



## Health-Oriented Retail Strategies: How the Perceived Accessibility of Nutri-Level Labels Influences Customer Attitudes, Satisfaction, Repurchase Intentions, and Loyalty

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### Abstract

This study examines how the perceived accessibility of Nutri-Level Labels (NLLs) influences customer attitudes, satisfaction, loyalty, and repurchase intentions in Indonesian retail environments. Using a quantitative approach, data were collected from 320 respondents through purposive sampling and analyzed via partial least squares structural equation modeling (PLS-SEM). Results show that perceived accessibility of nutrition labels significantly enhances customer attitudes and satisfaction, which in turn positively affect loyalty and repurchase intentions. Moreover, customer attitudes and satisfaction fully mediate the relationship between label accessibility and behavioral outcomes. These findings suggest that making nutrition information easily accessible shapes healthier consumer behaviors. Retailers and policymakers are encouraged to adopt user-centered store designs and clear labeling systems to support health-conscious decision-making and build long-term customer loyalty.

**Keywords:** *Customer attitudes, nutri-level labels, perceived accessibility, repurchase intention, retail environment*

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## 1. INTRODUCTION

The Indonesian government will require Nutri-Level Labels (NLLs) on processed foods. This policy aims to promote healthy lifestyles and literacy levels among the population. It is an attempt to stem health complications brought about by consuming too much sugar, salt, and fat. Indonesia will adopt Singapore's labeling system, including the Nutri-Grade system, as outlined in Government Regulation (PP) Number 28 of 2024. This regulation establishes guidelines for the nutritional content of products, including sugar, salt, and fat. Supermarkets, with their marketing displays of processed goods, are also important in taking advantage of the aforementioned policies. Nonetheless, utilizing these policies to offer customers products with nutrition level labels can impact customer behavior, including attitude, satisfaction, loyalty, and the intention to purchase products again from that retailer. This phenomenon is the focus of the present study, which aims to provide retailers with answers and strategic recommendations for improving their services and expanding their businesses by exploring opportunities to offer health-related services (O'Connor, 2022; Pione et al., 2025).

Customer behavior, including attitudes, satisfaction, and loyalty, is a key element of retail development. Similarly, repurchase intention is closely linked to customer loyalty, economic benefits, and retail growth strategies (Lim et al., 2018). Previous research has linked and measured many influences with interaction and environment (Barrientos-Báez et al., 2025), affective and social experience (Liu-Thompkins et al., 2022), and salesperson influence (Soon-Hwa Choi, 2018). Furthermore, previous research has focused on aspects of store atmosphere, such as cleanliness, lighting, music, and employee appearance (Mfundu Ndengane et al., 2021). This study is original in that it fills a gap in the literature and can serve as a practical reference. However, one could conduct a specific review of the accessibility of health product labels in retail stores and its effect on customer attitudes, satisfaction, loyalty, and repurchase intentions.

This study explores how prominently displaying health-labeled product information, i.e., products with clear, easily visible nutrient level labels, affects customer perceptions, satisfaction, loyalty, and repurchase intentions. A 2015 Nielsen report found that more than 60% of global consumers were willing to pay a premium price for products with clear, easy-to-understand, and credible labels, underscoring the growing consumer demand for transparency in health-related products. The latest market data shows that over 63% of consumers actively seek nutritional information on packaged foods. Younger age groups, such as Generation Z, are more willing to pay a premium price for healthier, clearly labeled products (Goel, 2025). The increasing emphasis on consumer health has led to a growing health-oriented retail trend (Grandi et al., 2025), in which retailers provide products that promote well-being and transparency in response to the growing demand for healthy food options. This trend aligns with government regulations requiring nutrient labeling on processed foods, which reinforces the role of the retail environment in shaping consumer behavior. In this context, retail outlets serve as critical touchpoints where health labels can enhance or diminish customer engagement and influence decision-making processes. Despite the potential of nutrition and health level labels to facilitate informed purchasing decisions, a gap remains in our understanding of how the availability of these labeled products in retail environments directly impacts consumer outcomes (X. Wang, 2024). Health-oriented retail is a compelling area of study, particularly at the intersection of evolving consumer health consciousness, preferences for transparency, and the retail sector's response to these demands. Understanding the effects of nutrition health-level labeled products in retail settings is crucial because it provides insight into how retailers can optimize their offerings to meet the needs of health-conscious consumers, foster brand loyalty, and encourage repeat purchases. This study will empirically determine how the perceived accessibility of NLL products affects customer satisfaction, positive attitudes towards retail stores, customer loyalty, and repurchase intention.

