

Green Consumer Behavior of Women in Purchasing Local Environmentally Friendly Detergent Products

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Abstract

Purpose: This study analyzes how environmental knowledge and attitudes affect women's green consumer behavior when purchasing eco-friendly detergent.

Methodology: This study uses a type of causality research, and sampling in this study uses a non-probability sampling method using an incidental sampling technique with 120 sample respondents. The method used in this study was multiple linear regression analysis.

Results: The results of the study showed that environmental knowledge positively affected green consumer behavior in women purchasing environmentally friendly detergent products. This is because women are more concerned about environmental issues and understand the impact of environmental pollution, and women who are active in recycling activities are more likely to choose and buy environmentally friendly products.

Conclusions: This study significantly enhances our understanding of the factors influencing environmentally conscious consumer behavior, particularly among women, when selecting eco-friendly detergent products. The findings suggest that knowledge of recycling, along with related attitudes and behaviors, plays a crucial role in shaping women's preferences for more sustainable products.

Limitations: The focus of this study is only on female consumers; therefore, it does not examine how male consumers buy environmentally friendly detergents. The study cannot be generalized to a wider population because the respondents were limited to certain areas.

Contributions: Testing the relevance of consumer behavior theories, such as the Theory of Planned Behavior (TPB), to eco-friendly detergent purchases provides valuable insights for local manufacturers to design effective marketing strategies targeting environmentally conscious female consumers.

Keywords: *Environmental Attitudes, Environmental Knowledge, Green Consumers, Recycling Behavior*

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1. Introduction

Environmental damage is a serious concern among the public, particularly in Indonesia. Various forms of pollution, such as air and water pollution, as well as increasingly complex waste problems, pose major challenges to environmental sustainability (Septiani, Najmi, & Oktavia, 2021). This problem worsens with the increasing volume of waste, which is difficult to manage and recycle effectively. Indonesia is the second-largest contributor to ocean waste worldwide. The Indonesian Institute of Sciences *Lembaga Ilmu Pengetahuan Indonesia (LIPI)* releases data that estimates that between 270,000 and 900,000 tons of waste are carried by rivers to the sea annually. Of particular concern is the

predominance of single-use plastic waste, such as Styrofoam and plastic sheets, which have very low biodegradability and, therefore, endanger marine ecosystems.

This phenomenon demonstrates the severity of Indonesia's current environmental crisis. Environmental degradation has become a significant topic, affecting not only the beauty and comfort of life but also posing a serious threat to ecosystem sustainability and public health. Issues such as air pollution, water pollution, and waste are major public concerns ([Septiani et al., 2021](#)). The continued increase in waste volume each year further complicates waste management, particularly because much of it is difficult to recycle optimally. This situation requires an active role from all elements, including the government, business world, and wider community, to raise awareness and implement concrete steps to maintain environmental sustainability.

In addition to single-use plastics, which are a major focus of environmental pollution issues, there is another type of household waste that is equally dangerous but often overlooked: detergent waste. The use of detergents for washing clothes is a particularly concerning source of household waste. While this is difficult to avoid, we can make our own laundry detergent using natural ingredients or switch to more environmentally friendly options. Some considerations before switching to an eco-friendly detergent include a product free from harmful chemicals, ease of rinsing, and low foam production. Furthermore, the detergent should be made from biodegradable ingredients and be available in refillable packaging. Some eco-friendly detergent brands include Purefyl Natural Laundry Soap, Green Wash Detergent, Puro Premium Detergent Liquid, and Ivly Nature Baby Laundry Detergent. Generally, eco-friendly detergents are free of preservatives, EDTA, SLS, dyes, and other harmful chemicals.

As environmental concerns grow, consumer behavior has begun to change. Awareness of the environmental impact of everyday products is driving consumers to be more selective, including choosing more sustainable household products, particularly among women, who are increasingly aware of the importance of choosing environmentally friendly products ([Tiffany & Singagerda, 2025](#)). According to a study conducted by Kantar, approximately 20 percent of consumers in Indonesia have begun adopting more environmentally friendly consumption behaviors by reducing waste through more sustainable product selection and shopping methods. Data from KIC also show that 60.5% of respondents chose environmentally friendly products to preserve the Earth, while 51.5% stated that satisfaction with the product's use was the main reason for their choice. Furthermore, the KIC survey revealed that only 37.1% of respondents had never purchased or used environmentally friendly products ([Jayani, 2021](#)).

