Inductive Phase’ and a section which describes the following ‘Deductive Phase’ of analysis come next.
4.2 The Study’s Research Design at a Glance

In order to first find out which obesity frames were used in news articles from British and German media outlets (RQ1.1), this study started with an *inductive phase* of frame identification informed by the manual atomistic approach developed by van Gorp (2005; 2007; 2010) and van Gorp and van der Goot (2012) and reflecting the key methodological strength of existing research - inductive approach to frame identification. At this phase a sub-sample from the total sample of news articles was selected by a mix of random and theoretical sampling, open coded and analysed following the constant comparative method known from grounded theory. To avoid confusion regarding how frames were understood in the context of the present study, which was one of the key weaknesses of past research, the *inductive phase* features a reminder of the definition of frames adopted in this study. To also avoid ambiguity regarding the extent to which the definition of what constitutes a frame informed the operationalisation of a frame, which represented another key weakness of existing research, the discussion within the *inductive phase* demonstrates how frame identification in the present study was closely informed by the very specific definition of what constitutes a frame that was adopted here.

Next, to establish the frequency with which the obesity frames discovered at the *inductive phase* of frame identification had been used in the total sample of news articles (RQ1.2), content analysis - the most frequently used method in past research - was employed to code the total sample of news articles for mentions of frame elements representing the identified frames in a second, *deductive phase* of frame analysis. This second, *deductive phase* has two additional components. First, news articles were also coded against a pre-defined list of established journalistic news values using content analysis in order to answer whether news articles in what emerges as the most frequently used obesity frame are also the ones driven by the highest number of distinct, established journalistic news values (RQ2.1). Second, readers’ comments were coded for mentions of frame elements representing the inductively identified frames using content analysis in order to answer whether the use of obesity frames by news producers is significantly correlated with the use of obesity frames by readers (RQ3). At this second,
deductive phase issues around the inadequate reporting of inter-coder agreement - another key weakness of existing research - are also addressed.

Finally, to answer whether significant differences in the use of frames existed between media outlets depending on their political leaning (RQ2.2) and reporting style (RQ2.3), media outlets were sampled in such a way that they represent the two ends of the liberal-conservative spectrum of political leaning and the two ends of the broadsheet-tabloid spectrum of reporting style. This research design is summarised in Figure 4.1 below.

**Figure 4.1 The Study’s Research Design**

The following section first describes the study sample.

### 4.3 Sample

The timeframe for analysis in the present study is 1 January 2009 until 31 December 2011. This period was marked by several key developments around the issue of obesity in Europe including a 2009 proposal for holding an EOD to raise awareness about obesity threatening to 'create an epidemic of diabetes and heart disease' (Moss, 2009), the 2010 launch of the EOD (Cambre, 2012) and calls by EOD’s president to recognise obesity as a chronic disease in Europe in 2011 (EurActiv, 2011). These developments make the 2009 - 2011 timeframe important for understanding obesity as an issue in Europe. As mentioned earlier, this timeframe also witnessed a number of additional key developments with relevance to obesity and health more generally.

Regarding the sampling of media outlets, Bild.de, Guardian.co.uk, dailymail.co.uk, sueddeutsche.de, thetimes.co.uk and welt.de were purposefully selected for analysis in order to be able to address the research aims of this study.
related to finding out whether significant differences exist between media outlets based on their political leaning (RQ2.2) and reporting style (RQ2.3). Judgments about political leaning and reporting style were made by analogy with the political leaning and reporting style of media outlets’ print versions. Thus, Guardian.co.uk (see e.g., Carvalho, 2007) and sueddeutsche.de (see e.g., Gilbert & Schantz, 2008; Mueller, 1997) are considered to have a liberal political leaning, Bild.de (see e.g., Esser & Hemmer, 2008; Wandrei, 2010), dailymail.co.uk (see e.g., Brown & Ferree, 2005), thetimes.co.uk (see e.g., Carvalho, 2007) and welt.de (see e.g., Gilbert & Schantz, 2008) a conservative political leaning. Bild.de and dailymail.co.uk (see e.g., Brown & Ferree, 2005; Stelzer, 2005) are understood to represent a tabloid reporting style, Guardian.co.uk, sueddeutsche.de, thetimes.co.uk and welt.de a broadsheet reporting style (see e.g., Brown & Ferree, 2005; Stelzer, 2005).

The selection of these media outlets was also motivated by the fact that Internet users have consistently ranked Bild.de, dailymail.co.uk, Guardian.co.uk, sueddeutsche.de and welt.de (comScore, 2009; comScore, 2012a) as well as thetimes.co.uk prior to the introduction of a pay wall (Hopkins, 2007) among the most popular online newspapers. It should also be mentioned that selecting Bild.de to represent German tabloid style media outlets was straightforward given consensus that Bild.de ‘holds an absolute monopoly in the national tabloids market’ (Klein, 2000, p. 189). In Britain, where several tabloid style media outlets compete heavily, dailymail.co.uk was selected on the grounds that it is a leader in attracting online readership (Press Gazette, 2011) and it has a health column which increases the likelihood that ‘information-rich cases’ (Patton, 1990, p. 169), that is obesity-related news articles, will be published. For comparison, Bild.de has a similar sub-section on health within its ‘Ratgeber’ or ‘Counsel’ column.

Having set the sampling frame, news articles were sourced by running keyword searches using the six online newspapers’ own search capabilities. This study aimed to avoid the key known pitfalls of keyword searches related to false positives and false negatives (Deacon, 2007; Soothill & Grover, 1997). False positives or irrelevant content may be sourced when the keywords that are used have several meanings, while false negatives or relevant content may be omitted by relying on keywords which do not reflect the full range of terms that are used to refer to and discuss an event or issue (Deacon, 2007).
To avoid generating false positives and negatives, the keywords that were used in the present study were informed by a review of keywords used in existing research and synonym searches in three network dictionaries - Deutscher Wortschatz (Deutscher Wortschatz, 2014), Visual Thesaurus (Visual Thesaurus, 2014) and Visuwords (Visuwords, 2014). The use of all three dictionaries was deemed necessary because Visuwords is solely based on WordNet - a lexical database of English (see e.g., Fellbaum, 2006; Princeton University, 2010), Visual Thesaurus combines WordNet with similar resources in German (Reuer, 2004) and Deutscher Wortschatz provides examples of word use in context in German, including examples from news articles. The selection of Deutscher Wortschatz, Visual Thesaurus and Visuwords from among other available dictionaries was motivated by the fact that they have been developed to gather information about a word in a way that is believed to closely reflect how mental lexicons function (Reuer, 2004).

To start with, a review of the keywords used to source relevant material in existing research revealed that ‘obesity’, ‘obese’, ‘overweight’ and ‘fat’ were most frequently used (see Table 4.1).
<table>
<thead>
<tr>
<th>Keyword</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obesity</td>
<td>Armstrong (2011); Barry et al. (2011); Bastian (2010); Campo and Mastin (2007); Carvalho (2010); De Brún, McKenzie, McCarthy and McGloin (2011); De Brún, McKenzie, McCarthy and McGloin (2013); Furrer Pasquali (2010); Gearhart, Craig and Steed (2012); Hawkins and Linvill (2010); Hilbert and Ried (2009); Hilton, Patterson and Teyhan (2012); Holland et al. (2011); Holmes (2009); Kim and Willis (2007); Lambert et al. (2007); Lawrence (2004); Maheshwar and Rao (2011); Saguy (2006); Saguy and Almeling (2008); Saguy and Gruys (2010); Saguy, Gruys and Gong (2010); Sandberg (2007); Whitehead and Kurz (2008); Yoo and Kim (2012); Zhe, Rui Qing, Kun and Ji (2012); Zivkovic, Warin, Davies and Moore (2010)</td>
</tr>
<tr>
<td>Obese</td>
<td>Barry et al. (2011); Bonfiglioli et al. (2007); De Brún, McKenzie, McCarthy and McGloin (2011); De Brún, McKenzie, McCarthy and McGloin (2013); Hilbert and Ried (2009); Hilton, Patterson and Teyhan (2012); Holland et al. (2011); Kim and Willis (2007); Lambert et al. (2007); Saguy and Gruys (2010); Saguy, Gruys and Gong (2010); Yoo and Kim (2012)</td>
</tr>
<tr>
<td>Overweight</td>
<td>Barry et al. (2011); Campo and Mastin (2007); De Brún, McKenzie, McCarthy and McGloin (2011); De Brún, McKenzie, McCarthy and McGloin (2013); Furrer Pasquali (2010); Hilbert and Ried (2009); Holland et al. (2011); Kim and Willis (2007); Maheshwar and Rao (2011); Saguy and Gruys (2010); Saguy, Gruys and Gong (2010); Sandberg (2007); Whitehead and Kurz (2008); Zhe, Rui Qing, Kun and Ji (2012)</td>
</tr>
<tr>
<td>Fat</td>
<td>Hilbert and Ried (2009); Hilton, Patterson and Teyhan (2012); Holland et al. (2011); Kim and Willis (2007); Whitehead and Kurz (2008); Zhe, Rui Qing, Kun and Ji (2012)</td>
</tr>
</tbody>
</table>

Having identified ‘obesity’, ‘obese’, ‘overweight’ and ‘fat’ as the keywords most frequently employed to source relevant material in existing research, in a next step Deutscher Wortschatz, Visual Thesaurus and Visuwords were searched with these keywords to explore if additional terms may also contribute relevant content. First, Visual Thesaurus and Visuwords were searched with ‘obesity’, ‘obese’, ‘overweight’ and ‘fat’. Next, these terms were translated into German as ‘Fettleibigkeit’, ‘Fettsucht’, ‘fettleibig’, ‘Übergewicht’, ‘übergewichtig’, ‘fett’ and ‘dick’ using Deutscher Wortschatz and used as the starting terms in Deutscher Wortschatz. After consulting Deutscher Wortschatz, Visual Thesaurus and Visuwords, the keyword list was expanded to include ‘adiposis’, ‘avoirdupois’, ‘corpulence’, ‘corpulent’, ‘embonpoint’ and ‘fatness’ towards the English-language keywords and

The final list of English-language keywords included ‘adiposis’, ‘avoirdupois’, ‘corpulence’, ‘corpulent’, ‘embonpoint’, ‘fat’, ‘fatness’, ‘obese’, ‘obesity’ and ‘overweight’. The final list of German-language keywords included ‘Adipositas’, ‘dick’, ‘dickleibig’, ‘Dickleibigkeit’, ‘Dicksein’, ‘fett’, ‘fettleibig’, ‘Fettleibigkeit’, ‘Fettsucht’, ‘korpulent’, ‘Korpulenz’, ‘Übergewicht’ and ‘übergewichtig’. Searches were run with each English-language keyword in each English-language media outlet. In addition to running keyword searches with each of the German-language keywords in each German-language media outlet German-language media outlets were also searched with the word ‘obesity’ which, as it emerged in the process of keyword-searching, was also used in news articles from German-language media outlets.

Each keyword search returned thousands of results, but a news article was only considered relevant if it had passed the following screening stages: the keyword was mentioned in either the headline or lead paragraph - a standard practice for limiting search results to the most relevant (De Brún, McKenzie, McCarthy, & McGloin, 2011; Saguy, Gruys, & Gong, 2010), which was checked manually as the analysed online newspapers do not have this capability; the keyword was used to convey a relevant to obesity meaning, for example, ‘fat’ as in being fat, not the ingredient; obesity was discussed throughout the news article, for example, news articles whose headlines compared the consequences of obesity to those of smoking but the body discussed smoking were not included; the news article had to be about human obesity; the material was not published in a comment or opinion section like dailymail.co.uk’s ‘Columnists’ or ‘RightMinds’, Guardian.co.uk’s ‘Comment’, sueddeutsche.de’s ‘Meinung’, thetimes.co.uk’s ‘Opinion’ or welt.de’s ‘Meinung’; and finally, duplicate news articles - ones returned multiple times with multiple keywords - were removed.

As a side note, while pieces published in comment or opinion sections may be viewed as especially suitable for frame identification and analysis since their purpose essentially is to present a clear problematisation of an event or issue, the decision that material published in such sections should not be allowed into the
sample was motivated by the intention of this study to understand how obesity is framed in factual reporting.

A total of 768 news articles satisfied the above-stated selection criteria. Of these 313 were published in dailymail.co.uk, 120 in Guardian.co.uk, 109 in Bild.de, 85 in thetimes.co.uk, 72 in welt.de and 69 in sueddeutsche.de. These news articles were saved from the newspapers’ websites in the period between 17 July 2012 and 1 August 2012. Such a practice has been described as the ‘freezing’ (Neuendorf, 2011, p. 282) of web data and is considered to be ‘essential to reliability’ (Neuendorf, 2011, p. 282) in analyses of online content. Taking such a snapshot approach to the collection of the news article sample (news text, accompanying photographs and readers’ comments) was deemed necessary because web content is dynamic. For example, it was observed how photographs would appear, disappear and re-appear again or be replaced by different photographs with the passage of time. A systematic record of such fluctuations was not kept but the observation of such fluctuations motivated the adoption of a snapshot approach to ensure that this study is based on stable content.

Before continuing with a presentation of the inductive and deductive phases of analysis, a word of caution is due regarding some dangers related to the composition of the total sample which is predominated by new articles published in British media outlets, precisely dailymail.co.uk. This raises the danger that the inductively identified frames of obesity may more closely reflect a British or dailymail.co.uk way of seeing obesity. As the following section explains, measures were taken at the inductive phase to avoid a British or dailymail.co.uk bias by: 1) using an equal number of news articles from each media outlet as the starting point of analysis and 2) checking whether each frame of obesity could be traced to news articles from both the British and German samples.

### 4.4 Inductive Phase

This section starts with a description of: the sampling strategy which determined the sub-sample of news articles on the basis of which the inductive frame identification was conducted; the method of constant comparison that was used to carry out the analysis; the type of content coding - open coding - that was employed. Next, arising difficulties with open coding and how they were resolved are discussed. The section then turns to issues around describing as fully as
possible the emerging frames. Following this is an explanation as to how a final set of obesity frames were formulated and then assessed for completeness and generalizability.

4.4.1 Open Coding and Constant Comparison of a Sub-sample of News Articles

Within the initial, inductive phase, in a first step, five news articles from each media outlet were randomly selected from the total sample of 768 news articles using the Research Randomizer (Urbaniak & Plous, 2011). For each of these 30 news articles a table with the following information was filled in: the vocabulary that was used to discuss the problem (under the heading ‘vocabulary’); the content of the accompanying photographs (under ‘visuals’); the parts of the text which made propositions regarding what the heart of the problem is (under ‘problem definition’); the parts of the text which discussed the causes of the problem (under ‘causes’); the parts of the text which proposed how to solve the problem (under ‘solutions’); and the parts of the text which expressed a moral evaluation of the agents identified as causing the problem (under ‘moral evaluation’).

These categories of ‘vocabulary’, ‘visuals’, ‘problem definition’, ‘causes’, ‘solutions’ and ‘moral evaluation’ closely follow the very specific definition of frames that was adopted in the present study. To recap, frames are understood in this study as ‘organizing principles’ (Reese, 2001, p. 11) or ‘interpretative packages’ (Gamson & Modigliani, 1989, p. 3) which give meaning to events and issues by connecting them with a culturally-shared belief/value/narrative (van Gorp, 2007; van Gorp & van der Goot, 2012) and by defining what is at the heart of the problem, identifying causes, proposing solutions and expressing moral evaluations of causal agents (Entman, 1993) via both texts and visuals (Coleman, 2010). As mentioned earlier, in this study ‘vocabulary’, ‘visuals’, ‘problem definition’, ‘causes’, ‘solutions’ and ‘moral evaluation’ are referred to as frame elements as they essentially constitute components of a frame.

4.4.2 Challenges with the Open Coding of News Articles

The analysis of this initial set of 30 news articles ran into a number of challenges: first, deciding in what order to open code news article texts and photographs; second, deciding how to ‘read’ what a photograph communicated; third, deciding which propositions about obesity to open code in those cases when news articles
made propositions belonging to what appeared to be conflicting frames; and 
fourth, incorporating categories that emerged from the data and were not part of 
the initial categories proposed by the adopted here very specific definition of a 
frame.

First, with respect to the order in which to open code news article texts and 
photographs, it was decided to start the open coding with the textual component. 
This decision was motivated by the fact that not all news articles feature 
photographs but they all have a textual component. The decision to start the open 
coding with the textual component of news articles was also driven by the 
speculation that contrary to, for example, war reporting where the photograph 
may have come first and the text may have subsequently been built around the 
photograph, it can be assumed that in obesity reporting it is rather the other way 
around. Based on this reasoning about the precedence of the textual component, it 
was also decided that only those components of the content of a photograph will 
be open coded which could be said to visually express a proposition made in the 
accompanying text.

Second, the challenge of ‘reading’ what a photograph communicates 
resonates with discussions about the polysemy of photographs, meaning that any 
given photograph is open to multiple different readings (Entman, 2004; Hansen, 
Cottle, Negrine, & Newbold, 1998). It has been suggested that clues from the words 
surrounding a photograph may be useful for anchoring its meaning and thus, 
dealing with polysemy (Fiske, 1990). With news photographs in mind, Parry 
(2010) has suggested that captions can serve to direct and limit polysemy. 
Following the latter suggestion, the challenge of being unsure as to what 
photographic content to open code was resolved by using the text of the captions 
accompanying photographs to pin down their meaning.

To sum up, the open coding of a news article started with first reading the 
text and open coding the text-based frame elements (‘vocabulary’, ‘problem 
definition’, ‘causes’, etc.) and then examining the accompanying photographs to 
establish if any of the propositions that were made in the text could be said to also 
be visually communicated. To establish whether a photograph visually 
communicated a proposition made in the accompanying text, captions were 
treated as part of the photograph and they were used strictly to interpret its
meaning. This means that the content of captions was not open coded to extract parts that may function as text-based frame elements. To demonstrate how photographs were open coded, an example is given next.

One of the news articles that was open coded during the *inductive phase* of frame identification discussed how people are ‘confronted by a range of confusing nutrition labelling schemes’ and how “traffic light” warning labels on foods can steer shoppers away from an unhealthy diet (...) thus, tackling the problem of rising obesity’ (Poulter, 2010). This fragment was interpreted as proposing a ‘cause’ - it is the poor quality of information about food content that is causing problems and implying a ‘solution’ - the provision of clearer information via traffic light labels. The photograph featured in this news article depicted a close up of a food label and the captions read: ‘traffic light warning labels allow shoppers to quickly check the unhealthy elements of food’ (Poulter, 2010). It was concluded that ‘food labels’ should be recorded under the category ‘visuals’ as food labels appeared to visually express propositions regarding the ‘causes’ of and ‘solutions’ to obesity that were made in the accompanying text.

Third, the challenge of deciding which propositions about obesity to open code in those cases when news articles made propositions belonging to what appeared to be conflicting frames relates to the issue of frame co-existence. Frame co-existence refers to the widely recognised in the framing literature fact that a document may contain frame elements from several frames of an event or issue (van Gorp, 2007). As it would have been onerous to build frame co-existence into the initial, *inductive phase* of frame identification, it was decided that the goal at the *inductive phase* will be limited to identifying one dominant frame of obesity per news article, which approach has also been adopted by van Gorp (2010). It was, however, decided that frame co-existence will be recognised in the design of the next, *deductive phase* by devising a coding scheme in which frame-related variables are coded as present/not present. At the *inductive phase* if a news article was identified to contain incongruent frame elements, one dominant frame was extracted on the basis of the position of the news article author. Only the frame elements which communicated that position were lifted from each news article and entered into the table that was filled in for that news article.
It should be mentioned here that in the context of the notion of salience characterising framing (Entman, 1993), it would have been more intuitive to regard as dominant the frame that is communicated in prominent places such as the headline, sub-heading or lead paragraph of a news article. However, it emerged in this study that dominant frames could not have been identified on the basis of propositions regarding ‘problem definition’, ‘causes’, ‘solutions’ or ‘moral evaluation’ made in such prominent places as conflicting propositions were juxtaposed there as well. Such juxtaposition in prominent places is, in fact, unsurprising when viewed in the context of the newsworthiness of controversy in news reporting overall and even more so in the context of health reporting (Stryker, 2002).

Fourth, it emerged in the process of open coding news articles against the categories ‘vocabulary’, ‘visuals’, ‘problem definition’, ‘causes’, ‘solutions’ and ‘moral evaluation’, which were closely informed by the very specific definition of frames adopted in this study, that news articles tended to discuss with some regularity various consequences of obesity. This observation led to the addition of a further category for open coding - ‘consequences’ of obesity or the core problem as defined. The addition of this category adheres to the definition of open coding as a type of coding which is done with an open mind and in which the researcher does not have a predefined coding instrument in mind (see e.g., van Den Bulck, Simons, & Gorp, 2008; van Gorp, 2010).

These challenges were being resolved at the same time as open coding was being done. Following the method of constant comparison (van Gorp, 2007), each table that was completed for each news article that was analysed at this step was compared to the ones already filled in. The goal was to identify commonalities in the propositions that had been made regarding ‘problem definition’, ‘causes’, ‘consequences’, ‘solutions’, ‘moral evaluation’ and to identify similarities in the use of ‘vocabulary’ and ‘visuals’. Open coding and comparison were done simultaneously (van Den Bulck, Simons, & Gorp, 2008) and in order to facilitate the process of comparison and make it more transparent, a summary line was added on top of each table stating ‘the core problem and key to a solution’ that the news article appeared to propose. Once the initial 30 news articles had been open coded, the tables filled in for each news article were printed out and physically separated.
into different groups based on reading and comparing their summary lines. It was at this point that provisional obesity frames were formulated.

4.4.3 Building Thick Descriptions of Frames

In order to build as thick descriptions as possible for all of the provisionally formulated obesity frames, in a next step more news articles from the total sample of 768 news articles were read on top of the initial 30. These additional news articles were also randomly selected from the total sample using the Research Randomizer. At this stage, if one of these additionally examined news articles could be matched to an already identified frame based on the frame elements that were present in it, no table was filled in for that news article. If the news article made propositions that were impossible to match to propositions made in any of the provisionally identified frames, a table was filled in for that news article.

Additional news articles were read and when necessary open coded following a process resembling the gradual strategy of theoretical sampling described by Glaser and Strauss (1967). News articles were read or both read and open coded until no new information emerged which could not be classified under an already identified frame. It is impossible to state with certainty the number of news articles that were examined on top of the initial set of 30 as no record was kept of the ones which were read and left aside as they could be easily filed under an already identified frame. Tables were filled in for 29 additional news articles on top of the initial 30. This brings the total number of news articles that were subjected to detailed open coding and on the basis of which obesity frames will be described in this study to 59 news articles. Throughout this step of sampling additional news articles and reading them in order to build thick descriptions of the emerging frames, checks were constantly made to see whether each frame could be traced to news articles from both the British and German sub-samples.

4.4.4 Formulating a Final Set of Frames

After a final set of obesity frames was arrived at - based on the in-depth analysis of 59 news articles, all open codes representing an obesity frame were entered into a summary table for that frame as per recommendations by van Gorp (2005; 2007; 2010). Each summary table conveys information about: propositions regarding the definition of the core problem (‘problem definition’); propositions regarding the causes of (‘causes’), consequences of (‘consequences’) and solutions to (‘solutions’).
the problem as defined; evidence for moral evaluations of the causal agents identified as causing the problem ('moral evaluation'); evidence for the visual expression of the frame ('visuals'); and the vocabulary characterising the frame ('vocabulary').

Once a final set of obesity frames was arrived at, all readers' comments to the 59 news articles were also read to check if any ways of discussing obesity different from the ones already identified on the basis of reading news articles would emerge as well as to ascertain the wider circulation of the identified frames, as recommended by van Gorp (2007). Since readers did not discuss obesity in ways which could not be matched to the identified frames, detailed open coding in table format for the examined readers' comments was not performed.

4.4.5 Assessing the Final Set of Frames

Next, all identified frames were assessed for their completeness, degree of abstraction and generalizability (van Gorp, 2007; van Gorp, 2010; van Gorp & van der Goot, 2012). Since the completeness of the identified frames is understood to come across from the completeness of their summary tables (van Gorp & van der Goot, 2012), it was this study's initial goal not to allow any cell within any of the summary tables representing a frame to stay empty. Not all identified frames met this criterion, but given that a problem definition and a domain in which solutions should be located were identifiable for all frames and given that these frame elements are considered to be the most fundamental to a frame (van Gorp, 2010), even those frames for which other frame elements could not be identified were described. Next, the degree of abstraction of the identified frames was assessed by testing whether they could be or have been used to discuss issues other than obesity (van Gorp, 2007). Finally, generalizability was assessed by showing how each identified frame is linked to a specific cultural phenomenon (van Gorp, 2007).

The full range of obesity frames that were identified as a result of this initial, inductive phase of frame identification is described in Chapter 5. It is in Chapter 5 where all identified obesity frames are presented in summary tables following recommendations for presentation by van Gorp (2005; 2007; 2010) and Gamson and Modigliani (1989). Chapter 5 also demonstrates in detail how each of the identified frames is connected to a specific cultural phenomenon and how this cultural phenomenon has been or can be used to discuss other issues. In the
present study the cultural phenomena with which frames resonated were also used as frame labels.

Finally, it can be expected that the above-described type of analysis should have high validity as frames were subjected to checks for completeness, degree of abstraction and generalizability (van Gorp, 2007; van Gorp, 2010; van Gorp and van der Goot, 2012). With respect to reliability, while the systematic analysis of frame elements that represent each frame cannot guarantee that another independent researcher will arrive at an identical set of frames, it should increase the likelihood for this to happen (van Gorp & van der Goot, 2012). Additionally, a systematic analysis of frame elements, as the one described, allows the researcher to present frame elements as variables in a second, deductive phase of frame analysis and to instruct an independent coder to identify mentions of these frame elements. Such a phase of analysis allows the research question relating to the frequency with which frames have been used (RQ1.2) to be answered and it should also be ‘limiting, or even eliminating subjectivity’ (van Gorp, 2010, p. 92) of the inductive phase. According to van Gorp (2010), it also ensures higher reliability.

4.5 Deductive Phase

The second, deductive phase in this study used content analysis defined by Neuendorf (2002; 2011) as a summarising analysis which is driven by a-priori design, relies on the scientific method in terms of attention to reliability and replicability and is not limited as to the types of variables that could be measured. The deductive phase of analysis has three components: first, in order to establish the frequency with which the inductively identified obesity frames were used in the total sample (RQ1.2) news articles were coded for mentions of frame elements representing the identified frames; second, news articles were coded against a pre-defined list of established journalistic news values in order to explore if news articles in what emerges as the most frequently used obesity frame are also the ones driven by the highest number of journalistic news values (RQ2.1); and finally, to answer whether the use of frames by news producers in news articles was significantly correlated with the use of frames by readers in comments sections (RQ3), readers’ comments were coded for mentions of frame elements representing the identified frames.
Each of these components of the *deductive phase* of analysis is discussed below individually by detailing, in each case: key aspects of the content analysis including the unit of analysis, the analysed sample, the design of a coding protocol and the development of key variables; the coder training that was undertaken; and the pilot and final reliability testing. Attention to these issues reflects Neuendorf’s (2002; 2009; 2011) recommendations for best practice in content analysis. The discussion of coding frame elements in readers’ comments includes a consideration of the potential ethical issues that may arise when analysing readers’ comments and how they were addressed. Prior to discussing each of these components individually, considerations regarding the reliability of the coding which apply to all components of the *deductive phase* of analysis are presented.

### 4.5.1 Reliability of the Coding

In order to assess inter-coder agreement across all three components of the *deductive phase* of analysis - the deductive frame analysis of news articles, the deductive analysis of journalistic news values in news articles and the deductive frame analysis of readers’ comments - two coders were employed - the primary investigator and a reliability coder, meeting the minimum requirement for reliability testing (Neuendorf, 2011). Each coder analysed content in English and German. While the criterion of being fluent in both languages guided the selection of the reliability coder, no ‘a priori coder qualifications’ (Neuendorf, 2009, p. 71) were required in the sense of expert knowledge in a specialised field. It should therefore be possible for other researchers to replicate the findings of the content analysis by following the coding protocol presented in Appendix 2.

All coding for the pilot reliability and final reliability testing was done independently by the two coders. The primary investigator and the reliability coder only coded together during training sessions. The aim of this study was to achieve blind coding (Neuendorf, 2011), meaning that during the training the reliability coder was not briefed about the research questions, background literature or rationale for the inclusion of variables. The primary investigator told the reliability coder that the study aims to explore the overall state of obesity in randomly selected online newspapers.

To assess inter-coder agreement, which evaluates the extent to which independent coders would assign the same rating to variables, both percent
agreement and Cohen’s kappa were calculated in the pilot and final reliability tests. Results are reported only for the final reliability tests as is standard practice (see e.g., Lombard, Snyder-Duch, & Bracken, 2002; Neuendorf, 2011) and for each variable individually in line with recommendations for best practice (see e.g., Lombard, Snyder-Duch, & Bracken, 2002; Neuendorf 2009; 2011). Percent agreement and Cohen’s kappa are respectively the most and the second most widely used reliability coefficients in content analyses of media content on health-related issues (Neuendorf, 2009). Additionally, percent agreement is easy to interpret but it is, in the words of Lombard, Snyder-Duch and Bracken (2002), ‘too liberal’ (p. 593) as it fails to account for chance agreement. Cohen’s kappa corrects for chance agreement, but it has been referred to as ‘too conservative’ (Lombard, Snyder-Duch, & Bracken, 2002, p. 593). The use of both coefficients should offer a compromise between adopting a coefficient that may be intuitive to interpret but too liberal and one that may correct for chance agreement but be too conservative and less intuitive to interpret.

As is the case when several inter-coder agreement coefficients are reported, a rule was developed to specify the order and minimum acceptable levels for each coefficient that a variable has to pass (Neuendorf, 2002; 2009). Variables which failed to reach the minimum standards were dropped from further analysis after the relevant stage - pilot or final reliability testing. A variable was required to have at least .41 Cohen’s kappa or, if this was not the case, at least 80% percent agreement. The selection of different minimum levels for each coefficient is in line with recommendations to use higher criteria for liberal and lower criteria for conservative coefficients (Lombard, Snyder-Duch, & Bracken, 2002). The minimum level for Cohen’s kappa was based on definitions of a kappa value of .41 to .60 as an indicator of moderate, .61 to .80 of good and .81 to 1.00 of very good agreement beyond chance (Bland, 2008; Landis & Koch, 1977). Eighty percent or above was selected as the minimum requirement for percent agreement on the grounds that this level is deemed to be ‘usually acceptable’ (Lombard, Snyder-Duch, & Bracken, 2002, p. 593; Neuendorf, 2002, p. 145).

**4.5.2 Deductive Frame Analysis of News Articles**

All 768 news articles constituting the total sample were coded against a final list of variables representing the identified obesity frames either textually or visually.
Because only 583 news articles from the total sample contained at least one photograph (and when multiple photographs were present in a news article only one photograph per news article was analysed), variables capturing the visual expression of a frame were, in effect, coded in 583 photographs. The decision to analyse one photograph per article accounts for differences in the intended priority of photographs which resonates with the notion of salience in framing, referring to the importance not only of what is included when reporting an event or issue but also whether it is prominently presented (Entman, 1993). Thus, one prominent photograph defined as appearing before others was analysed per news article. To be considered prominent, a photograph had to appear before all other photographs featured in the news article either in terms of being closer to the headline relative to the rest or in terms of being the top one in a slide-show like presentation format. Where no photograph was presented before all others, one was randomly picked for analysis.

The coding scheme for this component of the deductive phase of frame analysis was entirely developed on the basis of the summary tables for the inductively identified obesity frames presented in Chapter 5. As mentioned, each summary table was designed to convey propositions regarding the definition of the problem (‘problem definition’), the causes of (‘causes’), consequences of (‘consequences’) and solutions to the problem as defined (‘solutions’), evidence for moral evaluations of the causal agents identified as causing the problem (‘moral evaluation’), evidence for the visual expression of the frame (‘visuals’) and the vocabulary characterising the frame (‘vocabulary’).

Variables for all of the above categories were developed from open codes and included for content analysis except for ‘vocabulary’ and ‘moral evaluation’. The collection of ‘vocabulary’ from the total sample was deemed unnecessary as this aspect of frames is reflected in the propositions they make regarding ‘problem definition’, ‘causes’, ‘consequences’, ‘solutions’ and ‘moral evaluation’. The ‘moral evaluation’ aspect of frames was omitted from the onset as contrary to propositions about ‘problem definition’, ‘causes’, ‘consequences’ or ‘solutions’ moral evaluations are much less explicitly stated and content analysis would have been ill suited to formulate them in a coding protocol and capture them reliably.
Such a discussion about the extent to which propositions about ‘problem definition’, ‘causes’, ‘consequences’, ‘solutions’ or ‘moral evaluation’ are explicitly stated opens up the question about the appropriateness of analysing these types of messages through content analysis. There are views that content analysis may best be suited for capturing manifest content, which is ‘present and directly identifiable’ (Neuendorf, 2011, p. 282). At the same time, it is also recognised that ‘with considerable codebook definition (...) preceded by qualitative work’ (Neuendorf, 2011, p. 282) content analysis can achieve ‘direct measurement of latent constructs’ (Neuendorf, 2011, p. 282). It is the latter approach that the present study has adopted.

The open codes for ‘problem definition’, ‘causes’, ‘consequences’, ‘solutions’ and ‘visuals’ representing each of the inductively identified frames were presented as variables to be coded as present/not present in news articles. As mentioned earlier, coding these as present/not present allows the study to account for frame co-existence or the fact that one document may feature several frames. Also, as recommended by van Gorp (2010), variables were presented in the coding protocol in an unordered list, meaning that they were ordered alphabetically rather than grouped by the frame which they signify. In the coding protocol, examples from the 59 news articles analysed at the inductive phase accompany variable descriptions. Some scholars have warned that the inclusion of examples in coding protocols may ‘limit the coder’s vision as to the application of the variable’ (Neuendorf, 2011, p. 283) and have advised against their use. However, in the context of the present study the addition of examples to the definition of variables resulted in higher levels of inter-coder agreement during the practice and pilot reliability coding which is why examples were used.

4.5.3 Procedure for Deductive Frame Analysis of News Articles
Having developed a coding protocol, coder training was conducted next. The coder training consisted of coding two news articles one from each language, which were not part of the total sample of 768 news articles on which the present study is based and were published in 2012. During coder training the primary investigator and the reliability coder coded together - sharing decisions and justifications for coding. The training session lasted approximately two hours and ideas which emerged during this session were used to amend the coding protocol.
The training session was followed by a pilot reliability test. The pilot reliability test was based on 18 news articles, three from each of the six media outlets analysed in the present study, which news articles were also published in 2012 and were selected to have readers’ comments so that they could be re-used in the pilot reliability test for coding frame elements in readers’ comments. Selecting articles from 2012 - a year which does not fall within the time period analysed in the present study - was motivated by recommendations that the material used in pilot testing should ‘ideally’ (Lombard, Snyder-Duch, & Bracken, 2004) fall outside of the final sample.

Following the pilot reliability test, variables relating to propositions about ‘problem definition’ were dropped from the coding protocol as none of them achieved the minimum standards of a Cohen’s kappa of at least .41 or percent agreement of at least 80%. Only variables expressing ‘causes’, ‘consequences’, ‘solutions’ and variables capturing the photographic expression of frames under the category of ‘visuals’ were left for final content coding.

For the final reliability test, a sub-sample of the total sample of 768 news articles was used (Neuendorf, 2009; 2011). The sub-sample consisted of 77 news articles constituting 10% of the total which were randomly selected using the Research Randomizer. The size and selection of this sub-sample reflect standard practice (Neuendorf, 2002; 2011). The procedure for incorporating the coding of this sub-sample into the total sample was informed by options proposed by Lombard, Snyder-Duch and Bracken (2002) which include: a majority rule; the primary investigator serving as a tie-breaker; selection at random of the decisions of the different coders; or discussion to resolve disagreements. The even number of coders eliminated the option to apply a majority rule and the primary investigator could not have served as a tie-breaker being one of the reliability coders. The method of resolving disagreements through discussion was eventually preferred over the option to incorporate at random the decisions of the different coders as the former approach has been used in similar past research (see e.g., Gearhart, Craig, & Steed, 2012; Hawkins & Linvill, 2010).

It should also be noted that in the absence of guidance as to whether the sub-sample of news articles that were analysed at the inductive phase of frame identification should be included in the deductive phase of frame analysis, in the
present study this sub-sample was included in analyses at the *deductive phase*. This was done to achieve a thorough understanding of the prevalence of obesity frames in the total sample.

Finally, with respect to validity and reliability, the validity of this *deductive phase* of frame analysis rests on the fact that variables grew out of preceding qualitative work (van Gorp, 2010). In terms of reliability, the method of content analysis is believed to ensure high reliability. This association of content analysis with high reliability stems from the fact that content analyses report coefficients of inter-coder agreement from which reliability is inferred (Krippendorff, 2004a) and from the fact that content analyses work with coding protocols which specify the instructions that were followed in the reported analyses, making them highly reproducible with reproducibility being an indicator of reliability (Krippendorff, 2004b).

### 4.5.4 Deductive Analysis of News Values in News Articles

This component of the *deductive phase* consisted of reading only the headlines, sub-headings and lead paragraphs of all 768 news articles from the total sample against a list of pre-defined journalistic news values to determine their presence. The decision to base this component of the *deductive phase* on the examination of the headline, sub-heading and lead paragraph of a news article was motivated by the inverted pyramid structure of news articles, which dictates that the most newsworthy information should be presented at the beginning. The decision to use a pre-defined list of journalistic news values rather than develop one inductively was driven by 1) this study’s goal to understand if established criteria of newsworthiness that are known to inform news producers’ selection of events and issues to report on may also be identified within obesity coverage and 2) to understand whether the concentration of such distinct, established journalistic news values may be the highest in news articles using what emerges as the most frequently employed obesity frame (RQ2.1).

The coding scheme for this component of the *deductive phase* was informed by a literature review of news values theory and research. This literature review showed that the most frequently cited work in news values research was that of Galtung and Ruge (1965). As Caple and Bednarek (2013) have concluded in an extensive review of news values research in the fields of media and
communication and linguistics, the majority of research since the 1960s has used Galtung and Ruge (1965) as a starting point. Galtung and Ruge (1965) have also been criticised - most prominently over reliance on foreign news only (Harcup & O’Neill, 2001) and the possibly outdated nature of their list of news values (Harcup & O’Neill, 2001; McGregor, 2002). In addition to expressing calls for new news values, much research has more recently been focusing on emotion in news reporting, claiming that emotion has gained so much ground in news reporting that it has effectively become a new news value (Allern, 2002).

In defence of Galtung and Ruge (1965) and the argument that theirs is a by now outdated list, there is evidence that their list of news values is still useful for understanding foreign news reporting. For example, a recent study which examined the coverage of the Darfur humanitarian crisis in the British press found that elite nations were referenced in 85% of the news articles and elite people in 90% (Tsatsou & Armstrong, 2014). What these percentages show is that it is ultimately news value(s) identified by Galtung and Ruge (1965) that determine the coverage. Yet, the argument about reliance on foreign news remains.

Additionally, the literature review also identified five aspects of news values research which need to be considered when selecting a list of news values for use here. First, news values theory and research are characterised by two traditions - an American tradition associated primarily with Gans (1979) and a European tradition associated mostly with Galtung and Ruge (1965) and Eilders (2006). Second, over the years news values have been investigated in the context of both general (Harcup & O’Neill, 2001) and specialised news, such as health-related news (Stryker, 2002). Third, prominent studies of news values have focused on print media (Galtung & Ruge, 1965; Harcup & O’Neill, 2001) and television (Maier & Ruhrman, 2008) but not on news websites. It has been observed that mainstream news websites do not fundamentally differ from print journalism in their understanding of news values (Deuze, 2001). Fourth, lists of news values have been generated using various methods ranging from interviews, surveys and newsroom ethnographies to content analyses of news articles (Braun, 2012). Fifth, there is an ongoing debate which relates to varying opinions as to whether news values are selection criteria characteristic only of the journalistic process or they may also be helpful in accounting for audience members’ selective
exposure to and information retention from news articles (Eilders, 2006). There is a vast overlap between news values identified in studies of the journalistic process and news values identified in studies of the selective exposure to and reception of news by audiences, but some news values appear in only one of the two groups of studies (Eilders, 2006).

Given the above five issues and due to the specifics of the present study: 1) researching European media; 2) researching an issue that is both a health and a general interest issue; 3) investigating the online versions of print media outlets; 4) envisioning news values as characteristics of media content; and 5) part of the journalistic process, criteria were established to guide the selection of a news values list that account for these specifics. The list of news values to be adopted in the present study had to: 1) be in the European tradition; 2) be sensitive to the specificity of both health and general news reporting; 3) be based on the study of print newspapers as it has been suggested that mainstream news websites do not fundamentally differ from print journalism in their understanding of news values (Deuze, 2001); 4) be empirically tested in content analysis; and 5) approach news values as characteristics of the journalistic process. Additionally, given calls for new news values, the list of news values to be adopted here also had to be recent.

A list of news values developed by Harcup and O’Neill (2001) which met all of the above criteria - except for the criterion of reflecting the specificity of both general and health reporting - was adopted as a starting point of the analysis. By making this choice the present study diverges from what has been identified as the more conventional approach of relying on Galtung and Ruge (1965) (see e.g., Caple & Bednarek, 2013). This divergence is, however, justified by the specifics of the present study. It can also be argued that the divergence is not as big as it may appear - in the process of devising an up-to-date list of news values based on reading news articles on various themes Harcup and O’Neill (2001) also used the list of Galtung and Ruge (1965) as a point of departure.

Before discussing how the list of news values proposed by Harcup and O’Neill (2001) was enriched with news values characteristic of health reporting, the list of news values proposed by Harcup and O’Neill (2001) is presented next.

Harcup and O’Neill (2001) identified the following news values: ‘the power elite’ referring to powerful individuals, organisations and/or institutions;
'celebrity' referring to famous people; 'entertainment' composed of storied about sex, show business, human interest, animals, unfolding drama, humour, entertaining photographs and/or witty headlines; 'surprise' referring to stories with an element of surprise; 'bad news' referring to news with an especially negative slant; 'good news' meaning news with an especially positive slant; 'magnitude' for stories involving and/or affecting a multitude of people; 'relevance' referring to stories about issues, groups and/or nations perceived as relevant to the audience; 'follow-up' referring to stories about what is already in the news; and 'newspaper agenda' referring to stories resonating with the publication's agenda.

All news values from this list proposed by Harcup and O'Neill (2001) were initially included for investigation using the same descriptions as provided above except for 'follow-up' and 'newspaper agenda', which were omitted from the onset for practicality concerns. The inclusion of 'follow-up' would have demanded a substantial reading exercise to ensure familiarity with the content of obesity-related news published prior to the analysed time period. 'Newspaper agenda' would have similarly required substantial research into the obesity-related initiatives, campaigns and promotions of the analysed media outlets and owner organisations.

Additionally, some indicators of 'entertainment' were omitted from the operationalisation of the news value from the start including; 'animals' - the focus here is on human obesity; 'unfolding drama' - the idea behind this criterion should be captured under 'bad news'; 'entertaining photographs' - they were also described as a 'picture opportunity' which confounded the meaning of this 'entertainment' indicator; 'humour' and 'witty headlines' - the amount of research that would have been necessary in order to specify the coding task in such a way that what constitutes humorous or witty wording could be accounted for would have been beyond the capacity of this study. Descriptions provided by Harcup and O'Neill (2001) that could have suggested operationalisation were also scant.

Modifications in the operationalisation of two news values - 'relevance' and 'magnitude' - were also made from the onset to better reflect the nature of the news coverage. 'Relevance' described as 'stories about issues, groups and nations perceived to be relevant to the audience' (Harcup & O'Neill, 2001, p. 279) was more narrowly defined through the concept of nation-centrism as news involving
the home country or someone/something related to the home country. Consequently, ‘relevance’ was also renamed to ‘locality’ to better reflect this re-definition. ‘Magnitude’ defined by Harcup and O’Neill (2001) as stories significant in the number of people involved was more broadly defined to also include the amount of involved monetary or physical resources.

In order for the analysis to be sensitive to the nature of obesity as an issue that is both a general interest and a health issue and to heed warnings that science and health reporting are governed by news values that are different from the ones governing the news reporting of general interest issues (Boyce, 2007b), several news values that were not on Harcup and O’Neill’s (2001) list were included for investigation borrowed from research of news values in science and health reporting (Stryker, 2002). These included something ‘topical’ - the flavour of the month, something ‘controversial’ - presented as disagreement between parties and ‘breaking news’ - something new or immediate (Stryker, 2002).

This study adopted a dichotomous operationalisation of news values as variables, which approach has also been adopted by Galtung and Ruge (1965). This means that news values-related variables were coded as present/not present. Such a dichotomous operationalisation was selected as most appropriate for answering the research question related to news values that was posed in this study - to explore whether the concentration of distinct established journalistic news values may be the highest in news articles communicating what emerges as the most frequently used obesity frame (RQ2.1).