This study contributes to the current literature on consumer behavior and retail management by providing empirical evidence on the role of the perceived accessibility of NLL items in consumer behavior, satisfaction, and attitudes, as well as loyalty and repeat purchases. Theoretically, the study builds on existing frameworks of customer decision-making by incorporating the concept of accessibility into the context of standardized nutrition labeling regulations. Scholars have not paid

much attention to this aspect. Given the growing importance of health-conscious consumer behavior and the role nutrition-level labels can play in promoting healthier purchasing decisions, understanding how retail environments facilitate or hinder consumer engagement with these products is crucial. The accessibility and visibility of NLL products in retail outlets are key factors in consumer decision-making. Enhancing the visibility of these health-labeled products through effective store layout and product placement encourages healthier purchasing habits and ultimately fosters a more health-conscious consumer base. This study aims to analyze how the perceived accessibility of NLLs influences customer attitudes, satisfaction, repurchase intentions, and loyalty in the context of health-oriented retail strategies. The study will also provide actionable implications for retail managers to improve NLL accessibility.

## 2. LITERATURE REVIEW

### 2.1 Customer Perception of Nutri-Level Label Accessibility and Attitude

The perceived accessibility of Nutri-Level labels indicates how customers generally feel about accessing, interpreting, and utilizing nutrition and health-related information in-store (Baccelloni et al., 2021). According to the cognitive approach to information processing, consumers tend to use readily available, least cognitively demanding cues when judging product qualities connected to health and nutrition. The more easily nutrition labeling information is available, the more consumers will pay attention to it, comprehend it, and incorporate it into their product evaluations (Egnell et al., 2020).

Past research on this subject has shown that the availability of information, as reflected by the layout of the information and the organization of the products on the shelf (e.g., nutrition labels on food and drink products), significantly impacts consumer attitudes (Florea et al., 2025; Zaccone & Minciullo, 2025). Nutrition information availability makes consumers more confident in their product ratings, makes information perceived as simpler, and elicits more positive cognitive and affective responses to products (Steinhauser et al., 2019). Conversely, consumers become frustrated or disinterested when they perceive that nutrition information is not easily accessible or understandable, resulting in a more negative attitude (Sukma Wijaya et al., 2020). Therefore, access to nutrition labels is an influential cue in shaping customer attitudes toward food products in a retail store. Based on the above, the hypothesis of this study is as follows:

**H1: Customers' Perceived Accessibility of Nutri-level Labels positively influences Customer Attitude**

### 2.2 Customers' Perceived Accessibility of Nutritional Labels & Customer Satisfaction

Customer satisfaction is a consumer's overall evaluation of a product or shopping experience based on how their expectations and information needs are met (Joudeh et al., 2020a). The accessibility of straightforward, understandable nutrition information is also a significant aspect of the shopping experience when buying food and beverage products in retail shops, especially for consumers who base their decisions on health-related qualities (Zou & Liu, 2019). Perceiving nutrition level labels as easily available gives consumers a greater ability to evaluate product attributes and enhances their sense of control and confidence, making them more effective at evaluating purchases. Previous research has shown that the accessibility of relevant product information contributes positively to customer satisfaction by reducing information asymmetry, perceived effort, and decision-making uncertainty (Kim et al., 2021; Suresh et al., 2025; Zou & Liu, 2019). Nutri-level labels that are easily accessible facilitate smoother information processing and minimize cognitive load, resulting in a more satisfying shopping experience. Therefore, customers' perceived accessibility of nutrition labels is expected to result in positive post-evaluation responses and higher levels of satisfaction. Based on these arguments, the following hypothesis is proposed:

**H2: Customers' Perceived Accessibility of Nutri-level Labels positively influences Customer Satisfaction**

### 2.3 Customer Attitude, Customer Satisfaction and Retail Customer Loyalty

Customer loyalty is defined as a customer's positive behavioral intention to repeatedly purchase a product or remain loyal to

a brand over time. Customers who are loyal to a particular brand (brand loyalty) and frequently purchase from a specific store may also become loyal to that store (store loyalty) (Nakamori et al., 2022a). Previous studies have shown that loyalty is largely driven by evaluative consumer responses formed through attitudinal and experiential processes (Reitsamer et al., 2024; Zaid & Patwari, 2021). Customer attitudes reflect consumers' overall positive or negative evaluations of a product and influence the formation of preferences and future behavioral intentions (Karim et al., 2022). Therefore, a more positive attitude toward a product strengthens consumers' willingness to maintain a long-term relationship with that product or brand.