The millennial generation, aged 25 to 40 years, demonstrates growing concern for social and environmental issues. They tend to choose companies or brands that help transform Indonesia into a greener, healthier, fairer, more prosperous, and inclusive nation. This millennial environmental concern demonstrates that strong collaboration between businesses, brands, and individuals with a shared vision will accelerate and expand their positive impact on society and the environment. Increasing public awareness of the importance of environmental conservation has not only impacted individual consumption behavior but has also begun to shape new directions in the business strategies of companies. Consumers are increasingly considering sustainability in their purchasing decisions, resulting in products that prioritize environmentally friendly values becoming increasingly popular. This development reflects the transformation of environmental issues from being merely a social responsibility to a significant economic consideration and part of the modern consumer lifestyle ([Ma'arif, Kurniawan, & Sisdiyanto, 2025](#)).

Environmentally friendly products are one solution to reduce waste by converting it into other products with economic value ([Octavia & Handayani, 2025](#)). Research [Durif, Boivin, and Julien \(2010\)](#); [Octavia and Handayani \(2025\)](#) suggests that environmentally friendly products are made using biodegradable and recyclable materials, with the aim of reducing negative impacts on the environment throughout the product's life cycle. The use of such products also contributes to reducing the social and ecological impacts that generally arise from consumption patterns and production processes ([Vilaningrum, 2024](#)). Consumers who care about the environment, or green consumers, believe that the world's environmental

conditions are increasingly deteriorating and have become a critical issue for global society ([Angeline, Ngangi, Laoh, & Sondakh, 2015](#); [Romdhoni, Hasiholan, & Amboningtyas, 2020](#)). This awareness encourages companies that are responsive to environmental issues to view them as strategic opportunities to meet consumer needs and preferences. One approach is to integrate environmental aspects into marketing strategies, known as green marketing ([Nasution, Tawil, Gumerung, & Lumentah, 2025](#)).

Given this trend, marketers are challenged to capitalize on the opportunities arising from consumer behavior that favors products that support environmental sustainability. Increasing public awareness of environmental issues is driving companies to provide eco-friendly products to address evolving consumer needs and preferences ([Kanchanapibul, Lacka, Wang, & Chan, 2014](#)). Green products are goods designed with sustainability aspects in mind, such as being free from hazardous substances, safe for users, packaged with environmentally friendly materials, and easy to recycle ([Budianti & Nurtjahjadi, 2023](#); [Rini, Sukaatmadja, & Giantari, 2017](#)).

Previous studies [Anggraeni \(2021\)](#); [Arisyi and Engriani \(2019\)](#); [Haryono \(2021\)](#); [A. Y. Saputri \(2024\)](#) recycling behavior and has a positive and significant influence. Meanwhile, [Utami \(2020\)](#) found that knowledge and attitudes toward the environment do not significantly influence green consumer behavior, whereas recycling behavior and political action have a positive and significant influence. This study discusses whether environmental knowledge, environmental attitudes, and recycling behavior influence green consumer behavior in women in the context of purchasing environmentally friendly detergent products. This study aimed to analyze how environmental knowledge and attitudes influence green consumer behavior among women in the context of purchasing environmentally friendly detergent products ([Delliana & Arisandi, 2020](#)).

2. Literature Review and Hypotheses Development

2.1 Theory of Planned Behavior (TPB)

According to the Theory of Planned Behavior (TPB), humans tend to be rational and use information systematically. Before deciding to perform or avoid an action, individuals typically consider its consequences. The TPB is based on the idea that individuals are more likely to make decisions based on rational considerations. The theoretical framework discusses how attitudes, subjective norms, and perceived behavioral control can influence a person's intentions, as well as how intentions and perceived behavioral control can impact the actions taken ([Bosnjak, Ajzen, & Schmidt, 2020](#)).

