

Evaluation of the Impact of Nutrition and Hygiene Education on Food Safety in China

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Abstract: Food safety is a national concern. Most governments around the world regard food safety as national public safety. This study focuses on the investigation and analysis of the impact of food nutrition and hygiene education on food safety in China. It is believed that strengthening the education of citizens' food nutrition and hygiene knowledge is to ensure the food safety of citizens in China fundamentally. Through regression analysis, quantitative and data research, the ways to educate people in nutrition and hygiene are found out to improve the health level of Chinese people and improve food hygiene and safety in China.

1. Introduction

Food safety is of great value. At present, all countries in the world regard food safety as national public safety. In view of this situation, some experts and scholars in China have put forward many opinions in order to improve the level of food safety, but at the same time, they have neglected the contents of food nutrition and hygiene education [1]. According to the analysis of the current situation, the knowledge education of food nutrition and hygiene can improve the present situation of food safety in China. Through a lot of investigation results, strengthening the knowledge education of food nutrition and hygiene among citizens is the basis of ensuring food safety.

Nutrition and hygiene education should start with students. At present, the knowledge structure of Chinese nationals in students' education is analyzed, aiming at the insufficient level of knowledge education. In the nine-year compulsory education process, in addition to the human health elements in the physical health of junior high school students, other subjects did not arrange the contents of food nutrition and health knowledge, nor did they provide proper learning lectures [2]. This too simple form of education leads to nutrition knowledge of food hygiene, which has not received due attention. Citizens can only realize the understanding of relevant content through radio, television, newspapers and other forms. The knowledge of food nutrition and hygiene and food safety is mainly relying on the mutual transmission among the masses, which lacks systematicness [3]. Under this background, it has seriously affected the development of food safety in China. This research focuses on nutrition and hygiene education. Through investigation, statistics and regression analysis, the impact is grasped to take reliable measures to solve the problem.

2. Investigation on the education of food nutrition and hygiene knowledge

From the point of view of the importance, degree of education and the way of education, people pay less attention to the food nutrition and hygiene knowledge. People pay more attention to the contents of space, national defense, architecture and computer, because this is the scientific knowledge needed by the national development [4]. But in fact, food nutrition and health knowledge are the most commonly used scientific knowledge in the national knowledge structure. To grasp and attach importance to this knowledge will directly affect the overall health, quality of life and life level of Chinese people.

In order to better understand the situation of this kind of education and analyze the actual problems, a survey and research is conducted.

2.1 Research objects

A total of 1200 students were randomly selected from four local middle schools and four secondary schools in another city, each of which included one class in grade one, two and three of junior middle schools.

2.2 Research methods

Sampling survey. The first stage: using cluster sampling method, two poverty-stricken counties were randomly selected from poverty-stricken counties designated by the United Nations Project Team, and then four junior middle schools were randomly selected from each poverty-stricken county. The second stage: using stratified sampling method, students from each selected junior middle school in grade one, two and three were selected as the research objects. The third stage: randomly select one class from each school's three classes [5]. After the first survey (the students were required to indicate their names and numbers to facilitate retest), retest the survey three days after the end of the survey. There were 50 valid questionnaires, and the effective rate was 100%.

Questionnaire. Questionnaire was self-designed. Questionnaire information (including indicators) was discussed by special groups, consulted by experts and pre-surveyed.

3. Investigation and study on the impact of knowledge education of food nutrition and hygiene on food safety in China

Through the questionnaire study of students, combined with the economic globalization of social development, the impact of current situation of nutrition and food hygiene education in China on food safety in China has been highlighted. The current situation of food safety in China is worrying, and its impact on food safety in China is manifested in the following parts.

3.1 Poor knowledge of food nutrition and hygiene

Table.1 Single factor analysis of student nutrition and food safety knowledge scores

Name		Number of people	Fraction	P values	Correct rate %
Gender	Male	518	7.61±3.42	0.345	42±19
	Female	479	7.40±3.45		41±19
Nationality	Han nationality	947	7.47±3.44	0.135	42±19
	minority	49	8.22±3.30		46±18
Age	<14 years old	354	6.71±3.54	0.002	37±20
	14-15 years old	543	8.02±3.35		45±19
	>15 years old	99	7.68±2.85		43±16
Boarding situation	Boarding	866	7.48±3.44	0.623	42±19
	Non-boarding	121	7.64±3.46		42±19
Whether to stay behind	Stay behind	292	8.03±3.44	0.000	45±19
	Non-left	696	7.28±3.41		40±19
Satisfied	Satisfaction	737	7.55±3.49	0.543	42±19
	Not satisfied	265	7.40±3.25		41±18
Whether it is only	only child	133	7.82±3.49	0.262	43±19
	Non-only	867	7.46±3.42		41±19
Mother's education	Elementary school and below	566	6.39±3.83	0.000	36±21
	Junior high school	204	6.09±4.20		34±23
	High school / vocational high / secondary school	56	7.89±3.92		44±22
	University and above	19	8.58±3.36		48±19
Father's education	Elementary school and below	566	7.03±3.36	0.028	39±19
	Junior high school	204	7.80±3.54		43±20
	High school / vocational high / secondary school	56	7.66±3.46		43±19
	University and above	19	7.75±3.51		43±17

Through the questionnaire analysis, the people's knowledge of food nutrition and hygiene mostly

relies on self-study. People have little or no knowledge of themselves, organisms and microorganisms. As a result, in real life, the number of reported cases of family food poisoning and the number of deaths are the largest among major food poisoning cases [6]. This reflects that people are extremely poor in knowledge of food nutrition and hygiene, and lack of awareness of the seriousness of food safety hazards. According to the survey results of students as shown in Table 1, $P < 0.05$, the difference between different groups is statistically significant.

