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RESEARCHING THE FACTORS INFLUENCING PURCHASING DECISIONS OF VIETNAMESE CONSUMERS FOR NEAR-DATE PRODUCTS

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Abstract

The research article examines the factors influencing Vietnamese consumers'purchase decisions of near-expired products. Using qualitative and quantitative research methods, the research team collected data from a survey of 176 consumers, of which 100 valid responses from consumers who had previously purchased near-expired products (ensuring more than 50 responses) were used for factor analysis. The data was cleaned and processed using the SMARTPLS software. There are 6 independent factors included in the model, namely (1) Attitude towards products that are near to expiry; (2) Subjective norm; (3) Perceived benefits; (4) Perceived risks; (5) Perceived behavioral control; (6) Purchase intention of near-date products, which are used to examine the impact on Vietnamese consumers' Purchase Decisions (QD) of near expiry products. Among these, the Purchase Intention (YD) of near-expired products has a positive and significant impact on the Purchase Decision (QD) at a 5% significance level, with an impact level of 0.892. Simultaneously, the study also found that there are 2 factors influencing the "Purchase Intention (YD) of products closed to expiry by Vietnamese consumers," including (1) Perceived Behavioral Control (NTKS) with an impact level of 0.395 and (2) Attitude towards near-expiry products (TD) with an impact level of 0.286. Subjective Norms, Perceived Benefits, and Perceived Risks did not significantly influence Vietnamese consumers' purchase intention of near-expired products.

Keywords: Influencing Factors, Near-Expired Products, Purchase Intention, Purchase Decision, Consumers, Vietnam.

1. INTRODUCTION

Near-expired goods are no longer strange for businesses in the fast-moving consumer production and distribution sector (FMCG). Balancing production and consumption has never been easy, and there are times when companies face a surplus of near-expired goods. (auvietrack.net, 2023)

Near-expired food is still safe for health as it has not yet expired. It is also cheaper and environmentally friendly. Businesses conduct discount programs for near-expired food to boost sales and address the global issue of food waste.

When food is near its expiry date, several sensory quality indicators, such as smell, taste, color, crunchiness, and overall deliciousness, might decline as certain substances in the product undergo structural changes, making it less fresh. Therefore, consumers should carefully observe the quality of the food they purchase. (Bui Anh Thong, cited from vietnamplus.vn, 2022)

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2. THEORETICAL BASIS, OVERVIEW, AND RESEARCH MODEL

2.1. Theoretical Basis

Near-Expired Products

Near-expired goods refer to items that are close to their expiration date, with the remaining shelf life ranging from a few days to a few months, mainly focusing on categories such as dry food, fresh food, functional foods, and cosmetics... (baoyenbai.com.vn, 2023)

Near-expired goods are finished products with only a few days or months left before expiration. These products typically belong to the fast-moving consumer goods sectors such as confectionery, beverages, food, cosmetics, functional foods, and agricultural products... (auvietrack.net, 2023)

Additionally, near-expired goods are products near their expiration date that are often on sale in stores and supermarkets to help businesses recover capital and allow consumers to access high-quality products at lower prices. Most items close to expiration are sold at half their original cost. The attractiveness of the brand and the low price, which helps save a decent amount of money, are advantages that make near-expiry goods appealing to a segment of consumers. (www.tdcbinhthuan.vn, 2022)

According to Leaf Organic (2022), near-expired products are still within their expiration dates but not for an extended period. It is crucial to distinguish between "close-dated goods" and "expired goods." Western countries such as the UK, France, the USA, and Canada often use the term BBD (The Best Before Date) in English or DDM (Date de Durabilité Minimale) in French, while in Vietnam, the term "Hạn sử dụng" (HSD) is commonly used to indicate the product's lifespan. Thus, products approaching their BBD, DDM, or HSD are considered near-expired goods.

On online marketplaces, near-expired items are also widely sold, the most common being fresh, powdered, and yogurt for children. Additionally, many high-priced imported foods, such as bacon and canned foods, exist. Most items close to expiration are typically sold at around half their original price. The appeal of the brand and the low cost are the advantages that make near-expired goods welcomed by a segment of consumers. (tbtagi.angiang.gov.vn, 2022)

Misconceptions about Near-Expiry Goods

Many people believe that the BBD (Best before Date) or DDM (Date de Durabilité Minimale) is the date by which a product must be used and that the product is no longer usable after this date. This is a misconception. To ensure the highest quality for consumers, many Western manufacturers set the expiration dates for many canned products 6 months to 1 year earlier than the actual expiration date compared to the BBD or DDM listed on the packaging. After the BBD or DDM, a product may lose some of its sensory qualities, but it remains entirely safe for health and can be used for some time afterward. The length of this period depends on the product. Many Western countries encourage people to reduce food waste and share relevant information to help people understand and feel free to use close-dated products with peace of mind.

