American International Journal of Business Management (AIJBM)
ISSN- 2379-106X, www.aijbm.com Volume 6, Issue 06 (June-2023), PP 205-210

Marketing Mix and Consumer Purchase Intention: Analysis of Blood Glucose Monitoring Device in Indonesia

Tias Hastutie[1], Atik Aprianingsih[2]
[1](*Master of Business Administration, School of Business and Management, Institute Technology Bandung, Indonesia)*
[2](*School of Business and Management, Institute Technology Bandung, Indonesia)*
**Corresponding Author: Tias Hastutie[1]*

ABSTRACT : *This study aims to analyse the consumer purchase intention of the Blood Glucose Monitoring Device and provide insights to reformulate the marketing strategy. Understanding consumer purchase intentions is crucial for developing effective marketing strategies and enhancing the device's market positioning.*
The research design encompasses survey to find solutions for company to reformulate its marketing strategies. Consumer research analysis data involves a survey questionnaire distributed among a diverse sample of potential and current users of Optium consisting of 200 people with the criteria of having diabetes or a family with diabetes. The result showed that five hypotheses were accepted: product of perceived quality, place of brand awareness, promotion of brand awareness, perceived quality of purchase intention and brand awareness of purchase intention. Meanwhile, one hypothesis is unaccepted: the price of perceived quality. The result of these hypotheses was obtained using Partial Least Square-Structural Equation Modelling (PLS-SEM). Based on this analysis, the new proposed marketing mix is determined to meet the market's needs. This can be achieved by implementing a pre-updated marketing mix. Therefore, several alternative strategies are proposed including encouraging the recommendation from doctors or nurses to build a trust of brand awareness, increasing promotions on diabetes events, focusing on the product availability and maintaining customer relation management.

KEYWORDS - *PLS-SEM, blood glucose monitoring, ,purchase intention, perceived quality*

I. INTRODUCTION

Diabetes is a significant health issue that has reached alarming levels. Diabetes is a chronic metabolic disease when blood glucose levels rise as the body fails to produce enough insulin hormones to convert glucose into energy or lipid as reserved energy. Today, more than half a billion people are living with diabetes worldwide. The 2021 International Diabetes Federation (IDF) report showed that an estimated 537 million adults aged 20-79 years worldwide (10.5% of all adults in the age group) have diabetes. By 2030, this number is projected to reach 643 million and 783 million by 2045. It is fundamental for people with diabetes to be diagnosed as early as possible to prevent or delay complications and improve their quality of life. In 2021, almost one-in-two (44,7%) adults living with diabetes (20-79 years old) were found to be unaware of their status. Globally, 87,5% of all undiagnosed cases of diabetes are in low and middle-income countries, with low-income countries having the highest proportion of undiagnosed (50,5%). Indonesia ranks fifth among the top 10 countries for the number of adults with diabetes in 2021 (19,5 million). The Ministry of Health in Indonesia has addressed the alarming numbers of diabetes patients with a prevalence rate of 11,6%, and it is the primary cause of death within the country. The undiagnosed rate was less than 50%, and the control rate was less than 20% making diabetes one of Indonesia's crucial problems in public health sectors (IDF, 2022).

The endocrinologist association in Indonesia has developed guidelines for preventing and managing diabetes (Perkeni Guidelines, 2020). These programs are implemented through an educational program focusing on the need to control blood glucose as an effective way to screen and reduce the complication of diabetes. The key to monitoring blood glucose was patient behaviour and self-care diabetes management. Indonesia Diabetes Patients Association (Persadia) have deliberated on a number of effective educational programs for diabetes patients with the critical information to manage blood glucose levels as self-management strategies. Self-monitoring of blood glucose is essential to diabetes management as a standard practice through a physician to adjust clinical treatment and minimise complications (IDF, 2022). Several clinical methods are used for blood glucose monitoring for the daily self-management of diabetes, one of the most efficient methods is regularly checking the blood glucose level using a tool called glucose device. The devices are small, easy to operate,

home user-friendly and economical with fast results. The first pocket-sized blood glucose device was launched in the 1960s, measuring blood glucose with a drop of capillary blood.