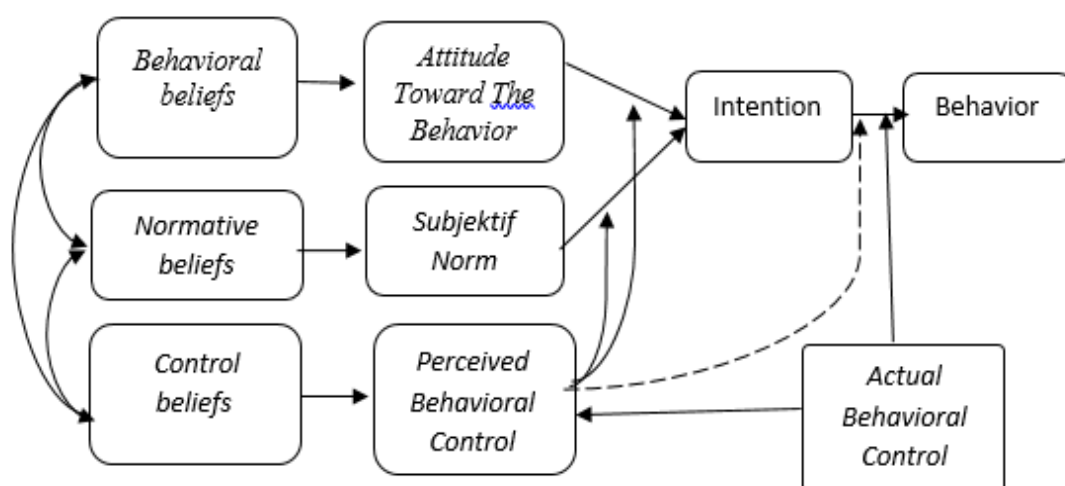


Figure 1. Model of the theory of planned behavior

The Theory of Planned Behavior (TPB) in Figure 1 states that a person's intention to perform an action is influenced by three main factors: attitude toward the action, subjective norms, and perceived control

over the behavior. In the context of environmentally conscious consumer behavior, these three aspects can be explained through the decision-making process when choosing environmentally friendly cleaning products. For example, a consumer may decide to use a natural detergent because they believe it is safer for the environment and their family's health (positive attitude toward the behavior). Furthermore, consumers also feel social support from their environment or friends who support a sustainable lifestyle (subjective norms). The final factor is the ease of accessing the product, both physically in stores and through online platforms, and the financial ability to purchase it (perceived behavioral control). These three elements play a role in forming a strong intention to purchase and use environmentally friendly products, which is ultimately realized through concrete actions. Therefore, TPB is a relevant and effective theoretical framework for predicting and understanding consumer behavior when choosing environmentally friendly products.

2.2 Green Consumer Behavior

Green consumer behavior refers to individual actions in making purchases based on personal concern for environmental issues, with behavioral characteristics such as looking for products that do not damage the environment, using recyclable packaging, choosing environmentally friendly goods, and reusing waste from these products (Utami, 2020). Various parties, both individuals and organizations, have proposed various definitions and concepts regarding green consumption behavior Yang, Chen, Long, and Yang (2022), but until now, there has not been a consistent and comprehensive definition that can accommodate various perspectives on this term, which is currently of concern to many groups.

2.3 Environmental Knowledge

Environmental knowledge refers to an individual's understanding of environmental issues and problems (Emekci, 2019). This knowledge is expected to increase individuals' confidence that, as consumers, they have a vital role in preserving the environment through responsible consumption behavior (perceived consumer effectiveness) (Heo & Muralidharan, 2019). Indicators of environmental knowledge include an understanding of ecology and the condition of the surrounding environment, insight into environmental pollution, including its causes, impacts, and changes, and the ability to identify and resolve various problems related to the environment (Hariyadi, Maryani, & Kastolani, 2021).

H₁: Environmental knowledge influences green consumer behavior on environmentally friendly detergent products

2.4 Environmental Attitude

Attitude is defined as a person's cognitive assessment of an object or problem (Utami, 2020). In the context of sustainable consumption, an individual's attitude reflects their beliefs about the consequences of environmentally friendly consumer behavior (Arisyi & Engriani, 2019). Research N. P. Saputri and Rahman (2021) between environmental knowledge, environmental concern, and attitudes toward the environment that significantly influence the intention to purchase products, with gender differences as a moderating variable. Attitudes towards the environment also influence green consumer behavior because individuals with strong environmental attitudes tend to be more sensitive to the environmental impact of a product (Manan, Nursari, Sejati, Yoesseri, & Mareta, 2024). Environmental attitude indicators include appreciation for environmental sustainability, sensitivity to environmental issues, and the drive and intention to play a role in solving environmental problems (Hariyadi et al., 2021).