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Another common belief is that products must be used long before the expiration date (HSD) to achieve the best effectiveness and that the quality significantly deteriorates as the HSD approaches. Reality has proven the opposite. As long as a product is used before the date on the packaging, it remains safe and high-quality, just like newly manufactured products. To explain, the expiration dates are based on thorough calculations and research into the stability of the active ingredients before these products are released to the market. Only after a product has passed its expiration date (i.e., the date printed on the packaging) should you consider whether to continue using it, as the components of the product start to change only after this point. (Leaf organic, 2022)

According to analysis, "use by" or "expiration date" are often used inconsistently, causing significant misunderstanding and waste. The “NSX” (manufacturing date) and “HSD” (expiration date) are used to indicate the quality of the product, set by the manufacturer to specify the period during which the product is most effective. This means that products only become less effective after the date on the packaging; however, before this date, even a few days prior, the product can still be used commonly. For example, a sunscreen with an expiration date of April can still be effectively used until the end of the month without any change in quality. The expiration date on the packaging might state April, but its effective usage period can be extended until May. (mayphundate.com, 2020)

Buying Decision

According to Philip Kotler (2001), consumer behavior encompasses the actions of individuals in purchasing and using products and services, including the psychological and social processes that occur before, during, and after a purchase.

Charles W. Lamb, Joseph F. Hair, and Carl McDaniel (2000) define consumer behavior as a process describing how consumers select and discard a product or service.

The American Marketing Association states that consumer behavior is the interaction between environmental stimuli and human perception and behavior through which individuals change their lives. In other words, consumer behavior includes the thoughts and feelings people experience and their actions in the consumption process. Factors such as opinions of different consumers, advertisements, price information, packaging, and the appearance of products can all influence consumers' perceptions, thoughts, and behaviors.

According to Philip Kotler & Sidney J. Levy (1969), consumer behavior refers to the specific behaviors of individuals when making decisions to purchase, use, and dispose of products or services.

2.2. Theoretical Models of Behavior

Consumer Behavior Theory: This theory revolves around maximizing consumer utility within the constraints of income, product prices, and consumer preferences. Consumer shopping behavior is demonstrated through searching, purchasing, using, and evaluating products and services that they expect to satisfy their personal needs (Bennett, 1988). Consumer behavior is perceived as a series of decisions regarding the purchase decision of

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goods that each individual or group of consumers must make over time when selecting products, services, ideas, or activities (Munnukka, 2008).

Theory of Reasoned Action (TRA): Proposed by Fishbein and Ajzen (1975), the Theory of Reasoned Action (TRA) model explains and predicts behavioral intentions in scenarios involving the acceptance of a product. This theory indicates that "intention" is the best predictor of actual behavior, and both attitude and subjective norms determine that intention.

(1) Attitude: This is an emotional state that reflects an individual's behavior through gestures, words, facial expressions, and reactions to images and related aspects of a product.

(2) Subjective Norms: Behavioral intentions are influenced by the attitudes of relevant individuals towards using the product, and the product users' motives are affected by the behaviors and desires of these relevant individuals.

Theory of Planned Behavior (TPB): Ajzen's (1991) Theory of Planned Behavior suggests that people engage in a particular behavior if they believe it will bring about valuable outcomes. The TPB includes relationships among attitude, subjective norms, behavioral control, and behavioral intentions perception.

(3) Perceived Behavioral Control: This refers to an individual's perception of how easy or difficult it is to perform a behavior, which relates to the availability of necessary resources, knowledge, and opportunities to carry out the behavior.