Besides attitude evaluation, customer satisfaction plays a central role in fostering loyalty (Tuti & Sulistia, 2022). Satisfaction represents consumers' post-consumption assessment of whether their expectations and needs have been met. Empirical evidence suggests that satisfied customers are more likely to make repeat purchases and develop long-term loyalty because satisfaction reduces perceived risk and strengthens trust in a product or brand. Thus, customer attitudes and satisfaction are considered key antecedents of loyalty in retail stores that provide easy access to nutrition-labeled products. Based on the above literature review, the following hypotheses are proposed:

**H3: Customers' Attitude positively influences Customer Loyalty**

**H6: Customers' Satisfaction positively influences Customer Loyalty**

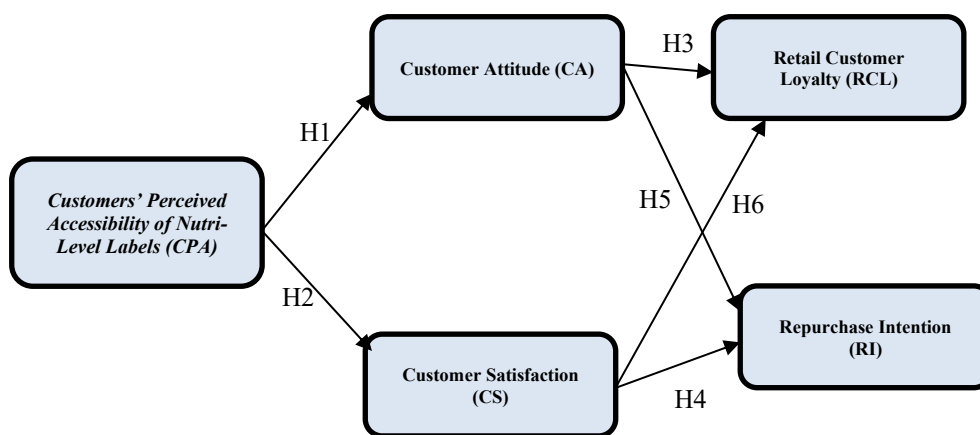
#### 2.4 Customer Attitude, Customer Satisfaction and Repurchase Intention

Repurchase intention refers to a consumer's conscious plan or willingness to purchase the same product again in the future. It is one of the factors that help companies achieve sustainable profits (Fan et al., 2025). Repurchase intention is widely recognized as a significant predictor of post-purchase behavior and long-term customer-product relationships. Customer attitude is also significant in determining repurchase intention, as positive judgments of a product increase consumer preference and intention to repeat their purchasing behavior (Carvalho de Mesquita et al., 2024a). Positive attitudes lead consumers to be more consistent in their decision-making and repeat purchases.

Repurchase intention also hinges on customer satisfaction (Carvalho de Mesquita et al., 2024a). Satisfaction is an overall rating by a consumer after consumption, indicating whether a particular product met or surpassed their expectations. Empirical research has demonstrated that satisfied customers tend to make repeat purchases due to lower risk perception, enhanced trust, and increased confidence in their purchasing decisions triggered by satisfaction (Chatzoglou et al., 2022; Slack et al., 2020). Thus, customer attitudes and satisfaction positively affect repurchase intentions when retail stores provide easy access to customers seeking nutrition-labeled products. Based on these arguments, the following hypothesis is proposed:

**H4: Customers' Satisfaction positively influences Repurchase Intention**

**H5: Customers' Attitude positively influences Repurchase Intention**



**Figure 1** | The Conceptual Framework

### 3. RESEARCH METHOD

Data were collected through a survey of consumers with experience using nutrition labels (NLLs) at supermarkets or retail stores in Java, Indonesia. The sample consisted of consumers who actively shopped at retail outlets displaying NLL products. Purposeful sampling was used to select participants based on their experience with NLL products. Participants were drawn from various retail environments across Java where NLL products are available. The target population consisted of consumers in Java who had purchased products displaying NLLs in supermarkets or retail stores. Since the population size was unknown, respondents were recruited using purposeful sampling with screening questions to confirm previous NLL purchase experience. The minimum sample size followed the 10-fold rule (J. Hair & Alamer, 2022), which is ten times the number of the largest structural paths leading to the endogenous construct. A total of 320 samples were used in this study. Table 2 shows the demographic details and characteristics of the respondents.

All variables were measured using indicators adapted from existing literature. Customer perception of nutrition label accessibility (CPA) was operationalized using two accessibility-related indicators: Store Environment, reflecting the store layout and arrangement that facilitates access to products displaying nutrition/health information, adapted from P et al. (2020); and Shelf Space, reflecting the visibility and availability of nutrition/health information at the shelf level, adapted from Flamand et al. (2016). Customer attitudes toward NLL products were measured using indicators from Rivaroli et al. (2022), including unhealthy/healthy, disgusting/delicious, unsatisfying/satisfying, and unattractive/attractive. Specifically, customer satisfaction was operationalized through emotional and rational satisfaction dimensions, while retail customer loyalty (RCL) was measured using a construct reflecting customers' tendency to continue choosing and supporting a retailer (Joudeh et al., 2020b). Repurchase intention was measured using an indicator adapted from Carvalho de Mesquita et al. (2024b). The data mining method employed Partial Least Squares (PLS) Structural Equation Modeling (SEM) because it can test causal relationships between latent variables in complex configurations such as mediating and second-order variables. This technique is used to evaluate constructs with many hierarchical indicator dimensions, such as customer involvement and happiness. Data processing was conducted using SmartPLS software.

