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Figuration and obesity: Warning bells from *TheGuardian.com*

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ABSTRACT

This study investigates the use of figuration in online articles related to the topic of the obesity epidemic. By using *SketchEngine* software tools, it analyses a corpus collected from *TheGuardian.com* (2009-2019) with the aim of identifying the figures of speech that are used to disseminate health information to non-experts. While a quantitative analysis of the key words collocating with the lemma *obesity* shows its relevance to health problems and diseases, such as diabetes, heart attacks, or depression, a qualitative analysis of figurative language in the corpus demonstrates that reporters privilege the use of metaphor, simile, metonymy, and hyperbole to increase individuals' health literacy and to help people make appropriate decisions related to nutrition, healthy eating, and physical exercise. The prevailing metaphors in the corpus and their related frames emphasise the damaging effects of obesity by triggering its association with 'destruction' (*obesity time bomb*) and 'death' (*fat, salt and sugar are killers*). The study demonstrates how health literacy through the media can raise people's awareness of the dangerous consequences of obesity and encourage them to 'fight' against this epidemic starting from an early age, or to undertake their 'journey' towards weight loss with perseverance.

Keywords: figuration, metaphor, metonymy, hyperbole, framing, health literacy, obesity.

1. Introduction

Health literacy (HL) concerns the knowledge, competences, cognitive and social skills necessary for lay persons to meet the complex health demands of modern society (Lorini et al. 2017). According to the Institute of Medicine (2004: 8), HL specifically involves "the individuals' capacity to obtain, process and understand basic health information and services needed to

make appropriate health decisions". In other words, an individual with an adequate level of health literacy has the ability to take responsibility for his own health, as well as his family and community health. Therefore, thorough information and clear communication between health professionals and non-experts are crucial to improving individuals' health literacy, and, consequently, their health and the quality of healthcare.

As recently observed (Murphy 2010; Bondi et al. 2015; Cavalieri – Diani 2018), Web 2.0 has significantly changed the health communication environment by increasing accessibility to health information and aiding patients and citizens to make more informed decisions about their health and healthcare. Nowadays, several web-based popularising genres are used to disseminate scientific knowledge to a wide and inclusive audience, ranging from scientific blogs (Garzone 2012; Luzón 2013; Mauranen 2013) and wikis (Leuf – Cunningham 2001) to popular scientific journals (Vicentini 2013) and websites (Turnbull 2015a, 2015b), from Social Networks (Riboni 2014) to TED Talks (Scotto di Carlo 2013, 2014; Mattiello 2017, 2019).

The analysis of these new digital genres evidences linguistic strategies, such as the use of epistemic adjectives, deixis, narratives, humour, metaphor, etc., that bloggers, reporters, or TEDsters use to build and share information among heterogeneous discourse communities. The popularisation of science generally involves a reformulation or "recontextualisation" process (Calsamiglia – van Dijk 2004) which entails simplification of vocabulary and the use of analogies and associations of scientific concepts with everyday objects, thus favouring knowledge dissemination to the lay audience. This paper investigates the role of figuration in online newspaper articles on the topic of obesity, a medical condition in which excess body fat has accumulated to an extent that it may have negative effects on health.

Medical research demonstrates that obesity is most commonly caused by a combination of excessive food intake, lack of physical activity, and genetic susceptibility (Yazdi et al. 2015). According to the World Health Organization (2000) and the U.S. Department of Health and Human Services (2001), it has become a public health and policy problem because of its prevalence and health effects. Public health efforts seek to understand and correct the environmental factors responsible for the increasing prevalence of obesity in the population and comprehensive approaches are being looked at to address its rising rates. Measures for prevention and decrease include not only downstream policies trying to treat currently afflicted people, but especially mid- and up-stream policies trying to 1) alter individuals' behaviour to achieve and maintain a healthy body weight, 2) promote the recognition of obesity as a major public health problem, 3) identify

effective and culturally appropriate interventions to decrease it, and finally 4) encourage environmental and societal changes that help prevent obesity and corpulence. Due to its nationwide epidemic proportions, obesity is a central issue in health communication and the principal UK newspapers, such as *The Guardian* or *The Independent*, devote numerous articles to this topic in their health and wellness sections.¹ On the other hand, this is an under-researched aspect in health literacy, thus representing a gap in linguistic enquiry and communication research.

The aim of this paper is to examine the figuration strategies that reporters use to describe obesity as a major public health concern, resulting from a constant and complex interplay among environmental stimuli, wrong behaviours, and predisposing genes, as in this extract from *TheGuardian.com*:

- (1) As a nation, we're getting fatter – and with obesity linked to a **myriad** of diseases the UK is facing a public-health '**time bomb**'. (30/01/2014)

combining hyperbole (*myriad*) and metaphor (*time bomb*) to describe obesity and its consequences.

The paper adopts a corpus-based approach (Sinclair 1991) to analyse a collection of 67 articles published in *TheGuardian.com* between 2009 and 2019. By using *Sketch Engine* software tools (Kilgarriff 2003), the paper integrates a quantitative analysis of the relevant keywords collocating with the lemma *obesity* with a qualitative analysis of the figures of speech that are used to enhance readers' health literacy in the three domains of health: i.e. healthcare, disease prevention, and health promotion.

In particular, the following research questions will be addressed in the paper:

- 1) What is the role of figuration in the improvement of readers' health literacy on the matter of obesity epidemic?
- 2) What are the most common associations triggered by obesity metaphors, similes, metonymies, and hyperboles, and what do they imply?
- 3) What are the possible consequences of figurative language use on people's behaviour and the choices of policymakers for themselves and society?

For the analysis of metaphor, hyperbole, and related tropes, the study integrates a cognitive approach (Lakoff – Johnson 1980; Lakoff – Turner

¹ An advanced search of 'obesity' in *The Independent* website gives 12,500 results and the same search in *The Guardian* website gives 25,000 results (see § 3.1).

1989; Ruiz de Mendoza – Díez 2002; Herrero Ruiz 2008; Ruiz de Mendoza – Pérez 2011) with a discourse-based approach (Semino et al. 2016, 2017) in order to show the forms and functions of figuration in authentic language use, especially for communicating about sensitive topics such as obesity.

The paper especially uses the interdisciplinary concept of framing – often studied for its implications in political communication and competitive environments (e.g. by Chong – Druckman 2007; Scheufele – Iyengar 2014) – in order to investigate the dynamics of how journalists choose specific frames in health communication and how frames in communication influence people’s frames in thought and may affect their opinion, a process which is often referred to as “framing effect” (Chong – Druckman 2007: 101).

Semino et al. (2016) have shown that the framing power of metaphor is particularly relevant in the area of healthcare, where the choice of different descriptions of diseases can have both positive and negative implications for the general well-being of people and guide them in taking informed decisions and making wise choices, such as avoiding energy-dense, fast-food meals and a sedentary lifestyle. In this paper, the emphasis is on the potential consequences for individuals of the use of non-literal language and framing to define, describe, and explain obesity to the lay public.

