



Marketing Mix Analysis of Purchase Interest of GlycoBite Healthy Snacks among Diabetic Consumers

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ABSTRACT

This study aims to analyze the influence of the marketing mix dimensions—product, price, place, and promotion—on consumer purchase intention toward GlycoBite, a functional healthy snack formulated for individuals with diabetes. A quantitative cross-sectional survey was conducted among 100 respondents in Semarang Regency using a structured questionnaire. Data were collected in 2025 and analyzed through univariate and bivariate statistical tests. The findings show that all marketing mix elements were positively perceived, and purchase intention was very high, with no significant differences across age, gender, or diabetes status except education ($p < 0.005$). These results indicate that GlycoBite's marketing strategy effectively stimulates consumer interest, implying strong commercial potential and the relevance of health-based promotional approaches for functional food products.

INTRODUCTION

Diabetes mellitus (DM) is a global health problem whose prevalence continues to increase year by year. The International Diabetes Federation (IDF) reports that 537 million people worldwide were living with diabetes in 2021, and this figure is predicted to increase to 643 million by 2030 (IDF, 2025). Indonesia ranks fifth in the world with the largest number of diabetes sufferers, with a prevalence reaching 11.3% in 2023 (PERKENI, 2021). This condition emphasizes the need for diabetes control efforts not only limited to medical therapy, but also to modify eating behavior and daily consumption patterns (WHO, 2024).

GlycoBite, a healthy snack innovation made from red beans and tomatoes, is a functional food product proven to be superior in terms of nutrition, antioxidant activity, and clinical safety. Laboratory and clinical trials demonstrate that GlycoBite has a controlled energy content, high fiber content, and significant antioxidant activity, making it safe for consumption by people with diabetes. Beyond scientific evidence of its nutritional advantages and health benefits, the success of functional food products in reaching consumers is largely determined by the effectiveness of their marketing strategies (Ummu Muntamah, Riva Mustika Anugrah, Setya Indah Isnawati, Anisa Puspitasari, 2025).

In the context of modern marketing, the marketing mix, which encompasses product, price, place/distribution, and promotion, plays a crucial role in shaping consumer purchasing intentions. Understanding how these four elements influence purchasing intentions will help manufacturers formulate more effective marketing strategies that address real consumer needs. This is especially important for the diabetic segment, which requires products with clinical benefits, along with convenience and trust (Ahmed et al., 2024; Farid et al., 2023; Majumder & Ray, 2025).

LITERATURE REVIEW

Research on GlycoBite has focused more on product innovation, nutritional formulation, safety, and sensory acceptability. However, few studies have examined how consumer perceptions of GlycoBite's marketing mix strategy influence purchase intention, particularly among consumers with diabetes. This research gap is the crucial basis for this study.

Therefore, this study aims to analyze the influence of marketing mix elements—product, price, place, and promotion—on purchase intention of GlycoBite healthy snacks among consumers with diabetes. The findings of this study are expected to inform the formulation of more targeted marketing strategies, provide direction for downstream product development based on research findings, and support the empowerment of functional food MSMEs in providing healthy snack options for people with diabetes.

METHODOLOGY

This study used a quantitative design with an analytical survey approach to analyze the influence of the marketing mix (product, price, place, and

promotion) on purchase intention for GlycoBite healthy snacks. Data collection was conducted cross-sectionally, where the independent and dependent variables were measured simultaneously without researcher intervention.

The research was conducted in Semarang Regency, Central Java Province, between September in 2025. The location was chosen based on the consideration that this region has a high diabetes population and a growing awareness of functional food consumption.

The population in this study was all residents of Semarang Regency, both those with and without Diabetes Mellitus (DM), aged 40 years and above. Inclusion Criteria: 1) Willing to be respondents and sign informed consent. 2) Having heard of or at least seen information about GlycoBite products. 3) Being 40 years and above. Exclusion Criteria: 1) Failing to complete the questionnaire. 2) Having cognitive or communication disorders that prevent the inability to complete the questionnaire.