**Table 1 | Sample's Demographic**

Demographic	Frequency	Percentage	
Gender	Male	63	19.7%
	Female	257	80.3%
	Total	320	100%
Age	20 – 25	59	18.4%
	26 – 30	120	37.5%
	31 – 35	72	22.5%
	36 - 40	42	13.1%
	41 – 45	18	5.6%
	46 - 50	7	2.2%
	> 50	2	0.6%
	Total	320	100%
Education Level	Junior High School	2	0.6%
	High School	166	51.9%
	Diploma	1	0.3%
	Associate degree	34	10.6%
	Bachelor	98	30.6%
	Master	18	5.6%
	Doctorate	1	0.3%
	Total	320	100%
Salary	< Rp. 1.000.000	23	7.2%
	Rp. 1.000.000 – Rp. 2.500.000	58	18.1%
	Rp. 2.500.001 – Rp. 5.000.000	138	43.1%
	> Rp. 5.000.000	101	31.6%
	Total	320	100%
Occupation	Freelance	19	6%
	Household-wife	29	9%
	Entrepreneur	76	23.8%
	Civil Servant	11	3.4%
	Private Employee	167	52.2%
	Other	18	5.6%
	Total	320	100%
	Frequency	Less than four times a month	230

More than four times a month	90	28.1%
Total	320	100%

Source: Data Processed (2025)

## 4. RESULTS AND DISCUSSION

### 4.1 RESULTS

According to Byon and Jang (2024), SEM-PLS has two stages of data processing: evaluation of the outer model and evaluation of the inner model. The outer model examines the indicators' loading, construct validity, and reliability, while the inner model analyzes the correlation's meaning and direction among the variables. This study used a hierarchical component model, which necessitates a two-step approach to outer model evaluation (J. F. Hair et al., 2019; S. Wang et al., 2024).

#### 4.1.1. Outer Model

##### *Indicator Loading & Convergent Validity*

**Table 2 | Indicator Loading & Convergent Validity**

Indicator	Factor Loading	AVE
CA1	0.792	0.667
CA3	0.818	
CA4	0.840	
CS1	0.855	
CS2	0.912	0.748
CS4	0.826	
RCL1	0.870	
RCL2	0.742	
RCL3	0.919	0.732
RCL4	0.881	
RI1	0.895	
RI2	0.888	
RI3	0.916	0.809
RI4	0.897	
CPA1	0.719	
CPA2	0.727	
CPA3	0.803	0.595
CPA4	0.783	
CPA6	0.822	
CPA7	0.781	
CPA8	0.779	
CPA9	0.755	

Note: CA = Customer Attitude; CS = Customer Satisfaction ; RCL = Retail Customer Loyalty ; RI = Repurchase Intention ; CPA = Customers' Perceived Accessibility of Nutri-Level Labels

Source: Data Processed (2025)

As shown in Table 3, the results of the loading indicators and convergent validity indicate that all indicators have factor loading values above the threshold of 0.70. Thus, each indicator adequately represents the latent construct (Kariathi et al., 2025). The Average Variance Extracted (AVE) value for all constructs exceeds the minimum criterion of 0.50, indicating that the measurement model meets the criteria for convergent validity. Overall, the constructs of customer attitude (CA), customer satisfaction (CS), retail customer loyalty (RCL), repurchase intention (RI), and customer's perceived accessibility (CPA) demonstrate good, consistent measurement quality. Thus, the measurement model is suitable for proceeding to the evaluation stage of the recovery model and testing.

##### *Discriminant Validity*

**Table 3 | Fornell-Larcker Criterion**

	CA	CPA	CS	RCL	RI
CA	0.817				
CPA	0.602	0.772			
CS	0.447	0.591	0.865		
RCL	0.575	0.611	0.541	0.856	
RI	0.509	0.581	0.543	0.852	0.899

Note: CA = Customer Attitude; CS = Customer Satisfaction ; RCL = Retail Customer Loyalty ; RI = Repurchase Intention ; CPA = Customers' Perceived Accessibility of Nutri-Level Labels

Source: Data Processed (2025)

The discriminant validity test using Fornell-Larcker, shown in Table 4, indicates that the AVE value for each construct is higher than the correlation value between other constructs. These results indicate that each construct in the model has a high level of discrimination and can represent different concepts. Thus, by fulfilling the Fornell-Larcker criteria, we can conclude that the constructs of customer attitude (CA), customer perceived accessibility (CPA), customer satisfaction (CS), retail customer loyalty (RCL), and repurchase intention (RI) have met discriminant validity. Therefore, the measurement model is ready for evaluation in the structural model.

