



A Corpus-Based Study of Representation of Obesity in *China Daily* and *The Associated Press*: Critical Discourse Analysis Approach

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Received 22 July 2022; accepted 6 September 2022

Published online 26 October 2022

Song, S. X. (2022). A Corpus-Based Study of Representation of Obesity in *China Daily* and *The Associated Press*: Critical Discourse Analysis Approach. *Studies in Literature and Language*, 25(2), 32-38. Available from: <http://www.cscanada.net/index.php/sll/article/view/12780>

DOI: <http://dx.doi.org/10.3968/12780>

Abstract

Obesity is a persistently newsworthy topic for the press and in recent years levels of coverage have increased. In this study, we examine the ways in which obesity has been framed by the press over a five-year period (2017-2021), focusing both on similar and different areas of the two media. The study takes a corpus-based approach to Critical Discourse Analysis (CDA), examining obesity-related discourses in two corpora: one containing articles about obesity from *China Daily* and the other from the *Associated Press*. Discourses are identified through word frequency, concordance lines and keywords analysis - techniques in corpus linguistics which highlights words that occur with a statistically marked frequency in one corpus compared to another. The analysis found that the word risk and negative adjectives were frequently used in the media on both sides to describe obesity to increase awareness and awareness of obesity. But there are still differences *China Daily* is more concerned with obesity in teens, women and the elderly, and has more coverage than the *Associated Press*. Compared with the *Associated Press*, *China Daily* pays more attention to the responsibility of the state and society when providing solutions to obesity, but the *Associated Press* mainly deals with legislation. The media in both countries need to pay more attention to the role of individuals in tackling obesity, and the *Associated Press* should pay more attention to health equity and pay more attention to vulnerable groups in future reports.

Key words: Obesity; Media discourse; Corpus-based; Critical discourse analysis

1. INTRODUCTION

Health is the fundamental guarantee for each individual to create a better life, and it is also an important foundation for each country to guarantee the people's livelihood. Obesity, as a hidden health risk, is both an independent disease and a cause of various chronic diseases. It has been widely concerned and highly valued by countries all over the world. In the era of vigorous development of online news, media of various countries combine with social reality, focus on obesity, and provide targeted information to the public, which is beneficial to the promotion of the health of the whole people. And Li Ke and Zhang Qiang (2022) pointed that media representations have significant power to shape opinions and influence public response to communities or groups around the world.

Gavin Brookes and Paul Baker (2021) believed that the press as having a dialectical relationship with society. News outlets influence their readers' opinions but must also try to reflect readers' views, otherwise they risk losing those readers. Different newspapers cater for different readerships, for example being distinguished between broadsheet and tabloid reporting styles or socialist, liberal and conservative political perspectives. Internationally, both *China Daily* and the *Associated Press* have high reputations, and the two have greater discourse power, but they have their similarities and their differences. Although *China Daily* faces the world, it is hosted by Chinese people, and it will still have the connotation of China's unique characteristics; the *Associated Press* is backed by the United States, and it also views the world

from the perspective of Americans. It can be seen that China Daily and the Associated Press's representation of obesity reports has certain research value. What's more Gerbner et al. (1986) have shown that the media can have a long-term effect on audiences, compounding over time as a result of the repetition of images and concepts. The news is one of the chief ways that people gain information about their society, its values and what counts as a norm or a transgression, including views about health and illness (Seale, 2003).

And the starting point for this paper is that language can shape the ways in which matters pertaining to health and illness are experienced and understood by society. The "obesity" constructed by the media affects the public's perception of "obesity", prompting them to change their eating habits and lifestyles, and then to change their health status, which will have a negative impact on social equity and services, and the ecological environment. This paper will first illustrate the theoretical background, mainly introduce the research on obesity reporting in the news media, and the application scope of corpus and critical discourse analysis methods in media reporting. Secondly, the steps of corpus collection and processing and self-built corpus are elaborated. Then use corpus technology to analyze the data to explore what unique linguistic phenomena exist in media reports of different ideologies. Finally, the article concludes.

