





## Understanding Consumer Insights: Exploring Health Supplement Products Preferences in Malaysia

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### ABSTRACT

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Amidst the COVID-19 pandemic, health supplement consumption surged as people sought to safeguard their health. This study examines Malaysian consumer behavior toward health supplements, focusing on attitude, social influence, self-efficacy, price, and product quality. Utilizing the Theory of Planned Behavior (TPB) as a conceptual framework, data from 439 health supplement users were gathered via an online survey and analyzed using SPSS version 28, using a 5-point Likert scale. Pilot studies, expert validation, and reliability analysis ensured instrument validity. Findings show moderate consumption behavior of health supplement products among Malaysians, with necessity, self-efficacy, and product quality as significant influencers, notably with product quality having the most impact. This study offers insights into Malaysian consumer dynamics, guiding interventions for healthier lifestyles and consumer well-being. It contributes to understanding consumer behavior in health supplement consumption, with practical implications for stakeholders, policymakers, and marketers. Future research could explore factors like perceived value, trust, brand reputation, and product knowledge to deepen insights into consumer preferences.

## 1. INTRODUCTION

In the past years, shifts in lifestyles and a growing emphasis on health have given rise to a rising inclination toward healthy foods and nutritional supplements. Health supplements play a vital role in addressing undernutrition and are an affordable option for patients [1]. Malaysia's health supplement market is thriving, driven by increased consumer demand as individuals take more responsibility for their well-being, moving away from traditional medicine [2]. With the world facing different health crises, the importance of nutrition in preventing chronic diseases like heart disease, diabetes, and asthma has gained significant attention [3]. As a result, there is a growing demand for health products as society places a greater emphasis on nutrition and supplements for health maintenance and disease prevention [4]. Consumers' growing demand for health products is driven by a desire for a better quality of life, safety, and well-being. Maslow's hierarchy places health needs on the second level, which is safety needs [5].

Health products, including nutrition supplements, are designed to enhance bodily health and dietary control, available in multiple forms and compositions [6]. Global consumers are shifting their food choices towards health and sustainability [7, 8]. The healthcare market is experiencing a move towards supplements, e-pharmacies which is a trend embraced by many countries. India has seen a rise in online

drug and supplement purchases, attracting government and global investor attention [9]. In 2020, the global dietary supplement market was valued at United States dollars (USD) 140.3 billion and is expected to increase at a compound annual growth rate of 8.6% from 2021 to 2028. In 2015, Euromonitor International provided an overview of the sales of health and dietary supplement products in five countries, which are the United States of America, China, Japan, and Malaysia [10]. The COVID-19 pandemic has significantly impacted consumer behavior, underscoring the significance of health supplements in preventing infections [11]. The promotion and heightened awareness of health supplement usage have become pivotal in the wake of the pandemic [12], and factors such as health consciousness, perceived value, adapting to the new normal, and social influence play positive roles in influencing the intention to purchase health supplement products [13].

In Malaysia, there is a growing inclination among consumers to invest in health products, as evidenced by a 2.1% allocation to health in the 2020 Household Consumption Expenditure Pattern [14]. Product knowledge and quality strongly influence health supplement purchase intention in Malaysian consumers, with brand image and product price as secondary factors [15]. This shift reflects a new wellness concept where individuals prioritize health products over traditional methods like exercise and a healthy diet [14]. The

health products market in Malaysia is flourishing and is among the fastest-growing industries globally, driven by increased demand for medicines, nutraceuticals, and traditional health products [16]. The health supplements market has seen substantial growth, increasing by around 50% from 2014 to 2019, and is expected to continue growing at a rapid pace, presenting a significant market opportunity for health supplement brands in Malaysia [16]. This trend reflects a rising demand for health products in the country.

