

Survey on College Students' Fresh Milk Consumption Behavior and Its Determinants

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Abstract: This study takes 326 college students as the research sample and employs a multiple regression model to empirically examine the effects of health consciousness, perceived quality and safety, perceived nutritional value, price sensitivity, purchase convenience, and brand preference on fresh milk purchasing frequency and willingness to pay a premium. The results indicate that health consciousness, perceived quality and safety, and perceived nutritional value have significant positive effects on purchasing frequency. Meanwhile, perceived quality and safety and price sensitivity exert the most significant influence on willingness to pay a premium. In addition, female consumers and students with higher consumption levels demonstrate a stronger willingness to pay a premium. This study provides empirical evidence for regional dairy enterprises to expand into the campus market and to optimize product strategies and channel distribution.

Keywords: College students; Fresh milk consumption behaviour; Consumption upgrade; Multiple regression

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1. Introduction

There remains a considerable gap between the recommended intake and the actual consumption level in China. College students play an increasingly important role in shaping future market demand, making their consumption behavior and preferences highly relevant for dairy enterprises' strategic planning. Under the strong competition from national brands, regional dairy enterprises are in urgent need of differentiated development strategies. The campus market, as a relatively closed yet highly promising segment, features a concentrated consumer base, stable demand, and strong potential for brand cultivation. However, existing academic research on college students' fresh milk consumption behavior remains limited. Most prior studies focus on general consumers' brand preferences or purchase intentions for dairy products, with a lack of empirical analysis specifically targeting college students and the fresh milk category.

2. Literature review

Existing literature has examined the determinants of consumers' dairy purchasing behavior from multiple perspectives. Zhou Yingheng (2004), based on a survey of supermarket consumers in Nanjing, found that food safety attitudes and quality and safety information have a significant positive impact on consumers' purchase intentions^[1]. Li Chunxia *et al.* (2016), using data from 266 milk consumers in Xi'an, demonstrated that perceived quality and safety and perceived nutritional value significantly enhance consumers' preference for local milk brands^[2]. Furthermore, He Heping *et al.* (2012) pointed out that stronger "local product" awareness leads to a higher preference for local brands^[3]. More recent studies have emphasized product attributes and consumption upgrading trends. Wang Liwei *et al.* (2023) found that consumers' core demands for premium milk products consistently center on three attributes, nutrition, naturalness, and freshness, with quality-related demands accounting for as high as 76.5%^[4]. Regarding price factors, empirical findings reveal a counterintuitive effect: higher perceived prices may enhance consumers' sense of trust and quality assurance, suggesting that for health-related products, consumers tend to prioritize quality and safety over low prices. In terms of distribution channels, Sui Rui *et al.* (2023) noted that offline channels still account for approximately 80% of dairy product sales, while online channels are expanding rapidly, with a year-on-year growth rate of 4.3% in 2024^[5].

3. Research design and methodology

This study conducted a questionnaire survey from October to November 2024 in three universities located in Rizhao. A combination of online and offline data collection methods was adopted. Specifically, online questionnaires were distributed via the Wenjuanxing platform, while offline surveys were carried out through random intercept sampling. A total of 360 questionnaires were distributed, of which 326 valid responses were collected, yielding an effective response rate of 90.6%. The basic characteristics of the sample are presented in **Figure 1**. In terms of gender distribution, female respondents account for 58.0% of the sample, while male respondents account for 42.0%, which is consistent with the reality that female students tend to show greater concern for dairy consumption in university settings. The grade distribution is relatively balanced, with a slightly higher proportion of freshmen and sophomores. Regarding monthly consumption expenditure, the majority of respondents fall within the range of RMB 1,000 to 2,000, accounting for 42.0% of the sample.

