



From Environmental Awareness to Action: Understanding BYOB Intention and Actual Behavior through the Theory of Planned Behavior

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ABSTRACT

Keywords:

BYOB; Environmental Awareness; Planned Behavior

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The increasing use of single-use plastic bags requires behavioral interventions that encourage individuals to adopt reusable alternatives through the Bring Your Own Bag (BYOB) practice. Understanding the psychological factors that shape BYOB intention and actual behavior is therefore important for strengthening environmentally oriented public policies. This study examines the effects of Environmental Awareness, Attitude Toward Behavior, Subjective Norms, and Perceived Behavioral Control on BYOB Actual Behavior, with BYOB Intention serving as a mediating variable. A quantitative explanatory design was employed involving 285 respondents aged 17 years and above. Data were collected through structured questionnaires using a five-point Likert scale and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4. The results show that Environmental Awareness, Attitude Toward Behavior, Subjective Norms, and Perceived Behavioral Control significantly influence BYOB Intention, while BYOB Intention and Perceived Behavioral Control significantly influence BYOB Actual Behavior. Environmental Awareness, Attitude Toward Behavior, and Perceived Behavioral Control also significantly affect BYOB Actual Behavior through BYOB Intention, whereas the indirect effect of Subjective Norms is not significant. These findings highlight the importance of strengthening environmental awareness, positive attitudes, perceived behavioral control, and behavioral intention through practical and community-oriented interventions to encourage sustained BYOB practices.

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INTRODUCTION

Plastic waste, particularly single-use plastic bags, has become a major environmental issue because of its persistence, widespread use, and movement from terrestrial areas into rivers and oceans. The problem is not only ecological

but also social, economic, and public-health related because plastic pollution can damage aquatic ecosystems, disrupt drainage systems, and increase exposure to microplastics (Savari et al., 2023; Rozenkowska, 2023). Governments in many countries have therefore introduced restrictions on plastic waste imports and policies limiting single-use plastic bags (Christina & Indra, 2025; Rudiana et al., 2026). In Indonesia, national and local governments have implemented various waste-reduction programs, including policies encouraging consumers to use reusable shopping bags. However, policy effectiveness ultimately depends on public acceptance and behavioral compliance (Islam & Mehdi, 2024; Hong et al., 2023). Therefore, understanding why people intend to bring their own bags and whether such intentions are translated into actual behavior is important for designing more effective environmental policies and promoting sustainable consumption practices.

This study applies the Theory of Planned Behavior (TPB) as the main theoretical framework for explaining environmentally responsible consumer behavior (Liu & Wang, 2024; Fauzi et al., 2024). The theory proposes that behavioral intention is shaped by three central determinants: attitude toward the behavior, subjective norms, and perceived behavioral control. In this study, environmental awareness is incorporated as an additional antecedent because awareness of plastic pollution may strengthen an individual's motivation to adopt environmentally responsible practices (Ayeh et al., 2023; Wang et al., 2025). BYOB intention represents the motivational component that connects psychological evaluations with behavior, while BYOB actual behavior represents the practical realization of that intention. Attitude reflects whether consumers evaluate bringing reusable bags positively, subjective norms represent perceived social expectations, and perceived behavioral control concerns the perceived ease or difficulty of carrying and using reusable bags. Thus, the extended TPB provides an integrated framework for examining both intention formation and behavioral realization (Umayyatun & Ludfi, 2025; Zulkhairi et al., 2025).

Despite the increasing number of policies restricting single-use plastic bags, many communities continue to experience difficulties in changing established shopping habits. Consumers may support environmental protection in principle but still use disposable plastic bags because they forget reusable bags, perceive them as inconvenient, lack preparation, or encounter situations where reusable alternatives are unavailable (Hamid et al., 2023; Nguyen et al., 2023). This condition demonstrates a potential gap between environmental awareness, behavioral intention, and actual behavior. In Pontianak, the implementation of a municipal policy restricting businesses from providing plastic bags has created an important context for examining this behavioral transition. Although the policy encourages consumers to bring their own bags, compliance may vary

among individuals (Deka et al., 2023; Liu & Park, 2024). Some consumers may respond positively and develop stronger intentions, whereas others may resist or gradually adapt. Consequently, identifying the psychological and behavioral factors underlying BYOB practices is necessary to evaluate policy implementation and strengthen sustainable consumption.

