



Health-Oriented Retail Strategies: How Perceived Accessibility of Nutri-Level Labels Drives Customer Attitude, Satisfaction, Repurchase Intention and Loyalty

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Abstract

The implementation of Nutri-Level Labels (NLL) is promoted more and more as a policy tool to support healthier consumer choices in Indonesia; however, the empirical evidence regarding the effects of the accessibility of these labels on customer behavior in retail environments is scarce. This study is aimed at examining the influence of customer perceptions of accessibility of Nutrition Level Labels to customer attitudes, customer satisfaction, retail customer loyalty, and customer re-purchase intention. Using a quantitative approach, data were gathered from 320 respondents using purposive sampling through a structured survey and analyzed using Partial Least Squares-Structural Equation Modeling (PLS-SEM). The results suggest that the academic attitude and satisfaction, customer loyalty, and commitment to purchase of customers have a significant positive impact on customer attitudes and satisfaction because of the perceived accessibility of nutrition labels. Furthermore, customer attitudes as well as customer satisfaction are capable of mediating the connection between nutrition label accessibility and customer loyalty and repurchase intentions at retail. These findings suggest that when retail stores make it easy for visitors to find easily accessible nutrition labels, it can shape customer behavior. This study points to the importance of retail strategies in the organization of health-oriented stores by providing store layouts with user-centered and product nutrition-level information and offers practical implications for retailers and policy makers in the development of health-oriented retail environments.

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

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1. INTRODUCTION

Indonesian government will enforce Nutri-Level labels (NLL) on processed food. This is one of the policies aimed at promoting good lifestyles and literacy levels among the people. This accounts to attempts in stemming out the health complications that are brought about by the use of too much sugar, salt, and fats (SFF). Indonesia will follow the system of labelling Singapore has, including Nutri-Grade of their products as suggested and described by Government Regulation (PP) Number 28 of 2024, which determines the nutritional content, which includes sugar, salt, and fats. Supermarkets as marketing displays of processed goods are also very important in taking advantage of the policies mentioned above. Nonetheless, the utilization of these policies in offering the customers perceived availability of nutrition level label products can impact the customer behavior, including attitude, satisfaction, loyalty, and intentions of purchasing products again at that retailer. The given phenomenon is the context of this study, which can offer answers and strategic suggestions to retailers regarding the enhancement of their services and business expansion by exploring opportunities to offer health-related services (O'Connor, 2022; Pione et al., 2025).

Retail customer behavior including customer attitudes, customer satisfaction, and customer loyalty are key elements of retail development. Similarly, repurchase intention is closely linked to customer loyalty, economic benefits, and retail growth strategies (Lim et al., 2018). In previous research, many influences were linked and measured with interaction and environment (Barrientos-Báez et al., 2025), affective and social experience (Liu-Thompkins et al., 2022), sales person influence (Soon-Hwa Choi, 2018). Furthermore, previous research has focused more on aspects of store atmosphere, including leanness, lighting, music, and employee appearance (Mfundu Ndengane et al., 2021). Although this study is original since it fills a gap in the literature and can be taken as a practical reference, one could use the issue of a specific review of perceived accessibility of health product labels with retail stores and its effect on customer attitudes, customer satisfaction, customer loyalty, and customer repurchase intentions.

This study explores the role of retail outlets that prominently display health-labeled product information that is, products with clear and easily visible nutrient level labels on customer perceptions, satisfaction, loyalty, and repurchase intentions. In 2015, Nielsen report, more than 60% of global consumers are willing to pay a premium price for products with clear, easy-to-understand and credible product labels, underscoring the growing consumer demand for transparency in health-related products. This is followed by the latest market data showing that more than 63% of consumers actively seek nutritional information on packaged foods, with younger age groups (e.g., Generation Z) showing a higher willingness to pay a premium price for healthier, clearly labeled products (Goel, 2025). The increasing emphasis on consumer health has led to a growing trend in health-oriented retail (Grandi et al., 2025) where retailers, recognizing the growing demand for healthy food product options, provide products that promote well-being and transparency. This trend aligns with government regulations requiring nutrient level labeling on processed foods, reinforcing the role of the retail environment in shaping consumer behavior. In this context, retail outlets not only serve as points of distribution but also as critical touchpoints where health labels can enhance or diminish customer engagement, influencing decision-making processes. Despite the potential for nutrition/health level labels to facilitate informed purchasing decisions, there remains a gap in understanding how the availability of these labeled products in retail environments directly impacts consumer outcomes (X. Wang, 2024). The phenomenon of health-oriented Retail presents a compelling area for study, particularly as it intersects with 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 as it offers insights into how retailers can optimize their offerings to meet health-conscious consumer needs, foster brand loyalty, and drive repeat purchases. The study will determine through empirical means how perceived accessibility of nutri-level labels (NLL) products to customers affects their customer satisfaction, creates positive attitudes of customers towards retail stores, customer loyalty and repurchase intention.