The discussion is divided into four main parts. Section 2 provides background on health literacy, science popularisation, figuration, and the framing concept. Section 3 explains how the corpus of relevant articles has been collected and the methodology and tools used for the analysis. Section 4 is devoted to the quantitative investigation of the semantic areas and collocations occurring in the corpus and to the qualitative study of the figures of speech and related frames. The discussion of results is followed by a concluding section claiming the importance of framing and figuration in obesity communication.

2. Background

2.1 Health literacy

Health literacy is a term introduced in the 1970s (Simonds 1974) and of increasing importance in public healthcare. Its current relevance to people’s making accurate judgements and taking informed decisions has recently become evident, as remarked by Sørensen et al. (2012):

Health literacy is linked to literacy and entails people's knowledge, motivation and competences to access, understand, appraise, and apply health information in order to make judgements and take decisions in everyday life concerning healthcare, disease prevention and health promotion to maintain or improve quality of life during the life course. (2012: 3)

In particular, four typologies of health literacy have been identified in the literature (Manganello 2008; Nutbeam 2008):

- 1) *Functional health literacy* refers to the basic skills in reading and writing that are necessary to function effectively in ordinary situations;
- 2) *Interactive health literacy* refers to more advanced cognitive and literacy skills which can be used to extract information and derive meaning from different forms of communication;
- 3) *Critical health literacy* refers to more advanced cognitive skills which can be applied to critically analyse information and use it to exert greater control over situations;
- 4) *Media literacy* refers to the ability to critically evaluate media messages.

These different typologies represent levels of knowledge and skills that progressively support greater autonomy in health-related decision-making, as well as engagement with a wide range of health knowledge that extends from personal health management to social and public health. The role of social media and the Internet in individuals' achievement of these basic and advanced cognitive and critical skills is fundamental.

In the United States, the Office of Disease Prevention and Health Promotion has developed three health websites – i.e. *health.gov*, *healthfinder.gov*, and *healthypeople.gov* – on the one hand, to help people obtain ready and reliable information on health topics, and, on the other, to aid professionals share scientific knowledge in ways that non-professionals can access. Unsurprisingly, special emphasis in these websites is placed on food and nutrition, which play a crucial role in health promotion and chronic disease prevention. In addition, every five years, the U.S. Department of Health and Human Services publishes the *Dietary Guidelines for Americans*, which serves as the science-based foundation for vital nutrition policies and programmes across the United States, and helps health professionals and policymakers guide Americans to making healthy food and beverage choices, and preventing diseases by recommending regular physical activity. Other web-based information can be accessed via different forms of science popularisation.

2.2 Popular science

New digital media are now having a significant impact on all types of specialised communication, both on the way specialists communicate with peers and on the dissemination of science to the lay public (Caliendo 2014). E-journals, e-magazines, blogs, and articles in online newspapers, in particular, provide an open space for specialised communication, where a diverse audience (with different degrees of expertise) may have access to information intended both for non-specialist readers and for experts. Popular science texts target a wide reading public, including non-specialists, due to their higher accessibility to large communities. The language of popularisations is close to general discourse and to the layman's everyday experience. In other words, terminology is not specialised, sector-specific terms are given only occasionally, and definitions are provided using descriptions or juxtaposition rather than copular structures.

This study concentrates on obesity and the way it is presented by reporters in *TheGuardian.com*. Obesity is a leading preventable cause of death worldwide, according to the World Health Organization (2018), with increasing rates in adults and children.² The study shows how the language of figuration can activate correspondences and associations in peoples' minds and assist them in taking more informed decisions about their health and healthcare, with special attention related to their diets and lifestyles.

2.3 Figuration

In the Contemporary Theory of Metaphor, or CTM (Lakoff – Johnson 1980; Lakoff 1993), metaphors are seen as mappings (or sets of correspondences) across different domains in conceptual structure. Expressions such as *He attacked my idea* or *I defended my position* are regarded as linguistic manifestations of conceptual metaphors, such as, in this case, ARGUMENT IS WAR. This conceptual metaphor involves the mapping of aspects of the 'source' domain of WAR onto aspects of the 'target' domain of ARGUMENT, where the source domain is less abstract (i.e. more accessible to sense perception) than the target. For example, within this metaphor, the arguers correspond to 'opponents' or 'enemies', criticising another person's ideas corresponds

² Worldwide obesity has nearly tripled since 1975. In 2016, more than 1.9 billion adults, 18 years and older, were overweight. Of these over 650 million were obese. Over 340 million children and adolescents aged 5-19 were overweight or obese in 2016. (WHO, 16 February 2018).

to 'armed attack', defending one's position corresponds to 'defence from enemy', and so on. Lakoff – Johnson (1980: 10-13) emphasise that the choice of a source domain highlights some aspects of the target domain and hides others. For example, ARGUMENT IS WAR highlights the competitive aspect of arguments, but hides their potentially cooperative aspects. Metaphors are therefore regarded as important because they influence how we think about different kinds of experiences, and how we may consequently act.

In Cognitive Linguistics, metonymy is also viewed, like metaphor, as conceptual mapping. In particular, it is reference to an entity in a schema by referring to another entity in the same schema (Lakoff – Johnson 1980). An example of metonymy is COUNTRY STANDS FOR CITIZENS, as illustrated by *China is an obese nation*. In this metonymic expression, 'China' stands for the 'Chinese', who are described as an obese people. Unlike metaphor, which involves two conceptual domains, metonymy involves only one conceptual domain (and one of its subdomains) (Lakoff – Johnson 1980: 35-40; Lakoff – Turner 1989: 103). Thus, while metaphor involves a cognitive operation of domain highlighting, metonymy may involve either domain highlighting or domain expansion/reduction (Ruiz de Mendoza – Díez 2002): e.g., the citizens are a subdomain of the country.

Within the same framework, the cognitive process that underlies the generation of hyperbole is strengthening. According to Herrero Ruiz (2008), from the speaker's perspective, hyperbole is commonly held as a sort of reinforcement. It entails an increase or augmentation in the scalar magnitude of a linguistic utterance or word. An exemplification of this is in the expression *My suitcase weighs a ton!* or that of *She is as heavy as an elephant*, in which the speakers intentionally increase the weight of an object or person by using hyperbolic (exaggerated) words such as a *ton* or an *elephant*, thus implying 'excessive burden to carry' or 'being overweight'.