Malaysia faces a significant challenge marked by elevated rates of overweight and obesity [8] and contends with the issue of inadequate intake of nutritious products, particularly prevalent among low-income groups [17]. While dietary supplements enjoy popularity, they are not without risks. Malaysia has witnessed a surge in drug-induced liver injuries associated with herbal and dietary supplements, prompting calls for consumer scrutiny, medical consultation, and regulation of potentially harmful ingredients [18]. Despite the American Dietetic Association underscoring the importance of a balanced diet over dietary supplements, the use of dietary supplements continues to escalate, sparking concerns about its impact on healthy lifestyles [19]. Stringent regulations have been implemented for certain supplements, such as vitamin C and zinc, in response to misinformation and false promises [20, 21]. As the demand for health products rises, authorities must vigilantly monitor the market to prevent price gouging and uphold the quality of these products.

A considerable number of consumers choose more affordable health supplement options without thoroughly researching product quality, often swayed by frugality or social influences [22]. The improper consumption of health supplements during the COVID-19 pandemic has emerged as a significant concern [21]. Limited research on health supplement purchase intentions in Malaysia has contributed to uncertainties within the industry [23]. Health Dietary Supplements are readily available without prescriptions, facilitating self-care [3].

The importance of gaining a deeper understanding of health supplement products (HSPs) for marketers in the industry due to the increased consumption of these products driven by growing health awareness [24]. However, there is a lack of understanding of the insights of customers regarding health supplement products in Malaysia. Hence, the study employs the Theory of Planned Behaviour (TPB) to investigate the factors affecting consumer consumption of health supplements, emphasizing the model's relevance in this context. Furthermore, the research expands the TPB model by introducing price and product quality as independent variables, thereby providing fresh insights into the subject matter.

Armitage and Conner's study [25] on investigating the adoption of a low-fat diet, reported that self-efficacy emerged as a more influential predictor of behavior compared to perceived behavior control (PBC) within the framework of the TPB. These findings revealed that external control beliefs, encompassing factors like availability, procedure, and cost, exerted an impact on PBC [26, 27]. Conversely, internal control beliefs, including motivation and the ability to resist high-fat food, proved to be significant predictors of self-efficacy [7]. This outcome was deemed more appropriate in the specific context of the health supplements study.

The objectives of the study are as follows: (1) to determine the influence of factors related to attitude dimensions (rewards, necessity, confidence, and safety), social influence, self-efficacy, price, and product quality on consumer consumption

behavior of HSPs, (2) to identify the most influential factor among these variables, and (3) to assess the level of consumer consumption behavior regarding HSPs.

## 2. LITERATURE REVIEW

### 2.1 Attitude and consumption behaviour of health supplement products (HSPs)

Attitude is a significant factor influencing individuals' behavior, representing their tendency to respond positively or negatively to a specific action or outcome, such as consuming health supplements. Positive attitudes are associated with a higher likelihood of engaging in a particular behavior [28]. In most of the previous studies, the attitude measurements towards healthy food choices examined the elements of attitude in general. However, to have a better prediction of consumer behaviour toward HSPs, this study adopted the four dimensions of attitudes measurement developed by study [29] that specifically focus on healthy consumption. The four dimensions are perceived reward from using HSPs, necessity for HSPs, confidence in HSPs, and safety of HSPs.

According to Ajzen [30], an individual's intention to perform a specific behavior is stronger when their attitude toward that behavior is positive. In the context of health supplement acceptance, Frewer et al. [31] found that consumer attitudes strongly influence consumption behavior. The perceived rewards of using health supplements, such as improved mood, a healthier lifestyle, and disease prevention, play a crucial role in consumers' willingness to consume these products [32]. Thus, the hypothesis is:

**H1a:** Perceived reward positively influences consumer consumption behavior toward HSPs.

The perceived need for health supplements is often driven by personal health experiences and the expectation of better well-being [33]. This need has a positive impact on consumer behavior towards health supplements, particularly for products that are believed to prevent heart disease and high blood pressure [29, 34] also observed that the perceived need for health supplements significantly influences the willingness to consume these products among the Taiwanese population. Therefore, it is expected that:

**H1b:** Necessity positively influences consumer consumption behaviour toward HSPs.

Confidence in the scientific promises of health-related benefits from consuming health supplements plays a crucial role in their acceptance. Study [29] highlighted the significance of confidence in health supplements in influencing consumer behavior. Tsai et al. [34] also emphasized that confidence in health supplements has a significant relationship with consumer willingness to use these products. Therefore, this study hypothesizes that:

**H1c:** Confidence positively influences consumer consumption behaviour toward HSPs.

The safety of health supplements is a crucial factor that influences consumer willingness to use them [35]. Some consumers may perceive health supplements as unsafe and consequently perhaps deterred from consuming them due to perceived risks [35]. In cases where health supplements are perceived as highly safe, consumer consumption behavior is more likely to be positive. Thus, the following hypothesis is proposed:

**H1d:** Perceived safety positively influences consumer

consumption behavior toward HSPs.

## 2.2 Social influence and consumption behaviour of health supplement products (HSPs)

Subjective norm, an extension of social norms, is a concept in psychology that reflects behavioral expectations shaped by desirable and appropriate cultural considerations [36]. Supplements users purchase based on cultural beliefs, suggestions from doctors and pharmacists, and encouragement from family and friends. Social influence, in turn, is the informal guidance that shapes members of society's behavior [37]. The stronger the perceived expectations of acquaintances, the greater the social influence, which, in turn, impacts behavior and performance [36]. So, these related lines will drive us to construct these hypotheses:

**H2:** Social influence positively influences consumer consumption behaviour toward HSPs.

## 2.3 Self-efficacy and consumption behaviour of health supplement products (HSPs)

Self-efficacy involves the perception of the internal control over one's behavior, and it can influence intentions [30]. This concept has evolved into perceived behavioral control, which considers the impact of both external and internal factors on an individual's behavior [38]. Changing consumer behavior, particularly toward healthy consumption, can be challenging. It necessitates a high level of internal motivation and self-efficacy, as individuals with high self-efficacy are confident in their ability to perform the behavior [7]. Kang et al. [39] found a significant effect of self-efficacy on behavioral to use a product, suggesting that self-efficacy is likely to influence consumer consumption behavior regarding health supplement products. This line of consideration prompted the study to construct the following hypothesis:

**H3:** Self-efficacy positively influences consumer consumption behaviour toward HSPs.

## 2.4 Price and consumption behaviour of health supplement products (HSPs)

Price is a significant factor influencing consumers' purchasing decisions, often related to the perceived quality of a product. The price range can strongly impact customers' purchase choices [40]. The final purchase decision and product evaluation are significantly influenced by the price, and consumers may not make repeat purchases from the same seller if they find the price unsatisfactory [41]. Overall, price plays a pivotal role in influencing consumer purchase behavior [42]. So, the following hypotheses being construct:

**H4:** Price positively influences consumer consumption behavior toward HSPs.

## 2.5 Product quality and consumption behaviour of health supplement products (HSPs)

The safety and quality of a product are crucial in the modern context, with consumers responding positively to top-quality products [43]. Customer curiosity regarding the quality and safety of food or products is widespread. Additionally, consumer satisfaction in retail businesses can be influenced by product quality [44]. Hence, the following hypothesis between consumer consumption behaviour and product quality was

developed:

**H5:** Product quality positively influences consumer consumption behavior toward HSPs.

## 2.6 Research framework

Based on the above discussion and the development of hypotheses, this study postulates the following research framework as shown in Figure 1.