This study contributes to the current literature on consumer behaviour and retail management by provides empirical evidence on the role that the perceived accessibility of nutri-level labels (NLL) items has on consumer behaviour (satisfaction) and their attitudes as well as a loyal customer and buying again. In theoretical terms, the study builds upon the already created frameworks of customer decision-making by adding the concept of accessibility into the context of the standardized nutrition labelling regulations. This is an aspect that scholars have paid a little attention. In light of the growing importance of health-conscious consumer behavior and the role that nutrition-level labels (NLL) can play in promoting healthier purchasing decisions, it is crucial to understand how retail environments can facilitate or hinder consumer engagement with these products. The accessibility and visibility of NLL products in retail outlets are key factors influencing consumer decision-making. By enhancing the visibility of these health-labeled products through effective store layout and product placement, retailers can encourage healthier purchasing habits, ultimately fostering a more health-conscious consumer base. This study aims to analyze the influence of perceived accessibility of Nutri-level label on customer attitudes, satisfaction, repurchase intentions, and customer loyalty in the context of health-oriented retail strategies, and provide actionable implications for retail managers to improve accessibility of NLL.

2. LITERATURE REVIEW

Customers' Perceived Accessibility of Nutri-Level Labels & Customer Attitude

Perceived accessibility of nutri-level labels is a concept that indicates a general feeling of how nutrition and health-related information can be accessed, interpreted, and utilized by customers in the context of in-store shopping (Baccelloni et al., 2021). The cognitive approach towards information processing is that consumers have a tendency to utilize the readily available and least cognitively demanding cues when making judgments on product qualities that are connected to health and nutrition. The easier nutrition labeling information is seen to be available, the more consumers will pay attention, comprehend, and incorporate it into their product information (Egnell et al., 2020).

The evidence of past researchers upon the subject has indicated that the availability of information reflected by the information layout and shelf organization according to the products (nutri-level label information in food/drink products) has a significant impact on the attitudes of consumers (Florea et al., 2025; Zaccone & Minciullo, 2025). The availability of nutrition information makes the consumer more confident in their rating of products, perceived simpler information and makes more positive responses both cognitively and affectively to products (Steinhauser et al., 2019). On the other hand, consumers will be frustrated or uninterested in finding nutritional information and having a more negative attitude when they perceive that the information is not easily accessible or simply understood (Sukma Wijaya et al., 2020). Therefore, the perception of access to nutrition labels are an influential information cue to the shaping of customer attitudes toward food products in a retail store. The hypothesis of this study is as follows based on the above:

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

Customers' Perceived Accessibility of Nutritional Labels & Customer Satisfaction

Customer satisfaction is the general assessment of a consumer regarding a product or shopping experience driven by how their expectations and information requirements are fulfilled (Joudeh et al., 2020a). Accessibility of straightforward and understandable nutrition level of product information is also a significant aspect of the shopping experience in the context of buying food/beverage products in retail shops (supermarkets), especially to the consumers that base their decision-making process on health-related qualities (Zou & Liu, 2019). Perception of nutrition level labels as easily available makes consumers have greater ability to evaluate product attributes, as a result, enhanced power of control and the confidence enhances consumers effectiveness in evaluating purchase. Previous research has shown that 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). Easily accessible nutri-level labels of product facilitate smoother information processing and minimize cognitive load, resulting in a more satisfying shopping experience. Therefore, customers' perceived accessibility of

nutri-level labels is expected to result in positive post-evaluation responses, reflected in higher levels of customer satisfaction. Based on these arguments, the following hypothesis is proposed:

