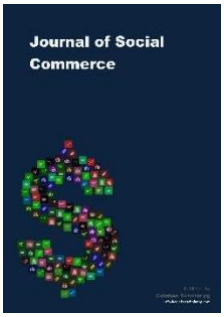

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Herbal Choice: Uncovering the Natural Medicine Consumption Patterns of Indonesians

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Abstract

This study examines consumer perceptions of products containing natural ingredients using the theory of planned behavior as a theoretical basis. As an antecedent of Attitudes, subjective norms, and perceived behavioral control were examined. This study used price fairness and ease of use as the indicators. The online survey was conducted using the Google Forms platform, involving residents in five major Indonesian cities: Jakarta, Surabaya, Semarang, Medan, and Makassar. Overall, 305 respondents participated. Valid observations were collected for further analysis. The analysis technique for this research used a structural equation model. based on maximum likelihood to test the research hypothesis and found that price fairness and ease of use have a positive effect on attitudes, subjective norms, and perceived behavioral control. In addition, intention to use is positively influenced by attitudes, subjective norms, and perceived behavioral control. behavioral control. This study contributes to the literature by demonstrating the explanatory power of behavioral control theory. planned in the context of natural medicinal products from the perspective of Indonesian society.

Introduction

The market share of Natural Medicine (OBA) products continues to increase, with production value in Indonesia reaching IDR 3 trillion by mid-2024 and a market share of around 7-10% of the total national drug market in 2023 (For Insights Consultancy, 2024). The global market is also growing rapidly, reaching around $200.95 billion in 2023 (For Insights Consultancy, 2024). Similarly, Grehenson (2025) in his article stated that Dr. Yosi Bayu Murti., M.Si saw the growth of the OBA market, by mid-2024, the production value reached around IDR 3 trillion, this indicates rapid growth in the industry. The OBA market share in 2023 reached 7-10% of the total national drug market. In fact, the export value from January to September 2024

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reached 639.42 million US dollars (Grehenson, 2025). According to him, this data reflects the high expansion in the OBA industry (Grehenson, 2025).

Furthermore, this growth is driven by consumer interest in natural and holistic health, which has made herbal products and health supplements made from natural ingredients increasingly popular (Rasyad, 2024) . Furthermore, in his writing, Rasyad (2024) stated that the organic herbal medicine market is growing rapidly as consumers increasingly seek natural and holistic health care options. These plant-based medicines, which are free from synthetic additives, encompass a wide range of products including supplements, teas, and extracts (Rasyad, 2024). Driven by increasing health awareness and skepticism towards conventional medicines, this market is growing rapidly. Consumers are attracted to organic herbal medicines because they are perceived as safe, efficacious, and aligned with sustainable living principles.

Key factors driving the growth of OBA include the rising popularity of organic products, the expansion of retail and online channels, and the resurgence of traditional healing practices (Grehenson, 2025). While challenges such as regulatory barriers and quality control remain, the overall market trajectory is positive as consumers prioritize natural health solutions. In this context, understanding consumer characteristics is crucial, as this information can provide a starting point for OBA market growth. However, a literature review of consumer behavior related to OBA products remains understudied.

This study uses the Theory of Planned Behavior (THB), which has been adopted in various fields to investigate consumer behavior (Ates, 2020; Fan et al., 2021; Hagger et al., 2022), as a theoretical foundation. The main attributes in this study include attitude, subjective norm, and behavioral control within the framework of the theory of planned behavior, with the dependent variable being intention to use, consistent with previous studies (Shalendar & Sharma, 2021; Tian et al., 2023).

Although the Theory of Planned Behavior (TPB) has been widely applied to explain consumer decision-making in various product categories such as food choices, environmental behavior, and health-related activities, its application in the context of herbal product consumption remains relatively limited (Nivetha et al., 2020; Karimian et al., 2021). Most studies using the TPB have focused on conventional health products or pharmaceutical drugs, emphasizing attitudes, subjective norms, and perceived behavioral control as predictors of intention and behavior (Nivetha et al., 2020; Karimian et al., 2021). However, herbal products, including supplements and traditional medicines, have unique psychological, cultural, and perceptual factors that may not be fully explained by the traditional TPB model (Saadi et al., 2023). For example, consumer beliefs in the uniqueness of natural ingredients, traditional medicine, safety, and effectiveness can serve as additional or moderating variables that influence attitudes and behavioral intentions (Nivetha et al., 2020; Karimian et al., 2021; Saadi et al., 2023).