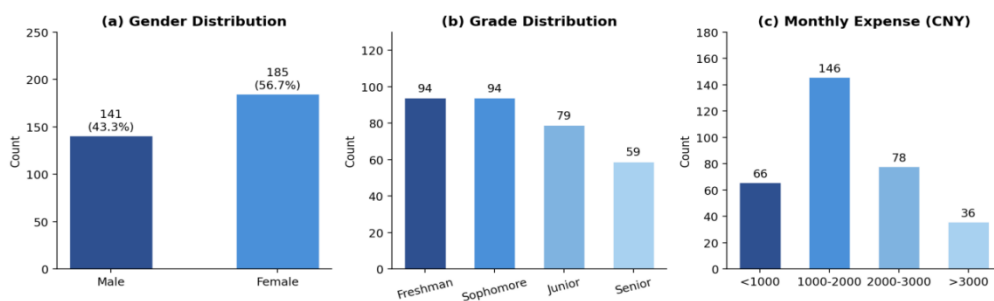


Figure 1. Distribution of sample demographic characteristics.

The questionnaire was designed using a five-point Likert scale, with responses ranging from 1 ("strongly disagree") to 5 ("strongly agree"). The independent variables consist of six dimensions: health consciousness,

perceived quality and safety, perceived nutritional value, price sensitivity, purchase convenience, and brand preference.

The dependent variables include fresh milk purchasing frequency (measured on a five-point scale ranging from “rarely purchase” to “purchase daily”) and willingness to pay a premium (measured on a five-point scale ranging from “completely unwilling” to “very willing” to pay a higher price for fresh milk). Control variables include gender and monthly consumption expenditure.

Data analysis was conducted using SPSS and Stata. First, descriptive statistical analysis and correlation analysis were performed to examine the basic characteristics and relationships among variables. Subsequently, two multiple linear regression models were constructed, with fresh milk purchasing frequency and willingness to pay a premium as the dependent variables, respectively, to test the effects of the independent variables. In addition, variance inflation factor (VIF) tests were conducted to detect and eliminate potential multicollinearity issues.

4. Empirical results and analysis

4.1. Descriptive statistics

In terms of purchasing frequency, the largest proportion of respondents reported purchasing fresh milk 1–2 times per week, followed by those purchasing 1–2 times per month (Figure 2). This indicates that college students, as a whole, have developed a certain level of fresh milk consumption habits; however, there remains considerable room for growth in the proportion of high-frequency consumers. Regarding willingness to pay a premium, most respondents expressed either neutral or positive attitudes, suggesting that, in the context of consumption upgrading, college students demonstrate a certain degree of willingness to pay for high-quality fresh milk.

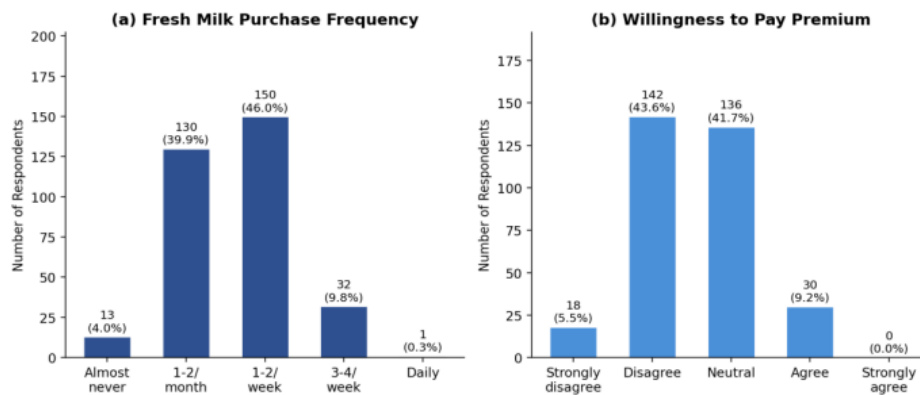


Figure 2. Purchase frequency and willingness to pay premium.

Figure 3 presents college students’ preferences regarding purchasing channels and brand types for fresh milk. In terms of purchasing channels, supermarkets (32.5%) and campus convenience stores (27.6%) remain the primary options. However, smart vending machines (14.7%) and online platforms (18.1%) also account for a considerable share, reflecting the high acceptance of emerging retail channels among younger consumers. With regard to brand type preferences, national brands (38.3%) continue to dominate. Nevertheless, regional brands (21.5%) and respondents without a clear brand preference (18.1%) together account for nearly 40% of

the sample, indicating that there remains substantial market potential for regional brands within the campus market.

