



College Student Health Beliefs and Food Label Use Behavior: The Mediating Role of Nutritional Knowledge

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Abstract. This study aims to explore the relationship between college students' health beliefs and their behavior of using food labels, with a focus on the mediating role of nutritional knowledge. We collected data on health beliefs, knowledge, attitudes, and practices regarding food nutrition labels, as well as nutritional knowledge, from a group of college students aged 18-25 at Shandong University of Traditional Chinese Medicine through questionnaires. Data analysis was conducted using SPSS software, revealing the intrinsic connections between health beliefs, nutritional knowledge, and food label use behavior. The study hypothesized that there is a positive correlation between college students' health beliefs and food label use behavior, that nutritional knowledge mediates this relationship, and that improving college students' mastery of nutritional knowledge can indirectly promote their use of food labels in daily life. A questionnaire survey was conducted with 311 college students (aged 22 ± 3 years), and data processing was performed using SPSS. This study is not only an important supplement to the current research on college students' healthy eating behaviors but also an in-depth exploration of health belief theory, nutritional knowledge education, and the effectiveness of food label design. The research focuses on college students aged 18-25 at Shandong University of Traditional Chinese Medicine, systematically collecting multi-dimensional data on their health beliefs, knowledge, attitudes, and practices regarding food nutrition labels, and nutritional knowledge levels through a carefully designed questionnaire. It delves into the intrinsic relationships between these variables, especially how nutritional knowledge acts as a mediator between health beliefs and food label use behavior. This finding not only helps us better understand the formation mechanism of college students' healthy eating behaviors but also provides strong data support and theoretical basis for the formulation of health education in colleges, optimization of food label design, and public health policies.

Keywords: health beliefs; food label use behavior; nutritional knowledge.

1 Introduction

With the global recognition of the importance of healthy eating, the relationship between food label use behavior and health beliefs has gradually become a focus of academic attention, especially among college students. As they are at a critical stage of growth and development and face heavy academic pressures, the cultivation of healthy eating behaviors is particularly crucial. However, existing literature indicates that college students have many issues with food label use, such as ignoring label information and lack of understanding of nutritional knowledge, which directly affect their healthy food choices. Therefore, it is of great theoretical and practical significance to explore the relationship between college students' health beliefs and food label use behavior and to investigate the mediating role of nutritional knowledge.

From the current research situation in China, it is found that college students lack nutritional knowledge and have many unreasonable dietary behaviors. For example, studies have pointed out that there is a common phenomenon of picky eating among college students, leading to unbalanced nutritional intake and a significant number of students being overweight or obese [5]. At the same time, the situation of college students' cognition and use of food labels is also not optimistic. Many students do not pay attention to the nutritional information on the labels when purchasing food, or they cannot correctly understand and use this information even if they do. This reflects a clear deficiency in nutritional knowledge and health beliefs among college students, which requires further education and guidance.

Foreign research also shows that health beliefs have a significant impact on food label use behavior. The more consumers value health, the more inclined they are to use food labels to obtain nutritional information and make healthier dietary choices. However, this influence is not direct but is achieved through the mediating variable of nutritional knowledge. In other words, only when consumers have sufficient nutritional knowledge can they correctly understand the information on food labels and translate it into actual healthy eating behaviors.

In today's society, with the acceleration of life rhythm and the diversification of dietary structures, healthy eating has become an increasingly important topic. As the younger force in society, college students' healthy eating behaviors are not only related to their own physical and mental health but also affect the overall health level of society [7] [8]. However, in the fast-paced campus life, college students often face many dietary choices, and food labels, as an important carrier of food information, play a significant role in guiding college students to make healthy dietary choices. Therefore, exploring the relationship between college students' health beliefs and food label use behavior and the influencing factors has important theoretical and practical value for promoting the formation of healthy eating behaviors among college students [6].