Since its function has been well known to anticipate the direct effect of diabetes, the revenue of the Glucose device segment is projected to reach US$ 1.68 billion in 2023. The Revenue is expected to have an annual growth rate (CAGR 2023-2027) of 7.31%, resulting in a projected market volume of US$2.23 billion by 2027. User penetration will be 0.82% in 2023 and is expected to level up by 0.86% (yoy) by 2027. Compared to Indonesia, the blood glucose monitoring devices market skyrocketed and it is projected to reach US$ 12,12 Million by 2023. The Revenue is expected to have an annual growth rate (CAGR 2023-2027) of 6.94%, resulting in projected market volume of US$ 15,85 by 2027 (yoy). User penetration will be 0.18% in 2023 and is expected to hit 0.18% by 2027. In Indonesia, it is estimated that there are more than 470.000 patients who actively use the monitoring Devices. It is projected that the number will increase by 2027 to reach up to 530.000 patients.

In order to give insight to the company in formulating improved market strategy, this study aimed to understand the overall trend of consumer value by focusing on purchasing intention on targeted diabetes patients and identify the factors influencing purchase of blood glucose monitoring systems. However, the market is very competitive and dynamic. It can be identified that there are a number of players fiercely competing to get sales. Accu Chek (Roche) has led the market with its share reaching 32%. It is followed by Beurer (24%), Sinocare (17%), Medisca (8%), Onetouch (7%), Contour (4%), Optium (3%) and other non-brand, probably imported from China 5%. In order to give insight to the company in formulating improved market strategy, this study aimed to understand the overall trend of consumer value by focusing on purchasing intention on targeted customers and identify the factors influencing the brand's purchase of blood glucose monitoring systems.

II. RESEARCH METHOD

Surveys were employed to measure the population's various characteristics, including self-reported and observed behavio**u**r, awareness programs, attitudes, opinions, and needs (Kabir, 2018). The questionnaire used in this study was divided into three sections. The first section was designed to screen potential respondents, while the second section collected demographic and marketing mix data from the participants. The third section aimed to measure customers' perceptions of the variables included in the research hypotheses. To ascertain the degree of agreement or disagreement, a five-point Likert scale was employed in the survey questions. The scale included the following anchors: (1) Strongly Disagree, (2) Disagree, (3) Neutral, (4) Agree, and (5) Strongly Agree. The PLS-SEM analysis will be conducted several times until the model is reliable and valid in the outer model before the model is being evaluated in the inner model testing. PLS-SEM used 200 respondents with the criteria of diabetes patients or who have a history or family with diabetes. PLS-SEM has two models : the measurement model (Outer Model) and Structural Model (Inner Model). The outer model shows how the observed variables can represent the latent variables to be measured and the inner model shows the significance between constructs (Ghozali, 2015). The following hypotheses are developed following the literature findings and the conceptual framework: Product and Price marketing mix have a significant influence on perceived quality of Blood Glucose Monitoring Device, Place and Promotion marketing mix have a significant influence on brand awareness, Perceived Quality and Brand Awareness have a significant influence on Purchase Intention.

III. RESULT AND DISCUSSION

At the outer model test or measurement model, the relationship between indicators and the latent variable is examined, to define how each indicator could relate to each variable. The outer model test is a modelling process that aims to investigate and confirm the indicators, and the PLS-SEM will confirm the model, which is Confirmatory Factor Analysis (Haryono, 2016). In this measurement, the convergent validity, discriminant validity and reliability will be evaluated. Convergent validity test is measured using the loading factor, which calculates the relationship between the indicators with the latent variable. The minimum loading factor of the indicator on each variable is 0.7 to be declared valid, and the indicator will be dropped in the next validity test (Haryono, 2016). There are some indicator loading factors below 0.7, thus the second-phase validity test has to be conducted again after dropping the indicators which are PRICE1, PRO1, PROMO3, PROMO6 and BA4. In the second phase outer model, shows that the loading factor of all indicators is above 0.7, meaning that the convergent validity results are declared valid. In addition to the factor loading value, convergent validity can be measured using the Average Variance Extracted (AVE) with a minimum of 0.5, which indicates that the latent variable can explain more than half of the indicator on average variance (Haryono, 2016). According to the AVE value in Table III.1, all the variables are declared valid.

Table III.1 Average Variance Extracted Results

Variables	Average variance extracted (AVE)
X1	0.669
X3	0.571
X4	0.675
Y1	0.692
Y2	0.663
Z1	0.776

The discriminant validity test is conducted by assessing the Cross-Loading value to determine whether the variable has adequate discriminant. This step is conducted by comparing the loading value of the indicator in the intended construct, which must be larger than the loading value of the indicator's loading factors to have the highest value in the intended variable compared to the loading factor in other variables. Since the value of correlation, cross-loading factors for each latent construct for the corresponding indicator is higher than for the other constructs, it can be concluded that the indicators used to measure the latent variables have met the requirements. After the outer model is declared valid, the reliability test uses Cronbach's Alpha and Composite reliability. This research adopts a minimum of Cronbach's Alpha of 0.6 and Composite reliability of 0.7 which still can be tolerated (Ghozali, 2015). All the variable results are above the minimum tolerance, indicating that all indicators are declared reliable.