2.3. Model, Hypothesis and Scales of Reserch

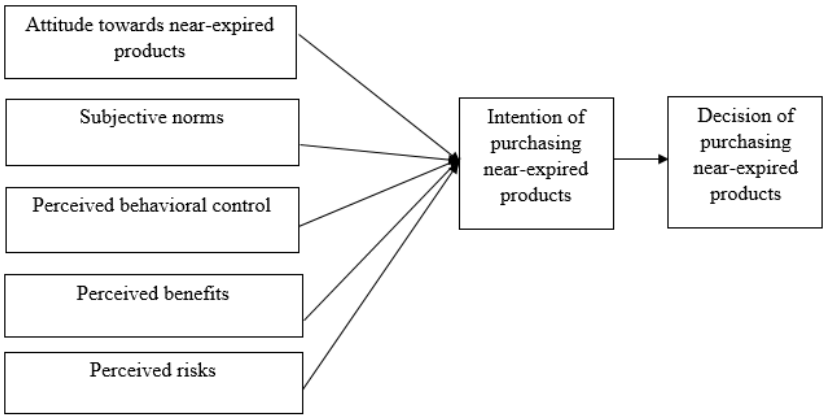

Figure 1: Suggested Researching Model

Source: Suggested by Research Team

Research Hypothesis

H1: Attitude towards near-expired products has a positive correlation with the intention to purchase near-expired products.

H2: Subjective norms have a positive correlation with the intention to purchase close-dated products.

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H3: Behavioral control perception has a positive correlation with the intention to purchase near-expiry products.

H4: Perceived benefits have a positive correlation with the intention to purchase near-expired products.

H5: Perceived risks have a negative correlation with the intention to purchase near-expired products.

H6: The intention to purchase close-dated products has a positive correlation with the decision to purchase close-dated products.

Table 1: The Basis for Forming Variables and Scales in the Model

Number	Code	Observed variables	Source
1	**Attitude toward near-expired products**		
1.1	TD1	I feel that near-expired products is a good choice	Ajzen (1991); Tran Thi Minh Nguyet & Phan Thi My Kieu (2020); Huynh Đinh Le Thu, Duong Tu Hao & Ha Nam Khanh Giao (2022); suggested by research team
1.2	TD2	I like buying near-expired products	
1.3	TD3	I always have positive attitude towards near-expired products	
1.4	TD4	I like to "hunt" near-expired products in stores and supermarkets	
2	**Subjective norms**		
2.1	CCQ1	My decision of buying near-expired products is affected by my family	Ajzen (1991); Nguyen Thi Minh Hai & Tran Quang Huy (2017); Ta Van Thanh & Dang Xuan On (2021); Huynh Dinh Le Thu, Duong Tu Hao & Ha Nam Khánh Giao (2022); suggested by research team
2.2	CCQ2	My decision of buying near-expired products is affected by friends and colleagues	
2.3	CCQ3	My decision of buying near-expired products is affected by the society	
2.4	CCQ4	My decision of buying near-expired products is affected by the information on social media platforms	
3	**Perceived behavioral control**		
3.1	NTKS 1	I believe I am able to purchase near-expired products	Ajzen (1991); Nguyen Thi Minh Hai & Tran Quang Huy (2017); Huynh Đinh Le Thu, Dương Tu Hao & Ha Nam Khanh Giao (2022); suggested by research team
3.2	NTKS 2	I have many opportunities to purchase near-expired products	
3.3	NTKS 3	I am willing to pay a certain amount of money to purchase near-expired products	
3.4	NTKS 4	Purchasing close-dated products is entirely within my financial capability	
4	**Perceived benefits**		
4.1	LI1	Near-expired products enables customers to save expenditure	Truong, N.X. (2019); suggested by research team
4.2	LI2	Close-dated products help reduce waste of resources and production costs...	
4.3	LI3	Using near-expired products helps save the amount of money which could be spent on other intentions	

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4.4	LI4	Using near-expired products allows me to buy more goods with the same amount of money	
5	**Perceived risks**		
5.1	RR1	Health problems caused by near-expired products	Ta Van Thanh & Dang Xuan On (2021); Tran Thi Bao Yen & Le Thi Giang (2021); Nguyen Huy Tuan & Mai Thi Hong Nhung (2019)
5.2	RR2	The issue of commercial fraud exploiting low-quality, counterfeit, and expired products.	
5.3	RR3	Discrimination from other people when using near-expired products	
6	**Intention of purchasing near-expired products**		
6.1	YD1	I intend to purchase near-expired products in the near future	Truong, N.X (2019); Phong, N.D, Tu, H.T (2021); suggested by the research tem
6.2	YD2	I will pay more attention to the purchase of near-expired products	
6.3	YD3	I am willing to introduce near-expired products to my friends and family	
7	**Decision of purchasing near-expired products**		
7.1	QD1	I decide to use near-dated products more in the future	Ajzen (1991); suggested by research team
7.2	QD2	I am willing to introduce near-expired products to my family, friends and colleagues	
7.3	QD3	I believe that using near-dated products is reasonable	

