

A Study on the Mediating Role of Product Cognition in Infant and Young Children's Complementary Food Purchasing Intention and Behavior

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Received August 1, 2025; **Revised** December 26, 2025; **Accepted** December 28, 2025

Abstract

This article aimed to study (1) the impact of purchase intention and food safety awareness on parents' purchasing behavior of infant and young children's complementary food, (2) the mediating role of product cognition, and (3) to establish a causal relationship model explaining these factors. The study employed a quantitative research design based on the Theory of Planned Behavior (TPB). The sample consisted of 540 parents of infants and young children in China, who were selected through an online random sampling method. The research instruments included four types of questionnaires: (1) Purchase Intention, (2) Product Cognition, (3) Food Safety Awareness, and (4) Purchasing Behavior. Data were analyzed using descriptive statistics and structural equation modeling (SEM) with SPSS 26.0 and AMOS 23.0 software.

The research results were found as follows:

1. Purchase intention and food safety awareness had a significant positive effect on consumers' product cognition regarding infant complementary food.
2. Product cognition significantly influenced actual purchasing behavior.
3. Product cognition played a mediating role between purchase intention, food safety awareness, and purchasing behavior.

The findings demonstrate that product cognition serves as a critical bridge connecting consumers' psychological intention and actual purchase actions. This highlights the necessity for manufacturers to strengthen product-related communication strategies, improve consumers' perception of safety and

quality, and enhance trust in infant complementary food. The results also provide empirical support for policy makers and public health agencies in developing more effective strategies for ensuring product safety and promoting healthy food consumption behaviors among parents of young children.

Keywords: Infant and Young Children's Complementary Food; Purchase Intention; Product Cognition; Purchasing Behavior

Introduction

The first paragraph explains the research issues, phenomena, interesting aspects, and importance by presenting data and published research to indicate the current state of knowledge or practitioner work in the field.

With the development and progress of Chinese society, the infant food industry has become increasingly large-scale and compliant. As infants grow, their growth and development speed increases rapidly after 6 months of birth. Breast milk or formula milk alone can no longer meet their growing nutritional needs. The addition of complementary foods can supplement more nutrients such as iron, zinc, calcium, vitamins, etc., which is helpful for the bone development, immune system improvement and brain development of infants. With the improvement of family income levels and changes in parenting concepts, the infant complementary food market has ushered in unprecedented development opportunities. However, there are many types of infant complementary foods on the market with uneven quality, which undoubtedly brings great challenges to parents' choices (Pan Yuehong & Lu Rui, 2010; Chang Suying et al., 2008).

The second paragraph describes the research area, problems, needs, or characteristics of the target group for the research.

In this context, when parents buy infant complementary foods, they not only pay attention to the nutritional content and taste of the products, but also pay more attention to food safety and product quality. The consumer population of infant complementary foods covers people aged 6–36 months, and the consumption of complementary foods varies greatly in different age groups. Although the decline in the infant birth rate will have a certain impact on China's infant food supplement market, it is expected that the infant food supplement industry will continue to develop well in the next five years. By 2029,

the scale of China's infant food supplement market will reach 92.7 billion yuan. In recent years, a series of food safety incidents have occurred in the infant complementary food market, such as heavy metal pollution and substandard nutrients, making parents more concerned about product safety and quality (Luo Mingyang et al., 2020; Zhao Haoji et al., 2020).

The third paragraph introduces the research objectives or goals which serve as a compass for the research direction, and briefly describes the research methodology to achieve the research objectives.

Most previous studies on infant complementary food have focused on ingredients, energy, nutrient content and nutrient intake. However, there remains a knowledge gap in understanding the mediating role of product cognition in connecting purchase intention and actual purchase behavior. This study focuses on purchase intention of infant complementary food and explores how product cognition serves as a mediating variable between purchase intention, food safety awareness, and purchase behavior based on the Theory of Planned Behavior.

This research article presents a study on the mediating role of product cognition in infant and young children's complementary food purchasing intention and behavior, using the Theory of Planned Behavior as the conceptual framework, and the benefits that will accrue to academia and the infant food industry in developing effective marketing strategies.

Research Objectives

1. To study the impact of purchase intention on product cognition and purchasing behavior of infant and young children's complementary food.
2. To study the impact of food safety awareness on product cognition and purchasing behavior of infant and young children's complementary food.
3. To study the mediating role of product cognition in the relationship between purchase intention, food safety awareness, and purchase behavior.

Literature Review

The literature review in this study covers several important issues related to infant complementary food purchasing behavior to demonstrate the "knowledge gap" that has not yet been considered, which this research can fill.

