Proceedings of the 2nd International Conference on Social Psychology and Humanity Studies
DOI: 10.54254/2753-7048/36/20240469

Exploring the Impact of Food Videos on Personal Dietary Behavior

Yifei Zhao[1,a,*]

[1]*Macau university of science and technology, Taipa, Macau, China*
a. zhaoyifei666666@gmail.com
**corresponding author*

Abstract: This paper aims to explore the impact of food videos on personal dietary behavior, using the food section of Bilibil, a Chinese video website, as an example for research. By collecting 265 survey questionnaires and analyzing video data from the top 42 bloggers in the food section of Bilibili, this study examined the impact of food videos on audience dietary habits, comparison of the attractiveness of healthy food, food costs, health, personal characteristics of bloggers, number of video creators, and whether food has regional characteristics on audience dietary choices. Research has found that the food video area has become more positive after national rectification, bringing more positive impacts to the audience's dietary habits. In addition, the appeal of healthy eating in food videos is relatively low, while nonhealthy foods such as high-calorie, high-carbon water is more attractive. The food cost, nutritional status, personal characteristics of the blogger, number of video creators, and whether the food has regional characteristics all impact the audience's dietary choices in the video. The purpose of this study is to reveal the phenomenon of excessive promotion of unhealthy food by food bloggers and the development trend of Chinese food videos, indicating the impact of food videos on individual dietary behavior, which has significant theoretical and reference value for promoting public awareness and behavior of healthy eating.

Keywords: Healthy food, Social media, Social nudge, Social influence, Social value

1. Introduction

The extent of personal health depends on their eating habits, which are affected by the environment. On such a broad network platform of social media, the network environment shaped by the platform also affects the dietary choices and preferences of netizens to a certain extent.

In 2010, online food broadcasting began to become popular in South Korea. With the spread of this type of live streaming through platforms such as YouTube, this type of food program quickly became popular worldwide, and network hosts from various countries also began to produce their own food broadcasting videos. Online food broadcasting was introduced to China in 2015. In 2020, due to social issues such as food waste, the government ordered a major rectification, banned illegal food broadcasting accounts on various platforms, and blocked keyword searches such as food broadcasting, to prevent the occurrence of food waste.

Taking Bilibili, a Chinese video website with an average monthly active user base of 315 million, as an example, in the third year of regulating the online food broadcasting environment in China, the food area of Bilibili has shifted from focusing on food broadcasting videos to being dominated by

DOI: 10.54254/2753-7048/36/20240469

food videos. Among them, food videos not only cover food broadcasting, but also add types such as food production, food exploration, food evaluation, and rural cuisine, to enrich the expression forms and sharing connotations of food.

But in recent years, most of the issues related to social media's impact on personal healthy eating have shown a negative impact. Research shows that food choices are largely influenced by social factors [1]. People imitate the dietary habits of people with numerous followers, which determines the health of their diet [2]. At the same time, the attractiveness of healthy food is weak, and its social value is low, which is even in conflict with physical norms [3]. This indicates that people's consumption of less healthy food is shifting towards unhealthy food [4]. Furthermore, through social media as a medium, this dietary choice is affecting more people. Previous studies have analyzed dietary health based on the entire social model or based on the sharing of food bloggers in the form of images [5-8]. However, due to the varying degrees of impact and psychological implications of images and videos on people [9,10]. Therefore, this paper will analyze the psychological cues that fans may receive in videos from the perspective of video-based food sharing and study the impact on personal dietary health in such environments. To address this challenge, this following research questions are aimed to be explored:

(1) Has the food video area in China become more positive after rectification, giving viewers a positive impact on their eating habits?

(2) Is healthy food still less attractive than unhealthy food in food videos?

(3) Does the cost of food, health, personal characteristics of the blogger, number of video creators, and whether the food has regional characteristics in the video affect the audience's judgment and thus their dietary choices?

This study has two contributions. Firstly, this is beneficial for revealing whether excessive promotion of unhealthy food by food bloggers has occurred, as well as the development trend of Chinese food videos. Secondly, it fills the gap between research on image sharing and video sharing, which has important theoretical and reference value for promoting public awareness and behavior of healthy eating.