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

Customer Attitude, Customer Satisfaction and Retail Customer Loyalty

Customer loyalty refers to 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 particular store may become loyal customers of that store (store loyalty) (Nakamori et al., 2022a). Previous studies have shown that loyalty is largely driven by consumer evaluative responses formed through attitudinal and experiential processes (Reitsamer et al., 2024; Zaid & Patwayati, 2021). Customer attitudes reflect consumers' overall positive or negative evaluations of a product, which influence the formation of their preferences and future behavioral intentions (Karim et al., 2022). Therefore, a more positive attitude towards a product is expected to strengthen 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. Extensive empirical evidence suggests that satisfied customers are more likely to make repeat purchases and develop long-term loyalty, as satisfaction reduces perceived risk and strengthens trust in a product or brand. Therefore, both customer attitudes and customer satisfaction are considered key antecedents of customer loyalty in the context of retail stores that provide easy access for customers searching for nutrition-labeled products. Based on the literature review above, the following hypotheses are proposed:

H3: Customers' Attitude positively influences Customer Loyalty

H6: Customers' Satisfaction positively influences Customer Loyalty

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 and is one of the drivers to support a Company in achieving sustainable profits (Fan et al., 2025). Repurchase intention is generally well known as one of the greatest predictors of post purchase behavior and long term customer product relationships. The attitude of customers is also significant in determining the contentment of repurchase intention since positive judgements with a product raise consumer preference and intention to repeat their purchasing behavior (Carvalho de Mesquita et al., 2024a). Positive attitudes lead to consumers being more consistent in their decision-making patterns and repeat-buying.

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

H4: Customers' Satisfaction positively influences Repurchase Intention

H5: Customers' Attitude positively influences Repurchase Intention

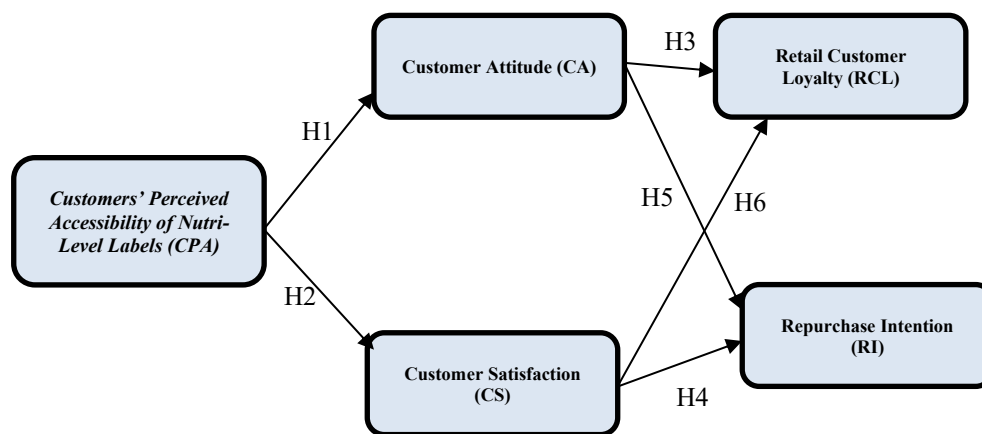


Figure 1| The Conceptual Framework

3. RESEARCH METHOD

The data were collected through a survey administered to consumers who had experience with nutrition labels (NLLs) in supermarkets or retail stores in Java, Indonesia. The sample consisted of individual consumers who actively shopped at retail outlets displaying NLL products. Purposeful sampling was used to select participants based on their relevant experience with NLL products. The sample was drawn from various retail environments across Java where NLL products are available. The target population consisted of consumers in Java, Indonesia, who had purchased products displaying nutri-level labels (NLL) in supermarkets/retail stores. Because the population size was unknown, respondents were recruited using purposive 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 represents the demographic details and characteristics of the respondents.