**4.1.2. Construct Reliability**  
**Composite Reliability & Cronbach’s alpha**

**Table 4 | Composite Reliability and Cronbach’s Alpha**

	Composite Reliability	Cronbach's Alpha
CA	0.857	0.751
CPA	0.922	0.903
CS	0.899	0.832
RCL	0.916	0.877
RI	0.944	0.921

Note: CA = Customer Attitude; CS = Customer Satisfaction ; RCL = Retail Customer Loyalty ; RI = Repurchase Intention; CPA = Customers’ Perceived Accessibility of Nutri-Level Labels

Source: Data Processed (2025)

Two parameters are used in the construct reliability test: composite reliability and Cronbach's alpha. Table 5 shows that all of the reliability test results have high composite reliability values ranging from 0.857 to 0.944 and Cronbach's alpha values ranging from 0.751 to 0.921. All of these values exceed the recommended threshold of 0.70. These results suggest that each construct effectively measures the latent variables under study. Specifically, the Customer Perceived Accessibility (CPA), Retail Customer Loyalty (RCL), and Repurchase Intention (RI) constructs demonstrate an extremely high level of reliability, with composite reliability values exceeding 0.90. Meanwhile, the Customer Attitude (CA) and Customer Satisfaction (CS) constructs exhibit an adequate level of reliability, with composite reliability values surpassing 0.85. Therefore, all constructs in the model are reliable and ready for the structural model evaluation stage.

**4.1.3. Inner Model**  
**R Square**

**Table 5 | R Square**

	R Square
CA	0.362
CS	0.350
RCL	0.476
RI	0.426
CPA	0.362

Note: CA = Customer Attitude; CS = Customer Satisfaction ; RCL = Retail Customer Loyalty ; RI = Repurchase Intention ; CPA = Customers’ Perceived Accessibility of Nutri-Level Labels

Source: Data Processed (2025)

The R-square test revealed that the endogenous constructs ranged from 0.350 to 0.476, suggesting a moderate model level. Customer attitude (CA) has an R-squared value of 0.362, meaning that customer perceived accessibility (CPA) can explain approximately 36.2% of the variance in customer attitudes. Meanwhile, customer satisfaction (CS) has an R-square value of 0.350, meaning the exogenous variables in the model explain 35.0% of the variance in customer satisfaction. The Retail Customer Loyalty (RCL) construct shows the highest R-squared value, 0.476, indicating that the combination of customer attitude and customer satisfaction can explain 47.6% of the variance in retail customer loyalty. Repurchase intention (RI) has an R-square value of 0.426, meaning that approximately 42.6% of repurchase intentions can be explained by customer attitudes and satisfaction. Overall, the R<sup>2</sup> value shows that the structural model has a fairly strong and relevant predictive ability in explaining customer behavior toward products labeled as health nutrition.

**F Square**

**Table 6 | F Square**

	CA	CPA	CS	RCL	RI
CA				0.102	0.048
CPA	0.568		0.538	0.084	0.074
CS				0.068	0.086
RCL					
RI					

Source: Data Processed (2025)

The F-squared test results in Table 6 show that customer perceived accessibility (CPA) strongly influences customer attitude (CA), with an F-squared value of 0.568, categorized as a large effect. Furthermore, CPA shows a significant influence on customer satisfaction with an F-square value of 0.538. This confirms the important role of the accessibility of health nutrition labels in shaping customer attitudes and satisfaction.

Additionally, CA has a small to near moderate effect on RCL (F-square = 0.102) and RI (F-square = 0.048). Similarly, customer satisfaction shows a small effect on retail customer loyalty (RCL) (F-square = 0.068) and repurchase intention (RI) (F-square = 0.086). Overall, these results indicate that, although customer attitude and satisfaction contribute to loyalty and repurchase intention, customer perceived accessibility is the main factor providing a substantive contribution to the structural model of this study.

**Inner VIF**

**Table 7 | Inner VIF**

	CA	CPA	CS	RCL	RI
CA				1.600	1.600
CPA	1.000		1.000	1.969	1.969
CS				1.569	1.569
RCL					
RI					

Note: CA = Customer Attitude; CS = Customer Satisfaction ; RCL = Retail Customer Loyalty ; RI = Repurchase Intention ; CPA = Customers' Perceived Accessibility of Nutri-Level Labels

Source: Data Processed (2025)

The results of the inner variance inflation factor (VIF) test in Table 7 show that all VIF values range from 1.000 to 1.969, which is well below the recommended threshold of 3.3 or 5.0. These results suggest an absence of multicollinearity issues among the predictor constructs in the structural model. Therefore, the path coefficient estimates are considered stable and free from bias due to high correlations between the independent variables.