2. Research Methods

2.1. Questionnaire Collection

The questionnaire collection is divided into two stages. Firstly, 265 survey questionnaires were collected to investigate people's viewing frequency, viewing duration, viewing period, and viewing reasons, to determine the current demand for food videos and whether food videos have a benefit effect on the diet of the respondents. Additionally, the appearance and food characteristics of food bloggers have an impact on their video choices and dietary health judgments. Then, by analyzing the collected data, the second stage of data collection was conducted to determine which range of food costs is more popular among people.

2.2. Data Collection

By querying the personal information of the top 42 bloggers with the highest number of followers on Bilibili, taking their most watched video as an example, this study analyzes the gender, age, physical characteristics, individual/team, food cost, food category, ingredient quantity, whether they have regional characteristics, views, and comments displayed by the blogger in the video, And use the WHO's Healthy Diet Recommendations to classify the foods appearing in the videos as healthy or unhealthy, and analyze the aesthetic and trends of food in today's food districts. To explore whether the appearance characteristics of bloggers can mislead viewers' dietary judgments, the author found information on their age and the number of video creators through the internet and previous self-

DOI: 10.54254/2753-7048/36/20240469

introductions of bloggers. Based on the facial and physical features appearing in their videos, the author briefly judged their body shape characteristics from the perspective of the audience.

2.3. Content Classification

The judgment on the health of the food appearing in the video is as follows: To determine whether the food appearing in food videos is healthy, this study used two methods for objective judgment. Firstly, in most cases, foods cooked with high oil, salt, and sugar have lower levels of health. Therefore, based on the cooking method of the ingredients, it can be prioritized to determine that foods that require a large amount of oil for high-temperature frying are not healthy. According to the analysis of dietary health recommendations by the World Health Organization (WHO), industrially produced trans fats (from prepackaged snacks, baked and fried foods, and foods such as pies, frozen pizza, biscuits, cookies, pancakes, edible oils, and spreads) are not included in a healthy diet. So based on the type of food used by the blogger in the video, the health level of the food can be further determined. The report by the World Health Organization also clearly states that in a healthy diet, adults need to limit their daily salt intake to less than 5 grams, which is equivalent to not exceeding 2 grams of sodium intake. Therefore, this study collected the dosages of all seasonings used in food videos and utilized the RTSL (Resolve, to, Save, Lives) global nutritional database for packaged foods sold worldwide to provide centralized access to nutritional data. By aggregating this information, it is possible to review and compare the packaged foods of sodium, sugar, and saturated fat levels in China by food category and sales country, and to determine whether the food of food bloggers is healthy. To analyze the factors that affect viewers' choice of videos, this study selected analysis of variance, linear regression analysis, and Pearson correlation analysis to analyze the correlation between categorical variables based on the number of videos played and comments. Then, word frequency statistics were used to test the word frequency of the top 1000 comments on bloggers.

3. Results and Analysis

3.1. Questionnaire Survey Results

The number of valid respondents to the questionnaire is 265, including 92 males and 173 females. 47.17% are aged 18-24, and 38.11% are aged 41 or above. The highest proportion of reviews for watching food videos is more than once a week, followed by more than once a month and every day. About 68% of people choose to watch after 9 pm, while most viewers often watch within 10 minutes and between 10 and 30 minutes. The reason why most respondents watch food videos is to understand different cuisines and satisfy curiosity, followed by seeking restaurant recommendations and exploring cuisine.

In the survey questionnaire, 57% of the respondents acknowledged that watching food videos has a positive impact on personal diet, while 35.85% of the respondent’s expressed uncertainty about this viewpoint. Regarding whether the personal appearance characteristics of food video bloggers will affect viewers' video choices, 55.39% of people agree, 26.02% deny, and 18.59% are uncertain. More than the average person expressed uncertainty about the health connection between gender and food in food videos, with 34.2% of respondents agreeing that female bloggers have healthier diets.

Through statistical analysis of whether the food in 42 videos is healthy, it was found that the proportion of unhealthy food reached 54.76%, which is like the data surveyed in the questionnaire. To determine the specific range in which the cost of food has the greatest impact on the audience, this study designed a second survey questionnaire and collected 144 valid data. Among them, 83.33% of people are in the age range of 20-25. According to statistics, 50% of people pay attention to the cost of food used by bloggers when watching food videos, and 44.44% do not pay attention to the cost of food. Among them, 42.5% prefer foods with a cost of around 500, and 40% prefer foods with a cost

DOI: 10.54254/2753-7048/36/20240469

of less than 100. Regarding the issue of whether bloggers care about whether their food meets health standards, 61.11% of people choose yes, 29.86% choose no, 53.66% prefer to watch healthy foods (low oil, low sugar, and low fat), and 46.34% prefer to watch unhealthy foods (high oil, high sugar, and high fat).