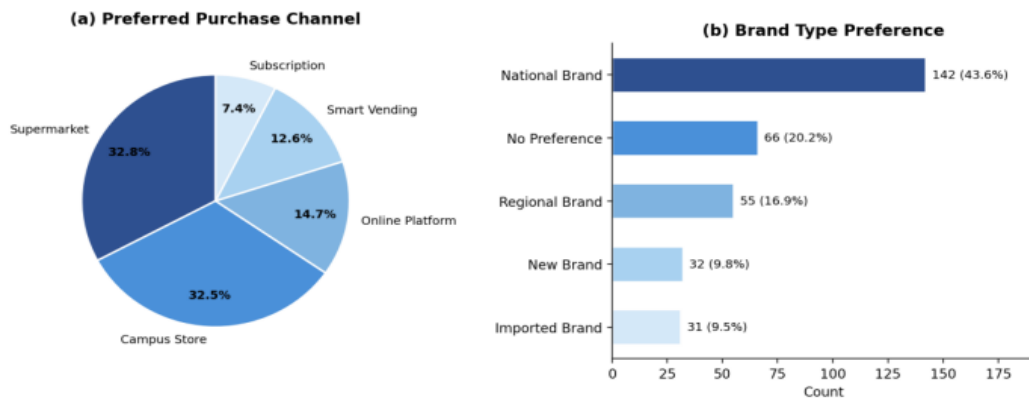


Figure 3. Preferred purchase channel and brand type.

Figure 4 presents the means and standard deviations of the key variables. Among the independent variables, health consciousness has the highest mean score ($M = 3.43$), followed by price sensitivity ($M = 3.38$), indicating that college students generally exhibit strong health awareness while also being relatively sensitive to price. The mean values of purchasing frequency and willingness to pay a premium are 2.63 and 2.55, respectively, both of which are below the scale midpoint of 3. This suggests that there remains considerable room for improvement in college students' fresh milk consumption behavior.

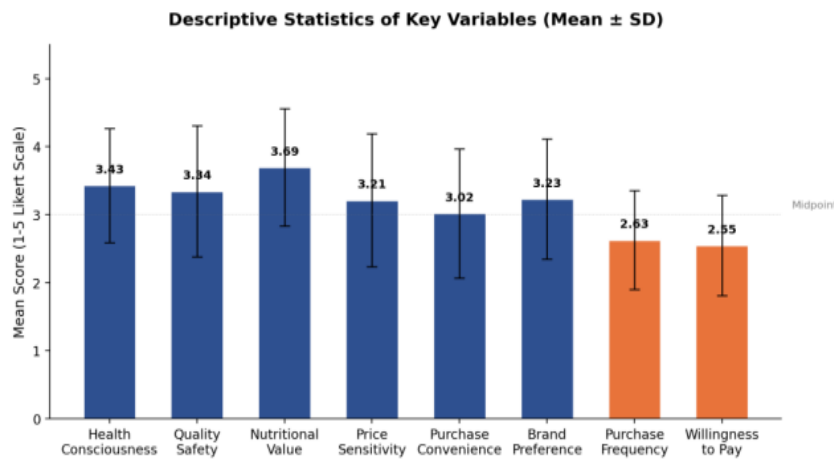


Figure 4. Descriptive statistics of key variables.

4.2. Correlation analysis

Pearson correlation analysis was conducted among all variables. The results indicate that health consciousness is significantly positively correlated with purchasing frequency ($r = 0.320, p < 0.01$), perceived quality and safety is significantly positively correlated with willingness to pay a premium ($r = 0.281, p < 0.01$), and perceived nutritional value is significantly positively correlated with purchasing frequency ($r = 0.223, p < 0.01$).

In contrast, price sensitivity is significantly negatively correlated with willingness to pay a premium ($r = -0.254, p < 0.01$). Moreover, the correlation coefficients among the independent variables are all below 0.1,

indicating that there is no serious multicollinearity problem, and the variables are suitable for inclusion in the regression models.