**4.1.4. Significant of Hypothesis Testing**

**Table 8 | T Value Statistics**

Hypothesis Sequences		Original Sample (O)	T Statistics ( O/STDEV )	P Values	Result
H1	CPA -> CA	0.602	13.969	0.000	Supported
H2	CPA -> CS	0.591	12.814	0.000	Supported
H3	CA -> RCL	0.292	4.000	0.000	Supported
H4	CS -> RI	0.278	3.528	0.000	Supported
H5	CA -> RI	0.211	2.679	0.004	Supported
H6	CS -> RCL	0.236	3.220	0.001	Supported

Note: CA = Customer Attitude; CS = Customer Satisfaction ; RCL = Retail Customer Loyalty ; RI = Repurchase Intention ; CPA = Customers' Perceived Accessibility of Nutri-Level Labels

Source: Data Processed (2025)

The results of the hypothesis testing indicate that all structural relationships in this research model have a positive and significant effect. Customer perceived accessibility (CPA) has a strong influence on customer attitude (CA) ( $\beta = 0.602$ ;  $t = 13.969$ ;  $p < 0.001$ ) and customer satisfaction (CS) ( $\beta = 0.591$ ;  $t = 12.814$ ;  $p < 0.001$ ). This indicates that the ease with which customers can access, read, and understand health nutrition labels plays an important role in shaping customer attitudes and satisfaction.

Additionally, customer attitude and customer satisfaction significantly influence retail customer loyalty and repurchase intention. CA's influence on RCL ( $\beta = 0.292$ ;  $t = 4.000$ ;  $p < 0.001$ ) and RI ( $\beta = 0.211$ ;  $t = 2.679$ ;  $p = 0.004$ ) indicates positive attitudes increase loyalty and repurchase intention. Similarly, CS significantly influences RCL ( $\beta = 0.236$ ;  $t = 3.220$ ;  $p = 0.001$ ) and RI ( $\beta = 0.278$ ;  $t = 3.528$ ;  $p < 0.001$ ). Interestingly, CA also showed a significant direct effect on RCL ( $\beta = 0.295$ ) and RI ( $\beta = 0.289$ ). This indicates that health nutrition label accessibility plays a direct role in customer loyalty and repurchase intention, in addition to its indirect role through attitude and satisfaction.

#### 4.1.5. Indirect Effect

**Table 9** | Indirect Effect Test

	Original Sample (O)	T Statistics ( O/STDEV )	P Values
CPA → CA → RCL	0.176	3.744	0.000
CPA → CS → RCL	0.140	3.054	0.001
CPA → CA → RI	0.127	2.583	0.005
CPA → CS → RI	0.164	3.350	0.000

Note: CA = Customer Attitude; CS = Customer Satisfaction ; RCL = Retail Customer Loyalty ; RI = Repurchase Intention ; CPA = Customers' Perceived Accessibility of Nutri-Level Labels

Source: Data Processed (2025)

The measurement of mediation between variables is determined based on the significance of the indirect effect coefficient (J. F. Hair et al., 2021). The results of the mediation test indicate that customer attitude (CA) and customer satisfaction (CS) significantly impact the relationship between perceived accessibility of nutrition labels (CPA) and retail customer loyalty (RCL), as well as repurchase intention (RI). Specifically, the CPA → CA → RCL pathway ( $\beta = 0.176$ ;  $t = 3.744$ ;  $p < 0.001$ ) and the CPA → CS → RCL pathway ( $\beta = 0.140$ ;  $t = 3.054$ ;  $p = 0.001$ ) were significant, indicating that ease of access, readability, and understanding of nutrition labels increase customer loyalty by fostering positive attitudes and higher satisfaction levels with products and retailers.

Furthermore, the mediation effect on the relationship between CPA and repurchase intentions was significant. The intermediate results, CPA → CA → RI ( $\beta = 0.127$ ;  $t = 2.583$ ;  $p = 0.005$ ) and CPA → CS → RI ( $\beta = 0.164$ ;  $t = 3.350$ ;  $p < 0.001$ ), indicate that the accessibility of health nutrition labels on food and beverage products in retail outlets affects repurchase intentions through customer attitudes and satisfaction. These results suggest that customers who can easily locate or read nutrition labels in a store will have more positive attitudes and satisfaction, ultimately causing repurchase intentions.

Additionally, since CPA has a significant direct influence on RCL and RI, the roles of CA and CS can be described as partial mediators. This validates the idea that the accessibility of nutrition labels on food and beverage products in outlets acts as a central stimulus that simultaneously affects affective reactions (attitude and satisfaction) and customer behavior (loyalty and repurchase intention). Therefore, the presented mediation findings offer valuable contributions to the theoretical foundation of understanding psychological processes through which easily available health information on retail products can convert into loyal, repeat behavior in the consumer decision-making process.