The overall score for all variables in this research can be summarised to understand the gap between potential customers and existing customers of Blood Glucose Monitoring Device. The descriptive statistics conclude that perceived quality, brand awareness and purchase intention are the top three variables with the highest gap between those two groups (0.375;0.478 and 0.590). This result could be emphasised to reformulate marketing strategies by finding the right marketing mix element to improve these variables.

Table III.2 Total Score Mean Results

Variable	Have not Purchased (Mean)	Have Purchased (Mean)	Score Gap
Product	3.81	4.11	0.30
Price	3.35	2.99	(0.36)
Place	3.33	3.54	0.21
Promotion	2.29	2.35	0.07
Perceived Quality	3.82	4.19	0.37
Brand Awareness	3.25	3.72	0.48
Purchase Intention	3.59	4.18	0.59

After all the requirements of the outer model have been accomplished, the next step is measuring the inner model. It aims to predict the relationship between variables, Inner model in PLS-SEM is evaluated by using the R-Squared (R2), predictive relevance, and path coefficient.

According to Ghozali (2015), an R-square value of 0.25 indicates a weak model, 0.5 indicates a moderate model and 0.75 strong model. The R-square value assesses how much an endogenous variable (dependent variable) can be described by an exogenous variable (independent variable). By using the software to calculate the value between constructs, the output for R square distribution is shown below:

Table III.3 R-Square and Predictive Relevance

Variable	R-square	Predictive Relevance (Q2)
Brand Awareness	0.535	0.712
Perceived Quality	0.263	
Purchase Intention	0.326	

The table III.3 shows that the variable of place and promotion 53.5% moderate explain the dependent variable of brand awareness. Perceived quality could be explained by 26.3% of the model, while the independent variable product and price weakly explain the dependent variable perceived quality. The variable of purchase intention is

explained by 32.6% of the model , meanwhile, the independent variable of perceived quality and brand awareness weakly explains the dependent variable of purchase intention. The predictive relevance of 0.712 shows that the model has predictive relevance while less than 0 indicates no predictive relevance.
The next stage of the inner model is evaluating the path coefficient, which aims to measure the significant effect between the variables and test the hypothesis. The significance level in the path coefficient is calculated using T-statistic ≥ 1.96 at 5% confidence level or p-value ≤0.05 which is obtained through the bootstrapping process (Ghozali, 2015). The path coefficient value estimates the positive or negative relationship between the variables.

Table III.4 Path Coefficient and Hypothesis Outcomes

	Path coefficients	Outcomes
X1 -> Y1	0.728	H1 Supported
X2 -> Y1	-0.026	H2 Not Supported
X3 -> Y2	0.423	H3 Supported
X4 -> Y2	0.153	H4 Supported
Y1 -> Z1	0.460	H5 Supported
Y2 -> Z1	0.223	H6 Supported

According to Table III.4, the interaction between all the variables is significant with p-value ≤0.05 or t-table value of 1.96. The path coefficient is positive, indicating a positive relationship between the variables. Therefore H1, H3, H4, H5, and H6 in this research are supported while H2 is not supported. Figure III.1 shows the inner model results from the PLS-SEM technique; the number between variables and indicators shows the loading factor value. The result shows that the product variable has the highest significant influence toward perceived quality, the place variable has the highest significant influence toward brand awareness and the perceived quality variable has the highest influence factors toward purchase intention