Furthermore, empirical evidence examining how the TPB constructs interact with health awareness, trust in natural ingredients, environmental friendliness, or risk perception in the context of herbal products is still very limited (Yilmazel & Naçar, 2015; Metcalf et al., 2021). This creates a theoretical and empirical gap in understanding how consumers form their intentions and behaviors toward herbal-based health products. Furthermore, although numerous studies have demonstrated the explanatory power of the theory of planned behavior in the field of consumer behavior (Tama et al., 2021; Soliman, 2021; Su et al., 2021), consumer behavior toward OBA products is rarely studied using this theory as its theoretical basis. Considering this research gap, this study aims to test the explanatory power of the theory of planned behavior in the context of OBA products from the perspective of Indonesian society. Therefore, this study will incorporate the variables of health awareness and eco-friendliness, as proposed by (Yilmazel and Naçar, 2015; Metcalf et al., 2021), into the Theory of Planned

Behavior model to explain and predict the intention to consume OBA products. Experts also argue that healthfulness is a primary motivation for OBA consumption, as these products can boost a person's immune system (Irigoiti et al., 2021). Furthermore, previous research has shown that environmental friendliness is an attractive factor for OBA products, as consumers are skeptical of chemical-based drugs (Yaman Turan et al., 2021; Sun & Moon, 2024).

Literature Review

Theory of Planned Behavior (TPB)

The Theory of Planned Behavior (THB) examines the factors that determine intention , including attitude , subjective norms , and behavioral control (Hagger et al., 2022; Ajzen, 2020). Attitude is an individual's assessment of something based on long-term experience or positive or negative evaluations of the behavior displayed (Fan et al., 2021; Amoako et al., 2020). Subjective norms reflect the expectations and views of others towards certain behaviors that generate social pressure (Ates, 2020; Mohr & Kühl, 2021). Perceived behavioral control is related to constraints arising from limited available resources (Soliman, 2021; Su et al., 2021). Many studies have used the theory of planned behavior in various fields. For example, Tama *et al.* (2021) examined farmers' intentions in agricultural conservation using this theory as a theoretical foundation. Fan *et al.* (2021) applied it to study the behavior of college students regarding vaccination in China. Furthermore, Ateş (2020) examined the factors influencing pro-environmental behavioral intentions using this theory as a research framework. Conner *et al.* (2002) used it to examine healthy eating habits. Chen (2017) and Lim and An (2021) adopted it as a theoretical basis to explain healthier food choices among consumers.

Hypothesis development

Perceived healthiness plays a crucial role in building positive attitudes and driving purchase intentions (Theben et al., 2020; Tudoran et al., 2009). Jang *et al.* (2024) found in their study that health factors positively influence consumer attitudes toward in-flight meals, while Janssen and Bogaert (2023) demonstrated this positive influence based on information on food packaging. Furthermore, El-Sakhawy *et al.* (2023) stated that consumers place greater value on Natural Medicines (ABAs) because these products support individual health conditions by strengthening the immune system. Based on this literature review, the following research hypotheses are proposed:

H1: Healthiness perception influences the attitude of Indonesian people towards the consumption of natural medicine.

H2: Healthiness perception influences the subjective norms of Indonesian society regarding the consumption of natural medicinal ingredients.

H3: Healthiness perception influences the perceived behavioral control of Indonesian people towards consuming natural medicine.

Eco-friendliness refers to a product's impact on the environment, both in terms of the ingredients used and efforts to minimize harmful effects on the environment (Mohd Suki, 2016; Han, 2020). Given that consumers generally perceive eco-friendly products as safer to consume (Han, 2020; Chen et al., 2020), they tend to develop positive attitudes toward them. A meta-analysis found that eco-friendliness is a contributing factor in shaping consumer attitudes (Zaremohzzabieh et al., 2021). Other studies also report that eco-friendliness positively influences consumer attitudes (Mohd Suki, 2016; Chen et al., 2020), as eco-friendly products lead consumers to perceive food products as safer. Furthermore, Mountford-McAuley *et al.*

(2023) suggest that the environmental aspects of Natural Medicines present important marketing opportunities, as consumers are increasingly placing greater emphasis on environmental attributes, particularly in the context of medical products. Based on this description, the hypothesis proposed in this study is:

H4: Eco-friendliness influences the attitudes of Indonesian people towards the consumption of natural medicines.