Source: Research team's suggestion and compilation

3. RESEARCH METHODOLOGY

Based on the theoretical framework and the overview of factors influencing the purchasing behavior of near-expired products among Vietnamese consumers, the research model includes the following factors:

- Attitude towards near-expired products (TD)
- Subjective norm (CCQ)
- Behavioral control perception (NTKS)
- Perceived benefit (LI)
- Perceived risk (RR)

All these factors have an impact on the intermediate variable "Intention to purchase near-expired products of Vietnamese consumers" (YD) and the dependent variable "Decision to purchase near-expired products of Vietnamese consumers" (QD).

A survey questionnaire was constructed using a 5-point Likert scale:

1. Strongly Disagree
2. Disagree
3. Neutral

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4. Agree
5. Strongly Agree

Quantitative research method was used to collect opinions of consumers residing and working in Vietnam. After constructing the survey questionnaire, the research team conducted a preliminary survey with random 10 regular consumers of near-expired products, and the results showed agreement with the factors included in the model.

Due to constraints in time and resources for the survey, the authors employed a convenient sampling method. The minimum sample size was determined according to the "10 times rule" proposed by Hair et al. (2014) to ensure adequacy for Partial Least Squares (PLS) analysis.

The 10 times rule states:

- Approach 1: Minimum sample size is equal to 10 times the number of observed variables of a causal measurement structure with the most observed variables.
- Approach 2: Minimum sample size is equal to 10 times the number of paths affecting a causal measurement structure with the most paths directed toward it.

With the number of factors and observed variables in the study, according to approach 1, the minimum sample size would be 4 * 10 = 40, and according to approach 2, it would be 5 * 10 = 50.

The survey targeted customers who had previously purchased near-expired products. From the perspective that the more samples collected, the more stable the effects are guaranteed, based on the sampling capability, the research team decided to distribute more than 150 questionnaires. The questionnaire was sent to the survey participants online via the following link: https://docs.google.com/forms/d/e/1FAIpQLSfgyvSKxuTptk8_amePVF5y_1qZB3Dxqjs4phLXVSd4BiMQog/closedform. A total of 176 questionnaires were received, of which 100 were valid responses from consumers who had purchased near-expired products (ensuring more than 50 valid responses), and these were included in the analysis of influencing factors.

Data Processing Method

The SMARTPLS software was used to test hypotheses and evaluate the impact of factors. The data processing involves the following steps:

Step 1: Evaluate the Measurement Model

The measurement model is evaluated by considering the contribution of:

- Contribution of observed variables (outer loadings)
- Reliability of the scale (Cronbach's Alpha)
- Convergence
- Discriminant validity

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Step 2: Evaluate the Structural Model once the measurement model meets the requirements, proceed to evaluate the structural model, which includes:

- Impact relationship
- Path coefficient
- Overall determination coefficient R square
- Effect size coefficient f square

Additionally, to assess the impact of each factor, the research team determined the distance and average value of each factor, and identified the average score within the threshold of responses:

- Distance value = (Maximum - Minimum) / n = (5-1)/5 = 0.8

Thresholds for evaluating based on average score:

- 1.00 - 1.80: Strongly Disagree
- 1.81 - 2.60: Disagree
- 2.61 - 3.40: Neutral
- 3.41 - 4.20: Agree
- 4.21 - 5.00: Strongly Agree

These steps ensure a comprehensive evaluation of both the measurement and structural models, providing insights into the impact of each factor on Vietnamese consumers' near-expired product purchasing behavior.

4. RESEARCH RESULTS

4.1. Description of Survey Participants

Out of 176 participants in the survey:

- 143 individuals (81.3%) are aware of near-expiry products, while 33 individuals (18.8%) are not.
- Among the 143 individuals who are aware of near-expiry products, 100 individuals (69.9%) have purchased near-expiry products before, while 43 individuals (30.1%) have not.
- Among the 100 individuals who have purchased near-expiry products, 95 individuals (95%) are employed, indicating that the majority of survey participants are employed

Demographic breakdown of the 100 participants who have purchased near-expiry products:

- Gender: 64 individuals (64%) are female, 34 individuals (34%) are male, and 2 individuals (2%) prefer not to specify.