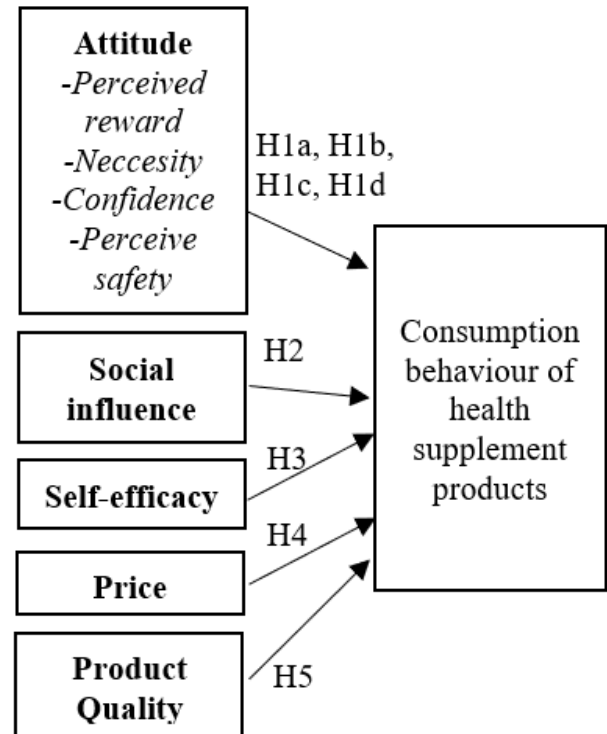


Figure 1. Research framework

## 3. METHODOLOGY

In this study, a quantitative research approach was utilized, employing a questionnaire with five Likert scale items [45]. The target population included Malaysian citizens aged 18 and above who use health supplement products. Convenience sampling was chosen due to the unavailability of a complete population list exceeding 1,000,000 individuals. The unit of analysis was Malaysian consumers aged 18 and above who consumed health supplement products, with a minimum sample size of 98 respondents determined following [46] rule of thumb for response specificity and accuracy. The primary data collection method was a questionnaire with Likert scale variables and demographic questions.

Data were collected through Google Forms on various online platforms, and filter questions were used to validate respondents by identifying health supplement product users. Data analysis was performed using SPSS version 28, including descriptive and multiple regression analysis. A total of 480 data points were collected, with 41 non-users of health supplement products excluded, resulting in a sample size of 439. Among 480 samples, 91.5 percent were health supplement product users, while 8.5 percent were non-users. The measurements items were adopted from previous studies as mentioned in Table 1.

**Table 1.** Measurements items and Source

No. of Items	Variable	Source
1	Consumer consumption behaviour	[7]
2	Attitude	[29]
3	Social influence	[47]
4	Self-efficacy	[25]
5	Price	[42]
6	Product Quality	[48]

## 4. RESULTS AND DISCUSSION

### 4.1 Profile of the respondents

Table 2 shows the profiles of the respondents in numbers and percentages based on the categories.

**Table 2.** Profile of the respondents (N=439)

Variable	Categories	N	%
Gender	Male	232	52.8%
	Female	207	47.2%
Age	18-29 years old	118	26.9%
	30-39 years old	147	33.5%
	40-49 years old	106	24.1%
	50-59 years old	52	11.8%
	60 years old and above	16	3.6%
Marital Status	Married	154	35.1%
	Single	266	60.6%
	Divorced/widowed	19	4.3%
Ethnicity	Malay	299	68.1%
	Chinese	104	23.7%
	Indian	32	7.3%
	Others	4	0.9%
Working status	Students	140	31.9%
	Self-employed	81	18.5%
	Private sector	41	9.3%
	Public sector	138	31.4%
	Retired	25	5.7%
	Unemployed/housewife	14	3.2%
	Kelantan	38	8.7%
	Terengganu	38	8.7%
	Pahang	24	5.5%
	Johore	42	9.6%
Residence of respondent	Negeri Sembilan	40	9.1%
	Melaka	29	6.6%
	Selangor	56	12.8%
	Perak	23	5.2%
	Penang	31	7.1%
	Kedah	18	4.1%
	Perlis	7	1.6%
	Sabah	10	2.3%
	Sarawak	9	2.1%
	Kuala Lumpur	38	8.7%
Putrajaya	28	6.4%	
Labuan	8	1.8%	

### 4.2 Exploratory factor analysis

An exploratory factor analysis (EFA) was conducted on consumer consumption behavior, attitude dimensions, social influence, self-efficacy, price, and product quality to validate their measurement and categorization. Factor analysis was conducted on all items, yielding a Kaiser-Meyer-Olkin (KMO) value of 0.725, indicating an absence of multicollinearity and a factorable sample. Bartlett's test of sphericity was highly significant ( $p=0.00$ ;  $p<0.05$ ). Principal component analysis

revealed nine factors with Eigenvalues greater than 1. All items were found to align with these factors, with factor loadings ranging from 0.753 to 0.976, which larger than the minimum value ( $> 0.30$ ) needed for a sample size of 350 and above [49]. Thus, the original names were retained for the nine factors as: consumer consumption behaviour, perceived reward, necessity, confidence, perceived safety, social influence, self-efficacy, price, and product quality.