3.2. Data Analysis Results

Table 1: Analysis of variance results.

	Gender (1 male and 2 female) (mean ± standard deviation)		F	p
	1.0(n=30)	2.0(n=12)		
Playback quantity	13298566.67±4586833.43	10696083.33±3503397.38	3.116	0.085
review quantity	38839 33±43733 89	18174 33±13059 14	2 553	0 118
	Individual/team (mean ± standard deviation)		F	p
	1.0(n=19)	2.0(n=23)		
Playback quantity	13318157. 89±4779010.02	11924565.22±4111456.01	1.032	0.316
review quantity	33898 05±43356 24	32139 52±35120 14	0 021	0 885
	Is it healthy (1 yes 2 no) (mean ± standard deviation)		F	p
	1 0(n=19)	2 0(n=23)		
Playback quantity	12603473.68±5569203. 12	12514956. 52±3335944.48	0.004	0.95
review quantity	36551.05±44831.58	29947.91±33283. 85	0.3	0.587
	Does it have regional characteristics (mean ± standard deviation)		F	p
	1.0(n=33)	2.0(n=9)		
Playback quantity	12298333.33±4498301. 88	13496111. 11±4265285.70	0.512	0.479
review quantity	29635.97±32826.00	45031.67±55728. 86	1.13	0.294

* $p<0.05$ ** $p<0.01$

To identify the factors that affect audience judgment, the author assumed variables that may be related to the number of comments and views. Since the data itself belongs to quantitative and categorical categories, analysis of variance and correlation were conducted. Firstly, the author conducted a variance analysis on the five categories of food health, blogger gender, personal body shape characteristics, number of video creators, and regional characteristics, as well as the two quantitative

DOI: 10.54254/2753-7048/36/20240469

variables of views and comments. The results showed that as shown in Table 1, there was no significant difference between the views, comments, and these five variables.

Secondly, due to the approximate normal distribution of food cost, the author conducted a Pearson correlation analysis between food cost and the number of views and comments. There was no significant relationship between food cost and the number of views from the results, while the correlation coefficient between food cost and the number of comments was 0.358, with a p-value of 0.020, which was much lower than 0.05, indicating a significant positive correlation. And this is also confirmed by linear regression analysis, as shown in Table 2, the regression coefficient value of food cost is 1.227 (t=2.426, p=0.020<0.05), indicating that food cost will have a significant positive impact on the number of comments. After the model formula: comments=29098.699+1.227 * food cost, the R-squared value of the model is 0.128, which means that food cost can explain the 12.8% change in comments.

Table 2: Linear regression analysis of food cost and number of comments.

Linear regression analysis results (n=42)							
	Unstandardized Coefficients		Standardized Coefficient	t	p	Collinearity diagnosis	
	B	Standard Error	Beta			VIF	Tolerance
Constant	29098.699	5844. 191	-	4.979	0.000 **	-	-
Food costs	1.227	0. 506	0.358	2.426	0.020 *	1	1
R 2	0. 128						
Regulate R 2	0. 106						
F	F (1,40)=5. 886,p=0.020						
D-W value	2.004						
Dependent variable: Number of comments							

* p<0.05 ** p<0.01

3.3. Text Analysis

To test the accuracy of the conclusion, the author found two videos with similar views and comments, but significant differences in food costs, and conducted word frequency analysis. One of them is an outdoor barbecue video with a food cost of 200 yuan, 18.326 million views, and 126000 comments; The other is a video of appreciating red wine with a food cost of 70000, 18.084 million views, and 119000 comments. By comparing and analyzing the top 1000 comments in the popularity rankings of these two videos, word frequency statistics were conducted (Figure 1).