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- Age: The primary age group of participants is 22 – 32 years old (40%), followed by 32 – 42 years old (38%), indicating that individuals interested in near-expiry products are mainly in the working age group and require clear budget allocation.
- Income: The majority of participants have incomes ranging from 10 to less than 20 million VND, with 48 individuals (48%). Other income brackets include 5-10 million VND for 21 individuals (21%), less than 5 million VND (15%), and 20 to less than 30 million VND (11%).
- Residential area: The majority of participants reside in urban areas, with 78 individuals (78%), while 22 individuals (22%) live in suburban areas.

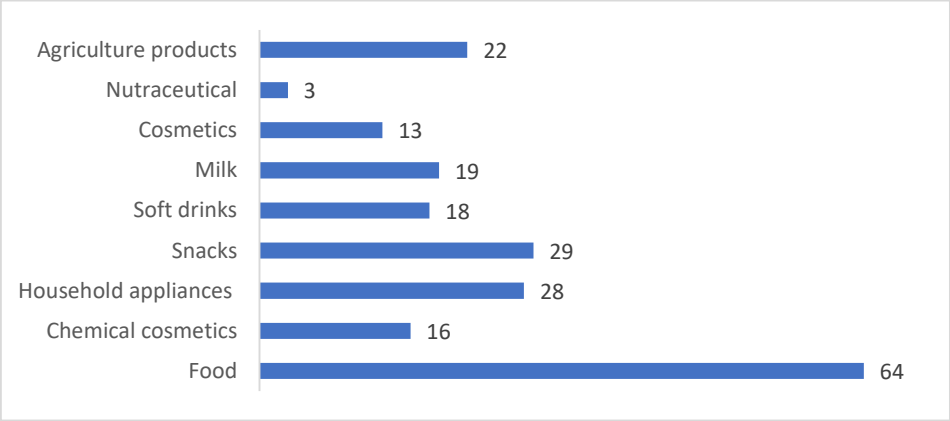

Figure 2: Near-expired Products Consumed by Surveyees

Source: Survey Result

Regarding the near-expired products consumed by each respondent, Groceries and food are the most frequent, accounting for 64 individuals, followed by confectionery (29 individuals), household appliances (28 individuals), agricultural products (22 individuals), and dietary supplements (3 individuals) (Figure 2).

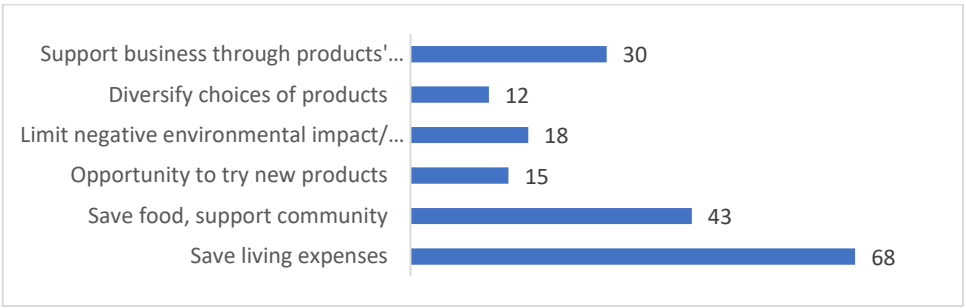

Figure 3: Purposes of Purchasing Near-Expired Products

Source: Survey Result

Regarding the purpose of consuming near-expired products, 68 individuals aim to save living expenses, 43 individuals aimed to reduce food waste and support the community, and 30

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individuals aimed to support businesses through product consumption. Additionally, it is noted thatsome respondents answered that they did not pay attention and accidentally bought near-expired products. The survey participants also indicated that the percentage of money spent on near-expired products is mainly below 10% (70%). 21% of individuals spend between 10 - < 30%, and the remaining minority spends over 30%. Therefore, consumers tend to use near-expired products only to a certain extent, ensuring less shopping expense and quality of life. For those who do not buy near-expired products, the reasons are recorded in Figure 3.