H5: H4: Eco-friendliness has an influence on the subjective norm attitudes of Indonesian society regarding the consumption of natural medicinal ingredients.

H6: H4: Eco-friendliness has an influence on the perceived behavioral control of Indonesian people towards the consumption of Natural Medicines.

Several previous studies have examined intention to use in the realm of consumer behavior using the theory of planned behavior framework (Ahmad et al., 2020; Yarimoglu & Gunay, 2020). For example, a meta-analysis revealed that attitude, subjective norms, and perceived behavioral control positively influence individual intentions (Hagger et al., 2022). Various studies have also demonstrated the positive influence of these factors on behavioral intentions. For example, farmers' intentions to practice agricultural conservation (Tama et al., 2021), intentions to use the Alipay digital wallet system (Tian et al., 2023), and intentions to use electric vehicles (Shalender & Sharma, 2021). From this, it can be concluded that the attributes in the theory of planned behavior play a significant role in explaining consumer usage intentions. Therefore, in this study, we propose a hypothesis to determine its relevance in the context of Natural Medicine consumption among the Indonesian public.

H7: The attitude of Indonesian people towards OBA consumption influences the intention to consume it.

H8: Subjective norms of Indonesian society regarding OBA consumption influence the intention to consume it.

H9: The behavioral control that Indonesian people feel towards OBA consumption influences their intention to consume it.

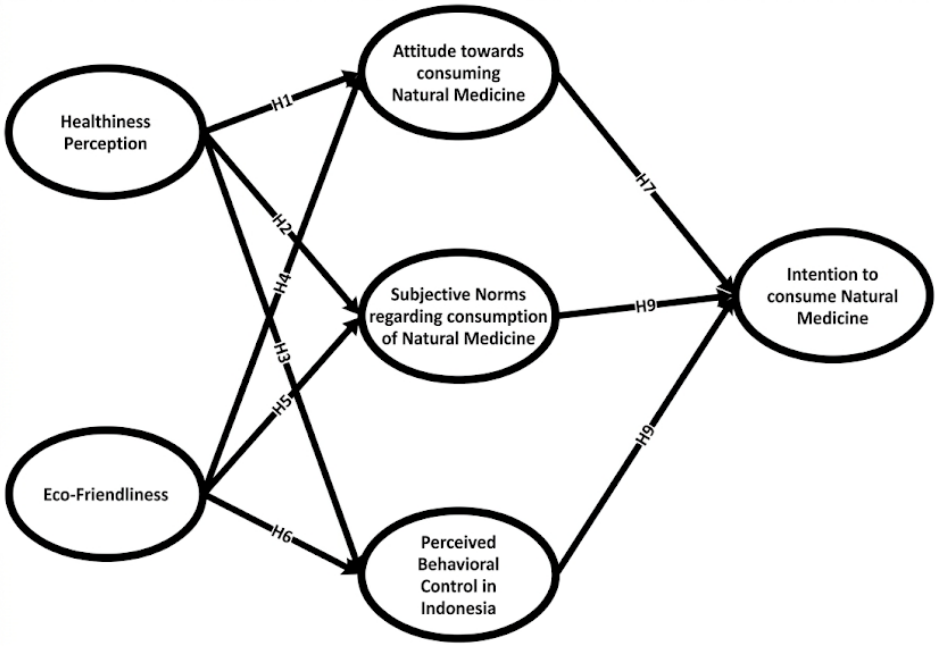


Figure 1. Research Model

Methods

Measurement Items

Table 1 presents the measurement items used in this study. A five-point Likert scale (1 = strongly disagree, 5 = strongly agree) was utilized to measure most attributes, while attitudes were measured using a semantic differential scale (e.g., 1 = poor, 5 = good). The main attributes measured include health, or healthiness (Theben et al., 2020; Jang et al., 2024), environmental friendliness, or eco-friendliness (Jang et al., 2024; Mohd Suki, 2016), attitude (Kim & Jung, 2023), subjective norms (Soliman, 2021; Su et al., 2021), behavioral control (Ates, 2020; Fan et al., 2021), and intention to use (Shalender & Sharma, 2021; Tian et al., 2023; Moon et al., 2023).