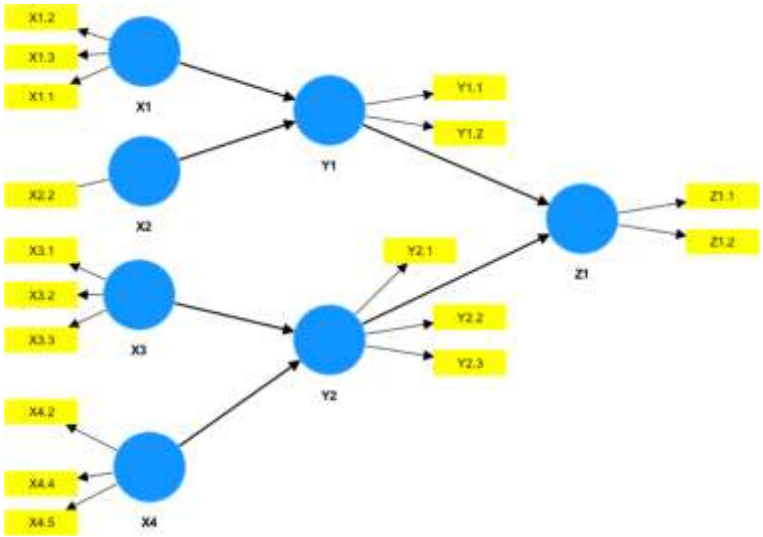

Figure III.1 PLS-SEM Model

Figure III.1 shows the result of the PLS-SEM model in which the numbers between the variables and indicators indicate the loading factor values. Based on the result, it can be concluded that the hypothesis that is used to answer the research question and the goal of the research as follow:

1. H1 is supported, meaning that there is a significant positive effect of product on perceived quality. The path coefficient value means that every increase of 1 value of the product, perceived quality will increase 0.728
2. H2 is not supported, meaning that there is not a significant effect of price on perceived quality. The path coefficient value means that every increase of 1 value of price, perceived quality will decrease by 0.026

3. H3 is supported, meaning that place has a significant positive effect on brand awareness. The path coefficient value means that every increase of 1 value of the place, brand awareness will increase 0.423
4. H4 is supported, meaning that there is a significant positive effect of promotion on brand awareness. The path coefficient value means that every increase of 1 value of the place, brand awareness will increase 0.153
5. H5 is supported, meaning that perceived quality has a significant positive effect on purchase intention. The path coefficient value means that for every increase of 1 value of the perceived quality, purchase intention will increase by 0.46
6. H6 is supported, meaning that brand awareness has a significant positive effect on purchase intention. The path coefficient value means that with every increase of 1 value of brand awareness, purchase intention will increase by 0.223

The result of the PLS-SEM analysis shows that five hypotheses have a positive and significant relationship and one hypothesis has a negative and insignificant relationship (not supported), namely price in perceived quality. Based on interviews with several respondents, there could be several possible reasons why the hypothesis regarding the relationship between price and perceived quality was rejected in PLS-SEM analysis.

Price Perception from respondents that higher-priced Blood Glucose Monitoring devices automatically indicate higher quality. Respondents may not believe that a device with a higher price is more accurate, reliable or technologically advanced. Previous experiences may influence their perceived quality. If they have had positive experiences with lower-priced devices in the past, they may believe that price is not necessarily indicative of quality, therefore not supporting the hypothesis.

It is important to note that these are potential reasons based on interviews and individual perspectives. Further research and analysis would be needed to better understand why the hypothesis was rejected to validate these explanations.

IV. CONCLUSION

This research investigated the impact of product and price marketing mix on the perceived quality of Blood Glucose Monitoring Device in Indonesia The finding suggests that the product marketing mix, such as product features, design and performance, significantly influences the perceived quality of the device. However, the research did not support the role of price in influencing perceived quality. Price was not found to be a significant factor affecting the perceived quality. This suggests that consumers do not associate a higher price with superior quality or value for money. The place and promotion marketing mix indicates that both mix elements significantly impact the brand awareness of the device. Regarding the place marketing mix, factors such as distribution channels, availability and accessibility of the device play a crucial role in increasing brand awareness. The promotion marketing mix was found to have a significant impact on brand awareness, Effective marketing campaigns were shown to increase the visibility and exposure of Blood Glucose Monitoring Device. This research emphasizes the importance of place and promotion marketing mix elements in driving brand awareness. Company should focus on expanding its distribution channel and improving accessibility and visibility to strengthen a strong market presence. Improving the perceived quality of Blood Glucose Monitoring Device will likely increase consumers' purchase intention. Perceived quality can positively impact consumers' purchase intention to increase perceived value, trust and confidence in the brand and its products, positive word-of-mouth and referrals that can lead to recommendations and increase purchase intention. Improved perceived quality can differentiate Blood Glucose Monitoring Device from competitors' offerings. It is important to continuously enhance the perceived value, design enhancements, and meet or exceed consumer expectations leading to increased sales and market share. Improving brand awareness of Blood Glucose Monitoring Device is likely to increase purchase intention among consumers, Brand awareness refers to the level of familiarity and recognition that consumers have with a particular brand. It builds perceived credibility and trust, top-of-mid preference and increases perceived value. Company must invest in marketing and branding strategies to improve brand awareness, such as advertising campaigns, and engaging with healthcare professionals and patient communities. Furthermore, one of the variables, price, shows not support a relationship with perceived quality. It is recommended that future research explores other factors beyond price that may contribute to the perceived quality of medical devices to gain a comprehensive understanding of consumer decision-making.