### 4.3 Reliability test

The reliability of all variables was tested, and all Cronbach's Alpha values exceeded the recommended limit of  $\alpha > 0.60$  [50], indicating high reliability for the measurement as shown below in Table 3. The results of item-to-total correlations demonstrated the deletion of any item would not increase the value of Cronbach's Alpha; therefore, all the scale items were included.

**Table 3.** Reliability coefficient for all of the variables

Variables	Items	Reliability
Consumer Consumption Behavior	3	0.834
Reward	3	0.777
Necessity	4	0.791
Confidence	4	0.834
Safety	4	0.853
Social Influence	3	0.612
Self-efficacy	3	0.685
Price	3	0.744
Quality	4	0.881

### 4.4 Descriptive analysis

Table 4 displays the descriptive statistics results for the study variables, with a simplification of the five-point Likert scale into categories of low, moderate, and high. Scores below 2.33 are considered low, scores of 3.67 and above are considered high, and those in between are categorized as moderate, following the approach in study [51].

**Table 4.** Descriptive statistics for all the variables

Dimension (Variables)	Mean	Std. Deviation
Consumer Consumption Behaviour	3.250	1.075
Reward	3.833	.925
Necessity	3.912	.763
Confidence	3.677	.827
Safety	3.753	1.004
Social Influence	3.816	.905
Self-efficacy	3.700	.880
Price	4.063	.753
Quality	3.874	.812

Attitude dimensions, social influence, self-efficacy, price, and quality exhibit high mean values, falling between 3.677 and 4.063. This suggests that all independent variables significantly influence respondents to engage in the consumption of health supplement products (HSPs). The findings imply that respondents possess confidence and trust in the health supplement products they consume. Social influences, self-efficacy, and concern about product quality may motivate consumers to use HSPs for health and well-being, fostering a positive behaviour towards healthier consumption, regardless of their perception of price. However, there is an overall low HSP consumption behaviour among

respondents (mean of 3.250) in terms of integrating HSPs into their daily lives.

In line with the objective of the study, (1) to assess the level of consumer consumption behaviour toward HSPs, this study indicates that the level of such behaviour among Malaysian adult consumers is somewhat less encouraging. Despite respondents expressing a high and positive perception regarding attitude (rewards, necessity, confidence, and safety), social influence, self-efficacy, pricing, and product quality, the overall consumption behaviour towards HSPs remains modest. The findings are consistent with study [51], affirming that most Malaysian consumers hold a positive view of health product consumption. This implies that consumers in Malaysia prioritize factors such as price and product quality when choosing health supplements. Additionally, social influences play a role in steering consumers towards selecting high-quality HSPs, reflecting a collective inclination towards factors that contribute to the overall well-being of individuals.

#### 4.5 Multiple regression analysis

Table 5 reveals a significant relationship between independent variables (reward, necessity, confidence, safety, social influence, self-efficacy, price, and product quality) and the dependent variable (consumer consumption behavior) ( $F=19.04$ ;  $p<0.001$ ). Necessity, self-efficacy, and product quality significantly influence the consumer consumption behavior of HSPs ( $F=19.04$ ;  $p=0.00$ ). The model showed a moderate relationship with antecedent variables explaining only 26.2 percent of the variation in consumer consumption behavior related to HSPs. In the regression equation with eight independent variables, necessity, self-efficacy, and product quality have appeared as significant predictors of consumer consumption behavior of HSPs. Therefore, hypotheses 1b, 3, and 5 were supported. Whereas, reward, confidence, safety, social influence, and price have no significant influence, and this leads to the conclusion that hypotheses 1a, 1c, 1d, 2, and 4 were not supported). Product quality ( $\beta=0.287$ ) emerged as the most influential predictor of consumer consumption behaviors of HSPs, followed by self-efficacy ( $\beta=0.278$ ) and necessity ( $\beta=0.204$ ). These results answer the objective (1) and objective (2) of the study.