H₂: Environmental attitude influences green consumer behavior on environmentally friendly detergent products

2.5 Recycling Behavior

Recycling behavior is considered an altruistic act, where the decision to recycle is influenced by social and personal norms, awareness of the impact of the action, and a sense of responsibility for the consequences (Qurniawati & Nurohman, 2021). Indicators of recycling behavior include the act of sorting waste types, burning plastic waste, and processing recyclable waste (Relawati, Ariadi, & Purwono, 2020).

H₃: Recycling behavior influences green consumer behavior on environmentally friendly detergent products

3. Methodology

3.1 Research Approach

This study applies a causal quantitative approach with research variables including environmental knowledge (X_1), environmental attitudes (X_2), recycling behavior (X_3), and green consumer behavior (Y).

3.2 Data Sources

This study uses primary data obtained directly from the field through questionnaire responses filled out by respondents selected according to a predetermined criterion.

3.3. Method of Collecting Data

Data collection was conducted through a direct survey in the field to obtain relevant information to support the research topic. Data were collected using a questionnaire. The respondents were those who had purchased environmentally friendly detergent products and were asked to fill out a written statement. The measurement scale was a semantic differential scale, which is designed to measure attitudes using a continuous line rather than multiple-choice or checklist items. On the line, very positive answers are at one end, while very negative answers are at the other (Fahira, 2024). The data obtained through differential semantic scale measurements were interval data.

3.4. Population and Sample

This study focused on female consumers who use eco-friendly detergents. The sampling technique used was non-probability sampling with an incidental sampling approach (A. Y. Saputri, 2024). The number of samples obtained was 120 respondents, where sampling was done by chance; that is, anyone who was met by the researcher and met the predetermined criteria could be sampled. The respondent criteria in this study included consumers who had knowledge of and concern for the environment and used environmentally friendly detergent products.

3.5. Data Analysis

The data analysis used in this study was multiple linear regression analysis.

3.6. Research Model

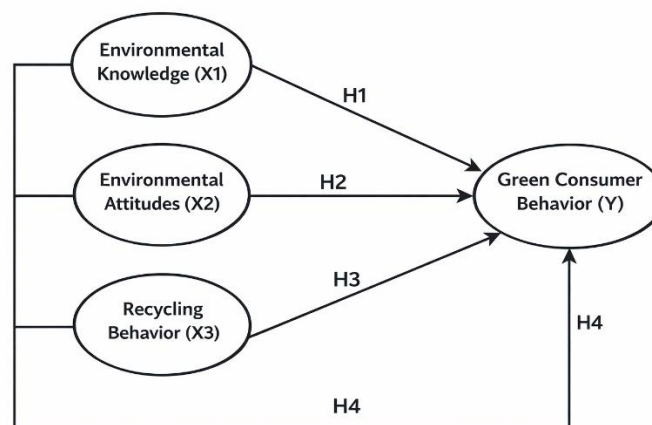


Figure 2. Research model

3.7 Validity and Reliability Test

The validity test conducted in this study involved 30 respondents because this number was deemed sufficient to produce a score distribution that approximated a normal curve and represented the target

population. Cronbach's alpha was used to test reliability. The questionnaire consisted of 24 closed-ended questions.

4. Results and Discussions

4.1 Description of Respondent Characteristics

A general description of the age of female consumers who use environmentally friendly detergent products is as follows:

Table 1. Respondents' age distribution

Age	Amount	Percentage (%)
18 – 23 Years	86	71.7
24 – 29 Years	12	10
> 30 Years	22	18.3
Total	120	100

Table 1 shows the respondents' data by age group, showing that the majority of female consumers who use eco-friendly detergent products are between the ages of 18 and 23, representing 86 respondents, or approximately 71.7%. This indicates that the majority of eco-friendly detergent users are women between 18 and 23 years of age. A general overview of the work of female consumers who use environmentally friendly detergent products is as follows:

Table 2. Distribution of respondents' occupations

Work	Amount	Percentage (%)
Civil Servants/State-Owned Enterprises	28	23.3
Private employees	18	15.0
Entrepreneur	20	16.7
Students	35	29.2
Other	19	15.8
Total	120	100

Table 2 shows the respondents' data by occupation, showing that the majority of female consumers who use eco-friendly detergent products are students, accounting for 35 respondents (29.2%). This indicates that most eco-friendly detergent users were female students. A general overview of the work of female consumers who use environmentally friendly detergent products is as follows:

Table 3. Distribution of respondents based on monthly income

No	Income	Number of People	Percentage (%)
1	<Rp. 2,000,000	40	33.3
2	Rp. 2,000,000-Rp. 4,000,000	51	42.5
3	> Rp. 4,000,000	29	24.2
Total		120	100

Table 3 shows that most respondents who use environmentally friendly detergent products have a monthly income between IDR 2,000,000 and IDR 4,000,000, with a total of 51 people or approximately 42.5%.