2. REVIEW AND THEORETICAL FRAMEWORK

2.1 Review How Obesity Represented in Media

Although printed newspapers have generally been declining in market since the beginning of the 21 century, most of them have become multi-platform, having online versions which help to maintain and stretch their influence to international audiences. It is important, then, to understand the discourses through which the media makes sense of and communicates health issues and their attendant risks, obesity included, as these have the power to shape health-related beliefs and outcomes at an individual and population level.

Numerous studies have previously questioned the way obesity is represented in the media. Although research has been carried out in different disciplines, research on obesity is largely concentrated in the medical field. Furthermore, while the discourse on obesity is wide-ranging, it remains largely within the following three frameworks: the first is the biomedical framework (obesity is a disease that can be cured with medical or surgical solutions); The second is the social responsibility framework (highlighting the role of governments and manufacturers in creating the conditions for people to develop obesity); the third is the personal responsibility

framework (highlighting individual lifestyle choices: especially the impact of diet and exercise on the development of obesity).

What's more, Public Health England (2020a, p.4) indicates that the Covid19 has replicated existing health inequalities and, in some cases, has increased them. The risk of serious illness and death from COVID-19 is highest in people aged 80+ and is also significant for men, people living in more deprived areas, people from Black, Asian and Minority Ethnic (BAME) backgrounds and people with certain underlying health conditions, including obesity. Some scholars have also carried out research on this, for instances, Gavin Brookes (2021) pointed that the pandemic context also seems to have given rise to some more positive changes to press coverage of obesity, with race-related health disparities receiving more focus than usual and the right-leaning press being more likely to critique the Conservative Government than it usually is, resulting in an arguably more balanced style of reporting.

Some newspapers were representing obese people in negative ways, although that hypothesis is supported by the academic literature. For example, Holland et al. (2011) have criticized media reporting of obesity as alarmist and uncritical, whereas Couch et al. (2015) argue that such reporting is a form of social control. Caulfield et al.'s (2009) diachronic study has indicated a shift in reporting from a deterministic view of obesity (e.g. one caused by genetic factors) to one based on personal responsibility (linked to diet and exercise).

However, there are relatively few studies on the representation of obesity in American media, so this article selects the report of the Associated Press as a data source.

2.2 Research Framework

In the past 20 years, more and more foreign scholars have applied corpus technology to critical discourse analysis. These studies mainly explore the inner meaning of discourse by examining word frequency, index lines, subject words, collocations, and word clusters in texts, and by observing lexical patterns and grammatical structures (Shao and Hui, 2014, p.28).

This paper will make use of the four stages of the CDA dialectical relational methodology proposed by Fairclough (2014, pp. 167-171), adopt the perspective of corpus linguistics analysis at the micro level, and conduct critical discourse analysis from the dialectical-relational perspective at the macro level.

The methodology here is to combine qualitative analysis and quantitative analysis. Because the appeal of corpus linguistics is that it offers a robust way in which to explore understandings and representations of the topic of interest; in this case, by exploiting a thematic database of language about obesity. This is because, at its core, corpus linguistics is a quantitative method (Wodak and Meyer, 2015), which uses statistical software

for the analysis of authentic language use. On the other hand, critical discourse analysis is largely a qualitative approach, which ‘studies the way social power, abuse, dominance and inequality are enacted, reproduced and resisted by text and talk in the social and political context’ (Van Dijk, 2001, p.352). What’s more critical discourse analysis aims to identify evidence of ideological bias and power dynamics in discourse by examining the language choices of speakers or writers. In general, the topics of obesity involved in corpus-based critical discourse analysis are becoming more and more extensive, and the research depth is also increasing, but there are still some deficiencies. For example, there are relatively few foreign studies focusing on Chinese topics, and comparative studies on Chinese and American media reports on a common topic are not common.

3. MATERIAL AND METHODS

The data for this study comprise two corpus of English language texts about obesity published between 2017.01.01 and 2021.12.31 from two news media: (i) China Daily; (ii) the Associated Press.