Health beliefs are the beliefs and attitudes an individual holds towards health behaviors and health outcomes, directly influencing an individual's health behavior choices and health outcomes. In terms of food choice, health beliefs can guide individuals to pay attention to the nutritional content and health attributes of food, thereby making healthier dietary choices [10]. Food labels, as an important source of food information,

are undoubtedly influenced by an individual's health beliefs [9]. However, health beliefs alone are not enough to fully explain food label use behavior, as individuals also need to have certain nutritional knowledge to understand and utilize food label information. Therefore, nutritional knowledge may play an important mediating role between health beliefs and food label use behavior.

Based on the above background, this study aims to explore the relationship between college students' health beliefs and food label use behavior and to investigate the mediating role of nutritional knowledge. We chose college students aged 18-25 at Shandong University of Traditional Chinese Medicine as the research subjects. College students at this age are in the transition stage from adolescence to adulthood, and their dietary habits and the formation of health beliefs have an important impact on future health. At the same time, students from the University of Traditional Chinese Medicine have a deeper understanding and comprehension of health and nutrition, making our study more targeted and representative. To achieve the research objectives, we designed a questionnaire that includes the Health Belief Scale, the College Student Food Nutrition Label KAP (Knowledge, Attitude, Practice) Survey, and the Nutritional Knowledge Scale. Through the questionnaire survey, we can comprehensively understand the current situation and characteristics of college students in terms of health beliefs, food label use behavior, and nutritional knowledge, and then analyze the intrinsic connections and interaction mechanisms between them.

2 Methods

2.1 Research Tools, Instruments, and Materials

Health Belief Questionnaire. The Health Belief Questionnaire used in the study is composed of seven subscales: perceived self-efficacy, perceived control, perceived resource utilization, perceived threat, health orientation, health promotion behavior, and health-seeking behavior, which are summarized from the Nursing Outcomes Classification (NOC) validated by the American Nurses Association (ANA) through extensive research and practice. Participants are required to indicate their level of agreement with the statements or viewpoints in the questionnaire [1]. Each dimension in the scale includes items or viewpoints that are scored using an equal-interval rating system (minimum 1 point, maximum 5 points; corresponding measurement scale ranges from very weak to very strong, i.e., 1 point represents very weak, 2 points represent weak, 3 points represent moderate, 4 points represent strong, and 5 points represent very strong) [4].

Food Nutrition Label KAP. Data analysis was conducted using SPSS 13.0, and charts were created using Word software. Descriptive statistics were used to analyze the use of nutritional labels and basic information, nutritional knowledge, knowledge of nutritional labels, and attitudes towards nutritional labels. Chi-square tests were used for inter-group comparisons of categorical data, and multifactorial logistic regression analysis was used to analyze the correlation between the use of food nutrition labels and factors such as gender, major, place of origin, family per capita income, frequency of

food purchase, nutritional knowledge, knowledge of nutritional labels, and attitudes towards nutritional labels. A statistical significance level of $P < 0.05$ was considered significant [2].

Nutritional Knowledge. Scoring for the nutritional knowledge section was based on a points assignment method. Each single-choice question was worth 1 point, with a total of 12 questions: correct answers were scored 1 point, and incorrect answers, unknown, or unanswered questions were scored 0 points. Each multiple-choice question was worth 2 points, with a total of 5 questions: if there were 4 correct answers, each correct answer was worth 0.5 points; if there were 3 correct answers, each correct answer was worth 0.5 points, with two correct answers worth 1 point; if there were 2 correct answers, each correct answer was worth 1 point. Incorrect answers, unknown, or unanswered questions were scored 0 points [3].

3 SPSS Data Processing and Analysis

Data were cleaned, organized, and analyzed using SPSS software, including descriptive statistics (Table 1), correlation analysis (Table 2), and regression analysis (Table 3). SPSS 21.0 and the SPSS macro program PROCESS were used for data analysis. First, Pearson's product-moment correlation was used to calculate the correlation coefficients between the research variables. Second, the PROCESS macro program Model 4 (mediation effect) and latent variable structural equation modeling were used to test the mediating role of empathy (Fig. 1).