3.2 Dietary habits

There are also many bad habits in people's daily life and diet. After investigation, these problems not only exist in students, but also exist in teachers and parents. For example, the problems in the traditional dietary habits have not been solved in the promotion of scientific and technological level. The fundamental reason is that the dietary arrangements of the Chinese people originate from their living habits [7]. According to the analysis of traditional scientific knowledge and living standard, people's dietary habits are reasonable. But with the development of modern science and technology, according to the existing scientific knowledge, there are many unscientific problems in the traditional dietary habits. For example, now some people like to eat a lot of salted, fried, and baked food. Modern knowledge of food nutrition and hygiene tells us that nitrite and benzo in the above-mentioned foods are seriously tendered. If such foods are frequently ingested, they are susceptible to cancer. This shows that people's dietary habits are not keeping pace with modern science and technology.

3.3 Ignorance of chronic food poisoning

Relevant data were obtained from the Ministry of Health. Aiming at the problem of food poisoning, acute food poisoning has attracted the attention of the government and relevant agencies, but chronic food poisoning has not. The harm of chronic poisoning to human body is relatively concealed, its onset period is late, and the onset period lags behind, so it is difficult to find it in time. Moreover, the mechanism of chronic poisoning is complex and easy to be ignored. For example, long-term consumption of food with high residual pesticides will increase the risk of cancer [8]. Combined with the data analysis, there are more chronic food poisoning incidents in China, and the harm to the masses is great.

3.4 Worrying food safety situation of the masses

According to the students' daily diet and the analysis of the teachers and staff who eat together in the school, their dietary safety is easily threatened. In the actual survey, most of the foods that have the greatest impact on health are produced by people who have only been trained in simple operation, but have not been trained in strict food nutrition and hygiene knowledge and food safety education. Therefore, it is necessary for the masses to understand the nutrition and food safety knowledge points. The following figure shows the correct rate of nutrition and food safety knowledge points in the survey, which should arouse the attention of all parties.

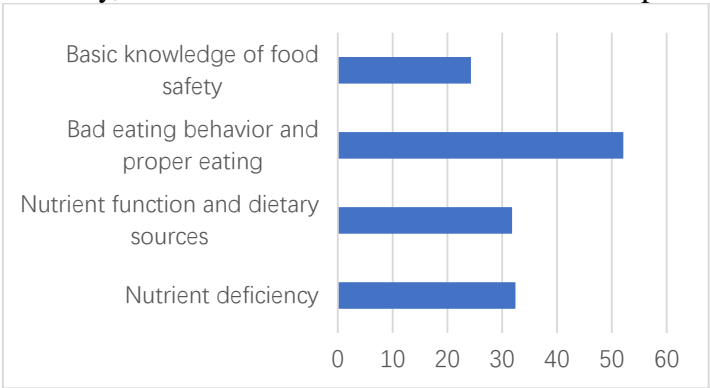


Fig.1 Nutrition and food safety knowledge points correct rate

Based on the survey results of students, further analysis of adult dietary habits showed that

Chinese people only pay attention to food quality and taste, but ignore the amount of food safety intake and dietary structure is unreasonable. People generally do not know that any food has the requirement of safe intake. If any nutritious food is ingested excessively for a long time, it will cause harm to human body.

3.5 Fake and inferior food is prohibited repeatedly

Because of the insufficient education of nutrition and food hygiene knowledge, people cannot identify and resist counterfeit and inferior food, so that there is still a market for counterfeit and inferior food. In addition, China lacks a series of important systems to ensure food safety. Lack of strict regulations, incomplete cohesion and incomplete content of legal responsibility for food safety result in repeated prohibition of counterfeit and inferior food.

4. The relationship between knowledge education of food nutrition and hygiene and food safety

4.1 Nutrition and food hygiene knowledge - the basis of ensuring food safety of Chinese people

Knowledge represents not only wealth, but also productivity. In food safety, knowledge of nutrition and food hygiene is the guarantee of its development. Only when the masses seriously understand the comprehensive knowledge of food nutrition and hygiene, can they accurately understand the true meaning of nutrition rationality. This can effectively plan diet, reduce the intake of toxic and harmful food, prevent problems arising from inappropriate diet, and thus improve the overall health level of the masses.