3.1 Research Design

3.1.1 Data Collecting

The time interval selected for this study is from January 1, 2017 to December 31, 2021, using China daily Query and Downloader (Xiong, 2021) to extract reports on obesity and obese from China Daily as corpus sources. The data of the Associated Press report was provided by Dr. Xiong Jianguo (URL attached). Considering each report as an analysis unit, a total of 479 samples were finally obtained after eliminating the duplicate reports in the search results, including 266 reports from China Daily and 213 reports from the Associated Press. A corpus of obesity reports was built based on the search results.

The reason for taking 2017 as the starting point is that, according to Chinese Center for Disease Control and Prevention (CDC, 2017) in March 2017, China has become the country with the largest obesity population in the world. At the same time, a survey conducted by the US Centers for Disease Control and Prevention from 2017 to 2018 showed that in the past two decades, the adult obesity rate in the United States has increased by nearly 40%, and obesity has become a major public health problem (CBS, 2020).

Regarding the determination of the unit of analysis, this study refers to the retrieval conditions of Baker (2019), and conducts a full-text search in news media reports with obesity or obese as keywords. The reports obtained after the search must focus on obesity, and the research needs to delete the reports that do not meet the requirements, including (1) duplicate reports; (2) reports that are obviously entertainment programs and product promotions, such as news prescription-- Doctor offices

that look like Apple stores; (3) reports that mention obesity but are not the focus of the report, such as Arkansas executes 2 inmates on the same gurney, hours apart. (4) Comic illustration reports (5) News collections such as BC-AP News Digest 6--10 pm.

3.1.2 Descriptive Statistics

Number of news published in media about obesity per year and the descriptive statistics for each of the sub-corpora are shown in Figure 1 and Table 1.

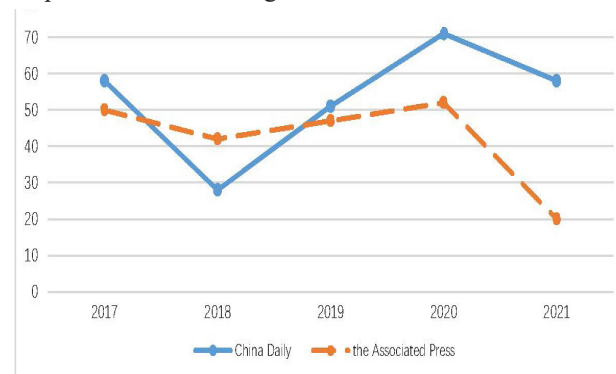


Figure 1
Number of news published in media about obesity per year

Table 1
Descriptive statistics for each of the sub-corpora

Sub-corpus	Name	No of texts	Tokens	Types
China Daily	CD	266	100,423	12,341
The Associated Press	AP	211	91,060	12,568

3.1.3 Corpus Construction

All news articles contain the title, the publication date, author (if known), source URL (if applicable), date of publication, word count, and original ID (e.g., archive ID, article reference). Therefore, when processing the corpus, we use Editpad Pro7[Computer Software] to delete in batches, so as to avoid affecting the following retrieval and arrangement of word frequency. And to explore similarities and differences in China daily and the Associated Press discourses about obesity, we applied standard corpus linguistic analyses to the data using Wordsmith to identify keywords, collocates and clusters. Every text in the corpus was saved in .txt format and encoded in UTF-8 standard and texts were assigned to both sub-corpora (China daily texts; the Associated Press texts).

3.2 Data Analysis

3.2.1 Word Frequency

The statistics of word frequency is one of the most common methods to observe, describe and analyze corpus. By retrieving high-frequency words, researchers can intuitively observe the discourse features presented in

the text and the basic positions and attitudes of language users reflected behind them. Based on the analysis software WordSmith, the two built corpora were sorted by word frequency. Since function words appear frequently in the corpus and have no actual semantic function, they were eliminated. And the two core query terms, obese or obesity are excluded. Because many words appear in similar positions in the corpus, words with large similarity and differences were selected for comparison, and the word frequency was used to see what the media on both sides paid more attention to when reporting obesity. The results are shown in the following Table 2.