We define healthiness as a consumer perception that Natural Medicine is able to improve health conditions, whereas environmental friendliness refers to consumer perceptions of Natural Medicines specifically related to environmental aspects. Attitude is defined as a consumer's evaluation of the benefits of consuming Natural Medicines. Additionally, subjective norms represent the level of popularity or public views towards Natural Medicines, and perceived behavioral control reflects whether or not an individual feels disturbed in consuming them. Lastly, intention to use is defined as how much an individual wants to purchase Natural Medicine.

Table 1. Measurement Description

Construct	Item/indicator	Questionnaire Code
Healthiness	OBA is a product that supports my health	H1
	OBA is a useful product to improve my health.	H2
	OBA is a product that can improve my health condition.	H3
Eco-Friendliness	OBA is an environmentally friendly product	EF1
	OBA products do not cause ecological damage	EF2
	OBA is an environmentally safe product	EF3
Attitude	For me, OBA is a product that is… (bad/good).	Att1
	For me, OBA is a product that is… (negative/positive).	Att2
	For me, consuming OBA is very……. (not profitable/profitable).	Att3
	For me, taking OBA is something that is….. (stupid/wise).	Att4
Subjective Norms	People close to me consider the use of OBA to be normal.	SN1
	People close to me believe that OBA is a product that reflects ethical consumption.	SN2
	People close to me believe that taking OBA is very easy.	SN3
	People who are important to me also take OBA.	SN4
Perceived behavioral control	I have enough money to buy OBA.	BC1
	I have enough resources to purchase OBA.	BC2
	There are no obstacles for me to consume OBA.	BC3
	I have adequate access to purchase OBA.	BC4
Intention to consume	I intend to consume OBA products next month	IU1
	I plan to consume OBA products next month.	IU2
	I will be taking OBA products next month	IU3
	I am willing to consume OBA products next month	IU4

Data collection

The survey was conducted using Google Forms to recruit participants in five major Indonesian cities: Jakarta, Surabaya, Semarang, Medan, and Makassar. The survey was conducted between June 23 and August 2, 2025. Respondents were asked whether they had experience using

Natural Medicines, and 650 responses were initially collected. Respondents with no experience using OBA (345 respondents) were excluded from the dataset because this study targeted responses from those with actual experience with OBA. Consequently, 305 data points remained suitable for further analysis. Table 2 details the profile of the respondents in this study.

Table 2. Respondent Profile

Profile	Amount	Percentage
Gender		
Man	126	41.30
Woman	179	58.70
Age (years)		
20 – 29	47	24.30
30 – 39	101	33.10
40 – 49	92	30.20
50 - 59	33	10.80
> 60	5	1.60
Status		
Marry	155	50.82
Not married yet	150	49.18
Level of education		
Elementary School	0	0
Junior High School	0	0
Senior High School	0	0
S1	119	39.02
S2	173	56.72
S3	13	4.26
Frequency of consumption (week)		
Not at all	0	0
1 – 2 times	121	39.67
3 – 5 times	144	47.21
> 7 times	40	13.15
Expenditure		
0 – 1,000,000	0	0
1,000,001 – 2,500,000	0	0
2,500,001 – 5,000,000	0	0
5,000,001 – 10,000,000	109	35.74
Above 10,000,000	196	64.26

Based on Table 2, the respondents in this study were predominantly female, with most aged between 30 and 39, and the majority of respondents married. Furthermore, most respondents had a master's degree and reported consuming natural medicines three to five times a week. All respondents reported monthly expenses exceeding 10 million rupiah.

Data analysis

Frequency analysis was used to obtain demographic information of survey participants. Confirmatory factor analysis was conducted to test convergent validity. Convergent validity of the measures was ensured through several indices: loading > 0.5, mean value extracted (AVE) > 0.5, and construct reliability (CR) > 0.7 [Hoyle, 1995; Fornell & Larcker, 1981]. Model fit (goodness-of-fit) was confirmed using several indices: Q (CMIN/degrees of freedom) < 3, goodness-of-fit index (GFI), normalized goodness-of-fit index (NFI), relative goodness-of-fit index (RFI), comparative goodness-of-fit index (CFI) > 0.8, and root mean square error of approximation (RMSEA) < 0.1 [Fornell & Larcker, 1981; Hair et al., 2010]. Next, the mean and standard deviation (SD) were calculated for each variable. The correlation matrix is used

not only to explore the relationship between attributes but also to ensure discriminant validity. The square root of the AVE must be greater than the correlation coefficient for discriminant validity to be accepted (Hoyle, 1995; Fornell & Larcker, 1981; Hair et al., 2010). A *maximum likelihood -based structural equation model* was then conducted to test the hypotheses using a 90 percent confidence level as the threshold.