In the literature, the notion of hyperbole is often confused or conflated with extreme case formulations. Actually, although both concepts involve exaggeration, there are both similarities and differences between them. According to Norrick (2004: 1728), hyperbole and extreme case formulation involve overstatement. However, while extreme case formulations are extreme expressions which do not follow any fixed structure or formula (e.g. *all food producers*), hyperbole interacts with figurative meaning. For instance, in *She is as heavy as an elephant*, hyperbole interacts with simile: i.e. ELEPHANTS are large mammals commonly associated with large size and huge weight. Hence, the comparison with an elephant suggests 'overweight'. Like metaphorical language, hyperbole may be regarded as a way to highlight

some aspects of a person or thing, such as excessive weight, and to encourage the others' response, such as helping someone with his/her heavy baggage, going on a diet, etc.

This study aims at showing how some specific uses of metaphor, simile, metonymy, hyperbole, or a combination of them can exploit different conceptual domains, such as DESTRUCTION or DEATH, to frame the topic of obesity in a way that should increase people's engagement in self-limiting prevention behaviours (e.g. not eating junk food) as well as in self-bolstering prevention behaviours (e.g. taking regular exercise).

2.4 Frames and framing effects

A large number of discourse-based studies have analysed choices of metaphorical or figurative expressions in authentic data to consider their implications for rhetorical effects, identities, social relations, ideologies, and so on. These studies are mainly concerned with the role of metaphor within the specific domains of communication from which textual data are drawn, such as politics (e.g. Musolff 2004) or healthcare (Semino et al. 2017). Many studies within this line of research explicitly adopt the notion of 'frame' (Fillmore 1985) to explain how choices of metaphor may relate to people's views and opinions on specific issues in specific contexts. Framing, indeed, is a process involving the use of language to reflect and facilitate different ways of understanding and reasoning about things. Cameron et al. (2010: 138), for instance, describe conceptual metaphors as "overarching frames which inform and influence discourse".

Given its interdisciplinary roots in sociology (Gamson – Modigliani 1987; Goffman 1974), the term 'frame' is used in two ways by communication scholars and political scientists (Scheufele 1999; Chong – Druckman 2007). First, a "frame in communication" refers to the words, phrases, and presentation styles that a speaker, such as a politician or a media outlet, uses when relaying information about an issue to an audience (Gamson – Modigliani 1987). For instance, when a journalist chooses the metaphor 'time bomb' to describe obesity. Second, a "frame in thought" refers to an individual's cognitive understanding of a given situation (Goffman 1974), such as interpreting the above metaphor as implying the destructive effects of obesity. Thus, while frames in communication reflect a speaker's emphasis, frames in thought refer to what an audience member believes to be the most salient aspect of an issue. Indeed, Entman (1993) provides a definition of 'framing' which stresses its aspects of selection and salience:

Framing essentially involves *selection and salience*. To frame is 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* for the item described. (Entman 1993: 52; italics in original)

In framing research, Scheufele (1999) further distinguishes between the processes of “frame building”, which focuses on the dynamics of how speakers choose specific frames in communication, and “frame setting”, which concerns the influence of frames in communication on frames in thought, and the psychological processes at work. In this paper, the processes of frame building (how media outlets choose some frames) and frame setting (how the audience may interpret these frames) are investigated. Our focus is on framing effects:

[F]raming effects refer to communication effects that are not due to differences in *what* is being communicated, but rather to variations in *how* a given piece of information is being presented (or framed) in public discourse. (Scheufele – Iyengar 2014: 2-3, italics in original)

We specifically examine how media outlets present (or frame) the topic of obesity in an online newspaper, i.e. *The Guardian*, and investigate how the use of figuration may contribute to influencing people’s opinions and may ultimately have an impact on their behaviour.

3. Material and methods

3.1 Material

Articles on the obesity epidemic were systematically drawn from the website *TheGuardian.com* and collected to obtain a cohesive corpus on the topic. The *Guardian* website was chosen as a data source because (1) it offered several recent articles on the topic of obesity which were directly retrievable from the newspaper homepage, and (2) its readership is wide and comprehensive, including not only expert scientists, but also non-experts. Moreover, unlike other online health forums previously studied (Semino et al. 2016), where writers are heterogeneous (i.e. patients, family carers, and health professionals), an online newspaper can offer the more homogeneous and less spontaneous viewpoint of journalists.

To retrieve the articles, an advanced search of the lemmata *obesity*, *obese*, and *overweight* was carried out. This search of the website gave a total of 25,100 results, which were sorted by relevance. Close reading was then necessary to select relevant articles. Included were eligible articles which met the following criteria: (1) they concerned obesity or an overweight condition, and (2) they were dated within the time span 2009-2019.

The eligible articles were 67 and ranged in date from January 2009 to January 2019. They constitute our corpus (henceforth, Obesity Corpus), consisting of 60,004 running words, 71,203 tokens, and 2,646 sentences.

3.2 Methodology

Corpus-based and corpus-driven approaches are often used in linguistic research to integrate qualitative results (Sinclair 1991). In addition, recent studies by Elena Semino and colleagues (Semino et al. 2016, 2017) have shown that corpus linguistic methods are appropriate and needed in research on health(care) communication and demonstrate how corpus linguistics can contribute in terms of research findings, practical applications, and methodological ‘bridge-making’ between quantitative and qualitative approaches in health research.

For the corpus-based analysis conducted in this paper, Wordlist and Word Sketch,³ the linguistic tools available on *Sketch Engine*, were used. Firstly, the Obesity Corpus was created on the platform by uploading the texts selected. Secondly, frequency lists of the most common nouns, adjectives, and verbs in the Obesity Corpus were automatically generated by the Wordlist tool. These lists allowed us to identify semantic areas and keywords related to the issue of obesity. Third, collocations and word combinations with obesity were identified by using Word Sketch.

These combinations suggested some figurative uses of language and allowed us to distinguish some main conceptual associations. In particular, inspired by previous research on frame semantics and the use of linguistic units to activate certain cognitive frames in argumentation (Bigi – Morasso 2012), keywords and collocations were considered in terms of the frames that they activate and of the overall rhetorical implications and inferential mechanisms involved.

³ *Sketch Engine* (Kilgarriff 2003) is a corpus tool which generates Word Sketches for a relevant word – i.e. corpus-based summaries of a word’s grammatical and collocational behaviour.

Moreover, for the qualitative analysis of metaphorical and hyperbolic language, the *Guardian* articles were scrutinised and the language used was examined in depth in order to discriminate between literal and figurative uses of language. For the identification of figurative language use, the Pragglejaz Group’s (2007) “metaphor identification procedure” (MIP) was used. This is an explicit and reliable method developed by a group of metaphor scholars, from a variety of academic disciplines, for identifying metaphorically used words in spoken and written language.⁴ The results from the quantitative and qualitative analyses are discussed in Section 4.

4. Analysis, results, and discussion

4.1 Semantic areas

Table 1 displays the main results obtained from a Wordlist creation. The first column shows the semantic areas identified in the corpus. The other columns show the nouns, adjectives, and verbs (in order of frequency) belonging to the areas taken into account. Raw frequencies are provided after each word. Words under 5 occurrences have not been included.