4.2 Validity Test and Reliability Test

Product-moment correlation, the testing process and data calculation were carried out using the SPSS version 21 application.

Table 4. Results of variable validity test

Variables	Statement	r_h	r_{Table}	Condition	Conclusion
	PL 1	0.721	0.361	$r_h > r_{Table}$	Valid

Environmental Knowledge (EHS)	PL 2	0.636	0.361	$r_h > r_{Table}$	Valid
	PL 3	0.720			
	PL 4	0.758			
	PL 5	0.736			
	PL 6	0.492			
Environmental Attitude (SL)	SL 1	0.761	0.361	$r_h > r_{Table}$	Valid
	SL 2	0.686			
	SL 3	0.746			
	SL 4	0.676			
	SL 5	0.716			
Recycling Behavior (PDU)	PDU 1	0.603	0.361	$r_h > r_{Table}$	Valid
	PDU 2	0.621			
	PDU 3	0.589			
	PDU 4	0.641			
	PDU 5	0.609			
Green Consumer Behavior (GCB)	PDU 6	0.483	0.361	$r_h > r_{Table}$	Valid
	GCB 1	0.654			
	GCB 2	0.775			
	GCB 3	0.749			
	GCB 4	0.804			
	GCB 5	0.775			
	GCB 6	0.779			

Table 4 shows that all statements related to environmental knowledge, attitudes towards the environment, recycling behavior, and green consumer behavior were valid. Reliability test using Cronbach's alpha. The results of the reliability test are presented in the following table:

Table 5. Reliability test results

Variables	Cronbach Alpha Coefficient	Coefficient r	Conclusion
PL	75.6%	0.600 – 0.799	Tall
SL	79.3%	0.600 – 0.799	Tall
PDU	61.3%	0.600 – 0.799	Tall
GCB	84.2%	0,800 – 1,000	Very high

Table 5 above shows the Cronbach's alpha value for environmental knowledge of 0.756, environmental attitude of 0.793, recycling behavior of 0.613 has high reliability, while green consumer behavior of 0.842 has very high reliability.

4.3 Multiple Linear Regression Results

Table 6. Multiple linear regression coefficients

Variables	B
(Constant)	11,107
Environmental Knowledge	0.329
Environmental Attitude	0.185
Recycling Behavior	0.172

Based on Table 6, the following results were obtained.

$$Y = 11.107 + 0.329 X_1 + 0.185X_2 + 0.172X_3 \quad (1)$$

Table 7. Summary model test results

Variables	R (Correlation)	R-Square (Determination)
Environmental Knowledge, Environmental Attitude and Recycling Behavior Towards Green Consumer Behavior	0.611	0.373

Table 7 shows a coefficient of determination (R^2) of 0.373, indicating that environmental attitudes, environmental knowledge, and recycling behavior together can explain changes in green consumer behavior. This means that 37.3% of green consumer behavior can be explained by these three variables, while the remaining 63% is influenced by other factors not included in this study. In addition, a strong relationship between environmental knowledge, environmental attitudes, and recycling behavior with green consumer behavior can be seen based on the correlation value (r) of 0.611, indicating a relationship. This correlation value is in the range of 0.600–0.799, which generally indicates a significant and positive level of association between these variables.