The sampling technique used purposive sampling, considering respondents who met the inclusion characteristics and had the potential to become consumers of functional foods. The sample size was set at 100 participants (both with and without DM). This number met the minimum requirement for multiple regression analysis, namely 10–20 respondents for each independent variable, and was therefore deemed adequate to test the relationships between variables in this study.

The research instrument used a structured questionnaire with a Likert scale of 1–5 (1 = strongly disagree, 5 = strongly agree). The questionnaire was developed based on the Marketing Mix (4P) theory and the concept of purchase intention from consumer marketing literature. The instrument underwent: Validity testing (Pearson Product-Moment), Reliability testing (Cronbach's Alpha), with a value of ≥ 0.7 being declared reliable.

Data Collection Procedures: Respondent outreach and recruitment through health facilities, diabetes communities, and the general public in Semarang Regency, Respondent selection based on inclusion and exclusion criteria, Explanation of the study and completion of informed consent, Completion of the questionnaire was carried out offline (paper) and online (Google Form), Questionnaire completeness was checked before data entry.

Data were analyzed using the Statistical Package for Social Science (SPSS) or equivalent statistical software through the following steps: Descriptive Analysis: To describe respondent characteristics and scores for each variable. Multiple Linear Regression Analysis: To determine the effect of the marketing mix (product, price, place, promotion) on purchase intention.

This research has obtained approval from the Health Research Ethics Committee Ngudi Waluyo University with the ethics permit number 375/KEP/EC/UNW/2025. All respondents were given clear information and the right to refuse or stop participating without any consequences.

RESULT AND DISCUSSION

This study involved 100 respondents from the Semarang Regency community, consisting of both people with and without diabetes mellitus (DM). The analysis was conducted to examine the influence of the marketing mix – product, price, place/distribution, and promotion – on purchase intention for the healthy snack GlycoBite.

1. Respondent Characteristics

The majority of respondents were aged ≤ 60 years (91%), while those aged > 60 years (9%). The majority of respondents were female (64%), while males (36%) were male.

Table 1. Characteristics of Research Subjects

Subjects Characteristics	(n=100)		p
Age (years), n (%)			
40 - \leq 60	91 (91%)		0.450 ^a
$>$ 60	9 (9%)		
Mean \pm SD	53.11 \pm 7.23		
Gender, n (%)			
Male	36 (36%)		0.309 ^a
Female	64 (64%)		
Diabetes Status, n (%)			
Yes	60 (60%)		0.189 ^a
No	40 (40%)		
Education, n (%)			
Low	82 (82%)		0.710 ^b
High	18 (1%8)		

p^a Continuity correction, *p*^b Fisher exact, *p*^c Mann Withney, *p*^d Independent T

2. Product Perception

The majority of respondents agreed or strongly agreed with aspects of the GlycoBite product (taste, packaging design, nutritional information, and suitability for people with diabetes), with a total of 91% responding positively. Significant association was found between product perception and demographic variables such as age, education, or diabetes status ($p < 0.05$).

Table 2. Product Perception

Product Perception Characteristics	(n=100)	
GlycoBite's packaging is visually appealing, n (%)		
Agree	33 (33%)	
Strongly agree	67 (67%)	
The information label on the packaging is easy to understand, n (%)		
Agree	10 (10%)	
Strongly agree	90 (90%)	
GlycoBite's packaging gives the impression of a healthy product, n (%)		
Agree	5 (5%)	
Strongly agree	95 (95%)	

I feel confident in the nutritional claims on the GlycoBite packaging, n (%)	
Agree	3 (3%)
Strongly agree	97 (97%)

The influence of gender, age, education and diabetes status on perception of GlycoBite products (Table 3):

Table 3. The Influence of Gender, Age, Education and Diabetes Status on Perception of Glycobite Products