Table 1. Semantic areas in the Obesity Corpus

Semantic area	Nouns	Adjectives	Verbs
WEIGHT	obesity 480, weight 243, size 43, overweight 43, BMI (body mass index) 40, amount 31, measure 31, loss 31, gain 26, mass 18, weight-loss 12, malnutrition 9, anti-obesity 6, fatness 6, thinness 5, waist (circumference) 5	obese 245, fat 163, overweight 127, thin 40, heavy 14, slim 11, obesity-related 8, fatty 7, underweight 7, skinny 5	lose 67, increase 54, reduce 50, weight 9, gain 8, measure 8

⁴ Researchers often differ in their intuitions about what constitutes a metaphorical word or phrase, and they generally do not provide objective criteria for specifying what is, and what is not, metaphorical. MIP was instead chosen for its objectivity, reliability, and precision in determining metaphorical uses of language.

FOOD and DRINKS	food 345, sugar 167, diet 128, drink 77, fat 70, calorie 66, fruit 53, junk 41, vegetable 40, consumption 36, nutrition 34, eating 32, Coca-Cola 30, fructose 29, meat 25, chocolate 23, energy 20, meal 20, salt 20, appetite 18, intake 17, restaurant 16, sweet 16, carbohydrate 15, kcal 15, snack 15, dinner 14, fish 13, alcohol 13, beverage 12, burger 10, hunger 10, McDonald 10, breakfast 9, glucose 9, biscuit 8, cheese 8, yoghurt 8, bacon 7, coke 7, chicken 7, confectionery 7, pasta 7, potato 7, cola 6, drinking 6, eater 6, feeding 6, lunch 6, rice 6, apple 5, carrot 5, ingredient 5, juice 5, pizza 5, salad 5, spaghetti 5	sugary 32, sweet 13, hungry 11, nutritional 11, dietary 9, sugar-sweetened 6, vegetarian 6, low-fat 6, saturated 6	eat 165, consume 32, overeat 17, cook 13, drink 11, feed 11, diet 9
HEALTH	health 277, doctor 33, smoking 23, drug 20, scientist 19, hospital 16, healthcare 15, nutritionist 14, cigarette 13, metabolism 13, care 11, insulin 10, cholesterol 8, medical 7, tobacco 7, dietician 6, wellbeing 5	healthy 132, medical 31, unhealthy 31, metabolic 10	smoke 7
AGE	child 247, adult 61, childhood 56, age 50, baby 31, adolescent 16, generation 16, kid 16, puberty 16, teenager 7, children 5, teen 5	young 36, old 12, teenage 8	
DISEASE	diabetes 83, patient 63, disease 62, heart 42, cancer 39, surgery 31, dementia 27, epidemic 27, endometriosis 17, medicine 16, stroke 16, blood 14, prevention 11, disability 11, Alzheimer 9, depression 9, fertility 9, addiction 8, disorder 8, illness 7, attack 6, anorexia 5, infertility 5	psychological 22, chronic 11, cardiovascular 10, morbid 5	affect 31, suffer 15, prevent 14, diagnose 6

GENETICS	gene 46, genetics 10, cell 7, obesogenic 6	genetic 30	
PHYSICAL EXERCISE	body 76, exercise 56, activity 42, lifestyle 31, sport 17, habit 17, fitness 10, gym 10, training 6, cartoon 5	physical 49, sedentary 13	move 23, run 19, walk 19, fit 13, exercise 12
ECONOMY	industry 78, company 49, product 48, tax 36, market 25, marketing 24, supermarket 23, promotion 23, business 22, consumer 21, sale 16, price 15, retailer 15, cost 11, funding 11, trade 11, manufacturer 9, money 9, economy 8, employer 7, profit 7, purchase 7, executive 6, customer 5, poverty 5	poor 33, cheap 16, rich 12, economic 10, expensive 6	promote 26, buy 21, spend 21, sell 13, fund 7
INSTITUTIONS	government 99, school 58, university 46, organisation 22, association 19, institute 19	public 52, social 46, political 5	
LAW	minister 15, ban 13, regulation 12, recommendation 9, order 8, law 6, legislation 6, guideline 6, authority 5, ministry 5, norm 5	right 16	ban 14, accuse 5
PROBLEM	problem 118, crisis 30, concern 19, solution 19, discrimination 13, prejudice 8, difficulty 5	serious 22	tackle 47, urge 17, worry 10, discuss 7, solve 5
DANGER	risk 105, damage 9, danger 7	severe 14, dangerous 6	warn 16, concern 9
DEATH	death 9, mortality 5		die 13, kill 5
WAR	fight 15, war 6, taskforce 5		fight 11, struggle 9, hit 8, combat 8, challenge 6
DESTRUCTION	time bomb 5		explode 5

It is not surprising that two wider areas in the corpus are related to 'Weight' and 'Food and Drinks'. Within 'Weight', the use of prefixes – *over-* (*overweight*), *anti-* (*anti-obesity*), and *mal-* (*malnutrition*) – suggests that, as far as weight is concerned, we are going in the excessive or wrong direction. Adjectives such as *thin*, *slim*, or *skinny* counterbalance the prevalence of *obese*, *fat(ly)* and *overweight*,⁵ in the same way as the verbs *lose* and *reduce* compensate for *increase* and *gain*. Within 'Food and Drinks', we can notice two opposite directions. On the one hand, there is a tendency to highlight the foods and beverages that may be dangerous and cause obesity (e.g. *sugar*, *junk food*, *chocolate*, *sweets*, *carbohydrates*, *snacks*, *burger*, *bacon*, *Coca-Cola*, *coke*, *alcohol*, etc.). On the other hand, there is a trend to focus on the foods that are recommended in balanced diets (e.g. *fruit*, *vegetable*, *fish*, *carrot*, *salad*).

Other relevant data come from the area of 'Age', where the prevalence of words connected with young age (e.g. *child(ren)*, *childhood*, *baby*, *puberty*, *adolescent*, *kid*, *teen(ager)*) implies that obesity especially affects people in their childhood or adolescence.

In the areas of 'Health' and 'Disease', we find medicine-related information. Obesity indeed increases the likelihood of various diseases and conditions, particularly *cardiovascular diseases*, *Type-2 diabetes*, certain types of *cancer*, *depression*, *dementia*, *Alzheimer's disease*, *infertility*, *endometriosis*, and eating disorders, such as *anorexia*.

As we understand from the areas of 'Genetics' and 'Physical exercise', obesity is the result of an interplay between genetic and environmental factors. It is mostly preventable through a combination of personal choices and social changes. Changes to diet and physical exercise are the main treatments. Diet quality, for instance, can be improved by reducing the consumption of energy-dense foods, such as those high in fat or sugars, and by increasing the intake of dietary fibre. Recourse to experts (*nutritionist*, *dietician*) may increase the capacity to control *appetite* and *metabolism*. *Smoking*, instead, has a significantly bad effect on an individual's weight, in that it commonly happens that those who quit smoking, generally gain weight ('Health').