The keywords in the comment section of videos with lower food costs are Hua Nong Brothers, Rice Bran Mixed Rice, Time and Space Police, Not Beautiful, Black Bamboo Rat, Eating Bamboo, etc. Presenting a more leisurely and entertaining state, people are more concerned about the blogger's shooting style and method than the cost of food. The keywords in the comment section of videos with higher food costs include Romani Conti, sommelier, 70000-yuan, three yuan, a bottle of Lafite, Lafite Winery, etc. People will become curious about the ingredients themselves and explore whether the value of the ingredients matches the price, reflecting the higher the cost of food, The more people react to the food in the video.

This phenomenon can be explained by the Van Buren effect, which refers to the psychological desire of people to pursue high priced goods due to their desire for comparison and vanity during

DOI: 10.54254/2753-7048/36/20240469

shopping, reflecting their psychological desire for conspicuous consumption. Food videos are a projection of the Van Buren effect, where people can satisfy their pursuit of high-priced food by watching bloggers eat expensive food. The presence of comment areas provides them with a sense of participation and the opportunity to realize personal value. Although people tend to prefer higher priced food for better quality, through the statistical analysis of two qualitative data in Table 3, it can be concluded that the price of food is not significantly related to food health. Therefore, it can be concluded that higher food prices do not necessarily mean that their food is healthy. And this is also the current dietary trend on Bilibili. After national regulation and management, bloggers have switched from competing who eats more to competing who eats more. In addition to expensive food ingredients, bloggers will further process and transform the food to better attract the attention of the audience.

Table 3: Food Prices and Health of Food.

Analysis of variance results				
	Is it healthy (1 yes 2 no) (mean ± standard deviation)		F	p
	1 0(n=19)	2 0(n=23)		
Food costs	6293. 19±16291.50	512.67±1854. 82	2. 866	0.098
* p<0.05 ** p<0.01				

Also, the author has a text analysis of the top 30 popular comments for 20 videos with a cost of around 600 shows that positive words account for 26.71%, neutral words account for 27.21%, and negative words account for 46.08% (Figure 2).

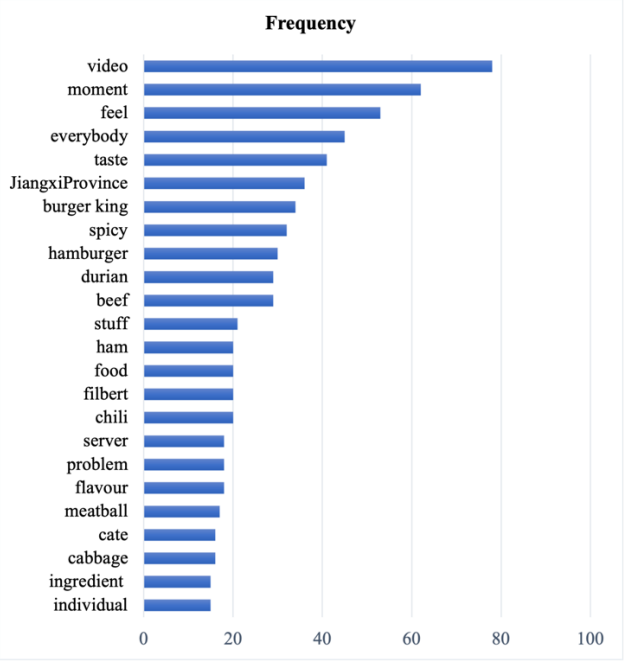

Figure 1: Characteristic words and number of repetitions in the comment area.

DOI: 10.54254/2753-7048/36/20240469

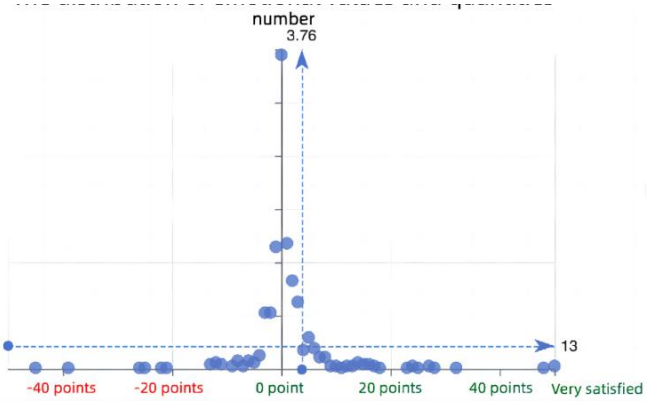

Figure 2: The distribution of emotional values and quantities.