4.2 Improvement of the food safety level in China - strengthen the propaganda and education of nutrition and food hygiene knowledge

With the rapid development of science, technology and economy, people's lack of awareness of food safety will lead to food safety accidents. The main reason is that the knowledge of food nutrition and hygiene is not comprehensive, and the professional knowledge, legal knowledge and moral level of practitioners in food processing and marketing are not enough, which is an objective factor threatening food safety in China for a long time. In order to improve the level of food safety in China, it is necessary to strengthen the propaganda and education of food nutrition and hygiene knowledge. Only in this way can the food safety problem in China be fundamentally solved.

Table 2. Assignment of factors affecting the enthusiasm of nutrition and food safety attitudes

Factor	Variable name	Assignment description
Gender	X1	Male=1, female=0
Nationality	X2	Han nationality=1, minority=0
Boarding situation	X3	Boarding=1, non-hosting=0
Whether to stay behind	X4	Stay =1, not stay =0
Body satisfaction	X5	Satisfied = 1, not satisfied = 0
Whether it is only	X6	Only child = 1, non-only student = 0
Body type evaluation	X7	Satisfied = 1, very thin = 2, lean = 3, overweight = 4, very fat = 5
Different regions	X8	Huize County=1, Zhen'an County=0
Mother's education	X9	Elementary school and below=1, junior high school=2, high school=3, university=4
Father's education	X10	Elementary school and below=1, junior high school=2, high school=3, university=4
Score situation	Y	Positive attitude=1, not positive attitude=0

Raise the awareness of the importance of nutrition and food hygiene knowledge. There are a large number of cases of poverty caused by illness and poverty returned due to illness in China. But some diseases, such as obesity, hypertension, diabetes, rice disease, etc., are mostly caused by people's long-term neglect of their diet. Therefore, strengthening the education of nutrition and food hygiene knowledge and improving food safety are important guarantees for the health level of

Chinese people and the quality of life of Chinese people. The independent variables are selected by logistic stepwise regression analysis, $\alpha_{\text{selected}}=0.05$ and $\alpha_{\text{deleted}}=0.10$. There were two variables that entered the equation, namely ethnic group (X2) and different regions (X8). Among them, the OR value of ethnic factors and attitude positivity is 2.325, which indicates that Han students have more knowledge and attitude about nutrition and food safety than minority students. The OR value of factors and attitudes in different regions is 0.327, which indicates the positive attitudes of the masses in different regions, as shown in Table 2.

The independent variables and the estimated values of the related parameters of the attitude part of the equation are shown in Table 3.

Table 3. The independent variables of the attitude part entering the equation and the estimated parameters

Selection variable	B	Standard error	Wald X^2	P	OR	OR95% confidence interval
X2	0.844	0.424	3.959	0.040	2.334	1.013±5.336
X8	-1.118	0.161	47.658	0.000	0.327	0.238±0.449

Strengthen the publicity of nutrition and food hygiene knowledge. The knowledge of nutrition and food hygiene is the most applicable and widely used scientific knowledge in the national knowledge structure, the degree of mastery and attention to it directly affects the overall health level, quality of life and life expectancy of Chinese citizens. Therefore, it is necessary to regularly publicize and educate the whole people about nutrition and food hygiene knowledge and food safety knowledge. On the one hand, it is necessary to arrange courses on food nutrition and hygiene knowledge in the nine-year compulsory education stage, treat the education of nutrition and food hygiene knowledge of the whole people as sweeping words and law popularization education, and educate the public on food safety in various ways. From the survey, people can know the specific knowledge items.

Table.4 Nutrition and food safety attitudes Positive attitude holding rate

entry	N=622		N=325		N=297	
	Number of people	Holding rate (%)	Number of people	Holding rate (%)	Number of people	Holding rate (%)
It is necessary to learn nutrition knowledge	556	89.4	314	96.6	242	81.5
It is necessary to learn food safety knowledge	567	91.2	314	96.6	253	85.2
Willing to change the eating behavior that is not conducive to health and growth from now on	489	78.6	267	82.2	222	74.7
Information on nutrition and food safety in newspapers, magazines and TV commercials is reliable	140	22.6	70	21.6	70	23.6
Will actively participate in nutrition knowledge lectures	538	86.5	306	94.2	232	78.1
The nutritional status of childhood is important for the health of the whole life.	501	80.8	273	84.5	228	76.8
Will actively participate in food safety knowledge lectures	522	84.3	300	93.2	222	74.7

On the other hand, it is supposed to set up the specialty of food production and management technology in colleges and universities, and train a large number of professionals to gradually replace those who are only trained in simple operation, but not in strict training and food safety law

education. At the same time, radio, television and newspapers should be continuously used to publicize the knowledge of food nutrition and hygiene, improve the quality of food safety of the whole people, and lay a solid foundation for ensuring food safety in China.

5. Conclusion

Nutrition and hygiene education has important significance and influence on food safety. In order to better improve the food safety environment and ensure good nutrition level in China, besides increasing the investment in food science research, it is also necessary to establish a perfect safety guarantee system, so as to do a good job in knowledge education of nutrition and hygiene, solve the problem of insufficient knowledge education for the masses fundamentally, improve the status of food safety, and improve the overall health level of the masses.

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