Table 2
Same words with different frequency ranking

China daily		The associated press	
2	health	2	health
4	people	3	people
6	food	7	food
18	disease	15	disease
20	world	66	world
29	children	41	children
30	help	37	help
151	president	35	president

As can be seen from Table 2, the media reports on obesity in both China and the United States mentioned

Table 3
Concordance line of obesity in China Daily

Left words	Node words	Right words
Women have been warned of the risks of	obesity	during pregnancy but a new study shows
However, it is not yet known how parental	obesity	might increase children's risk of
that studies on animals have indicated that	obesity	during pregnancy may promote
could affect the fetal brain. "We know that	obesity	greatly increases the risk for such
Women have long been warned of the risks of	obesity	during pregnancy but a new study shows
However, it is not yet known how parental	obesity	might increase children's risk of
noted that studies on animals have indicated	obesity	during pregnancy may promote
rates of diabetes are associated with growing	obesity	brought on by more sugary diets and less
Children with asthma may be at higher	obesity	later in childhood or in adolescence
becoming obese by 43 percent. "Asthma and	obesity	often occur together in children but it
children with asthma are at higher risk for onset of	obesity	or whether obese children develop
may lead to increased risk of childhood	obesity	Chen said. Chen and her colleagues
15.8 percent of all these children developed	obesity	Researchers confirmed study results in
graduation. They found several risk factors for	obesity	are more prevalent among children with
appeared to reduce the risk of developing	obesity	The researchers called the fact that

The current adverse effects of obesity have long transcended the individual itself and reached the society as a whole. People of different ages, genders, and occupations are caught in the sub-health cycle of "obesity". According to the previous data, China Daily mentioned children more times than the Associated Press, and it is obvious that the official view of childhood obesity is a difficult problem. It can also be confirmed in the 15 concordance lines that the Associated Press seems to pay less attention to children than China Daily. From the

that obesity is closely related to people's lives and affects people's health. In addition, obesity is also a kind of disease, which will bring consequences such as diabetes. And food is one cause of obesity. Observing the same words with different frequency in the two corpora, it can be found that the media of China and the United States have different focuses when reporting this event. In Chinese media reports, words such as child, disease, help, and world appear more frequently, and appear less frequently in American media. It can be seen that the American media pays more attention to the physical condition of the leaders and less mentions the condition of the general public. The Chinese media, on the other hand, focused on the obesity situation among children, and mentioned various measures to help the public gain healthy and reasonable weight loss. The following will select some representative high-frequency words to concordance lines and make further comparative analysis.

3.2.2 Concordance Line

The corpus tool concordance line analysis can analyze the main writing attitude of the article producers by examining the vocabulary words before and after the subject words. The first fifteen lines were selected from the two corpora respectively, and the differences in the reports of the two media in the sentences were analyzed by sentences. The results are shown in Table 3 and Table 4.

fact that China Daily focuses on children and pregnant women, it can be seen that the Chinese media care ethics and people-oriented principles for vulnerable groups. The news media not only has a non-negligible impact on society, but also plays a role in promoting the progress of human civilization. The fairness advocated by modern society is the benchmark of civilization, so the obesity status of vulnerable groups is a problem worthy of reflection from all walks of life. Looking at various social institutions, although the media is not the implementer of

important measures to alleviate health inequity, it has a huge voice channel, has the ability to strengthen relevant reports, and be a loudspeaker for disseminating obesity information. It can be seen that the American media needs

to make more efforts in this regard, and strive to help children and their families face the health dilemma of obesity at the information level, so as to eliminate health inequities.

