

# Adolescents' Salt Reduction Consciousness, Attitudes and Behavior

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## I. RESEARCH QUESTION

The Chinese Dietary Guidelines, released in 2022, implemented a reduction in the recommended daily salt intake from 6 grams to 5 grams. This modification indicates a growing awareness of the dangers of salt in China and a decreasing trend of daily salt intake per capita year by year. However, despite these changes, the per capita daily salt intake in China still exceeds the recommendation set forth by the World Health Organization (WHO). Most studies on salt intake have focused on the adult population, and relatively few studies have been conducted on the adolescent population. Therefore, the present study aims to investigate the awareness, attitude, and behavior of Beijing adolescents regarding salt reduction. Specifically, we will investigate their knowledge of salt intake and explore the factors that influence their attitudes, perceptions, and decision-making processes related to salt reduction.

## II. BACKGROUND RESEARCH

Adolescents are in the most critical stage of growth and development, and their dietary habits and awareness are particularly important for their health. Even though a high salt diet poses a more serious risk to the physical and psychological health of adolescents, there are insufficient studies on salt intake in the adolescent population. Existing studies have focused on adult populations, resulting in limited knowledge regarding adolescents' salt consumption patterns.

The health risks of a high-salt diet for adolescents cannot be ignored. Long-term intake of high-salt foods can lead to vascular sclerosis [2] and increase the risk of hypertension in adolescents [1] thereby detrimentally affecting their physical growth. In addition, dietary behaviors and awareness during adolescence tend to continue into adulthood, and if a high-salt diet is formed during this critical period, it will further increase health risks in adulthood.

However, adolescents are not sufficiently aware of the dangers of a high-salt diet and have a low overall knowledge rate of sodium, making it difficult for them to actively reduce salt. For instance, research conducted in Beijing revealed that primary and secondary school students exhibited a mere 64.3% overall knowledge rate of 15 health-related facts concerning oil and salt intake, with the lowest rate recorded at a meager 7.32% [4]. In addition, teenagers performed poorly in terms of in-depth knowledge of salt-related knowledge and salt control behaviors, and the frequency of high-salt food consumption remained relatively high [3].

Although the issue of a high-salt diet among adolescents has attracted widespread attention. However, further research is necessary to gain a more comprehensive understanding of adolescents' salt reduction awareness and behaviors. This study aimed to investigate in depth the salt reduction awareness attitudes as well as the actual behavioral performance of adolescents in Beijing, to provide a scientific basis for the development of salt reduction strategies and interventions for adolescents.

## III. SAMPLING AND EXPERIMENTAL DESIGN

### A. *Variables:*

- The knowledge score about salt
- The frequency of daily salt control

### B. *Type of study:*

Observational study because it can take large sample size and be generalized to the population, but the experiment can hardly reflect a general trend since there are lots of confounding variables, such as age, gender, and so on.

### C. *Data collection:*

The data is collected using a questionnaire designed by the group. The first part is mainly to investigate the basic diet of students, including the frequency of paying attention to the personal daily salt intake, and the attention to the acquisition of nutrition knowledge, etc. The second part is mainly about the nutritional knowledge test for high salt, including the daily salt intake per capita of Chinese residents, the daily salt content recommended by the Chinese Dietary Guidelines, diseases caused by high salt, and the role of salt on the human body. There are 10 questions in this part, all of which appear in the form of single-choice questions, including multiple-choice questions and judgment questions. At the same time, the test question is based on relevant research paper. The third part is an overview of demographic variables, including the year of birth, gender, height, weight, school, etc. The reason why this part is placed at the end of the article is to avoid the impact of respondents' deviation on the data after filling in first.