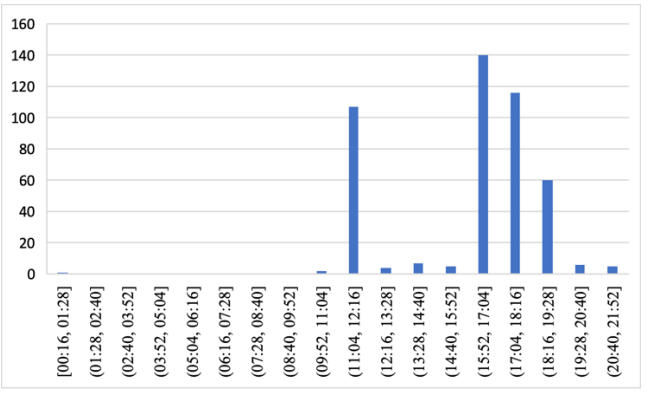

Figure 3: The release period of food videos.

By analyzing the video release time of the top 20 bloggers with fan numbers, the 453 data collected were presented in the form of histograms to obtain: Most bloggers choose to post videos from 15:52 to 18:16 and 11:04 to 12:16, which is just before most people enjoy Chinese food and dinner, with a few bloggers choosing to post after 18:16 (Figure 3).

4. Conclusion

This paper describes the relationship between food videos and personal dietary behavior. Through statistical analysis of questionnaire surveys, it can be observed that people's attitudes towards food videos are generally positive, and food videos also have a positive impact on their personal dietary health. But through the analysis of variance on quantitative data, it can be found that different factors have an impact on the audience, specifically in terms of the number of views and comments. After analysis, it was found that the most closely related factor to the number of comments is the cost of food. The higher the cost of food, the higher the number of comments. However, due to the lack of significant correlation between food costs and whether food belongs to the category of health, this study infers that the renovated B station food area is moving towards positive energy, but further efforts are needed to provide positive dietary habits for the audience.

References

[1] *Berger, J., & Rand, L. (2008). Shifting signals to help health: Using identity signaling to reduce risky health behaviors. Journal of Consumer Research, 35(3), 509-518.*

[2] *Charry, K., & Tessitore, T. (2021). I tweet, they follow, you eat: Number of followers as nudge on social media to eat more healthily. Social Science & Medicine, 269, 113595.*

DOI: 10.54254/2753-7048/36/20240469

[3] *Cruwys, T., Bevelander, K. E., & Hermans, R. C. (2015). Social modeling of eating: A review of when and why social influence affects food intake and choice. Appetite, 86, 3-18.*

[4] *Munt, A. E., Partridge, S. R., & Allman-Farinelli, M. (2017). The barriers and enablers of healthy eating among young adults: A missing piece of the obesity puzzle: A scoping review. Obesity reviews, 18(1), 1-17.*

[5] *Stead, M., McDermott, L., MacKintosh, A. M., & Adamson, A. (2011). Why healthy eating is bad for young people's health: Identity, belonging and food. Social science & medicine, 72(7), 1131-1139.*

[6] *Sidani, J. E., Shensa, A., Hoffman, B., Hanmer, J., & Primack, B. A. (2016). The association between social media use and eating concerns among US young adults. Journal of the Academy of Nutrition and Dietetics, 116(9), 1465-1472.*

[7] *Frieiro Padin, P., González Rodríguez, R., Verde Diego, M. D. C., & Vázquez Pérez, R. (2021). Social media and eating disorder psychopathology: A systematic review. Cyberpsychology Journal of Psychosocial Research on Cyberspace.*

[8] *Chung, A., Vieira, D., Donley, T., Tan, N., Jean-Louis, G., Kiely Gouley, K., & Seixas, A. (2021). Adolescent peer influence on eating behaviors via social media: scoping review. Journal of medical Internet research, 23(6), e19697.*

[9] *Marks, R. J., De Foe, A., & Collett, J. (2020). The pursuit of wellness: Social media, body image and eating disorders. Children and youth services review, 119, 105659.*

[10] *Qutteina, Y., Hallez, L., Raedschelders, M., De Backer, C., & Smits, T. (2022). Food for teens: how social media is associated with adolescent eating outcomes. Public health nutrition, 25(2), 290-302.*