To recap, before coder training or pilot reliability testing commenced, the coding protocol for this aspect of the deductive phase included the following news values: ‘bad news’, ‘breaking news’, ‘celebrity’, ‘controversial’, ‘entertainment’, ‘good news’, ‘locality’, ‘magnitude’, ‘the power elite’, ‘topical’ and ‘surprise’.

4.5.5 Procedure for Deductive Analysis of News Values in News Articles

Having developed the coding protocol, coder training was conducted using the same two articles that were used in the coder training for analysing frame elements in news articles. The training session lasted about half an hour and ideas which emerged from this training session were used to improve the definitions of the news values-related variables.
As a next step, a pilot reliability test was conducted using the same 18 news articles from the pilot reliability test for coding frame elements in news articles. The pilot reliability test showed that ‘surprise’ and ‘topical’ failed to meet the minimum criteria of a Cohen’s kappa of at least .41 and percent agreement of at least 80% and they were dropped from the coding protocol.

Following the pilot reliability test, further adjustments were made to the coding protocol. ‘The power elite’ was renamed to ‘elite’ and ‘breaking news’ to ‘new’ and its definition was changed to mentions of anything new. This led to the following final set of news values against which the total sample of news articles was analysed: ‘bad news’, ‘celebrity’, ‘controversial’, ‘elite’, ‘entertainment’, ‘good news’, ‘locality’, ‘magnitude’ and ‘new’. These variables were coded in the final reliability testing in the same 77 news articles that were used for the final reliability testing of variables expressing frames. The procedure for incorporating the coding of this reliability sub-sample into the total sample was the same as for the coding of variables representing frames.

Because this study imported a list of journalistic news values and because it is admittedly hard to escape subjective interpretation when analysing news values, worries about the validity and reliability of this component of the study may arise. It is, therefore, best that findings with respect to the presence of news values should be considered ‘broadly indicative’ (Harcup & O’Neill, 2001, p. 268). There may also be additional news values driving the analysed obesity-related coverage, for example, emotion (Allern, 2002), but the inductive identification of news values was beyond the scope of the present study. The aim here was to test if the concentration of established, distinct journalistic news values may be highest in news articles that were written in what emerges to be the most frequently used obesity frame, as the proposed here integration of news values theory with framing theory would suggest.

4.5.6 Deductive Frame Analysis of Readers’ Comments
This final component of the deductive phase of frame analysis was marked by one key challenge - deciding on the most appropriate unit of analysis. The individual reader’s comment - a naturally occurring unit of analysis - would have been one option. Treating the individual reader’s comment as the unit of analysis is perhaps the most intuitive choice and it might be the most optimal as well, for example, in
research where it is essential that data is collected for each comment individually. An example of such research would be Richardson and Stanyer’s (2011) comparative study of the use of comment facilities in British tabloid and broadsheet newspaper websites. Treating the individual comment as the unit of analysis was essential to answer research questions like: How frequently do newspapers intervene? Which topics attract most readers’ comments? Do readers post more than one message in the comment section to a given news article? Do comments mainly respond to the news article or to other readers?

The aim of the present study was to understand whether there is a correlation between the use of obesity frames in news articles and the use of obesity frames in accompanying readers’ comments. It was decided that treating each comment as the unit of analysis is unnecessary for answering this question, as it essentially looks for evidence that at least some of the readers used a frame that was also employed in the news article to which the readers commented. Thus, the various variables representing obesity frames were coded as present/not present based on reading the entire thread of readers’ comments posted to a news article.

It was also two specific advantages of treating the entirety of readers’ comments to a news article as the unit of analysis that further influenced this decision. These advantages relate to measures of inter-coder agreement - a crucial concern of content analysis studies and ethics - a key consideration of any research that deals with human subjects or examines user generated content.

First, treating the entirety of readers’ comments to a news article as one unit of analysis avoids the problem of coding as not present the investigated variables in off topic readers’ comments. In a study of a random sample of readers’ comments posted on the websites of ten major newspapers from the US, Paskin (2010) found that many were unrelated to the news article to which they were posted and to the body of preceding comments. A high number of irrelevant readers’ comments is problematic in a content analysis study because it translates into a high number of variables being coded as not present, thus creating a prevalence problem in favour of this coding decision. Such prevalence problems have been identified to cause major difficulties when calculating coefficients of inter-coder agreement (Hallgren, 2012) which are an essential part of any content analysis study and are interpreted as a measure of replicability. As Hallgren (2012)
has written, prevalence problems result in ‘unrepresentatively low’ (p. 6) estimates of coefficients of inter-coder agreement especially of Cohen’s kappa.

Second, by analysing readers’ comments this study runs into the ethical trouble of potentially breaching readers’ expectations that their comments may be read and commented on by other readers but not necessarily used for research. A perfect but impractical solution would have been to seek consent from the commenters for their comments to be analysed. An alternative, but inappropriate solution would have been to rely on findings from a recent survey of online media users which found that 82% were not at all or only slightly concerned about university researchers using their comments/data (Collaborative Online Social Media Observatory, 2014).

Treatment of the entire thread of readers’ comments as the unit of analysis offers a third option for safeguarding the anonymity of readers. Treating the entire thread of readers’ comments as the unit of analysis means that findings are reported at the aggregate level of the entire comment thread. As a further safeguard, no readers’ comments were quoted in this study either in full or in part as a direct quotation or a paraphrase. This approach was adopted after checks showed that especially some direct quotations were relatively easy to retrieve. Their inclusion would have exposed the usernames of commenters after running an online search (e.g., deductive disclosure).

The treatment of the entire thread of readers’ comments as the unit of analysis does not have advantages only. A key disadvantage is that this approach is blind to the frequency with which the different frames of obesity were used by individual commenters. Such information could have shed more light on the level of ‘popularity’ that the different frames of obesity enjoy with readers.

Since this component of the deducitive phase used the same frame-related variables that news articles were coded against, no coder training was conducted. The first step was a pilot reliability test for which the same 18 news articles were used as before. The final reliability testing also relied on the same 77 news articles, which were used for evaluating inter-coder agreement with respect to coding news articles against variables representing frames and against the pre-defined list of news values. Not all of these 77 news articles contained readers’ comments, thus the number of comment threads analysed for the final reliability testing was 43.
This should be a sufficient number as it happens to represent 10% of the total number of 430 comment threads and it is standard practice to base inter-coder agreement calculations on sub-samples that represent at least 10% of the total sample (Neuendorf, 2002; 2011). The procedure for incorporating the coding of this reliability sub-sample into the total sample was the same as for the preceding components of the **deductive phase**.

Ultimately, this component of the **deductive phase** was based on coding 430 comment threads (240 at *dailymail.co.uk*, 63 at *sueddeutsche.de*, 49 at *Bild.de*, 40 at *Guardian.co.uk*, 22 at *thetimes.co.uk* and 16 at *welt.de*). The number of individual readers’ comments within each comment thread varied from 1 to 1,176. The average number of readers’ comments within a comment thread was 66 (averages by media outlet were 91 at *Bild.de*, 82 at *Guardian.co.uk*, 80 at *dailymail.co.uk*, 30 at *welt.de*, 14 at *thetimes.co.uk* and 10 at *sueddeutsche.de*).

**4.6 Summary**

This study has embraced an integrative view of framing theory as a *research programme* that can guide the analysis of 1) the **antecedents** of frames (axiomatic characteristics of journalistic work like news values and axiomatic characteristics of the media outlets for which journalists work like political leaning and reporting style), 2) frames in **news media content** and 3) the **consequences** of frames (the effect of exposure to news articles on readers’ understanding of obesity as an issue). The research design of this study and the methods used reflect this view while also addressing key methodological weaknesses of past research informed by framing theory (inadequate reporting of inter-coder agreement; failure to provide definitions of how frames had been understood or the provision of too general definitions; a disconnect between the very specific definitions of frames and the descriptions of frames) and incorporating its methodological strengths (inductive frame identification which ensures that frames are relevant to the analysed coverage).

This study starts with an **inductive phase** at which phase obesity frames are identified based on the analysis of a sub-sample from the total sample of news articles. Frame identification at this phase is closely informed by the very specific definition of frames that this study has adopted: frames are ‘organizing principles’ (Reese, 2001, p. 11) or ‘interpretative packages’ (Gamson & Modigliani, 1989, p. 3).
which give meaning to events and issues by connecting them with a culturally-shared belief, value, narrative or other phenomenon (van Gorp, 2007; van Gorp & van der Goot, 2012) and by defining what is at the heart of a problem, identifying causes, proposing solutions and expressing moral evaluations of causal agents (Entman, 1993) via both texts and visuals (Coleman, 2010).

A deductive phase consisting of three components comes next. First, the frame elements representing each inductively identified frame are presented as variables to be coded within the total sample of news articles using the method of content analysis. Second, the total sample of news articles is analysed against a pre-defined list of established journalistic news values. Third, readers’ comments to news articles from the total sample are coded against the same frame-related variables. For all components of the deductive phase inter-coder agreement is reported for each variable individually as per best practice recommendations. The three components of the deductive phase enable the analysis of some of the antecedents of obesity frames (news values) and enable the present study to take steps towards the analysis of the consequences of frames (correlation analysis that may be used to prioritise interesting points for future experimental research). To make observations about the other two antecedents of obesity frames - political leaning and reporting style - media outlets are purposefully sampled to represent the two ends of the liberal-conservative political leaning and broadsheet-tabloid reporting style spectrums.

The following three chapters present findings from the two phases that were described here. Chapter 5 presents findings from the inductive phase and answers Research Question 1.1 regarding the range of obesity frames that have been used in news articles. Chapter 6 presents findings from one of the components of the deductive phase and answers Research Question 1.2 regarding the frequency with which the inductively identified obesity frames have been used in news articles. Chapter 7 presents findings from the remaining two components of the deductive phase - the analysis of journalistic news values and the frame analysis of readers' comments, thus answering Research Question 2.1 and Research Question 3, respectively. Chapter 7 also presents findings regarding significant differences in the use of obesity frames by media outlets depending on their political leaning (RQ2.2) and reporting style (RQ2.3).
Chapter 5  Description of the Frames of Obesity

5.1  Introduction

The aim of this chapter is to describe the ways in which obesity has been framed in news articles published in selected online newspapers from Britain and Germany including Bild.de, Guardian.co.uk, dailymail.co.uk, sueddeutsche.de, thetimes.co.uk and welt.de over the 1 January 2009 - 31 December 2011 time period, thus answering Research Question 1.1. Findings reported in this chapter draw on the initial, inductive phase of frame identification which was based on the open coding of a sub-sample of 59 news articles selected from the total sample of 768 news articles by a mix of random and theoretical sampling.

This chapter begins with the ‘Obesity Frames’ section which presents the distinct obesity frames that were discovered during the inductive phase of frame identification. The next section titled ‘From Frames to Variables and Back’ describes the frame elements representing obesity frames that were described as variables to be coded in the total sample of 768 news articles at the second, deductive phase of frame analysis. The final ‘Discussion’ section considers the meaning of the findings reported in this chapter from three perspectives: in the context of past research on obesity in the media; with respect to frames’ potential to advance an understanding of obesity in individualising or systemic terms; and in the context of framing theory.

5.2  Obesity Frames

role of government and sometimes industry in creating environments that lead to obesity and/or encourage government involvement to solve it.

These frames were found in media content originating from Canada, Sweden and the US. Are similar frames used to discuss obesity in British and German media outlets?

To answer this, the six obesity frames that were identified in this study in content from both British and German media outlets, namely ‘medical progress’, ‘self-control’, ‘education’, ‘environments’, ‘acceptance’ and ‘coming out’ are described below in the same order. The description of each frame is structured as follows: culturally-shared belief/value/narrative that it is linked to; problem definition; causes; consequences; solutions; moral evaluation; visual expression; vocabulary; and summary table.

5.2.1 The Medical Progress Frame
The ‘medical progress’ frame was built around the belief that medicine can intervene with a cure for any health problem and if there is no known cure medical researchers will eventually find one. This belief is related to ideas that medicine has developed and will continue to develop in a linear, straightforward manner (Wellcome Collection, 2013) and to modern society’s ‘infatuation with medical progress and technological innovation’ (Merrill, 2007). The ‘strong belief in medical progress’ (Callahan, 2013, p. 13) in Western society further relates to an overall ‘powerful faith in science’ (Callahan, 2013, p. 13) and is built around a metaphorical narrative of medical progress as ‘a journey to uncharted territories and new frontiers’ (Hellsten, 2008, p. 17) which in a European context evokes imposing images of the discovery of America (Hellsten, 2008).

Belief in medical progress can, for example, be detected in discussions about animal testing where the discussion of animal experiments as a matter of animal welfare because of their potential impact on animals’ physical and psychological well-being has been countered with the discussion of such experiments as indispensable for the advancement of medicine (Furness, 2012; O’Neill, 2006). Another issue where the belief in medical progress could be said to have been invoked is stem cell research where the role of such research for medical advances has been emphasised in response to discussions which present
stem cell research in terms of disregard for the value of the sanctity of human life (Hug, 2006).

The core problem according to the ‘medical progress’ frame was weight. Weight was positioned as problematic when news articles announced how ‘being fat is as harmful as smoking’ (sueddeutsche.de, 2010a) and spoke of ‘carrying around too many pounds’ (sueddeutsche.de, 2010a) or described weight as ‘a ground for concern for people of all ages’ (sueddeutsche.de, 2010b). Weight also emerged as problematic when news articles cited statistics showing that ‘more than half of the German population carries too many kilos’ (Jiménez, 2010), asked ‘why are we fat?’ (Jiménez, 2010) or reported on the discovery of ‘two different genetic systems (...) where fat is stored’ (Jiménez, 2010). Other news articles problematized weight by discussing how ‘it is still unclear whether a fall in oestrogen levels is a cause or merely the result of weight gain’ (welt.de, 2011). Weight was also in the spotlight when the case of two ‘severely obese children’ (Henderson, 2009) who had been diagnosed with ‘a missing segment of DNA (...) causing their weight to be in the top 1 to 2 per cent for their age’ (Henderson, 2009) was reported.

Weight was further presented as problematic when news articles within this frame featured formerly obese people and reported how they had ‘wanted so much to be thin’ (Bild.de, 2011a) and how they had achieved weight loss with the help of surgery. One formerly obese person was quoted saying that she ‘now wants to help others to lose weight’ (Beilke, 2011) and another one was quoted sharing how ‘dreams of having normal clothes, a friend and a job’ (Beilke, 2011) had started coming true after a sleeve gastrectomy. In a similar vein of presenting weight as an impediment to personal happiness, another news article informed that with the help of weight loss surgery ‘the fattest man in the world (...) now lost 190 kilos and is hoping for a second chance in love’ (Bild.de, 2011b). Elsewhere news articles reported on ‘the world’s fattest teenager’ (Bild.de, 2010a) and communicated that weight is the core problem by discussing how his mother ‘had almost fattened him to death’ (Bild.de, 2010a) but his ‘stomach was reduced, fat was removed by liposuction’ (Bild.de, 2010a).

In terms of what causes weight gain, various factors were recognised as potential contributors from an individual’s biological or genetic make-up or even a
virus affecting these to personal behaviour to do with activity and eating. In terms of biological or genetic make-up, one news article reported that ‘the origin of obesity lies in the genes (...) experts estimate that between 40 and 70 per cent of the risk for obesity is inherited’ (Jiménez, 2010). Another news article discussed genetic deletion - a mutation causing obesity that ‘may be common among children who are extremely obese’ (Henderson, 2009) and a different one proposed biological explanations for obesity, specifically that ‘a sex hormone is a possible cause’ (welt.de, 2011). Another news article discussed a virus as the possible cause of obesity - ‘there is now growing evidence that a virus which attacks the lungs and the eyes may also play a role’ (sueddeutsche.de, 2010b).

Additionally, aspects of personal behaviour to do with activity and eating were acknowledged as potential causes of obesity including: physical inactivity; eating unhealthy food; overeating; and comfort eating. With respect to physical inactivity, a woman was quoted saying that ‘because you don’t move, you are getting even fatter’ (Beilke, 2011). In terms of eating unhealthy food, a person who had started taking the weight loss drug Alli was quoted saying that he found it difficult ‘to eat healthy meals’ (Templeton, 2009). Regarding overeating, a weight loss surgery candidate was said to have ‘been eating around the clock for years’ (Bild.de, 2011b). Finally, regarding comfort eating the same weight loss candidate was described as one who ‘comforts himself with food’ (Bild.de, 2011b).

The ‘medical progress’ frame also saw obesity as a physical health problem with implications for the wider economy. Worries about the consequences of obesity for physical health were expressed when obesity was described as ‘a significant risk factor for menacing diseases like adult onset diabetes and cardiovascular disease’ (Jiménez, 2010) or a trigger for ‘many subsequent problems including heart and liver diseases and diabetes’ (sueddeutsche.de, 2010b) or when news articles reported that ‘severe overweight shortens the life expectancy of young people as much as smoking’ (sueddeutsche.de, 2010a). Weight was described as physically disabling as in the case of an obese person whose ‘weight was so aggravating problems with his lower back he could no longer bend down’ (Templeton, 2009) or as in the case of another obese person who ‘because of his weight, 380 kilos, Billy could hardly move (...) if it went on like that, Billy would die soon’ (Bild.de, 2010a). Additionally, news articles expressed
worries about the consequences of obesity for the economy: ‘the direct cost of obesity and related illnesses to the NHS is £4.3 billion a year and millions more to the wider economy’ (dailymail.co.uk, 2010a).

To solve obesity, news articles proposed drugs and surgery as well as changes in dietary/eating habits and exercise but only in so far as they are needed to support and sustain the effects of drugs and surgery. Specifically, news articles spoke of ‘new therapies and drugs’ (Jiménez, 2010) and ‘the discovery of new drugs’ (welt.de, 2011). News articles instilled a belief in the power of medical research to provide a solution to obesity by reporting how researchers are ‘on the way to discovering a wonder drug (...) researchers have found a way to genetically prevent the formation of white fat cells - and with that the basis for overweight’ (sueddeutsche.de, 2010c) or ‘when will there finally be a pill that makes us slim? (...) The good news: researchers from Potsdam have come one step closer!’ (Bild.de, 2011c) or announcing that ‘here comes the fat buster pill’ (Templeton, 2009). One news article quoted a person who had been taking a weight loss pill and had lost weight saying ‘I feel younger, I feel like I am on top of the world right now’ (Templeton, 2009), thus suggesting that weight loss aided by pills is life-changing.

News articles also conveyed the life-changing power of surgery by describing the life of a woman before weight loss surgery as ‘her life stood still’ (Beilke, 2011) and quoting her saying ‘You sweat. Your heart races. Your knees fail’ (Beilke, 2011). After surgery ‘already after the first four weeks 30 kilos were gone (...) her weight started steadily going down and her zest for life up’ (Beilke, 2011) and she was quoted saying ‘I know I can achieve anything that I want!’ (Beilke, 2011). Another news article was dedicated to the fattest man in the world who had via surgery ‘lost 190 kilos and is hoping for a second chance in love’ (Bild.de, 2011b). In addition to being presented as a life-changing solution, surgery was described as cost efficient. News articles reported that ‘if 5 per cent of eligible patients were given weight loss surgery, the gain to the economy (...) would be £382 million’ (dailymail.co.uk, 2010a) and the government could expect ‘reduction in benefits payments (...) as people head back to work’ (dailymail.co.uk, 2010a). A surgeon was quoted describing surgery as a ‘cost effective and proven successful method of treatment’ (dailymail.co.uk, 2010a).
The upbeat presentation of surgery as a cost effective and proven successful method of treatment was not tarnished even by the possibility of it going wrong. One news article told the story of a woman who had died of multi-organ failure shortly after gastric bypass surgery. It featured statements by the surgeon who had performed the operation saying that ‘gastric bypass surgery carries a one per cent risk of death’ (Thornhill, 2011a) and reminding that the surgery was this woman’s last chance of losing weight - ‘she told me she had been overweight for many years and tried many ways to deal with it to no avail (...) she admitted that she had been overeating’ (Thornhill, 2011a).

In addition to drugs and surgery, news articles reported on the role of personal behaviour as a factor in solving obesity, but drugs were again featured as aiding these efforts. For example, a representative of Alli’s maker GlaxoSmithKline was quoted in a news article saying that ‘for every 2lbs (0.9kgs) someone can lose through healthy eating and exercise, Alli could help them lose an extra 1lb on top of that’ (Rose, 2009).

As to moral evaluations, obese individuals were explicitly absolved of blame on some occasions. One news article quoted a surgeon saying ‘patients do not choose to have surgery because it is an easy option; they have it because all other methods have failed’ (dailymail.co.uk, 2010a). On other occasions that was not the case. A news article which considered why pharmaceutical weight-loss methods may not always work explained this with individuals’ shortcomings. A doctor was quoted saying ‘Alli may not fare so well, because many people will not persevere with treatment for long enough to see the benefits’ (Templeton, 2009) and thus, people’s lack of perseverance was implicated. Thus, while some news articles in the ‘medical progress’ frame argued that obese people should not be blamed for seeking easy ways out, referring to the view that surgery is a method ‘to “cheat” at weight loss and avoid the bodily work of diet and exercise’ (Throsby, 2009, p. 201), others blamed obese people’s lack of perseverance.

It should additionally be noted that when it comes to the argument that obese people go for weight loss surgery ‘because all other methods have failed’ (dailymail.co.uk, 2010a), it has been argued that even by just positioning weight loss surgery as the final available option when everything else has failed obese people are exposed to negative moral evaluations. Throsby (2009) in particular
has written about the moralising implications of constructing ‘a hierarchy of condoned practices, with access to those further up the hierarchy made contingent on documented failure with interventions further down’ (p. 201) and has discussed how the positioning of surgery at the top of this hierarchy may expose obese people to ‘the moral censure of others’ (p. 201). In other words, when surgery is understood as the only available option when everything else has failed surgery may be seen as a signal of consistent failure to lose weight.

While some propositions of the ‘medical progress’ frame, for example, drugs as a solution to obesity would have been easy to communicate visually, this frame found no visual expression.

The vocabulary that characterised the ‘medical progress’ frame is presented in Table 5.1 below.

<table>
<thead>
<tr>
<th>Frame Element</th>
<th>Medical Progress Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem Definition</td>
<td>Obesity - defined as a problem of ‘weight’.</td>
</tr>
<tr>
<td>Consequences</td>
<td>for ‘the economy’, for ‘physical health’</td>
</tr>
<tr>
<td>Solutions</td>
<td>‘drugs’ and ‘surgery’ as well as ‘change in dietary/eating habits’ and ‘exercise’ in so far as they are needed to sustain the effects of drugs and surgery or as aided by the effects of drugs</td>
</tr>
<tr>
<td>Moral Evaluation</td>
<td>Unclear: People do not choose to have surgery because it is an easy option, but because it is their only option left. However, if medical treatment does not lead to weight loss it is because of deficiencies in people’s perseverance.</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>(extreme/rising/severe) obesity, (severe) overweight, obese, obesity epidemic, tackling obesity, body mass index (BMI), waist to hip ratio (WHR), to (gain/lose) weight, (body/healthy/normal) weight, weight loss surgery/operations, overweight/obese patients, corpulent, fat, (new/wonder/slimming) drug</td>
</tr>
<tr>
<td>Visuals</td>
<td>No visual expression identified.</td>
</tr>
</tbody>
</table>

In addition to the ‘medical progress’ frame, another frame similarly positioned weight as the core problem defining obesity as an issue. Yet, while the ‘medical progress’ frame recommended medical/pharmaceutical solutions, this other obesity frame focused entirely on personal behaviour with regard to eating and physical activity as the key to solving obesity.
5.2.2 The Self-control Frame

This frame was constructed around the value of self-control referring to the ability to control one’s emotions, actions and desires in order to obtain a reward or avoid a punishment. This value is related to discussions of willpower, a quality of personal character or ‘a kind of moral muscle’ (Henley, 2012), which is believed to be amenable to change if one puts effort into it (Henley, 2012). Belief that self-control and willpower can be altered finds expression in the abundance of tips on how to learn self-control or further build it up by exercising it (Baumeister & Tierney, 2011). Additionally, self-control is a vital part of Christian life. Both Catholic and Protestant practices treat self-control as a very desirable quality (Alwin, 1986; Arruñada, 2010), a basic value that every Christian child should be taught (Habenicht, 2000).

In terms of issue framing, the value of self-control can, for example, be detected within discussions of problem drinking where exercising self-control and restraint has been recommended as a solution, often by juxtaposing it to views of problem drinking as a medical condition that needs to be addressed by medical and pharmaceutical means (Measham, 2011).

The core problem according to the ‘self-control’ frame was weight. Weight was problematized when news articles discussed how ‘mums are just “eating for two” and piling on the pounds’ (Smyth, 2011) and a National Obesity Forum (NOF) representative was quoted saying that ‘it is a huge problem getting mums to the right weight’ (Smyth, 2011). Another news article discussed how a married couple ‘were warned last year that they had to bring their six children’s weight under control’ (Linklater, 2009). A family ‘who together weigh 80 stone (…) and say they are unable to work because they are too fat’ (Johnston, 2009) were the subject of a different news article. Yet another news article shared the recollections of a formerly obese man about his doctor always telling him ‘you see Marcus, the problem is, you’re so terribly fat’ (Barber, 2011). A formerly obese dad was quoted elsewhere saying ‘I didn’t want people to tease him about having a fat father’ (Bild.de, 2011d) referring to his son and his motivation to lose weight. Elsewhere it was discussed how ‘passengers too large to fit comfortably in a coach seat’ (Keenan, 2009) compromise the comfort of their neighbours and may pose a safety
risk - an obese person would take ‘more time to get out of their two seats’ (Keenan, 2009).

Weight was also problematized when news articles discussed how ‘a lean population of one billion would emit 1,000 million tonnes less carbon dioxide per year than a “fat” nation of the same size’ (dailymail.co.uk, 2009) and it was stated that ‘we need to be doing a lot more to reverse the global trend towards fatness’ (dailymail.co.uk, 2009). One news article quoted a researcher from the London School of Hygiene and Tropical Medicine saying ‘staying slim is good for your health and for the health of the planet’ (Jha, 2009). Weight was in the spotlight in statements that ‘fat people are to blame for the climate disaster’ (Bild.de, 2009). Other news articles problematized weight when stating that ‘according to a study fat people burden the healthcare system with €17billion per year’ (Bild.de, 2010b), advising people to beat their “fat genes” and lose weight’ (dailymail.co.uk, 2011a) or reporting how ‘the German Teachers Association (DL) demands that German school doctors regularly weigh pupils’ (Ernst, 2010).

The ‘self-control’ frame identified physical inactivity, eating unhealthy foods, overeating and comfort eating as causes of obesity. Physical inactivity featured as in ‘he lazes around, he eats - and the tax-payer will pay the bill’ (Bild.de, 2011e) or when a news article author described how during a 90-minute interview with an obese family they were all ‘stationary’ (Johnston, 2009), the mother tried to pass a magazine to her daughter ‘but cannot reach, so gives up’ (Johnston, 2009). Descriptions of obese people’s menus as consisting of ‘mornings three sausage rolls, for lunch a mega portion of pasta, afternoons two giant pieces of cream cake’ (Grothmann, 2011), reports that obese people use food to ‘cope with a bewildering range of emotions’ (Barber, 2011), discussions about mothers ‘eating for two and piling on the pounds’ (Smyth, 2011), references to ‘the enormous costs that result from excessive food consumption’ (Bild.de, 2010b) and descriptions of ‘Lucozade, tomato ketchup and Gaviscon’ (Johnston, 2009) as ‘a veritable holy trinity of overconsumption’ (Johnston, 2009) implicated eating unhealthy foods, overeating and comfort eating as causes of obesity.

Additionally, genetic or biological factors were seen as being possible to overcome by taking control over one’s eating and physical activity. In one news article the explanation of obesity with genetic factors was rejected as an excuse:
obesity is avoidable (…) the fat gene can be beaten … in the gym (…) stop using your genes as an excuse’ (Macrae, 2010). Another news article stated that ‘it is all too easy to tell ourselves that being plump is in our genes’ (dailymail.co.uk, 2011a) and referred to research evidence showing that ‘we are not slaves to our genes’ (dailymail.co.uk, 2011a) and even though one may inherit a genetic make-up making them prone to obesity, ‘being active’ (dailymail.co.uk, 2011a) is a proven helpful method ‘in melting away fat’ (dailymail.co.uk, 2011a). This same news article also reported that ‘in those who exercised, the gene only raised the odds 22 per cent’ (dailymail.co.uk, 2011a) referring to a gene that may be causing obesity.

The ‘self-control’ frame saw obesity as a physical health problem but also an issue with psychosocial consequences for obese people and with implications for the wider economy, the environment and the comfort/safety of other people. Starting with the economic consequences of obesity, statements that: ‘fat people burden the healthcare system with €17billion per year’ (Bild.de, 2010b); ‘the direct health care cost of obesity in Illinois is over $4billion, and that is expected to rise to $14billion or more by 2018’ (Thornhill, 2011b); ‘£100,000 (€110,000) yearly are due for the subsistence and care for the 444 kilogram man, the heaviest in the world’ (Bild.de, 2011e); and ‘gastric surgery will cost additional £20,000 (€22,000) so that he can lose weight and live’ (Bild.de, 2011e) highlighted obesity’s impact on the economy.

The consequences of obesity for the environment were highlighted when news articles reported that ‘being overweight is bad for the environment as well as your health (…) obesity causes global warming (…) moving about in a heavy body is like driving around in a gas guzzler’ (dailymail.co.uk, 2009). One news article discussed ‘carbon emissions fuelled by high rates of obesity’ (Jha, 2009), how ‘high rates of obesity (…) cause up to 1bn extra tonnes of greenhouse gas emissions every year’ (Jha, 2009) and how ‘staying slim is good for your health and the health of the planet’ (Jha, 2009). A different news article stated that ‘every fat person, as compared to a slim person, is responsible for producing an additional tonne of harmful gasses’ (Bild.de, 2009).

Concern about the consequences of obesity in terms of its impact on obese people’s physical and psychological health were also expressed. News articles reported that ‘10 per cent of stillborn babies were born to very overweight
mothers, a clear sign of the health consequences of Britain’s obesity epidemic’ (Smyth, 2011), ‘overweight attacks the heart and increases the risk of high blood pressure, diabetes, cancer, asthma’ (Ernst, 2010) and ‘overweight puts a strain on the physical and psychological health of a child’ (Ernst, 2010). Yet, while news articles acknowledged psychological consequences for obese people, they endorsed solutions involving change on the part of obese people. For example, a news article reported ‘how “monster” jibes made morbidly obese man shed the pounds’ (dailymail.co.uk, 2011e).

News articles also discussed the consequences of obesity in terms of the compromised comfort/safety of other people, specifically of passengers sitting next to someone obese. One news article quoted an airline representative saying that ‘in 2008 alone there were 700 complaints’ (sueddeutsche.de, 2010d) from passengers who ‘had an uncomfortable flight’ (sueddeutsche.de, 2010d) because of sitting next to an obese person who took up a proportion of their seat. Passengers were quoted saying ‘with an obese person resting half their body on yours, it is just unbearable’ (Keenan, 2009) and ‘when the flight attendants put large people in the exit row to give them more room, I think that affects everyone’s safety on the aircraft’ (Keenan, 2009) - ‘it would take a bigger person more time to get out of their two seats’ (Keenan, 2009). The case of a passenger who had ‘suffered a haematoma in her chest, torn leg muscles and a crippling form of sciatica’ (Keenan, 2009) as a result of being ‘crushed’ (Keenan, 2009) by an obese person sitting next to her on a flight was also reported.

With respect to solutions, news articles focused on personal behaviour and included advice to diet/eat less or change one’s eating and exercise. Advice to diet/eat less emerged from the testimonies of formerlly obese people as in: ‘I was put on a diet of three meals a day, no sugar, no white flour’ (Barber, 2011); ‘swimming, running, fitness and walking the dog “Lady” and, in addition to that, a strict diet’ (Grothmann, 2011); ‘I counted the calories (...) I banned Coke from the fridge and ate at most a few pieces of chocolate rather than a whole bar’ (Bild.de, 2011d). A news article which spoke about the time when ‘the fattest man in the world’ (Bild.de, 2011e) was ‘almost slim’ (Bild.de, 2011e), which happened to be while in prison, implied that a change in his eating habits had led to the weight loss. His sister was quoted saying ‘in prison, there simply was no fish and chips or
Chinese takeaway (...) He had no other choice but to eat normal and healthy food’ (Bild.de, 2011e). These testaments implied that weight loss is a matter of taking control over one’s eating.

News articles also recommended exercise as a solution and: exhorted that ‘you CAN beat your “fat genes” (...) with exercise (...) exercise cuts the effects of the FTO gene’ (dailymail.co.uk, 2011a), referring to the fat mass and obesity (FTO) gene on human chromosome 16; reported that the view of ‘genetically determined obesity as not amenable to exercise is incorrect’ (dailymail.co.uk, 2011a); confirmed that ‘exercise can melt away muffin tops and bingo wings - even in those unlucky enough to have inherited genes that make them prone to plumpness’ (Macrae, 2010); or suggested that, in order to achieve weight loss, ‘people don’t have to run marathons to make a difference either. Walking the dog or working in the garden all counts’ (Macrae, 2010).

Punitive approaches, particularly legal punishments and financial penalties were also discussed as appropriate solutions, especially when people had failed to follow other advice and lose weight or when they had failed to ensure that dependents under their care lost weight. Such approaches included: reports that ‘social workers remove new-born baby from obese mother’ (Linklater, 2009) on fears that it is at risk of becoming obese; proposals that ‘if messages to parents of overweight children fall on deaf ears, child protection services must be informed and as a measure of last resort child benefits or Hartz IV should be discontinued’ (Ernst, 2010), because ‘when parents fail to provide a healthy diet and enough exercise for their children, in extreme cases it already is the beginning of child abuse’ (Ernst, 2010); and proposals ‘to force parents of chunky children to lose their tax breaks’ (Thornhill, 2011b) because ‘hitting people in their pockets is the way to slim down the country’ (Thornhill, 2011b) and ‘it’s the parents responsibility that have obese kids’ (Thornhill, 2011b). As a side note, the term Hartz IV mentioned above refers to unemployment benefits for long-term unemployment - over one year.

Other financial penalties included ‘a chocolate tax’ (Bild.de, 2010b) proposed in a news article with the headline ‘fat people must pay more’ (Bild.de, 2010b) and a statement by a representative of the German Christian Democratic Union (CDU) saying ‘I find it reasonable that people who live unhealthy should also
bear a responsibility in financial terms’ (Bild.de, 2010b). News articles also discussed proposals to make obese passengers pay more when they travel - ‘fat people have to pay double’ (sueddeutsche.de, 2010d) and ‘passengers too large to fit comfortably in a coach seat may be required to buy a second ticket’ (Keenan, 2009) because when an obese person is seated in a single seat that would mean that their neighbour ‘had an uncomfortable flight’ (sueddeutsche.de, 2010d).

In terms of moral evaluations, the ‘self-control’ frame negatively evaluated obese people. A news article reported that ‘experts are alarmed that increasing numbers of obese women are putting their babies’ lives in danger’ (Smyth, 2011) implying irresponsibility. Mississippi, the state with the highest obesity rate in the US, was referred to in another news article as ‘the worst offender’ (Thornhill, 2011b) invoking notions of crime. Another news article demanded of obese people to ‘stop using your genes as an excuse’ (Macrae, 2010) and commented that ‘it is too easy to tell ourselves that being plump is in our genes’ (dailymail.co.uk, 2011a) suggesting that obese people are looking for excuses rather than taking control of their eating and physical activity. Obese people were even blamed for global warming - ‘melting ice-caps, desertification and endangered animals - because fat people are filling up their bellies?’ (Bild.de, 2009) questioned a news article author and added that obese people also go to supermarkets by car, thus driving up carbon emissions. This latter description appeared to imply that obese people are selfish and put personal comfort before the planet’s future.

Additionally, the ‘self-control’ frame found visual expression. News articles featured photographs displaying images of food, including take-away boxes (Thornhill, 2011b) and burgers and fries (Jha, 2009) which images visually expressed the proposition that consumption plays a role both as a cause and a solution to obesity. The image of an obese person measuring him/herself with a tape measure (dailymail.co.uk, 2009) and thus, visually problematizing weight was also encountered.

The vocabulary that characterised the ‘self-control’ frame is presented in Table 5.2 below.
Table 5.2 The Self-control Frame

<table>
<thead>
<tr>
<th>Frame Element</th>
<th>Self-control Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem</td>
<td>Obesity - defined as a problem of 'weight'.</td>
</tr>
<tr>
<td>Definition</td>
<td>Individuals are out of control - they are 'eating unhealthy foods', 'overeating', 'comfort eating', they slip into 'physical inactivity'. 'Biological/genetic' factors may lead to weight gain, but should not be used as an excuse for being obese.</td>
</tr>
<tr>
<td>Causes</td>
<td>for 'the economy', for 'the environment', for 'physical health', for the 'comfort/safety' of other people (fellow passengers), 'psychosocial'</td>
</tr>
<tr>
<td>Solutions</td>
<td>'change in eating', 'diet/eat less', 'exercise', but also 'legal punishment' and 'financial penalty' for failure to do the former</td>
</tr>
<tr>
<td>Moral Evaluation</td>
<td>Explicitly judgmental towards obese people: Obese people are irresponsible, criminal, selfish, looking for excuses for their obesity.</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>obesity, overweight, to weight, the right weight, weight control, to bring weight under control, to battle with weight, to keep one’s weight down, to pile on the pounds, excessive food consumption, to slim down, to shed the pounds, to shift the extra pounds, a sin tax, a fat tax, rolls of fat, flab, fat pads, bulging waistlines, muffin tops, bingo wings, dress size, obese, corpulent, fat, large (people), bigger (people), portly, couch potatoes, chubby, chunky, with ample girth, Tellytubbies</td>
</tr>
<tr>
<td>Visuals</td>
<td>depictions of 'foods/drinks', 'tools measuring size/weight'</td>
</tr>
</tbody>
</table>

While both the ‘medical progress’ and the ‘self-control’ frames identified weight as the core problem at the heart of obesity as an issue, another frame suggested that physical fitness may be as important as weight. The distinguishing characteristic of this frame was that it focused on information - the lack of information and education or the inadequate provision of information and education as the key to understanding obesity.

5.2.3 The Education Frame

This frame was built around the belief in the power of education in terms of the capacity of education to bring about positive change in the lives of individuals and to empower them to make better informed decisions about various aspects of their lives. Belief in education is related to beliefs that education brings about social change and social development which beliefs underlie the work of many charities (Gold & Porritt, 2004). Education and knowledge are further believed to be empowering in political terms which comes across from statements like
‘knowledge is power, and education is the fundamental precondition for political development, democracy and social justice’ (Schaeffer, 2012).

Belief in the power of education additionally extends to the belief that through education and access to information people’s awareness of problems and what causes them will be improved and they will consequently be more likely to act to solve them. Thus, proposals in the context of the acquired immunodeficiency syndrome (AIDS) for sex education in schools and education about the use of condoms have rested on the belief that the provision of information will eventually lead to solving AIDS (FrameWorks Institute, 2002). This belief in the power of education has also been applied in the context of climate change where it finds expression in discussions of how education, specifically ‘the power of education’ (Dyster, 2013), can equip people ‘with the skills to help combat climate change’ (Dyster, 2013).

The core problems defining obesity as an issue according to the ‘education’ frame were weight and fitness. Weight was constructed as problematic when news articles referred to ‘fat pupils’ (Bild.de, 2011f), ‘fat children’ (Bild.de, 2011f), people who are ‘too fat’ (Ehrenstein, 2011) and reported that ‘with every excess pound (...) the risk of diabetes, heart attack and cancer rises’ (Ehrenstein, 2011). One news article implied that weight is problematic by referring to weight loss as a measure of the success of an education initiative - the Ministry of Food cooking classes in the UK. This news article stated that ‘of the 6,500 people taught last year, almost all will have a story to tell about how it changed their lives (...) helped them lose weight’ (Oliver, 2010). Another news article with the headline ‘supermarket lessons for fat families’ (Carter, 2011) described lessons which teach parents how ‘to set weight-loss goals (...) and help families to become fitter’ (Carter, 2011), thus drawing attention to weight but also fitness.

In terms of causes, the focus was on people’s lack of knowledge or information about nutrition, food preparation and food content. A news article discussed lack of knowledge about food preparation and nutrition - ‘children cannot even spread butter on a slice of bread (...) lack basic skills in the kitchen (...) have not heard about a healthy diet’ (Ehrenstein, 2011). A different news article implied that it is the lack of knowledge about healthy foods which causes obesity by reporting on ‘supermarket lessons for fat families’ (Carter, 2011) which
provide ‘free practical advice about healthy eating’ (Carter, 2011). Other news articles discussed ‘compulsory “traffic light” warnings on food packs to steer shoppers away from an unhealthy diet’ (Poulter, 2010) and reported that ‘restaurants and pubs could be forced to list calories for every meal and drink on the menu (...) under Government plans to tackle obesity’ (dailymail.co.uk, 2010b) in order for ‘the public to be made more aware of exactly what they are eating in the hope that they will chose healthier diets’ (dailymail.co.uk, 2010b).

The ‘education’ frame also saw obesity as a physical health problem with consequences for the wider economy. News articles discussed ‘the costs associated with healthcare and drug prescribing for people with the range of conditions associated with weight problems’ (Carter, 2011) and stated that ‘obesity and related diseases (...) cost the NHS more than £4bn a year’ (Oliver, 2010) and ‘with every excess pound the risk of diabetes, heart attack and cancer increases’ (Ehrenstein, 2011).

Solutions within the ‘education’ frame focused on information and education provision, specifically in terms of nutrition and food preparation education and disclosure of nutritional content on menus and food labels. Nutrition education featured in a news article announcing that ‘the AOK (Germany’s largest health insurance company) in cooperation with the federal state plans to teach fat children about the right foods’ (Bild.de, 2011f). Another news article discussed ‘supermarket lessons for fat families’ (Carter, 2011) which give ‘free practical advice about healthy eating (...) nutrition and how to maintain a balanced diet’ (Carter, 2011) and ‘encourage children to “turn detective” and investigate the contents of food products from their labels’ (Carter, 2011).

‘Food preparation certificates’ (Ehrenstein, 2011) were proposed as the solution to obesity elsewhere referring to certificates to be awarded to school children who pass a series of cooking classes. The news article discussing these certificates stated that ‘it is important to teach children the basics of healthy nutrition’ (Ehrenstein, 2011) and that ‘especially children from socially disadvantaged families lack nutrition knowledge (...) these children especially benefit from the cooking classes’ (Ehrenstein, 2011). The news article also said that ‘the food preparation certificate should help to stop this dangerous trend’ (Ehrenstein, 2011), referring to obesity. A similar proposal to teach people the
basics of food preparation was discussed in another news article focusing on a Ministry of Food project teaching British adults how to cook. The project was described as ‘not just successful (...) it changed lives (...) helped them lose weight’ (Oliver, 2010) but also cost efficient - ‘just a fraction of £4bn’ (Oliver, 2010) referring to the estimated per year cost of obesity and obesity-related diseases to the NHS.

Another solution which news articles discussed was the disclosure of nutritional content of foods and drinks on labels and menus. One news article focused on a proposal for adopting a system of “traffic light” warning labels (Poulter, 2010) on foods as a measure to ‘steer shoppers away from unhealthy diets (...) to tackle the problem of rising obesity and ill-health' (Poulter, 2010). The same news article expressed concern that if traffic light labels are not implemented people will ‘continue to be confronted by a range of confusing nutrition labelling schemes that are difficult to decipher’ (Poulter, 2010). The traffic light system was elsewhere described as ‘new rules for food labelling with which the EU intends to tackle overweight’ (welt.de, 2010). The latter news article stated that with traffic light labels it ‘should be possible to spot more quickly whether one’s favourite yogurt or Coke is full of sugar’ (welt.de, 2010) and traffic light labels ‘should allow consumers to recognise more quickly in the future whether a yogurt or a lemonade is a calorie bomb’ (welt.de, 2010).

News articles also reported that ‘restaurants and pubs could be forced to list calories for every meal and drink on the menu (...) under Government plans to tackle obesity' (dailymail.co.uk, 2010b). A British government representative was quoted saying that the goal of this initiative was ‘the public to be made aware of exactly what they are eating in the hope that they will chose healthier diets’ (dailymail.co.uk, 2010b). Another news article discussed a voluntary scheme which planned to ask takeaways, restaurants and canteens to disclose calorie counts of the foods/drinks they sell (Meikle, 2009). The same news article explained that there is evidence from the US that given information about calorie content ‘people are already cutting their intake (...) by nearly 100 calories a meal’ (Meikle, 2009). A Food Standards Agency (FSA) representative was also quoted saying that what is needed is ‘information in order to make decisions about what we, our children and everyone else eat' (Meikle, 2009).
News articles within the ‘education’ frame were not found to express any moral evaluations.