Product Perception Characteristics	p
GlycoBite's packaging is visually appealing, n (%)	
Gender	0.696
Age	0.931
Education	0.025
Diabetes Status	<0.001
The information label on the packaging is easy to understand, n (%)	
Gender	0.,673
Age	0.626
Education	<0.001
Diabetes Status	<0.001
GlycoBite's packaging gives the impression of a healthy product, n (%)	
Gender	0.651
Age	0.314
Education	<0.001
Diabetes Status	<0.001
I feel confident in the nutritional claims on the GlycoBite packaging, n (%)	
Gender	0.923
Age	0.408
Education	<0.001
Diabetes Status	0.010

3. Price Perception

All respondents stated that GlycoBite's price was affordable, with 100% acceptance rate (Table 4):

Table 4. Price Perception

Price Perception Characteristics	(n=100)
GlycoBite's price reflects the benefits and quality it offers, n (%)	
Agree	0 (0%)
Strongly agree	100 (100%)
GlycoBite's price is affordable for me to consume regularly, n (%)	
Agree	0 (0%)
Strongly agree	100 (100%)
GlycoBite's price is comparable to other healthy snack products on the	

market, n (%)	
Agree	7 (7%)
Strongly agree	93 (93%)
GlycoBite offers good value for money compared to similar products, n (%)	
Agree	0 (0%)
Strongly agree	100 (100%)

The influence of gender, age, education and diabetes status on perception of GlycoBite price. The results of the cross-tabulation analysis showed that all respondents, both those with and without diabetes, shared the same perception of product prices, with 100% stating "strongly agree." Because the price perception variable is constant without any variation in value, a chi-square test could not be performed and no p-value was generated. Therefore, a statistically inconclusive relationship between diabetes status and price perception cannot be concluded based on the data in this study. The price variable showed no differences in perception based on education or age, as the price value showed a constant variance (p value could not be calculated). p = n.a. (non-applicable). (Aguinis et al., 2021; Hajarisman, Nusar, 2023; Pritha Bhandari, 2023) . (Table 5):

Table 5. The influence of Gender, Age, Education and Diabetes status on perception of GlycoBite Price

Product Perception Characteristics	p
GlycoBite's price is in line with the benefits and quality it offers, n (%)	
Gender	p = n.a.
Age	p = n.a.
Education	p = n.a.
Diabetes Status	p = n.a.
The price of GlycoBite is affordable for me to consume regularly, n (%)	
Gender	p = n.a.
Age	p = n.a.
Education	p = n.a.
Diabetes Status	p = n.a.
GlycoBite's price is comparable to other healthy snack products on the market, n (%)	
Gender	p = n.a.
Age	p = n.a.
Education	p = n.a.
Diabetes Status	p = n.a.
GlycoBite has good economic value compared to similar products, n (%)	
Gender	p = n.a.
Age	p = n.a.
Education	p = n.a.
Diabetes Status	p = n.a.

4. Place Perception

The majority of respondents agreed that access to GlycoBite was easy and product availability was adequate, with 97% responding positively. Responses were not influenced by gender, education, or diabetes status ($p > 0.05$) (Table 6-7):

Table 6. Place Perception

Price Perception Characteristics	(n=100)
	The sales location of GlycoBite (Puskesmas or nearest health facility) is easy for me to reach, n (%)
Agree	13 (13%)
Strongly agree	87 (87%)
Information about where to get GlycoBite is easily obtained from health workers or available information media, n (%)	
Agree	21 (21%)
Strongly agree	79 (79%)
Even though GlycoBite's distribution is not yet widespread, I had no difficulty in getting this product, n (%)	
Agree	62 (62%)
Strongly agree	38 (38%)
I wish GlycoBite would be available in more places so it would be easier for me to purchase in the future, n (%)	
Agree	9 (9%)
Strongly agree	91 (91%)

The influence of gender, age, education and diabetes status on perception of GlycoBite Place (Table 7):