This study measured all variables 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 towards NLL products were measured using indicators from (Rivaroli et al., 2022), namely unhealthy/healthy, disgusting/delicious, unsatisfying/satisfying, and unattractive/attractive. Specifically, customer satisfaction was operationalized through the dimensions of emotional satisfaction and rational satisfaction, while retail customer loyalty (RCL) was measured using the loyalty construct that reflects the customer's tendency to continue choosing and supporting the retailer on an ongoing basis by (Joudeh et al., 2020b). while Repurchase Intention was measured using a repurchase intention indicator adapted from (Carvalho de Mesquita et al., 2024b). The data mining method employed the Partial Least Squares (PLS) Structural Equation Modeling (SEM) technique because it has the advantage of testing causal relationships between latent variables in complex configurations, such as mediating variables and second-order variables'. The second-order technique is employed to assess constructs comprising many hierarchical indicator dimensions, exemplified as customer involvement and customer happiness. Data processing was conducted utilizing SmartPLS software.

Table 1 | Sample's Demographic

Demographic	Frequency	Percentage
Gender	Male	63
	Female	257
	Total	320
Age	20 – 25	59
	26 – 30	120
	31 – 35	72
	36 - 40	42
	41 – 45	18
	46 - 50	7
	> 50	2
	Total	320
Education Level	Junior High School	2
	High School	166
	Diploma	1
	Associate degree	34
	Bachelor	98
	Master	18
	Doctorate	1
	Total	320
Salary	< Rp. 1.000.000	23
	Rp. 1.000.000 – Rp. 2.500.000	58
	Rp. 2.500.001 – Rp. 5.000.000	138
	> Rp. 5.000.000	101
	Total	320
Occupation	Freelance	19
	Household-wife	29
	Entrepreneur	76
	Civil Servant	11
	Private Employee	167
	Other	18
Total	320	
Frequency	Less than four times a month	230
	More than four times a month	90
	Total	320

Source: Data Processed (2025)

4. RESULTS AND DISCUSSION

4.1 RESULTS

SEM-PLS has two stages of data processing evaluation of the outer model and evaluation of the inner model (Byon & Jang, 2024). The outer model looks at the loading of the indicators, construct validity, and reliability, and the inner one analyses the meaning and direction of correlation among the variables. This study utilized a hierarchical component model, which requires a two-step approach to outer model evaluation (J. F. Hair et al., 2019; S. Wang et al., 2024).

4.1.1. Outer Model

4.1.1.1. 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)

The results of the loading indicators and convergent validity in Table 3 show that all indicators have factor loading values above the threshold of >0.70, so that each indicator is able to adequately represent the latent construct (Kariathi et al., 2025). The Average Variance Extracted (AVE) value for all constructs has also exceeded the minimum criterion of 0.50, indicating that convergent validity has been met in the measurement model. Overall, the constructs of Customer Attitude (CA), Customer Satisfaction (CS), Retail Customer Loyalty (RCL), Repurchase Intention (RI), and Customer’s Perceived Accessibility (CPA) show good and consistent measurement quality, so that the measurement model is declared suitable to proceed to the evaluation stage of the recovery model and testing.

4.1.1.2. 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)

In the discriminant validity test using Fornell-Larcker, where the validity test results are shown in Table 4, 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 good level of discrimination and is able to represent different concepts from each other. By fulfilling the Fornell-Larcker criteria, it can be concluded that the constructs of Customer Attitude (CA), Customer's Perceived Accessibility (CPA), Customer Satisfaction (CS), Retail Customer Loyalty (RCL), and Repurchase Intention (RI) have met discriminant validity, so that the measurement model is declared worthy to proceed to the structural model evaluation stage.