Notably, the positive impact of necessity, self-efficacy, and product quality on the consumer consumption behavior of HSPs in Malaysia is evident. This implies that Malaysian consumers perceive health supplements as essential for maintaining good health and enhancing well-being, aligning with previous research findings [7, 29, 33, 34]. The study suggests that an increase in consumers' self-efficacy levels contributes to a heightened consumer consumption behavior of HSPs among Malaysians. This outcome corresponds with the findings of studies [8, 25], who highlighted the significance of self-efficacy in influencing consumers' behavior regarding healthy consumption in Malaysia and the United Kingdom, respectively.

Generally, individuals with high levels of self-efficacy are more likely to proactively adopt health-conscious behaviors, driven by the belief in their ability to succeed. Therefore, the study found that Malaysians believe there is a strong connection between the necessity of health supplements and their consumption behaviour. They see health supplements as important for a healthy lifestyle and believe that consuming HSPs is necessary to stay healthy, reflecting positive perceptions and strong beliefs in HSPs quality.

Malaysian consumers emphasize a preference for quality HSPs, attributing better performance and enhanced health to such products. This underscores the importance for both the government and the pharmaceutical industry to prioritize efforts in enhancing product quality, aiming to boost consumption levels.

**Table 5.** Factors influencing consumer consumption behaviour of HSPs (N=439)

Independent Variables	B	SE B	$\beta$	Sig
Reward	-0.158	0.049	-0.136	0.002
Necessity	0.287	0.068	0.204	0.000
Confidence	0.089	0.056	0.068	0.112
Safety	-0.050	0.045	-0.047	0.267
Social Influence	-0.019	0.050	-0.016	0.703
Self-efficacy	-0.339	0.055	-0.278	0.000
Price	-0.047	0.062	-0.033	0.456
Product Quality	0.379	0.059	0.287	0.000

Note:  $R^2=0.262$ ;  $F=19.04$ ; Sig.  $F=0.00$ ;  $**p<0.001$

## 5. DISCUSSION

The consumption of health supplement products in Malaysia is influenced by a range of factors, including health consciousness, motivation, and value [52]. Malaysian consumers are particularly drawn to organic products due to their perceived safety, quality, and environmental benefits [53]. In terms of dietary supplement consumption, there is a significant difference between female university and national team sports athletes, with the latter group showing higher usage [53]. Among adolescents, the prevalence of dietary supplement use is relatively high, with younger adolescents and boys being more likely to consume them [54]. These findings suggest that while Malaysian consumer behavior in health supplement product consumption shares some commonalities with international studies, such as the emphasis on safety and quality, there are also unique factors at play, such as the influence of sports participation and age.

Comparing Malaysian consumer behavior with international studies, it is evident that the preference for vitamins, minerals, and dietary supplements is a common trend globally. However, Malaysia stands out for its diverse market offering a mix of international and local brands, reflecting a unique blend of traditional and modern approaches to health supplementation. The Malaysian market's emphasis on herbal/traditional supplements alongside dietary supplements showcases a cultural inclination towards natural remedies and traditional practices, setting it apart from some Western markets where synthetic supplements dominate [24].

## 6. FINDINGS AND IMPLICATIONS

The findings of this research paper provide valuable insights into the factors influencing consumer behavior regarding health supplement products (HSPs) in Malaysia. Through the identification of necessity, self-efficacy, and product quality as significant predictors, the study illuminates the drivers behind consumer choices in this market. Recognizing the importance of these factors underscores the perceived value of HSPs among Malaysian consumers, emphasizing the essential role these products play in maintaining good health and well-being. Moreover, the emphasis on product quality highlights

the importance of offering high-quality HSPs to meet consumer demands, thereby necessitating robust quality control measures by industry stakeholders and government bodies.