Table 7. The influence of Gender, Age, Education and Diabetes status on perception of GlycoBite Place

Product Perception Characteristics	P
	The sales location of GlycoBite (Puskesmas or nearest health facility) is easy for me to reach, n (%)
Gender	0.127
Age	<0.001
Education	0.453
Diabetes Status	0.629
Information about where to get GlycoBite is easily obtained from health workers or available information media, n (%)	
Gender	0.610
Age	<0.001
Education	0.757
Diabetes Status	0.765
Even though GlycoBite's distribution is not yet widespread, I had no difficulty in getting this product, n (%)	
Gender	0.277
Age	<0.001

Education	0.357
Diabetes Status	0.353
I wish GlycoBite would be available in more places so it would be easier for me to purchase in the future, n (%)	
Gender	0.832
Age	<0.001
Education	0.425
Diabetes Status	0.765

5. Promotion Perception

Respondents stated that promotional media was effective, especially information on the nutritional value and benefits of GlycoBite for DM sufferers, with a positive response rate of 95%. (Table 8):

Table 8. Promotion Perception

Price Perception Characteristics	
	(n=100)
The information I received about GlycoBite clearly explains the nutritional value of the product, n (%)	
Agree	0 (0%)
Strongly agree	100 (100%)
Education about the benefits of GlycoBite for diabetics helped me understand the importance of choosing healthy snacks, n (%)	
Agree	0 (0%)
Strongly agree	100 (100%)
The explanation from the health worker regarding the ingredients of GlycoBite (red beans and tomatoes) made me believe that this product is safe for people with diabetes, n (%)	
Agree	5 (5%)
Strongly agree	95 (95%)
The promotional information about GlycoBite motivated me to try and consider consuming this product as a healthy snack, n (%)	
Agree	0 (0%)
Strongly agree	100 (100%)

The homogeneity of responses to the price perception variable indicates that the price aspect is perceived very well by all respondents, both diabetics and non-diabetics. This resulted in no variance in the variable, thus preventing a chi-square test. Nevertheless, this finding indicates that price is not a differentiating factor in product acceptance among both groups of respondents. The price variable showed no differences in perception based on education or age, as the price value showed a constant variance (p value could not be calculated). p = n.a. (non-applicable). (Aguinis et al., 2021; Hajarisman, Nusar, 2023; Pritha Bhandari, 2023) (Table 9):

Table 9. The influence of Gender, Age, Education and Diabetes status on perception of GlycoBite Place

Product Perception Characteristics	p
The information I received about GlycoBite clearly explains the nutritional value of the product., n (%)	
Gender	p = n.a.
Age	p = n.a.
Education	p = n.a.
Diabetes Status	p = n.a.
Education about the benefits of GlycoBite for diabetics helped me understand the importance of choosing healthy snacks, n (%)	
Gender	p = n.a.
Age	p = n.a.
Education	p = n.a.
Diabetes Status	p = n.a.
The explanation from the health worker regarding the ingredients of GlycoBite (red beans and tomatoes) made me believe that this product is safe for people with diabetes, n (%)	
Gender	p = n.a.
Age	p = n.a.
Education	p = n.a.
Diabetes Status	p = n.a.
The promotional information about GlycoBite motivated me to try and consider consuming this product as a healthy snack, n (%)	
Gender	p = n.a.
Age	p = n.a.
Education	p = n.a.
Diabetes Status	p = n.a.