This frame did, however, find visual expression. Photographic depictions of food labels, specifically close-ups of traffic light food labeling (Poulter, 2010; welt.de, 2010) visually communicated one of the core propositions of the ‘education’ frame - that information provision can alleviate obesity by enabling people to make informed food consumption choices.

The vocabulary that characterises the ‘education’ frame is presented in Table 5.3 below.

Table 5.3 The Education Frame

<table>
<thead>
<tr>
<th>Frame Elements</th>
<th>Education Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem Definition</td>
<td>Obesity - defined as a problem of ‘weight’ and ‘fitness’.</td>
</tr>
<tr>
<td>Causes</td>
<td>‘lack of knowledge’ (about good nutrition and/or food preparation and/or food content)</td>
</tr>
<tr>
<td>Consequences</td>
<td>for ‘the economy’ and for ‘physical health’</td>
</tr>
<tr>
<td>Solutions</td>
<td>Informational solutions including (nutrition/food preparation) ‘education’ and ‘content disclosure’ (on menus/food labels).</td>
</tr>
<tr>
<td>Moral Evaluation</td>
<td>None identified.</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>(rising) obesity, overweight, war on obesity, obesity crisis, tackling obesity, to lose weight, to become fitter, calorie content, food labelling, traffic light warning labels, obese, fat, people who had never been taught (how to cook), supermarket lessons, calorie and nutrition information</td>
</tr>
<tr>
<td>Visuals</td>
<td>depictions of ‘food labels’</td>
</tr>
</tbody>
</table>

Similarly to the ‘education’ frame, another obesity frame - the ‘environments’ frame - identified both weight and fitness as fundamental to understanding obesity as an issue. Yet, to solve obesity it proposed changes to living environments and various factors within these environments rather than informational solutions.

5.2.4 The Environments Frame

This frame was built around the belief that people’s lives are affected by their living environments. This belief in the effect of environments on people's lives has been, for example, invoked in the disability discussion. It has been argued that the nature of built environments, mostly buildings and transport infrastructure, disables some people and prevents them from feeling fully integrated in society (Disability Wales, 2013). Defined in this way, the natural solution to integrating
disabled people is by creating a built environment that provides inclusive access to people with different needs (Goodall, 2010). This view of disability as a function of environments also opposes the view that disability has necessarily something to do with individuals' biological or genetic make-up (Keysor, 2006).

The core problems defining obesity as an issue according to the ‘environments’ frame were weight and fitness. Some news articles discussed the need to ‘encourage families to play and get fit together’ (Guardian.co.uk, 2009), thus drawing attention to fitness. Other news articles discussed ‘how work can make you fat’ (dailymail.co.uk, 2011b) or ‘how central heating is making you fat’ (dailymail.co.uk, 2011c), thus drawing attention to weight.

This frame discussed the causes of obesity that result from personal behaviour such as eating unhealthy foods and physical inactivity as influenced by living environments in general as well as by the availability of foods and opportunities for active living in particular. One news article discussed Mexico’s ‘stampede towards unhealthy eating’ (Tuckman, 2010) as ‘compounded by chaotic urbanisation that eats up open spaces’ (Tuckman, 2010). Findings that ‘in the last 15 years (...) consumption of sweetened drinks rose by 50%’ (Tuckman, 2010) were contextualised by saying that Mexico is ‘a country where few trust tap water’ (Tuckman, 2010). Thus, the lack of availability of trusted sources of clean water was implicated as a contributor to obesity via the consumption of sweetened drinks. Another news article spoke of the decline of physical activity as a contributor to weight gain because ‘the switch from labour-intensive jobs to sedentary office-bound (...) is leading to less calories being burned’ (dailymail.co.uk, 2011b) and quoted an exercise researcher saying ‘the work environment has changed so much we have to rethink how we’re going to attack this problem’ (dailymail.co.uk, 2011b), referring to obesity.

Another form of personal behaviour related to eating - overeating - was explicitly rejected as a possible cause of obesity in news articles within this frame. For example, a scientist was quoted in a news article saying: ‘the current obesity epidemic (...) is not caused by people being lazy or overeating’ (McKie, 2011); individuals have ‘much less choice in the matter of their weight than they would assume’ (McKie, 2011); and ‘modern living ensures every generation is heavier than the last. This is known as passive obesity’ (McKie, 2011).
News articles further positioned environments as contributors to obesity when they discussed how ‘offices and workplaces where the temperature is carefully controlled by air-conditioning units’ (dailymail.co.uk, 2011c) are ‘helping to send obesity rates soaring’ (dailymail.co.uk, 2011c) because staying in warm places prevents the burning off of calories to warm up naturally. Issues around the wide availability and affordability of certain foods as a cause of obesity emerged in discussions that ‘takeaways are fuelling junk food culture outside the school gate’ (dailymail.co.uk, 2010c) and statements that ‘several factors are blamed on the rise of obesity’ (McKie, 2011) and one of these is ‘the availability of cheap, high-calorie convenience foods’ (McKie, 2011).

In addition to living environments and the availability/affordability of foods and active living opportunities, advertising for foods/drinks, the size of pre-packaged foods/drinks and poverty were also discussed as causes of obesity. Exposure to advertising featured in discussions of how ‘junk food ads (...) increased during times young people were most likely to be watching’ (Bun, 2009) and how ‘each year McDonald’s sell more than $5 billion in kids’ meals on the back of toy give-aways’ (dailymail.co.uk, 2011d). Elsewhere the Health Commissioner for New York State, Richard Daines was quoted saying ‘sugary drinks are cheap, easily available and they are being advertised endlessly’ (sueddeutsche.de, 2010e). The large size of pre-packaged foods was implicated as in ‘chocolate bars could be made smaller to help fight obesity’ (Borland, 2009). Finally, ‘poverty’ (Cooper, 2011) was associated with obesity in a news article reporting on the findings of a study according to which there was a fall in obesity for families ‘who move to nicer area’ (Cooper, 2011), specifically ‘people who move to affluent areas are significantly less likely to end up obese’ (Cooper, 2011).

The ‘environments’ frame saw obesity as a physical health problem with implications for the wider economy. Concerns about the consequences of obesity for the physical health of obese people were communicated via statements like ‘obesity is a proven killer’ (Guardian.co.uk, 2009) or ‘according to estimates, every fifth child in the USA between six and 19 years is obese and thus is at an especially high risk of developing illnesses like diabetes or heart disease later in life’ (sueddeutsche.de, 2010e). Concerns about the consequences of obesity for the
economy were expressed via statements like - ‘the cost to the National Health Service estimated to reach more than £8.4 billion’ (Borland, 2009).

With respect to solutions, the ‘environments’ frame included: recommendations to change living environments as in ‘we need changes in many aspects of our environment to avoid the morbid consequences of overweight and obesity’ (McKie, 2011) and discussions of a need to ‘improve local environments to encourage cycling and walking’ (McIntosh, 2010); proposals to address the amount of television advertising about food that children are exposed to as in ‘limiting this food marketing is an important preventive strategy for childhood obesity’ (Bun, 2009); discussions of bans as in ‘fattening foods like sweetened sodas will soon be banned from vending machines and school canteens’ (sueddeutsche.de, 2010e) or discussions that if passed bans ‘would impose a $200 to $2,500 fine on any restaurant caught selling the toys with unhealthy meals’ (dailymail.co.uk, 2011d); and requests that food manufacturers reduce package sizes of foods/drinks ‘to make it easier for people to make healthier choices’ (Borland, 2009).

Altering the availability of certain foods also featured as a solution to obesity as, for example, in a news article which discussed how chicken shops and burger bars near schools will be asked to offer “healthier options” on their menus’ (dailymail.co.uk, 2010c) and ‘no new fried chicken shops and burger bars will be allowed to open within 400m of a school’ (dailymail.co.uk, 2010c) to discourage children from getting a ‘greasy treat’ (dailymail.co.uk, 2010c). These measures were justified as necessary because ‘despite making progress in making school meals healthier and teaching about healthy diets, takeaways are fuelling junk food culture just outside the school gate undoing much of that good work’ (dailymail.co.uk, 2010c). This idea of altering the availability of foods/drinks was also present in a news article which reported on demands that food vendors in the US should ‘include healthy options more predominantly (...) cut back on fatty ingredients (...) use low fat alternatives to combat childhood obesity’ (dailymail.co.uk, 2010d). The same news article quoted US First Lady Michelle Obama saying ‘parents’ choices need to be easier, and healthy options should not be buried on the menu’ (dailymail.co.uk, 2010d).

Proposals to make active living more affordable by providing free gym membership to children and low-income families by council-run fitness centres
was another solution which came up in news articles within the ‘environments’ frame as in ‘toddler in Liverpool are to be offered free gym membership in an attempt to tackle rising obesity levels’ (Guardian.co.uk, 2009) and ‘around 1,600 low-income families would also be given free Lifestyle membership’ (Guardian.co.uk, 2009).

With regard to moral evaluations, by drawing attention to the role of external factors on personal behaviour regarding eating and physical activity, by stating that people have ‘much less choice in the matter of their weight than they would assume’ (McKie, 2011) and ‘modern living ensures every generation is heavier than the last. This is known as passive obesity’ (McKie, 2011) and by explicitly stating that ‘the current obesity epidemic (…) is not caused by people being lazy or overeating’ (McKie, 2011), news articles in the ‘environments’ frame argued in favour of absolving obese individuals from the sort of judgmental attitude characterising the ‘self-control’ frame.

The ‘environments’ frame found no visual expression. This could be explained with the fact that it may not be easy to represent visually how environments, poverty or the availability/affordability of foods/drinks may contribute to obesity.

The vocabulary that characterised the ‘environments’ frame is presented in Table 5.4 below.
<table>
<thead>
<tr>
<th>Frame Element</th>
<th>Environments Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem</td>
<td>Obesity - defined as a problem of ‘weight’ and ‘fitness’.</td>
</tr>
<tr>
<td>Definition</td>
<td>Contributors to obesity are part of ‘environments’, have to do with issues around the ‘availability/affordability’ of foods/drinks/active living opportunities, the ‘advertising’ of foods/drinks, foods/drinks ‘package sizes’ or wider factors like ‘poverty’. ‘Physical inactivity’ and ‘eating unhealthy foods’ are constrained by matters of ‘availability/affordability’ and ‘environments’, while ‘overeating’ does not offer an adequate explanation for obesity rates.</td>
</tr>
<tr>
<td>Causes</td>
<td>for ‘the economy’ and for ‘physical health’</td>
</tr>
<tr>
<td>Solutions</td>
<td>‘change environments’, ‘change availability/affordability’ (of active living opportunities/foods/drinks), ‘change advertising’, ‘change package sizes’, ‘bans’</td>
</tr>
<tr>
<td>Moral Evaluation</td>
<td>Explicitly non-judgmental towards obese people: Obese people are not obese because they are lazy and overeat, but rather the social/built environment ensures every next generation is heavier than the previous.</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>(to fight against/combat/curb) obesity, tackling obesity, obesity epidemic, ban junk foods, ban the promotion of junk foods, junk food culture, concentrated poverty, healthy options on menus, obese, fat, getting fit, passive obesity</td>
</tr>
<tr>
<td>Visuals</td>
<td>No visual expression identified.</td>
</tr>
</tbody>
</table>

While the ‘medical progress’ and ‘self-control’ frames identified weight as the core problem defining obesity as an issue and the ‘education’ and ‘environments’ frames suggested that fitness in addition to weight is fundamental to understanding obesity, another frame suggested that a focus on weight is problematic - it may cause people to worry about the acceptability of their bodies potentially leading them into eating disorders and distracting them from worrying about physical fitness which is a better indicator of health.

### 5.2.5 The Acceptance Frame

This frame of obesity was built around the narrative of acceptance which revolves around the goal of self-acceptance and hopes for societal acceptance. This narrative could, for example, be traced to statements of the goals of the pro-ana movement, namely to accept anorexia by recasting as diversity weight-related traits that are typically condemned as a form of disease and used as a ground for discrimination (McColl, 2013). In the context of the pro-ana movement, the
narrative of acceptance finds expression in statements as to how the movement ‘advocates self-acceptance, healthy body image (...) and the acceptance of all people, regardless of what they look like’ (Internal Acceptance Movement, 2013).

The core problem according to the ‘acceptance’ frame was the focus in society in general and among obese people in particular on weight and on losing weight. This understanding of the core problem was communicated through observations that ‘with the coming of spring a new wave of diet tips floods the consumer’ (sueddeutsche.de, 2009) and observations that ‘fat people’s re-birth as thin’ (Häntzschel, 2010) is prescribed ‘as an inevitable obligation’ (Häntzschel, 2010) in televised weight loss shows. In a news article authored by Susie Orbach, a British psychotherapist made famous by her book ‘Fat is a feminist issue’, the perception that weight is an indicator of health, specifically that thinness is ‘a gold standard for health’ was criticised for ‘creating panic around size and shape’ and the status of thinness as a predictor of health was challenged with evidence that ‘overweight people who exercise have a lower mortality rate’ (Orbach, 2009). Thus, attention was rather drawn to physical fitness as a predictor of health.

The notion that it is the focus on weight rather than weight itself that is problematic was also communicated in a news article which said that ‘fat people’ (Häntzschel, 2010) do not want to hear diet tips any longer - ‘they are fat and proud of it’ (Häntzschel, 2010). This news article proposed that what is commonly referred to as an obesity epidemic is, in fact, the result of a natural process ‘people are living longer and older people are fatter’ (Häntzschel, 2010). The news article also summarised the history of the ‘fat-acceptance movement’ (Häntzschel, 2010) describing it as ‘a growing movement which fights against the obsession with thinness and discrimination’ (Häntzschel, 2010). The fat-acceptance movement was also referred to as ‘the counter-offensive of fat people’ (Häntzschel, 2010), which according to the news article author ‘comes at the right moment’ (Häntzschel, 2010) as nowadays ‘the fat person has become a symbol of personal and societal failure’ (Häntzschel, 2010).

The idea that a focus on weight may lead to worries about the acceptability of one’s body and may distract attention from health was especially prominent in a news article which told the story of a ‘sporty, super-fit, schoolboy tri-athlete’ (Shanahan, 2011) who had been declared clinically obese in a letter issued by the
UK’s NHS. The boy’s mother was quoted saying that he had asked her ‘if he was fat’ (Shanahan, 2011). She was also quoted saying that he must have come out obese because ‘he has a lot of muscle and muscle weighs more than fat’ (Shanahan, 2011). The boy had refused dinner the evening that the letter had arrived and his mother was quoted saying ‘that’s how slimming diseases start (...) labelling fit children “fat” could prompt harmful eating disorders’ (Shanahan, 2011).

In terms of the cause of the problem as described, namely a focus on weight which distracts attention from fitness - which is a better predictor of physical health, news articles in this frame pointed to society’s ‘obsession with thinness’ (Häntzschel, 2010; sueddeutsche.de, 2009) or a ‘cult of thinness’ (Orbach, 2009) which consists in beliefs that ‘with a perfect figure it will become possible to find the right friends and to be loved’ (sueddeutsche.de, 2009).

The ‘acceptance’ frame saw obesity as a psychosocial problem and explicitly rejected the negative physical health consequences of weight. One news article described as ‘a myth’ (Häntzschel, 2010) the negative health consequences of diabetes, high blood pressure and heart disease usually associated with excess weight. The same news article also stated that ‘fat people even live longer and are healthier (...) and it is not the body of the fat person that suffers, but their soul because of discrimination’ (Häntzschel, 2010).

With respect to solutions, acceptance of one’s body as the way forward was expressly recommended in a news article which stated that ‘especially for young people it is important to accept their own body instead of desiring to emulate beauty ideals’ (sueddeutsche.de, 2009). Another news article recommended ‘to see that fatness is as much - if not more than - an indictment of our culture as it is a site of individual “failure”’ (Orbach, 2009).

News articles within the ‘acceptance’ frame were not found to express moral evaluations.

The ‘acceptance’ frame found no visual expression which could be attributed to the fact that, similarly to the ‘environments’ frame, its key propositions may be hard to express visually.

The vocabulary that characterised the ‘acceptance’ frame is presented in Table 5.5 below.
Table 5.5 The Acceptance Frame

<table>
<thead>
<tr>
<th>Frame Element</th>
<th>Acceptance Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>Problem Definition</td>
<td>Society’s disproportionate focus on weight, which leads to worries about the acceptability of one’s body and distracts attention from the role of fitness for good health.</td>
</tr>
<tr>
<td>Causes</td>
<td>The ‘thinness obsession’ leads to a focus on weight.</td>
</tr>
<tr>
<td>Consequences</td>
<td>‘Psychosocial’. The potentially negative consequences of weight for ‘physical health’ are challenged and fitness is suggested as the ultimate predictor of health.</td>
</tr>
<tr>
<td>Solutions</td>
<td>‘Acceptance’ of one’s body instead of trying to emulate beauty ideals.</td>
</tr>
<tr>
<td>Moral Evaluation</td>
<td>None identified.</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>fat and proud of it, fat acceptance, fat pride, obsession with thinness, cult of thinness, worries about body size, the acceptability of bodies, fat, larger people, fit people</td>
</tr>
<tr>
<td>Visuals</td>
<td>No visual expression identified.</td>
</tr>
</tbody>
</table>

Finally, this study identified one frame of obesity, which differed from all obesity frames described so far in terms of how it defined the core problem. This frame did not discuss fitness and when it discussed weight it neither problematized it nor did it call for paying less attention to it. This frame of obesity very much focused on weight and identified excess weight and weight gain as sources of attraction and pleasure. The core problem according to this frame was that society sees such attitudes as deviant, the suggested solution that people holding such attitudes should come out.

5.2.6 The Coming Out Frame

This frame of obesity was constructed around the narrative of coming out short for coming out of the closet. This narrative has been employed to describe the social dynamics of gay and lesbian life and suggests that people who are in the closet live unhappy lives and would in principle want to privately and publicly come out, meaning to come to terms with their identity (Seidman, Meeks, & Traschen, 1999). There might, however, be various impediments both social and economic that make coming out difficult (Seidman, Meeks, & Traschen, 1999). The coming out narrative has been widely used beyond its initial origin by a variety of stigmatised groups including, for example, little people and old people to declare ‘their presence openly and without apology’ (Kitsuse, 1980, p. 8).

The distinguishing features of the ‘coming out’ frame were that the implications of weight gain were discussed 1) exclusively by women and 2) in
positive terms, specifically as an improvement to one’s physical appearance and sex appeal as in: ‘I feel more confident and sexier than ever. I notice that more men fancy me’ (Bild.de, 2011g) commented one woman; ‘I could feel the fat going back on. My tummy returned to its former glory - fat, soft and flabby, just how it should be’ (Cowell, 2010) said another one; or ‘gaining is very liberating’ (Cowell, 2010) added a third woman. A news article summarised how some people, in this case the three women who had been interviewed and were quoted above, ‘define weight gain in very sexual terms (...) for them, more fat means more sex appeal; the extra flesh that everyone else is attempting to shed fuels their desires’ (Cowell, 2010) and concluded about one of these women that ‘gaining is an intrinsic part of her sexual identity’ (Cowell, 2010).

Thus, the ‘coming out’ frame saw obesity as a matter of physical appearance and the negative consequences of weight gain for physical health were rejected - ‘people worry about health because it’s the easiest place to hang fat hatred’ said one of the women (Cowell, 2010) or challenged - ‘why not see how far I can go and still remain healthy? The fatter I get, the better I feel’ said another woman (Bild.de, 2011g). Psychosocial consequences of obesity were mentioned to account for the fact that some people prefer to keep their positive views regarding the implications of weight gain a secret. In this context, one interviewee was quoted saying ‘as a fat woman, I have experienced fat discrimination almost on a daily basis (...) going to parties and no one talks to me, being glared at while I’m eating in restaurants, the snickering in changing rooms in department stores’ (Cowell, 2010). The news article author followed with ‘there is still a huge amount of derision and discrimination towards the obese, so the decision to keep their gaining a secret isn’t really a surprise’ (Cowell, 2010).

Following from this, the core problem according to the ‘coming out’ frame could be defined as the tension between the positive consequences of weight gain experienced by some people and societal perceptions that enjoyment of weight gain is a form of deviance. As one of the news articles explained, ‘gaining is often linked to feederism; a topic that occasionally pops up as freakshow fodder in magazines, chat shows or documentaries’ (Cowell, 2010).

In terms of solutions, it was suggested that the solution is coming out. The issue of different costs of coming out faced by different people was also
acknowledged as in ‘her husband knows she is a gainer, as do friends (…)’ understandably, though, being an NHS employee, she cannot come out of the gaining closet completely’ (Cowell, 2010) or as in ‘she does not want to offer more ammunition to people by explaining the predilection’ (Cowell, 2010). Alternative examples were also discussed as in ‘Emma says that she is in the privileged position of “coming out” because she has little to lose: her partner will not leave her because of it, and she is unlikely to lose her job’ (Cowell, 2010).

News articles in the ‘coming out’ frame made no moral evaluations.

Also, this frame found no visual expression. This could be explained with the fact that similarly to the ‘environments’ and ‘acceptance’ frames the key propositions of the ‘coming out’ frame may be hard to communicate visually.

The vocabulary that characterised the ‘coming out’ frame is presented in Table 5.6 below.

Table 5.6 The Coming Out Frame

<table>
<thead>
<tr>
<th>Frame Element</th>
<th>Coming Out Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definition</td>
<td>Society sees the enjoyment of/attraction to weight gain as a form of deviance.</td>
</tr>
<tr>
<td>Causes</td>
<td>None identified.</td>
</tr>
<tr>
<td>Consequences</td>
<td>Weight enhances 'physical appearance'. ‘Physical health’ consequences of weight were challenged. Additionally, the ‘psychosocial’ consequences of being fat were acknowledged as making coming out difficult.</td>
</tr>
<tr>
<td>Solutions</td>
<td>‘coming out’ (about enjoying weight gain / finding weight gain physically attractive).</td>
</tr>
<tr>
<td>Moral Evaluation</td>
<td>None identified.</td>
</tr>
<tr>
<td>Vocabulary</td>
<td>to adore being fat, gaining, feederism, to gain weight out of one’s own volition, to voluntarily fatten oneself, feedee, gainer</td>
</tr>
<tr>
<td>Visuals</td>
<td>No visual expression identified.</td>
</tr>
</tbody>
</table>

To complete the presentation of the six above-described obesity frames of ‘medical progress’, ‘self-control’, ‘education’, ‘environments’, ‘acceptance’ and ‘coming out’, the following sub-section explicates their points of convergence and divergence.

5.2.7 Obesity Frames: Points of Convergence and Divergence

While the six above-described obesity frames differed with respect to what was seen as the key to a solution (e.g., medical progress, self-control, education, environments, acceptance or coming out) they all, with two exceptions, problematized weight when discussing what the key for understanding obesity as
an issue is. The ‘medical progress’ and ‘self-control’ frames problematized solely weight while the ‘education’ and ‘environments’ frames problematized fitness in addition to weight. In contrast, the ‘acceptance’ and ‘coming out’ frames did not view weight as problematic. The ‘acceptance’ frame defined the focus on weight not weight in itself as problematic and problematized fitness. The ‘coming out’ frame problematized neither weight nor fitness and discussed weight in positive terms. These points of convergence and divergence are visualised in Figure 5.1 below.

Figure 5.1 Points of Convergence and Divergence of the Identified Obesity Frames

Additionally, the ‘medical progress’, ‘education’ and ‘environments’ frames saw obesity as a physical health problem with implications for the wider economy. The ‘self-control’ frame similarly saw obesity as a physical health problem with implications for the wider economy but also with psychosocial consequences for obese people, with consequences for the wider environment in terms of global warming and with implications for the comfort/safety of other people. In sum, the ‘medical progress’, ‘self-control’, ‘education’ and ‘environments’ frames saw obesity as a physical health problem and expressed concerns about the consequences of weight or both weight and fitness for obese people's physical health. In contrast, the ‘acceptance’ and ‘coming out’ frames did not see obesity in terms of impact on physical health. The ‘acceptance’ frame viewed obesity as a psychosocial problem, challenged the negative consequences of weight for physical health and positioned fitness as a better predictor of physical health. The ‘coming out’ frame viewed obesity as a matter of physical appearance and rejected the idea that weight negatively impacts physical health.
Having described the obesity frames used in news articles from British and German media outlets, their coding in news articles from the total sample is discussed next.

5.3 From Frames to Variables and Back

This section covers two issues central to the execution of the second, *deductive phase* of frame analysis. First, this section explains how frame elements constituting obesity frames were presented as variables to be coded at the second, *deductive phase* of frame analysis. Second, this section describes the rules that were used to re-assemble frame elements back into frames, so as to answer Research Question 1.2 which is interested in the frequency with which obesity frames had been used in the total sample.

5.3.1 Breaking down Frames into Frame-related Variables

In order to assess the prevalence of the above-described obesity frames in the total sample, frame elements - the causes, consequences, solutions and visuals identified as being part of the discovered obesity frames - were presented as variables to be coded in a content analysis. As mentioned, propositions regarding problem definition and moral evaluation and examples of vocabulary use were not included in the *deductive phase* of frame analysis. To demonstrate how propositions about the causes of, consequences of and solutions to obesity and visual expressions of these aspects of frames were presented as variables an example follows.

As discussed, news articles within the ‘medical progress’ frame suggested a virus as the possible cause of obesity. Consequently, the summary table for the ‘medical progress’ frame listed ‘a virus’ under the category ‘causes’ as it represents one of the causes of obesity identified by news articles within this frame. At the *deductive phase* of frame analysis, ‘a virus’ was defined as a variable to be coded as present/not present and the description for this variable was accompanied with an excerpt from the relevant news articles analysed at the *inductive phase*. This procedure was followed for every proposition about the causes of, consequences of and solutions to obesity and their visual expressions listed in the six summary tables. Table 5.7 below lists all frame elements that were presented in an unordered list in a coding protocol available in Appendix 2. By an unordered list it is meant that variables were ordered not by the frame they belong to but
alphabetically which, as van Gorp (2010) has argued, should remove subjectivity from frame identification and analysis.

Table 5.7 Frame Elements Coded as Variables in a Content Analysis

<table>
<thead>
<tr>
<th>Cause</th>
<th>Consequence</th>
<th>Solution</th>
<th>Visual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advertising</td>
<td>Physical Appearance</td>
<td>Acceptance</td>
<td>Food Label</td>
</tr>
<tr>
<td>Affordability/Availability</td>
<td>Physical Health</td>
<td>Bans</td>
<td>Foods or Drinks</td>
</tr>
<tr>
<td>A Virus</td>
<td>Psychosocial</td>
<td>Change Advertising</td>
<td>Tools Measuring Size and Weight</td>
</tr>
<tr>
<td>Biological/Genetic</td>
<td>The Economy</td>
<td>Change Affordability/Availability</td>
<td></td>
</tr>
<tr>
<td>Comfort Eating</td>
<td>The Environment</td>
<td>Change Environments</td>
<td></td>
</tr>
<tr>
<td>Eating Unhealthy Foods</td>
<td>Comfort/Safety</td>
<td>Change in Eating</td>
<td></td>
</tr>
<tr>
<td>Environments</td>
<td></td>
<td>Change Package Sizes</td>
<td></td>
</tr>
<tr>
<td>Lack of Knowledge/Information</td>
<td></td>
<td>Coming Out</td>
<td></td>
</tr>
<tr>
<td>Overeating</td>
<td></td>
<td>Content Disclosure</td>
<td></td>
</tr>
<tr>
<td>Package Sizes</td>
<td></td>
<td>Diet/Eat Less</td>
<td></td>
</tr>
<tr>
<td>Physical Inactivity</td>
<td></td>
<td>Drugs</td>
<td></td>
</tr>
<tr>
<td>Poverty</td>
<td></td>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>Thinness Obsession</td>
<td></td>
<td>Exercise</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Financial Penalty</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Legal Punishment</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Surgery</td>
<td></td>
</tr>
</tbody>
</table>

5.3.2 Re-assembling Frame-related Variables into Frames

As this study is interested in the frequency with which obesity frames and not just individual frame elements were used (RQ1.2), rules were developed to guide the re-assembly of frame elements coded as variables back into frames. Since a number of frame elements were shared between several obesity frames and thus, ‘are not good indicators for measuring to what extent the frames are present’ (van Gorp, 2005, p. 496), only those frame elements which emerged as being unique to an obesity frame were used as a basis for establishing whether a given frame was used in a given news article. An example is provided below to demonstrate how this was done.

For example, physical activity was discussed as a solution to obesity in news articles within the ‘medical progress’, ‘self-control’ and ‘environments’
frames. It therefore represents a shared frame element. In contrast, only news articles in the ‘medical progress’ frame discussed ‘a virus’ as a cause of obesity. Thus, it constitutes a unique frame element. To draw attention to the unique frame elements based on which frame use was computed, Table 5.8 below presents them in bold.
Table 5.8 Unique and Shared Frame Elements

<table>
<thead>
<tr>
<th>Frame</th>
<th>Cause</th>
<th>Consequence</th>
<th>Solution</th>
<th>Visual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Progress</td>
<td><strong>A Virus; Biological/Genetic; Comfort Eating; Eating Unhealthy Foods; Physical Inactivity; Overeating</strong></td>
<td>The Economy; Physical Health</td>
<td><strong>Drugs; Surgery; Change in Eating; Exercise</strong></td>
<td>No visual expression identified.</td>
</tr>
<tr>
<td>Self-control</td>
<td>Biological/Genetic; Comfort Eating; Eating Unhealthy Foods; Physical Inactivity; Overeating</td>
<td>The Economy; Physical Health; Psychosocial; <strong>The Environment; Comfort/ Safety</strong></td>
<td><strong>Diet/Eat Less; Legal Punishment; Financial Penalty; Change in Eating; Exercise</strong></td>
<td>Foods or Drinks; Tools Measuring Size and Weight</td>
</tr>
<tr>
<td>Education</td>
<td><strong>Lack of Knowledge/ Information</strong></td>
<td>The Economy; Physical Health</td>
<td>Education; <strong>Content Disclosure</strong></td>
<td>Food Labels</td>
</tr>
<tr>
<td>Environments</td>
<td><strong>Package Sizes; Poverty; Environments; Affordability/ Availability; Advertising</strong></td>
<td>The Economy; Physical Health</td>
<td><strong>Change Environments; Bans; Change Affordability/ Availability; Change Advertising; Change Package Sizes</strong></td>
<td>No visual expression identified.</td>
</tr>
<tr>
<td>Acceptance</td>
<td><strong>Thinness Obsession</strong></td>
<td>Psychosocial; Physical Health</td>
<td><strong>Acceptance</strong></td>
<td>No visual expression identified.</td>
</tr>
<tr>
<td>Coming Out</td>
<td>None identified.</td>
<td>Psychosocial; Physical Health; <strong>Physical Appearance</strong></td>
<td><strong>Coming Out</strong></td>
<td>No visual expression identified.</td>
</tr>
</tbody>
</table>

Thus, in order to decide whether a news article featured, for example, the ‘medical progress’ frame, it was checked whether the news article mentioned at least one of
the frame elements unique to the ‘medical progress’ frame these being ‘a virus’, ‘drugs’ and ‘surgery’. If that was the case, the news article was considered to feature the ‘medical progress’ frame.

This approach of using the unique frame elements of each frame to trace its use in the total sample has at least two limitations. First, as can be seen from Table 5.8, the different frames have a different number of unique frame elements ranging from two in the case of the ‘acceptance’ and ‘coming out’ frames to ten in the case of the ‘environments’ frame. This means that potentially it could be that a frame like the ‘environments’ frame comes across as more frequently used than, for example, the ‘acceptance’ or ‘coming out’ frame simply because it has more unique elements. Second, a number of variables like ‘physical inactivity’ and ‘overeating’ - which can be expected to be mentioned often - are shared between several frames. This means that although possibly frequently mentioned, their mentions will not contribute to identifying the frequency of use of any frame.

Despite these possible limitations, the approach offers a straightforward way of tracing the use of the different frames in the total sample. The approach should be intuitive to understand and easy to communicate not only to researchers but also a more general audience. This was a consideration which influenced the adoption of this approach in the present study.

Before concluding this chapter and proceeding to report the frequency with which the described here obesity frames had been used in the total sample, the next section briefly reflects on the identified obesity frames.

5.4 Discussion
In this section, the six inductively identified obesity frames - ‘medical progress’, ‘self-control’, ‘education’, ‘environments’, ‘acceptance’ and ‘coming out’ - are considered from three perspectives: in the context of past research on obesity in the media; with respect to frames’ potential to advance an understanding of obesity in individualising or systemic terms - an issue that received much attention in past research; and in the context of framing theory.

5.4.1 Obesity Frames and Evidence from Existing Research
Three of the frames that were described here - ‘medical progress’, ‘self-control’ and ‘environments’ - are analogous to frames identified in existing research on obesity in the media. The ‘medical progress’ frame resembles Lawrence’s (2004)

The ‘medical progress’, ‘self-control’ and ‘environments’ frames also have analogies outside the confines of research on obesity in the media informed by framing. The ‘medical progress’ frame makes propositions analogous to those advanced in a medical model of fatness, within which obese people are seen as having medical problems that need treatment to enable them to fit in social and living environments (Brandon & Pritchard, 2011). The ‘self-control’ frame shares similarities with what Rail (2012) has identified as one of the dominant discourses on obesity, namely the personal responsibility discourse characterised by a focus on individual risk to physical health and a ‘neoliberal language of individual responsibility’ (p. 233). The ‘environments’ frame resembles Brandon and Pritchard’s (2011) social model of fatness which posits that it is environmental conditions that lead to obesity and that environments and society have to change in order to accommodate obese people, not vice versa.

The ‘education’ and ‘acceptance’ frames found no analogies in past research on obesity in the media in terms of previously identified frames but several existing studies have identified some of the frame elements of these frames. With respect to the ‘education’ frame, Hilton, Patterson and Teyhan (2012) identified ‘poor food labelling/education’ as one of the causes of obesity that news articles mentioned. Hawkins and Linvill (2010) found that providing education regarding healthy diets and exercise was discussed as a solution to obesity in news articles from their sample. With respect to the ‘acceptance’ frame, Saguy (2006) investigated, among other questions, the extent to which representatives of fat
acceptance organisations were present in news reporting and found that neither were they quoted nor were their views that it is better to be ‘fat and fit than skinny and sedentary’ (p. 228) reported.

Outside of media research informed by framing theory, the ‘acceptance’ frame finds support in research by Dickins et al. (2011) who interviewed bloggers active in the Fatosphere (an online community) in order to understand their experiences of coping with negative attitudes about excess weight. Dickins et al. (2011) reported that throughout these interviews a common trajectory of experiences became apparent. Gradually, the interviewees had started questioning the notion that thinness means good health until they ‘reached a crisis point at which they were no longer willing or able to go to these extreme measures to meet the thin ideal’ (Dickins et al., 2011, p. 1687), where extreme measures meant dieting. Interviewees reported that it was at this point that they had started to come to peace with their bodies by drawing on the concept of self-acceptance (Dickins et al., 2011).

Support for the ‘acceptance’ frame can also be found in the wider research, for example, in research on the Health at Every Size (HAES) movement by Dorfman and Wallack (2007) and in Kwan’s (2009) description of a social justice frame of obesity identified in materials published by the National Association to Advance Fat Acceptance (NAAFA). First, as Dorfman and Wallack (2007) have written HAES maintains that ‘physical fitness, not weight, is the key determinant of health’ (p. S47) and that programmes aimed at improving health should measure success in ways other than calculating weight and size. Second, according to the social justice frame discovered by Kwan (2009) it is in obese people’s best interest to avoid a focus on weight because health through fitness is attainable.

The only frame for which no analogy was found in the past research on obesity in the media either in terms of previously identified frames or in terms of previously studied frame elements was the ‘coming out’ frame. The ‘coming out’ frame as described here does, however, find support outside of media content-based research. The fact, for example, that Brandon and Pritchard (2011) have discussed the existence of different fat acceptance organisations ranging from ones where fat is simply accepted to ones where fat is positively admired could be interpreted as support for the existence of a unique ‘coming out’ frame such as the
one described in this study which by openly admiring weight goes beyond simple acceptance.

5.4.2 Obesity Frames: Individualising or Systemic?

The issue of whether obesity coverage advances an understanding of obesity in individualising or in systemic terms received much attention in past research - both in research that was informed by framing theory and in research that was informed by other theoretical perspectives. It is, therefore, appropriate to examine the identified here frames against these notions.

Starting with research informed by theoretical perspectives other than framing, Boero (2007) and Inthorn and Boyce (2010) found that obesity-related media content placed responsibility on individuals. Bastian (2011), De Brún, McKenzie, McCarthy and McGloin (2013), Maher, Fraser and Wright (2010) and Zivkovic, Warin, Davies and Moore (2010) were concerned about the disproportionate emphasis on the role of individuals and particularly parents, women and mothers in obesity prevention. Rich (2011) and Shugart (2011) found evidence that individual responsibility for obesity is emphasised in reality/entertainment programming and Townend (2009) warned that media discussions of obesity in moral terms may encourage public preferences for solutions that burden individuals. Campo and Mastin (2007) criticised the insufficient media attention to wider, environmental factors leading to obesity, while Evans, Renaud and Kamerow (2006) reported that people with higher BMIs and higher self-reported exposure to news are more likely to believe that obesity is caused by systemic factors (e.g., the cost of foods).


Lawrence (2004), in particular, who authored the first study on obesity in the media and who was the first to discuss obesity frames in terms of individualising and systemic solutions, has written that public health problems ‘become amenable to broad policy solutions’ (p. 56), which burden powerful groups such as government and industry when they are discussed in systemic rather than individualising terms. What is meant by discussing a health problem in systemic rather than individualising terms is that the problem is discussed in terms of: involuntary rather than deliberately acquired risk; risk to everyone rather than risk to a particular group of people; environmental risk (meaning that it raises from within the environment) rather than individual-level risk (meaning that it arises from within individuals); and knowingly created risk (Nathanson, 1999; Stone, 1997).

For example, the history of the anti-tobacco movement, as presented by Nathanson (1999), has revealed that the anti-tobacco movement achieved its goal to regulate the tobacco industry when a popular understanding emerged that tobacco presents: involuntary risk due to the involuntary exposure to secondary smoke of non-smokers which turns them into passive smokers; universal risk, meaning that tobacco gradually came to be seen as presenting a health risk to both smokers and non-smokers; environmental risk, referring to arguments about an environment filled with smoke; and knowingly created risk, meaning that it became known that the tobacco industry had been aware of tobacco’s addictive nature and adverse health impact, but had chosen to remain silent.

In the context of this study, the ‘environments’ frame emerged as the only frame that communicated risk similarly. By discussing how people have much less choice with regard to their weight than commonly assumed and by talking of ‘passive obesity’ (McKie, 2011) the ‘environments’ frame presented obesity as involuntary. By claiming that ‘modern living ensures every generation is heavier than the last’ (McKie, 2011) it also presented obesity in terms of universal risk affecting everyone. By discussing personal behaviour like eating unhealthy foods
and being physically inactive as being influenced by living environments, it presented obesity as arising from within the environment. Finally, although the ‘environments’ frame discussed the activities of the food industry, for example, a news article stated that junk food advertising increases during times when young people are most likely to be watching (Bun, 2009), claims that the food industry knowingly markets addictive or harmful products were not made.

5.4.3 Obesity Frames and Framing Theory

Finally, as this study is informed by framing theory the findings described in this chapter are considered in this context. Specifically, attention is paid to: 1) whether the similarities and differences between the identified frames can be interpreted in the context of frames and reframes; and 2) since the chapter so far focused on selection and salience or the frames that were present in the coverage, this final section considers omission or whether frames that could have been expected to surface did not emerge in the coverage. With regard to the latter, as mentioned earlier, Entman (1993) has argued that ‘the omission of potential problem definitions, explanations, evaluations, and recommendations may be as critical as the inclusions’ (p. 54).

On the issue of frames and reframes, while the six inductively identified obesity frames differed with respect to what was seen as the key to a solution (e.g., medical progress, self-control, education, environments, acceptance or coming out), they all - with the exception of the ‘acceptance’ and the ‘coming out’ frames - positioned weight as a key contributor to health complications associated with obesity. By discussing either the focus on weight and not weight in itself as problematic or by discussing the positive effect of weight and weight gain on physical appearance and sex appeal, the ‘acceptance’ and ‘coming out’ frames offered alternative interpretations of the relevance of weight for the issue of obesity. That is, alternative to what emerged to be a dominant outlook on weight as primarily responsible for health complications.

The ‘acceptance’ and ‘coming out’ frames also presented an alternative to what emerged as a dominant understanding of obesity as a physical health problem. The ‘medical progress’, ‘self-control’, ‘education’ and ‘environments’ frames saw obesity as a physical health problem and expressed concerns about the consequences of weight or both weight and fitness for obese people’s physical
health. In contrast, the ‘acceptance’ and the ‘coming out’ frames did not see obesity in terms of impact on physical health. The ‘acceptance’ frame viewed obesity as a psychosocial problem, challenged the negative consequences of weight for physical health and positioned fitness as a better predictor of physical health. The ‘coming out’ frame viewed obesity as a matter of physical appearance and rejected the idea that weight negatively impacts physical health.

Against this dominant outlook that first, weight is problematic and second, obesity is a physical health problem, the ‘acceptance’ and ‘coming out’ frames can be interpreted as evidence for the framing of obesity as a different kind of problem. Reframing has been described as redefining events or issues that are already meaningful in some way in such a manner that they will be seen as ‘quite something else’ (Goffman, 1974, p. 44) and as involving the jettisoning of meanings and understandings (Snow, Rochford, Worden, & Benford, 1986). By suggesting that a focus on weight as the main cause of health complications related to obesity is unwarranted or by suggesting that weight can have a positive contribution to one’s physical appearance and sex appeal and by additionally suggesting that obesity is a psychosocial problem or that obesity is a problem of physical appearance, the ‘acceptance’ and the ‘coming out’ frames did precisely that - they jettisoned understandings about weight being central to obesity and about obesity being a problem of physical health.

Moving to the issue of omission, past research has found that science and technology and by extension medicine and health-related issues are ‘often framed either as sensational breakthroughs and innovations, or else in terms of steps toward creating new Frankensteins’ (Hellsten, 2008, p. 16). It has been suggested that both of these common narratives - the narrative of progress and the narrative of unintended consequences - are extensions of the same metaphorical narrative of science and technology or of medicine as a journey (Hellsten, 2008). The difference is that in the progress narrative science and technology or medicine are praised for ‘conquering unknown frontiers of knowledge and gaining control over diseases’ (Hellsten, 2008, p. 17), whereas in the unintended consequences narrative they are criticised for ‘crossing new frontiers and going beyond known boundaries’ (Hellsten, 2008, p. 17).
While one of these two narratives - the narrative of progress - was identified in the analysed coverage as expressed in the 'medical progress' frame, an obesity frame built around the narrative of unintended consequences did not surface. In other words, no obesity frame emerged in which the ability of medical solutions like drugs and surgery to provide a sure and safe way out of obesity was questioned or the unintended consequences of drugs and surgery were emphasised.

5.5 Summary

Past research on obesity in the media has identified a variety of obesity frames. Within this variety, commonalities have also emerged. Existing studies have consistently identified: a frame of obesity which views obesity as a biological disorder best approached with science; a frame of obesity which promotes measures at the individual level like exercise and consumption of healthy foods to solve obesity; and a frame of obesity which emphasises the role of government and sometimes industry in creating environments that lead to obesity and consequently need to be improved with the help of government and industry involvement.

Similar frames also emerged in the present study. The 'medical progress' frame viewed obesity as a physical health problem with implications for the wider economy that is caused by weight and is best approached via medical and pharmaceutical solutions like drugs and surgery. The 'self-control' frame saw obesity as a physical health problem with psychosocial consequences as well as consequences for the wider environment, the economy and the comfort/safety of others which is caused by weight and which is up to individuals to solve with hard work and self-discipline. The ‘environments’ frames presented obesity as a physical health problem with consequences for the wider economy which is caused by both weight and levels of fitness and which requires living, work and study environments conductive to healthy eating and active living.

Three additional frames of obesity without analogies in past research also emerged. The ‘education’ frame saw obesity as a physical health problem with implications for the wider economy which is caused by both weight and levels of physical fitness and which needs to be addressed via the provision of more/better information/education about eating and exercise. The ‘acceptance’ frame saw
obesity as a psychosocial problem and argued that people should accept their weight and focus on improving their fitness which is a better predictor of health. The ‘coming out’ frame saw obesity as a matter of physical appearance and showed how weight may be experienced in positive ways as enhancing one’s physical appearance and sex appeal and thus, recommended that people who feel in this way should be open about it.