## 4.2 DISCUSSION

This paper tests how the perceived accessibility of Nutri-Level Labels (NLL) affects customer attitudes, satisfaction, loyalty, and repurchase intentions when retail stores sell products with NLL. In general, the study findings reveal that the NLL of retail products (food and beverages) is the key determinant of customers' cognitive, affective, and behavioral reactions. Perceived accessibility of nutrition level labels affects customer attitudes and satisfaction. The analysis demonstrates that

customer attitude and satisfaction are positively and significantly affected by the perceived accessibility of Nutri-level labels. These results affirm earlier research showing that layout concepts that satisfy consumers can influence their attitudes and satisfaction (Mowrey et al., 2020; Suresh et al., 2025). As expected by research on service quality and its role in customer outcomes, the perceived accessibility of Nutri-level labels plays a significant role in customer attitudes and satisfaction. Accessibility improves convenience and ease of use, which directly impacts attitudes and satisfaction. Studies have shown that service quality, such as accessibility, is significant to customer satisfaction. Research indicates that improving the perceived quality of service positively influences customer satisfaction, fostering loyalty and favorable attitudes (Sutriani et al., 2024). The quality of services in retail stores, including attributes of the store environment that maximize convenience, increases customer satisfaction (Garaus, 2017). Ease of access to nutrition labels on food and beverage products influences customer attitudes by reducing the difficulty of searching for information and making decisions, as well as facilitating more positive product evaluations (Newman et al., 2018). Thus, increasing the accessibility of nutrition label information through product layouts that make it easier for customers to access nutrition and health information, especially on food and beverage products, is a profitable strategy for retail stores because it fosters positive attitudes and customer satisfaction, which contributes to loyalty.

### **The Influence of Attitude and Satisfaction on Loyalty and Repurchase Intention**

The research also shows that customer satisfaction and attitude play a significant role in driving retail customer loyalty and intention to repurchase. These two factors are key drivers of loyalty and repurchase intention. Studies indicate that satisfaction and favorable attitudes contribute to greater repurchase and retention likelihood. These findings are consistent with earlier studies (Joudeh et al., 2020; Liu-Thompkins et al., 2022; Nakamori et al., 2022). Service quality and engagement often act as mediating factors between attitude and repurchase behavior, with satisfaction mediating the relationship. These results underscore the need to improve customer service to enable repeat business and customer loyalty. Interest in positive products and retailers leads to enhanced customer engagement, and customer satisfaction has been reported to be a key predictor of repurchase intentions. These results support the idea that customer experience is positively correlated with loyalty and repeat purchases in retail settings through attitudes and satisfaction as critical psychological processes (Aityassine, 2022; Powers et al., 2018). Theoretical evidence indicates that customer attitude advancement through empathetic service, interesting experiences, and communication boosts customer satisfaction, which consequently empowers loyalty and repurchase intentions. These results imply that retail managers must focus on strategies that instill positive customer attitudes and increase customer satisfaction to ensure long-term customer retention and repeat business.

However, research in health-oriented retail contexts suggests that customer attitudes and satisfaction do not always significantly drive loyalty. For instance, studies on retail loyalty programs, especially those offering discounts and promotions, show that satisfaction alone does not necessarily lead to loyalty (Khairawati, 2019). Additionally, research on sustainable retail practices shows that positive customer trust and attitudes do not significantly increase loyalty. This demonstrates the complexity of the relationship between satisfaction, trust, and loyalty (Barbosa et al., 2023). Additionally, satisfaction's impact on loyalty may differ by customer segment, with stronger effects observed among goal-oriented shoppers compared to experience-oriented ones. Overall, these studies suggest that, in health-related retail strategies such as the perceived accessibility of the Nutri-level label, attitudes and satisfaction may not uniformly or strongly lead to loyalty without considering other mediating factors and differences among customer segments.

### **The Role of Customer's Perceived Accessibility of Nutri-Level Labels in Shaping Customer Loyalty and Repurchase Intention**

The direct effects of customers' judgments about nutritional labels and product availability on loyalty and repurchase intentions in retail stores are important because they emphasize the need for transparent, easily accessible standards for customers

assessing health nutrition labels. Retailers can develop trust and raise the perceived convenience of their stores by allowing customers to easily access and interpret nutritional label information. Customer satisfaction, loyalty, and repurchase intentions increase in retailing due to improvements in the customer shopping experience through clear, accessible product labels and in-store information (Maharani et al., 2020; Terblanche, 2018). This is a significant source of loyalty because customers are more likely to return to stores that have proven to be open and willing to assist with and encourage health-conscious consumer choices regarding food and beverage purchases. Furthermore, readable nutrition labels help customers associate the retailer with a positive image that extends beyond product quality to encompass the retailer's overall quality and ethics (Kabaja et al., 2022; Newman et al., 2018). Simplifying access to and understanding of NLL is part of a retailer's social responsibility and consumer awareness. This is gradually becoming an important factor for consumers seeking retailers who can meet their needs, such as offering consumer care in providing transparency and health awareness. Finally, the direct route between felt accessibility and loyalty and repurchase intentions is emphasized as multidimensional since it offers accessibility information for consumers who require NLL as an ingredient and as a tool to create brand equity. However, research shows that, although easily accessible nutrition labels support customer trust, convenience, and retailer image—factors associated with loyalty and repurchase intentions—their direct impact is not always significant or consistent. Product quality and the overall customer experience often play a more important role in driving repurchase intentions than label accessibility alone (Maribeth & Meylani, 2024). Brand loyalty and personalized marketing engagement influence repurchase behavior more strongly than information transparency. Furthermore, complexity or confusion resulting from unclear information can mitigate the positive effect of nutrition labels on repurchase intention.