Table 4
Concordance line of obesity in the Associated Press

Left words	Node words	Right words
Climbed in parts of the country struggling with	obesity	, heavy smoking and other ills.
added sugars. Mexico has some of the highest	obesity	, soda consumption and diabetes
sought through the program to reduce childhood	obesity	by emphasizing good eating habits
teen pregnancy prevention as well as efforts to fight	obesity	, diabetes sickle cell anemia. childhood
take a \$4.9 million hit. Programs targeting	obesity	and diabetes would lose nearly \$1.5
trend found in a new study occurred at the same time	obesity	rates climbed. “Socially accepted
up for a while out of frustration. The study found	obesity	was most common among black women
means people feel less ridiculed for their weight. But	obesity	can increase risks for heart disease
he said. “We should forget the words ‘fat’ or	obesity	Zhang said. adding that a healthy
stress and changing lifestyle have prompted	obesity	and diabetes increasing the risk of
by his team member Tetsuya Ohira has found	obesity	, diabetes liver and heart problems
it as a way to fight sugary drink consumption and	obesity	since people can still fill up on other
the taxes work in changing behavior or reducing	obesity	. since people can still fill up on other
stick to their new weight, according to a leading	obesity	expert. But if you get stuck in a
candy is backed by science and a desire to reduce	obesity	and diabetes in the nation’s oldest

3.2.3 Key Words

Key words refer to a word that appears in the corpus far more frequently than the corresponding phrase, which mainly reflects the “theme” in the report. Subject words are different from word frequency statistics, which can help clarify the subject characteristics in news reports. By using the wordsmith tool statistical tool, a list of subject words is obtained. Sort by frequency of topic words from high to low, after removing some function words and selecting topic words, the results can be seen in Table 6 and Table 7.

From the Table 5, it can be seen that with the acceleration of social development, people’s quality of life has been improved, and consumption habits have also changed. With this change, various problems have become increasingly prominent, and obesity is one of them. We can see obesity being reported as a disease, which is not only a problem facing China, but a global problem. As a chronic disease, obesity will bring many harms to the human body, such as diabetes and so on. However, in response to this situation, the government has also taken many corresponding measures, increasing publicity to improve people’s health awareness and increasing medical and health services. All of them reflect the people-oriented attitude of the Chinese government. The reports on obesity are not limited to a single propaganda, but have also introduced various measures to improve the health of the people. Among these keywords, there are two worthy of attention, “rural” and “aged”, both of which reflect the media’s attention to disadvantaged groups. The lack of medical resources in rural areas and the large number of elderly people are all problems in my country’s

development at this stage. However, the media has not avoided this problem, but has mentioned it many times. This approach is conducive to attracting people’s attention and promoting social equity.

Table 5
China Daily keywords, ranked by frequency (AP as reference corpora)

Rank	Keyword	Frequency	Texts
1	diseases	249	103
2	development	232	93
3	global	200	40
4	human	197	26
5	services	142	45
6	improve	138	58
7	rural	134	36
8	increased	129	74
9	international	128	61
10	chronic	122	66
11	fitness	121	31
12	consumers	120	37
13	aged	109	56
14	healthcare	98	48
15	promote	90	52

From Table 6, we can see that when it comes to reporting on obesity solutions, the Associated Press mainly focuses on the food industry, and calls on retailers, restaurants and food and beverage manufacturers to take responsibility by taxing food. And urged the government to come up with regulations that are conducive to improving the obesity-causing environment. The sugar tax is the most frequently mentioned tax policy in the

enacted bills. Of course, the solution to obesity reported by Chinese and American media is not just that, but also has other content, namely, health education campaigns, government provision of low-cost or free healthy food, and community improvement. However, both reports lacked observations on individual lifestyles, and reports related to obesity mainly focused on diet, exercise activities, sleep, and tool use. At the same time, “black” is used as a keyword in the table, which shows the media reports on the obesity status of black people. It also shows that the black community has become a cause for concern.

Table 6
The Associated Press keywords, ranked by frequency (CD as reference corpora)

Rank	Keyword	Frequency	Texts
1	Trump	380	40
2	president	312	73
3	virus	166	38
4	tax	146	15
5	black	104	42
6	soda	94	28
7	administration	86	32
8	governor	74	22
9	twitter	58	32
10	north	67	26
11	cut	57	38
12	advice	51	25
13	died	51	34
14	limit	46	13
15	lunch	39	15

Combined with the analysis in Table 6, China Daily reported the theme of “Diversification of Obese Groups” and “National and Social Measures”, while the Associated Press reported the theme of “Policies and Regulations Implementation”. One starts from social responsibility and calls on the collective to fight obesity with common strength, and the other helps people restrain their behavior through laws and regulations. It clearly reflects the differences between Chinese and British media in the choice of news materials and the focus of attention on the crowd. American media should learn to strengthen social responsibility like China Daily, pay attention to more social groups, and build unfair treatment. Chinese media should learn from the Associated Press, highlight the role and binding force of the law, and enrich the way of reporting.