#### D. Scope of inference

The data can give correlation of two variables and can be generalized to the teenagers population in Beijing National Day School

#### IV. EXPLORATORY DATA ANALYSIS



Figure 1: The Scatter Plot between Salt Related Knowledge Test Score and Attention to Daily Salt Control

Figure 1 shows the relationship between the participants' attention to daily salt control and their scores in the salt-related knowledge test. The horizontal axis is the salt-related knowledge test score and the vertical axis is the index of attention to daily salt control. Each sample is represented by a light-purple dot; if two or more samples coincide, that is, two or more participants have exactly the same attention level and test score, they will be represented by a darker purple dot. The data indicates a positive linear relationship between the participants' attention to daily salt control and their scores in the salt-related knowledge test with no obvious outlier. This relationship is weak, possibly because of interference in the experiment: some participants may check answers to questions in the test while completing it, leading to higher accuracy even though they did not pay much attention to the salt of their own food, thus making a bias. In view of this, we will modify the test method in the following steps to reduce bias of the experimental data. However, based on the current data, we can still infer that when people have more knowledge of salt in food, they are more likely to be more concerned about the salt in their diet. This may be because they are more aware of the dangers of high-salt foods. The reason for the weak relationship may be that some people do not understand the knowledge of salt, but accept the common view that high-salinity food is unhealthy, leading to the distribution of samples with high attention but low test scores, weakening the linear relationship. Whether this factor is the main cause, or whether we misestimate its significance, needs further and more detailed investigation results to support.

#### V. GROUP TASK ASSIGNMENTS AND TIMELINE

Tasks:

- 5.20: Collect all data and start data analysis
- 5.22: Improve and finish the paper
- 5.23: Prepare for presentation

## VI. DATA

1.高盐饮食2.《中国膳食指南》3.以下含食盐4.人对食盐5.以下哪利6.以下哪利7.我国居民8.海盐是—9.人的哪些10.儿童时										Salt Related Knowledge Test Score	in diet and keeping it within a healthy range? (1.0 means lowest attention,4.0 means highest attention)
0	0	0	1	1	1	1	1	1	1	7	3
0	0	1	1	0	0	0	1	0	0	3	4
0	1	1	0	1	1	1	0	1	1	7	4
0	0	0	1	1	1	0	1	1	1	6	2
0	1	1	1	1	1	0	1	1	1	8	2
0	1	1	1	1	1	1	0	0	1	7	4
0	1	1	1	1	1	0	1	1	1	8	2
0	1	0	1	1	1	1	1	1	1	8	3
1	1	1	0	1	0	1	1	1	1	8	2
0	0	1	0	1	1	1	0	1	1	6	3
0	1	1	0	1	1	1	0	1	1	7	3
0	1	1	1	1	1	0	1	0	1	7	3
0	1	1	1	1	1	0	1	1	1	8	4
0	1	1	1	1	1	0	1	0	1	7	3
0	1	1	1	0	1	0	0	1	1	6	4
0	1	0	0	0	1	0	1	0	1	4	4
0	1	1	1	1	1	0	1	1	1	8	3
0	0	0	0	0	0	0	0	0	0	1	3
0	0	0	1	1	1	0	0	1	1	5	4
0	0	1	0	1	1	1	1	1	1	7	3
1	0	0	0	1	1	1	1	1	1	7	2
0	1	0	0	1	1	1	1	1	1	7	3
0	1	0	1	1	1	0	0	1	1	6	4
0	1	1	0	1	1	0	0	0	1	5	4
0	1	0	0	1	1	1	1	1	1	7	3
1	0	0	1	1	1	0	1	1	1	7	2
0	1	0	1	1	1	1	0	1	1	7	2
0	1	0	0	1	0	0	1	1	1	5	1
0	0	0	0	1	1	0	0	1	1	4	2
0	0	1	1	1	1	0	0	1	1	6	3
1	0	0	0	1	1	1	0	1	1	6	3
0	0	1	0	0	1	1	1	1	1	6	3
0	0	1	1	1	1	0	0	1	1	6	2
0	0	1	1	0	1	0	0	1	1	5	4
1	1	1	1	1	0	1	1	1	1	9	1

## REFERENCES

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