Figure 4: Reason for Non-Purchasing of Near-Expired Products

Source: Suvey Results

Regarding the reasons for not purchasing near-expired products, concerns for product quality are the majority (26 individuals), followed by concerns about food safety issues (23 individuals), personal preferences (11 individuals), and fear of loss, not using the product before the expiration date (7 individuals). Therefore, the most significant concern for near-expired products and the biggest limitation of near-expired products are issues of product quality and food safety, which affect consumers' tendency to consume near-expired products.

4.2. Evaluation Results

4.2.1. The Evaluation of the Quality of Observed Variables in the Measurement Model

Assessment of the quality of observed variables

The quality of observed variables is evaluated through outer loadings. In the initial data run, the observed variables (LI1, LI4, YD2, QD1) had VIF coefficients greater than 5, so these 4 observed variables were excluded from the model. The research team conducted a second data run, and the quality of the observed variables influencing the purchasing behavior of near-expired products by Vietnamese consumers is shown in Table 2.

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Table 2: Outer Loadings of Independent Variables for Purchasing Behavior of near-Expired Products of Vietnamese

	CCQ	LI	NTKS	QD	RR	TD	YD
CCQ1	0.882						
CCQ2	0.841						
CCQ3	0.846						
CCQ4	0.895						
LI2		0.936					
LI3		0.944					
NTKS1			0.910				
NTKS2			0.912				
NTKS3			0.905				
NTKS4			0.906				
QD2				0.959			
QD3				0.958			
RR1					0.938		
RR2					0.897		
RR3					0.878		
TD2						0.885	
TD3						0.918	
TD4						0.903	
YD1							0.939
YD3							0.940
TD1						0.917	

Source: Evaluation Results

The results from Table 2 indicate that the outer loading coefficients of all independent variables influencing the purchasing behavior of near-expired products by Vietnamese consumers are significant (all are > 0.7) (Hair & et al, 2016).

Reliability Testing of the Scale

The reliability of the scale of factors influencing Vietnamese consumers' purchasing behavior of near-expired products on PLS-SEM is evaluated through two main indices: Cronbach's Alpha and Composite Reliability (CR).

Table 3: Cronbach's Alpha and Composite Reliability of Factors Influencing Vietnamese Consumers' Purchasing behavior of Near-expired Products

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
CCQ	0.890	0.908	0.923	0.751
LI	0.869	0.871	0.938	0.884
NTKS	0.929	0.931	0.950	0.825
QD	0.912	0.912	0.958	0.919
RR	0.890	0.903	0.931	0.818
TD	0.927	0.937	0.948	0.820
YD	0.867	0.867	0.937	0.882

Source: Evaluation Results

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According to Table 3, after analyzing the reliability using Cronbach's Alpha coefficient, all factors meet the condition of > 0.7 (DeVellis, 2012), and there is no violation of any exclusion rule; hence, no variables are excluded, and the reliability is acceptable. The Composite Reliability (CR) of all observed variables is also > 0.7 (Bagozzi & Yi, 1988) (Table 3). Therefore, the scale is reliable, statistically significant, and can be used in further factor analysis.

Convergence

According to the results of the data analysis in Table 3, the Average Variance Extracted (AVE) for all variables is > 0.5 (Hock & Ringle, 2010). This indicates that the model satisfies the conditions for convergence.

Discriminant Validity

The results in Table 4 regarding the Fornell-Larcker criterion of the model studying the factors influencing the purchase behavior of near-date products of Vietnamese consumers ensure discriminant validity because all square root of AVE values on the diagonal are higher than the values outside the diagonal. Therefore, considering the discriminant value, both cross-loadings and the Fornell and Larcker criteria meet the condition.

Table 4: Fornell-Larcker Criterion of the Model

	CCQ	LI	NTKS	QD	RR	TD	YD
CCQ	0.867						
LI	0.363	0.940					
NTKS	0.504	0.750	0.908				
QD	0.394	0.581	0.713	0.959			
RR	0.474	0.528	0.649	0.645	0.905		
TD	0.553	0.622	0.721	0.665	0.562	0.906	
YD	0.422	0.645	0.764	0.892	0.627	0.702	0.939

Source: Evaluation Results

f^2 statistics

The f2 statistic represents the effect size of a construct (factor) when removed from the model. The f2 values of 0.02, 0.15, and 0.35, correspond to small, medium, and large effect sizes (Cohen, 1988), respectively. If the effect size is < 0.02, it is considered to have no significant influence.