REFERENCES

[1]. Aaker, D. A. (1991). *Managing brand equity: Capitalizing on the value of a brand name*. The Free Press.

[2]. Belch, M., & Belch, G. (2003). *Advertising and promotion: An integrated marketing communications perspective*. McGraw-Hill Education.

[3]. Chi, Yeh, & Yang. (2009). The Impact of Brand Awareness on Consumer Purchase Intention: The Mediating Effect of Perceived Quality and Brand Loyalty. *The Journal of International Management Studies*, *4*(1), 135-144.

[4]. Christensen,L.B., Johnson,R.B., Turner,L.A., & Pearson. (2014).*Research methods, design, and analysis*.

[5]. David, F. R. (2016). *Strategic management: A competitive advantage approach, concepts and cases* (16th ed.). Pearson.

[6]. *Dawn of the digital age in Indonesia*. (2020). Deloitte Consumer Insights. https://www2.deloitte.com/id/en/pages/consumer- business/articles/consumer-insights-id-2020.html

[7]. Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behaviour: An introduction to theory and research*.

[8]. Ghozali. (2015). *Aplikasi Analisis Multivariate dengan Program IBM SPSS19*. Haryono S. (2016). *Metode SEM Untuk Penelitian Manajemen dengan AMOS 22.00, LISREL*

[9]. Hoyer, W. D., & Brown, S. P. (1990). Effects of brand awareness on choice for a common, repeat-purchase product. *Journal of Consumer Research*, *17*(2), 141. https://doi.org/10.1086/208544

[10]. Huang, R., & Sarigöllü, E. (2011). How brand awareness relates to market outcome, brand equity, and the marketing mix. *Journal of Business Research*, *65*(1), 92- 99. https://doi.org/10.1016/j.jbusres.2011.02.003

[11]. International Diabetes Federation (2022). https://diabetesatlas.org/2022-reports/

[12]. Kementerian Kesehatan Republik Indonesia. (2018).*Indeks Pembangunan Kesehatan Masyarakat*. http://repository.litbang.kemkes.go.id/3935/1/BUKU_IPKM_2018- SK.pdf

[13]. Kotler, P., & Armstrong, G. (2017). *Principles of marketing*. Pearson. Kotler, P., & Keller, K. (2012). *Marketing Management* (14th ed.)

[14]. Lambert, D. R. (1980). Price as a quality signal: The tip of the iceberg. *Economic Inquiry*, *18*(1), 144-150. https://doi.org/10.1111/j.1465-7295.1980.tb00565.x

[15]. Malhotra, N. K. (2010). *Marketing research: An applied orientation* (6th ed.)

[16]. Moradi H., & Zarei A. (2011). The Impact of Brand Equity on Purchase Intention and Brand Preference-the Moderating Effects of Country-of-Origin Image. *Australian Journal of Basic and Applied Sciences,*, *5*(3).

[17]. Perkeni (2021). *Pedoman Pengelolaan dan Pencegahan Diabetes di Indonesia*. https://pbperkeni.or.id/wp-content/uploads/2021/11/22-10-21-Website-Pedoman-Pengelolaan-dan-Pencegahan-DMT2-Ebook.pdf

[18]. Rothaermel, F. (2019). *Strategic management: Concepts*. McGraw-Hill Education.

[19]. Saunders, M. N., Thornhill, A., & Lewis, P. (2007). *Research methods for business students*.

[20]. Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill building approach*. John Wiley & Sons.

[21]. Thompson, A. A. (2018). *Crafting and executing strategy: The quest for competitive advantage: Concepts and cases*.

[22]. Yoo, B., Donthu, N., & Lee, S. (2000). An examination of selected marketing mix elements and brand equity. *Journal of the Academy of Marketing Science*, *28*(2), 195- 211. https://doi.org/10.1177/0092070300282002

[23]. Yoo, B., & Donthu, N. (2001). Developing and validating a multidimensional consumer-based brand equity scale. *Journal of Business Research*, *52*(1), 1- 14. https://doi.org/10.1016/s0148-2963(99)00098-3

Corresponding Author: Tias Hastutie[1]
[1](Master of Business Administration, School of Business and Management, Institute Technology Bandung, Indonesia)