Other causes of obesity appear to be correlated with economic and social factors, such as wealth or social class ('Economy'). For instance, in the developing world, men, women, and children from high social classes have

⁵ In idioms, such as *fat cat*, the adjective *fat* acquires a completely different meaning and is rather associated with wealth.

greater rates of obesity. On the other hand, the wealthy are able to afford more nutritious food and have more opportunities for physical fitness, therefore decreasing their risk of obesity.

The roles of the 'Institutions' and 'Law' may instead contribute to preventing obesity. For instance, the verb *ban* is used in the corpus as related to: (1) banning the advertising of junk food during breaks in children's programming, (2) banning fast food outlets from opening near schools, (3) banning the sale of sugary drinks and unhealthy foods from the school environment, or also (4) banning multi-buy offers on junk food. By contrast, experts should call for schools to *promote* health and nutrition literacy and physical activity.

Less numerous but still significant data come from the areas of 'Problem', 'Danger', 'Death', 'War', and 'Destruction'. Obesity is a leading cause of death worldwide, with increasing rates in adults and children. It is viewed as a *problem*, a matter of *concern*, a *crisis* with no *solution*. Nouns such as (*mortality*) *risk*, *danger*, even *death* cannot but alarm readers, who can perceive obesity either as a *time bomb* which is going to *explode*, or as a *fight*, a *struggle* to *combat*. The latter expressions suggest a metaphorical use of the language.

In general, the language used in the *Guardian* Obesity Corpus is not highly specialised. With the exception of *body mass index (BMI)* – i.e. a measurement obtained by dividing a person's weight by the square of the person's height – sector-specific vocabulary is also accessible to non-professionals. Let us check now the specific words collocating with *obesity*.

4.2 Collocations

Table 2 shows the main results obtained from a Word Sketch of the word *obesity* (480 occurrences). The first column shows the syntactic patterns of the combinations. The second column shows the collocations with their frequencies. (Obesity is abbreviated as 'o.')

The most common words pre-modifying *obesity* are *childhood* (33 occ.) and *child* (9 occ.), whereas *adult obesity* occurs only twice. The adjectives *severe* and *morbid* suggest that, especially early in life, this condition is becoming pathologic. As a modifier, *obesity* occurs with nouns having negative connotations, such as *crisis*, *epidemic*, or *problem*. These combinations confirm the alarming tone, in that obesity increases the risk of many physical and mental conditions, all listed as coordinated nouns in the corpus (*overweight*, *malnutrition*, *thinness*, (*type 2*) *diabetes*, *weight gain*).

Table 2. Collocations of “obesity” in the Obesity Corpus

Pattern	Collocations
MODIFIER + obesity	childhood o. 33, child o. 9, severe o. 6, morbid o. 5, adult o. 2
Obesity + NOUN	o. crisis 18, o. rate 14, o. epidemic 12, o. problem 7, o. expert 4, o. programme 4, o. gene 2, o. plan 2, o. trend 2
VERB + obesity	tackle o. 10, combat o. 3, fight o. 3, prevent o. 3, rise o. 3, treat o. 3, o. is linked 3, help (tackle) o. 3, cause o. 2, eliminate o. 2, o. is determined 2, reduce o. 2
Obesity + VERB	o. is 50, o. has 10, o. has become 3, o. is costing 2, o. has lead 2
Obesity and/or X	overweight and o. 8, o. and diabetes 7, metabolism and o. 3, o. and health 3, diet and o. 2, malnutrition and o. 2, thinness and o. 2, weight gain and o. 2, weight and o. 2, o. and type 2 diabetes 2
Obesity is a X	o. is the new smoking 3, o. is increasingly a problem 2, o. is the cause 2

The frequent occurrence of *obesity* with the copular verb *be* lastly implies that this condition is variously defined in the corpus. One of the definitions – *obesity is the new smoking* – introduces a form of metaphor associating obesity with the practice of inhaling tobacco smoke. Obesity and smoking actually share a set of correspondences: they generally target a young or adolescent public and have negative consequences on the body, increasing the risk of developing diseases and causing death by cancer.

Definitions of obesity in the corpus are traditionally given in the form *obesity is...* However, the copular verb is mostly followed by atypical definitions, which avoid specialised vocabulary or scientific names, and rather opt for simple vocabulary (e.g. *obesity is a chronic disorder of appetite regulation*), and often just emphasise its causes or consequences. In general, in the Obesity Corpus, obesity is not scientifically defined, but rather variously described as a problem (*a growing (health) problem, a complex problem, increasingly a problem among young Americans, a biological problem*), a risk (*a risk to health*), a challenge (*a global public health challenge*), the consequence of economic growth (*a natural extension of an advancing economy*), or of a psychological disorder (*the consequence of an underlying psychological problem*). It is also described as a choice (*a lifestyle choice*), or even as a form of prejudice (*the last socially acceptable form of prejudice*).

Some definitions regard obesity as the cause of some disease, such as diabetes (*one of the leading causes of Type 2 diabetes*), or more often cancer (*the leading cause of the cancer deaths in the US, the cause of one in five cancer deaths, second only to smoking as the biggest preventable cause of cancer*). Still other definitions describe obesity by specifying what it is not, i.e. by negation (*obesity is no one's choice, as everyone wants to be thin, obesity isn't a psychological problem, obesity is not a disability*). Although all these definitions warn *Guardian* readers against obesity, especially from an early age, and advise them of its dangerous consequences, it is by the use of figuration that reporters better depict obesity as one of the most serious public health problems of the 21st century.

4.3 Figurative language

The Obesity Corpus was then manually analysed for metaphorical expressions and other figurative comparisons. For the analysis, we followed the metaphor identification procedure (MIP) (Pragglejaz Group 2007), according to which an expression is regarded as metaphorically used when its 'contextual meaning' contrasts with a more physical and concrete 'basic meaning', and where the former meaning can be understood via a comparison with the latter (e.g. the use of 'time bomb' in the expression 'the obesity time bomb', or the use of 'mountains' in 'mountains of burgers'). Each metaphorical expression or other figurative use was further allocated to a semantic field such as 'War', 'Destruction', 'Death', 'Journey', on the basis of its basic meaning. Finally, the latter fields were considered in terms of framing effects on the audience.