Table 5: Summary of f^2 values

	CCQ	LI	NTKS	QD	RR	TD	YD
CCQ							**0.007**
LI							**0.010**
NTKS							0.131
QD							
RR							0.056
TD							0.098
YD				**3.875**			

Source: Evaluation Results

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In this model, as shown in Table 5, the factor "Intention to purchase near-expiration products (YD)" (3.875) has f2 values > 0.35, indicating a large influence on the "Decision to purchase near-expiration products by Vietnamese consumers (QD)". The factors "Perceived behavioral control (NTKS)" (0.131), "Attitude toward purchasing near-expiration products (TD)" (0.098), and "Perceived risk" (0.056) (with 0.02 < f2 < 0.15) have a small influence on YD. Two factors, "Perceived benefits (LI)" (0.010) and "Subjective norm (CCQ)" (0.007), with f2 < 0.02, are considered to have no significant influence on YD.

4.2.2. Evaluation of the Impact Level Using the Structural Model

Assessing the Relationship of Variables

The relationships and effect size of the factors affecting the purchasing behavior of near-expiration products among Vietnamese consumers on SMARTPLS are illustrated in Figure 2.

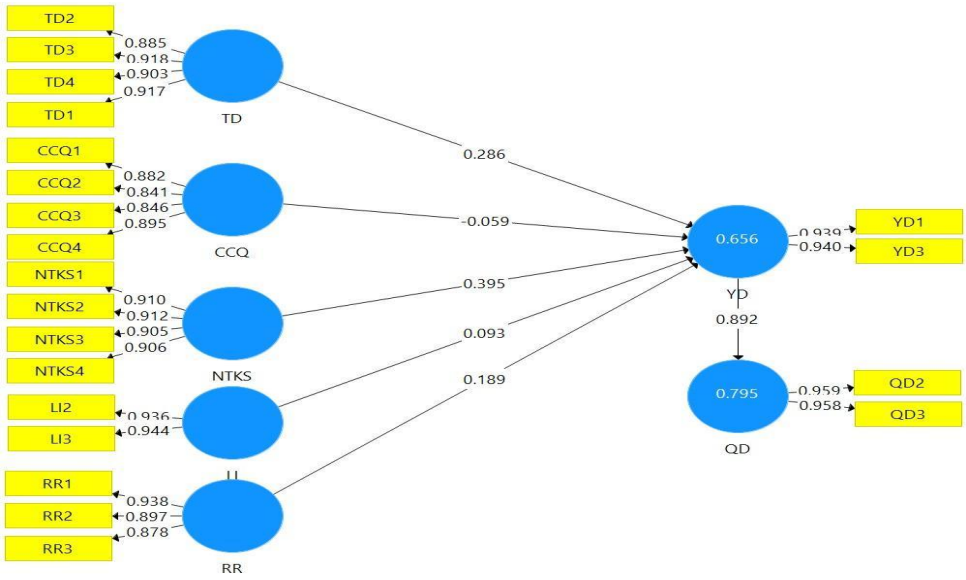

Figure 5: The Factors Influencing Vietnamese Customers' Purchasing Near-expired Products Behaviors

Source: Results tested by SMARTPLS of research team

The Bootstrap analysis results to assess the impact relationships are presented in Table 6. Accordingly, the factors "Perceived Behavioral Control (NTKS)" and "Attitude towards Near-Expiration Products (TD)" have P Values < 0.05, indicating that these factors are statistically significant in demonstrating the positively-correlated relationships with the intention to purchase near-expired products among Vietnamese consumers (YD) (Hypotheses H1, H3 are accepted). The factor "Intention to Purchase Near-Expiration Products among Vietnamese Consumers (YD)" also has a P Value < 0.05, indicating that the YD factors are statistically significant in demonstrating the positively-correlated relationships with the purchasing behavior of near-expiration products among Vietnamese consumers (QD) (Hypothesis H6 is accepted). The factors "Subjective Norms" and "Perceived Benefits (LI)" and "Perceived Risk"

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have P Values > 0.05, indicating that these factors are not statistically significant in demonstrating the relationships with the intention to purchase near-expiration products among Vietnamese consumers (Hypotheses H2, H4, H5 are not accepted).