Results and Discussion

Construct Validity and Reliability

Table 3. Results of the Validity and Reliability Test of the Constructs

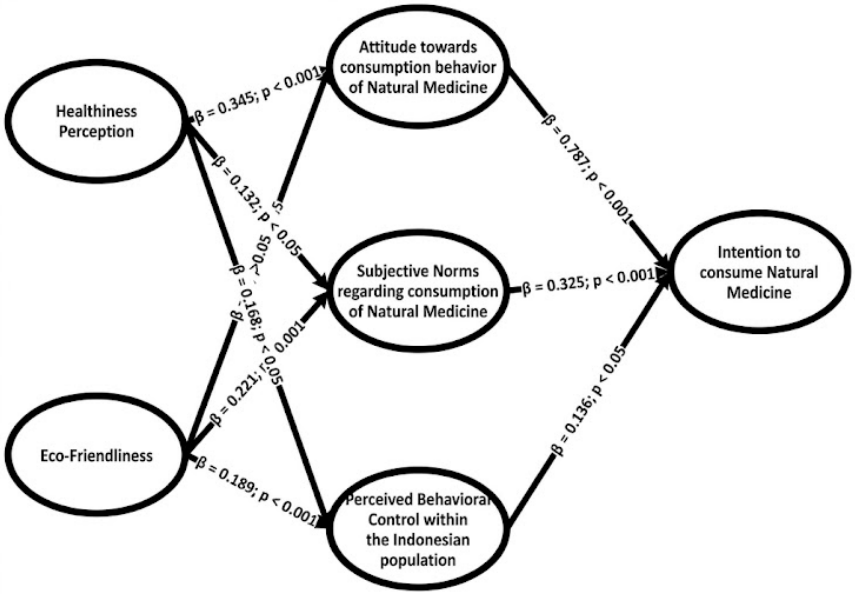
Constructs (Cronbach Alpha)	Indicators	Factor Loading	Average Variance Extracted	Composite Reliability
Healthiness (0.829)	H1	0.885	0.760	0.836
	H2	0.868		
	H3	0.863		
Eco-Friendliness (0.813)	EF1	0.882	0.775	0.845
	EF2	0.895		
	EF3	0.864		
Attitude (0.881)	Att1	0.841	0.664	0.887
	Att2	0.831		
	Att3	0.881		
	Att4	0.695		
Subjective Norm (0.874)	SN1	0.830	0.687	0.898
	SN2	0.845		
	SN3	0.843		
	SN4	0.799		
Perceived behavioral control (0.883)	BC1	0.798	0.693	0.900
	BC2	0.827		
	BC3	0.823		
	BC4	0.881		
Intention to consume OBA (0.886)	IU1	0.927	0.833	0.953
	IU2	0.936		
	IU3	0.896		
	IU4	0.899		

Table 3 shows the results of the validity and reliability tests for the constructs and indicators used in this study. As stated by Hair et al. (2010), the factor loading value of an indicator within a construct is at least 0.7 for confirmatory research.

Structural Model Test Results

This study uses a two-stage SEM approach (with the assistance of the IBM SPSS AMOS application) , namely: a measurement model and a structural model. The measurement model is intended to confirm a construct based on its empirical indicators. A structural model is a model of the structure of relationships that form or explain causality between constructs. According to Anderson and Gerbing (1988) , it is necessary to describe the difference between a measurement model and a structural model, namely the precise specification of the model before obtaining the meaning given in the structural model analysis . The use of two-stage measurement is intended to avoid the occurrence of *confounding interpretational errors* (Anderson and Gerbing, 1988). Misinterpretation in relation to Structural Equation Analysis is that changes in the measurement model can result in changes in the estimation of the construct

measurement parameters that include changes in factor loadings, measurement error, and construct variance. The measurement model is related to measurement validation which includes testing unidimensionality, consistency, reliability, and construct validity, while the structural model is related to nomological testing between constructs in the research model.



(χ2= 912.863, df = 442, χ2 /df = 2.065, GFI = 0.907, AGFI = 0.894, NFI = 0.899, RFI = 0.886, CFI = 0.945, and RMSEA = 0.059).