### **The Mediating Role of Customer Attitude and Customer Satisfaction**

The mediation test results reveal that customer attitude and customer satisfaction are partial mediators in the relationship between customers' perceived accessibility of Nutri-Level labels (NLL) and retail customers' loyalty and repurchase intention. This indicates the process by which NLL accessibility affects customer behavior. Initially, it develops positive attitudes and greater satisfaction (Gün & Söyük, 2025; Lin et al., 2022). The availability of nutrition facts that are simple to locate, read, and comprehend promotes more favorable ratings of products and stores, which subsequently enhances customer loyalty and repurchase intentions. However, since the direct influence of perceived NLL accessibility on customer loyalty and repurchase intention was not weaker, this outcome demonstrates that NLL accessibility influences both rational and affective mechanisms. Based on these findings, we can expand our knowledge of the role of health information in retail settings by affirming that the effectiveness of Nutri-Level Labels depends not only on their presence, but also on their adoptability and accessibility to customers.

We analyzed the interaction mediation between cognitive and affective variables in shaping retail customer loyalty under the application of NLLs. When customers view NLL as easily accessible, readable, and comprehensible, it positively contributes to the cognitive assessment of the product and retailer. It also reinforces emotional involvement in the form of positive attitudes and increased satisfaction. This emotional appeal will lead to customer loyalty and repurchase. Additionally, the strong direct influence of customer perceived accessibility of Nutri-Level labels on loyalty and repurchase intention suggests that altering nutrition label accessibility is not solely based on emotional mediation. This result indicates that customers integrate the rational and emotional elements of their decision-making process. This two-way communication response indicates that the success of NLLs is due to the combined effects of actual usability and emotional involvement of customers. Therefore, this research paper is significant to retail and consumer behavior literature because it explains how more accessible health nutrition labels influence customer attitudes, satisfaction, and loyalty in a healthier retail setting.

## 5. CONCLUSION

This research finds that customer-perceived accessibility to Nutri-Level Labels (NLLs) influences not only attitudes and satisfaction, but also directly and indirectly influences retail customer loyalty and repurchase intentions. These results indicate that readily available, readable, and intelligible NLLs are a strategic process through which health nutrition information relates to customers' cognitive and affective reactions, ultimately affecting purchasing behavior. Therefore, the primary conclusion of this study is that retailers and manufacturers must implement nutrition labeling policies and maximize the visual design, appearance, and readability of NLLs to create a better customer experience and establish long-term relationships. Additionally, the findings of this study affirm that the effectiveness of NLL policies is contingent on customer accessibility, so a user-centered labeling strategy should be adopted in retail practices and in designing product health information policies.

## 6. LIMITATION AND IMPLICATION

This paper will demonstrate, using empirical data, that the customer's perceived ease of access to nutrition labels is a meaningful factor in forming customer attitudes, satisfaction, loyalty, and intention to repurchase in a retail setting. The results of the study analysis reveal that the ease with which consumers can find nutrition labels directly and indirectly influences customer behavior. The semi-mediating role of attitude and satisfaction affirms that the effects of the availability of nutrition labels in retail stores (supermarkets) are mediated by cognitive and affective processes, reinforcing theoretical knowledge about how health information can transform into regular, loyal behavior.

While this study makes an empirical contribution, it has several limitations worth discussing. First, the study is restricted to retailers in Indonesia, where the implementation of Nutri-Level Labels (NLL) is still a relatively new practice. Thus, the study sample is oriented toward contemporary middle-to-upper-segment supermarkets and does not reflect the full range of retail formats and customer traits, including those in traditional markets or low-income retailers.

This research has a theoretical impact by broadening research on consumer behavior, health labeling, and retail settings, highlighting the availability of information rather than NLLs specifically. These findings support the stimulus-organism-response (SOR) model, in which the availability of nutrition labels is a compelling retail environmental stimulus that influences customers' cognitive and affective responses, which subsequently determine their loyalty and repurchase intentions. Thus, this research substantiates that the effectiveness of health information in retail depends heavily on how it is incorporated into a health-oriented retail store setting. Practitioners and policymakers can use these results to design and implement strategies for locating, interpreting, and using health nutrition labels in store environments. This helps customers make healthier choices, increases satisfaction, and improves long-term relationships between customers and retailers.

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**Conflict of Interest Statement:** The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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