Table 6: Path Coefficient of the Model

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
CCQ -> YD	-0.059	-0.045	0.096	0.612	**0.541**
LI -> YD	0.093	0.099	0.107	0.863	**0.389**
NTKS -> YD	0.395	0.389	0.140	2.816	**0.005**
RR -> YD	0.189	0.187	0.099	1.910	**0.057**
TD -> YD	0.286	0.286	0.126	2.273	**0.023**
YD -> QD	0.892	0.893	0.023	38.115	**0.000**

Source: Results tested by SMARTPLS of research team

The results of the test in Table 6 indicate, with 95% confidence, that the intention to purchase near-expiration products among Vietnamese consumers (YD) has a coefficient of 0.892, significantly influencing the decision to purchase such products (QD). Perceived behavioral control (NTKS) has a coefficient of 0.395, indicating its significant influence on YD, while attitude towards near-expiration products (TD) has a coefficient of 0.286, also significantly affecting YD.

Evaluation of the Overall Determination Coefficient R2 (R square)

The result of the PLS Algorithm analysis provides the R2 value, reflecting the explanatory power of the independent variable toward the dependent variable. The R-square value measures the overall determination coefficient, which is a metric to assess the model's fit to the data (the model's explanatory ability). According to Hair & et al (2010), suggested R-square values are at 0.75, 0.50, or 0.25.

Table 7: R Square of the Model

	R Square	R Square Adjusted
QD	0.795	0.793
YD	0.656	0.638

Source: Evaluation Result of Research Team

For the variable "Quyết định mua sản phẩm cận date của người tiêu dùng Việt Nam" (QD), the results from Table 7 show an R2 of 0.795 and an adjusted R2 of 0.793. This means that the variables included in the model explain 79.5% of the variability in the variable QD.

For the variable "Ý định mua sản phẩm cận date của người tiêu dùng Việt Nam" (YD), the results from Table 7 show an R2 of 0.656 and an adjusted R2 of 0.638. This indicates that the independent variables in the model explain 65.6% of the variability in the variable YD.

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Assessing the Standardized Root Mean Square Residual (SRMR):

The Standardized Root Mean Square Residual (SRMR) indicates the adequacy of the research model. According to Hu & Bentler (1999), typically, a well-fitting model will have an SRMR value less than 0.08.

Table 8: Reliability index Standardized Root Mean Square Residual (SRMR)

	Saturated Model	Estimated Model
SRMR	0.063	0.065

Source: Evaluation result of research team

Based on the research findings in Table 8, the SRMR of the research model is less than 0.08. Therefore, this model is suitable for data analysis

5. CONCLUSION

Among the 6 factors considered, 3 factors were found to be statistically significant at the 5% level, indicating their impact on the "Decision to purchase near-expiry products by Vietnamese consumers". Among them, "Intention to purchase near-expiry products by Vietnamese consumers" (YD) positively affects the decision to purchase near-expiry products by Vietnamese consumers with an impact of 0.892. This means that an increase in the intention to purchase near-expiry products by 1 unit will lead to an increase in the decision to purchase near-expiry products by 0.583 units. The factor "Perceived behavioral control" (NTKS) has an impact of 0.395, indicating that an increase in perceived behavioral control by 1 unit leads to an increase in the intention to purchase near-expiry products by 0.395 units. The factor "Attitude toward near-expiry products" (TD) has an impact of 0.189, meaning that an increase in attitude toward near-expiry products by 1 unit leads to an increase in the intention to purchase near-expiry products by 0.189 units. Additionally, there are 3 factors including "Subjective norm" (CCQ), "Perceived benefit" (LI), and "Perceived risk" (RR) that are not statistically significant in explaining the intention to purchase near-expiry products by Vietnamese consumers.

However, perceived risk remains a factor of concern for Vietnamese consumers. According to the survey results conducted by the research team, the main reasons for not purchasing near-expiry products are concerns about product quality and food safety issues. Therefore, it can be observed that consumers are quite concerned about the perceived risk of near-expiry products, especially of those related to food and groceries that directly impact human health. In reality, although consumers are aware that near-expiry products (especially food and groceries) have a greater impact on human health compared to other products such as household items or cosmetics, they still choose to purchase near-expiry products within certain limits (in terms of quantity and type of items). The reason for this is that these products are much cheaper than regular products. Thus, the research team found that price is a potential factor influencing the intention and decision to purchase near-expiry products by Vietnamese consumers.

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