4.1.2. Construct Reliability

4.1.2.1. 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)

There are two parameters used in the construct reliability test: composite reliability and Cronbach's alpha. Table 5 shows that all reliability test results have high composite reliability values, ranging from 0.857 to 0.944, and Cronbach's alpha values between 0.751 and 0.921, all of which exceed the recommended threshold (>0.70). These findings indicate that each construct has a good level of internal consistency in measuring the latent variables studied. Specifically, the Customer's Perceived Accessibility (CPA), Retail Customer Loyalty (RCL), and Repurchase Intention (RI) constructs show a very strong level of reliability with composite reliability values above 0.90, while the Customer Attitude (CA) and Customer Satisfaction (CS) constructs also show adequate reliability with composite reliability values above 0.85. Thus, all constructs in the model are declared reliable and worthy of proceeding to the structural model evaluation stage.

4.1.3. Inner Model

4.1.3.1. 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 found that the endogenous constructs were in the range of 0.350 to 0.476, indicating a moderate model level. Customer Attitude (CA) has an R Square value of 0.362, indicating that Customer's Perceived Accessibility (CPA) is able to explain approximately 36.2% of the variance in customer attitudes. Meanwhile, Customer Satisfaction (CS) has an R Square value of 0.350, indicating that the exogenous variables in the model explain 35.0% of the variance in customer satisfaction. Furthermore, the Retail Customer Loyalty (RCL) construct shows the highest R Square value of 0.476, indicating that the combination of Customer Attitude and Customer Satisfaction is able to explain 47.6% of the variance in retail customer loyalty. Meanwhile, Repurchase Intention (RI) has an R Square value of 0.426, indicating that approximately 42.6% of customer repurchase intentions can be explained by customer attitudes and satisfaction. Overall, the R Square value shows that the structural model has a fairly strong and relevant predictive ability in explaining customer behavior towards products labeled as health nutrition.

4.1.3.2. F Square

Table 6 | F Square

	CA	CPA	CS	RCL	RI
CA					0.102
CPA		0.568		0.538	0.084
CS					0.068
RCL					
RI					

Source: Data Processed (2025)

The F-square test results in Table 6 show that Customer's Perceived Accessibility (CPA) has a strong influence on Customer Attitude (CA) with an F-square value of 0.568, which is categorized as a large effect. Furthermore, CPA also shows a significant influence on Customer Satisfaction (CS) with an F-square value of 0.538, confirming the important role of accessibility of health nutrition labels in shaping customer attitudes and satisfaction.

Furthermore, the influence of Customer Attitude (CA) on Retail Customer Loyalty (RCL) (F Square = 0.102) and Repurchase Intention (RI) (F Square = 0.048) is in the small to near moderate effect category. Similarly, Customer Satisfaction (CS) 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's Perceived Accessibility is the main factor that provides a substantive contribution in the structural model of this study.

4.1.3.3. Inner VIF

Table 7 | Inner VIF

	CA	CPA	CS	RCL	RI
CA					1.600
CPA		1.000		1.000	1.969
CS					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 (<3.3 or <5.0). This finding indicates the absence of multicollinearity problems among the predictor constructs in the structural model, so the path coefficient estimates can be considered stable and free from bias due to high correlations between the independent variables.

4.1.4. Significant of Hypothesis Testing

Table 8 | Hypotesis Test

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's Perceived Accessibility (CPA) is proven to have a strong influence on Customer Attitude (CA) ($\beta = 0.602$; $t = 13.969$; $p < 0.001$) and Customer Satisfaction (CS) ($\beta = 0.591$; $t = 12.814$; $p < 0.001$), which indicates that ease of access, readability, and understanding of health nutrition labels play an important role in shaping customer attitudes and satisfaction. In addition, Customer Attitude (CA) and Customer Satisfaction (CS) significantly influence Retail Customer Loyalty (RCL) and Repurchase Intention (RI). The influence of CA on RCL ($\beta = 0.292$; $t = 4.000$; $p < 0.001$) and RI ($\beta = 0.211$; $t = 2.679$; $p = 0.004$) indicates that positive customer 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, CPA also showed a significant direct effect on RCL ($\beta = 0.295$) and RI ($\beta = 0.289$), indicating that the accessibility of health nutrition labels not only plays an indirect role through attitude and satisfaction, but also has a direct impact on customer loyalty and repurchase intention.