By challenging the focus on weight and perceptions of weight as problematic and by offering alternatives to understanding obesity as a physical health problem, the ‘acceptance’ and ‘coming out’ frames presented interesting examples of frames from the perspective of framing theory - reframes. By presenting obesity in terms of involuntary, universal and environmental risk, the ‘environments’ frame presented an interesting example from the perspective of public health - a systemic frame. But how widely were the ‘acceptance’, ‘coming out’ and ‘environments’ frames used?
Chapter 6 Prevalence of the Frames of Obesity

6.1 Introduction

The aim of this chapter is to report the frequency with which the inductively identified obesity frames of ‘medical progress’, ‘self-control’, ‘education’, ‘environments’, ‘acceptance’ and ‘coming out’ were used in news articles published in Bild.de, Guardian.co.uk, dailymail.co.uk, sueddeutsche.de, thetimes.co.uk and welt.de over the 1 January 2009 - 31 December 2011 time period, thus answering Research Question 1.2. Findings reported in this chapter draw on the second, deductive phase of frame analysis which was based on the content analysis of the total sample of 768 news articles.

This chapter begins with a ‘General Characteristics of the Analysed News Articles’ section which describes the total sample in terms of number of news articles published by media outlet, year and country and reports on the length of the analysed news articles and the column under which they had been published. The following ‘Prevalence of Frame Elements’ section starts with reporting intercoder agreement coefficients for each frame-related variable and then presents the prevalence of frame elements overall, by media outlet, year and country and explores the relationship between article length and mentions of distinct frame elements. The next ‘Prevalence of Obesity Frames’ section follows the same structure. As in the preceding chapter, the final ‘Discussion’ section considers the meaning of the reported here findings from three perspectives: in the context of past research on obesity in the media; with respect to frames’ potential to advance an understanding of obesity in individualising or systemic terms; and in the context of framing theory.

6.2 General Characteristics of the Analysed News Articles

Between 1 January 2009 and 31 December 2011 a total of 768 news articles on obesity which met this study’s selection criteria were published in the six analysed online newspapers. Of these 768 news articles in the total sample, 313 (40.8%) were sourced from dailymail.co.uk, 120 (15.6%) from Guardian.co.uk, 109 (14.2%) from Bild.de, 85 (11.1%) from thetimes.co.uk, 72 (9.4%) from welt.de and 69 (9.0%) from sueddeutsche.de. The number of news articles published in 2009 was 238 (31.0%), 239 (31.1%) in 2010 and 291 (37.9%) in 2011. Of the 768 news
articles in the total sample, 518 (67.4%) were published in English-language and 250 (32.6%) in German-language media outlets. Table 6.1 below presents a breakdown of the number of news articles published in each media outlet by year.

Table 6.1 Number of News Articles Published in Each Media Outlet by Year

<table>
<thead>
<tr>
<th>Year</th>
<th>Media Outlet</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>dailymail.co.uk</td>
<td>Guardian.co.uk</td>
</tr>
<tr>
<td>2009</td>
<td>85</td>
<td>44</td>
</tr>
<tr>
<td>2010</td>
<td>85</td>
<td>42</td>
</tr>
<tr>
<td>2011</td>
<td>143</td>
<td>34</td>
</tr>
<tr>
<td>Total</td>
<td>313</td>
<td>120</td>
</tr>
</tbody>
</table>

Article length in the total sample of 768 news articles ranged from 73 to 5,124 words, with an overall median count of 446 words. The distribution of article length was positively skewed - a large number of news articles were short (59% with fewer than 500 words). News articles published in German-language media outlets had lower median word counts (275 words) than those published in English-language media outlets (518 words). Table 6.2 below presents further information about article length by media outlet.

Table 6.2 Article Length by Media Outlet

<table>
<thead>
<tr>
<th>Media Outlet</th>
<th>Article Length</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lower Quartile</td>
<td>Median (50%)</td>
</tr>
<tr>
<td>dailymail.co.uk</td>
<td>395</td>
<td>500</td>
</tr>
<tr>
<td>Guardian.co.uk</td>
<td>412</td>
<td>574</td>
</tr>
<tr>
<td>thetimes.co.uk</td>
<td>425</td>
<td>558</td>
</tr>
<tr>
<td>Bild.de</td>
<td>117</td>
<td>206</td>
</tr>
<tr>
<td>sueddeutsche.de</td>
<td>234</td>
<td>340</td>
</tr>
<tr>
<td>welt.de</td>
<td>242</td>
<td>353</td>
</tr>
<tr>
<td>Total</td>
<td>319</td>
<td>446</td>
</tr>
</tbody>
</table>

In the English-language portion of the total sample, of the 313 news articles sourced from dailymail.co.uk, 160 (51.1%) were published under its ‘Health’ column, 122 (39.0%) under ‘News’, 21 (6.7%) under ‘Femail’, 5 (1.6%) under ‘Travel’, 4 (1.3%) under ‘Science’ and 1 (0.3%) under ‘TV & Showbiz’. Of the 120 news articles that were published in Guardian.co.uk, 95 (79.2%) were featured under its ‘News’ column, 19 (15.8%) under ‘Life & Style’, 3 (2.5%) under ‘Business’, 2 (1.7%) under ‘Environment’ and 1 (0.8%) under ‘Culture’. Of the 85 news articles that were sourced from thetimes.co.uk, 60 (70.6%) were published under its ‘Life’
column, 21 (24.7%) under ‘News’, 3 (3.5%) under ‘Business’ and 1 (1.2%) under ‘Arts’.

In the German-language portion of the sample, of the 109 news articles that were published in Bild.de, 44 (40.4%) featured under its ‘Regional’ column, 35 (32.1%) under ‘Counsel’ (‘Ratgeber’), 13 (11.9%) under ‘News’, 9 (8.3%) under ‘Politics’ (‘Politik’), 4 (3.7%) under ‘Travel’ (‘Reise’), 2 (1.8%) under ‘Entertainment’ (‘Unterhaltung’), 1 (0.9%) under ‘Digital’ and 1 (0.9%) under ‘Money’ (‘Geld’). Of the 69 news articles that were published in sueddeutsche.de, 35 (50.7%) were featured under its ‘Life’ (‘Leben’) column, 8 (11.6%) under ‘Science’ (‘Wissen’), 5 (7.3%) under ‘Career’ (‘Karriere’), 5 (7.2%) under ‘Panorama’, 5 (7.2%) under ‘Travel’ (‘Reise’), 4 (5.8%) under ‘München’, 3 (4.3%) under ‘Health’ (‘Gesundheit’), 1 (1.4%) under ‘Digital’, 1 (1.4%) under ‘Money’ (‘Geld’), 1 (1.4%) under ‘Politics’ (‘Politik’) and 1 (1.4%) under ‘Economy’ (‘Wirtschaft’). Of the 72 news articles that were published in welt.de, 50 (69.4%) featured under its ‘Science’ (‘Wissen’) column, 9 (12.5%) under ‘Panorama’, 4 (5.6%) under ‘Regional’ (‘Regionales’), 4 (5.6%) under ‘Economy’ (‘Wirtschaft’), 3 (4.2%) under ‘Politics’ (‘Politik’) and 2 (2.7%) under ‘Travel’ (‘Reise’). As a side-note, sueddeutsche.de’s ‘München’ column could be seen as an equivalent to Bild.de’s and welt.de’s ‘Regional’ columns.

Prior to reporting the prevalence of frame elements and frames in the total sample, some word of caution is again due in relation to the composition of the total sample. As mentioned, the total sample is predominated by news articles published in British media outlets (67.4% of the total), specifically dailymail.co.uk (40.8% of the total). Measures were taken at the inductive phase of analysis to ensure that this British bias will not skew frame identification. Similarly, there is a danger that findings about the overall prevalence of obesity frames in the total sample may be skewed towards a British or dailymail.co.uk way of seeing obesity. To verify whether this may be the case, this chapter reports frame use not only overall but also by media outlet and country. As Table 6.15 and Table 6.17 will show, the overall order of frequency of use of obesity frames reflects tendencies at the country level and at most analysed media outlets.

The presentation now turns to the prevalence of frame elements.
6.3 Prevalence of Frame Elements

Before describing the findings regarding the frequency of use of frame elements, results from the final reliability test are presented. Final reliability testing resulted in Cohen’s kappa and percent agreement of 1.00 and 100% for all frame-related variables except: ‘affordability/availability’ (.88, 98.70%); ‘change advertising’ (.88, 98.70%); ‘comfort eating’ (.79, 98.70%); ‘diet/eat less’ (.95, 98.70%); ‘eating unhealthy foods’ (.92, 97.40%); ‘exercise’ (.92, 97.40%); ‘inactivity’ (.96, 98.70%); ‘overeating’ (.91, 97.40%); ‘psychosocial’ (.96, 98.70%) and ‘poverty’ (.66, 98.70%). All of these coefficients indicate acceptable levels of inter-coder agreement.

It should also be mentioned before proceeding that percentages reported below may not add up to 100% as frame-related variables were coded as present/not present, meaning that more than one frame-related variable could be coded as present in a news article.

6.3.1 Prevalence of Frame Elements - Overall

Overall, 396 of the analysed news articles representing 51.6% of the total number of 768 news articles analysed mentioned at least one cause of obesity. ‘Advertising’ was mentioned in 27 news articles representing 3.5% of the total sample of 768 news articles analysed. Issues around the ‘affordability/availability’ of foods and drinks and active living opportunities were discussed in 64 (8.3%) news articles. ‘A virus’ was mentioned in 6 (0.8%) news articles, ‘biological/genetic’ causes in 90 (11.7%), ‘comfort eating’ in 36 (4.7%), ‘eating unhealthy foods’ in 179 (23.3%), ‘environments’ in 32 (4.2%), ‘lack of knowledge/information’ in 27 (3.5%), ‘overeating’ in 144 (18.8%), ‘package sizes’ in 8 (1.0%), ‘physical inactivity’ in 139 (18.1%), ‘poverty’ in 40 (5.2%) and the ‘thinness obsession’ in 14 (1.8%).

With respect to the consequences of obesity, 528 of the analysed news articles representing 68.8% of the total number of 768 analysed mentioned at least one consequence of obesity. Consequences for ‘comfort/safety’ were mentioned in 24 news articles, representing 3.1% of the total number of 768 news articles analysed. Consequences for ‘physical appearance’ were mentioned in 15 (2.0%) news articles, for ‘physical health’ in 439 (57.2%). ‘Psychosocial’ consequences featured in 91 (11.8%) news articles. Consequences for ‘the economy’ and ‘the
environment’ were discussed in 168 (21.9%) and 6 (0.8%) news articles, respectively.

In terms of solutions, 519 of the analysed news articles representing 67.6% of the total number of 768 analysed mentioned at least one solution to obesity. ‘Acceptance’ was mentioned in 11 news articles, representing 1.4% of the total number of 768 news articles analysed. ‘Bans’ were mentioned in 17 (2.2%) news articles. Calls to ‘change advertising’ featured in 28 (3.6%) news articles, to ‘change affordability/availability’ in 58 (7.6%), to ‘change environments’ in 11 (1.4%). ‘Change in eating’ was mentioned in 158 (20.6%) news articles and calls to ‘change package sizes’ in 12 (1.6%). Demands for ‘content disclosure’ were made in 43 (5.6%) news articles. ‘Coming out’ was mentioned in 3 (0.4%) news articles, ‘diet/eat less’ in 157 (20.4%), ‘drugs’ in 74 (9.6%), ‘education’ in 72 (9.4%), ‘exercise’ in 223 (29.0%). A ‘financial penalty’ was proposed in 74 (9.6%) news articles, a ‘legal punishment’ in 15 (2.0%) and ‘surgery’ in 123 (16.0%) news articles.

As mentioned earlier, only 583 news articles of the 768 news articles in the total sample contained a photograph. Thus, in terms of frame elements visually expressing frames, of the total of 583 news articles containing photographs, 217 (37.2%) featured at least one visual expression of a frame. A ‘food label’ was featured in 4 news articles, representing 0.7% of the total number of 583 news articles containing photographs. ‘Foods or drinks’ appeared in 149 (25.6%) and ‘tools measuring size and weight’ in 68 (11.7%) news articles.

### 6.3.2 Prevalence of Frame Elements - by Media Outlet

To start with, in terms of causes, of the 313 news articles published in dailymail.co.uk 158 (50.5%) mentioned at least one cause of obesity, of the 120 published in Guardian.co.uk 71 (59.2%) did so, of the 85 published in thetimes.co.uk 46 (54.1%) did so, of the 109 published in Bild.de 56 (51.4%) mentioned at least one cause of obesity, of the 69 published in sueddeutsche.de 38 (55.1%) did so and of the 72 published in welt.de 27 (37.5%) mentioned at least one cause of obesity. These differences were not statistically significant ($\chi^2(5, N=768)=9.190, p=.102$).

The six analysed media outlets did, however, differ significantly with respect to the proportion of news articles from each media outlet that mentioned
issues around the ‘affordability/availability’ ($\chi^2(5, N=768)=15.447, p=.009$) of foods and drinks and active living opportunities, ‘eating unhealthy foods’ ($\chi^2(5, N=768)=11.170, p=.048$), ‘environments’ (Fisher’s exact test, two-sided, $p=.028$), ‘overeating’ ($\chi^2(5, N=768)=11.715, p=.039$), ‘package sizes’ (Fisher’s exact test, two-sided, $p=.049$), ‘poverty’ (Fisher’s exact test, two-sided, $p=.019$) and the ‘thinness obsession’ (Fisher’s exact test, two-sided, $p=.008$) as causes of obesity. As Table 6.3 below shows, statistically significant differences between the six analysed media outlets with respect to the proportion of news articles within each media outlet that mentioned any of the remaining causes of obesity did not exist.
Table 6.3 Number of News Articles Mentioning Obesity Causes by Media Outlet

<table>
<thead>
<tr>
<th>Cause</th>
<th>Media Outlet</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>dailymail.co.uk</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Guardian.co.uk</td>
<td></td>
</tr>
<tr>
<td></td>
<td>thetimes.co.uk</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bild.de</td>
<td></td>
</tr>
<tr>
<td></td>
<td>sueddeutsche.de</td>
<td></td>
</tr>
<tr>
<td></td>
<td>welt.de</td>
<td></td>
</tr>
<tr>
<td>Advertising</td>
<td>7 (2.2%)</td>
<td>.242b</td>
</tr>
<tr>
<td>Affordability/Availability</td>
<td>22 (7.0%)</td>
<td>.009a*</td>
</tr>
<tr>
<td>A Virus</td>
<td>3 (1.0%)</td>
<td>.785b</td>
</tr>
<tr>
<td>Biological/Genetic</td>
<td>45 (14.4%)</td>
<td>.072a</td>
</tr>
<tr>
<td>Comfort Eating</td>
<td>19 (6.1%)</td>
<td>.202b</td>
</tr>
<tr>
<td>Eating Unhealthy Foods</td>
<td>67 (21.4%)</td>
<td>.048a*</td>
</tr>
<tr>
<td>Environments</td>
<td>9 (2.9%)</td>
<td>.028b*</td>
</tr>
<tr>
<td>Lack of Knowledge/Information</td>
<td>10 (3.2%)</td>
<td>.381b</td>
</tr>
<tr>
<td>Overeating</td>
<td>68 (21.7%)</td>
<td>.039a*</td>
</tr>
<tr>
<td>Package Sizes</td>
<td>2 (0.6%)</td>
<td>.049b*</td>
</tr>
<tr>
<td>Physical Inactivity</td>
<td>53 (16.9%)</td>
<td>.298a</td>
</tr>
<tr>
<td>Poverty</td>
<td>12 (3.8%)</td>
<td>.019b*</td>
</tr>
<tr>
<td>Thinness Obsession</td>
<td>1 (0.3%)</td>
<td>.008b*</td>
</tr>
</tbody>
</table>

*a χ² (Chi square) test p-value. b Fisher’s exact test p-value.
*significant at p<.05.
Further, the six analysed media outlets differed significantly with respect to the proportion of news articles from each media outlet which mentioned at least one consequence of obesity ($\chi^2(5, N=768)=20.547$, p<.001). Of the 313 news articles published in dailymail.co.uk 221 (70.6%) mentioned at least one consequence of obesity, of the 120 published in Guardian.co.uk 87 (72.5%) did so, of the 85 published in thetimes.co.uk 64 (75.3%) did so, of the 109 published in Bild.de 79 (72.5%) mentioned at least one cause of obesity, of the 69 published in sueddeutsche.de 43 (62.3%) did so and of the 72 published in welt.de 34 (47.2%) mentioned at least one consequence of obesity.

Additionally, the six analysed media outlets differed significantly with respect to the proportion of news articles from each media outlet which mentioned the consequences of obesity for the ‘economy’ ($\chi^2(5, N=768)=30.029$, p<.001) and for ‘physical health’ ($\chi^2(5, N=768)=13.786$, p=.017). As Table 6.4 below shows, statistically significant differences between the six analysed media outlets with respect to the proportion of news articles from each media outlet that mentioned any of the remaining consequences of obesity did not exist.
Table 6.4 Number of News Articles Mentioning Obesity Consequences by Media Outlet

<table>
<thead>
<tr>
<th>Consequence</th>
<th>Media Outlet</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>dailymail.co.uk</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Guardian.co.uk</td>
<td></td>
</tr>
<tr>
<td></td>
<td>thetimes.co.uk</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bild.de</td>
<td></td>
</tr>
<tr>
<td></td>
<td>sueddeutsche.de</td>
<td></td>
</tr>
<tr>
<td></td>
<td>welt.de</td>
<td></td>
</tr>
<tr>
<td>Comfort/Safety</td>
<td>8 (2.6%)</td>
<td>.276b</td>
</tr>
<tr>
<td></td>
<td>4 (3.33%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 (5.9%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 (0.9%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 (5.8%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 (2.8%)</td>
<td></td>
</tr>
<tr>
<td>Physical Appearance</td>
<td>7 (2.2%)</td>
<td>.403b</td>
</tr>
<tr>
<td></td>
<td>5 (4.2%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 (1.2%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 (1.8%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0 (0.0%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0 (0.0%)</td>
<td></td>
</tr>
<tr>
<td>Physical Health</td>
<td>180 (57.5%)</td>
<td>.017a*</td>
</tr>
<tr>
<td></td>
<td>72 (60.0%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>49 (57.6%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>73 (67.0%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>36 (52.2%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>29 (42.0%)</td>
<td></td>
</tr>
<tr>
<td>Psychosocial</td>
<td>39 (12.5%)</td>
<td>.089a</td>
</tr>
<tr>
<td></td>
<td>17 (14.2%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11 (12.9%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12 (11.0%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11 (15.9%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 (1.4%)</td>
<td></td>
</tr>
<tr>
<td>The Economy</td>
<td>75 (24.0%)</td>
<td>&lt;.001a*</td>
</tr>
<tr>
<td></td>
<td>40 (33.3%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>25 (29.4%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>13 (11.9%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9 (13.0%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6 (8.7%)</td>
<td></td>
</tr>
<tr>
<td>The Environment</td>
<td>2 (0.6%)</td>
<td>.647b</td>
</tr>
<tr>
<td></td>
<td>2 (1.7%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0 (0.0%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 (0.9%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 (1.4%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0 (0.0%)</td>
<td></td>
</tr>
</tbody>
</table>

* a χ² (Chi square) test p-value. b Fisher’s exact test p-value.

* significant at p<.05.
The six analysed media outlets also differed significantly with respect to the proportion of news articles from each media outlet that mentioned at least one solution to obesity \( \chi^2(5, N=768)=35.652, p<.001 \). Of the 313 news articles published in *dailymail.co.uk* 215 (68.7%) mentioned at least one solution to obesity, of the 120 published in *Guardian.co.uk* 94 (78.3%) did so, of the 85 published in *thetimes.co.uk* 72 (84.7%) did so, of the 109 published in *Bild.de* 61 (56.0%) mentioned at least one solution to obesity, of the 69 published in *sueddeutsche.de* 39 (56.5%) did so and of the 72 published in *welt.de* 38 (52.8%) mentioned at least one solution to obesity.

Further, the six analysed media outlets differed significantly with respect to the proportion of news articles from each media outlet which mentioned ‘change affordability/availability’ \( \chi^2(5, N=768)=19.450, p=.002 \), ‘change environments’ (Fisher’s exact test, two-sided, \( p=.001 \)), ‘content disclosure’ (Fisher’s exact test, two-sided, \( p=.001 \)), ‘education’ \( \chi^2(5, N=768)=31.901, p<.001 \), ‘exercise’ \( \chi^2(5, N=768)=14.151, p=.015 \) and ‘surgery’ \( \chi^2(5, N=768)=16.355, p=.006 \) as solutions to obesity. As Table 6.5 below shows, statistically significant differences between the six analysed media outlets with respect to the proportion of news articles within each media outlet that mentioned any of the remaining solutions to obesity did not exist.
<table>
<thead>
<tr>
<th>Solution</th>
<th>dailymail.co.uk</th>
<th>Guardian.co.uk</th>
<th>themtimes.co.uk</th>
<th>Bild.de</th>
<th>sueddeutsche.de</th>
<th>welt.de</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acceptance</td>
<td>3 (1.0%)</td>
<td>3 (2.5%)</td>
<td>2 (2.4%)</td>
<td>0 (0.0%)</td>
<td>3 (4.3%)</td>
<td>0 (0.0%)</td>
<td>.091b</td>
</tr>
<tr>
<td>Bans</td>
<td>5 (1.6%)</td>
<td>3 (2.5%)</td>
<td>2 (2.4%)</td>
<td>2 (1.8%)</td>
<td>3 (4.3%)</td>
<td>2 (2.8%)</td>
<td>.708b</td>
</tr>
<tr>
<td>Change Advertising</td>
<td>10 (3.2%)</td>
<td>10 (8.3%)</td>
<td>3 (3.5%)</td>
<td>2 (1.8%)</td>
<td>1 (1.4%)</td>
<td>2 (2.8%)</td>
<td>.151b</td>
</tr>
<tr>
<td>Change Affordability/Availability</td>
<td>26 (8.3%)</td>
<td>16 (13.3%)</td>
<td>10 (11.8%)</td>
<td>2 (1.8%)</td>
<td>4 (5.8%)</td>
<td>0 (0.0%)</td>
<td>.002a*</td>
</tr>
<tr>
<td>Change Environments</td>
<td>0 (0.0%)</td>
<td>5 (4.2%)</td>
<td>5 (5.9%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>1 (1.4%)</td>
<td>.001b*</td>
</tr>
<tr>
<td>Change in Eating</td>
<td>57 (18.2%)</td>
<td>29 (24.2%)</td>
<td>20 (23.5%)</td>
<td>26 (23.9%)</td>
<td>18 (26.1%)</td>
<td>8 (11.1%)</td>
<td>.135a</td>
</tr>
<tr>
<td>Change Package Sizes</td>
<td>6 (1.9%)</td>
<td>1 (0.8%)</td>
<td>4 (4.7%)</td>
<td>0 (0.0%)</td>
<td>1 (1.4%)</td>
<td>0 (0.0%)</td>
<td>.151b</td>
</tr>
<tr>
<td>Coming Out</td>
<td>0 (0.0%)</td>
<td>1 (0.8%)</td>
<td>1 (1.2%)</td>
<td>1 (0.9%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>.228b</td>
</tr>
<tr>
<td>Content Disclosure</td>
<td>11 (3.5%)</td>
<td>14 (11.7%)</td>
<td>8 (9.4%)</td>
<td>1 (0.9%)</td>
<td>6 (8.7%)</td>
<td>3 (4.2%)</td>
<td>.001b</td>
</tr>
<tr>
<td>Diet/Eat Less</td>
<td>69 (22.0%)</td>
<td>23 (19.2%)</td>
<td>23 (27.1%)</td>
<td>20 (18.3%)</td>
<td>13 (18.8%)</td>
<td>9 (12.5%)</td>
<td>.297a</td>
</tr>
<tr>
<td>Drugs</td>
<td>39 (12.5%)</td>
<td>12 (10.0%)</td>
<td>9 (10.6%)</td>
<td>6 (5.5%)</td>
<td>4 (5.8%)</td>
<td>4 (5.6%)</td>
<td>.176a</td>
</tr>
<tr>
<td>Education</td>
<td>26 (8.3%)</td>
<td>26 (21.7%)</td>
<td>10 (11.8%)</td>
<td>2 (1.8%)</td>
<td>4 (5.8%)</td>
<td>4 (5.6%)</td>
<td>&lt;.001a*</td>
</tr>
<tr>
<td>Exercise</td>
<td>92 (29.4%)</td>
<td>44 (36.7%)</td>
<td>33 (38.8%)</td>
<td>24 (22.0%)</td>
<td>14 (20.3%)</td>
<td>16 (22.2%)</td>
<td>.015a*</td>
</tr>
<tr>
<td>Financial Penalty</td>
<td>24 (7.7%)</td>
<td>16 (13.3%)</td>
<td>10 (11.8%)</td>
<td>10 (9.2%)</td>
<td>8 (11.6%)</td>
<td>6 (8.3%)</td>
<td>.522a</td>
</tr>
<tr>
<td>Legal Punishment</td>
<td>10 (3.2%)</td>
<td>2 (1.7%)</td>
<td>3 (3.5%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>.138b</td>
</tr>
<tr>
<td>Surgery</td>
<td>60 (19.2%)</td>
<td>22 (18.3%)</td>
<td>15 (17.6%)</td>
<td>19 (17.4%)</td>
<td>2 (3.0%)</td>
<td>5 (6.9%)</td>
<td>.006a*</td>
</tr>
</tbody>
</table>

*a χ² (Chi square) test p-value. b Fisher’s exact test p-value. *

*significant at p<.05.
Finally, in terms of the visual expression of frames, of the 302 news articles published in *dailymail.co.uk* which contained photographs 108 (35.8%) featured at least one variable measuring the visual expression of frames, of the 88 published in *Guardian.co.uk* and featuring photographs 33 (37.5%) did so, of the 20 published in *thetimes.co.uk* and containing photographs 6 (30.0%) did so, of the 45 published in *Bild.de* and containing photographs 17 (40.0%) featured at least one variable measuring the visual expression of frames, of the 59 published in *sueddeutsche.de* and featuring photographs 25 (42.4%) did so and of the 69 published in *welt.de* and featuring photographs 28 (40.6%) did so. These differences were not statistically significant ($\chi^2(5, N=583)=1.734, p=.885$). As Table 6.6 below shows, differences between the six analysed media outlets in terms of the proportion of news articles from each media outlet which visually expressed a frame were not statistically significant either.
Table 6.6 Number of News Articles Visually Expressing Frames by Media Outlet

<table>
<thead>
<tr>
<th>Visual</th>
<th>dailymail.co.uk</th>
<th>Guardian.co.uk</th>
<th>thetimes.co.uk</th>
<th>Bild.de</th>
<th>sueddeutsche.de</th>
<th>welt.de</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Label</td>
<td>1 (0.3%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>2 (3.4%)</td>
<td>1 (1.4%)</td>
<td>.140</td>
</tr>
<tr>
<td>Foods or Drinks</td>
<td>69 (22.8%)</td>
<td>24 (27.2%)</td>
<td>5 (25.0%)</td>
<td>16 (35.6%)</td>
<td>20 (33.9%)</td>
<td>15 (21.7%)</td>
<td>.273</td>
</tr>
<tr>
<td>Tools Measuring Size and Weight</td>
<td>38 (12.6%)</td>
<td>9 (10.2%)</td>
<td>1 (5.0%)</td>
<td>1 (2.2%)</td>
<td>6 (10.2%)</td>
<td>13 (18.8%)</td>
<td>.118</td>
</tr>
</tbody>
</table>

*a* a $\chi^2$ (Chi square) test p-value.  
*b* Fisher’s exact test p-value.  
*significant at p<.05.
6.3.3 Prevalence of Frame Elements - by Year

In terms of causes, of the 238 news articles published in 2009 127 (53.4%) mentioned at least one cause of obesity, of the 239 published in 2010 127 (53.1%) did so and of the 291 published in 2011 142 (48.8%) news articles mentioned at least one cause of obesity. These differences were not statistically significant ($\chi^2(2, \ N=768)=1.437, \ p=.488$). There were, however, significant differences in terms of the proportion of news articles from each year which mentioned issues around the ‘affordability/availability’ of foods and drinks and active living opportunities ($\chi^2(2, \ N=768)=7.731, \ p=.021$), ‘package sizes’ (Fisher’s exact test, two-sided, $p=.048$), ‘physical inactivity’ ($\chi^2(2, \ N=768)=6.135, \ p=.047$) and ‘biological/genetic’ ($\chi^2(2, \ N=768)=7.925, \ p=.019$) causes of obesity. As Table 6.7 below shows, statistically significant differences between the proportions of news articles published during each of the analysed years that mentioned any of the remaining causes of obesity did not exist.

Table 6.7 Number of News Articles Mentioning Obesity Causes by Year

<table>
<thead>
<tr>
<th>Cause</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advertising</td>
<td>9 (3.8%)</td>
<td>10 (4.2%)</td>
<td>8 (2.7%)</td>
<td>.648\textsuperscript{a}</td>
</tr>
<tr>
<td>Affordability/Availability</td>
<td>26 (10.2%)</td>
<td>24 (10.0%)</td>
<td>14 (4.8%)</td>
<td>\textbf{.021}\textsuperscript{a}</td>
</tr>
<tr>
<td>A Virus</td>
<td>3 (1.3%)</td>
<td>3 (1.3%)</td>
<td>0 (0.0%)</td>
<td>.101\textsuperscript{b}</td>
</tr>
<tr>
<td>Biological/Genetic</td>
<td>39 (16.4%)</td>
<td>20 (8.4%)</td>
<td>31 (10.7%)</td>
<td>\textbf{.019}\textsuperscript{a}</td>
</tr>
<tr>
<td>Comfort Eating</td>
<td>16 (6.7%)</td>
<td>6 (2.5%)</td>
<td>14 (4.8%)</td>
<td>.093\textsuperscript{a}</td>
</tr>
<tr>
<td>Eating Unhealthy Foods</td>
<td>54 (22.7%)</td>
<td>64 (26.8%)</td>
<td>61 (21.0%)</td>
<td>.278\textsuperscript{a}</td>
</tr>
<tr>
<td>Environments</td>
<td>7 (2.9%)</td>
<td>16 (6.7%)</td>
<td>9 (3.1%)</td>
<td>.062\textsuperscript{a}</td>
</tr>
<tr>
<td>Lack of Knowledge/Information</td>
<td>12 (5.0%)</td>
<td>9 (3.8%)</td>
<td>6 (2.1%)</td>
<td>.174\textsuperscript{a}</td>
</tr>
<tr>
<td>Overeating</td>
<td>50 (21.0%)</td>
<td>39 (16.3%)</td>
<td>55 (18.9%)</td>
<td>.421\textsuperscript{a}</td>
</tr>
<tr>
<td>Package Sizes</td>
<td>4 (1.7%)</td>
<td>4 (1.7%)</td>
<td>0 (0.0%)</td>
<td>\textbf{.048}\textsuperscript{b}</td>
</tr>
<tr>
<td>Physical Inactivity</td>
<td>51 (21.4%)</td>
<td>48 (20.1%)</td>
<td>40 (13.7%)</td>
<td>\textbf{.047}\textsuperscript{a}</td>
</tr>
<tr>
<td>Poverty</td>
<td>13 (5.5%)</td>
<td>14 (5.9%)</td>
<td>13 (4.5%)</td>
<td>.756\textsuperscript{a}</td>
</tr>
<tr>
<td>Thinness Obsession</td>
<td>6 (2.5%)</td>
<td>5 (2.1%)</td>
<td>3 (1.0%)</td>
<td>.463\textsuperscript{b}</td>
</tr>
</tbody>
</table>

\textsuperscript{a} a $\chi^2$ (Chi square) test p-value. \textsuperscript{b} a Fisher’s exact test p-value.

* significant at $p<.05$.

In terms of consequences, of the 238 news articles published in 2009 165 (69.3%) mentioned at least one consequence of obesity, of the 239 published in 2010 163 (68.2%) did so and of the 291 published in 2011 200 (68.7%) news articles mentioned at least one consequence of obesity. These differences were not statistically significant ($\chi^2(2, \ N=768)=.071, \ p=.965$). There were, however,
significant differences in terms of the proportion of news articles published during each year which mentioned the consequences of obesity for ‘comfort/safety’ ($\chi^2(2, N=768)=8.488, p=.014$) and for the ‘environment’ (Fisher’s exact test, two-sided, $p=.001$). As Table 6.8 below shows, statistically significant differences between the proportions of news articles published during each of the analysed years that mentioned any of the remaining consequences of obesity did not exist.

Table 6.8 Number of News Articles Mentioning Obesity Consequences by Year

<table>
<thead>
<tr>
<th>Consequence</th>
<th>2009 (3.4%)</th>
<th>2010 (5.4%)</th>
<th>2011 (1.0%)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comfort/Safety</td>
<td>8 (3.4%)</td>
<td>13 (5.4%)</td>
<td>3 (1.0%)</td>
<td><strong>.014</strong>a*</td>
</tr>
<tr>
<td>Physical Appearance</td>
<td>3 (1.3%)</td>
<td>3 (1.3%)</td>
<td>9 (3.1%)</td>
<td>.234b</td>
</tr>
<tr>
<td>Physical Health</td>
<td>137 (57.6%)</td>
<td>133 (55.6%)</td>
<td>169 (58.1%)</td>
<td>.844a</td>
</tr>
<tr>
<td>Psychosocial</td>
<td>29 (12.2%)</td>
<td>32 (13.4%)</td>
<td>30 (10.3%)</td>
<td>.541a</td>
</tr>
<tr>
<td>The Economy</td>
<td>48 (20.2%)</td>
<td>55 (23.0%)</td>
<td>65 (22.3%)</td>
<td>.732a</td>
</tr>
<tr>
<td>The Environment</td>
<td>6 (2.5%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td><strong>.001</strong>b*</td>
</tr>
</tbody>
</table>

* significant at $p<.05$.

In terms of solutions, of the 238 news articles published in 2009 168 (70.6%) mentioned at least one solution to obesity, of the 239 published in 2010 156 (65.3%) did so and of the 291 published in 2011 195 (67.0%) news articles mentioned at least one solution to obesity. These differences were not statistically significant ($\chi^2(2, N=768)=1.607, p=.448$). However, there were significant differences in terms of the proportion of news articles from each year which mentioned ‘bans’ ($\chi^2(2, N=768)=12.833, p=.002$), ‘content disclosure’ ($\chi^2(2, N=768)=6.962, p=.031$), ‘drugs’ ($\chi^2(2, N=768)=7.630, p=.022$), ‘education’ ($\chi^2(2, N=768)=5.974, p=.050$) and ‘surgery’ ($\chi^2(2, N=768)=6.046, p=.049$) as solutions to obesity. As Table 6.9 below shows, statistically significant differences between the proportions of news articles published during each of the analysed years that mentioned any of the remaining solutions to obesity did not exist.
Table 6.9 Number of News Articles Mentioning Obesity Solutions by Year

<table>
<thead>
<tr>
<th>Solution</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acceptance</td>
<td>3 (1.3%)</td>
<td>5 (2.1%)</td>
<td>3 (1.0%)</td>
<td>.647&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Bans</td>
<td>3 (1.3%)</td>
<td>12 (5.0%)</td>
<td>2 (0.7%)</td>
<td>&lt;sup&gt;.002&lt;/sup&gt;&lt;sup&gt;a*&lt;/sup&gt;</td>
</tr>
<tr>
<td>Change Advertising</td>
<td>8 (3.4%)</td>
<td>9 (3.8%)</td>
<td>11 (3.8%)</td>
<td>.961&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Change Affordability/Availability</td>
<td>19 (8.0%)</td>
<td>20 (8.4%)</td>
<td>19 (6.5%)</td>
<td>.695&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Change Environments</td>
<td>6 (2.5%)</td>
<td>3 (1.3%)</td>
<td>2 (0.7%)</td>
<td>.188&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Change in Eating</td>
<td>48 (20.2%)</td>
<td>51 (21.3%)</td>
<td>59 (20.3%)</td>
<td>.939&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Change Package Sizes</td>
<td>4 (1.7%)</td>
<td>6 (2.5%)</td>
<td>2 (0.7%)</td>
<td>.263&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Coming Out</td>
<td>0 (0.0%)</td>
<td>2 (0.8%)</td>
<td>1 (0.3%)</td>
<td>.512&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Content Disclosure</td>
<td>14 (5.9%)</td>
<td>20 (8.4%)</td>
<td>9 (3.1%)</td>
<td>.031&lt;sup&gt;a*&lt;/sup&gt;</td>
</tr>
<tr>
<td>Diet/Eat Less</td>
<td>52 (21.8%)</td>
<td>52 (21.8%)</td>
<td>53 (18.2%)</td>
<td>.489&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Drugs</td>
<td>33 (13.9%)</td>
<td>16 (6.7%)</td>
<td>25 (8.6%)</td>
<td>.022&lt;sup&gt;a*&lt;/sup&gt;</td>
</tr>
<tr>
<td>Education</td>
<td>31 (13.0%)</td>
<td>21 (8.8%)</td>
<td>20 (6.9%)</td>
<td>.050&lt;sup&gt;a*&lt;/sup&gt;</td>
</tr>
<tr>
<td>Exercise</td>
<td>79 (33.2%)</td>
<td>68 (28.5%)</td>
<td>76 (26.1%)</td>
<td>.198&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Financial Penalty</td>
<td>17 (7.1%)</td>
<td>27 (11.3%)</td>
<td>30 (10.3%)</td>
<td>.271&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Legal Punishment</td>
<td>7 (2.9%)</td>
<td>2 (0.8%)</td>
<td>6 (2.1%)</td>
<td>.220&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Surgery</td>
<td>38 (16.0%)</td>
<td>28 (11.7%)</td>
<td>57 (19.6%)</td>
<td>.049&lt;sup&gt;a*&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

<sup>a</sup>a χ² (Chi square) test p-value. <sup>b</sup>a Fisher’s exact test p-value.  
* significant at p<.05.

Finally, in terms of the visual expression of frames, of the 147 news articles published in 2009 which contained photographs 60 (40.8%) featured at least one variable measuring the visual expression of frames, of the 187 published in 2010 which featured photographs 78 (41.7%) did so and of the 249 published in 2011 which featured photographs 79 (31.7%) did so. These differences were not statistically significant (χ²(2, N=583)=5.643, p=.060). Yet, there was a significant difference in terms of the proportion of news articles from each year which featured ‘tools measuring size and weight’ (χ²(2, N=583)=11.357, p=.003). As Table 6.10 below shows there were no statistically significant differences between the proportions of news articles that were published during each of the analysed years which featured ‘food labels’ and ‘foods or drinks’.
Table 6.10 Number of News Articles Visually Expressing Frames by Year

<table>
<thead>
<tr>
<th>Visual</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Label</td>
<td>1 (0.7%)</td>
<td>3 (1.6%)</td>
<td>0 (0.0%)</td>
<td>.128b</td>
</tr>
<tr>
<td>Foods or Drinks</td>
<td>35 (23.8%)</td>
<td>52 (27.8%)</td>
<td>62 (24.9%)</td>
<td>.674a</td>
</tr>
<tr>
<td>Tools Measuring Size and Weight</td>
<td>26 (17.7%)</td>
<td>25 (13.4%)</td>
<td>17 (6.8%)</td>
<td>.003*</td>
</tr>
</tbody>
</table>

*a a χ² (Chi square) test p-value. b a Fisher’s exact test p-value. 
* significant at p<.05.

6.3.4 Prevalence of Frame Elements - by Country

To start with, of the 518 news articles that were published in British media outlets 275 (53.1%) mentioned at least one cause of obesity and of the 250 that were published in German media outlets 121 (48.4%) did so. These differences were not statistically significant (χ²(1, N=768)=1.484, p=.223). News articles published in British media outlets were, however, significantly more likely than news articles published in German ones to mention ‘comfort eating’, odds ratio 2.5, χ²(1, N=768)=4.341, p=.037 and ‘overeating’ odds ratio 1.5, χ²(1, N=768)=3.796, p=.051.

As Table 6.11 below shows, differences between the proportions of news articles published in British and German media outlets that mentioned any of the remaining causes of obesity were not statistically significant.

Table 6.11 Number of News Articles Mentioning Obesity Causes by Country

<table>
<thead>
<tr>
<th>Cause</th>
<th>Country</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Britain</td>
<td>Germany</td>
</tr>
<tr>
<td>Advertising</td>
<td>19 (3.7%)</td>
<td>8 (3.2%)</td>
</tr>
<tr>
<td>Affordability/Availability</td>
<td>50 (9.7%)</td>
<td>14 (5.6%)</td>
</tr>
<tr>
<td>A Virus</td>
<td>4 (0.8%)</td>
<td>2 (0.8%)</td>
</tr>
<tr>
<td>Biological/Genetic</td>
<td>64 (12.4%)</td>
<td>26 (10.4%)</td>
</tr>
<tr>
<td>Comfort Eating</td>
<td>30 (5.8%)</td>
<td>6 (2.4%)</td>
</tr>
<tr>
<td>Eating Unhealthy Foods</td>
<td>114 (22.0%)</td>
<td>65 (26.0%)</td>
</tr>
<tr>
<td>Environments</td>
<td>26 (5.0%)</td>
<td>6 (2.4%)</td>
</tr>
<tr>
<td>Lack of Knowledge/Information</td>
<td>22 (4.2%)</td>
<td>5 (2.0%)</td>
</tr>
<tr>
<td>Overeating</td>
<td>107 (20.7%)</td>
<td>37 (14.8%)</td>
</tr>
<tr>
<td>Package Sizes</td>
<td>5 (1.0%)</td>
<td>3 (1.2%)</td>
</tr>
<tr>
<td>Physical Inactivity</td>
<td>95 (18.3%)</td>
<td>44 (17.6%)</td>
</tr>
<tr>
<td>Poverty</td>
<td>27 (5.2%)</td>
<td>13 (5.2%)</td>
</tr>
<tr>
<td>Thinness Obsession</td>
<td>7 (1.4%)</td>
<td>7 (2.8%)</td>
</tr>
</tbody>
</table>

*a a χ² (Chi square) test p-value. b a Fisher’s exact test p-value. 
* significant at p<.05.
Further, news articles published in British media outlets were significantly more likely than news articles published in German ones to mention consequences of obesity, odds ratio 1.5, $\chi^2(1, N=768)=6.957$, $p=.008$. Of the 518 news articles published in British media outlets 372 (71.8%) mentioned at least one consequence of obesity and of the 250 published in German media outlets 156 (62.4%) did so. News articles from British media outlets were also significantly more likely than news articles from German ones to mention the consequences of obesity for ‘the economy’, odds ratio 2.9, $\chi^2(1, N=768)=24.715$, $p<.001$. As Table 6.12 below shows, differences between the proportions of news articles published in British and German media outlets that mentioned any of the remaining consequences of obesity were not statistically significant.

Table 6.12 Number of News Articles Mentioning Obesity Consequences by Country

<table>
<thead>
<tr>
<th>Consequence</th>
<th>Country</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Britain</td>
<td>Germany</td>
</tr>
<tr>
<td>Comfort/Safety</td>
<td>17 (3.3%)</td>
<td>7 (2.8%)</td>
</tr>
<tr>
<td>Physical Appearance</td>
<td>13 (2.5%)</td>
<td>2 (0.8%)</td>
</tr>
<tr>
<td>Physical Health</td>
<td>301 (58.1%)</td>
<td>138 (55.2%)</td>
</tr>
<tr>
<td>Psychosocial</td>
<td>67 (12.9%)</td>
<td>24 (9.6%)</td>
</tr>
<tr>
<td>The Economy</td>
<td>140 (27.0%)</td>
<td>28 (11.2%)</td>
</tr>
<tr>
<td>The Environment</td>
<td>4 (0.8%)</td>
<td>2 (0.8%)</td>
</tr>
</tbody>
</table>

*significant at $p<.05$.

Additionally, news articles that were published in British media outlets were significantly more likely than news articles that were published in German ones to mention solutions to obesity, odds ratio 2.3, $\chi^2(1, N=768)=25.920$, $p<.001$. Of the 518 news articles published in British media outlets 381 (73.6%) mentioned at least one solution to obesity and of the 250 published in German media outlets 138 (55.2%) did so. News articles from British media outlets were also significantly more likely than news articles from German ones to mention: ‘surgery’, odds ratio 2.0, $\chi^2(1, N=768)=8.690$, $p=.003$; ‘drugs’, odds ratio 2.2, $\chi^2(1, N=768)=6.932$, $p=.008$; ‘exercise’, odds ratio 1.8, $\chi^2(1, N=768)=9.948$, $p=.002$; ‘education’, odds ratio 3.3, $\chi^2(1, N=768)=12.604$, $p<.001$ and ‘change affordability/availability’, odds ratio 4.5, $\chi^2(1, N=768)=14.092$, $p<.001$ as solutions to obesity. Additionally, ‘legal punishment’ was not mentioned in any of the analysed news articles that were published in German media outlets. As Table 6.13 below shows, differences
between the proportions of news articles published in British and German media outlets that mentioned any of the remaining solutions to obesity were not statistically significant.