4.3.1 'War' metaphors

A qualitative analysis of the Obesity Corpus shows the use of several violence-related metaphorical expressions. We have identified in our data expressions which can be seen as instances of traditional 'violence', 'military', or 'war' metaphors (cf. Semino et al. 2016), such as those in examples (2)–(7):

- (2) British cardiologist-led team accuse food and drink firms of over-emphasising how sport can **fight** obesity. (29/11/2017)
- (3) The **fight** against obesity starts in the head, not in the stomach. (17/10/2013)
- (4) Egypt's obesity **battle**: 'No one cares about calories here'. (28/11/2017)

- (5) The discovery of a gene that is so central to how the body uses energy and puts on weight could lead to therapies that help **combat** obesity more generally. (24/10/2013)
- (6) The NHS is **struggling** to cope with the burgeoning obesity crisis. (18/08/2018)
- (7) If you look at the **fight** against childhood obesity as a **war**, which it should be looked at as, it has to be multifaceted – business, home and government. (29/04/2018)

Following Lakoff – Johnson (1980), expressions such as ‘fight’, ‘battle’, ‘combat’, ‘struggle’, or ‘war’ have tended to be interpreted as realisations of conceptual metaphors involving WAR as the source domain. At a general level, these metaphors can be explained in terms of a basic metaphor, DIFFICULTIES ARE OPPONENTS, which, in Grady’s (1997) terms, can be seen as a ‘primary metaphor’ arising from an experiential correlation between difficulties and aggressors. Obesity in these examples is regarded as an enemy to fight. The fighters include physical activity (*sport* in 2), psychological influences (*head* in 3),⁶ diet (*calories* in 4), medical and public health system’s help (*therapies* and *NHS* in 5-6). On the other hand, the underlying opponents involved in the ‘war’ are manifold (*business, home and government* in 7).

In terms of framing effects, presenting obesity in the negative context of war triggers the implication of conflict, violence, aggression, and mortality on the one hand, but also struggle to overcome, or even effort to win, on the other.

4.3.2 ‘Destruction’ metaphors

The Obesity Corpus also evidences the use of metaphorical language to lay emphasis on the destructive effects of obesity. Instances of ‘destruction’ metaphors are:

- (8) The sugar tax was a start – but on its own won’t beat the obesity **time bomb**. (26/11/2018)
- (9) Obesity is linked to other health issues, such as diabetes and strokes, so the cliché of the “public-health **time bomb**” is probably apt. (30/01/2014)

⁶ Here ‘head’ is used metaphorically and metonymically to refer to one’s ‘mind’ (i.e. HEAD IS CONTAINER, HEAD STANDS FOR MIND) (cf. STOMACH IS CONTAINER, STOMACH STANDS FOR FOOD in the same example).

- (10) It is this body-mass **time bomb** that is the most worrying aspect of China's nutrition status. (06/10/2017)
- (11) Peter Gluckman, a co-chair of the commission, said childhood obesity had become "an **exploding** nightmare" in the developing world. (29/11/2017)
- (12) Today, many countries in the global south are seeing an **explosion** of these [diabetes and obesity] afflictions. (13/08/2018)
- (13) China has the opportunity and the means to show the rest of the world how to slow and reverse the apparent **tsunami** of obesity. (06/10/2017)

Expressions such as 'time bomb', 'exploding', 'explosion', or 'tsunami' are realisations of conceptual metaphors involving DESTRUCTION as the source domain. At a general level, these metaphors can be explained in terms of a primary metaphor, DRAMATIC INCREASE IS VIOLENT BURST, arising from a correlation between the uncontrollable and violent spread of obesity and devastation.

As these examples show, one of the commonest associations is between obesity and a 'time bomb', stressing the idea that obesity is a condition difficult to deal with and control. The 'explosion' and 'tsunami' metaphors support the same associations between obesity and a violent burst or movement, as that provoked by an explosion, or an ocean wave that is caused by an earthquake under the sea. In (11), the idea of destruction is accompanied by fear, as suggested by the metaphorical expression *exploding nightmare*.

Again, obesity is presented in a negative frame of destruction, violence, and damage. This frame triggers the idea of ruin and physical devastation which attends the overweight and is associated with the diseases or medical disorders that may affect people carrying excessive weight.

4.3.3 'Death' metaphors

The Obesity Corpus also shows the use of metaphorical language to call attention to the lethal effects of obesity, ultimately leading to death or end of life. Examples (14)–(19) illustrate 'death' metaphors:

- (14) Obesity [...] is the **HIV** of our age. It is **killing** millions of our patients. (14/02/2018)
- (15) We mustn't let morbid obesity **kill** our potential. (02/08/2018)

- (16) Tough action must be taken to show fat, salt and sugar are **killers**, like cigarettes. (26/11/2018)
- (17) Sugar, not fat, exposed as **deadly** villain in obesity epidemic. (20/03/2013)
- (18) Obesity [...] results in the tragic **waste of lives**. (02/08/2018)
- (19) Producers of bad food must be made ashamed for **poisoning** our bodies. (26/11/2018)

Obesity is described as a disease which ‘kills’ people, both physically and morally. It is even associated with the virus that causes AIDS, like a modern ‘HIV’. Expressions such as ‘killer’, ‘deadly (villain)’, ‘waste of life’, and ‘poisoning’ are all realisations of conceptual metaphors involving DEATH as the source domain. In these examples, the killer is either obesity (14, 15, 18), or bad food, such as fat, salt, and sugar (16, 17). In (19), producers of junk food are also described as ‘poisoners’, who are killing people by producing unhealthy food. At a general level, these metaphors can be explained in terms of a primary metaphor, DISEASES ARE KILLERS, arising from a correlation between disease and decease.

Death metaphors as illustrated in (14)–(19) activate a negative frightening frame of mortality risk and reduction of life expectancy. Obesity is presented as one of the leading causes of negative health effects and death worldwide, competing only with smoking or HIV. This terrifying frame contributes to scaring the audience and to activating an idea of alarm, warning of danger, as well as to creating anxiety and fear.

4.3.4 ‘Journey’ metaphors

In the Obesity Corpus, we can also identify instances of metaphorical language that evoke a journey. Examples (20)–(25) specifically illustrate ‘journey’ metaphors:

- (20) The food industry is beginning to provide “healthier” options, but these are only the first **steps** of a long **journey** to tackle and reverse the obesity epidemic. (16/05/2013)
- (21) The important issues in any weight-loss **journey** are the individual’s desire to lose weight and the reason why they are obese in the first place. (17/10/2013)

- (22) The **journey** to best-in-class nutrition and food safety science research has been a circuitous one. (10/01/2019)
- (23) South Africa is already far along this obesity **trajectory**, with many other African countries following along that **course**. (29/11/2017)
- (24) In short, your DNA is not a **barrier** to weight loss. (14/02/2018)
- (25) The aim of treatment should be to address the mental state which caused the weight gain in the first place, thereby removing the main **barrier** to successful weight loss. (15/01/2009)

In the CTM (Lakoff – Johnson 1980), classical examples of analysis of conceptual metaphor are LOVE IS A JOURNEY and LIFE IS A JOURNEY. Similarly, in our corpus, the notion of motion along a path towards a destination is used in order to reason about the process of weight loss, as revealed by linguistic expressions like ‘journey’, ‘steps’, ‘trajectory’, ‘course’, and ‘barrier’ in examples (20)–(25). These expressions reveal the existence of an underlying system of conceptual correspondences between weight loss and journey (SLIMMING IS A JOURNEY), in which obese people are seen as travellers on a journey, weight loss is the destination or goal, the right direction or trajectory to achieve this goal is that balancing a healthy level of physical activity with eating a nutritious diet, and barriers are obstacles on the journey. In this case, journey metaphors are complex forms of the primary metaphor PURPOSES ARE DESTINATIONS (Grady 1997).