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) play a significant role in bridging the relationship between customers' perceived accessibility of nutrition labels (CPA) and retail customer loyalty (RCL) and repurchase Intention (RI). Specifically, the mediation pathway CPA → CA → RCL ($\beta = 0.176$; $t = 3.744$; $p < 0.001$) dan CPA → CS → RCL ($\beta = 0.140$; $t = 3.054$; $p = 0.001$) proven significant, indicating that ease of access, readability, and understanding of health nutrition labels increase customer loyalty through the formation of positive attitudes and higher levels of satisfaction with products and retail.

Moreover, the mediation effect on the relationship between CPA and repurchase intentions is also significant in the test results. Intermediate results are 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) that indicate the effects on repurchase intentions of the accessibility of food/beverage product health nutrition labels located in retail outlets is not limited, but operates through the customer attitudes and satisfaction. Such results suggest that customers who can easily locate or read nutrition labels in a store will have more positive attitudes and satisfaction which is the ultimate cause of repurchase intentions.

Additionally, because CPA is a significant direct influence that affects RCL and RI, the role of CA and CS can be described as a partial mediator. This validates that accessibility of health nutrition labels of food/beverage products in the outlets act as a central stimulus that can at the same time either affect affective (attitude and satisfaction) reactions and affect the customer behavior (loyalty and repurchase intention). Therefore, the presented findings of the mediation offer a valuable contribution to the theoretical foundation of understanding the psychological processes where any easily available health information on retail products may be converted into loyal and repeat behavior in the consumer decision-making process.

4.2 DISCUSSION

This paper tests how retail stores selling the Nutri-level labels (NLL) products as indicated by the perceived accessibility of the Nutri-level labels, the perceived accessibility of the Nutri-level labels, affects customer attitudes, customer satisfaction, and customers' loyalty, and customers' repurchase intentions. In general, the study findings reveal that the Nutri-level label of the retail products (food and beverage) is the key determinant of cognitive, affective, and behavioral reactions of the customers. The Perceived accessibility of nutrition level labels and customer attitudes and their satisfaction. The analysis findings demonstrate that customer Attitude and customer satisfaction are positively and significantly affected by the perceived accessibility of the nutri level nutri-labels by customers. These findings affirm the results of earlier researchers where layout concepts facilitating and satisfying the consumers can determine visitor attitudes and satisfaction (Mowrey et al., 2020; Suresh et al., 2025). The perceived accessibility of nutri-level labels by the customers plays a significant role on the customer attitude and customers' satisfaction, as would be expected by research on service quality and its role in customer outcome. Accessibility improves the convenience and easy use which has direct impact on attitudes and satisfaction. Studies have shown that quality in service provision such as accessibility is significant in customer satisfaction. The research indicates that increasing the perceived quality of the service has a positive influence on customer satisfaction, leading to loyalty and promoting a favorable attitude toward behavior (Sutriani et al., 2024). The quality of services in retail stores comprising store environment attributes, which maximize convenience, augments customer satisfaction (Garaus, 2017). Ease of access to nutrition labels on food and beverage products in retail stores influences customer attitudes by reducing difficulties in the information search and decision-making process, as well as facilitating more positive product evaluations (Newman et al., 2018). Thus, for retail stores, increasing the accessibility of nutri-level labels information through product layouts that make it easier for customers to access product's nutrition and health information, especially on food and beverage products, is a profitable strategy, because it can foster positive attitudes and customer satisfaction which in turn contributes to the formation of loyalty.

The Influence of Attitude and Satisfaction on Loyalty and Repurchase Intention

The research also shows that customer attitudes and satisfaction play a significant role in driving retail customer loyalty and repurchase intention. Customer attitudes and satisfaction are key drivers of retail customer loyalty and repurchase intention. Studies indicate that customer satisfaction and a favorable attitude contribute to a greater likelihood of repurchase and retention. The outcomes of this research are consistent with the results of earlier works (Joudeh et al., 2020; Liu-Thompkins et al., 2022; Nakamori et al., 2022). Service quality and engagement frequently serve as a mediating factor between attitude and repurchase behavior in which satisfaction mediates the relationship. These results underscore the need to ensure customers are better-attended to through better customer attitudes and customer satisfaction to enable repeat business and customer loyalty. Interests in the positive products and retailers lead to the enhanced customer engagement whereas customer satisfaction has been reported to be a key predictor of repurchase intentions. These results add to the opinion that customer experience is positively correlated with loyalty and repeat purchase behavior in a retail setting through the action of attitudes and satisfaction as the most critical

psychological processes (Aityassine, 2022; Powers et al., 2018). Theoretical evidence indicates that Customer attitude advancement by 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 those strategies that allow instilling positive customer attitudes and increasing customer satisfaction to guarantee a long-lasting customer retention and repetitive business.