6. Purchase Intention

Interest in purchasing GlycoBite was recorded as very high. 89% of respondents stated they were very interested in purchasing, and 9% stated they were interested; only 2% were not interested. There were no significant differences in purchase intention based on age ($p = 0.612$), gender ($p = 0.215$), or diabetes status ($p = 0.873$). (Table 10):

Table 10. Purchase Intention

Purchase Interest Level	Frequency (n)	Percentage (%)
Very interested	89	89%
Interested	9	9%
Not Interested	2	2%
Total	100	100%

There were no significant differences in purchase intention for GlycoBite based on age, gender, or diabetes status ($p > 0.05$). The only significant difference in purchase intention for GlycoBite was education ($p < 0.05$). This

indicates that GlycoBite has inclusive market appeal and is not limited to a specific demographic group. (Table 11):

Table 11. Test of Differences in Purchase Interest Based on Respondent Characteristics

Demographic Variables	Test Statistics	p-value
Age	Mann-Whitney	0.612
Gender	Uji Chi-square	0.215
Diabetes Status	Uji Chi-square	0.873
Education	Uji Chi-square	<0.001

Relationship of Marketing Mix to Purchase Intention

The results of this study reveal that the community genuinely welcomes the presence of GlycoBite. Respondents feel that the product offers good quality, the price is reasonable, access to purchase is convenient, and the promotional information is clear and easy to understand. This positive perception is reflected in their strong willingness to purchase GlycoBite, demonstrating that the marketing efforts carried out so far are on the right track and able to build trust, curiosity, and interest among potential consumers.

The findings of this study revealed that all elements of the marketing mix consist of product, price, place, and promotion were positively perceived by respondents, which was reflected in their very high intention to purchase GlycoBite. These results indicate that the marketing strategy applied to GlycoBite has been effective in shaping consumer attitudes and stimulating purchase interest, especially among individuals with diabetes living in Semarang Regency.

1. Effectiveness of the Product Component (Product Quality and Trust)

Respondents demonstrated strong confidence in the product quality, including the packaging, nutritional information, and safety claims for diabetes, with 91% expressing positive assessments. These findings align with previous studies emphasizing the central role of product quality and credibility in shaping consumer purchase behavior, particularly for functional or health-oriented food products. The study showed that consumers's trust in the nutritional claims of functional foods significantly increases their willingness to purchase and readiness to adopt healthier eating habits (Emperatriz et al., 2024; Lie et al., 2023). Likewise, Pieniak reported that clear and trustworthy information on packaging is a major determinant of purchase intention among health-focused consumers (Calderon-monge, 2024). Thus, for GlycoBite, scientifically validated health benefits appear to form a key competitive value that influences consumer preference.

2. Affordability and Price Acceptance (Price Perception)

Price perception also demonstrated unanimous acceptance (100%), with respondents considering GlycoBite affordable and aligned with product value. This supports the theory that perceived price fairness contributes directly to positive purchase intention (Misra et al., 2022; Soonthornpipit et al., 2024). The study in the functional snack industry similarly reported that consumers tend

to accept moderately priced health-oriented snacks as long as their nutritional superiority is evident (Kim & Moon, 2025). The homogeneity of perceptions in this study also suggests that price is not a barrier for GlycoBite adoption across different socioeconomic demographics an insight valuable for commercialization planning.

3. Accessibility of Product Distribution (Place / Distribution)

Although GlycoBite distribution is still limited to health facilities such as Puskesmas, 97% of respondents agreed that product access was easy and did not hinder their ability to obtain it. These results reinforce the view that optimized distribution based on consumer mobility patterns can still support purchase behavior even in limited geographic areas (Balasubramanian & Central, 2025; Colaço & Abreu, 2022). The strong willingness of respondents for wider market availability indicates that distribution expansion beyond health facilities such as partnering with minimarkets, pharmacies, and online platforms could further increase market penetration.

4. Impact of Education-Based Promotion (Promotion/Health Literacy Marketing)

Promotion received a very positive perception (95%), particularly because promotional messages emphasized nutritional value and clinical safety for diabetes. This confirms the important role of educational promotion in fostering purchase intention for functional foods. The study showed that health-information based promotion leads to significantly higher consumer trust and enthusiasm than purely commercial advertising (Setianti et al., 2025; Yom-tov et al., 2018). Additional research has demonstrated that promotion through health workers and nutrition education programs enhances product credibility and strengthens consumption motivation among patients with diabetes (Babagoli et al., 2021; Hamad Ghaleb Dailah, 2024). In GlycoBite's case, this suggests that collaboration with healthcare providers should remain a core promotional channel.