In terms of framing effects, the positive frame triggered by journey metaphors offers support, and encourages self-esteem, hope, and persistence. The audience affected by corpulence can be reassured by the concept of a journey implying that there is a possible path to weight loss and a healthy life.

4.3.5 Similes

Similes are less common than metaphors in the Obesity Corpus. They are mainly illustrated by examples (26)–(29):

- (26) Obesity is a bit **like smoking**: the tumours don’t start growing right after the first cigarette. (05/01/2019)
- (27) It’s wrong to focus on obesity as a ‘national risk’ **like terrorism**. (29/11/2017)

- (28) For children's health, the government has to treat sugar **like cigarettes**. (05/01/2017)
- (29) It's [sugar is] addictive and toxic, **like a drug**, and we need to wean ourselves off it, says US doctor. (20/03/2013)

These examples equate obesity with smoking, or even terrorism, and sugar with cigarettes or drugs. The explicit association (*like*) between obesity and 'smoking' and between sugar and 'cigarettes' creates a conceptual correspondence based on the bad consequences for one's health. Like smoking cigarettes, eating sugary food and suffering from obesity are considered as leading causes of cancer. On the other hand, the association with 'terrorism' creates a relationship based on the national spread of both the obesity crisis and terrorism, as well as the risk and danger that they involve. Finally, comparing sugar with 'drug' activates the ideas of addiction, dependence, on the one hand, and toxicity on the other.

The framing effects are here produced by competing frames, simultaneously triggering danger, risk, and dependence on food as main concepts.

4.3.6 Metonymies

A qualitative analysis of the Obesity Corpus also shows the use of some metonymic expressions, as illustrated in (30)–(35):

- (30) This places the blame for **our expanding waistlines** directly on the type and amount of calories consumed. (29/11/2017)
- (31) This total makes China the second most **obese nation** after the USA. (06/10/2017)
- (32) The UK is the most **obese nation** in western Europe. (18/08/2018)
- (33) But the social facts suggest **Britain would get thinner** if everyone had enough of life's opportunities to be worth staying thin for. (02/08/2018)
- (34) When China's healthcare researchers first uncovered a significant expansion in **the nation's waistline** they were looking to investigate something else entirely. (06/10/2017)
- (35) We need to **de-sweeten our lives**. We need to make sugar a treat, not a diet staple. (20/03/2013)

In these expressions, we can identify a metonymic ‘stands for’ relationship between a domain and one of its subdomains. For instance, in (30), the ‘waistline’, which is increasing in size, stands for the whole body, here typically represented by the imaginary line going round the narrowest part of one’s waist. In (31)–(33), reporters play on the adjectives ‘fat’, ‘obese’, and ‘thin’ applying them to nations (*China, UK, Britain*). These metonymic mappings associate citizens with their nations (NATION STANDS FOR CITIZENS), thus suggesting that the obesity crisis is affecting whole countries and is becoming a problem at a national level. In (34), we even have a combination of the two former metonymies WAISTLINE STANDS FOR BODY and NATION STANDS FOR CITIZENS, in that the ‘nation’s waistline’ stands for the ‘nation’s body’, and the latter stands for the ‘citizens’ body’. The activated frame is again a negative one, triggering such ideas as widespread risk and national problem.

Finally, in (35), a metonymic mapping occurs between ‘life’ and ‘diet’. The verb *de-sweeten* is indeed applied to people’s *lives*, but it actually refers to the act of removing sugar and other sweets from people’s diet.

4.3.7 Hyperboles

Hyperbolic language in the Obesity Corpus tends to be used to exaggerate the dangerous effects of either obesity or sugary foods and beverages causing it. Some instances of hyperbolic language are reported in (36)–(42):

- (36) Obesity is going to surpass cigarette smoking as the **leading** cause of the cancer deaths in the US. (20/09/2017)
- (37) Ready meals and the **thousands** of other products available in supermarkets have a real impact on public health. (30/01/2014)
- (38) The **rivers** of Coca-Cola and Pepsi consumed by young people today have as much to do with obesity as the **mountains** of burgers. (20/03/2013)
- (39) Junk food companies seeking growth markets are **flooding** poor countries with cheap, unhealthy food. (13/08/2018)
- (40) To reach these potential consumers, large food corporations are infiltrating, **inundating** and taking over traditional food distribution channels around the world. (13/08/2018)
- (41) From child hunger to obesity: Brazil’s new health **scourge**. (19/05/2014)

- (42) Budget day rarely brings huge victories for public health like last week's **bombshell** – a sugar tax on fizzy drinks. (26/11/2018)

Example (36) specifically illustrates extreme case formulation, which involves a quantitative shift between the concept encoded and the concept contextually constructed. Obesity is here described as *the leading cause of the cancer deaths in the US*. This amplified or exaggerated statement is meant to emphasise the serious medical condition caused by obesity, which in the US is considered to be one of the main causes of cancer deaths, comparable to smoking. The extreme expression *leading* used in (36) aims at making readers aware of the devastating consequences of excessive weight. Similarly, the extreme expression *thousands* in (37) exaggerates the number of products sold in supermarkets which may have a bad influence on people's health.

Examples (38)–(42) instead provide instances of hyperbolic metaphors, which involve both a qualitative and a quantitative difference between the concept encoded and the concept contextually constructed. Some of these hyperboles are based on the conceptual metaphors FLOOD IS LARGE AMOUNT (*rivers of Coca-Cola and Pepsi, flooding poor countries with cheap, unhealthy food, inundating traditional food distribution channels around the world*) and MOUNTAIN IS LARGE QUANTITY (*mountains of burgers*). Another hyperbolic metaphor maps obesity on widespread suffering (*obesity: Brazil's new health scourge*), whereas the last one describes the shocking news on sugar tax as an explosion (*last week's bombshell – a sugar tax on fizzy drinks*). The related hyperbolic metaphors are WIDESPREAD SUFFERING IS EPIDEMIC and SHOCKING NEWS IS EXPLOSION. The framing effects obtained via the use of hyperbolic metaphors do not depart from, but rather confirm, the negative frame of danger and destruction already envisaged.