Table 6.13 Number of News Articles Mentioning Obesity Solutions by Country

<table>
<thead>
<tr>
<th>Solution</th>
<th>Country</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Britain</td>
<td>Germany</td>
</tr>
<tr>
<td>Acceptance</td>
<td>8 (1.5%)</td>
<td>3 (1.2%)</td>
</tr>
<tr>
<td>Bans</td>
<td>10 (1.9%)</td>
<td>7 (2.8%)</td>
</tr>
<tr>
<td>Change Advertising</td>
<td>23 (4.4%)</td>
<td>5 (2.0%)</td>
</tr>
<tr>
<td>Change Affordability/Availability</td>
<td>52 (10.0%)</td>
<td>6 (2.4%)</td>
</tr>
<tr>
<td>Change Environments</td>
<td>10 (1.9%)</td>
<td>1 (0.4%)</td>
</tr>
<tr>
<td>Change in Eating</td>
<td>106 (20.5%)</td>
<td>52 (20.8%)</td>
</tr>
<tr>
<td>Change Package Sizes</td>
<td>11 (2.1%)</td>
<td>1 (0.4%)</td>
</tr>
<tr>
<td>Coming Out</td>
<td>2 (0.4%)</td>
<td>1 (0.4%)</td>
</tr>
<tr>
<td>Content Disclosure</td>
<td>33 (6.4%)</td>
<td>10 (4.0%)</td>
</tr>
<tr>
<td>Diet/Eat Less</td>
<td>115 (22.2%)</td>
<td>42 (16.8%)</td>
</tr>
<tr>
<td>Drugs</td>
<td>60 (11.6%)</td>
<td>14 (5.6%)</td>
</tr>
<tr>
<td>Education</td>
<td>62 (12.0%)</td>
<td>10 (4.0%)</td>
</tr>
<tr>
<td>Exercise</td>
<td>169 (32.6%)</td>
<td>54 (21.6%)</td>
</tr>
<tr>
<td>Financial Penalty</td>
<td>50 (9.7%)</td>
<td>24 (9.6%)</td>
</tr>
<tr>
<td>Legal Punishment</td>
<td>15 (2.9%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Surgery</td>
<td>97 (18.7%)</td>
<td>26 (10.4%)</td>
</tr>
</tbody>
</table>

*a χ² (Chi square) test p-value. b Fisher’s exact test p-value.

Finally, of the 410 news articles published in British media outlets which contained photographs 147 (35.9%) featured at least one variable measuring the visual expression of frames and of the 173 news articles published in German media outlets which featured photographs 70 (40.5%) did so. These differences were not statistically significant (χ²(1, N=583)=1.106, p=.293). As Table 6.14 below shows, there were no statistically significant differences between news articles published in media outlets from the two countries in terms of featuring a ‘food label’, ‘foods or drinks’ and ‘tools measuring size and weight’.

Table 6.14 Number of News Articles Visually Expressing Frames by Country

<table>
<thead>
<tr>
<th>Visual</th>
<th>Country</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Britain</td>
<td>Germany</td>
</tr>
<tr>
<td>Food Label</td>
<td>1 (0.2%)</td>
<td>3 (1.7%)</td>
</tr>
<tr>
<td>Foods or Drinks</td>
<td>98 (23.9%)</td>
<td>51 (29.5%)</td>
</tr>
<tr>
<td>Tools Measuring Size and Weight</td>
<td>48 (11.7%)</td>
<td>20 (11.6%)</td>
</tr>
</tbody>
</table>

*a χ² (Chi square) test p-value. b Fisher’s exact test p-value.

* significant at p<.05.
6.3.5 Article Length and Frame Elements
Finally, it emerged that the longer the news article, the higher the number of distinct causes of, consequences of and solutions to obesity that were mentioned. Specifically, the number of distinct causes of obesity that were mentioned in a news article was moderately correlated with article length, $r=.35$, $p$ (two-tailed) $<.01$. The number of distinct consequences that were mentioned in a news article was weakly correlated with article length, $r=.21$, $p$ (two-tailed) $<.01$ and the number of distinct solutions that were mentioned in a news article was also moderately correlated with article length, $r=.40$, $p$ (two-tailed) $<.01$. These interpretations are based on Cohen’s (1988) seminal recommendation to interpret a correlation coefficient of .10 as representing a weak correlation, a correlation coefficient of .30 as representing a moderate correlation and a correlation coefficient of .50 or larger as representing a strong correlation.

6.4 Prevalence of Obesity Frames
To understand the frequency with which the six identified obesity frames were used in the total sample, the earlier described procedure for re-assembly of frame elements back into frames was followed. Before reporting data about the prevalence of the six obesity frames overall, by media outlet, year and country, it may be useful to note that, as was the case with frame elements, not every news article contained one of the six obesity frames and many news articles contained more than one. This is why the number of frames reported below may not equal the number of news articles.

Overall, 588 of the news articles representing 76.6% of the total number of news articles analysed mentioned at least one obesity frame. This percentage may have been higher had a different procedure for re-assembling frame elements back into frames been adopted. The fact that only unique frame elements were relied on to trace the use of the different obesity frames means that the remaining 23.4% of news articles did not necessarily not mention a frame element at all - maybe they mentioned frame elements that are shared between several frames. The figure of 76.6% should not be interpreted as an indicator of the success of the inductive phase to successfully identify the full range of ways of discussing obesity, but rather as a reflection of the procedure for frame re-assembly adopted here.
In terms of prevalence, the ‘medical progress’ frame was identified in 165 news articles representing 21.5% of the total number of 768 news articles analysed. The ‘self-control’ frame appeared in 390 (50.8%) news articles, the ‘education’ frame in 114 (14.8%), the ‘environments’ frame in 179 (23.3%), the ‘acceptance’ frame in 18 (2.3%) and the ‘coming out’ frame in 15 (2.0%) news articles.

The six analysed media outlets differed significantly with respect to the proportion of news articles from each media outlet which expressed the ‘acceptance’ frame of obesity (Fisher's exact test, two-sided, \(p=.045\)), the ‘education’ frame of obesity (\(\chi^2(5, N=768)=47.507, p<.001\)), the ‘environments’ frame of obesity (\(\chi^2(5, N=768)=25.222, p<.001\)) and the ‘medical progress’ frame of obesity (\(\chi^2(5, N=768)=12.825, p=.025\)). As Table 6.15 below shows, there were no statistically significant differences between the six analysed media outlets in terms of featuring the ‘coming out’ and ‘self-control’ frames of obesity.
Table 6.15 Number of News Articles Featuring Obesity Frames by Media Outlet

<table>
<thead>
<tr>
<th>Obesity Frame</th>
<th>dailymail.co.uk</th>
<th>Guardian.co.uk</th>
<th>thetimes.co.uk</th>
<th>Bild.de</th>
<th>sueddeutsche.de</th>
<th>welt.de</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Progress</td>
<td>77 (24.6%)</td>
<td>26 (21.7%)</td>
<td>21 (24.7%)</td>
<td>26 (23.9%)</td>
<td>6 (8.7%)</td>
<td>9 (12.5%)</td>
<td>.025(^a*)</td>
</tr>
<tr>
<td>Self-control</td>
<td>175 (56.2%)</td>
<td>61 (50.8%)</td>
<td>39 (45.9%)</td>
<td>43 (39.4%)</td>
<td>37 (53.6%)</td>
<td>35 (48.6%)</td>
<td>.073(^a)</td>
</tr>
<tr>
<td>Education</td>
<td>38 (12.1%)</td>
<td>38 (31.7%)</td>
<td>20 (23.5%)</td>
<td>4 (3.7%)</td>
<td>8 (11.6%)</td>
<td>6 (8.3%)</td>
<td>&lt;.001(^a*)</td>
</tr>
<tr>
<td>Environments</td>
<td>63 (20.1%)</td>
<td>47 (39.2%)</td>
<td>24 (28.2%)</td>
<td>18 (16.5%)</td>
<td>16 (23.2%)</td>
<td>11 (15.3%)</td>
<td>&lt;.001(^a*)</td>
</tr>
<tr>
<td>Acceptance</td>
<td>3 (1.0%)</td>
<td>5 (4.2%)</td>
<td>3 (3.5%)</td>
<td>1 (0.9%)</td>
<td>4 (5.8%)</td>
<td>2 (2.8%)</td>
<td>.045(^b*)</td>
</tr>
<tr>
<td>Coming Out</td>
<td>7 (2.2%)</td>
<td>5 (4.2%)</td>
<td>1 (1.2%)</td>
<td>2 (1.8%)</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>.403(^b)</td>
</tr>
</tbody>
</table>

\(^a\) a $\chi^2$ (Chi square) test p-value. \(^b\) a Fisher’s exact test p-value.

* significant at p<.05.
Additionally, there were significant differences between the proportions of news articles published in each of the three analysed years which featured the ‘education’ frame of obesity ($\chi^2(2, N=768)=9.265$, $p=.010$) and the ‘environments’ frame of obesity ($\chi^2(2, N=768)=9.201$, $p=.010$). As Table 6.16 below shows, there were no statistically significant differences between the proportions of news articles published in each of the three analysed years when it comes to the remaining obesity frames.

<table>
<thead>
<tr>
<th>Obesity Frame</th>
<th>Year</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2009</td>
<td>2010</td>
</tr>
<tr>
<td>Medical Progress</td>
<td>54 (22.7%)</td>
<td>39 (16.3%)</td>
</tr>
<tr>
<td>Self-control</td>
<td>118 (49.6%)</td>
<td>130 (54.4%)</td>
</tr>
<tr>
<td>Education</td>
<td>45 (18.9%)</td>
<td>40 (16.7%)</td>
</tr>
<tr>
<td>Environments</td>
<td>54 (22.7%)</td>
<td>71 (29.7%)</td>
</tr>
<tr>
<td>Acceptance</td>
<td>7 (2.9%)</td>
<td>6 (2.5%)</td>
</tr>
<tr>
<td>Coming Out</td>
<td>3 (1.3%)</td>
<td>3 (1.3%)</td>
</tr>
</tbody>
</table>

$^a$ a $\chi^2$ (Chi square) test p-value, $^b$ a Fisher’s exact test p-value. $^*$ significant at $p<.05$.

Further, news articles that were published in British media outlets were significantly more likely than news articles that were published in German ones to use the ‘environments’ frame to discuss obesity, odds ratio 1.6, $\chi^2(1, N=768)=5.841$, $p=.016$. News articles published in British media outlets were also significantly more likely than news articles published in German ones to use the ‘medical progress’ frame, odds ratio 1.6, $\chi^2(1, N=768)=5.680$, $p=.017$. Additionally, news articles from British media outlets were significantly more likely than news articles from German ones to use the ‘education’ frame, odds ratio 2.9, $\chi^2(1, N=768)=17.133$, $p<.001$. As Table 6.17 below shows, there were no statistically significant differences between news articles that were published in British and German media outlets in terms of featuring the remaining frames of obesity.
Table 6.17 Number of News Articles Featuring Obesity Frames by Country

<table>
<thead>
<tr>
<th>Obesity Frame</th>
<th>Country</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Britain</td>
<td>Germany</td>
</tr>
<tr>
<td>Medical Progress</td>
<td>124 (23.9%)</td>
<td>41 (16.4%)</td>
</tr>
<tr>
<td>Self-control</td>
<td>275 (53.1%)</td>
<td>115 (46.0%)</td>
</tr>
<tr>
<td>Education</td>
<td>96 (18.5%)</td>
<td>18 (7.2%)</td>
</tr>
<tr>
<td>Environments</td>
<td>134 (25.9%)</td>
<td>45 (18.0%)</td>
</tr>
<tr>
<td>Acceptance</td>
<td>11 (2.1%)</td>
<td>7 (2.8%)</td>
</tr>
<tr>
<td>Coming Out</td>
<td>13 (2.5%)</td>
<td>2 (0.8%)</td>
</tr>
</tbody>
</table>

*a χ² (Chi square) test p-value. b Fisher’s exact test p-value. *significant at p<.05.

Finally, it also emerged that the number of distinct obesity frames that were used in a news article was moderately correlated with article length, r=.37, p (two-tailed) <.01, meaning that the longer the news article the higher the number of distinct obesity frames that were mentioned.

6.5 Discussion

In this section, findings regarding the frequency of use of frame elements and of the six identified obesity frames - ‘medical progress’, ‘self-control’, ‘education’, ‘environments’, ‘acceptance’ and ‘coming out’ - are considered, as in the preceding chapter, from three perspectives: in the context of past research on obesity in the media; with respect to frames’ potential to advance an understanding of obesity in individualising or systemic terms; and in the context of framing theory.

6.5.1 Prevalence of Frame Elements and Obesity Frames and Evidence from Existing Research

To enable direct comparisons, key findings regarding the frequency with which distinct frame elements were mentioned and obesity frames were used are compared here against examples from past research which followed a research design similar to the one adopted in the present study.

To start with, this study found that 68.8% of the news articles in the total sample mentioned at least one consequence of obesity, 67.6% at least one solution to obesity and 51.6% at least one cause of obesity. Consequences closely followed by solutions were the most frequently and causes the least frequently mentioned aspect of obesity. This finding that the largest proportion of the studied news articles published in British and German media outlets discussed the consequences of obesity contrasts with evidence from past research. Furrer Pasquali (2010) who...
analysed obesity-related news from Switzerland found that the largest proportion of news articles discussed solutions to obesity closely followed by consequences. At the same time, despite the differences in target geographies and time frames (Furrer Pasquali (2010) analysed news articles published between 1955 and 2005) both studies overlap in observations that causes were the least discussed aspect of obesity.

With regard to distinct causes of obesity, the present study found that the most frequently mentioned cause of obesity in the total sample of news articles published in British and German media outlets was ‘eating unhealthy foods’ (23.3%) followed by ‘overeating’ (18.8%) and ‘physical inactivity’ (18.1%). Thus, issues related to food consumption were the most frequently discussed causes of obesity mentioned in 42.1% of the total sample of news articles (a percentage representing the combined total of ‘eating unhealthy foods’ and ‘overeating’).

These findings corroborate conclusions from several existing studies on obesity in the media. In a study of obesity-related news from US-based media outlets Barry et al. (2011) found that the most frequently discussed cause of obesity was ‘the consumption of unhealthy foods’ followed by ‘exercise’ defined as children playing too many video games. Researching the treatment of obesity in televised news from Australia, Bonfiglioli et al. (2007) similarly found that causes related to ‘nutrition’ such as eating too much or eating junk food were more frequently mentioned than causes related to ‘physical inactivity’. Drawing on the analysis of news articles from British media outlets, Hilton, Patterson and Teyhan (2012) observed that ‘poor diet/overeating’ was the most frequently mentioned cause of obesity. Kim and Willis (2007) similarly identified ‘unhealthy diet’ and ‘sedentary lifestyle’ as the two most frequently mentioned causes of obesity in a sample of news reports from US-based media outlets. Studying news also from US-based publications, Saguy and Almeling (2008) reported that ‘individual choices’ regarding diet and exercise were the most frequently mentioned causes of obesity and Saguy and Gruys (2010) found that news articles from US-based media outlets predominantly cited ‘individual choices’ like overeating as causing obesity.

These past studies cover geographies, time periods and media types different from the ones targeted by the present study: Barry et al. (2011) studied obesity-related news published or aired in the US between 2000 and 2009;
Bonfiglioli et al. (2007) analysed news broadcast in Australia between May 2005 and October 2005; Kim and Willis (2007) analysed news published or aired in the US between 1995 and 2004; Saguy and Almeling (2008) analysed news articles published in the US in 1999 and 2003; and Saguy and Gruys (2010) studied news articles published in the US between 1995 and 2005. Although research by Hilton, Patterson and Teyhan (2012) was similarly to the present study based on the analysis of British media outlets, it covered a different time frame (1996 to 2010) and seven print media outlets different from those studied here. The fact that despite these differences similar conclusions were reached as to the most frequently discussed causes of obesity by these past studies and the present one offers robust evidence that there may be a ‘universal’ way of covering the causes of obesity which prioritises individual behaviour related to food consumption and physical activity.

With respect to distinct consequences of obesity, this study found that consequences for ‘physical health’ (57.2%) were most frequently mentioned in the total sample of news articles published in British and German media outlets. Similarly, drawing on the analysis of news articles published in British media outlets, Hilton, Patterson and Teyhan (2012) identified the ‘risk to health’ as the most frequently mentioned consequence of obesity. As mentioned, research by Hilton, Patterson and Teyhan (2012) was carried over a time frame that is different from the one covered in the present study and while their analysis focused on British media outlets their selection was different. The fact that despite these differences both studies reached similar conclusions with respect to the most frequently mentioned consequence of obesity may, however, speak of a pattern in the coverage of the consequences of obesity which transcends time frames and cuts across different media outlets and types. The existence of such a pattern however needs to be verified by future studies covering more and/or different time frames, geographies, media outlets and types.

Regarding distinct solutions to obesity, it emerged in the present study that ‘exercise’ (29.0%), followed by ‘change in eating’ (20.6%) and ‘diet/eat less’ (20.4%) were the most frequently mentioned solutions to obesity. Thus, behavioural changes related to food consumption were discussed as a solution to obesity in 41.0% of the total sample of news articles (a percentage representing
the combined total of ‘change in eating’ and ‘diet/eat less’). These findings corroborate findings from several existing studies on obesity in the media. Analysing news from US-based media outlets, Kim and Willis (2007) found that ‘healthy diet’ and ‘physical activities’ were the two most frequently identified solutions to obesity. Additionally, drawing on the analysis of US-based media outlets as well, Saguy and Almeling (2008) found that ‘individual changes’ including diet and exercise were the most frequently mentioned solutions to obesity. Finally, Saguy and Gruys (2010) also reported that news articles from US-based media outlets predominantly cited ‘behavioural changes’ like dieting and exercising when discussing the solutions to obesity.

As mentioned earlier, these studies by Kim and Willis (2007), Saguy and Almeling (2008) and Saguy and Gruys (2010) were based on geographies, time periods and media types different from the ones targeted by the present study. Analysis by Kim and Willis (2007) was based on news reports from print newspapers and television, while analysis by Saguy and Almeling (2008) and Saguy and Gruys (2010) was based solely on news articles published in print newspapers. Yet, the fact that despite these differences, similar findings were arrived at with respect to the most frequently mentioned solutions to obesity may point to robust evidence that there is a consistent pattern of covering the solutions to obesity which transcends differences in geography, time periods and media types and which prioritises issues around food consumption and physical activity.

At the same time, when ‘exercise’, ‘change in eating’ and ‘diet/eat less’ are viewed separately, findings from the present study contradict findings from two examples from past research. In their analysis of US-based media outlets, Barry et al. (2011) found that the most frequently discussed solution to obesity was ‘behaviour change’ related to diet followed by ‘exercise’ defined as being more physically active. Based on the analysis of news also from US-based media outlets Bonfiglioli et al. (2007) reported that ‘improved nutrition’ the equivalent of ‘change in eating’ from the present study and ‘reduced energy intake’ the equivalent of ‘diet/eat less’ from the present study were the first and the second most commonly discussed solutions to obesity followed by ‘physical activity’ in the third place. These findings by Barry et al. (2011) and Bonfiglioli et al. (2007) contrast with findings from the present study which identified ‘exercise’ as the
most frequently mentioned solution to obesity in the total sample of news articles from British and German media outlets ahead of ‘change in eating’ and ‘diet/eat less’.

As research by both Barry et al. (2011) and Bonfiglioli et al. (2007) was based on media outlets from the US, this difference in findings may point to the existence of an American and a European approach to covering the solutions to obesity with the American approach being characterised by placing greater emphasis on food consumption and the European or rather British and German approach being characterised by placing greater emphasis on physical activity. The possibility to attribute this difference in findings to cultural differences between the US and the two Western European countries - as opposed to differences in the time frames or media types analysed - is enhanced by the fact that Barry et al. (2011) and Bonfiglioli et al. (2007) studied different time periods and media types. Barry et al. (2011) focused on the 2000-2009 time period, Bonfiglioli et al. (2007) on the May 2005 - October 2005 time period. Barry et al. (2011) studied television, print newspapers and magazines, Bonfiglioli et al. (2007) television.

It further emerged in the present study that in the total sample of news articles from British and German media outlets ‘self-control’ (50.8%) was the most frequently used frame to discuss obesity, followed by the ‘environments’ frame (23.3%) and the ‘medical progress’ frame (21.5%). Similarly, in her seminal study on the reporting of obesity in a US-based newspaper, Lawrence (2004) found that the ‘behavioural’ frame corresponding to the ‘self-control’ frame from the present study was the most frequently used frame followed by the ‘environmental’ frame corresponding to the ‘environments’ frame from the present study and then the ‘biological’ frame corresponding to the ‘medical progress’ frame from the present study. The prominent use of the ‘self-control’ frame identified in the present study additionally corroborates findings by Saguy and Almeling (2005) who reported that the largest proportion of news articles published in the US-based media outlets they analysed covered obesity in terms of an ‘individual moral failings’ frame.

Findings regarding the overall prevalence of obesity frames in the total sample of news articles from British and German media outlets, however, contradict findings from the same above-mentioned study by Saguy and Almeling.
which also reported that a ‘genetics’ frame corresponding to the ‘medical progress’ frame from the present study was the second most frequently used obesity frame. Findings from the present study further contradict findings by Holmes (2009) who reported that in the Canadian media outlet that was analysed a ‘scientific advances’ frame corresponding to the ‘medical progress’ frame from this study was the most frequently used frame to discuss obesity, followed in the second place by a ‘back to basics’ frame corresponding to the ‘self-control’ frame from this study and finally a ‘government intervention’ frame corresponding to the ‘environments’ frame that was identified here.

It can, therefore, be concluded that past research drawing on the analysis of US-based media outlets appears to agree over identifying equivalents of the ‘self-control’ frame of obesity from the present study as the predominant way of discussing obesity (see Lawrence, 2004; Saguy & Almeling, 2005). Research by Holmes (2009) drawing on examples of news reporting from a Canadian newspaper provided the only example in which a different way of discussing obesity, namely in terms of ‘scientific advances’ which resembles the ‘medical progress’ frame from the present study was the most predominant. Since findings from the present study drawing on data from Britain and Germany corroborate findings that the predominant way of reporting on obesity is in terms of ‘self-control’, findings described by Holmes (2009) could be viewed as an outlier.

Further, this study also identified certain trends over time. It emerged that mentions of ‘physical inactivity’ declined from 2009 to 2011 resonating with findings by De Brún, McKenzie, McCarthy and McGloin (2011) that in news articles published in an Irish newspaper references to ‘inactivity’ decreased over time and with findings by Hilton, Patterson and Teyhan (2012) that in news articles from British media outlets mentions of ‘lack of exercise’ declined significantly over time. However, the present study found no trends in two areas where existing research had identified trends over time. The present study found that mentions of ‘biological/genetic’ causes of obesity exhibited no clear upward or downward trend over time. This contrasts with findings by Saguy, Gruys and Gong (2010) who analysed news articles published in French and US-based media outlets and found that mentions of ‘biological factors’ as a cause of obesity declined over time in media outlets from both countries. Additionally, findings from the present study
that there was no clear trend in the use of the ‘environments’ frame also contradict findings from past research and particularly, findings by Lawrence (2004) that the use of the ‘environmental’ frame of obesity increased over time.

In this context, it should be noted that findings from the present study may need to be viewed with caution. Whereas the present study analysed a period of three years, De Brún, McKenzie, McCarthy and McGloin (2011) studied obesity-related news articles published in an Irish media outlet over the span of 13 years (1997 to 2009), Hilton, Patterson and Teyhan (2012) analysed news articles published in British media outlets over the course of 15 years (1996 to 2010), Lawrence (2004) analysed news articles published in a US-based media outlet during seven strategically selected years (1985, 1996, 1990, 2000, 2001, 2002 and 2003) and Saguy, Gruys and Gong’s (2010) conclusions about over time trends in obesity reporting were based on the analysis of 11 years of news coverage of obesity in US-based media outlets (1995 to 2005). The present study may be incapable of fully capturing developments that would become apparent in studies covering longer time periods.

6.5.2 Prevalence of Individualising and Systemic Obesity Frames in News Articles

To recap, the ‘environments’ frame was identified as the only obesity frame in the present study which by discussing obesity in terms of involuntary, universal and environmental risk advanced an understanding of obesity in systemic terms. As Lawrence (2004) has argued, public health problems ‘become amenable to broad policy solutions’ (p. 56) which burden powerful groups like governments and industries when they are discussed in such systemic terms. In this context, the fact that the ‘environments’ frame emerged as the second most frequently employed frame to discuss obesity in the total sample can be interpreted as a positive sign in this direction. Additionally, while there were significant differences in the proportion of news articles from British and German media outlets using the ‘environments’ frame (news articles published in British media outlets were significantly more likely to employ it than news articles published in German ones) the ‘environments’ frame took second place to the ‘self-control’ frame in both countries.
Due to significant differences in the proportion of news articles from each media outlet which used the ‘environments’ frame it can, however, be said that some of the online newspapers analysed in the present study were more conductive to creating an understanding of obesity in systemic terms. Guardian.co.uk appears to be most conductive to creating such an understanding with 39.2% of all news articles published there using the ‘environments’ frame, followed by thetimes.co.uk (28.2%), sueddeutsche.de (23.2%), dailymail.co.uk (20.1%), Bild.de (16.5%) and welt.de (15.3%).

6.5.3 Prevalence of Obesity Frames and Framing Theory
The ‘acceptance’ and ‘coming out’ frames - which were identified as reframes because they diverged from the understanding characterising the ‘medical progress’, ‘self-control’, ‘education’ and ‘environments’ frames that obesity is a physical health problem for which the effect of weight is fundamental - were not, perhaps not unexpectedly, frequently used. The ‘acceptance’ frame was identified in 2.3% of the total sample of news articles published in British and German media outlets, the ‘coming out’ frame in 2.0% with no significant differences by media outlet, year or country. The identification of significant differences is, however, complicated by the low number of news articles in which the frames were used.

6.6 Summary
In sum, certain findings from this study throw more weight behind findings from past research based on geographies, media types, media outlets and time frames which differ from the ones studied here. Among these, the present study corroborates conclusions from much past research on obesity in the media informed by framing theory that: issues related to food consumption like eating unhealthy foods and overeating and issues around physical activity tend to be most frequently mentioned as causes of obesity; issues around food consumption and physical activity also tend to be most frequently mentioned as solutions to obesity; and last but not least, obesity tends to be most frequently framed as a matter of control over personal behaviour.

Findings from this study also lend support to a number of observations in areas that have received less attention in past research on obesity in the media and thus, will need to be confirmed in future research covering more/different geographies, media types, media outlets and time periods in order to be able to
speak of clear patterns in obesity reporting. Among these are findings that: the causes of obesity tend to be least frequently mentioned relative to either the consequences of or the solutions to obesity; and the consequences of obesity for physical health in particular tend to be the most frequently mentioned type of distinct consequences.

Additionally, the present study speculated that there may be an American and a European approach to prioritising the solutions to obesity. This speculation grew out of the fact that findings from the present study that exercise was more frequently mentioned as a solution to obesity than either changes in eating or dieting/eating less were based on the analysis of British and German media outlets, whereas findings that any of the two issues around food consumption were more frequently mentioned as solutions to obesity than exercise were based on the analysis of various US-based media outlets covering various time periods. This speculation needs to be tested against more European evidence.

The following chapter, the last of the findings chapters, addresses two areas of obesity communication that have received even less attention in past research - the antecedents of obesity frames and their consequences or how research on consequences can be stimulated.
Chapter 7  Antecedents of the Frames of Obesity and Steps towards Understanding Consequences

7.1 Introduction

This chapter addresses the two remaining core aims of the present study - to expand understanding about the antecedents of obesity frames and to stimulate research into their consequences. With respect to antecedents, this chapter explores whether news articles using the ‘self-control’ frame, which emerged as the most frequently used obesity frame, are also the ones driven by the highest number of distinct, established journalistic news values (RQ2.1) and whether significant differences in the use of obesity frames exist between media outlets depending on their political leaning (RQ2.2) and reporting style (RQ2.3). With respect to consequences, this chapter explores whether a significant relationship exists between the use of frames by news producers in news articles and by readers in accompanying readers’ comments (RQ3). By reporting correlation the present study does not offer evidence that media content has an effect on people’s understanding of obesity. This exploratory analysis can help identify interesting points to prioritise in further experimental studies.

Findings reported in this chapter draw on all three aspects of the second, deductive phase: the coding of the total sample of 768 news articles against a pre-defined list of established journalistic news values; the coding of the total sample of 768 news articles for mentions of frame-related variables; and the coding of the total sample of 430 comment threads accompanying news articles for mentions of frame-related variables.

The chapter begins with an ‘Obesity Frames and Antecedents’ section which reports findings regarding the news values driving obesity coverage, explores the concentration of distinct news values in news articles written in each of the six obesity frames and examines whether significant differences exist in the use of obesity frames between news articles from media outlets with different political leanings and reporting styles. The following ‘Obesity Frames and Consequences’ section reports the prevalence of frame elements and frames in readers’ comments accompanying news articles and investigates whether a significant relationship exists between mentions of frame elements and the use of frames by news
producers in news articles and by readers in accompanying comment sections. As in the preceding two chapters, the final 'Discussion' section considers the meaning of the findings reported in this chapter from three perspectives: in the context of past research on obesity in the media; with respect to understanding obesity in individualising or systemic terms; and in the context of framing theory.

7.2 Antecedents and Obesity Frames

As mentioned earlier, not only in the context of obesity communication but also more generally a considerable lack has been identified in terms of research into the production of frames and the factors that may affect their production (Borah, 2011). This section addresses this gap and explores whether axiomatic characteristics of journalistic work, specifically established journalistic news values (RQ2.1) and axiomatic characteristics of the media outlets for which journalists work, namely political leaning (RQ2.2) and reporting style (RQ2.3) may explain aspects of the use of obesity frames in news articles.

7.2.1 Journalistic News Values and Obesity Frames

Before introducing findings about the journalistic news values driving the analysed obesity coverage and reporting findings regarding the concentration of distinct, established journalistic news values in news articles written in each of the six obesity frames identified in this study, results from the final reliability test for the coding of news values-related variables are presented. Final reliability testing resulted in Cohen’s kappa and percent agreement of 1.00 and 100% for all variables except: 'bad news' (.83, 92%); ‘controversial’ (.55, 96%); ‘elite’ (.92, 96%); ‘entertainment’ (.87, 95%); ‘good news’ (.75, 96%); and ‘new’ (.92, 96%). All of these coefficients indicate acceptable levels of inter-coder agreement. Additionally, it should be noted that, as was the case with frame-related variables and frames, the numbers reported below may not add up to 100% as some news articles met the criteria for several distinct news values.

To begin with, 759 of the news articles representing 98.8% of the total sample of 768 news articles analysed met the criteria for at least one of the investigated news values. ‘Bad news’ (with an especially negative slant) were identified in 246 news articles representing 32.0% of the total sample of 768 news articles analysed. ‘Celebrity’ (mentions of famous people) was identified in 40 (5.2%) news articles, ‘controversial’ (references to something as being
controversial or the presentation of something as a dispute between parties) in 71 (9.2%), ‘elite’ (references to powerful individuals, organisations or institutions) in 299 (40.0%), ‘entertainment’ (news about sex or show business or news that create human interest by focusing on an individual in such a way that interest or sympathy is aroused) in 136 (17.7%), ‘good news’ (with an especially positive slant) in 135 (17.6%), ‘locality’ (news involving the home country or someone/something related to the home country) in 326 (42.4%), ‘magnitude’ (news about the number of people affected or the amount of monetary/physical resources involved) in 253 (33.0%) and ‘new’ (references to anything new) in 275 (35.8%) news articles.

Further, of the 759 news articles in which at least one of the investigated established journalistic news values could be identified, 510 were published in British media outlets (67.2%) and 249 (32.8%) in German ones. It emerged that news articles published in German media outlets were significantly more likely than news articles published in British media outlets to meet the criteria for the news values of ‘elite’ (odds ratio 1.6, $\chi^2(1, N=759)=8.951$, $p=.003$), ‘locality’ (odds ratio 1.6, $\chi^2(1, N=759)=9.807$, $p=.002$) and ‘magnitude’ (odds ratio 1.5, $\chi^2(1, N=759)=6.052$, $p=.014$). As Table 7.1 below shows, there were no statistically significant differences between the proportions of news articles from British and German media outlets that met the criteria for any of the remaining journalistic news values.

Table 7.1 Number of News Articles in which Distinct News Values were Present - by Country

<table>
<thead>
<tr>
<th>News Value</th>
<th>Country</th>
<th>P-value</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Britain</td>
<td>Germany</td>
<td></td>
</tr>
<tr>
<td>Bad News</td>
<td>161 (31.6%)</td>
<td>85 (34.1%)</td>
<td>.478&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Celebrity</td>
<td>31 (6.1%)</td>
<td>9 (3.6%)</td>
<td>.154&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Controversial</td>
<td>53 (10.4%)</td>
<td>18 (7.2%)</td>
<td>.160&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Elite</td>
<td>182 (35.7%)</td>
<td>117 (47.0%)</td>
<td>.003&lt;sup&gt;*a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Entertainment</td>
<td>96 (18.8%)</td>
<td>40 (16.1%)</td>
<td>.352&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Good News</td>
<td>85 (16.7%)</td>
<td>50 (20.1%)</td>
<td>.248&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Locality</td>
<td>199 (39.0%)</td>
<td>127 (51.0%)</td>
<td>.002&lt;sup&gt;*a&lt;/sup&gt;</td>
</tr>
<tr>
<td>Magnitude</td>
<td>155 (30.4%)</td>
<td>98 (39.4%)</td>
<td>.014&lt;sup&gt;*a&lt;/sup&gt;</td>
</tr>
<tr>
<td>New</td>
<td>173 (33.9%)</td>
<td>102 (41.0%)</td>
<td>.058&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

<sup>a</sup> a $\chi^2$ (Chi square) test p-value, <sup>b</sup> a Fisher’s exact test p-value. <sup>*</sup> significant at $p<.05$. 

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To answer Research Question 2.1 which aimed to find out whether news articles written in what emerges as the most frequently used obesity frame were also the ones driven by the largest number of distinct journalistic news values, the average number of distinct news values per news article from each of the six inductively identified obesity frames was calculated. It emerged that a news article in the ‘medical progress’ frame met the criteria of 2.5 distinct news values on average, in the ‘self-control’ frame of 2.3, in the ‘education’ frame of 2.7, in the ‘environments’ frame of 2.4, in the ‘acceptance’ frame of 2.3 and in the ‘coming out’ frame of 2.3 distinct news values. It can therefore be concluded that the concentration of distinct news values in news articles using the ‘self-control’ frame (the most frequently used obesity frame overall and when viewing the British and German portions of the total sample of news articles separately) does not explain its frequent use. As the above findings show, it was not news articles in the ‘self-control’ but rather in the ‘education’ frame that met the criteria for the highest number of distinct journalistic news values.

7.2.2 Media Outlets’ Political Leaning and Frame Elements

To recap, in order to answer Research Question 2.2 regarding the existence of significant differences in the use of obesity frames between news articles from media outlets with different political leanings, media outlets were sampled so as to ensure that both ends of the liberal-conservative spectrum of political leaning are represented. As mentioned earlier, Guardian.co.uk and sueddeutsche.de were, by analogy with their print versions, selected to represent the liberal end of the political spectrum, while Bild.de, dailymail.co.uk, thetimes.co.uk and welt.de also by analogy with their print versions were chosen to represent the conservative end of the political spectrum. Of the 768 news articles in the total sample 579 (75.4%) were published in conservative media outlets and 189 (24.6%) in liberal ones.

Starting with the causes of obesity, of the 579 news articles published in conservative media outlets 287 (49.6%) mentioned at least one cause of obesity and of the 189 news articles published in liberal media outlets 109 (57.7%) did so. These differences were not statistically significant ($\chi^2(1, N=768)=3.747, p=.053$). News articles published in liberal media outlets were, however, significantly more likely than news articles published in conservative ones to mention: issues around the ‘affordability/availability’ of foods and drinks and active living opportunities
(odds ratio 2.1, $\chi^2(1, N=768)=7.861, p=.005$); the ‘thinness obsession’ (odds ratio 4.2, Fisher’s exact test, two-sided, $p=.009$); ‘physical inactivity’ (odds ratio 1.5, $\chi^2(1, N=768)=4.541, p=.033$) and ‘poverty’ (odds ratio 2.7, $\chi^2(1, N=768)=9.457, p=.002$) as contributors to obesity. As Table 7.2 below shows, there were no statistically significant differences with respect to the proportion of news articles published in liberal and conservative media outlets which mentioned any of the remaining causes of obesity.

**Table 7.2 Number of News Articles Mentioning Obesity Causes - by Media Outlet’s Political Leaning**

<table>
<thead>
<tr>
<th>Cause</th>
<th>Media Outlet’s Political Leaning</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Conservative</td>
<td>Liberal</td>
</tr>
<tr>
<td>Advertising</td>
<td>17 (2.9%)</td>
<td>10 (5.3%)</td>
</tr>
<tr>
<td>Affordability/Availability</td>
<td>39 (6.7%)</td>
<td>25 (13.2%)</td>
</tr>
<tr>
<td>A Virus</td>
<td>5 (0.9%)</td>
<td>1 (0.5%)</td>
</tr>
<tr>
<td>Biological/Genetic</td>
<td>72 (12.4%)</td>
<td>18 (9.5%)</td>
</tr>
<tr>
<td>Comfort Eating</td>
<td>26 (4.5%)</td>
<td>10 (5.3%)</td>
</tr>
<tr>
<td>Eating Unhealthy Foods</td>
<td>129 (22.3%)</td>
<td>50 (26.5%)</td>
</tr>
<tr>
<td>Environments</td>
<td>22 (3.8%)</td>
<td>10 (5.3%)</td>
</tr>
<tr>
<td>Lack of Knowledge/Information</td>
<td>17 (2.9%)</td>
<td>10 (5.3%)</td>
</tr>
<tr>
<td>Overeating</td>
<td>113 (19.5%)</td>
<td>31 (16.4%)</td>
</tr>
<tr>
<td>Package Sizes</td>
<td>7 (1.2%)</td>
<td>1 (0.5%)</td>
</tr>
<tr>
<td>Physical Inactivity</td>
<td>95 (16.4%)</td>
<td>44 (23.3%)</td>
</tr>
<tr>
<td>Poverty</td>
<td>22 (3.8%)</td>
<td>18 (9.5%)</td>
</tr>
<tr>
<td>Thinness Obsession</td>
<td>6 (1.0%)</td>
<td>8 (4.2%)</td>
</tr>
</tbody>
</table>

<sup>a</sup> a $\chi^2$ (Chi square) test p-value. <sup>b</sup> a Fisher’s exact test p-value. * significant at $p<.05$.

Additionally, of the 579 news articles published in conservative media outlets 398 (68.7%) mentioned at least one consequence of obesity and of the 189 news articles published in liberal media outlets 130 (68.8%) did so. These differences were not statistically significant ($\chi^2(1, N=768)=.001, p=.991$) and, as Table 7.3 below shows, differences with respect to the proportion of news articles published in liberal and conservative media outlets that mentioned specific consequences of obesity were not statistically significant either.
Table 7.3 Number of News Articles Mentioning Obesity Consequences - by Media Outlet’s Political Leaning

<table>
<thead>
<tr>
<th>Consequence</th>
<th>Media Outlet’s Political Leaning</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Conservative</td>
<td>Liberal</td>
</tr>
<tr>
<td>Comfort/Safety</td>
<td>16 (2.8%)</td>
<td>8 (4.2%)</td>
</tr>
<tr>
<td>Physical Appearance</td>
<td>10 (1.7%)</td>
<td>4 (2.6%)</td>
</tr>
<tr>
<td>Physical Health</td>
<td>331 (57.2%)</td>
<td>108 (57.1%)</td>
</tr>
<tr>
<td>Psychosocial</td>
<td>63 (10.9%)</td>
<td>28 (14.8%)</td>
</tr>
<tr>
<td>The Economy</td>
<td>119 (20.6%)</td>
<td>49 (25.9%)</td>
</tr>
<tr>
<td>The Environment</td>
<td>3 (0.5%)</td>
<td>3 (1.6%)</td>
</tr>
</tbody>
</table>

<sup>a</sup> a χ<sup>2</sup> (Chi square) test p-value. <sup>b</sup> a Fisher's exact test p-value.

* significant at p<.05.

Further, of the 579 news articles published in conservative media outlets 386 (66.7%) mentioned at least one solution to obesity and of the 189 news articles published in liberal media outlets 133 (70.4%) did so. These differences were not statistically significant (χ<sup>2</sup>(1, N=768)=.892, p=.345). News articles published in liberal media outlets were, however, significantly more likely than news articles published in conservative ones to mention ‘content disclosure’ (odds ratio 2.9, χ<sup>2</sup>(1, N=768)=11.777, p=.001) and ‘education’ (odds ratio 2.4, χ<sup>2</sup>(1, N=768)=12.459, p<.001) as solutions to obesity. News articles from liberal media outlets were also significantly more likely than news articles from conservative media outlets to mention ‘acceptance’ as a solution to obesity (odds ratio 3.8, Fisher's exact test, two-sided, p=.031). Due to the small sample sizes, the existence of a statistically significant difference between news articles from liberal and conservative media outlets with respect to mentions of ‘acceptance’ should, however, be viewed with care. As shown in Table 7.4 below, no further statistically significant differences emerged with respect to the proportion of news articles published in liberal and conservative media outlets that mentioned any of the remaining solutions to obesity.
Table 7.4 Number of News Articles Mentioning Obesity Solutions - by Media Outlet’s Political Leaning

<table>
<thead>
<tr>
<th>Solution</th>
<th>Media Outlet’s Political Leaning</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Conservative</td>
<td>Liberal</td>
</tr>
<tr>
<td>Acceptance</td>
<td>5 (0.9%)</td>
<td>6 (3.2%)</td>
</tr>
<tr>
<td>Bans</td>
<td>11 (1.9%)</td>
<td>6 (3.2%)</td>
</tr>
<tr>
<td>Change Advertising</td>
<td>17 (2.9%)</td>
<td>11 (5.8%)</td>
</tr>
<tr>
<td>Change Affordability/Availability</td>
<td>38 (6.6%)</td>
<td>20 (10.6%)</td>
</tr>
<tr>
<td>Change Environments</td>
<td>6 (1.0%)</td>
<td>5 (2.6%)</td>
</tr>
<tr>
<td>Change in Eating</td>
<td>111 (19.2%)</td>
<td>47 (24.9%)</td>
</tr>
<tr>
<td>Change Package Sizes</td>
<td>10 (1.7%)</td>
<td>2 (1.1%)</td>
</tr>
<tr>
<td>Coming Out</td>
<td>2 (0.3%)</td>
<td>1 (0.5%)</td>
</tr>
<tr>
<td>Content Disclosure</td>
<td>23 (4.0%)</td>
<td>20 (10.6%)</td>
</tr>
<tr>
<td>Diet/Eat Less</td>
<td>121 (20.9%)</td>
<td>36 (19.0%)</td>
</tr>
<tr>
<td>Drugs</td>
<td>58 (10.0%)</td>
<td>16 (8.5%)</td>
</tr>
<tr>
<td>Education</td>
<td>42 (7.3%)</td>
<td>30 (15.9%)</td>
</tr>
<tr>
<td>Exercise</td>
<td>165 (28.5%)</td>
<td>58 (30.7%)</td>
</tr>
<tr>
<td>Financial Penalty</td>
<td>50 (8.6%)</td>
<td>24 (12.7%)</td>
</tr>
<tr>
<td>Legal Punishment</td>
<td>13 (2.2%)</td>
<td>2 (1.1%)</td>
</tr>
<tr>
<td>Surgery</td>
<td>99 (17.1%)</td>
<td>24 (12.7%)</td>
</tr>
</tbody>
</table>

*a* a χ² (Chi square) test p-value.  
*b* a Fisher’s exact test p-value.  
* significant at p<.05.

Finally, of the 436 news articles that were published in conservative media outlets which also contained photographs 159 (36.5%) featured at least one variable measuring the visual expression of obesity frames and of the 147 news articles that were published in liberal media outlets which also featured photographs 58 (39.5%) did so. These differences were not statistically significant (χ²(1, N=583)=.420, p=.517) and, as Table 7.5 below shows, there were no statistically significant differences between the proportion of news articles published in liberal and conservative media outlets featuring specific variables that measure the visual expression of obesity frames.
Table 7.5 Number of News Articles Visually Expressing Frames - by Media Outlet’s Political Leaning

<table>
<thead>
<tr>
<th>Visual</th>
<th>Media Outlet’s Political Leaning</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Conservative</td>
<td>Liberal</td>
</tr>
<tr>
<td>Food Label</td>
<td>2 (0.5%)</td>
<td>2 (1.4%)</td>
</tr>
<tr>
<td>Foods or Drinks</td>
<td>105 (24.1%)</td>
<td>44 (29.9%)</td>
</tr>
<tr>
<td>Tools Measuring Size and Weight</td>
<td>53 (12.2%)</td>
<td>15 (10.2%)</td>
</tr>
</tbody>
</table>

\(^a\) a \(\chi^2\) (Chi square) test p-value. \(^b\) a Fisher’s exact test p-value.

* significant at p<.05.