Figure 2. Structural Model Test Results

Table 3. Hypothesis Test Results

Connection	Beta Coefficient	Critical Ratio	p-value	Conclusion
Healthiness Attitude	0.345	6.37	0,000	supported
Healthiness Subjective Norms	0.132	2.28	0.023	supported
Healthiness Behavior Control	0.168	2.46	0.014	supported
Eco-Friendliness Attitude	0.170	3.13	0.002	supported
Eco-Friendliness Subjective Norms	0.221	4.29	0,000	supported
Eco-Friendliness Behavior Control	0.189	3.45	0,000	supported
Attitude of Intention to Consume Natural Medicines	0.787	9.58	0,000	supported
Subjective Norms of Intention to Consume Natural Medicines	0.325	4.87	0,000	supported
Behavioral Control of Intention to Consume Natural Medicines	0.136	1.98	0.049	supported

The first objective of this study is to evaluate the explanatory power of the Theory of Planned Behavior (TPB) in the context of Natural Medicines (NADs). To achieve this objective, this study focuses on four main attributes: attitude, subjective norms, perceived behavioral control, and intention to use. Specifically, the theory of planned behavior is used to assess consumer behavior related to NADs. The results indicate that attitude, subjective norms, and perceived behavioral control have a positive influence on intention to use NADs. In addition, the results also indicate that subjective norms and perceived behavioral control have a positive influence on intention to use NADs. Furthermore, attitude is shown to have the strongest influence on intention to use NADs, compared to subjective norms and perceived behavioral control.

The second objective of this study was to explore the factors influencing consumer attitudes toward OBA consumption. The results showed a strong correlation between attitudes and two key factors: perceived healthiness and eco-friendliness. Perceived health and eco-friendliness also play a significant role in shaping positive attitudes toward OBA, subjective norms, and perceived behavioral control, indicating that these attributes should be emphasized in marketing strategies. In other words, consumers develop positive attitudes toward OBA, subjective norms, and behavioral control because they perceive these products to support personal health and minimize environmental damage. Among these factors, health has the strongest influence. This is because OBA aims to improve health by strengthening the immune system, a finding consistent with the primary motivators underlying OBA consumption as described in previous literature (Baysan et al., 2019; El-Sakhawy et al., 2023).

Furthermore, when Indonesian consumers believe that natural medicines have clear health benefits, such as being more "natural," safer, or supporting the immune system, this perception *of healthiness* will increase their awareness that consuming these medicines is the right thing for them. This belief in health benefits can also strengthen subjective norms , namely the belief that people -around them (family, friends, community) expect or approve of the use of natural medicines. In the context of Indonesia's collectivist social culture, pressure or expectations from the social environment can be an important source of motivation for individuals to choose products that are considered "healthier." This is reinforced by Indonesian research showing that subjective norms are one of the factors influencing the intention to purchase organic or herbal products by Lukmawan and Wulandari (2024). Furthermore, healthiness perception *plays* an important role in shaping the behavioral control felt by Indonesians in consuming natural medicines. When individuals believe that natural medicines are healthy, natural, and have minimal side effects, they tend to feel more confident and able to manage their health through these products. This positive perception of health strengthens their sense of control over health-related behaviors, as natural remedies are seen as safe and effective alternatives to synthetic drugs. Consequently, people are more motivated to take the initiative in selecting, preparing, and consuming herbal remedies as part of their daily health routine. However, when doubts arise about the safety, effectiveness, or quality of natural remedies, perceived behavioral control decreases, leading individuals to hesitate or rely on the advice of others before consuming them.

Second, the perception of *eco- -friendliness,* i.e., that natural medicines are more environmentally friendly, use sustainable natural resources, or have a lower environmental impact, can also influence subjective norms and PBC. From a subjective norm perspective, if consumers perceive that their social environment (e.g., wellness communities, friend groups, family) values or supports environmentally friendly products, social pressure to choose natural medicines increases. For example, a study in Indonesia showed that *environmental concern* and *eco- -label variables* influence attitudes and behavioral control in the context of environmentally friendly products (Mardius et al., 2023). From a PBC perspective, the perception that natural medicines are more environmentally friendly can strengthen the belief that choosing these products is something that is feasible and controllable. For example, when consumers believe that products are available, affordable, and easily obtained, PBC is high. An Indonesian study on herbal supplements showed that ease of obtaining herbal products and cost are important indicators of PBC (Syafrizal et al., 2024).