1. Study on the relationship between purchase intention and purchase behavior

Purchase intention refers to the change in the consumer's psychological state before the purchase behavior occurs. Generally, the higher the consumer's purchase intention, the more it will promote their purchase behavior. This view has been confirmed by many scholars in many fields. Su Hang and Zhang Yuejie (2022) confirmed that consumers' dairy purchase intention has a positive impact on their purchase behavior. Mutmainah and Wahidhani (2024) found that green purchase intention directly affects purchase decisions. Lu Hongliang and Xie Huan (2024) pointed out that green purchase intention has a significant direct impact on green purchase behavior, but the impact is not complete. Therefore, behavioral intention is a direct factor affecting behavior, but behavioral intention has limited explanatory power for behavior, usually only explaining 20%–30% of behavioral changes (Guo Yun, 2019).

2. Research on the relationship between product cognition and purchasing behavior

After consumers form a purchase intention, there will be two stages, namely the target intention stage and the execution intention stage (Gollwitzer, 1993). Implementation intention is the core concept of the action stage model. The action stage model believes that before the action stage, people will form target intention and implementation intention successively, and implementation intention is conducive to converting target intention into target behavior. Cordell (1997) believes that the knowledge level of consumers plays a vital role in the consumption process. Cognition is the process of processing information and emotions in an activity and is a key factor leading to behavior (Ye Nan, 2019). Most studies believe that consumers' cognitive level will have a positive impact on product consumption behavior.

3. Research on the relationship between food safety awareness and purchasing behavior

Food safety awareness refers to the degree of consumer concern about food safety issues, and also reflects the degree of consumer attention to dietary health. Food safety risk awareness will prompt consumers to improve their quantitative consumption awareness, thereby improving the accuracy and

rationality of food consumption decisions (Zhou Ping et al., 2020). Studies have found that the stronger the safety awareness of consumers, the more likely they are to make correct consumption behaviors, and the more likely they are to purchase green and safe products.

Summary of literature review results to show how the author applies the reviewed theories/concepts in research, in which issues

From the literature review, it was found that most studies focus on the direct relationship between purchase intention and purchase behavior, but lack studies on the mediating role of product cognition. Therefore, this research uses the Theory of Planned Behavior as a framework to study the mediating role of product cognition.

This research is quantitative research. The researcher establishes the research conceptual framework according to the Theory of Planned Behavior, consisting of purchase intention, food safety awareness, product cognition, and purchase behavior, with the following details:

1. Independent variables: Purchase Intention and Food Safety Awareness
2. Mediating variable: Product Cognition
3. Dependent variable: Purchase Behavior

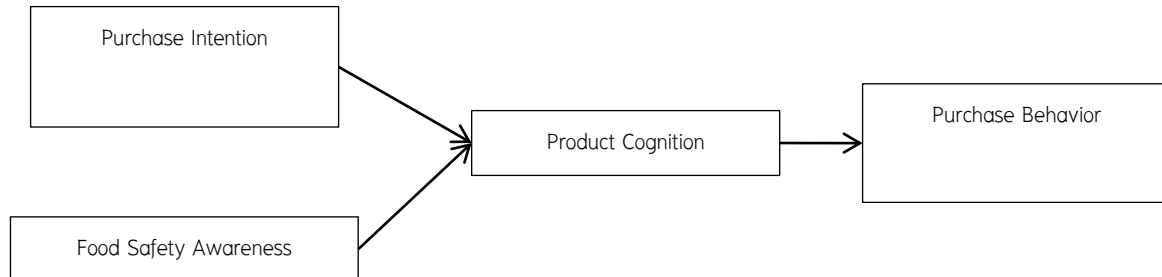


Figure 1 Research Conceptual Framework

Research Methodology

This research is quantitative research. The research area is the People's Republic of China. The population consists of parents of infants and young children under 3 years old in China, approximately 30 million people (Central People's Government of the People's Republic of China website). The sample consists of 540 parents of infants and young children who responded to online questionnaires. The selection method used online random sampling through Questionnaire Star platform, distributing questionnaire links in various mother–child groups.

The research instruments include 4 types: 1) Purchase Intention Questionnaire created based on the concepts of Zheng et al. (2021) and Iqbal et al. (2021), with reliability (Cronbach's Alpha) of 0.946, used to study consumers' intention to purchase infant and young children's complementary food. 2) Product Cognition Questionnaire created based on the concepts of Brucks (1985) and Mitchell and Dacin (1996), with reliability of 0.921, used to study the level of consumer perception and understanding of infant complementary food products. 3) Food Safety Awareness Questionnaire created based on the concepts of Knight et al. (2007), with reliability of 0.915, used to study the level of perception and concern about infant complementary food safety. 4) Purchase Behavior Questionnaire with reliability of 0.953, created based on established consumer behavior theory.