However, research in the health-oriented retail context suggests that customer attitudes and satisfaction may not always significantly drive loyalty. For example, studies in the context of retail loyalty programs, particularly those involving discounts and promotions, indicate that satisfaction alone does not always drive loyalty (Khairawati, 2019). Furthermore, research on sustainable retail practices indicates that, despite positive customer trust and attitudes, these factors do not significantly increase loyalty, demonstrating the complexity of the relationship between satisfaction, trust, and loyalty (Barbosa et al., 2023). Furthermore, the impact of satisfaction on loyalty may vary by customer segment, with stronger effects observed among goal-oriented shoppers compared to experience-oriented shoppers. Overall, these studies suggest that in health-related retail strategies, such as the perceived accessibility of Nutri-level label, attitudes and satisfaction may not uniformly or strongly lead to loyalty without considering other mediating factors and customer segment differences.

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

The direct effects of customer judgments about the levels of nutritional labels and product availability on customer loyalty and repurchase intentions in the retail stores (supermarkets) are of importance because they emphasize on the need of transparent and easily accessible standards among customers assessing health nutrition labels. Retailers are able to develop a sense of trust as well as conspicuously raise perceived convenience when they allow customers to easily access and interpret nutritional level label information (NLL). In retailing, customer satisfaction, loyalty and repurchase intentions increase due to improvement of the customer experience during shopping through the addition of clear and accessible product labels and in-store information (Maharani et al., 2020; Terblanche, 2018). This is a significant source of loyalty, since customers will be more likely to revert to stores that proved to be open and willing to assist and encourage health-based consumer choices in the purchase of food and beverages. Moreover, the readable nutrition labels help customers associate the retailer with a positive image, which goes beyond the product quality to embrace the overall quality and ethics of the retailer (Kabaja et al., 2022; Newman et al., 2018). Moreover, simplifying the access to and understanding of label-level nutrition information (NLL) by customers is part of the social responsibility and consumer awareness of a retailer. This is gradually proving to be a serious factor to consumers when seeking retailers who can approach their needs, such as the offering of consumer-care in the provision of transparency and health awareness. Finally, the direct route between the felt accessibility and the loyalty and repurchase intentions is emphasized as a multidimensional one since it can offer not only accessibility information used by consumers that require nutritional labeling (NLL) as an ingredient but also as a tool to relate and create brand equity. However, research shows that while 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 tend to influence repurchase behavior more strongly than information transparency (Baykal et al., 2024). Furthermore, complexity or confusion resulting from unclear information can mitigate the positive effect of nutrition labels on repurchase intention (Baykal et al., 2024).

The Mediating Role of Customer Attitude and Customer Satisfaction

The mediation test results reveal that Customer Attitude and Customer Satisfaction are partial mediators in a linkage between Customers' Perceived Accessibility of Nutri-Level Labels (NLL) with Retail Customers' Loyalty and Repurchase Intention. This discovery indicates the process by which the Nutri-Level Label accessibility has an effect on the customer

behaviour, which is, initially, the development of customer affective responses in the form of positive attitudes and even greater amounts of satisfaction (Gün & Söyük, 2025; Lin et al., 2022). Availability of simple to locate, read and comprehend nutrition facts promotes more favorable ratings of the product and store which subsequently enhances customer loyalty and acquiring intentions. Nevertheless, since the direct influence of the perceived accessibility of Nutri-Level Labels in customer loyalty and repurchase intention was not less intense, this outcome demonstrates that the Nutri-Level Label accessibility had both an influence via rational and affective mechanisms. Based on these findings, we can expand our knowledge on the role of health information in the retail setting by affirming that how well Nutri-Level Labels works depends not only on their presence but on the degree to which they are adoptable and accessible to customers’.