7.2.3 Media Outlets’ Political Leaning and Obesity Frames

In answer to Research Question 2.2 regarding the existence of significant differences in the use of obesity frames between media outlets depending on their political leaning, it emerged that news articles published in liberal media outlets were significantly more likely than news articles published in conservative ones to use the ‘education’ frame (odds ratio 2.4, \(\chi^2\)(1, N=768)=17.880, p<.001). Of the 189 news articles published in liberal media outlets 46 (24.3%) used the ‘education’ frame, of the 579 published in conservative ones 68 (11.7%) did so. News articles from liberal media outlets were also significantly more likely than news articles from conservative ones to use the ‘environments’ frame (odds ratio 2.0, \(\chi^2\)(1, N=768)=14.098, p<.001). Of the 189 news articles published in liberal media outlets 63 (33.3%) used the ‘environments’ frame, of the 579 published in conservative ones 116 (20.0%) did so. News articles published in liberal media outlets were also significantly more likely than news articles published in conservative ones to use the ‘acceptance’ frame (odds ratio 3.2, Fisher’s exact test, two-sided, p=.022). Of the 189 news articles published in liberal media outlets 9 (4.8%) used the ‘acceptance’ frame, of the 579 published in conservative ones 9 (1.6%) did so. Due to the small sample sizes in the latter case, the existence of significant differences should, however, be viewed with care.

There were, however, no statistically significant differences between news articles from liberal and conservative media outlets in terms of their use of the ‘coming out’, ‘medical progress’ and ‘self-control’ frames of obesity. Of the 579 news articles published in conservative media outlets 2 (0.3%) discussed obesity in terms of the ‘coming out’ frame, of the 189 published in liberal media outlets 1 (0.5%) did so (Fisher’s exact test, two-sided, p=.544). Of the 579 news articles

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published in conservative media outlets 133 (23.0%) framed obesity in terms of ‘medical progress’ and of the 189 published in liberal media outlets 32 (16.9%) did so ($\chi^2(1, N=768)=3.081$, $p=.079$). Finally, of the 579 news articles published in conservative media outlets 292 (50.4%) used the ‘self-control’ frame and of the 189 news articles published in liberal media outlets 98 (51.9%) did so ($\chi^2(1, N=768)=.115$, $p=.735$).

7.2.4 Media Outlets’ Reporting Style and Frame Elements

To recap, in order to answer Research Question 2.3 which inquired about the existence of significant differences in the use of obesity frames between news articles from media outlets with different reporting styles, media outlets were sampled so as to ensure that both broadsheet and tabloid styles of reporting are represented. As mentioned earlier, Guardian.co.uk, sueddeutsche.de, thetimes.co.uk and welt.de were, by analogy with their print versions, selected to represent a broadsheet reporting style and Bild.de and dailymail.co.uk also by analogy with their print versions were chosen to represent a tabloid reporting style. Of the 768 news articles in the total sample, 346 (45.1%) were published in broadsheet style media outlets and 422 (54.9%) in tabloid style media outlets.

Starting with the causes of obesity, of the 346 news articles published in broadsheet style media outlets 182 (52.6%) mentioned at least one cause of obesity and of the 422 published in tabloid style media outlets 214 (50.7%) did so. These differences were not statistically significant ($\chi^2(1, N=768)=.272$, $p=.602$). News articles from broadsheet style media outlets were, however, significantly more likely than news articles from tabloid style media outlets to mention: ‘advertising’ (odds ratio 2.5, $\chi^2(1, N=768)=5.281$, $p=.022$); ‘affordability/availability’ (odds ratio 2.0, $\chi^2(1, N=768)=7.117$, $p=.008$); ‘environments’ (odds ratio 2.1, $\chi^2(1, N=768)=4.106$, $p=.043$); and the ‘thinness obsession’ (odds ratio 7.5, $\chi^2(1, N=768)=9.524$, $p=.002$) as causes of obesity. In contrast to that, news articles from tabloid style media outlets were significantly more likely than news articles from broadsheet style media outlets to mention ‘overeating’ as a cause of obesity (odds ratio 1.5, $\chi^2(1, N=768)=4.869$, $p=.027$). As Table 7.6 below shows, there were no statistically significant differences with respect to the proportion of news articles from broadsheet and tabloid style media outlets mentioning any of the remaining causes of obesity.
Table 7.6 Number of News Articles Mentioning Obesity Causes - by Media Outlet’s Reporting Style

<table>
<thead>
<tr>
<th>Cause</th>
<th>Broadsheet</th>
<th>Tabloid</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advertising</td>
<td>18 (5.2%)</td>
<td>9 (2.1%)</td>
<td>.022*</td>
</tr>
<tr>
<td>Affordability/Availability</td>
<td>39 (11.3%)</td>
<td>25 (5.9%)</td>
<td>.008*</td>
</tr>
<tr>
<td>A Virus</td>
<td>2 (0.6%)</td>
<td>4 (0.9%)</td>
<td>.695b</td>
</tr>
<tr>
<td>Biological/Genetic</td>
<td>37 (10.7%)</td>
<td>53 (12.6%)</td>
<td>.424a</td>
</tr>
<tr>
<td>Comfort Eating</td>
<td>13 (3.8%)</td>
<td>23 (5.5%)</td>
<td>.269a</td>
</tr>
<tr>
<td>Eating Unhealthy Foods</td>
<td>81 (23.4%)</td>
<td>98 (23.2%)</td>
<td>.951a</td>
</tr>
<tr>
<td>Environments</td>
<td>20 (5.8%)</td>
<td>12 (2.8%)</td>
<td>.043*</td>
</tr>
<tr>
<td>Lack of Knowledge/Information</td>
<td>15 (4.3%)</td>
<td>12 (2.8%)</td>
<td>.264a</td>
</tr>
<tr>
<td>Overeating</td>
<td>53 (15.3%)</td>
<td>91 (21.6%)</td>
<td>.027*</td>
</tr>
<tr>
<td>Package Sizes</td>
<td>6 (1.7%)</td>
<td>2 (0.5%)</td>
<td>.150b</td>
</tr>
<tr>
<td>Physical Inactivity</td>
<td>71 (20.5%)</td>
<td>68 (16.1%)</td>
<td>.115a</td>
</tr>
<tr>
<td>Poverty</td>
<td>22 (6.4%)</td>
<td>18 (4.3%)</td>
<td>.194a</td>
</tr>
<tr>
<td>Thinness Obsession</td>
<td>12 (3.5%)</td>
<td>2 (0.5%)</td>
<td>.002*</td>
</tr>
</tbody>
</table>

*a χ² (Chi square) test p-value, b Fisher’s exact test p-value.
* significant at p<.05.

Additionally, of the 346 news articles published in broadsheet style media outlets 228 (65.9%) mentioned at least one consequence of obesity and of the 422 published in tabloid style media outlets 300 (71.1%) did so. These differences were not statistically significant (χ²(1, N=768)=2.387, p=.122) and, as shown in Table 7.7 below, differences with respect to the proportion of news articles published in broadsheet style and tabloid style media outlets that mentioned specific consequences of obesity were not statistically significant either.

Table 7.7 Number of News Articles Mentioning Obesity Consequences - by Media Outlet’s Reporting Style

<table>
<thead>
<tr>
<th>Consequence</th>
<th>Broadsheet</th>
<th>Tabloid</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comfort/Safety</td>
<td>15 (4.3%)</td>
<td>9 (2.1%)</td>
<td>.081a</td>
</tr>
<tr>
<td>Physical Appearance</td>
<td>6 (1.7%)</td>
<td>9 (2.1%)</td>
<td>.691a</td>
</tr>
<tr>
<td>Physical Health</td>
<td>186 (53.8%)</td>
<td>253 (60.0%)</td>
<td>.084a</td>
</tr>
<tr>
<td>Psychosocial</td>
<td>40 (11.6%)</td>
<td>51 (12.1%)</td>
<td>.823a</td>
</tr>
<tr>
<td>The Economy</td>
<td>80 (23.1%)</td>
<td>88 (20.9%)</td>
<td>.449a</td>
</tr>
<tr>
<td>The Environment</td>
<td>3 (0.9%)</td>
<td>3 (0.7%)</td>
<td>1.000b</td>
</tr>
</tbody>
</table>

*a χ² (Chi square) test p-value, b Fisher’s exact test p-value.
* significant at p<.05.
Further, of the 346 news articles published in broadsheet style media outlets 243 (70.2%) mentioned at least one solution to obesity and of the 422 published in tabloid style media outlets 276 (65.4%) did so. These differences were not statistically significant ($\chi^2$(1, N=768)=2.023, p=.155). News articles from broadsheet style media outlets were, however, significantly more likely than news articles from tabloid style media outlets to mention ‘content disclosure’ (odds ratio 3.4, $\chi^2$(1, N=768)=13.455, p=<.001) and ‘education’ (odds ratio 2.1, $\chi^2$(1, N=768)=8.277, p=.004) as solutions to obesity. In contrast, news articles from tabloid style media outlets were significantly more likely than news articles from broadsheet style media outlets to mention ‘surgery’ as a solution to obesity (odds ratio 1.6, $\chi^2$(1, N=768)=5.095, p=.024). Additionally, ‘change environments’ was not mentioned in any of the analysed news articles that were published in tabloid style media outlets. As Table 7.8 below shows, there were no statistically significant differences with respect to the proportion of news articles from broadsheet and tabloid style media outlets mentioning any of the remaining solutions to obesity.

Table 7.8 Number of News Articles Mentioning Obesity Solutions - by Media Outlet's Reporting Style

<table>
<thead>
<tr>
<th>Solution</th>
<th>Media Outlet's Reporting Style</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Broadsheet</td>
<td>Tabloid</td>
</tr>
<tr>
<td>Acceptance</td>
<td>8 (2.3%)</td>
<td>3 (0.7%)</td>
</tr>
<tr>
<td>Bans</td>
<td>10 (2.9%)</td>
<td>7 (1.7%)</td>
</tr>
<tr>
<td>Change Advertising</td>
<td>16 (4.6%)</td>
<td>12 (2.8%)</td>
</tr>
<tr>
<td>Change Affordability/Availability</td>
<td>30 (8.7%)</td>
<td>28 (6.6%)</td>
</tr>
<tr>
<td>Change Environments</td>
<td>11 (3.2%)</td>
<td>0 (0.0%)</td>
</tr>
<tr>
<td>Change in Eating</td>
<td>75 (21.7%)</td>
<td>83 (19.7%)</td>
</tr>
<tr>
<td>Change Package Sizes</td>
<td>6 (1.7%)</td>
<td>6 (1.4%)</td>
</tr>
<tr>
<td>Coming Out</td>
<td>2 (0.6%)</td>
<td>1 (0.2%)</td>
</tr>
<tr>
<td>Content Disclosure</td>
<td>31 (9.0%)</td>
<td>12 (2.8%)</td>
</tr>
<tr>
<td>Diet/Eat Less</td>
<td>68 (19.7%)</td>
<td>89 (21.1%)</td>
</tr>
<tr>
<td>Drugs</td>
<td>29 (8.4%)</td>
<td>45 (10.7%)</td>
</tr>
<tr>
<td>Education</td>
<td>44 (12.7%)</td>
<td>28 (6.6%)</td>
</tr>
<tr>
<td>Exercise</td>
<td>107 (30.9%)</td>
<td>116 (27.5%)</td>
</tr>
<tr>
<td>Financial Penalty</td>
<td>40 (11.6%)</td>
<td>34 (8.1%)</td>
</tr>
<tr>
<td>Legal Punishment</td>
<td>5 (1.4%)</td>
<td>10 (2.4%)</td>
</tr>
<tr>
<td>Surgery</td>
<td>44 (12.7%)</td>
<td>79 (18.7%)</td>
</tr>
</tbody>
</table>

<sup>a</sup>a $\chi^2$(Chi square) test p-value. <sup>b</sup>a Fisher’s exact test p-value.

* significant at p<.05.
Finally, of the 236 news articles that were published in broadsheet style media outlets which also featured photographs 92 (39.0%) featured at least one variable measuring the visual expression of obesity frames and of the 347 news articles that were published in tabloid style media outlets which also contained photographs 125 (36.0%) did so. These differences were not statistically significant ($\chi^2(1, N=583)=.527, p=.468$) and, as Table 7.9 below shows, there were no statistically significant differences between the proportion of news articles from broadsheet and tabloid style media outlets featuring specific variables that measure the visual expression of obesity frames.

Table 7.9 Number of News Articles Visually Expressing Frames - by Media Outlet’s Reporting Style

<table>
<thead>
<tr>
<th>Visual</th>
<th>Media Outlet’s Reporting Style</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Broadsheet</td>
<td>Tabloid</td>
</tr>
<tr>
<td>Food Label</td>
<td>3 (1.3%)</td>
<td>1 (0.3%)</td>
</tr>
<tr>
<td>Foods or Drinks</td>
<td>64 (27.1%)</td>
<td>85 (24.5%)</td>
</tr>
<tr>
<td>Tools Measuring Size and Weight</td>
<td>29 (12.3%)</td>
<td>39 (11.2%)</td>
</tr>
</tbody>
</table>

$^a$ a $\chi^2$ (Chi square) test p-value. $^b$ a Fisher’s exact test p-value.

*significant at p<.05.

### 7.2.5 Media Outlets’ Reporting Style and Obesity Frames

In answer to Research Question 2.3 regarding the existence of significant differences in the use of obesity frames between media outlets depending on their reporting style, it emerged that news articles from broadsheet style media outlets were significantly more likely than news articles from tabloid style media outlets to discuss obesity in terms of the ‘acceptance’ frame (odds ratio 4.4, $\chi^2(1, N=768)=7.974, p=.005$). Of the 346 news articles from broadsheet style media outlets 14 (4.0%) used the ‘acceptance’ frame, of the 422 news articles from tabloid style media outlets 4 (0.9%) did so. News articles from broadsheet style media outlets were also significantly more likely to use the ‘education’ frame than news articles from tabloid style media outlets (odds ratio 2.3, $\chi^2(1, N=768)=17.728, p<.001$). Of the 346 news articles from broadsheet style media outlets 72 (20.8%) used the ‘education’ frame, of the 422 news articles from tabloid style media outlets 42 (10.0%) did so. Additionally, news articles from broadsheet style media outlets were significantly more likely to employ the ‘environments’ frame than news articles from tabloid style media outlets (odds...
ratio 1.7, $\chi^2(1, N=768)=8.865, p=.003$). Of the 346 news articles from broadsheet style media outlets 98 (28.3%) used the ‘environments’ frame, of the 422 news articles from tabloid style media outlets 81 (19.1%) did so.

In contrast to this, news articles that were published in tabloid style media outlets were significantly more likely than news articles that were published in broadsheet style media outlets to use the ‘medical progress’ frame (odds ratio 1.5, $\chi^2(1, N=768)=4.745, p=.029$). Of the 346 news articles that were published in broadsheet style media outlets 62 (18.0%) used the ‘medical progress’ frame and of the 422 news articles that were published in tabloid style media outlets 103 (24.4%) did so.

However, no statistically significant differences emerged with respect to the use of the ‘coming out’ and ‘self-control’ frames of obesity in news articles published in broadsheet and tabloid style media outlets. Of the 346 news articles published in broadsheet style media outlets 6 (1.7%) used the ‘coming out’ frame, of the 422 news articles published in tabloid style media outlets 9 (2.1%) did so ($\chi^2(1, N=768)=.158, p=.691$). Of the 346 news articles published in broadsheet style media outlets 172 (49.7%) used the ‘self-control’ frame and of the 422 news articles published in tabloid style media outlets 218 (51.7%) did so ($\chi^2(1, N=768)=.289, p=.591$).

7.3 Towards Understanding the Consequences of Obesity Frames

This section explores the evidence base for the existence of a statistically significant relationship between the use of obesity frames by news producers in news articles and by readers in accompanying readers’ comments. This analysis is proposed as a useful first step towards understanding the consequences of media exposure by identifying interesting examples which may be followed up in experimental research. This section presents findings about: the frequency with which frame elements were mentioned in comment threads; the frequency of use of obesity frames in comment threads; the existence of a statistically significant relationship between mentions of frame elements in news articles and in accompanying comment threads; and, to answer Research Question 3, this section presents findings regarding the existence of a statistically significant relationship.
between the use of obesity frames in news articles and in accompanying comment threads.

Before presenting these findings, results from the final reliability test are reported. Final reliability testing resulted in Cohen’s kappa and percent agreement of 1.00 and 100% for all variables except: ‘acceptance’ (.78, 97.67%); ‘availability/affordability’ (.66, 88.37%); ‘change availability/affordability’ (.76, 93.02%); ‘comfort eating’ (.76, 93.02%); ‘lack of knowledge’ (.89, 97.67%); ‘physical appearance’ (.66, 97.67%); ‘poverty’ (.87, 95.35%); and ‘psychosocial’ (.64, 90.70%). All of these coefficients indicate acceptable levels of inter-coder agreement. It should also be noted here that, as was the case with coding news articles against frame-related and news value-related variables, the percentages reported below may not add up to 100% since all frame-related variables were coded as present/not present, meaning that more than one variable could be coded as present in a comment thread.

7.3.1 Prevalence of Frame Elements in Comment Threads

To start with, 352 of the comment threads representing 81.9% of the total number of 430 comment threads in the total sample mentioned at least one cause of obesity. ‘Advertising’ was mentioned in 51 comment threads, which represent 11.9% of the total sample of 430 comment threads analysed. Issues around the ‘affordability/availability’ of foods and drinks and active living opportunities were mentioned in 152 (35.3%) comment threads. ‘A virus’ was mentioned in 5 (1.2%) comment threads, ‘biological/genetic’ causes of obesity in 200 (46.5%), ‘comfort eating’ in 70 (16.3%), ‘eating unhealthy foods’ in 233 (54.2%), ‘environments’ in 36 (8.4%), ‘lack of knowledge/information’ in 76 (17.7%), ‘overeating’ in 256 (59.5%), ‘package sizes’ in 23 (5.3%), ‘physical inactivity’ in 197 (45.8%), ‘poverty’ in 89 (20.7%) and the ‘thinness obsession’ in 12 (2.8%) comment threads.

With respect to the consequences of obesity, 264 of the comment threads representing 61.4% of the total number of 430 comment threads analysed, mentioned at least one consequence of obesity. Consequences of obesity for the ‘comfort/safety’ of others were mentioned in 11 comment threads, representing 2.6% of the total number of 430 comment threads analysed. Consequences of obesity for one’s ‘physical appearance’ were mentioned in 12 (2.8%) comment threads, for one’s ‘physical health’ in 217 (50.5%). The ‘psychosocial’
consequences of obesity featured in 110 (25.6%) comment threads, for ‘the economy’ and ‘the environment’ in 162 (37.7%) and 11 (2.6%), respectively.

In terms of solutions, 359 of the comment threads representing 83.5% of the total number of 430 comment threads in the total sample mentioned at least one solution to obesity. ‘Acceptance’ was mentioned in 38 comment threads, representing 8.8% of the total number of 430 comment threads analysed, ‘bans’ in 48 (11.2%), ‘change advertising’ in 26 (6.0%), ‘change affordability/availability’ in 92 (21.4%), ‘change in eating’ in 218 (50.7%), ‘change package sizes’ in 9 (2.1%), ‘content disclosure’ in 38 (8.8%), ‘diet/eat less’ in 226 (52.6%), ‘drugs’ in 60 (14.0%), ‘education’ in 119 (27.7%), ‘exercise’ in 266 (61.9%), ‘financial penalty’ in 134 (31.2%), a ‘legal punishment’ in 52 (12.1%) and ‘surgery’ in 115 (26.7%) comment threads. ‘Coming out’ and ‘change environments’ were not mentioned in any of the analysed comment threads.

7.3.2 Prevalence of Obesity Frames in Comment Threads

Following the earlier-described procedure for re-assembly of frame elements back into frames, the prevalence of obesity frames in the total sample of 430 comment threads was computed. Before reporting data about the prevalence of the six inductively identified obesity frames in comment threads, it may be useful to remind that, as with news articles, not every comment thread contained one of the six analysed obesity frames and many contained more than one frame, so that the number of frames reported below may not equal the number of comment threads.

Overall, 351 of the comment threads representing 81.6% of the total number of 430 comment threads analysed mentioned at least one obesity frame. This number may have been higher had a different procedure for re-assembly of frame elements back into frames been adopted. It also does not necessarily mean that the remaining 18.4% of discussion threads contained no mention of any of the studied frame elements at all - they may have mentioned frame elements that were shared between several frames and were therefore, not used in frame re-assembly.

The ‘medical progress’ frame was identified in 140 comment threads representing 32.6% of the total number of 430 comment threads analysed. The ‘self-control’ frame appeared in 282 (65.6%) comment threads, the ‘education’ frame in 153 (35.6%), the ‘environments’ frame in 216 (50.2%), the ‘acceptance’ frame in 44 (10.2%) and the ‘coming out’ frame in 12 (2.8%) comment threads.
7.3.3 Frame Elements in News Articles and Comment Threads

Firstly, it emerged that the number of distinct causes of obesity mentioned in news articles was correlated with the number of distinct causes of obesity mentioned in accompanying comment threads, $r=.18$, $p$ (two-tailed) <.01, meaning that the more distinct causes that were mentioned in news articles the more distinct causes were mentioned by readers. Additionally, mentions in news articles of 'advertising' as causing obesity were correlated with mentions of 'advertising' as contributing to obesity in accompanying comment threads ($\phi=.18$, $p<.001$) as were also mentions of issues around the 'affordability/availability' of foods and drinks and active living opportunities ($\phi=.15$, $p=.003$), 'a virus' ($\phi=.77$, $p<.001$), 'biological/genetic' factors ($\phi=.18$, $p<.001$), 'comfort eating' ($\phi=.15$, $p=.002$), 'eating unhealthy foods' ($\phi=.20$, $p<.001$), 'environments' ($\phi=.16$, $p=.001$), 'overeating' ($\phi=.16$, $p=.001$), 'package sizes' ($\phi=.10$, $p=.031$), 'physical inactivity' ($\phi=.15$, $p=.002$), 'poverty' ($\phi=.12$, $p=.010$) and the 'thinness obsession' ($\phi=.17$, $p<.001$). Only mentions in news articles of 'lack of knowledge/information' were not significantly correlated with mentions of this causal factor in discussion threads ($\phi=.08$, $p=.106$).

Drawing on Cohen's (1988) seminal recommendation that a correlation coefficient of .10 should be interpreted as representing a weak correlation, a correlation coefficient of .30 a moderate correlation and a correlation coefficient of .50 or larger a strong correlation, it can be concluded that the majority of the above-reported correlations were weak. Weak correlations were observed in the cases of: 'advertising'; 'affordability/availability'; 'biological/genetic'; 'comfort eating'; 'eating unhealthy foods'; 'environments'; 'overeating'; 'package sizes'; 'physical inactivity'; 'poverty'; the 'thinness obsession'; as well as in the case of the correlation between the number of distinct causes of obesity mentioned in news articles and the number of distinct causes of obesity mentioned in accompanying comment threads. Mentions of 'a virus' as a cause of obesity in news articles and accompanying comment threads were strongly correlated.

Further, the number of distinct consequences of obesity mentioned in news articles was also correlated with the number of distinct consequences of obesity mentioned in accompanying comment threads, $r=.30$, $p$ (two-tailed) <.01. The more distinct consequences of obesity that were mentioned by news producers in
news articles, the more distinct consequences of obesity were mentioned by readers in accompanying comment sections. In addition, mentions of the consequences of obesity for the ‘comfort/safety’ of others in news articles were also correlated with mentions of ‘comfort/safety’ in comment threads (phi=.96, p<.001), as were mentions of ‘physical appearance’ (phi=.67, p<.001), ‘physical health’ (phi=.18, p<.001), ‘psychosocial’ consequences (phi=.30, p<.001) and consequences of obesity for ‘the economy’ (phi=.25, p<.001). Mentions in news articles of the consequences of obesity for ‘the environment’ were, however, not significantly correlated with mentions of such consequences in accompanying comment threads (phi=-.01, p=.818).

A number of these correlations including the correlations between mentions of the consequences of obesity for one’s ‘physical health’ and for ‘the economy’ were weak (see Cohen, 1988). A number of other correlations were moderate, namely the correlation between mentions of the ‘psychosocial’ consequences of obesity in news articles and in accompanying comment threads as well as the correlation between the number of distinct consequences of obesity mentioned by news producers in news articles and the number of distinct consequences of obesity mentioned by readers in comment sections. Examples of strong correlations included the correlation between mentions of the consequences of obesity for the ‘comfort/safety’ of others and for people’s ‘physical appearance’.

Finally, the number of distinct solutions to obesity mentioned in news articles was also correlated with the number of distinct solutions to obesity that were mentioned in accompanying comment threads, r=.34, p (two-tailed) <.01 meaning that the more distinct solutions to obesity that were mentioned in news articles the more distinct solutions to obesity were mentioned by readers. In addition to that, mentions of ‘acceptance’ as a solution to obesity in news articles were correlated with mentions of ‘acceptance’ in accompanying comment threads (phi=.14, p=.004) as were also mentions of ‘bans’ (phi=.34, p<.001), ‘change advertising’ (phi=.25, p<.001), ‘change affordability/availability’ (phi=.26, p<.001), ‘change in eating’ (phi=.14, p=.004), ‘change package sizes’ (phi=.44, p<.001), ‘content disclosure’ (phi=.39, p<.001), ‘diet/eat less’ (phi=.18, p<.001), ‘drugs’ (phi=.42, p<.001), ‘education’ (phi=.11, p=.020), ‘exercise’ (phi=.19, p<.001),
‘financial penalty’ (phi=.40, p<.001), ‘legal punishment’ (phi=.44, p<.001) and ‘surgery’ (phi=.54, p<.001). Since ‘change environments’ and ‘coming out’ were not mentioned in any of the total of 430 comment threads, a coefficient of correlation could not be computed.

The majority of the above-mentioned correlations were weak or moderate (see Cohen, 1988). Weak correlations were observed in the cases of ‘acceptance’, ‘change advertising’, ‘change affordability/availability’, ‘change in eating’, ‘diet/eat less’, ‘education’ and ‘exercise’. Moderate correlations were observed in the cases of ‘bans’, ‘change package sizes’, ‘content disclosure’, ‘drugs’, ‘financial penalty’ and ‘legal punishment’ as well as in the case of the correlation between the number of distinct solutions to obesity mentioned by news producers in news articles and the number of distinct solutions to obesity mentioned by readers in accompanying comment sections. The one example of a strong correlation was in the case of mentions of ‘surgery’ as a solution to obesity.

7.3.4 Obesity Frames in News Articles and Comment Threads

In answer to Research Question 3 which aimed to find out if a significant relationship exists between the use of obesity frames by news producers in news articles and the use of obesity frames by readers in accompanying comment sections, it emerged that the number of distinct obesity frames that were used in news articles was correlated with the number of distinct obesity frames that were used by readers in accompanying comment threads, r=.30, p (two-tailed) <.01. This means that the more distinct obesity frames that were used in news articles, the more distinct obesity frames were used by readers in accompanying comment sections. Additionally, the use of the ‘medical progress’ frame in news articles was correlated with the use of the ‘medical progress’ frame in accompanying comment threads (phi=.52, p<.001) as was also the use of the ‘education’ (phi=.26, p<.001), ‘environments’ (phi=.28, p<.001), ‘acceptance’ (phi=.22, p<.001) and ‘coming out’ frames (phi=.67, p<.001). Only the use of the ‘self-control’ frame in news articles was not correlated with its use by readers (phi=.09, p=.073).

Some of these correlations were weak (see Cohen, 1988), as in the case of the ‘education’, ‘environments’ and ‘acceptance’ frames of obesity. The correlation between the use of the ‘medical progress’ frame in news articles and in accompanying comment threads was strong as was also the correlation between
the use of the ‘coming out’ frame in news articles and in accompanying comment threads. The existence of a strong correlation in the latter case should, however, be viewed with care due to the small sample sizes involved. The correlation between the number of distinct obesity frames that were used by news producers in news articles and the number of distinct obesity frames that were used by readers in accompanying comment sections was moderate.

7.4 Discussion

This chapter reported findings regarding the antecedents of obesity frames: whether the prevalence of the ‘self-control’ frame which emerged as the most frequently used obesity frame could be explained with a high concentration of distinct established journalistic news values in news articles using this frame (RQ2.1); whether significant differences in the use of obesity frames existed between media outlets of different political leanings (RQ2.2); and whether significant differences in the use of obesity frames existed between media outlets of different reporting styles (RQ2.3). This chapter also reported findings that can be used to further the study of the consequences of obesity frames. It presented evidence for the existence of a significant relationship between the use of obesity frames by news producers in news articles and by readers in accompanying comment sections (RQ3) where, notably, the use of the ‘self-control’ frame in news articles was not correlated with use in readers’ comments.

In this final section, findings - excluding correlation results related to RQ3 - are considered, as in the preceding two chapters, from three perspectives - in the context of past research on obesity in the media, with respect to obesity frames being individualising or systemic and in the context of framing theory. Correlation results cannot be compared to Major’s (2009) findings about the effects of exposure to obesity-related media content on people’s understanding of obesity. Major (2009) relied on an experimental design in which participants were asked to read a mock obesity-related news article. Participants’ understanding of obesity was evaluated via a survey both before and after exposure. Such research design ascertains that a cause-and-effect relationship can be measured. The present study relied on correlation analysis which does not measure cause-and-effect. Also, one cannot ensure that readers who commented read the news article they commented on (Mancini, 2014; Manjoo, 2013). Instead of evidence for effects/consequences,
the present study identified examples that may be prioritised in further experimental research. This is especially so in the case of the lack of correlation between the use of the ‘self-control’ frame in news articles and accompanying comments. A correlation would have been expected on the premise that ‘surrounded by the online environment of a mass medium (...) discussions will be related to the content of the mass medium’ (Schultz, 2000, p. 214).

Similarly, the correlation analysis from the present study cannot be discussed in the context of expectations about framing effects dictated by framing theory. The study was inspired by framing theory’s conceptualisation of effects/consequences of frame use in media content. By conducting a correlation analysis of frame use in news articles and accompanying readers’ comments it hopes to stimulate much needed experimental research by offering a possible way of prioritising what media content to include in future experimental studies.

7.4.1 Antecedents and Evidence from Existing Research

Some past research has already explored certain antecedents of obesity frames. Bonfiglioli et al. (2007) studied the journalistic news values driving obesity coverage. Hilton, Patterson and Teyhan (2012) and Sandberg (2007) studied the potential of media outlets’ political leanings and/or reporting styles to account for potential differences in the predominance of obesity frames in news articles from different media outlets. Findings from the present study are compared against findings from these examples from past research next.

Unlike Bonfiglioli et al. (2007) who identified ‘novelty’ as the dominant journalistic news value driving obesity coverage in televised news from Australia, the news value ‘new’ (35.8%) came in third in the present study preceded by the news values ‘elite’ (40.0%) and ‘locality’ (42.4%). This difference in findings could be attributed to several differences between the two studies including: the time periods analysed (Bonfiglioli et al. (2007) examined obesity-related television news broadcast between May 2005 and October 2005); the geographies targeted for analysis (Bonfiglioli et al. (2007) focused on Australia); the media types that were studied (Bonfiglioli et al. (2007) focused on television); and the methods that were employed (Bonfiglioli et al. (2007) inductively derived the news values of ‘novelty’, ‘unexpectedness’, ‘human interest’ and ‘bad news’ from the news angles or topics of news items).
Related to another aspect of the antecedents of frames, Sandberg (2007), similarly to the present study, purposefully sampled Swedish media outlets with a different ‘political position’ (p. 453) - liberal or social democratic - to investigate potential differences in the use of obesity frames. Differences in the use of obesity frames between news articles published in liberal and social democratic media outlets were ultimately not commented on, possibly meaning that such were not identified. In contrast, the present study found a number of significant differences between news articles published in liberal (Guardian.co.uk and sueddeutsche.de) and conservative (Bild.de, dailymail.co.uk, thetimes.co.uk and welt.de) media outlets. These included significant differences between the proportions of news articles from liberal and conservative media outlets that mentioned specific causes of, solutions to and frames of obesity. This disparity in findings could be attributed to differences in the time frames (Sandberg (2007) analysed obesity-related news articles published in 1997, 1999 and 2001) and/or geographies targeted for analysis (Sandberg (2007) studied Swedish newspapers).

Yet, Sandberg (2007) did in the same study report differences in the use of obesity frames between media outlets of different reporting styles - broadsheet and tabloid. With respect to the two obesity frames identified by Sandberg (2007) - ‘obesity as a beauty dilemma’ and ‘obesity as a health risk’ - it emerged that the tabloid newspaper gave ‘priority’ (p. 461) to the ‘obesity as a beauty dilemma’ frame. This latter frame has no equivalent in the present study. ‘Obesity as a health risk’ does, however, find an equivalent in the present study in the ‘medical progress’ frame. Yet, while the present study found that news articles from tabloid style media outlets were significantly more likely than news articles from broadsheet style media outlets to use the ‘medical progress’ frame, Sandberg (2007) did not comment on differences in this respect, leading to the assumption that such did not emerge. This disparity in findings could be attributed to the differences in the time frames and/or geographies targeted for analysis by the two studies.

In another study that is similar to the present research in terms of both the examined causes of, consequences of and solutions to obesity and the geography targeted for analysis, Hilton, Patterson and Teyhan (2012) analysed British tabloid (The Sun and The Mirror), mid-market tabloid (The Daily Mail and The Express) and
serious style (The Guardian, The Independent and The Daily Telegraph) newspapers. They found that: news articles from tabloid style newspapers were significantly less likely than news articles from both mid-market tabloid and serious style newspapers to report obesity causes; news articles from mid-market tabloid newspapers were significantly more likely than news articles from both serious and tabloid style newspapers to report the economic consequences of obesity; news articles from mid-market tabloid and serious style newspapers were significantly more likely than news articles from tabloid style newspapers to report the consequences of obesity for physical health; and news articles from serious style newspapers were significantly more likely than news articles from both mid-market tabloid and tabloid style newspapers to report solutions to obesity involving improvements in education and food labelling.

In contrast to these findings, the present study detected no significant differences between the proportions of news articles from broadsheet and tabloid style media outlets that mentioned obesity causes and no significant differences between the proportions of news articles from broadsheet and tabloid style media outlets that mentioned specific consequences of obesity. These differences could be attributed to the different time frames analysed in the two studies (Hilton, Patterson and Teyhan (2012) studied news articles published between January 1996 and December 2010), the different approaches to the classification of stylistic types of media outlets (Hilton, Patterson and Teyhan (2012) divided newspapers into tabloid, mid-market tabloid and broadsheet styles) and/or the fact that the present study combines data from two countries while research by Hilton, Patterson and Teyhan (2012) relied on data from Britain alone.

Despite these differences, one similarity between the two studies is especially notable. Hilton, Patterson and Teyhan (2012) found that news articles from serious style newspapers were significantly more likely than news articles from both mid-market tabloid and tabloid style newspapers to report solutions to obesity involving improvements in education and food labelling. Similarly, the present study found that news articles published in broadsheet style media outlets were significantly more likely than news articles published in tabloid style media outlets to mention ‘education’, which resembles Hilton, Patterson and Teyhan’s (2012) improvement in education and ‘content disclosure’, which resembles
Hilton, Patterson and Teyhan’s (2012) food labelling. This similarity may point to a pattern in the way that news producers from broadsheet and tabloid style media outlets are covering obesity as an issue which pattern transcends time frames and geographies.

In sum, there has been past research against which findings regarding the antecedents of obesity frames from the present study can be compared, but examples from past research are too few to be able to conclude that there is a clearly identifiable pattern in the way that news producers from liberal and conservative, broadsheet and tabloid style media outlets are covering obesity as an issue which pattern is either confirmed or contradicted by the present study. From the perspective of past research on obesity in the media, the present study can be best viewed as contributing to the process of accumulation of evidence thanks to which the existence of such patterns can be established.

7.4.2 Prevalence of Individualising and Systemic Obesity Frames in Comment Threads

To recap, the ‘environments’ frame was identified as the only obesity frame in the present study which by discussing obesity in terms of involuntary, universal and environmental risk advanced an understanding of obesity in systemic terms. Lawrence (2004) has argued that public health problems ‘become amenable to broad policy solutions’ (p. 56) which burden powerful groups like governments and industries only when they start being discussed in such systemic terms. In this context, the ‘environments’ frame, similarly to its use in news articles, emerged as the second most frequently employed frame in the total sample of comment threads (50.2%) following the ‘self-control’ frame (65.6%). While there were significant differences between the proportions of comment threads written in response to news articles published in British and German media outlets which used the ‘environments’ frame, the ‘environments’ frame was still the second most frequently employed frame by readers in both the British (55.3%) and the German (38.3%) portion of the total sample (following the ‘self-control’ frame).

7.4.3 Antecedents and Framing Theory

Starting with journalistic news values as one of the antecedents of obesity frames, from the perspective of framing theory and based on its integration with the theory of news values, it would have been expected that news articles using the
‘self-control’ frame are also the news articles meeting the criteria for the highest number of distinct, established journalistic news values. The fact that this was not the case suggests that other considerations may additionally influence the use of obesity frames. For example, by encouraging people to take control of their physical activity and food consumption, the ‘self-control’ frame may be given preference as it could be said to advance the wider business interests of the analysed media outlets like Guardian.co.uk’s ‘Eat Right’ diet plan service advertised as helping to ‘lose weight, improve your health and feel amazing’ (Guardian.co.uk, 2013) and it could be expected to drive traffic to applications like Bild.de’s calorie calculator (Bild.de, 2013), dailymail.co.uk’s health calculator (dailymail.co.uk, 2013) and sueddeutsche.de’s BMI calculator (sueddeutsche.de, 2013).

While the frequent use of the ‘self-control’ frame could not be explained with established journalistic news values, a number of significant differences emerged between news articles published in media outlets with different political leanings and reporting styles which lend themselves to explanation via the characteristics of liberal versus conservative political leaning and broadsheet versus tabloid reporting style.

First, regarding differences between liberal and conservative media outlets, it emerged that news articles from liberal media outlets were significantly more likely than news articles from conservative ones to mention issues around the ‘affordability/availability’ of foods and drinks and active living opportunities, ‘physical inactivity’, the ‘thinness obsession’ and ‘poverty’ as causes of obesity; news articles from liberal media outlets were significantly more likely than news articles from conservative ones to mention ‘acceptance’, ‘content disclosure’ and ‘education’ as solutions to obesity; and news articles from liberal media outlets were significantly more likely than news articles from conservative ones to use the ‘acceptance’, ‘education’ and ‘environments’ frames of obesity.

Starting with the latter finding that news articles published in liberal media outlets were significantly more likely than news articles published in conservative ones to use the ‘acceptance’ frame, this could be explained with the fact that the core proposition of the ‘acceptance’ frame - that people should tolerate their weight rather than struggle to emulate ideals - may resonate better with liberal beliefs that the cultivation of a tolerant society promotes public welfare (Diffen,
This could also explain why news articles from liberal media outlets were significantly more likely than news articles from conservative ones to mention the ‘thinness obsession’ as a cause of and ‘acceptance’ as a solution to obesity - they communicate ideas from the ‘acceptance’ frame.

Further, the finding that news articles published in liberal media outlets were significantly more likely than news articles published in conservative media outlets to use the ‘environments’ frame could be attributed to the fact that recommendations made within the ‘environments’ frame - to engineer environments conductive to healthy living, address television advertising for foods/drinks, impose bans, reduce the sizes of pre-packaged foods/drinks and restaurant portions - may also resonate better with liberalism which favours government regulation and government provision of services and care (Diffen, 2014). Issues around the ‘affordability/availability’ of foods and drinks and active living opportunities and ‘poverty’ as causes of obesity that news articles from liberal media outlets were also significantly more likely than news articles from conservative media outlets to mention communicate ideas from the ‘environments’ frame of obesity which might account for the difference in their mentions.

Given the above-cited liberal support for more government (Diffen, 2014), findings that news articles from liberal media outlets were significantly more likely than news articles from conservative media outlets to use the ‘education’ frame and to mention ‘content disclosure’ and ‘education’ as solutions to obesity are somewhat unexpected. Education could be conceived in terms of equipping the individual to take more personal control and although content disclosure and education/information campaigns require government instigation, ultimately both measures rely on individual initiative which is more central to conservatism than liberalism (Schmidt, 2007a). Evidence also exists that educational/informational solutions are especially attractive to policy-makers on the conservative end of the political spectrum with Republicans in the US being significantly more likely than Democrats to propose obesity education-related bills (Kersh, 2009).

Further, there is no clear explanation as to why news articles from liberal media outlets were significantly more likely than news articles from conservative ones to mention ‘physical inactivity’ as a cause of obesity. In the present study, discussions about ‘physical inactivity’ as a cause of obesity were identified within
several of the uncovered frames of obesity including ‘medical progress’ and ‘self-control’ as well as within the ‘environments’ frame which liberal media outlets were also significantly more likely than conservative ones to use.

Second, regarding differences between broadsheet and tabloid style media outlets, it emerged that: news articles from broadsheet style media outlets were significantly more likely than news articles from tabloid style media outlets to mention ‘advertising’, issues around the ‘affordability/availability’ of foods and drinks and active living opportunities, ‘environments’ and the ‘thinness obsession’ as causes of obesity; news articles from broadsheet style media outlets were significantly more likely than news articles from tabloid style media outlets to mention ‘change environments’, ‘content disclosure’ and ‘education’ as solutions to obesity; and news articles from broadsheet style media outlets were significantly more likely than news articles from tabloid style media outlets to use the ‘acceptance’, ‘education’ and ‘environments’ frames. In contrast, news articles from tabloid style media outlets were significantly more likely than news articles from broadsheet style media outlets to mention ‘overeating’ as a cause of obesity, ‘surgery’ as a solution to obesity and to use the ‘medical progress’ frame of obesity.

As similarly to news articles from liberal media outlets versus news articles from conservative ones, news articles published in broadsheet style media outlets were significantly more likely than news articles published in tabloid style media outlets to use the ‘acceptance’, ‘education’ and ‘environments’ frames, it was speculated that this could be attributed to a confound between broadsheet-tabloidism and conservatism-liberalism. This may be the case given that of the four broadsheet style media outlets studied here two (Guardian.co.uk and sueddeutsche.de) are liberal and contributed 189 news articles to the total of 346 news articles published in broadsheet style media outlets and two (thetimes.co.uk and welt.de) are conservative and contributed 157 news articles to the total of 346 news articles published in broadsheet style media outlets. In contrast, both tabloid style media outlets (dailymail.co.uk and Bild.de) are conservative.

To test this speculation, news articles published in broadsheet style media outlets with liberal political leaning (Guardian.co.uk and sueddeutsche.de) and news articles published in broadsheet style media outlets with conservative political leaning (thetimes.co.uk and welt.de) were analysed to identify the
existence of significant differences in their use of the 'acceptance', 'education' and 'environments' frames. Yet, it emerged that of the 189 news articles that were published in liberal broadsheet style media outlets 9 (4.8%) used the 'acceptance' frame and of the 157 news articles that were published in conservative broadsheet style media outlets 5 (3.2%) did so. These differences were not statistically significant ($\chi^2(1, N=346)=.549, p=.459$). Also, of the 189 news articles that were published in liberal broadsheet style media outlets 46 (24.3%) used the 'education' frame and of the 157 news articles that were published in conservative broadsheet style media outlets 26 (16.6%) did so. These differences were not statistically significant ($\chi^2(1, N=346)=3.148, p=.076$) either.

Thus, the finding that news articles from broadsheet style media outlets were significantly more likely than news articles from tabloid style media outlets to use the 'acceptance' and 'education' frames could not be attributed to a confound between broadsheet-tabloidism and conservatism-liberalism and remains without a clear explanation. As the 'thinness obsession' communicates ideas from the 'acceptance' frame, while 'content disclosure' and 'education' communicate ideas from the 'education' frame, this also means that there are no clear explanations for the significant differences in their use by news articles from broadsheet and tabloid style media outlets.

It did, however, emerge that news articles published in liberal broadsheet style media outlets were significantly more likely than news articles published in conservative broadsheet style media outlets to use the 'environments' frame (odds ratio 1.7, $\chi^2(1, N=346)=5.149, p=.023$). Of the 189 news articles that were published in liberal broadsheet style media outlets 63 (33.3%) used the 'environments' frame and of the 157 news articles that were published in conservative broadsheet style media outlets 35 (22.3) did so. Thus, the finding that news articles from broadsheet style media outlets were significantly more likely than news articles from tabloid style media outlets to use the 'environments' frame could be attributed to a confound between broadsheet-tabloidism and conservatism-liberalism.

This finding can additionally be explained with the characteristics of the tabloid style of reporting and specifically, the tendency for issue coverage from a personalised angle that is typical of the tabloid style of reporting (Uribe & Gunter,
This tendency may mean that news producers working for tabloid style media outlets may find it more appropriate from the perspective of their occupation to invoke frames that emphasise individual-level causes of and solutions to obesity rather than the range of systemic causes of and solutions to obesity characteristic of the ‘environments’ frame of obesity.