4.3. Multiple regression analysis

Table 1 reports the estimation results of the two regression models. Model 1 takes fresh milk purchasing frequency as the dependent variable, while Model 2 uses willingness to pay a premium as the dependent variable. Both models pass the F-test ($p < 0.001$), indicating that the models are statistically significant as a whole. In addition, the variance inflation factor (VIF) values for all independent variables are below 1.1, which is far lower than the critical threshold of 10, further confirming that multicollinearity is not a concern in this study.

Table 1 Results of multiple regression analysis

Aspects	β	t	Sig.	β	t	Sig.
Health Consciousness	0.258	5.933	0.000***	0.124	2.795	0.006**
Quality Safety Perception	0.116	3.113	0.002**	0.199	5.228	0.000***
Nutritional Value	0.155	3.740	0.000***	0.087	2.046	0.042*
Price Sensitivity	-0.054	-1.431	0.153	-0.153	-3.981	0.000***
Purchase Convenience	0.130	3.463	0.001***	0.036	0.943	0.347
Brand Preference	0.116	2.855	0.005**	0.022	0.531	0.595
Female (control)	0.123	1.650	0.100	0.183	2.405	0.017*
Monthly Expense (control)	0.058	1.427	0.155	0.163	3.898	0.000***
R ² / Adj. R ²	0.249 / 0.230			0.237 / 0.217		
F-statistic	13.12***			12.29***		
N	326			326		

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure 5 provides a visual comparison of the regression coefficients of the key variables across the two models. The results show that health consciousness has the strongest effect on purchasing frequency ($\beta = 0.258$), while perceived quality and safety exerts the greatest influence on willingness to pay a premium ($\beta = 0.199$). Price sensitivity exhibits a significant negative effect only on willingness to pay a premium ($\beta = -0.153$), while its effect on purchasing frequency is not statistically significant. This finding is consistent with the results of Li Chunxia *et al.*, suggesting that for products closely related to health, consumers tend to prioritize quality over price considerations.

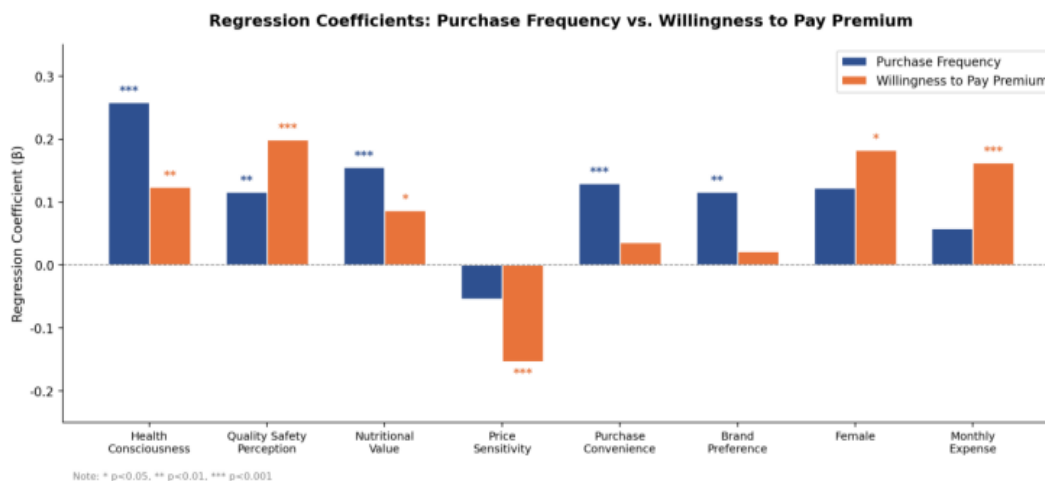


Figure 5. Comparison of regression coefficients.

5. Discussion

The results indicate that health consciousness is the most important factor influencing college students' fresh milk purchasing frequency ($\beta = 0.258, p < 0.001$). This finding is highly consistent with the broader trend of consumption upgrading. According to the China Dairy Consumer Index Report (2025), public awareness of the nutritional components of dairy products has increased by approximately 13% year-on-year, reflecting a shift in consumption attitudes from “drinking more milk” to “drinking better milk.” For regional dairy enterprises, campus marketing strategies should emphasize the health benefits of fresh milk and strengthen students' health awareness through educational campaigns and experiential activities.