Analysis of interaction mediation between cognitive and affective variables in shaping retail customer loyalty under the application of Nutri-Level Labels (NLL). In such a way that customers view NLL as something easily accessible, easy to read, easy to comprehend, it will positively contribute to cognitive assessment of the product and the retailer, as well as it will reinforce the emotional involvement in the form of the positive attitude and the increase in the level of satisfaction. This emotional appeal by the two will lead to a customer loyalty and repurchase. In addition, the strong direct influence of Customer Perceived Accessibility of Nutri-Level Labels on Loyalty and Repurchase Intention hints to the fact that the alteration of nutrition label accessibility is not all grounded in the mediation of emotions. This result means that the customers integrate the rational element of their decision-making process, which includes easiness and informational understandability, with the affective one. This two-way communication response supports the fact that the success of Nutri-Level Labels results in a compounding action of actual usability and emotional involvement of a customer. Therefore, this research paper is significant to the literature of retail and consumer behavior because it explains the role of more accessible health nutrition labels to influence customer attitudes and customer satisfaction at the same time leading to higher loyalty in a healthier retail setting.

5. CONCLUSION

This research finds that customer perceived accessibility to Nutri-Level Labels (NLL) is a determinant that not only influences attitudes and customer satisfaction but also directly and indirectly influences retail customer loyalty and repurchase intentions. These results indicate that readily available, readable, and intelligible Nutri-Level Labels, is a strategic process through which the health nutritionist information relates with the cognitive and affective reactions of customers, which in the end affects the purchasing behavior. Hence, the primary conclusion of this research consists in the necessity of retailers and manufacturers to implement not only the policy of nutrition labeling but also to maximize the visual design, apparent, and readability of the Nutri-Level Labels as one of the measures of creating better customer experience and establishing long-term relations. Contextually, this study findings affirm that the effectiveness of Nutri-Level Label policies is strongly contingent on perceived accessibility of customers, so user-centered labeling strategy should be adopted in retailing practices and in the context of designing product health information policies.

6. LIMITATION AND IMPLICATION

This paper will demonstrate through empirical data that the perceived ease of access to nutri-level labels by the customer is a meaningful determinant in the formation of customer attitude, customer satisfaction, retail customer loyalty, and the intention to repurchase in a retail setting. The results of the study analysis reveal that the direct and indirect influence of the customer behavior is ranged by the ease of accessibility of consumers in finding the nutri-level labels. The semi mediatory role of attitude and satisfaction affirms that the effects of availability of nutri-level labels in the retail stores (supermarkets) is mediated by both cognitive and affective processes and reinforce theoretical knowledge regarding the way that health information can be transformed into regular and loyal behavior.

Although this study has an impact on the empirical contribution, it has a number of limitations that are worth discussing.

To start with, the study is restricted to retailers in Indonesia where the implementation or even the adoption of Nutri-Level Labels (NLL) is practiced, a practice that is still relatively new to date. Thus, the study sample is more oriented to contemporary supermarkets of the middle-to-upper segment and does not reflect the entire range of retail formats and customer traits, including the ones that exist in the traditional markets, or retailers that belong to the low economic segment.

This research has a theoretical impact by broadening the research on consumer behavior, health labeling, and the retail setting by highlighting the aspect of availability of information, but not the availability of Nutri-Level Labels (NLL) only. Such findings support the stimulus, organism, response (SOR) model where nutrition label availability is a compelling retail environmental stimulus in the determination of cognitive and affective responses by the customers' that subsequently determine the loyalty and repurchase intentions. In this way, this research substantiates the fact that health information effectiveness in retail has high dependency on the manner in which it is incorporated in a retail store setting that has a health orientation. In practice, the implications these results have on practitioners and policymakers are designing and applying easier to locate, interpret, and use health nutrition labels in a store environment management strategy, which helps to make healthier consumption choices, increase customer satisfaction, and improve long-term customer retailer relationships.

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