In the context of similar findings that news articles published in British print tabloid style newspapers were significantly more likely than news articles published in British print broadsheet style newspapers to highlight systemic causes of and solutions to obesity, Hilton, Patterson and Teyhan (2012) commented that it is striking that given proven associations between low socio-economic status and obesity, it is exactly those media outlets that are targeted at lower income, working-class people that are less likely to report on the wider influences on obesity and to contribute to fostering attitudes receptive to systemic solutions. In an online news context such fears may be unfounded - Bild.de similarly to sueddeutsche.de and welt.de draws the largest share of its visitors from high income households (comScore, 2012b) and most visitors of dailymail.co.uk are more upmarket than readers of the print version (Mail Connected, 2013).

Further, the fact that news articles from tabloid style media outlets were significantly more likely than news articles from broadsheet style media outlets to use the ‘medical progress’ frame could be explained with the opportunities that topics discussed within the ‘medical progress’ frame like miraculous surgery and wonder drugs and cures offer in terms of sensational reporting and thus, resonate with the sensationalist agenda of tabloid reporting style. While sensationalism has been operationalised in terms of both specific linguistic features and topics - as Uribe and Gunter (2007) have pointed out - operational definitions of sensationalism have for the most part focused on inherently sensational topics. Sensationalism has, in fact, been identified as a mainstay of medical reporting (The PLoS Medicine Editors, 2008) with some scholars suggesting that the persistence of sensationalism in medical reporting is sustained by the fact that journalists and researchers are ‘complicit collaborators’ (Ransohoff & Ransohoff, 2001, p. 185) - both parties may benefit from sensational reporting because a highly visible news article means more citations for a researcher’s work and is a proof of journalistic talent (Ransohoff & Ransohoff, 2001).
There is, however, no clear explanation for the finding that news articles from tabloid style media outlets were significantly more likely than news articles from broadsheet style media outlets to mention ‘overeating’. In the present study discussions of ‘overeating’ as a cause of obesity were identified within several frames including ‘self-control’ and ‘environments’ as well as within the ‘medical progress’ frame of obesity which news articles published in tabloid style media outlets were also significantly more likely to use than news articles published in broadsheet style media outlets.

7.5 Summary

Past research on obesity in the media has largely overlooked the potential of antecedents like journalistic news values, the liberal or conservative political leaning of media outlets and their broadsheet or tabloid reporting style to explain aspects of the use of obesity frames in news articles.

In an effort to shed light on antecedents, this study found that the use of obesity frames in news articles, particularly the frequent use of the ‘self-control’ frame, could not be explained with the high concentration of distinct, established journalistic news values in news articles using this frame.

Yet, this study found significant differences between news articles from liberal and conservative media outlets that could be explained through the lens of the characteristic for liberalism support for more government and the characteristic for conservatism support for less government.

This study also found significant differences between news articles published in broadsheet and tabloid style media outlets that could be explained through the lens of the characteristic for tabloidism coverage from a personalised angle and the characteristic for tabloid reporting style sensationalised coverage.

Finally, past research on obesity in the media has largely neglected the consequences of obesity frames. While the present study does not offer evidence confirming the presence or absence of framing effects, it takes a first step in the direction of understanding consequences. The lack of correlation between use of the ‘self-control’ frame by news producers and readers was identified as a particularly interesting aspect that may need to be prioritised in further, much needed experimental research.
Chapter 8 Discussion and Conclusion

8.1 Introduction

Obesity has been declared a major problem in many parts of the world and in summer 2013 AMA pronounced it a disease in its own right. While it is the US and Australia that are typically cited as exhibiting among the highest rates of obesity worldwide (Organisation for Economic Co-operation and Development, 2012), in the WHO European Region obesity has also been rising steadily (World Health Organization/Europe, 2014). Western Europe in particular has been identified as the region with the fastest rising obesity rates in Europe (Harvard School of Public Health, 2012) and according to the latest estimates dating from 2009, 30-70% of adults in EU countries are affected by overweight and 10-30% by obesity (World Health Organization/Europe, 2009). Among the Western European, EU countries Britain and Germany in particular are ‘competing’ to be ‘the fattest’ in Europe (Haynes, 2012; Spiegel Online, 2007).

Given obesity’s harmful effects, it is unsurprising that much research has focused on identifying what causes it. Among potential causal factors, the media has also been identified to play a role with research showing a correlation between the amount of media use and weight gain (Boyce, 2007a). The media in general and the news in particular can, however, have an effect on obesity in two additional if less direct ways. First, by featuring news articles about obesity more often than news articles about other issues, the news can influence people to think about obesity as an issue that is more important than other issues, known as the agenda-setting effect of the media. Second, by featuring news articles about obesity which discuss certain aspects of obesity rather than others - much like a window through which we see the world - the media can frame these aspects as especially applicable to how obesity should be understood as an issue and consequently, how it should be addressed, known as the framing effect of the media.

Informed by framing theory, the present study was concerned with the latter of the two media effects. It argued that because it suggests a research programme for the simultaneous study of 1) the antecedents of media content, 2) the nature of media content and 3) the consequences of media content, framing theory offers a more useful perspective for studying obesity communication than
agenda-setting theory which is primarily concerned with the ability of the media to create salience for issues without necessarily explaining how news coverage may affect the way people understand issues.

While the present study has limitations, it has made a unique contribution to the study of obesity communication in the media and to framing research. This study presented a comprehensive view of obesity communication in online news published in selected British and German media outlets between 2009 and 2011. It described the different frames of obesity that were used in media content — in news article texts and accompanying photographs (RQ1.1) and the frequency with which they were used (RQ1.2). It explained whether antecedents including axiomatic characteristics of journalistic work like news values (RQ.2.1) and axiomatic characteristics of the media outlets for which journalists work like liberal or conservative political leaning (RQ2.2) and broadsheet or tabloid reporting style (RQ2.3) may explain aspects of the use of obesity frames in news articles. Lastly, it studied correlations between the use of frames in news articles and readers’ comments and suggested that findings around interesting points (e.g., no correlation where correlation would have been expected, unexpected correlation, strong/weak correlation) may be used as an input for further experimental research which is needed in order to understand the consequences of frame use in media content (RQ3).

In this final chapter key findings related to each of these core research questions are summarised and discussed in the following ‘Summary and Discussion of the Main Findings’ section. Next, a section acknowledges the key ‘Limitations of the Study’. The chapter ends by proposing ‘Directions for Future Research’ and offering a ‘Conclusion’.

8.2 Summary and Discussion of the Main Findings

This section revisits the core research questions that were posed in the present study, summarises the key findings and discusses them against the background of past research and relevant wider developments as well as, to some extent, with respect to their implications for the future of the obesity discussion.

8.2.1 Obesity Frames

In answer to the first part of the first core research question from the present study (RQ1.1), namely ‘Which obesity frames are used in news articles?’, this study
identified six frames of obesity: ‘medical progress’; ‘self-control’; ‘education’; ‘environments’; ‘acceptance’; and ‘coming out’. Three of these - ‘medical progress’, ‘self-control’ and ‘environments’ - have equivalents in past research on obesity in the media which investigated geographies, media types, media outlets and time frames different from the ones studied here (see Holmes, 2009; Lawrence, 2004; Saguy & Almeling, 2005; Sandberg, 2007; Shugart, 2013). By identifying the frames of ‘medical progress’, ‘self-control’ and ‘environments’ based on the analysis of news articles published in online media outlets from Britain and Germany over the 1 January 2009 - 31 December 2011 time period the present study provides a robust confirmation that these appear to be stable ways of conceptualising obesity across geographies, media types and time frames.

8.2.1.1 The Medical Progress Frame

The ‘medical progress’ frame from the present study viewed obesity as a physical health problem with implications for the wider economy and a problem that is caused by weight and is best approached via medical and/or pharmaceutical solutions like drugs and surgery. It closely resembled frames of obesity previously identified by Holmes (2009), Lawrence (2004), Saguy and Almeling (2005) and Sandberg (2007) although under different names - a ‘scientific advances’, a ‘biological’, a ‘genetics’ and an ‘obesity as a health problem’ frame, respectively.

At the same time, the ‘medical progress’ frame differed from the above-mentioned equivalents in one key respect. While Saguy and Almeling (2005) found that a biological/genetic explanation of obesity absolved people from blame because it attributed obesity to factors outside of individual control, the stance of the ‘medical progress’ frame regarding the moral worth of obese people was unclear. Some news articles suggested that they ‘do not choose to have surgery because it is an easy option; they have it because all other methods have failed’ (dailymail.co.uk, 2010a), others attributed the failure of weight loss drugs to the fact that ‘many people will not persevere with treatment for long enough to see the benefits’ (Templeton, 2009). Further, by proposing that surgery is only selected when all other methods have failed, this frame may just as well expose rather than protect obese people from ‘the moral censure of others’ (Throsby, 2009, p. 201). Throsby (2009), in particular, has argued that positioning surgery at the top of ‘a hierarchy of condoned practices’ (p. 201) reinforces a sense of failure and
welcomes negative moral evaluations by everyone aware of the status of surgery as the only remaining option when all else has failed.

In broader terms, the ‘medical progress’ frame of obesity can be viewed as an expression of a modern day tendency for medicalization and pharmaceuticalization of various aspects of life. Medicalization or the process of defining an increasing number of life’s problems from birth and death to emotions and sexuality as medical problems (Ignaas & van Hoyweghen, 2011) has been critiqued by some scholars as resulting from an abuse of power by the medical establishment (Illich, 2003). Others have argued that medicalization is the product of contemporary society’s extreme ‘longing for health’ (Ignaas & van Hoyweghen, 2011, p. 20) which manifests in overconsumption of medical services. The related concept of pharmaceuticalization or the process of defining many of life’s problems as ones that can be pharmacologically treated (Williams, Martin, & Gabe, 2011) has similarly been critiqued as the product of deliberate efforts by the pharmaceutical industry to define more and more aspects of life as diseases only to then be able to market its solutions (Payer, 1992).

It is beyond the remit of the present study to pronounce whether medicalization and pharmaceuticalization processes in the context of obesity may stem from an abuse of power by the medical and pharmaceutical industries. What can be said though is that given recent developments in the US and specifically AMA’s June 2013 decision to declare obesity a disease (American Medical Association, 2013) - a decision which officially opens the door for medical and pharmaceutical interventions - it can be speculated that a medicalized view of obesity as advanced in the ‘medical progress’ frame will persist in the future.

It is also noteworthy that a frame of obesity which focused on the possible unintended, negative consequences of medical and pharmaceutical solutions was not identified here. Science and technology and by extension medicine have been found to be commonly framed in terms of progress and/or unintended consequences - two aspects of the same metaphorical narrative of science and technology as a journey (Hellsten, 2008). The progress narrative is characterised by a focus on breakthroughs and science/medicine crossing new frontiers in the discovery of technologies and treatments, whereas the unintended consequences narrative is characterised by a focus on unintended, negative consequences of
technologies and treatments (Hellsten, 2008). While the progress narrative can be recognised in the ‘medical progress’ frame, examples of reporting which emphasised the possible unintended consequences of medical and pharmaceutical approaches to dealing with obesity were not found.

Notions that obesity is a health problem where weight is the core determinant of health or at least one of the core determinants were, however, not only characteristic of the ‘medical progress’ frame. The present study identified three additional frames of obesity - ‘self-control’, ‘education’ and ‘environments’ - which similarly presented weight as having implications for physical health (among other implications). One of these frames - the ‘self-control’ frame, to which the discussion turns next, was additionally characterised by a moralising attitude towards obese people which was not characteristic of any of the other frames of obesity found in the present analysis.

**8.2.1.2 The Self-control Frame**

The ‘self-control’ frame from the present study conceptualised obesity as a physical health problem with psychosocial consequences for obese people and with consequences for the wider environment, the economy and the comfort/safety of others as well as a problem that is caused by weight and is up to individuals to solve with hard work and self-discipline. News articles in this frame mentioned psychosocial consequences for obese people, for example, one news article reported ‘how “monster” jibes made morbidly obese man shed the pounds’ (dailymail.co.uk, 2011e), but they endorsed solutions that involved weight loss and thus, change on the part of the obese person and not on the part of those doing the mocking. Thus, even when seemingly recognising in a humane manner the psychosocial issues around obesity, the ‘self-control’ frame conformed to descriptions of equivalent frames from past research in that it positioned the obese individual as the appropriate site of intervention.

The ‘self-control’ frame of obesity from the present study resembled frames of obesity previously identified by Holmes (2009), Lawrence (2004), Saguy and Almeling (2005) and Shugart (2013) and labelled as a ‘back to basics’, a ‘behavioural’, an ‘individual moral failings’ and a ‘personal responsibility’ frame, respectively. And yet, while the ‘self-control’ frame closely resembled these previously described frames, it also differed in two potentially consequential ways:
first, in terms of the specific consequences of obesity that were discussed; and
second, with respect to the specific solutions to obesity that were mentioned.

Firstly, equivalents of the ‘self-control’ frame discovered in past research
have not been concerned with the consequences of obesity for the comfort/safety
of others and for the environment in terms of global warming via the alleged
heightened food and fuel consumption of obese people. It could therefore be said
that 1) by drawing attention to the unsettling cases of passengers seated next to
obese neighbours as in the story of a person who had ‘suffered a haematoma in her
chest, torn leg muscles and a crippling form of sciatica’ as a result of being
‘crushed’ by an obese person sitting next to her on a flight (Keenan, 2009) or 2) by
suggesting that obesity is a driver of the impending disaster of global warming as
in ‘obesity causes global warming (...) moving about in a heavy body is like driving
around in a gas guzzler’ (dailymail.co.uk, 2009) or ‘melting ice-caps, desertification
and endangered animals - because fat people are filling up their bellies’ (Bild.de,
2009), the ‘self-control’ frame communicated the urgency to act on obesity more
intensely than past equivalents.

By linking obesity to global warming - an issue of immense significance to
the whole of humanity - the ‘self-control’ frame from the present study may come
across as being too alarming, if not alarmist, in comparison to previously identified
equivalents. Alarming reporting may be justified at the early stages of
communication about an event or issue in order to attract people's scarce attention
to it - the literature on issue attention cycles has, for example, argued that issues
contend for public attention in a tough competition (Downs, 1972). At the current
moment, when obesity has a history of communication in the media, alarming
reporting may be counterproductive to sending any potentially valuable messages
about obesity and health. As experience with communicating the potential
consequences of climate change may show, perceptions about alarming or alarmist
communication may encourage scepticism about the reported consequences of an
issue and/or the issue itself (Nerlich, 2013a).

In this context, it has come to the author’s attention that labels used to refer
to participants in the climate change discussion - ‘alarmists’ and ‘sceptics’ - are
increasingly used to refer to participants in the obesity discussion (see e.g., Gard,
2011a; Gard, 2011b; Lupton, 2012). This development may forebode a long ‘word-
war’ ahead for the obesity discussion causing much energies to focus on labelling participants and debate over language - ‘an inward-gazing meta-discourse changing no one’s views and perhaps only solidifying them’ (Wihbey, 2012) rather than open discussion and productive work. In brief, perceptions that the consequences of obesity are being reported in alarming or alarmist ways may exacerbate divisions between obesity ‘alarmists’ and obesity ‘sceptics’ and become a barrier to open discussion between the two groups (Nerlich, 2013a).

It is not, in fact, the first time that concerns about alarmist tendencies within equivalents of the ‘self-control’ frame have been raised. In their study of US-based newspapers, Saguy and Almeling (2005) concluded that news articles within the ‘individual moral failings’ frame reported on obesity in an ‘alarmist’ (p. 23) manner. This was done via the use of ‘alarmist metaphors’ (p. 23) of war such as ‘the war on obesity’ and of epidemic such as ‘an epidemic of obesity’ and by blurring the lines between different categories of obesity and ascribing negative consequences of increased weight on physical health that are associated with extreme cases of morbid obesity to the general category of obese people. Since this study investigated neither the use of metaphors nor references to different categories of obesity, conclusions cannot be drawn as to whether these tendencies are applicable to the material analysed here.

Second, the ‘self-control’ frame from the present study was distinguished from equivalents from past research by mentioning two rather interventionist solutions - legal punishment and financial penalties. In terms of legal punishment, one news article reported how in Britain ‘social workers remove new-born baby from obese mother’ (Linklater, 2009) on fears of it being at risk of obesity. In terms of financial penalties, a news article discussed proposals in Germany that ‘if messages to parents of overweight children fall on deaf ears, child protection services must be informed and as a measure of last resort child benefits or Hartz IV should be discontinued’ (Ernst, 2010). By describing such solutions, news articles within the ‘self-control’ frame could be said to promulgate the goals of ‘surveillance medicine’ (Armstrong, 1995, p. 395) to place people under scrutiny but also to get them to practice self-surveillance (Armstrong, 1995). Suggesting, for example, that child protection services must be informed about weight-related issues implies being monitored, while discussing how external monitoring is
justified if messages to parents of overweight children fall on deaf ears implies practicing self-monitoring so as not to be perceived as irresponsible to messages.

In addition to differing from past equivalents in these two potentially consequential ways, the 'self-control' frame was also set apart from the other obesity frames identified in the present study by its moralising tone. This moralising tone was expressed in reports that 'experts are alarmed that increasing numbers of obese women are putting their babies' lives in danger' (Smyth, 2011), references to geographic regions with high rates of obesity as 'worst offender'(s) (Thornhill, 2011b), demands from obese people to 'stop using your genes as an excuse' (Macrae, 2010) and claims that 'it is too easy to tell ourselves that being plump is in our genes' (dailymail.co.uk, 2011a). By adopting such a tone, the 'self-control' frame echoed observations about its equivalents from past research. It resembled Holmes' (2009) description of news articles in the 'back to basics' frame as being 'chiding in tone' (p. 227) and Saguy and Almeling's (2005) conclusion that news articles in the 'individual moral failings' frame presented obesity as the product of 'bad individual practices' (p. 25), 'sloth' (p. 28), 'bad food choices' (p. 28), presented child obesity as 'a symbol of how their parents (...) have failed them' (p. 29) and referred to obese children as 'fat, lazy kids' (p. 30).

It has been suggested that such a moralising tone may, ironically in the light of what this frame was allegedly concerned about, namely the consequences of obesity for physical health, have negative implications for people's physical health. In the light of widespread stereotypes about obese people as being lazy and lacking self-discipline that have been documented by Puhl and Heuer (2010), exposure to news articles from major newspapers communicating similar ideas may sustain stereotypes that obese people are lazy and lack self-discipline and give way to discrimination and stigmatisation (Puhl & Heuer, 2010). Stigmatisation has been declared 'a known enemy' (Puhl & Heuer, 2010, p. 1019) of public health as it may encourage people to focus on the supposed moral failings of a group in society instead of more productively prioritise investment in prevention or treatment (Puhl & Heuer, 2010). Weight-based stigma may also cause obese people to develop eating disorders and be even less physically active for fear of being ridiculed when eating or being physically active in public (Puhl & Heuer, 2010).
In broader terms, by focusing solely on individuals the ‘self-control’ frame echoed the tenets of the concept of personal responsibility for health (see e.g., Minkler, 1999). This concept is characterised by: holding the individual as primarily responsible for his/her health; promoting individual behavioural change; and viewing the individual as the appropriate locus of intervention. Overall, the concept is built around the understanding that individuals can make choices ‘in relative isolation from the broader social environment of which they are part’ (Minkler, 1999, p. 126), for which it has been criticised as encouraging ‘victim-blaming’ (Minkler, 1999, p. 126) and disregarding individuals’ ‘response-ability’ (Minkler, 1999, p. 124). What is meant by this is that the personal responsibility concept ignores the physical and social context in which health-related behaviour takes place (Crawford, 1977; Minkler, 1999). Particularly, it fails to consider the role of poverty and low socio-economic status as risk factors for ill health (Minkler, 1999). As the ‘self-control’ frame identified here did not relate individual behaviour to wider social environments or discuss a possible link between obesity and poverty, it can be similarly pronounced ‘guilty’ of victim-blaming and disregard for response-ability.

The concept of personal responsibility for health has additionally been criticised for being rather vague. Wikler (1987) has pointed out that personal responsibility may mean anything from assigning simple causal responsibility (by implicating the affected people themselves as the chief causal agents) to assigning liability-based responsibility (by suggesting that the affected people should be held financially responsible for the health care and other costs stemming from their condition). In this context of multiple meanings, it is notable that the ‘self-control’ frame suggested both simple causal and liability-based responsibility. On the one hand, news articles within this frame suggested that by eating unhealthy foods, overeating, comfort eating and being physically inactive, people bring obesity unto themselves - implying simple causal responsibility. On the other hand, by citing the costs of obesity to the economy and discussing financially punitive measures to motivate obese people to bring their weight under control, the ‘self-control’ frame implied liability-based responsibility. It can, therefore, be concluded that the ‘self-control’ frame from the present study articulated a rather strong version of the personal responsibility concept.
8.2.1.3 The Environments Frame

Another obesity frame with equivalents in past research on obesity in the media that the present study uncovered which similarly to the ‘medical progress’ and ‘self-control’ frames viewed obesity as a physical health problem and problematized weight was the ‘environments’ frame. The ‘environments’ frame conceptualised obesity as a physical health problem with consequences for the wider economy which is caused by both weight and (low) levels of fitness and which requires living, work and study environments conductive to healthy eating and active living in order for obesity to be solved. The ‘environments’ frame resembled frames of obesity previously identified by Holmes (2009), Lawrence (2004) and Shugart (2013) and referred to as an ‘environmental’, a ‘government intervention’ and again an ‘environmental’ frame, respectively.

Similarly to Holmes’ (2009) ‘government intervention’ frame which proposed bans and argued that the key to solving obesity is recognising that ‘individuals cannot deal with this epidemic on their own’ (p. 227), news articles within the ‘environments’ frame called for bans and changes to living, work and study environments, to the affordability/availability of foods/drinks and active living opportunities, to advertising practices and to the package sizes of foods/drinks. Much like Lawrence’s (2004) ‘environmental’ frame within which individual behaviour was discussed in the context of an ‘unhealthy food and activity environment’ (p. 62), news articles within the ‘environments’ frame presented individual behaviour as constrained by specific characteristics of living, work and study environments. Similarly to Shugart’s (2013) ‘environmental’ frame which attributed obesity to issues around the availability of foods/drinks and poverty, the ‘environments’ frame linked obesity to the affordability/availability of foods/drinks and active living opportunities, poverty, characteristics of living, work and study environments, the advertising of foods/drinks and food items’ package sizes. It is on these grounds that the ‘environments’ frame was proclaimed the only systemic frame of obesity in this study.

In broader terms, such a focus on the wider causes of and solutions to obesity as was typical of the ‘environments’ frame echoes the tenets of the concept of social responsibility for health (see e.g., Minkler, 1999). This concept of social responsibility for health is characterised by: holding the broader society as
primarily responsible for the health of individuals; promoting broader environmental and social change to facilitate individual behavioural change; and viewing the broader environment and social conditions as the appropriate targets of intervention. Overall, the concept is built around the understanding that people’s ‘health-related actions can only be understood in a broader social context’ (Minkler, 1999, p. 126). In contrast to the personal responsibility concept, the concept of social responsibility for health has been praised for paying attention to how ‘both physical and social environmental factors enhance response-ability’ (Minkler 1999, p. 124).

In this context of paying attention to response-ability, it is notable that while the ‘environments’ frame emphasised the role played by the physical aspects of living, work and study environments, its treatment of social factors was rather superficial. For example, one of the news articles within this frame reported that poor women who moved to nicer area saw a reduction in obesity (Cooper, 2001). This news article further explained how ‘those living in richer areas are thought to have seen their health improve because of improved access to gym and health facilities, a lower concentration of takeaway restaurants and more healthy neighbours to model their lifestyles on’ (Cooper, 2011). Thus, while poverty in terms of moving from poor to nicer, richer areas was acknowledged to have an influence on obesity, factors influencing the ability to move were not discussed. Additionally, while proposals to change the physical aspects of living, work and study environments were made and poverty was discussed as a potential cause of obesity, proposals to alleviate poverty or help people move from a lower to a higher socio-economic bracket were absent. It can, therefore, be concluded that the ‘environments’ frame articulated a rather narrow version of the social responsibility concept.

8.2.1.4 The Education Frame

Yet another frame that the present study uncovered and one that has not been identified in past analyses of obesity-related media content - the ‘education’ frame - similarly to the ‘medical progress’, ‘self-control’ and ‘environments’ frames viewed obesity as a physical health problem and problematized weight. The ‘education’ frame saw obesity as a physical health problem with implications for the wider economy which is caused by both weight and levels of physical fitness
and which needs to be addressed via the provision of more and/or better information/education about food consumption and physical activity.

While the solution that was proposed by this frame requires efforts from government bodies and corporate entities in order to provide more and/or better information/knowledge, news articles within this frame were not concerned about individuals’ socio-economic abilities to act on information/knowledge. Thus, since the ‘education’ frame focused on people’s lack of information/knowledge as the ultimate cause of obesity, it better resonates with the concept of personal responsibility than with the concept of social responsibility for health. The concept of personal responsibility for health has, in fact, been acknowledged to particularly favour what have been called ‘soft’ (Kersh, 2009, p. 299) policy solutions such as education programmes and information campaigns. It was on these grounds that the ‘education’ frame was declared as another individualising frame of obesity that is somewhat closer to the ‘self-control’ than to the ‘environments’ frame.

Further, by describing solutions like ‘free supermarket lessons for fat families’ which lessons will offer tips on ‘nutrition and how to maintain a balanced diet’ and ‘parents will be told to set weight-loss goals’ (Carter, 2011) this frame seemed to be aimed at ensuring that parents will monitor their own as well as their children’s behaviour and weight. Similarly, another solution that was proposed here - traffic light labelling of foods/drinks - which ‘should allow consumers to recognise more quickly in the future whether a yogurt or a lemonade is a calorie bomb’ (welt.de, 2010) could be read as a tool to aid (self)monitoring. By means of encouraging the monitoring of oneself and others, the ‘education’ frame could be said to, similarly to the ‘self-control’ frame, resonate with ideas from surveillance medicine (Armstrong, 1995) which sees everyone as a patient and concedes that (self)surveillance may take place anywhere and not only in specially designated for the practice of medicine places (Armstrong, 1995).

Finally, by focusing on people’s lack of information/knowledge the ‘education’ frame resembled the core ideas of the well established in the social sciences information deficit or deficit model (Nerlich, 2013b). Behind this deficit model there is a belief that public hostility to science and technology is due to a lack of understanding of science and technology resulting from a lack of information (Dickson, 2005). Similarly, news articles in the ‘education’ frame
suggested that it is people’s lack of information/knowledge about food consumption and physical activity that is ultimately responsible for obesity. The deficit model further assumes that by providing information to overcome lack of knowledge people’s attitudes towards science and technology will change (Dickson, 2005). In a similar manner, news articles in the ‘education’ frame suggested that equipped with the information/knowledge about food consumption and physical activity, people will adopt healthier behaviours.

The deficit model has been widely criticised (see e.g., Sturgis & Allum, 2004). The value of educating people cannot be denied (Dickson, 2005; Sturgis & Allum, 2004), but information is only one factor that influences people’s understanding of science and technology alongside other factors like culture and personal experience (Sturgis & Allum, 2004). It can be similarly concluded that while there may be benefits to educating people about food consumption and physical activity, it is unlikely that provision of information and education will be on its own enough to address a complex issue like obesity.

8.2.1.5 Critical Perspectives: The Acceptance and Coming-out Frames

Possibly the most intriguing finding of the present study relates to revealing that it was not solely the ‘monolithic mantra that “fat is “obesity” and is unhealthy’” (Monaghan, Rich, & Aphramor, 2011, p. 225) that found expression, but voices articulating alternative, critical perspectives were also given space in news articles published in the online versions of major mainstream media outlets from Britain and Germany. Critical perspectives on obesity, as summarised by Cooper (2011), may include: critiquing the diet culture; raising awareness about how dieting may negatively impact physical health by promoting extreme weight-loss practices; challenging the notion that if people eat less and move more they will lose weight; critiquing the moralising view of obese people; (re)interpreting existing research evidence about the negative impact of increased weight on physical health; developing new methodologies to understand and measure obesity.

In the present study such critical perspectives were presented in the ‘acceptance’ and ‘coming out’ frames - two frames of obesity without equivalents in existing research on obesity in the media. These two frames reconceptualised obesity by adopting an alternative approach to weight. While the ‘acceptance’ frame advocated the acceptance of one’s body regardless of weight and called for a
focus on physical fitness in order to achieve improvements in physical health, the ‘coming out’ frame spoke not of accepting but of admiring weight and experiencing weight gain as sexually attractive. Evidence suggests that these two frames may reflect different aspects of fat activism, which is not a unified movement and debates exist regarding whether to create ‘boundaries around fat activist identities’ (Cooper, 2011, p. 165) particularly so that fat admirers, that is people who find fat partners sexually attractive, are excluded (Cooper, 2011).

Thus, findings from British and German news articles presented here suggest that in addition to the traditional ‘medico-moral context’ (Rich, Monaghan, & Aphramor, 2011, p. 4) of discussing obesity critical voices have also been given space. The question is - What are the implications? As Lawrence (2004) once wrote after describing the ‘environmental’ frame of obesity (which challenges ideas that it is obese people themselves who are ultimately responsible), ‘the genie of expanded public discourse seems unlikely to be squeezed back into the bottle of inattention and personal behaviour frames’ (p. 72). Yet, the significance of the inclusion of critical voices which the present study uncovered should not be overstated. At the same time as discussions questioning the central role of weight for physical health and challenging the negative associations of increased weight have surfaced, the role of self-control over personal behaviour to do with food consumption and physical activity has also been powerfully articulated: 1) via urgent claims about the consequences of obesity for the comfort/safety of others and for the environment in terms of global warming; 2) via proposals for rather punitive solutions like legal punishment and financial penalties; and 3) via discussions of both the simple causal and liability-based responsibility that obese people should bear.

Last but not least, these two frames of obesity are also set apart from the rest by the fact that they were predominantly (in the case of the ‘acceptance’ frame) or exclusively (in the case of the ‘coming out’ frame) elaborated by women. One of the news articles in the ‘acceptance’ frame was authored by British psychotherapist Susie Orbach who was made famous by her book ‘Fat is a feminist issue’. ‘Fat is a feminist issue’ is possibly the best known of the genre of self-help books of the late 1970s and early 1980s which drew attention to the gendered nature of weight preoccupation and impacted generations of feminist writing on
women and weight (Fikkan & Rothblum, 2012). The strong female presence in the ‘acceptance’ and ‘coming out’ frames reflects a real life intersection between critical perspectives on weight and feminism.

8.2.1.6 Summary of the Main Findings regarding Obesity Frames

In sum, this study identified six frames of obesity - ‘medical progress’, ‘self-control’, ‘education’, ‘environments’, ‘acceptance’ and ‘coming out’. Among these the ‘medical progress’, ‘self-control’ and ‘environments’ frames have equivalents in past research on obesity in the media which investigated geographies, media types, media outlets and time frames different from those studied here. Thus, the present study makes a robust contribution to existing evidence that these appear to be stable ways of conceptualising obesity across geographies, media types and time periods.

At the same time the ‘medical progress’ and ‘self-control’ frames from this study also differed from past equivalents in a number of potentially consequential ways. While past research has found that a biological/genetic explanation of obesity absolved obese people from blame by attributing obesity to factors outside of their control, the stance of the ‘medical progress’ frame was unclear. Some news articles argued that people do not choose surgery because it is an easy option. Others explained the failure of drugs to achieve weight loss with obese people's lack of perseverance. Further, unlike equivalents from past research the ‘self-control’ frame from the present study drew attention to the consequences of obesity for the comfort/safety of others and for the environment in terms of global warming. By such means the ‘self-control’ frame communicated the urgency to act on obesity more intensely than past equivalents. Unlike previously described equivalents, the ‘self-control’ frame also discussed two rather interventionist solutions to obesity - legal punishment and financial penalties.

By focusing on individuals, the ‘self-control’ frame echoed the tenets of the concept of personal responsibility for health and articulated a rather strong version of this concept by implying that obese people should bear both simple causal and liability-based responsibility. In contrast, by discussing the wider causes of and solutions to obesity the ‘environments’ frame echoed the tenets of the concept of social responsibility for health. Yet, while news articles within this frame acknowledged the role of physical aspects of living, work and study
environments in obesity causation, social factors were only superficially addressed. Poverty was presented as an aspect of the environment and movement from poor to rich areas was recommended to address obesity without considering people’s socioeconomic ability to move or proposing movement from a lower to a higher socioeconomic bracket as a solution. The ‘environments’ frame thus articulated a rather weak version of the social responsibility concept.

It also emerged that several of the discovered here obesity frames - ‘medical progress’, ‘self-control’, ‘education’ and ‘environments’ - conceptualised obesity as a health problem where weight is the core determinant of health or at least one of the core determinants together with physical fitness. In contrast to that, the ‘acceptance’ and ‘coming out’ frames offered alternative, critical perspectives: in the former case, by positioning physical fitness and not weight as core to obesity; and, in the latter case, by discussing weight gain/excess weight as appealing and sexually attractive.

Finally, when the frames of ‘medical progress’, ‘self-control’, ‘environments’, ‘education’, ‘acceptance’ and ‘coming out’ are considered against the background of key developments during the studied timeframe it is unsurprising that they manifested. The ‘medical progress’ frame should be viewed against the background of the unprecedented intensification of focus on the negative effects of obesity on the physical health of Europe’s population - starting with the 2009 proposal for holding an EOD, then the first EOD held in 2010 and the 2011 calls of the EOD’s president to recognise obesity as a chronic disease in Europe. The focus within the ‘medical progress’ frame on surgery as the most effective solution to obesity has its counterpart in the focus on surgery in reality medical series airing at the time (e.g., ‘Embarrassing Fat Bodies’).

The ‘self-control’ frame and its focus on individuals resonates with broader developments in Britain and Germany - the 2009 NHS Constitution and the 2007 healthcare reform, respectively. Reality television shows like the British and German versions of ‘The Biggest Loser’ - a format that stresses individualist, self-inflicted accounts of obesity also provided a backdrop against which the ‘self-control’ frame could emerge. The ‘environments’ frame reflects parallel developments including key EU and WHO Europe publications which drew attention away from individuals and onto residential environments and urban
transport infrastructure. Some of these publications including the 2007 strategy for Europe on nutrition, overweight and obesity-related health issues and the 2010 evaluation of this strategy also stressed the importance of giving consumers clear information about the nutritional content of processed foods. Such ideas are reflected in the ‘education’ frame.

Finally, the ‘acceptance’ and ‘coming out’ frames which challenged the focus on weight as a key determinant of physical health and called for more but positive attention to the meaning of (excess) weight reflect ideas from critical weight/obesity studies or fat studies. As the variance in names indicates, this perspective which rose into prominence roughly during the analysed timeframe is not unified. There are, for example, debates with respect to the amount of attention and the nature of attention that should be given to (excess) weight.

In short, the frames of obesity as they emerged in the present study closely reflect key obesity-related developments which took place during the analysed timeframe.

8.2.2 Prevalence of Frame Elements and Obesity Frames

In order to answer the second part of the first core research question from the present study (RQ1.2), namely ‘With what frequency are obesity frames used in news articles?’, the presence of specific frame elements associated with each of the six obesity frames (e.g., specific causes, consequences, solutions and visuals) was coded in news articles. Based on this coding it emerged that 1) news articles from Britain and Germany most frequently mentioned the consequences of obesity followed by solutions making causes the least discussed aspect of obesity. In a next step the coded frame-related variables were grouped following specially designed rules for re-assembly of frame elements back into frames. On this basis it emerged that 2) the ‘self-control’ frame (50.8%) was the most frequently used frame in news articles in the total sample followed by the ‘environments’ (23.3%), ‘medical progress’ (21.5%), ‘education’ (14.8%), ‘acceptance’ (2.3%) and ‘coming out’ (2.0%) frames. A number of differences in the use of frames between news articles from British and German media outlets also became apparent, so that 3) news articles from British media outlets were significantly more likely than news articles from German ones to use the ‘medical progress’, ‘education’ and ‘environments’ frames.
These three main findings regarding the prevalence of frame elements and obesity frames are discussed below.

**8.2.2.1 Prevalence of Frame Elements**

Findings that news articles from Britain and Germany alike most frequently mentioned the consequences of obesity may indicate how people could act following exposure to news content such as the one described here. While awareness of the potentially negative consequences of something is a prerequisite for developing motivation to do something about it, ‘scaring people into healthy behaviours’ (Schwarzer, 2001, p. 48) by overemphasising consequences may be ineffective. As experimental studies have shown, a focus on arousing fear by overemphasising the negative health consequences of certain personal behaviours does not necessarily extend the goals of health promotion. Meyerowitz and Chaiken (1987), for example, found that overemphasising the negative consequences of foregoing breast self-examination did not significantly influence participants’ motivation to change their behaviour. Overemphasis of potentially negative consequences may result in numbing and apathy. It may motivate actions that control the unpleasant experience of exposure to information about negative consequences rather than the threat of the negative consequences itself (Moser & Dilling, 2010).

Additionally, findings that solutions to obesity were the second most frequently mentioned aspect of obesity and causes were the least mentioned aspect largely confirm observations that the obesity discussion ‘focuses upon proposed “solutions” to a taken-for-granted problem’ (Rich, Monaghan, & Aphramor, 2011, p. 4). Such a focus on the solutions to obesity is problematic given existing ambiguity regarding the causes of obesity and the status of weight as a primary cause of health complications in particular (see e.g. Gard, 2011a). Gard and Wright (2005), for example, have declared the medical research evidence which shows that weight is the primary determinant of health as being inconclusive. Campos (2004) has expressed doubts over the correctness of medical research evidence demonstrating that weight is a contributor to negative health outcomes. Others like Bacon (2008) have conducted large-scale epidemiological research demonstrating the health benefits rather than risks of (excess) weight.
8.2.2.2 Prevalence of Obesity Frames

Second, the fact that ‘self-control’ emerged as the most frequently used frame of obesity in news articles from Britain and Germany confirms observations from past research on obesity in the media that obesity has tended to be discussed in terms of personal behaviour which is proposed both as an explanatory framework and as a guide for action (Barry et al., 2011; Bonfiglioli et al., 2007; De Brún, McKenzie, McCarthy, & McGloin, 2011; Furrer Pasquali, 2010; Kim & Willis, 2007; Saguy & Almeling, 2008; Saguy & Gruys, 2010; Yoo & Kim, 2012). The emergence of the ‘self-control’ frame as the most frequently used frame additionally converges with recent country-specific developments in Britain and Germany. In Britain, an NHS Constitution was published in 2009 which for the first time in the history of the NHS introduced health-related responsibilities for individuals (Schmidt, 2009). In Germany, personal responsibility for health has been ‘explicitly and prominently enshrined’ (Schmidt, 2007b, p. 242) in federal health law since 1988. The most recent healthcare reform from 2007 placed even more emphasis on the concept of personal responsibility by stating that insured people with health complications arising from lifestyle, for example, cosmetic surgery, piercings, tattoos, may not necessarily qualify for free treatment (Schmidt, 2007b; 2008).

8.2.2.3 Significant Differences between British and German Media Outlets

Finally, while there were no statistically significant differences between the proportions of news articles from British and German media outlets using the ‘self-control’, ‘acceptance’ and ‘coming out’ frames, news articles from British media outlets were significantly more likely than news articles from German ones to use the ‘medical progress’, ‘education’ and ‘environments’ frames of obesity.

The fact that news articles from British media outlets were significantly more likely than news articles from German ones to use the ‘medical progress’ frame could, in part, be attributed to two high profile cases of obesity surgery which attracted the attention of British media but were not reported in Germany and had no counterparts there. These were the case of retired police officer Tom Condliff who went to court to dispute a primary care trust’s (PCT’s) decision not to fund his gastric band surgery (see e.g. Doward, 2011) and a celebrity surgery - the gastric band operation of radio and television presenter and regular columnist for The Daily Mail Anne Diamond (see e.g., Lister, 2009).
The finding that news articles from British media outlets were significantly more likely than news articles from German ones to use the ‘education’ frame, could be tentatively explained with reference to the nature of the British welfare state. Based on the extent to which the state provides welfare, such as education, housing and health, countries fall in different categories. Britain has typically been classified among the liberal welfare states in which state provision of welfare is minimal and the dominance of the market is encouraged (Eikemo & Bambra, 2008). Softer solutions like education/information provision which require minimum state involvement may be favoured more by British people including news producers and policy makers and in Britain the number of educational initiatives on which to report may have been higher to start with. These factors might explain the difference in the extent to which the ‘education’ frame was used in news articles published in media outlets from the two countries.

The fact that British media outlets were also significantly more likely than German ones to use the ‘environments’ frame may tentatively be attributed to the more central position that the notion of personal responsibility for health has traditionally occupied in German as compared to British health law and in societal understanding of responsibility for health. For example, Article 1 of Volume 5 of the German Social Security Code dating from 1988 titled ‘Solidarity and personal responsibility’ states that people have co-responsibility for health (Bundesministerium der Justiz und für Verbraucherschutz, 2014). This concept of co-responsibility implies that the community has responsibility for the health of individuals but individuals also have obligations to the community and should not use health services unnecessarily, as someone in genuine need may be deprived of medical attention (Schmidt, 2008). Article 2 of the same Volume 5 of the German Social Security Code states that health services are to be provided insofar as the need for such services has not arisen from personal responsibility (Bundesministerium der Justiz und für Verbraucherschutz, 2014).

Further enhancing the prominent position that the concept of personal responsibility for health occupies in German health policy, a move from 2004 allowed sickness funds providing statutory health insurance to offer bonuses to the insured in order to reward prudent health-related behaviour (Schmidt, 2008; 2012). Bonus schemes accept participation in dieting, smoking cessation and yoga
classes as evidence of personal efforts to maintain physical health and give the insured person bonus points which can be redeemed for various items from music downloads to cash payments (Schmidt, 2008; Schmidt, Gerber, & Stock, 2009). More recently, as mentioned earlier, a 2007 amendment of Article 52 of Volume 5 of the German Social Security Code has resulted in an even further enhancement of the role of personal responsibility for health. This amendment introduced a specification that the insured person may be asked to pay an equivalent contribution if s/he requests treatment for health complications arising from personal behaviour such as cosmetic surgery, tattoos or piercing (Schmidt, 2008).

‘Personal responsibility featured explicitly and prominently in Germany’s health law for at least two decades’ (Schmidt, 2012, p. 437). In Britain there is no similar ‘longstanding acknowledgement’ (Schmidt, 2012, p. 437) of the concept of personal responsibility for health. This may be changing with the 2009 NHS Constitution setting out for the first time a range of responsibilities of NHS users in addition to their rights. A section in the NHS Constitution titled ‘Patients and the public - your responsibilities’ calls on people to recognise that they can significantly contribute to improving/maintaining their health and to take personal responsibility (NHS Choices, 2014). However, there is no mention in this constitution of either positive (e.g., bonus schemes) or negative incentives to encourage taking personal responsibility for health. The status of responsibilities is in comparison to the German case ‘non-binding and merely aspirational’ (Schmidt, 2009, p. 133). These differences in the centrality of the concept of personal responsibility for health to British and German health policy and public thinking about responsibility for health may account for the uncovered here differences in the frequency of use of the ‘environments’ frame.

8.2.3 Antecedents and Obesity Frames

As part of aiming to present a comprehensive view of obesity communication and adopting an integrative approach to framing, this study examined whether antecedent factors including axiomatic characteristics of journalistic work like news values (RQ.2.1) and axiomatic characteristics of the media outlets for which journalists work like liberal or conservative political leaning (RQ2.2) and broadsheet or tabloid reporting style (RQ2.3) may explain aspects of the use of obesity frames in news articles. In addition to contributing to the fuller
understanding of obesity communication by engaging with this analysis the present study also contributes to framing research by suggesting a way in which antecedents of frames can be incorporated into the study of frames in media content. Results of comprehensive reviews of the framing research literature have shown that there is a considerable lack of research into the production of frames as well as the factors that may affect their production (Borah, 2011).

8.2.3.1 Obesity Frames and News Values

In answer to the question ‘Are news articles in what emerges as the most frequently used obesity frame also the ones driven by the highest number of news values?’ (RQ2.1), this study found that news articles in the ‘self-control’ frame which emerged as the most frequently used frame of obesity did not meet the criteria for the highest number of distinct, established news values per article (on average). The frequent use of the ‘self-control’ frame could not be explained with a higher concentration of distinct, established journalistic news values in news articles in the ‘self-control’ frame as compared to news articles in the other obesity frames. This contrasts with what may have been expected on the basis of the theory of news values, which posits that the more distinct journalistic news values that an event or issue satisfies, the greater the likelihood that it will be reported (Galtung & Ruge, 1965).