Table 1. Descriptive statistics

	Standard Devia- tion	Variance	Cases
Health Beliefs	73.4441	1.40314	304
Nutritional Knowledge	44.0921	0.72987	304
Food Nutrition Label KAP	14.9046	0.29003	304

Table 2. Correlation analysis

	Health Beliefs	Nutritional Knowledge	Food Nutri- tion Label KAP
Health Beliefs	1	.868**	.798**
Nutritional Knowledge	.868**	1	.798**
Food Nutrition Label KAP	.798**	.798**	1

Table 3. Regression analysis

	Effect value	Se	LLCI	ULCI	Effect quantity
Gross effect	0.45	0.0149	0.4221	0.4806	
Direct effect	0.33	0.0231	0.2854	0.3765	73.33%
Mesomeric effect	0.12	0.0478	0.0560	0.2250	26.67%

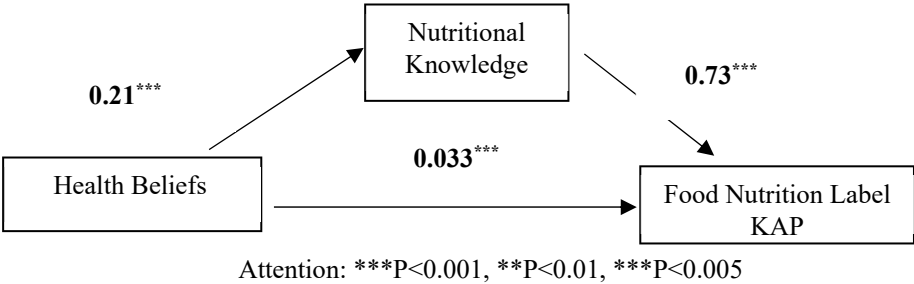


Fig. 1. Model 4

4 Conclusion

The study results indicate that there is a positive correlation between the level of parental emotional upbringing and college students' prosocial behavior. Specifically, the higher the level of parental emotional upbringing, the more positive the prosocial behavior of college students. Further analysis found that empathy plays a partial mediating role between parental emotional upbringing and college students' prosocial behavior. This means that parental emotional upbringing can not only directly affect college students' prosocial behavior but also indirectly promote the development of their prosocial behavior by improving their empathy. In other words, positive emotional upbringing by parents helps to cultivate empathy in college students, thereby promoting their prosocial behavior. This finding has important guiding significance for family education and school education.

5 Discussion

The results of this study support the conclusions of previous research, which suggest that parental emotional upbringing has a positive impact on children's prosocial behavior. By processing and analyzing experimental data using SPSS software, the study concludes that parental emotional upbringing affects college students' prosocial behavior and the mediating role of empathy. These results provide valuable references and insights for family education, school education, and the formulation of social policies. However, the study mainly focuses on students from Shandong University of Traditional Chinese Medicine, and the age range is relatively narrow (18-26 years old), which limits the representativeness of the sample. This specific group may not fully

reflect the situation of all college students, especially among college student groups from different regions, majors, and cultural backgrounds. In addition, the questionnaires used in the study may have certain measurement errors or biases, which could lead to inaccuracies in the results. Furthermore, respondents may have memory biases or subjectivity when assessing their own behaviors and feelings. In real life, there are many complex factors that affect college students' prosocial behavior, including personal characteristics, family environment, and social and cultural background. This study did not fully consider these factors, which may have an impact on the interpretation of the results.

Future research can expand the scope of the sample selection to include college students from different regions, majors, and cultural backgrounds to improve the representativeness and universality of the study. At the same time, more accurate and effective measurement tools should be further developed and verified to reduce measurement errors and biases and improve the accuracy of the study. In addition, future research should consider more factors that may affect college students' prosocial behavior, such as personal characteristics, family environment, and social and cultural background, to gain a more comprehensive understanding of the factors and mechanisms influencing college students' prosocial behavior. In addition to questionnaire surveys and scale analysis, future research can also use experimental research, case studies, interviews, and other methods to explore the performance and reasons for college students' prosocial behavior in more depth. Moreover, future research can further explore how to cultivate and promote college students' prosocial behavior through family and social education, providing more comprehensive guidance for family and social education, to more fully reveal the mechanism of the impact of parental emotional upbringing on college students' prosocial behavior.

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