Data collection was conducted through online questionnaire distribution via Questionnaire Star platform between February and April 2024. A total of 609 questionnaires were collected. After excluding questionnaires with missing main variable values, those that did not meet the conditions, and those with identical answers to each variable, 540 valid questionnaires were collected, with efficiency of 88.7%. Quantitative data analysis was conducted using descriptive statistics, inferential statistics, confirmatory factor analysis, and structural equation modeling using SPSS 26.0 and AMOS 23.0 software.

Research Results

Objective 1: Results of studying the impact of purchase intention on product cognition and purchase behavior

The research results found that purchase intention has a statistically significant impact at the 0.001 level on product cognition ($\beta=0.225$, $p<0.001$) and purchase behavior of infant and young children's complementary food ($\beta=0.335$, $p<0.001$). This is consistent with research by Su Hang and Zhang Yuejie (2022), Mutmainah and Wahidhani (2024), which found that purchase intention is an important factor affecting consumer purchase behavior.

Table 1 Results of Hypothesis Testing for Path Relationships in the Structural Equation Model

Path	Estimate	S.E.	C.R.	P
Purchase behavior \leftarrow Purchase intention	0.335	0.039	8.765	***
Product awareness \leftarrow Purchase intention	0.225	0.033	5.063	***

From Table 1, it shows that purchase intention has a positive influence on both product cognition and purchase behavior, which is consistent with the established hypotheses. This research result reflects that when consumers have high purchase intention, they will have more motivation to search for product information and tend to convert intention into actual purchase behavior.

Objective 2: Results of studying the impact of food safety awareness on product cognition and purchase behavior

The research results found that food safety awareness has a statistically significant impact at the 0.001 level on product cognition ($\beta=0.245$, $p<0.001$) and purchase behavior ($\beta=0.334$, $p<0.001$). This is consistent with studies by Chen Xin and Yang Deli (2019), Zhou Ping et al. (2020), which found that consumers with higher food safety awareness tend to choose safer products.

Product cognition was also found to have a significant impact on purchase behavior ($\beta=0.305$, $p<0.001$), showing that consumers with more understanding and knowledge about products will have more confidence in purchase decisions and tend to purchase more products.

Objective 3: Results of studying the mediating role of product cognition

The research results found that product cognition plays a mediating role in the relationship between purchase intention and purchase behavior (Indirect Effect = 0.071, 95% CI [0.036, 0.118]) and between food safety awareness and purchase behavior (Indirect Effect = 0.094, 95% CI [0.05, 0.149]). The 95% confidence interval does not contain 0, indicating that the mediating effect is statistically significant.

Table 2 Results of Bootstrap Mediation Effect Test

Path	Estimate	S.E.	95% CI Lower	95% CI Upper
Indirect Effects				
Purchase intention→Product cognition→Purchase behavior	0.071	0.021	0.036	0.118
Food safety awareness→Product cognition→Purchase behavior	0.094	0.025	0.050	0.149

The study results show that product cognition serves as a bridge between purchase intention and actual purchase behavior, which is consistent with the concept of Gao Shaofeng (2022) who stated

that cognitive ability reflects the level of individual understanding of received information and is an important factor affecting individual consumption decisions.

Discussion of Research Results

The results from research objective 1 found that purchase intention has a significant impact on product cognition and purchase behavior of infant and young children's complementary food. This may be because when consumers have purchase intention, they will be motivated to search for product information to ensure they get the best products for their children. This is consistent with the Theory of Planned Behavior which explains that intention is an important factor leading to actual behavior. The study by Su Hang and Zhang Yuejie (2022) on dairy product purchasing behavior also supports this research result by finding that purchase intention has a positive impact on purchase behavior (supporting documents).

The results from research objective 2 found that food safety awareness has a significant impact on product cognition and purchase behavior. This may be because several food safety incidents have occurred in the infant and young children's complementary food market, such as heavy metal pollution and substandard nutrients. These incidents have made parents realize that food safety issues of infant and young children's complementary foods cannot be ignored. This improvement in health awareness has made parents pay more attention to product safety and quality when choosing infant and young children's complementary foods, which is consistent with the study by Chen Xin and Yang Deli (2019).

The results from research objective 3 found that product cognition plays a mediating role between purchase intention, food safety awareness, and purchase behavior. This may be because product cognition serves as an important bridge in the consumer decision-making process. When consumers have purchase intention or concerns about food safety, they will seek additional product information, which will increase their level of perception and understanding, ultimately leading to smarter purchase decisions.