4.4 T-Test

A T-Test was conducted to evaluate whether the independent variable influenced the dependent variable. The results of the t-test are as follows:

Table 8. T-Test results

Variables	t_{count}	t_{table}	Condition	Conclusion
Environmental Knowledge → Green Consumer Behavior	4.115	1,980	$t_{count} > t_{table}$	Significant Positive
Environmental Attitudes → Green Consumer Behavior	2,539			
Recycling Behavior → Green Consumer Behavior	2,018			

Table 8 shows the results of the t-test, where the environmental knowledge variable on green consumer behavior obtained a calculated t value of 4.115, which is greater than the t table of 1.980. This indicates that environmental knowledge significantly influences green consumer behavior regarding the use of environmentally friendly detergent products. Furthermore, the attitude variable towards the environment produced a calculated t value that also exceeded the t table value, so it can be concluded that environmental attitudes influence green consumer behavior. The recycling behavior variable showed a calculated t value of 2.018, which was greater than the t table; thus, recycling behavior also had a significant influence on green consumer behavior in the context of environmentally friendly detergent products.

4.5 F- Test

The F-test was used to assess whether the independent variable had a significant influence on the dependent variable. The following are the results of the F-test:

Table 9. Results of the f-test

Variables	f_{count}	f_{table}	Condition	Information
PL, SL, PDU on Green Consumer Behavior	22.99	3.07	Sig < Alpha	Significant Positive

Table 9 shows that the results of the F-test for the variables of environmental knowledge and environmental attitudes towards green consumer behavior show a calculated F-value of 22.99, which is higher than the F table of 3.07. Thus, it can be concluded that environmental knowledge, environmental attitudes, and recycling behavior significantly influence green consumer behavior.

4.6 The Influence of Environmental Knowledge on Green Consumer Behavior

The results indicate that environmental knowledge influences green consumer behavior towards eco-friendly detergent products, particularly among women who use local eco-friendly detergent products.

Environmental knowledge includes an understanding of ecological issues, the causes and impacts of pollution, and solutions that can be implemented to reduce environmental damage through responsible consumption. These results align with [Utami \(2020\)](#), who stated that increased environmental knowledge encourages green consumer behavior. Therefore, manufacturers need to increase educational efforts regarding the importance of environmental conservation to further develop green consumer behaviors. Thus, the eco-friendly products they offer will be more attractive as a primary choice for consumers who care about sustainability. Otherwise, the market for green products is unlikely to be attractive to consumers.

Consumer awareness typically increases when they receive clear and reliable information about environmental issues. Consumer knowledge plays a crucial role in supporting the adoption of environmentally friendly lifestyles in Indonesia ([Utami, 2020](#)). However, overall, public understanding of environmental conservation efforts remains relatively low and requires more intensive attention in the future. Female consumers with a high level of knowledge about the importance of environmental conservation tend to be more conscious and selective in their product choices, including choosing detergents that do not damage aquatic ecosystems, use biodegradable ingredients, and are packaged in recyclable materials. This reinforces the assumption that knowledge is a crucial foundation for shaping consumer attitudes and purchasing decisions regarding environmentally friendly products.

Furthermore, women are known to play a strategic role in household purchasing decisions, including the purchase of cleaning products such as detergents. With sound knowledge, they consider not only efficiency and price but also the long-term impact on the environment and their families' health. Environmentally literate female consumers are more likely to be agents of change in promoting sustainable lifestyles within their communities. Based on interviews, there is still inequality in the distribution of education and information in the mass media regarding the current environmental conditions. This indicates that green consumer behavior has not yet fully influenced environmental awareness. Therefore, a more equitable information dissemination strategy tailored to the target audience's social status is needed to ensure more accurate and targeted research results.

4.7 The Influence of Environmental Attitudes on Green Consumer Behavior

The results of this study indicate that environmental attitudes influence green consumer behavior towards eco-friendly detergent products, especially among women who use local eco-friendly detergent products. Environmental attitudes reflect an individual's evaluation of the importance of preserving nature and how these values are translated into their daily consumption behavior. The results of this study are in line with those of [Arisyi and Engriani \(2019\)](#), who showed that improving environmental attitudes impacts increasing green consumer behavior. Therefore, producers need to further educate the public about the importance of protecting the environment so that consumers become more concerned and responsive to increasingly worsening environmental issues. Thus, eco-friendly products are more likely to be the main choice because they are considered to have a positive impact and contribute to environmental conservation efforts. Thus, it is hoped that consumers' concern for the environment can be an attraction in itself for buying and using environmentally friendly products.