Perceived quality and safety have significant positive effects on both purchasing frequency and willingness to pay a premium, with a stronger impact on the latter ($\beta = 0.199$ vs. 0.116). This suggests that quality and safety not only serve as a basic prerequisite for purchasing fresh milk but also act as the primary driver of consumers' willingness to pay a premium. Regional dairy enterprises can enhance consumers' quality perception by implementing product traceability systems (e.g., QR code scanning for information on milk sources and production dates) and improving supply chain transparency, thereby increasing product value.

Price sensitivity has a significant negative effect on willingness to pay a premium ($\beta = -0.153, p < 0.001$), but no significant effect on purchasing frequency. This indicates that while price is not the primary consideration when deciding whether to purchase fresh milk, it becomes a critical factor when consumers decide whether to pay a higher price. Therefore, regional dairy enterprises should adopt a tiered pricing strategy: maintaining affordable prices for basic products to cultivate consumption habits, while moderately pricing premium products to capture higher profit margins.

Purchase convenience has a significant positive effect on purchasing frequency ($\beta = 0.130, p = 0.001$), but no significant impact on willingness to pay a premium. This suggests that convenient purchasing channels primarily enhance consumption frequency rather than price acceptance. Survey results show that smart vending machines have been chosen as the preferred channel by 14.7% of respondents, indicating substantial potential for intelligent retail terminals in campus settings.

Brand preference significantly influences purchasing frequency ($\beta = 0.116, p = 0.005$), but not willingness to pay a premium. This provides opportunities for new brands entering the campus market: although college

students exhibit certain brand preferences, their willingness to pay is not entirely driven by brand factors, and product quality remains the key determinant.

Female students demonstrate a stronger willingness to pay a premium ($\beta = 0.183, p = 0.017$), which is consistent with the findings of Wang Liwei *et al.*, indicating that female consumers are the primary decision-makers for high-end milk consumption. In addition, students with higher monthly consumption levels show a greater willingness to pay a premium ($\beta = 0.163, p < 0.001$), which aligns with standard economic theory. Therefore, regional dairy enterprises should prioritize female students and high-consumption groups as key target segments in campus marketing.

6. Conclusion and implications

6.1. Main conclusions

This study empirically analyzes the key factors influencing fresh milk consumption behavior and draws the following conclusions:

- (1) Health consciousness is the most important driver of fresh milk purchasing frequency among college students, while perceived quality and safety and perceived nutritional value also have significant positive effects. This indicates that the demand for fresh milk is essentially driven by health considerations, and enterprises should focus on core attributes such as “nutrition,” “naturalness,” and “freshness” in product positioning and brand communication;
- (2) Perceived quality and safety is the most critical factor influencing willingness to pay a premium, whereas price sensitivity has a significant negative effect. This suggests that regional dairy enterprises should enhance consumer trust through supply chain transparency and product traceability systems, rather than relying solely on low-price competition;
- (3) Purchase convenience and brand preference mainly affect purchasing frequency rather than willingness to pay a premium, indicating that channel layout is crucial for cultivating consumption habits in campus settings, while product quality is the key to achieving price premiums;
- (4) Female students and those with higher consumption levels are the core groups for premium fresh milk consumption and should be prioritized in targeted marketing strategies.

6.2. Managerial implications

The following recommendations are proposed for regional dairy enterprises:

- (1) In terms of product strategy, enterprises should focus on differentiated categories such as pasteurized fresh milk, emphasizing “freshness” through shorter shelf life and cold chain distribution, while also developing functional products (e.g., high-calcium, low-fat) to meet segmented demand;
- (2) In terms of channel strategy, enterprises should actively deploy smart vending terminals on campus, providing 24-hour self-service purchasing options, and integrate online mini-programs to enable an “online ordering + offline pickup” omnichannel model;
- (3) In terms of brand strategy, enterprises should enhance perceived quality and safety through product traceability systems and establish emotional connections with consumers through health education and experiential marketing activities;
- (4) In terms of pricing strategy, a tiered approach should be adopted, combining affordable basic products with premium-priced high-end products, prioritizing the cultivation of consumption habits while gradually

capturing price premiums.

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Disclosure statement

The author declares no conflict of interest.

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