Model Explanation of Research Findings

The research findings demonstrate how the PICB Model (Purchase Intention–Cognition–Behavior Model) explains the mediating role of product cognition in purchasing infant and young children's

complementary food. The model can be summarized as the "PICB Model" (Purchase Intention–Cognition–Behavior Model) consisting of 4 main components:

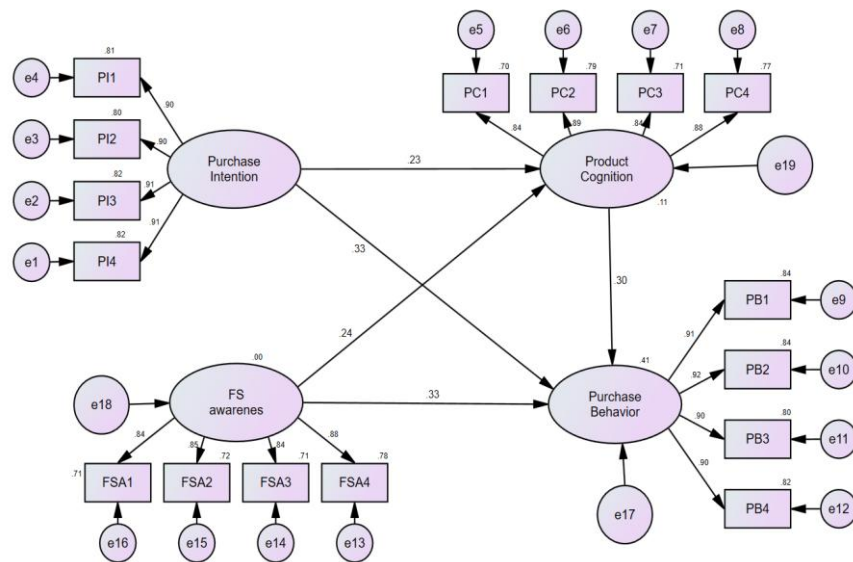


Figure 2 PICB Model for Infant and Young Children's Complementary Food Purchase Behavior

Purchase Intention is the starting point of the process, where this intention stimulates consumers to seek product information.

Food Safety Awareness is an important factor that encourages consumers to study product information in detail.

Product Cognition serves as a mediating variable that connects intention and safety concerns with actual purchase behavior.

Purchase Behavior is the final outcome resulting from having sufficient information and understanding.

The PICB model shows that product cognition is an important mechanism that helps transform intention and concerns into actual purchase behavior, especially in the infant complementary food market where consumers require high confidence in decision-making.

Conclusion

This study provides a comprehensive understanding of Chinese consumers' purchasing behavior of infant and young children's complementary food through three key findings. First, purchase intention significantly influences both product cognition ($\beta=0.225$, $p<0.001$) and purchase behavior ($\beta=0.335$, $p<0.001$). Second, food safety awareness significantly impacts both product cognition ($\beta=0.245$, $p<0.001$) and purchase behavior ($\beta=0.334$, $p<0.001$). Third, product cognition plays an important mediating role connecting purchase intention and food safety awareness with actual purchase behavior. The research results confirm that purchase intention and food safety awareness have both direct and indirect effects on purchase behavior, where indirect effects occur through product cognition.

The PICB model developed in this study demonstrates the importance of product cognition as a mediating variable. These research results are important for both business and government sectors in developing effective marketing strategies and policies for the infant and young children's complementary food market.

Recommendations

Based on the research results, the researcher has the following recommendations:

1. Recommendations for applying research results practically

The results from research objective 1 found that purchase intention has a significant impact on product cognition and purchase behavior.

Therefore, relevant agencies should take the following actions: Manufacturers should create marketing strategies that stimulate purchase intention, such as providing information about the benefits of adding complementary foods to infant development, organizing educational activities for parents, and creating motivation through sales promotion.

The results from research objective 2 found that food safety awareness has a significant impact on product cognition and purchase behavior.

Therefore, relevant agencies should take the following actions: Manufacturers should emphasize communication about safety standards, quality certifications, and safe production processes. Government agencies should build confidence through strict supervision and dissemination of information about food safety standards.

The results from research objective 3 found that product cognition plays an important mediating role.

Therefore, relevant agencies should take the following actions: Manufacturers should prepare complete, easy-to-understand, and easily accessible product information, as well as use digital channels for information dissemination. Government agencies should promote consumer education about selecting appropriate complementary foods.

2. Recommendations for future research

This research obtained important findings (knowledge) – the PICB model, which is the mediating role of product cognition. This can be applied to studying consumer behavior in other products that are complex and require information for decision-making. Future research should emphasize studying factors affecting product cognition in different cultural contexts.

For future research topics, research should be conducted on issues concerning: comparing purchase behavior of parents with different numbers of children, cross-country comparative studies, and studying the impact of other marketing variables such as sales promotion and distribution channels.

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