A person's attitude and behavior in making decisions about the environment are factors that can improve environmental quality. This means that environmental awareness is positively related to attitudes. Attitude can be defined as the result of emotional evaluation and a tendency to respond, which is formed through the interaction of cognitive, affective, and conative aspects ([Utami, 2020](#)). Women with positive environmental attitudes tend to be concerned about the ecological impact of the products they use. In the context of detergent use, aspects such as chemical content, biodegradability, safety for water and living organisms, and product packaging were considered. A supportive attitude toward environmental preservation encourages individuals to choose locally sourced, eco-friendly detergents, even if they are slightly more expensive than conventional products. Women play a crucial role in this regard because they are generally the decision-makers when purchasing household products, including detergents. Once a positive attitude toward the environment is established, purchasing decisions are based not only on product efficiency but also on ethical and environmental sustainability.

The interview results indicate that women's active participation in responding to environmental issues remains relatively low. Awareness of the benefits of using eco-friendly products to reduce pollution and environmental damage is also not yet fully established. Therefore, a more equitable distribution of the sample and adjustment of respondents' social status according to established criteria are needed to obtain more accurate and focused results. Therefore, local detergent manufacturers must capitalize on this opportunity by building a product image that is economical, ethical, and ecological. Efforts such as including information on environmentally friendly ingredients, green certification, and involving women's communities in environmental campaigns can strengthen consumer attitudes towards the importance of choosing green products. Thus, environmental attitudes are an important predictor of green consumer behavior. When attitudes toward sustainability are well-formed, women as consumers will be more aware and consistent in supporting environmentally friendly products such as locally sourced, sustainable detergents. This is a positive signal for manufacturers to continue improving the quality and communication of environmental value in their products.

4.8 The Influence of Recycling Behavior on Green Consumer Behavior

The results show that recycling behavior influences green consumer behavior towards environmentally friendly detergent products, particularly among women who use local, environmentally friendly detergent products. Recycling behavior refers to individual habits in managing waste responsibly, such as separating waste, reusing packaging, and choosing products with recyclable packaging. The results of this study are in line with [Utami \(2020\)](#), who found that recycling behavior influences green consumer behavior, meaning that increased recycling practices will encourage increased environmentally friendly behavior among consumers. Therefore, manufacturers must provide concrete examples or clear guidance to consumers regarding the types of recycling behavior that can be applied to the products they sell. Thus, consumers as the target market can understand the appropriate actions in managing the remaining products that have been used, so that their active role in choosing and supporting environmentally friendly products can continue to be enhanced.

Recycling is the process of reprocessing used goods into new products to reduce the amount of waste scattered throughout the environment ([Utami, 2020](#)). Efforts to raise public awareness of the importance of environmental sustainability can be achieved through ongoing education about the negative impacts of environmentally unfriendly behaviors. Women, especially those with a high level of environmental awareness, tend to consider the sustainability of the products they consume. In the context of local, eco-friendly detergents, recycling behavior is reflected in consumers' tendency to choose products packaged using environmentally friendly materials, avoid detergents containing hazardous chemicals, and support brands with recycling or refill programs.

Women's support for recycling also reinforces the habit of purchasing products that are not only functional but also have minimal environmental impact. This reinforces green consumer behavior, which includes conscious decisions regarding the selection, use, and disposal of products. The higher an individual's level of participation in recycling activities, the more likely they are to consistently adopt environmentally friendly attitudes and practices. Women involved in household activities, such as domestic waste management, are more likely to come into direct contact with waste issues, making it easier to internalize the importance of recycling as part of their consumption behavior ([Lastriany, Sulistiobudi, & Sulastiana, 2022](#)).

The interviews revealed limited recycling facilities in the surrounding area, a lack of education, and the perception that recycling is cumbersome or inefficient. Therefore, local, environmentally friendly detergent manufacturers have a strategic role in encouraging recycling behavior through educational and innovative approaches, such as packaging return programs, refillable products, and collaboration with environmental communities. Overall, recycling behavior is a clear indicator of consumer commitment to environmental sustainability and a key driver of the development of green consumer behavior. Women who habitually recycle demonstrate greater awareness of product life cycles, making them more selective and responsible in choosing household products, such as detergents. This can be a positive signal for local producers to continue strengthening the eco-friendly image of their products so that they become more relevant and accepted by the market that cares about environmental issues.