Third, when healthiness and eco friendliness are simultaneously reinforced in consumers' minds, the effect on PBC can be strong because consumers feel: "I can choose this product (because it is easily available, I believe in its benefits, and my social environment approves of it)." A high PBC means that consumers feel they have the ability, opportunity, and control to

carry out the action (i.e., consuming natural medicine). As a result, subjective norms and PBC work together to increase the intention to use this product according to the TPB. In other words, when the social environment is supportive and consumers feel capable, the opportunity for the behavior (consuming natural medicine) becomes greater.

Fourth, the implications of this relationship suggest that producers or marketers of natural-based medicines can focus their communications not only on health benefits but also on environmental aspects, while ensuring the availability, accessibility, and clarity of information to achieve high consumer PBC. Furthermore, strengthening social proof (e.g., testimonials from the community, endorsements by respected figures in the community) can strengthen subjective norms. Overall, the application of healthiness and eco- -friendliness in products and marketing strategies has the potential to increase perceived behavioral control and supportive social norms, thereby boosting the use of natural-based medicines in Indonesia. This research finding aligns with Conner et al. (2002) argument that the Theory of Planned Behavior can serve as a primary framework in health-related research.

Conclusion

The main theoretical contributions of this study are as follows. First, this study demonstrates the applicability of the Theory of Planned Behavior (TPB) in the field of OBA. Although numerous studies have addressed the characteristics of Natural Medicines (OBAs) (Baysan et al., 2019; El-Sakhawy et al., 2023), only a few have explored consumer perceptions of OBA using the TPB. Conner et al. (2002) emphasized that the TPB primarily focuses on healthy eating patterns, suggesting that it is an appropriate theoretical framework to explain consumer behavior related to OBA. This study addresses this gap by validating the theory's explanatory power and identifying key factors influencing consumer attitudes toward OBA. The results demonstrate a significant influence of healthiness and eco-friendliness in consumer behavior research. These findings contribute to the literature by providing a deeper understanding of consumer characteristics in the context of OBA. Specifically, these results align with previous studies highlighting the significant influence of healthiness (Jang et al., 2024) in the food product sector. Furthermore, this study supports previous research findings showing that eco-friendliness is a crucial factor in consumer marketing (Zaremohzzabieh et al., 2021). It can be concluded that eco-friendliness is increasingly important in consumer behavior due to increasing attention to environmental issues such as global warming.

Several managerial implications emerge from this research. First, investing in healthier ingredients is crucial, given that health has emerged as a key motivator. Managers can further engage consumers by increasing the visibility of nutrition labels. Emphasizing the environmental benefits and ease of use of OBAs is also crucial for building positive consumer attitudes. Specifically, marketing messages should consistently highlight healthy ingredients and environmentally friendly features, as these factors are strongly associated with the formation of positive attitudes. Managers may also consider using visuals or messages related to health and environmental friendliness, as this is likely to improve consumer attitudes. Resources should also be allocated to building more positive attitudes, as attitudes serve as antecedents to product use intentions as well as subjective norms and perceived behavioral control. Subjective norms relate to the social pressures individuals perceive in their environment, while behavioral control relates to the ease or difficulty individuals experience in accessing OBA products. Furthermore, focusing on peer-group marketing by targeting consumers with sufficient resources to purchase OBAs can increase product sales. Managers

should also consider that focusing marketing on health aspects may be the most efficient allocation of resources, as it shows the strongest effect compared to eco-friendliness.

Limitations

This study has several limitations that are worth noting. First, it focused solely on linear effects between attributes, and future research should consider more diverse relationships, such as moderating effects and curvilinear impacts, to better explain consumer behavior. Furthermore, a survey was used as the sole data collection instrument; future research could consider more diverse methods, such as experimental designs. This study also only involved respondents residing in five major Indonesian cities: Jakarta, Surabaya, Medan, Makassar, and Semarang; future studies could consider a more diverse geographic context, given that food and nutrition can be perceived differently across cultural contexts and influenced by market trends. Another limitation of this study is that the survey participants were not experienced with Natural Medicine (OBA) products. Future research should consider respondents who have not yet had experience with OBA, as this could provide additional information regarding market potential.

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