## 7. LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

Moving forward, future research endeavors in this field can build upon these findings to explore additional variables that may influence consumer behavior regarding HSPs. Investigation into factors such as brand reputation, marketing strategies, and cultural influences could provide further insights into the complexities of consumer decision-making processes. Longitudinal studies tracking changes in consumer preferences over time can also offer valuable information on evolving trends and behaviors in the health supplement market. Additionally, research focused on evaluating the effectiveness of interventions aimed at promoting healthier consumption behaviors could provide practical implications for industry stakeholders and policymakers alike. By addressing these research gaps, scholars can contribute to a more comprehensive understanding of consumer insights in the health supplement industry, thereby informing strategic decision-making and policy development efforts.

The study accomplished its goals but had limitations. Firstly, focusing only on adults may restrict the applicability of findings to the wider Malaysian population; examining diverse demographic segments like university students and adolescents could enrich insights. Secondly, future research could focus on specific types of health supplement products to capture varied consumer preferences. Additionally, while the study's model explained some variance in consumer behavior, integrating factors like perceived value, brand reputation, and product knowledge could deepen understanding of consumer behavior in the health supplement context.

## 8. CONCLUSION

Malaysians are adopting a health-conscious lifestyle and see supplements to enhance their well-being. There is a wide variety of supplements, with popular brands and promotional campaigns driving their popularity and continued strong sales growth in Malaysia. Based on this study, only three factors which are necessity, self-efficacy, and product quality, significantly affect consumer consumption behavior of HSPs among Malaysians, with product quality being the most influential factor. It reveals that consumers value the quality of health supplement products, have high positive attitudes and beliefs, and have high internal motivation towards the use of HSPs. This insight improves the understanding of health supplement consumption behavior, offering valuable information for pharmaceutical companies, marketers, and the Malaysian government to promote health supplement products and healthier lifestyles.

Incorporating managerial implications is crucial for navigating the dynamic landscape of the health supplement market in Malaysia. Focusing on product quality ensures a competitive edge, prompting investments in rigorous quality control and research for continuous improvement. Educational campaigns targeting the necessity and self-efficacy of health supplements can reshape consumer perceptions, fostering a

belief in the products' positive impact on overall well-being. Implementing affordable pricing strategies, staying compliant with regulations, and launching consumer awareness programs enhance trust and responsible consumption.

Tailoring marketing strategies to different age groups, conducting continuous market research, diversifying the product portfolio, and collaborating with healthcare professionals contribute to a holistic approach that meets diverse consumer needs. Emphasizing transparent marketing communication addresses concerns and builds lasting relationships. Regular reassessment and adaptation of these strategies will position any brand as a trusted leader in the thriving health supplement industry.

## 9. RECOMMENDATIONS

Based on the findings, several recommendations can be made. Firstly, emphasize the critical role of product quality in shaping consumer behavior towards health supplement products (HSPs), urging governmental and industry efforts to prioritize quality enhancement through stricter regulations and transparent labeling. Secondly, advocate for education and awareness campaigns to underscore the necessity of HSPs for maintaining health, supported by scientific evidence to reinforce positive perceptions. Thirdly, propose empowerment programs targeting Malaysian consumers to bolster self-efficacy in health-conscious behaviors, aiding informed decisions regarding HSP consumption. Fourthly, highlight the importance of implementing or strengthening quality assurance regulations to ensure the safety and efficacy of HSPs, fostering collaboration between regulatory bodies, industry, and consumer advocacy groups.

Additionally, encourages further research, particularly longitudinal studies, to delve deeper into consumer preferences and behaviors regarding HSPs, providing insights for policymakers, industry, and healthcare professionals. Furthermore, suggests conducting cross-cultural comparisons to understand variations in consumer insights across different demographics, informing targeted marketing strategies. Lastly, advocate for collaborative initiatives involving academia, industry, government, and healthcare professionals to address consumer needs and concerns regarding HSPs, fostering innovation and evidence-based practices.

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