4.4 Discussion

A combined quantitative and qualitative analysis of our corpus shows the importance of making people aware of the seriousness of the obesity epidemic, as a problem per se and as the main cause of many negative physical and mental conditions. The identification of frequent semantic areas and their relevant lemmata shows that obesity is a leading preventable cause of *death* worldwide ('Death'), with increasing rates in adults, but above all in *children* ('Age'). Semantic areas such as 'Food and Drinks' and 'Physical exercise' suggest that obesity is mostly preventable through a combination of lifestyle changes and personal choices. Changes to diet – e.g. preferring

vegetables and fruit to snacks, chocolate, or alcohol – and exercising – e.g. *physical activity and gym workout* – are the main treatments. The semantic areas of ‘Health’, ‘Disease’, ‘Problem’, and ‘Danger’ lay emphasis on the fact that obesity increases the risk of displaying health problems later in life. Medical disorders include *diabetes mellitus type 2, cancer, cardiovascular diseases (heart attack/stroke)*, etc., whereas neurological and psychiatric diseases include *dementia and depression*.

The quantitative analysis of both frequencies and collocations shows that in *Guardian* articles obesity is mainly regarded either as a *morbid/severe epidemic to prevent*, or as a *problem to tackle* and possibly *reduce* or *eliminate*. The collocation *obesity is the cause* focuses on the main consequences of this condition, among which cancer death seems to prevail.

The collocation of obesity with verbs such as *fight* or *combat*, as well as the phrase *obesity is the new smoking* evidence a use of figurative language in the corpus, which is confirmed by a close reading of the articles and a qualitative analysis of some metaphorical expressions, or similar non-literal language use.

The different kinds of metaphorical expressions that we previously captured in terms of the broad source domains WAR, DESTRUCTION, DEATH, and JOURNEY can be grouped and labelled according to the more specific types of framing that they suggest. In our data, *fight* as noun and verb, *battle*, and *war* are used as parts of expressions that suggest a framing of war, with OBESITY IS ENEMY TO FIGHT as conceptual metaphor. Words such as *time bomb, explosion* and *tsunami* instead suggest a framing of destruction, with DRAMATIC INCREASE IS VIOLENT BURST and SPREAD IS EXPLOSION as related conceptual metaphors. In addition, words such as *kill, killer*, and *poison* activate a framing of death, with both obesity and sugar as killers, respectively connected with the primary metaphors DISEASES ARE KILLERS and BAD DIET IS DEATH. Still another group of metaphorical expressions describe weight loss as a *journey* (SLIMMING IS A JOURNEY), with a right *trajectory*, different *steps*, and some possible obstacles or *barriers* on the pathway. The role of multiple competing frames in the frame-building process in health communication shows how journalists try to activate either a negative frame of destruction, alarming risk, and mortality on the one hand, or a positive frame of encouragement and hope on the other, mainly triggered by journey metaphors.

Other figurative uses of language include simile, equating obesity with smoking (*obesity is like smoking*), and metonymy (*obese nation*), whereby the individual’s condition of being obese is transferred to a national level, thus becoming a country’s problem (NATION STANDS FOR CITIZENS). Lastly,

hyperbolic language contributes to increasing the alarmed, worried tone of the *Guardian* reporters: expressions such as *thousands*, *rivers*, *mountains*, or *flood/inundate* suggest that the amount of unhealthy food and sugary drinks that are entering our supermarkets (and our homes) is huge and out of our control, and government intervention would be necessary in the economy and the marketplace.

5. Conclusions

In this article we have focused on figurative language and the ‘framing’ function of metaphor as a phenomenon that is relevant from the different perspectives of cognition and discourse. We have used a corpus of articles on obesity taken from *TheGuardian.com* as a case study to demonstrate the value of quantitative (corpus-based) investigation integrated with qualitative analysis to identify patterns of metaphor in context, as well as other non-literal language used to describe and explain obesity, its causes, and consequences.

The analysis shows that metaphors, metonymies, and hyperboles are used to increase people’s awareness of the various issues and concerns that revolve around obesity, but they do not work in the same way. Some war-related metaphors, for instance, can be motivating and encouraging for patients who suffer from obesity, but they might also have negative and frustrating consequences on those patients who feel that they are not going to ‘win the battle’. Destruction-related and death-related metaphors are certainly used to increase people’s awareness of the overflow of the obesity epidemic, of its morbidity rates, and lethal force. A much more positive attitude is instead underlined by journey-related metaphors, describing the patient’s weight loss process as a ‘journey’, with different treatment and care plans referred to as ‘pathways’. The latter metaphors especially play a role in the creation of positive framing effects.

Country-related metonymies are also used in our corpus to inform people of the national interest in obesity, which has grown from an individual’s problem to a general nation-wide one, affecting most of the population, especially from an early age. The intrinsic exaggeration of hyperbolic language contributes to amplifying the problem not only of the obesity crisis, but also of the unhealthy food and sugary drinks ‘flooding’ the supermarket’s shelves. The presence of competing frames in communication, both positive and negative, can have opposite effects on the

audience, hovering between the alarming frames of risk and end of life and the reassuring frame of journey towards a healthy life.

As for health literacy, the use of figurative language can facilitate people's access to and understanding of health information in order to make appropriate judgements and take informed decisions about healthcare and disease prevention. In particular, being more aware of the consequences of figurative language use can have implications for practice in communication.

From the writer/speaker's perspective, awareness can help reporters and healthcare professionals to pay close attention to specific word choices and to use language more cautiously, avoiding 'war' and 'fight' metaphors, which may create expectations about treatment or disillusion and disappointment with poor results, and favouring 'journey' metaphors that encourage obese people to undertake a long 'path' with perseverance, and to proceed 'step by step'. Metonymies in which the 'country stands for its citizens' can also be used to focus people's attention on the vastness of the problem, which is large-scale rather than individual. This metonymy can be used to make people feel they are not 'travelling alone' in their weight loss 'journey'.

From the reader/hearer's perspective, awareness can help non-experts to take more informed decisions about their healthcare and the health of their families, especially in daily choices. For instance, 'destruction' and 'death' metaphors can be interpreted as warnings about the dangerous effects of obesity, and help people realise that their current actions will have future consequences. Similes matching obesity with 'smoking' or 'drug' especially focus on the harmful effects of overweightness, while the equation with 'terrorism', as well as 'explosion' and 'tsunami' metaphors signal the violence of the phenomenon. In addition, hyperbolic metaphors referring to the 'rivers' of sugary drinks and 'mountains' of hamburgers and similar junk food sold by fast food companies and supermarkets can alert readers to the risks to which (especially) the young are exposed, and perhaps guide them in their choices, such as taking a walk rather than using their cars, or reducing daily amount of sugar intake rather than buying unhealthy food.

In general, this study demonstrates the important role of figuration and appropriate language when communicating with the public or patients about healthcare. It supports previous findings from the analysis of health online forums (Semino et al. 2016) that sensitive communication can improve information-provision, support, self-management, and self-esteem, and especially confirms the power of hyperbolic metaphors in effective communication.

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