4.9 The Influence of Environmental Knowledge, Environmental Attitude, Recycling Behavior on Green Consumer Behavior

Research findings indicate that environmental knowledge, pro-environmental attitudes, and recycling behavior influence female consumers' choice of environmentally friendly products, such as local eco-friendly detergents. These three variables are the main determinants of shaping environmentally conscious consumer behavior patterns, especially in the context of using everyday household products such as detergents. These results are supported by a previous study by [Utami \(2020\)](#), which suggested that environmental knowledge influences green consumer behavior. Environmental knowledge plays a key role in shaping sustainability-oriented consumption behaviors. Women with a greater understanding of the impact of chemicals in conventional detergents and the importance of preserving water and soil ecosystems tend to be more selective in choosing household products. In the context of local, eco-friendly detergent products, this knowledge encourages female consumers to understand that their choices contribute to environmental preservation while supporting local products. Therefore, increasing knowledge is a strategic aspect of sustainable marketing.

A positive environmental attitude drives consumers' internal motivation to act in accordance with sustainability values. Women with an appreciative attitude toward environmental sustainability, sensitivity to ecological issues, and a strong intention to actively contribute tend to be more loyal to environmentally friendly products. These results reinforce previous research [Arisyi and Engriani \(2019\)](#), who found that attitude is an important variable in mediating the relationship between knowledge and action. In this context, a positive attitude toward environmental preservation is a strong predictor of green consumer behavior. Recycling behavior is a concrete manifestation of sustainable values practiced on a daily basis. Women who habitually sort waste, reuse product packaging, or purchase detergent refills demonstrate consistency between their values and actions. This attitude encourages them to maintain a green lifestyle, including purchasing decisions. This research aligns with [Utami \(2020\)](#), who stated that recycling behavior is a form of personal and social responsibility that grows from awareness of environmental consequences. In the context of local detergents, women who have adopted this habit tend to be more loyal to products that align with the principles of reducing, reusing, and recycling.

These three factors interact with each other and contribute significantly to shaping women's green consumer behavior. Strong knowledge fosters positive attitudes and awareness, while these attitudes strengthen the motivation to act in accordance with sustainability values. Furthermore, recycling behavior demonstrates the concrete application of these attitudes and knowledge through specific actions that support sustainability ([Mantiaha, 2016](#)). In the context of selecting environmentally friendly local detergent products, women with a good level of knowledge, a positive attitude toward the environment, and consistent recycling behavior tend to be more loyal and selective in purchasing products that do not harm the environment than men. This not only supports environmental conservation but also strengthens the market for local products committed to sustainability. Therefore, producers must actively encourage the formation of green consumers to expand their environmentally friendly market share.

5. Conclusions

5.1 Conclusion

This study contributes significantly to the understanding of the factors that influence environmentally conscious consumer behavior, particularly among female consumers, in selecting eco-friendly detergent products. The findings reveal that recycling knowledge, attitudes, and behavior are interconnected in shaping women's choices toward more sustainable products. Theoretically, this study expands the application of consumer behavior theory within the context of eco-friendly consumption, demonstrating how cognitive (knowledge), affective (attitude), and conative (behavior) dimensions collectively influence purchasing decisions. Additionally, this study provides insights into the green consumer behavior literature, which

has previously focused on general consumer trends without addressing gender segments or specific product types.

5.2 Research Limitations

Although this study offers valuable insights, it has several limitations. First, focusing on female consumers means that the results may not apply to male consumers. Second, respondents were predominantly from regions with higher environmental awareness, which may limit the generalizability of the findings to areas with lower environmental awareness. Furthermore, this study primarily explored the influence of recycling knowledge, attitudes, and behavior; however, other factors such as price, product availability, social influence, and marketing strategies may also play a significant role in consumer decision-making. Finally, the study measured short-term impacts, and its findings may not fully capture the long-term behavioral patterns of consumers.

5.3 Suggestions and Directions for Future Research

Future research should consider expanding the sample to include a broader demographic, including diverse age groups, education levels, and socioeconomic backgrounds, to assess whether these findings hold true across different segments. Additionally, future studies could explore the influence of other variables, such as social influence, the effectiveness of green marketing campaigns, and consumer brand loyalty, all of which could further contribute to understanding the decision-making process behind purchasing eco-friendly detergents.

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Author Contributions

VDY conceptualized the study, designed the research methodology, and wrote the original draft of the manuscript. RRU contributed to the methodology, validated the research approach, supervised the study, and critically revised the manuscript. Both authors reviewed and approved the final manuscript for publication.

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