Journalistic news values are only one among several factors that may influence reporting. For example, the wider business interests of the analysed media outlets may also account for the frequent use of the ‘self-control’ frame. The mix of applications and services offered by the analysed media outlets like BMI calculators and diet/exercise advice services may resonate well with the ‘self-control’ frame’s focus on diet and exercise. Other factors that may have contributed to the more frequent use of the ‘self-control’ frame may include pressure by interest groups, media ownership, advertising revenue, the way in which journalists imagine their audience(s) (see e.g., Harcup, 2009; Shoemaker & Reese, 1996; Tuchman, 1978). With respect to the latter, Harcup (2009) has reported that survey results with US journalists show that ‘newsworthy stories were sometimes or often ignored because they were regarded as too complicated for the average person’ (p. 31). The ‘self-control’ frame may be seen by journalists as offering a simple, intuitive to understand way of explaining obesity.
Because of the role that other antecedent factors may play in terms of what issues and events are (most frequently) covered in news articles and how, some scholars have argued that journalistic news values should never be approached as the sole factor that may explain what is covered (most frequently) and how (Shoemaker, 2006). This study did, in fact, look at two additional constraints on journalistic work - the conservative or liberal political leaning of media outlets and their broadsheet or tabloid reporting style.

### 8.2.3.2 Obesity Frames and Political Leaning

With respect to the question ‘Are there significant differences in the use of obesity frames between conservative and liberal media outlets?’ (RQ2.2), the present study found a number of significant differences between news articles published in liberal (Guardian.co.uk and sueddeutsche.de) and conservative (Bild.de, dailymail.co.uk, thetimes.co.uk and welt.de) media outlets. News articles published in liberal media outlets were significantly more likely than news articles published in conservative ones to use the ‘acceptance’, ‘education’ and ‘environments’ frames of obesity. While the fact that news articles from liberal media outlets were significantly more likely than news articles from conservative ones to use the ‘education’ frame may be surprising - given that educational and informational solutions which require limited government efforts would be expected to better resonate with conservative preferences for less government (Diffen, 2014; Schmidt, 2007a) - findings that news articles from liberal media outlets were significantly more likely than news articles from conservative ones to use the ‘acceptance’ and ‘environments’ frames lend themselves to explanation with reference to liberalism.

The core proposition of the ‘acceptance’ frame - that people should tolerate their weight rather than struggle to emulate ideals - can be said to resonate well with liberal beliefs that the cultivation of a tolerant society promotes public welfare (Diffen, 2014; Schmidt, 2007a). The finding that news articles published in liberal media outlets were also significantly more likely than news articles published in conservative media outlets to use the ‘environments’ frame could similarly be explained with the fact that recommendations made within the ‘environments’ frame - to engineer environments conducive to healthy living, address television advertising for foods/drinks, impose bans, reduce the sizes of
pre-packaged foods/drinks and restaurant portions - can be said to resonate well with liberalism which favours government regulation and government provision of services and care (Diffen, 2014; Schmidt, 2007a).

8.2.3.3 Obesity Frames and Reporting Style

In answer to the question ‘Are there significant differences in the use of obesity frames between broadsheet and tabloid media outlets?’ (RQ2.3), this study found several significant differences between news articles published in broadsheet (Guardian.co.uk, sueddeutsche.de, thetimes.co.uk, welt.de) and tabloid (Bild.de and dailymail.co.uk) media outlets. News articles published in broadsheet style media outlets were significantly more likely than news articles published in tabloid style media outlets to use the ‘acceptance’, ‘education’ and ‘environments’ frames, whereas news articles from tabloid style media outlets were significantly more likely than news articles from broadsheet style media outlets to use the ‘medical progress’ frame.

It was speculated that the former finding could be attributed to a confound between broadsheet-tabloidism and conservatism-liberalism as two of the four broadsheet style media outlets analysed (Guardian.co.uk and sueddeutsche.de) are liberal and two (thetimes.co.uk and welt.de) are conservative while both of the tabloid style media outlets (dailymail.co.uk and Bild.de) are conservative. To test this speculation, news articles from liberal, broadsheet style media outlets (Guardian.co.uk and sueddeutsche.de) and news articles from conservative, broadsheet style media outlets (thetimes.co.uk and welt.de) were analysed to identify the existence of significant differences in their use of the ‘acceptance’, ‘education’ and ‘environments’ frames. This analysis showed that only in the case of the ‘environments’ frame could the difference in use be attributed to a confound between broadsheet-tabloidism and conservatism-liberalism. The finding that news articles published in broadsheet style media outlets were significantly more likely than news articles published in tabloid style media outlets to use the ‘environments’ frame can also be explained with the characteristics of tabloid style and the tendency for tabloid reporting to approach issues from a personalised angle (Uribe & Gunter, 2004).

With respect to the finding that news articles from tabloid style media outlets were significantly more likely than news articles from broadsheet style
media outlets to use the ‘medical progress’ frame, this can be explained in the light of the characteristics of tabloid reporting style. Topics discussed within the ‘medical progress’ frame like miraculous surgery and wonder drugs and cures can be said to offer opportunities for sensational reporting and thus, resonate well with a sensationalist, tabloid reporting style.

In sum, the analysis of media outlets with liberal and conservative political leanings and broadsheet and tabloid reporting styles and the discovery of several significant differences in the use of obesity frames between them serves as a reminder that when choosing to analyse any one publication it may be appropriate to reflect on its axiomatic characteristics like political leaning and reporting style. They may prove useful in explaining the predominance of certain frames of obesity. Acknowledgement of such constraints in the context of which journalists work to produce obesity-related news articles may also be helpful in developing a more reflective understanding of why it may be harder for certain ways of conceptualising obesity to gain traction with (certain) media outlets.

8.2.4 Towards Understanding the Consequences of Obesity Frames

Finally, as part of aiming to present a comprehensive view of obesity communication and adopting an integrative approach to framing, this study also took steps that will hopefully stimulate experimental research to establish the existence of effects of exposure to media content on people's understanding of obesity. This study did not present evidence for the presence or absence of framing effects. It studied the use of obesity frames in news articles and accompanying comment sections for correlations. Correlation analysis does not indicate cause-and-effect. Also, the condition of exposure to media content cannot be met, as readers who commented may not necessarily have read the news article in advance (Mancini, 2014: Manjoo, 2013). This study suggested that interesting points from such exploratory analysis (e.g., no correlation where one would have been expected, unexpected correlation, strong/weak correlation) can be used to focus further experimental research. It may be especially pertinent for follow-up experimental research to investigate people' reactions to news articles from this study which did not use the ‘self-control’ frame but this frame was used by readers in accompanying comment sections.
In short, while the present study did not investigate the consequences of exposure to media content, it provides valuable insights that may inform future experimental research. The study of readers’ comments is also valuable because no previous research analysed readers’ comments to obesity-related news articles.

8.3 Limitations and Directions for Future Research

The key contribution of this research is in terms of presenting a comprehensive view of obesity communication. This study adopted a distinct, unique integrative approach that was integrative in two ways. First, this study integrated the analysis of frames in media content with the analysis of antecedents that may explain aspects of the use of frames in media content. It also looked for correlations between frame use in media content and readers’ comments. This exploratory analysis was proposed as a useful step the results of which may help prioritise areas of research for further experimental study of the consequences of frame use in media content. Second, when analysing media content to identify frames and determine their frequency of use, this study integrated the analysis of text with the analysis of visuals. Since, framing research that combines production, content and reception is overall rare or, as Matthes (2012) has put it, ‘hardly any research has attempted to draw a complete picture’ (p. 247), the present analysis also contributes to framing research. It suggests a study design that can be used as a template for future studies. At the same time, findings from this study need to be viewed in the context of at least three core limitations.

First and foremost, the present study did not provide evidence for the existence of framing effects or consequences of the use of obesity frames in media content on people’s understanding of obesity as an issue. This study analysed frame use in readers’ comments and frame use in news articles and identified correlations. Correlation analysis does not indicate cause-and-effect and a key condition that needs to be satisfied in order to be able to claim effects - exposure to media content - cannot be met. Readers may not necessarily read a news article before commenting on it. Second, this study integrated the analysis of news article texts with the analysis of accompanying photographs. To do this one photograph was analysed per news article, meaning that the study did not analyse the full range of photographs present in news articles. Also, although not necessarily a limitation of the study design, the analysis of news photographs uncovered a
rather limited range of photographic depictions - of tools measuring size and weight, foods or drinks, food labels. Third, this study found that news values could not explain the prominent use of the ‘self-control’ frame. This may have to do with the suitability of the list of news values that was adopted. It could also be because other issues were additionally at play. Certain obesity frames may be more compatible with and advantageous for the success of obesity-related initiatives offered by the analysed media outlets including applications (e.g., BMI calculators) and subscription services (e.g., diet advice).

Each of these limitations offers directions for future research. First, as suggested earlier, interesting outcomes from the correlation analysis presented in this study may be used as input for further experimental research. Experiments may expose participants to news articles which did not use the ‘self-control’ frame but this frame was subsequently employed by readers in accompanying comment sections. Experimental research, while indeed research with ‘captive audiences’ (Gunter, 1987, p.100), still has its place in investigating media effects. In experiments the researcher has the control to ensure exposure to media content - a key condition that needs to be met in order to be able to draw conclusions about effects. Also, via the evaluation of participants’ understanding of obesity before and after exposure to media content, conclusions about cause-and-effect can be drawn. Second, much broader studies of obesity-related photographs may need to be conducted. This includes both the analysis of all photographs contained in news articles and studies of image banks to understand the nature of obesity-related photographs that are freely available. Third, since this study found that the investigated here news values could not explain the use of the ‘self-control’ frame, it might be necessary to investigate other factors and/or news values. In terms of other factors, future research may document the obesity-related tools such as BMI calculators and services such as subscription-based diet advice offered by the analysed media outlets. In terms of different news values, it was mentioned earlier that recent news values research has moved on to study emotion as a news value. Future research may, therefore apply a content analytic framework to obesity-related news articles that measures their emotionality.

Finally, there may be benefits of simply repeating the present study while focusing on the period from 1 January 2012 to the present day in order to find out
if: 1) the frequency of use of the different obesity frames that were identified here may have changed; 2) new frames may have emerged; and/or 3) frames identified in the present study may have changed in scope.

With respect to these three points of interest, it may be especially pertinent to pay close attention to the ‘medical progress’ frame. It can be expected that following AMA’s June 2013 decision to declare obesity a disease in its own right, the ‘medical progress’ frame may have been used with greater frequency. Also, science and technology and by extension medicine have been traditionally framed in terms of either progress or unintended consequences. As the present study did not identify a frame of obesity which focused on the possible unintended, negative consequences of surgical and pharmaceutical solutions, it would be worthwhile to track whether such a frame may have emerged in more recent coverage. It has also come to the author’s attention that news articles have been of late discussing (with the same optimism that characterised the ‘medical progress’ frame) the potential of digital technology (e.g., activity tracking equipment like Garmin, Nike Fuel Band) and applications (e.g., Take Control, Vivosmart) to solve obesity. Such developments may require future research to re-evaluate and possibly re-label the ‘medical progress’ frame to something broader, for example, ‘scientific progress’ in order to reflect potential changes in its scope.

8.4 Conclusion

As a final wrap-up, this study was informed by framing theory and treated framing as a research programme that has the potential to offer an integrative view of communication and to serve as a lens for simultaneously studying the frames that manifest in obesity-related media content as well as their antecedents and consequences. With regard to antecedents, avenues of framing theory and research have shown that axiomatic characteristics of media outlets - their political leaning (Carvalho, 2007) and reporting style (Semetko & Valkenburg, 2000) as well as axiomatic characteristics of journalistic work such as news values (Gans, 1979; van Gorp, 2007) could be helpful in understanding certain aspects of the use of obesity frames. With regard to consequences, framing is essentially a media effects theory (Scheufele, 1999) and thus, well positioned to guide the study of possible consequences of obesity frames in terms of potential effects on audience members’ understanding of obesity as an issue as a result of media exposure.
In line with this approach, the first aim of this study was to establish what frames are used to discuss obesity in news articles (RQ1.1) and with what frequency (RQ1.2). Second, this study aimed to expand understanding of the antecedents of frames in terms of axiomatic characteristics of journalistic work like news values and axiomatic characteristics of the media outlets for which journalists work like political leaning and reporting style. This study investigated whether news articles in what emerged as the most frequently used obesity frame were also the ones that were driven by the highest number of distinct, established journalistic news values (RQ2.1) and looked for evidence for significant differences in the use of frames between media outlets of different political leanings (RQ2.2) and reporting styles (RQ2.3). Finally, this study did not present evidence for the existence of framing effects, but it identified interesting correlations between the use of obesity frames in news articles and readers’ comments which can be used as input in further experimental research into the consequences of obesity-related media content (RQ3).

This study identified six distinct frames of obesity - ‘medical progress’, ‘self-control’, ‘education’, ‘environments’, ‘acceptance’ and ‘coming out’. While they differed with respect to the most appropriate domain that holds the key to solving obesity, the ‘medical progress’, ‘self-control’, ‘education’ and ‘environments’ frames all conceptualised obesity as a health problem that is caused in full or in part by weight. By challenging the centrality of weight to obesity-related health consequences and by associating (excess) weight with positive experiences of attraction and sex appeal, the ‘acceptance’ and ‘coming out’ frames presented alternative, critical perspectives or, in the words of framing theory, they offered reframes of obesity.

Similarly to findings from much past research on obesity in the media that was informed by framing theory, this study found that ‘self-control’ was the most frequently used frame to discuss obesity in news articles from Britain and Germany. Statistically significant differences between the proportions of news articles from British and German media outlets that used the ‘self-control’ frame were not discovered. There were, however, significant differences between the proportions of news articles from British and German media outlets that used the ‘education’ and ‘environments’ frames. News articles published in British media
outlets were significantly more likely than news articles published in German media outlets to use the ‘education’ and ‘environments’ frames. These differences make sense when viewed in the light of the nature of the welfare state in Britain and in the context of the more central role that the concept of personal responsibility for health has traditionally played in German health policy.

This study also found that the use of the ‘self-control’ frame, which emerged as the most frequently used obesity frame, was not explained by the higher concentration of distinct established journalistic news values in news articles within this frame. Thus, journalistic news values as an antecedent factor did not prove useful for accounting for aspects of the use of obesity frames. Yet, there were statistically significant differences in the use of obesity frames between news articles from liberal versus conservative and broadsheet versus tabloid style media outlets that lent themselves to explanation via the known characteristics of liberalism and tabloid reporting style.

The fact that news articles from liberal media outlets were significantly more likely than news articles from conservative ones to use the ‘acceptance’ and ‘environments’ frames could be related to liberal beliefs that the cultivation of a tolerant society promotes public welfare and the typical of liberalism favour of government regulation and provision of services. Findings that 1) news articles from broadsheet style media outlets were significantly more likely than news articles from tabloid style media outlets to use the ‘environments’ frame and 2) news articles from tabloid style media outlets were significantly more likely than news articles from broadsheet style media outlets to use the ‘medical progress’ frame could be attributed to the characteristic for a tabloid reporting style tendency for reporting from a personalised angle and preference for sensationalism combined with the opportunities for sensational reporting that topics within the ‘medical progress’ frame offer. These findings also highlight the need for a reflective stance on the factors that may impact the work of news producers in order to better understand news outputs.

Further, this study found that the use of obesity frames by news producers in news articles was significantly correlated with the use of obesity frames by readers in comment threads with the notable exception of the ‘self-control’ frame.
This represents an interesting example that needs to be followed up in further experimental research.

Finally, this study concludes with a summary in Table 8.1 below of the key take away points for news producers, policy makers and news readers.

### Table 8.1 Key Take Away Points

<table>
<thead>
<tr>
<th>News Producers</th>
<th>Policy Makers</th>
<th>News Readers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus less on:</td>
<td>Keep an eye on:</td>
<td>Read broadly, critically and reflect:</td>
</tr>
<tr>
<td>1) consequences</td>
<td>voices that advance critical perspectives that call for</td>
<td>1) read news articles from various media outlets (different political leaning etc.)</td>
</tr>
<tr>
<td>2) self-control</td>
<td>1) more attention to physical activity</td>
<td>2) be aware of the problem definitions, causes, consequences, solutions that media content communicates</td>
</tr>
<tr>
<td>(as much as possible within the constraints of political leaning etc.) because</td>
<td>2) less attention/positive attention to weight</td>
<td>3) reflect on the constraints on journalistic work</td>
</tr>
<tr>
<td>1) scaring people into action does not work</td>
<td>as these have now entered the mainstream</td>
<td></td>
</tr>
<tr>
<td>2) obesity is complex</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendices

Appendix 1: List of Existing Research on Obesity in the Media

<table>
<thead>
<tr>
<th>Country</th>
<th>Author</th>
<th>Theoretical Framework</th>
<th>Media Genre</th>
<th>Method</th>
<th>Media Type</th>
<th>Key Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Zivkovic et al. (2010)</td>
<td>child politics</td>
<td>news</td>
<td>discourse analysis</td>
<td>print (newspapers)</td>
<td>how children are discussed in the context of obesity</td>
</tr>
<tr>
<td>Australia</td>
<td>Nathan et al. (2005)</td>
<td>evidence-informed policy</td>
<td>news</td>
<td>content analysis</td>
<td>print (newspapers); Obesity Summit proceedings</td>
<td>types of evidence (empirical research, ideas and opinions or economic data) used by stakeholders in the context of the 2002 Australian Childhood Obesity Summit</td>
</tr>
<tr>
<td>Australia</td>
<td>Maher et al. (2010)</td>
<td>feminist literature on women’s work and care</td>
<td>news</td>
<td>discourse analysis</td>
<td>online (newspapers)</td>
<td>themes of childhood obesity</td>
</tr>
<tr>
<td>Australia</td>
<td>Bonfiglioli et al. (2007)</td>
<td>framing</td>
<td>news</td>
<td>content analysis</td>
<td>broadcast (television)</td>
<td>obesity causes; obesity solutions; age group focus; spokesperson types; news angles</td>
</tr>
<tr>
<td>Australia</td>
<td>Henderson et al. (2009)</td>
<td>framing</td>
<td>news</td>
<td>content analysis</td>
<td>print (newspapers)</td>
<td>frames of fast food advertising to children in the context of obesity</td>
</tr>
<tr>
<td>Australia</td>
<td>Holland et al. (2011)</td>
<td>framing</td>
<td>news</td>
<td>discourse analysis</td>
<td>print (newspapers) and broadcast (television)</td>
<td>frames of a specific scientific report on obesity</td>
</tr>
<tr>
<td>Country</td>
<td>Author</td>
<td>Theoretical Framework</td>
<td>Media Genre</td>
<td>Method</td>
<td>Media Type</td>
<td>Key Outcome</td>
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</tr>
<tr>
<td>Australia</td>
<td>Townend <em>(2009)</em></td>
<td>moralisation of health</td>
<td>news</td>
<td>discourse analysis</td>
<td>print (newspapers)</td>
<td>evidence for linking obesity with moral failure</td>
</tr>
<tr>
<td>Australia</td>
<td>Whitehead and Kurz <em>(2008)</em></td>
<td>post-structural feminism</td>
<td>news</td>
<td>discourse analysis</td>
<td>print (women’s magazines)</td>
<td>the extent to which anorexia nervosa and obesity are differently constructed as feminine or aesthetically abhorrent</td>
</tr>
<tr>
<td>Australia</td>
<td>Bastian <em>(2011)</em></td>
<td>problem representation</td>
<td>news</td>
<td>content analysis</td>
<td>print (newspapers); journal articles</td>
<td>identified one main problem representation of childhood obesity per each news article and journal article</td>
</tr>
<tr>
<td>Brazil</td>
<td>Carvalho <em>(2010)</em></td>
<td>discourse theory</td>
<td>news</td>
<td>discourse analysis</td>
<td>print (a newspaper)</td>
<td>how obesity among poor people is discussed</td>
</tr>
<tr>
<td>Canada</td>
<td>Holmes <em>(2008)</em></td>
<td>framing</td>
<td>news</td>
<td>content analysis</td>
<td>print (a newspaper)</td>
<td>obesity frames</td>
</tr>
<tr>
<td>Canada</td>
<td>Roy et al. <em>(2007)</em></td>
<td>natural history</td>
<td>news</td>
<td>content analysis; interviews; survey</td>
<td>print (newspapers) and broadcast (television)</td>
<td>how a health advocacy group’s media release about research into childhood obesity became news</td>
</tr>
<tr>
<td>China</td>
<td>Zhe et al. <em>(2012)</em></td>
<td>framing</td>
<td>news</td>
<td>content analysis</td>
<td>broadcast (television)</td>
<td>obesity causes; obesity solutions; responsibility for obesity; obesity frames</td>
</tr>
<tr>
<td></td>
<td>Yoo and Kim <em>(2012)</em></td>
<td>framing; stigma</td>
<td>video clips</td>
<td>content analysis</td>
<td>online (a video-sharing website)</td>
<td>obesity causes; obesity solutions; evidence for presenting obese people as the subject of humour</td>
</tr>
<tr>
<td>Country</td>
<td>Author</td>
<td>Theoretical Framework</td>
<td>Media Genre</td>
<td>Method</td>
<td>Media Type</td>
<td>Key Outcome</td>
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<tr>
<td>France</td>
<td>Saguy (2006)</td>
<td>moral panic</td>
<td>news</td>
<td>exploratory analysis</td>
<td>print (newspapers and news magazines)</td>
<td>evidence for linking obesity with moral failure and for associating obesity with certain social groups</td>
</tr>
<tr>
<td>Germany</td>
<td>Hilbert and Ried (2009)</td>
<td>stigma</td>
<td>news</td>
<td>content analysis</td>
<td>print (newspapers)</td>
<td>quality and favourability of coverage</td>
</tr>
<tr>
<td>India</td>
<td>Maheshwar and Rao (2011)</td>
<td>none</td>
<td>news</td>
<td>content analysis</td>
<td>print (newspapers)</td>
<td>themes of overweight and obesity</td>
</tr>
<tr>
<td>Ireland</td>
<td>De Brún et al. (2011)</td>
<td>framing</td>
<td>news</td>
<td>content analysis</td>
<td>print (newspaper)</td>
<td>obesity causes; obesity solutions; obesity consequences</td>
</tr>
<tr>
<td>Ireland</td>
<td>De Brún et al. (2013)</td>
<td>social construction of gender</td>
<td>news</td>
<td>thematic analysis</td>
<td>print (newspapers)</td>
<td>identified key themes of obesity with a focus on gender roles</td>
</tr>
<tr>
<td>Sweden</td>
<td>Sandberg (2007)</td>
<td>framing</td>
<td>news</td>
<td>content analysis</td>
<td>print (newspapers)</td>
<td>obesity frames</td>
</tr>
<tr>
<td>Switzerland</td>
<td>Furrer Pasquali (2010)</td>
<td>framing</td>
<td>news</td>
<td>content analysis</td>
<td>print (newspapers)</td>
<td>themes of obesity; obesity causes; obesity solutions; obesity consequences</td>
</tr>
<tr>
<td>UK</td>
<td>Inthorn and Boyce (2010)</td>
<td>discourse theory</td>
<td>news, documentaries, lifestyle programmes</td>
<td>discourse analysis</td>
<td>broadcast (television); government press releases</td>
<td>the extent to which government and media discourse on obesity sustain each other</td>
</tr>
<tr>
<td>UK</td>
<td>Hilton et al. (2012)</td>
<td>framing</td>
<td>news</td>
<td>content analysis</td>
<td>print (newspapers)</td>
<td>obesity causes; obesity solutions; obesity consequences</td>
</tr>
<tr>
<td>Country</td>
<td>Author</td>
<td>Theoretical Framework</td>
<td>Media Genre</td>
<td>Method</td>
<td>Media Type</td>
<td>Key Outcome</td>
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<tr>
<td>UK</td>
<td>Rich (2011)</td>
<td>public pedagogy</td>
<td>reality shows</td>
<td>critical analysis</td>
<td>broadcast (television)</td>
<td>the extent to which reality television programming takes an instructional/surveillant format</td>
</tr>
<tr>
<td>USA</td>
<td>Evans et al. (2006)</td>
<td>agenda-setting news</td>
<td>news</td>
<td>survey</td>
<td>self-reported level of exposure to news about obesity delivered via various media types</td>
<td>the effect of exposure to obesity-related news on beliefs about obesity in terms of its causes and solutions</td>
</tr>
<tr>
<td>USA</td>
<td>Barry et al. (2011)</td>
<td>framing</td>
<td>news</td>
<td>content analysis</td>
<td>print (newspapers and news magazines) and broadcast (television)</td>
<td>obesity causes; obesity solutions</td>
</tr>
<tr>
<td>USA</td>
<td>Gearhart et al. (2012)</td>
<td>framing</td>
<td>news</td>
<td>content analysis</td>
<td>broadcast (television)</td>
<td>obesity frames; issues of obesity; sources quoted</td>
</tr>
<tr>
<td>USA</td>
<td>Hawkins and Linvill (2010)</td>
<td>framing</td>
<td>news</td>
<td>content analysis</td>
<td>print (newspapers)</td>
<td>obesity causes; obesity solutions; obesity frame</td>
</tr>
<tr>
<td>USA</td>
<td>Kim and Willis (2007)</td>
<td>framing</td>
<td>news</td>
<td>content analysis</td>
<td>print (newspapers) and broadcast (television)</td>
<td>obesity causes; obesity solutions</td>
</tr>
<tr>
<td>Country</td>
<td>Author</td>
<td>Theoretical Framework</td>
<td>Media Genre</td>
<td>Method</td>
<td>Media Type</td>
<td>Key Outcome</td>
</tr>
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<tr>
<td>USA</td>
<td>Lambert et al. (2007)</td>
<td>framing</td>
<td>news</td>
<td>constant comparative analysis</td>
<td>print (news magazines)</td>
<td>obesity frames</td>
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<tr>
<td>USA</td>
<td>Lawrence (2004)</td>
<td>framing</td>
<td>news</td>
<td>content analysis</td>
<td>print (a newspaper) and broadcast (television)</td>
<td>obesity frames</td>
</tr>
<tr>
<td>USA</td>
<td>Major (2009)</td>
<td>framing</td>
<td>news</td>
<td>experiment; survey</td>
<td>mock news articles</td>
<td>evidence that changing the way newspaper stories report obesity and lung cancer alters readers’ attribution of societal and individual responsibility</td>
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<tr>
<td>USA</td>
<td>Saguy and Almeling (2008)</td>
<td>framing</td>
<td>news</td>
<td>content analysis</td>
<td>print (newspapers); scientific studies; press releases on these studies</td>
<td>obesity causes; obesity solutions</td>
</tr>
<tr>
<td>USA</td>
<td>Saguy and Gruys (2010)</td>
<td>framing</td>
<td>news</td>
<td>content analysis; discourse analysis</td>
<td>print (a newspaper and a news magazine)</td>
<td>obesity causes; obesity solutions; male/female mentions; mentions of specific demographic groups</td>
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<tr>
<td>USA</td>
<td>Saguy and Almeling (2005)</td>
<td>framing</td>
<td>news</td>
<td>content analysis</td>
<td>print (newspapers)</td>
<td>evidence for exaggerating the risks of obesity; obesity frames; mentions of specific demographic groups</td>
</tr>
<tr>
<td>Country</td>
<td>Author</td>
<td>Theoretical Framework</td>
<td>Media Genre</td>
<td>Method</td>
<td>Media Type</td>
<td>Key Outcome</td>
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<tr>
<td>USA</td>
<td>Shugart (2011)</td>
<td>master narratives</td>
<td>talk shows and reality shows</td>
<td>rhetorical analysis</td>
<td>broadcast (television)</td>
<td>evidence for shifts in the master narrative of obesity as an individual and moral problem</td>
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<td>USA</td>
<td>Shugart (2013)</td>
<td>framing</td>
<td>news</td>
<td>qualitative framing analysis</td>
<td>print (newspapers) and broadcast (television)</td>
<td>obesity frames</td>
</tr>
<tr>
<td>USA</td>
<td>Armstrong (2011)</td>
<td>none</td>
<td>news</td>
<td>content analysis</td>
<td>print (women’s magazines and parenting magazines)</td>
<td>themes of obesity; the distribution of male and female mentions</td>
</tr>
<tr>
<td>USA</td>
<td>Campo and Mastin (2007)</td>
<td>social cognitive theory</td>
<td>news</td>
<td>content analysis</td>
<td>print (women’s magazines)</td>
<td>the extent to which each of the three components of social cognitive theory was mentioned</td>
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<tr>
<td>USA</td>
<td>Boero (2007)</td>
<td>social constructionism</td>
<td>news</td>
<td>discourse analysis</td>
<td>print (a newspaper)</td>
<td>themes of obesity</td>
</tr>
<tr>
<td>USA and France</td>
<td>Saguy et al. (2010)</td>
<td>framing; field theory</td>
<td>news</td>
<td>content analysis</td>
<td>print (newspapers and a news magazine)</td>
<td>the extent to which news media from the two countries report on each other and the favourability of the reporting; the extent to which news media from the two countries differ in terms of reporting obesity causes and obesity solutions</td>
</tr>
</tbody>
</table>
Appendix 2: Coding Protocol

**The abbreviations written in brackets correspond to the variable labels used in the Excel file where answers should be entered**

News Articles

**Article ID (ArtID): **
The article ID corresponds to the name of each article file.

**Article Title (ArtTtl): **
Copy paste the article title.

**Year (Year): **
Code the number corresponding to the year of publication.
1  2009   2  2010   3  2011

**Publication Name (Publication): **
Code the number corresponding to the publication name.
1  dailymail.co.uk 3  thetimes.co.uk 5  sueddeutsche.de
2  Guardian.co.uk 4  Bild.de 6  welt.de

**Country (Country): **
Code Guardian.co.uk, dailymail.co.uk and thetimes.co.uk as British; Bild.de, sueddeutsche.de and welt.de as German.
1  Britain 2  Germany

**Publication Political Leaning (Political): **
Code Bild.de, dailymail.co.uk, thetimes.co.uk and welt.de as conservative; Guardian.co.uk and sueddeutsche.de as liberal.
1  liberal 2  conservative

**Publication Style (Style): **
Code Guardian.co.uk, sueddeutsche.de, thetimes.co.uk and welt.de as 'broadsheet'; Bild.de and dailymail.co.uk as ‘tabloid’.
1  broadsheet 2  tabloid

**There are Readers’ Comments (Comments): **
Answer whether the news article is accompanied by readers’ comments.
1  yes 0  no
**Answer the following questions based on reading the headline, sub-heading (the introductory or summary line or brief paragraph located immediately above or below the headline and typographically distinct from the article body and the headline) and lead paragraph (the first paragraph). If a news article consists of one paragraph, treat it as a lead paragraph**

The following criteria are satisfied: 1 yes 0 no

**Bad News (BadNews): __**
Code ‘yes’ if the news article is about/mentions an event, issue or fact that is negative or bad or is presented in terms of a negative phenomenon.
Examples: ‘Being fat is as dangerous as smoking’; ‘diet pill alli is no “magic bullet”’; ‘his mother had almost fed him to death’.

**Celebrity (Celebrity): __**
If the news article is about/mentions a nationally or internationally famous person from entertainment or sports or a royal family member or uses words like ‘celebrity’, ‘star’ and synonyms, this criterion is satisfied.
Examples: ‘Jamie Oliver calls for global action to tackle obesity’; ‘Comedian Marcus Brigstocke once weighed 24 stone’.

**Controversial (Controversial): __**
If the news article is about/mentions disagreement between several parties in a discussion, a dispute, a conflict, a scandal or something is explicitly described as being ‘controversial’, this criterion is satisfied.
Examples: ‘is it genes, which make you overweight, or is it rather lifestyle’; ‘a weight-loss pill is to go on sale with EU approval. But does it really work?’.

**Elite Entity (Elite): __**
Indicate that this criterion is met if the news article is about/mentions:

- an individual who will be appointed to, holds or held a high status position within any type of organisation, company or institution at local, national or international level or someone close to such an individual like the wife of a head of state
  Examples: ‘increasing the number of obesity operations carried out in Britain could save taxpayers £1.3billion in three years, leading surgeons said today’; ‘parents of obese children should lose their tax breaks, claims senator’ and/or

- a local, national or international organisation, company or institution with a high standing
  Examples: ‘a weight-loss pill is to go on sale with EU approval’; ‘they blame their GP, the Government, even Simon Cowell’.

**Entertainment (Entertainment): __**
Indicate that this criterion is met if the news article:

- is about/mentions sex as in behaviour not gender
  Examples: ‘Fat people have sex less often!’ and/or

- is about/mentions a TV programme/show/movie/series/station/network
Examples: ‘how children’s TV character Sportacus could help tackle obesity’ and/or
• evokes ‘human interest’, meaning that the focus is on an individual (who may or may not be a celebrity or a member of the elite) who is presented in such a way that interest or sympathy is aroused
Examples: ‘He wanted so much to be slim - but now feels more miserable than ever!’; ‘This lady from Leipzig was suffering from obesity - and now she wants to help others with weight loss’.

**Good News (GoodNews): __**
Code ‘yes’ if the news article is about/mentions an event, issue or fact that is positive or good or is presented in terms of a positive phenomenon.
Examples: ‘families with obese children will be offered free supermarket trips and lessons on buying healthy foods’; ‘learning to cook cuts obesity and could save NHS money’; ‘obesity is avoidable: the fat gene can be beaten’.

**Locality (Locality): __**
Locality means that the news article is about/mentions someone or something from the same country as the newspaper’s country of origin. If a news article from Guardian.co.uk, thetimes.co.uk or dailymail.co.uk mentions the UK, someone/something British or a news article from Bild.de, sueddeutsche.de or welt.de mentions Germany, someone/something German this criterion is satisfied.
Examples: ‘Information from the Federal Statistical Office shows that more than half of the German population is overweight’ - welt.de; ‘increasing the number of obesity operations carried out in Britain could save taxpayers £1.3billion’ - dailymail.co.uk.

**Magnitude (Magnitude): __**
If the news article mentions numbers of people affected by something or the amount of monetary or physical resources involved, this criterion is met.
Examples: ‘every second German adult is overweight’; ‘in Germany almost every fifth youth aged 11 to 17 is overweight’.

**New (New): __**
If the news article is about/mentions something new or recent, this criterion is satisfied.
Examples: ‘being overweight is bad for the environment as well as your health, according to a study released today’; ‘new rules for calorie bombs decided’.

**To answer the remaining questions, read the entire news article. When answering questions about causes, consequences and solutions, code mentions regardless of whether these were made by the article author or a spokesperson and regardless of whether they expressed agreement, disagreement or a ranking**

The following causes are mentioned: 1 yes 0 no

**Advertising (Advertising): __**
Refers to the notion that the advertising, marketing, product placement or other promotional activities for foods or drinks may lead to obesity.
Examples: ‘each year McDonald’s sell more than $5billion in kids’ meals on the back of toy give-aways’.

Affordability/Availability (AffordAvail): __
Refers to the notion that the availability/affordability of foods and drinks or active living opportunities may lead to obesity.
Examples: ‘several factors are blamed on the rise of obesity (...) the availability of cheap, high-calorie convenience foods’.

A Virus (Virus): __
Refers to the possibility that a virus causes obesity.
Examples: ‘in addition to poor diet, genes and other factors that increase the likelihood of obesity, increasingly, a further possible causal agent has come to the attention of medical scientists: A virus’.

Biological/Genetic (BioGen): __
Refers to the notion that obesity may be the result of biological or genetic conditions.
Examples: ‘it is still unclear whether a fall in oestrogen levels is a cause or merely the result of weight gain’; ‘the origin of obesity lies in the genes’.

Comfort Eating (ComfortEating): __
Refers to the notion that eating as a way of finding psychological or emotional comfort may lead to obesity.
Examples: ‘I ate to fill a void in my heart’.

Eating Unhealthy Foods (EatingUnhealthy): __
Refers to the notion that ‘unhealthy’, ‘junk’, low in nutritional value but high in calories foods or drinks in general or named foods or drinks may lead to obesity.
Examples: ‘dependence on junk foods is compounded by falling rates of exercise’; ‘several factors are blamed on the rise of obesity: these include (...) high-calorie convenience foods’.

Environments (EnviroCause): __
Refers to the notion that living, school, work environments may interfere with people’s wish to eat healthy and/or exercise.
Examples: ‘we cannot expect people to be able to change their behaviour alone as the environment we live in today means that for most people weight gain becomes almost inevitable’.

Lack of Knowledge/Information (LackKnowledge): __
Refers to the notion that it may be the fact that people lack the knowledge or information on the basis of which to make healthy food choices and live actively that leads to obesity.
Examples: ‘especially children from socially disadvantaged families lack nutrition knowledge’.
**Overeating (Overeating):**

Refers to the notion that overeating may lead to obesity.
Examples: ‘mums are just eating for two and piling on the pounds’.

**Package Sizes (PackageSizes):**

Refers to the notion that the large portions or amounts in which foods or drinks come as packaged or served at public venues like supermarkets and (take-away) restaurants may lead to obesity.
Examples: ‘the question remains about the causes of obesity (...) in Germany it is eaten well; the portions in restaurants are, for example, bigger as in neighbouring European countries’.

**Physical Inactivity (Inactivity):**

Refers to the notion that low or no participation in organized sports or little or no physical movement or activity as part of everyday life or failure to burn the energy acquired through food/drink consumption may lead to obesity.
Examples: ‘he lazes around, he eats’; ‘dependence on junk foods is compounded by falling rates of exercise caused’.

**Poverty (Poverty):**

Refers to the notion that poverty, low wages, low income or low socio-economic status may be associated with obesity.
Examples: ‘people who move to affluent suburbs are significantly less likely to end up obese (...) poverty is a problem’.

**Thinness Obsession (Thinness):**

Refers to the notion that beauty ideals, specifically an ‘obsession with thinness’ or a strong desire to be thin, may cause people to worry about their weight and lead them to diets that are unsustainable and may end with obesity.
Examples: ‘an obsession with thinness leads to a focus on weight and dieting (...) people often weight more at the end of a diet than they did before’.

The following consequences are mentioned: 1 yes 0 no

**Comfort/Safety (ComfSafety):**

Refers to the notion that obese people may inconvenience or even pose a health and safety risk for others.
Examples: ‘with an obese person resting half their body on yours, it is just unbearable’.

**Physical Appearance (Appearance):**

Refers to the notion that excess weight has positive consequences for one’s physical appearance and/or attractiveness.
Examples: ‘more fat means more sex appeal’; ‘the fatter I get, the better I feel. I fell more confident and sexier than ever’.
Physical Health (Health): __
Referred to the notion that obesity has consequences for physical health.
Examples: ‘overweight attacks the heart and increases the risk of high blood pressure, diabetes, cancer, asthma’; ‘with every excess pound the risk of diabetes, heart attack and cancer increases’; ‘fat people even live longer and are healthier’.

Psychosocial (Psychosocial): __
Referred to the effect that attitudes about obesity may have on obese people’s psychological well-being and social life.
Examples: ‘going to parties and no one talks to me, being glared at while I’m eating in restaurants’; ‘and it is not the body of the fat person that suffers, but their soul because of discrimination’.

The Economy (Economy): __
Referred to the notion of economic or financial consequences of obesity for society or taxpayers.
Examples: ‘currently, the direct health care cost of obesity in Illinois is over $4billion’; ‘a study shows that fat people burden the healthcare system with €17 billion per year’.

The Environment (EnviroCons): __
Referred to the notion that obesity has consequences for the environment in the sense of global warming or climate change.
Examples: ‘being overweight is bad for the environment as well as your health’; ‘high rates of obesity (...) cause up to 1bn extra tonnes of greenhouse gas emissions every year’.

The following solutions are mentioned: 1 yes 0 no

Acceptance (Acceptance): __
Referred to the notion that people may need to learn to respect and accept their bodies and/or build confidence about their bodies regardless of how much they weight.
Examples: ‘especially for young people it is important to accept their own body instead of desiring to emulate beauty ideals’.

Bans (Bans): __
Referred to the notion that bans on the sale of certain foods or drinks or specific ingredients may help solve obesity.
Examples: ‘Mexico bans junk foods in schools’.

Change in Eating (ChangeEat): __
Referred to the notion that people may have to change the type of things they eat by eating healthy/healthier/less unhealthy or the way they are eating, for example, alone/in company/with family in order to solve obesity.
Examples: ‘I banned Coke from the fridge and ate at most a few pieces of chocolate rather than a whole bar’.
Change Advertising (ChangeAdvert): __
Refers to the notion that (self)regulation of advertising, marketing, product placement or other promotional activities of foods and drinks may solve obesity.
Examples: ‘limiting this food marketing is an important preventive strategy for childhood obesity’; ‘don’t end up like me’: Obese councilman urges New York City to ban fast food restaurants from giving away free toys to children’.

Change Affordability/Availability (ChangeAffordAvail): __
Refers to the notion that making healthy foods and drinks and physical activity opportunities cheap and/or more easily available may solve obesity.
Examples: ‘council chiefs would also work with existing takeaways - who will not have to close under the proposals - to provide “healthier options” on their menus’.

Change Environments (EnviroSolution): __
Refers to the notion that work, study, living environments should be built in such a way so as to assist active living and healthy eating.
Examples: ‘we need changes in many aspects of our environment to avoid the morbid consequences of overweight and obesity’; ‘the Scottish government's anti-obesity strategy, detailed by Shona Robison, the Health Minister, includes proposals to (...) improve local environments to encourage cycling and walking’.

Change Package Sizes (ChangePackages): __
Refers to the notion that the amounts of foods/drinks in pre-packaged items or as served at public venues may need to be made smaller to solve obesity.
Examples: ‘chocolate bars could be made smaller to help fight obesity’; ‘limits on the size of portions in restaurants are being considered by the SNP government in an attempt to halt rising obesity’.

Coming Out (ComingOut): __
Refers to explicit mentions of ‘coming out’ as fat, loving fat or being attracted to fat people.
Examples: ‘she cannot come out of the gaining closet completely’.

Content Disclosure (ContentDisclosure): __
Refers to the notion that the clear, explicit, unambiguous disclosure of foods'/drinks' content on menus/food labels may solve obesity.
Examples: ‘new rules for food labeling with which the EU intends to tackle overweight’; ‘restaurants and pubs could be forced to list calories for every meal and drink on the menu (...) under Government plans to tackle obesity’.

Diet/Eat Less (DietEatLess): __
Refers to the notion that going on a diet or simply eating less may solve obesity.
Examples: ‘I was put on a diet’; ‘I counted the calories’.

Drugs (Drugs): __
Refers to the notion that weight loss drugs may solve obesity.
Examples: ‘the knowledge about the biological processes that may lead to obesity could contribute to the development of new therapies and drugs’; ‘Alli may not fare so well, because many people will not persevere with treatment for long enough’.

**Education (Education): __**
Refers to the notion that programmes, materials, campaigns, classes, any initiatives whether general or named ones which educate people about nutrition and physical activity may solve obesity.
Examples: ‘especially children from socially disadvantaged families lack nutrition knowledge. These children especially benefit from the cooking classes at school’.

**Exercise (Exercise): __**
Refers to the notion that movement whether through participation in organized exercise or living actively may solve obesity.
Examples: ‘swimming, running, fitness and walking the dog ‘Lady’ and, in addition to that, a strict diet’; ‘I ran every day. Initially, only for 20 minutes, later on up to two hours per day’.

**Financial Penalty (FinancialPenalty): __**
Refers to the notion that obese people may have to pay more for access to and use of various services in order to solve obesity.
Examples: ‘if messages to the parents of overweight children fall on deaf ears, child protective services must be informed and as a measure of last resort child benefits or Hartz IV should be discontinued’; ‘United Airlines is not the first airline to let obese passengers pay double’.

**Legal Punishment (LegalPunishment): __**
Refers to the notion that having obese children may need to be legally punishable to solve obesity.
Examples: ‘social workers remove new-born baby from obese mother’.

**Surgery (Surgery): __**
Refers to the notion that weight loss surgery may solve obesity.
Examples: ‘Billy’s stomach was reduced, fat was removed by liposuction’.

**There is a Photograph (Photo): __**
This question is interested in the presence of photographs, not bar charts, graphs, info graphics, screenshots, schematic drawings, cartoons or any other still visuals.
Answer ‘yes’ if the news article contains at least one photograph.
1 yes  0 no

**If you answered ‘no’ to the above question, answer ‘not applicable’ to the following three questions. If you answered ‘yes’ to the above question, you will have to answer the following three questions about the content of one photograph per news article. If there were several photographs, determine whether there is one which comes before all others (topmost) and if so answer the questions only for that one. If there were several photographs and they were presented in a slide-show format, answer the following questions only for the first one (topmost). If there is no single photograph that is topmost, for example, several photographs are
presented at the same level or a photograph resembles a collage, meaning that it consists of several individual photographs with a common caption, pick one at random, circle it to indicate your selection and answer the following questions for that photograph**

Items were present in the photograph:
1 yes 0 no 2 not applicable

**Food Label (FoodLabel): __**
Code ‘yes’ if a close up of a food label defined as the table of contents listing ingredients, nutrition information, calories or energy value found on a food or drink packaging is depicted.

**Foods or Drinks (FoodsDrinks): __**
Code ‘yes’ if any foods or drinks are depicted.

**Tools Measuring Size and Weight (Measure): __**
Code ‘yes’ if any tools used for the measurement of body size or weight are depicted, for example, tape measures or scales.

**Comment Threads**

**Thread ID (ThreadID): __**
The ‘Thread ID’ corresponds to the ‘Article ID’.

**The same causes, consequences and solutions are coded here, following the same instructions as when coding news articles. When you answer these questions, base your answers on the entire thread of readers’ comments**
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