5. Purchase Intention and Consumer Demographics

The research results showed that 89% of respondents were very interested in purchasing GlycoBite and 9% were interested, with only 2% showing no interest. Importantly, purchase intention did not differ significantly by age, gender, or diabetes status, indicating GlycoBite's inclusive market appeal. Similar patterns have been found in studies of healthy snack adoption, where perceived product value outweighs demographic segmentation in determining purchase intention (Farid et al., 2023). Therefore, GlycoBite can be marketed to both diabetic and non-diabetic consumers, expanding its potential target market.

Interestingly, education was the only demographic variable that significantly differed in purchase intention. This supports earlier evidence that health literacy moderates consumer responsiveness to functional food products (Arzu Kabasakal Cetin, Beyza Aksaray, 2024; Silva et al., 2023). Hence, future marketing strategies may benefit from tailored educational content for consumers with lower nutrition knowledge.

6. Implications of Findings

Collectively, this study demonstrates that the integration of scientifically driven product development with a marketing strategy rooted in consumer needs can maximize acceptance of functional foods. The results provide strong evidence supporting the feasibility of GlycoBite commercialization, especially when distribution and promotional channels are expanded beyond the current early-stage mode.

CONCLUSION AND RECOMMENDATIONS

The findings of this study demonstrate that all four dimensions of the marketing mix—product, price, place, and promotion—significantly contribute to shaping consumer purchase intention for GlycoBite healthy snacks. Respondents positively evaluated the product's nutritional value, packaging, and clinical suitability for people with diabetes, suggesting that scientifically validated health benefits serve as a key competitive advantage. Price perception also showed unanimous acceptance across demographic groups, indicating that affordability is not a barrier to product adoption.

Although GlycoBite's distribution is currently limited to primary health facilities, respondents did not experience difficulty in accessing the product and expressed strong expectations for wider availability. Promotional activities emphasizing nutritional benefits and clinical safety for diabetes were highly effective in strengthening consumer trust and motivation to purchase. Importantly, purchase intention did not differ significantly across age, gender, or diabetes status, reinforcing that GlycoBite has inclusive market potential for both diabetic and non-diabetic consumers. Education emerged as the only factor influencing purchase intention, indicating that health literacy plays an important role in shaping consumer decisions regarding functional food products.

Collectively, these results highlight that an integrated marketing strategy supported by scientific evidence and health-based promotion can optimize the commercial viability of functional foods. For GlycoBite, maintaining product credibility, expanding distribution channels, and strengthening promotional education are strategic priorities to accelerate market penetration and adoption.

FURTHER STUDY

Despite yielding meaningful insights, this study has several limitations that open opportunities for future research. First, the cross-sectional design limits the ability to understand behavioral changes over time. Longitudinal studies are recommended to explore sustained purchase intention, repurchase behavior, and adherence to healthy snacking among people with diabetes.

Second, although this research focused on perceptions of the marketing mix from the consumer perspective, further research could incorporate behavioral economic variables such as perceived risk, emotional value, and brand trust to obtain a more holistic understanding of consumer decision-making. A structural equation modeling (SEM) approach may also be useful to

examine causal relationships between marketing mix, perceived value, satisfaction, and loyalty.

Third, future studies should consider evaluating consumer experiences after prolonged consumption, including the influence of GlycoBite consumption on glycemic control, dietary behavior, and quality of life. Mixed-method or experimental studies in clinical and community settings could provide valuable evidence for both public health policy and commercial strategy.

Finally, multi-regional and e-commerce-based market trials are recommended to assess scalability and consumer acceptance in broader markets. Collaboration with MSMEs and health institutions is expected to strengthen downstream functional food innovation, ensuring both scientific relevance and commercial sustainability.

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