4. RESULTS AND DISCUSSION

This section is a general integration of the previous content. If the analysis of linguistic facts using a corpus is a microstructural analysis, then the analysis from the dialectical-relational perspective can be called a macrostructural analysis. Simultaneous micro- and macrostructural analysis allows for a deeper exploration of the

dialectical relationship between text and social reality, reflecting deep ideology. This section adopts the four-stage analysis framework of CDA dialectical relationship proposed by Fairclough (2014, pp. 167-171), and conducts specific analysis in combination with discourse.

4.1 Paying Attention to Social Wrongs and Dealing With Social Obstacles

First of all, from a macro perspective, the research object refers to the complex relationship between discourse and reality. This relationship is mainly reflected in the different emphasis of the media in China and the United States on the phenomenon of “obesity” and the different measures adopted by the two governments.

For the first stage, to pay attention to social wrongs from the symbolic aspects, it is necessary to clarify several issues, namely: the characteristics of the discourse, the specific reference of social wrongs, and how to pay attention from the symbolic level. When introducing the characteristics of discourse, three main points need to be paid attention to: the source of the discourse, the time involved in the discourse, and the political position or ideology it represents. The selected texts in the corpus are derived from relevant reports on the topic of “obesity” in the Associated Press and China Daily, and the time range is from 2017 to 2021. The Associated Press is the oldest and largest news agency in the United States, speaking for the United States. China Daily is China’s national English-language daily. Its purpose is to build a global communication system and to issue an authoritative voice of China. It represents China’s national position. The different social systems of the two countries will affect people’s ideology and attitudes to a large extent. The social evils that the text deals with are health problems, namely obesity. From the symbolic level, we mainly observe how the two media construct their positions and attitudes around the focal issue of “obesity”.

For stage2, identifying obstacles to addressing the social wrong can be elaborated in 3 steps.

Step 1: Analyze dialectical relations between semiosis and other social elements: between orders of discourse and other elements of social practices, between texts and other elements of events. (Fairclough, 2014, p.169).

Step 2: The composition of the research topic determines the choice of text and the nature of text analysis.

Step 3: Conduct discourse interweaving analysis and linguistic or symbolic analysis of the text. Based on the corpus above, some more detailed analysis of the text has been carried out, and some differences have been found. For example, in terms of word usage, the US media uses “said” more frequently than China Daily, indicating that the US media has left room for discourse.

4.2 Considering Social Order and Finding Solutions

For stage three, consider whether the social order “needs” the social evil, which can be considered in two steps: first,

whether the social ills we are concerned with are inherent in the social order; second, whether the social evil can be solved within the social order or just changed. With these two tips, we will have a clearer understanding of whether to abandon the evils of this society.

China Daily has already given some answers to stage 4, identifying possible ways to overcome obstacles. Through its reports, it is not difficult to see that the Chinese government treats obesity objectively, analyzes the hazards calmly, and pays attention to many vulnerable groups, adhering to a positive and responsible attitude. In contrast, the Associated Press does not pay much attention to vulnerable groups, and only proposes some governance measures from the promulgation of bills.

4.3 Conclusion

The comparative analysis based on the combination of critical discourse analysis and corpus technology can conduct detailed language research at the level of words and sentences, and reveal more profound truths. Furthermore, the use of a corpus is not intended to purely objectify critical discourse analysis, but to minimize researcher bias and increase the credibility of the analysis. Based on the self-built small corpus of obesity reports in China and the United States, this paper compares and analyzes media reports in China and the United States from four levels: word frequency, concordance line analysis, collocations, and keywords. It is found that both countries believe that obesity is a serious urgent problem. However, compared with the image of a people-oriented and responsible country displayed by the China Daily report, the Associated Press pays less attention to vulnerable groups.

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