Previous studies have examined environmentally responsible consumption through variables such as environmental awareness, attitude, subjective norms, perceived behavioral control, and behavioral intention. Research on BYOB behavior has generally demonstrated that positive environmental attitudes, stronger social expectations, and greater perceived control can encourage consumers to intend to use reusable bags. Environmental awareness has also been associated with stronger environmentally responsible intentions (Naskar & Lindahl, 2026; Qiu et al., 2025). However, several limitations remain. First, many studies focus primarily on behavioral intention rather than examining whether intention is translated into actual BYOB behavior (Zhang et al., 2024; Zong et al., 2023). Second, findings concerning subjective norms and perceived behavioral control are not always consistent across cultural and policy contexts. Third, environmental awareness is frequently examined independently rather than integrated with the core TPB variables. These limitations indicate the need for a more comprehensive model that simultaneously examines psychological antecedents, intention, and actual behavior within a specific policy environment.

Another limitation concerns the intention–behavior gap. Having a strong intention to behave sustainably does not necessarily mean that consumers consistently perform the intended behavior in real shopping situations (Musthofa et al., 2026; Wahyudin et al., 2025). Existing studies have provided valuable evidence regarding the formation of environmental intentions, but fewer studies have simultaneously examined direct and indirect pathways from environmental awareness and TPB variables to actual BYOB behavior through intention. In addition, the role of perceived behavioral control deserves particular attention because it may influence actual behavior directly as well as indirectly through intention (Buhmann et al., 2024; Wang et al., 2024). This distinction is important because consumers may perform BYOB behavior when they possess sufficient resources, opportunities, habits, and confidence, even when their behavioral intention is not particularly strong (Colombo et al., 2023; Liu & Park, 2024). Therefore, examining both direct and mediated relationships can provide a more complete explanation of how sustainable shopping behavior develops.

The state of the art of this research lies in integrating environmental awareness with the three core TPB determinants to explain both BYOB intention and actual BYOB behavior. Rather than treating intention as the final outcome,

this study positions intention as a mediator between environmental and psychological factors and actual sustainable behavior. The model also explicitly examines the direct effect of perceived behavioral control on actual behavior, allowing the study to distinguish motivational processes from behavioral capability. This approach offers a broader explanation of consumer responses to single-use plastic bag restrictions. The novelty is particularly relevant in the Indonesian context, where local environmental policies require behavioral adaptation from consumers and businesses. By examining these relationships simultaneously, the study can contribute empirical evidence for understanding policy compliance, identifying behavioral barriers, and developing more targeted environmental education and intervention strategies.

The research problem addressed in this study is whether environmental awareness, attitude toward behavior, subjective norms, and perceived behavioral control can strengthen consumers' intention to bring their own shopping bags and whether that intention is subsequently translated into actual BYOB behavior. The study also asks whether perceived behavioral control can directly encourage actual BYOB behavior and whether intention mediates the effects of the proposed antecedent variables. The underlying argument is that environmental awareness can create recognition of the consequences of plastic consumption, while positive attitudes, supportive social expectations, and stronger perceived control can strengthen the intention to adopt BYOB practices. However, intention alone may not guarantee consistent behavior. Actual implementation is likely to depend on consumers' ability and opportunity to perform the behavior. Therefore, examining both direct and indirect relationships is expected to provide a stronger explanation of sustainable shopping behavior and policy compliance.

H1: Environmental Awareness has a positive and significant effect on BYOB Intention.

H2: Attitude toward Behavior has a positive and significant effect on BYOB Intention.

H3: Subjective Norms have a positive and significant effect on BYOB Intention.

H4: Perceived Behavioral Control has a positive and significant effect on BYOB Intention.

H5: BYOB Intention has a positive and significant effect on BYOB Actual Behavior.

H6: Perceived Behavioral Control has a positive and significant direct effect on BYOB Actual Behavior.

H7: Environmental Awareness has a positive and significant indirect effect on BYOB Actual Behavior through BYOB Intention.

H8: Attitude toward Behavior has a positive and significant indirect effect on BYOB Actual Behavior through BYOB Intention.

H9: Subjective Norms have a positive and significant indirect effect on BYOB Actual Behavior through BYOB Intention.

H10: Perceived Behavioral Control has a positive and significant indirect effect on BYOB Actual Behavior through BYOB Intention.

RESEARCH METHODS

This study employed a quantitative explanatory research design to examine the causal relationships among Environmental Awareness, Attitude toward Behavior, Subjective Norms, Perceived Behavioral Control, BYOB Intention, and BYOB Actual Behavior (Farid et al., 2023; Margariti et al., 2024). A quantitative approach was selected because the study required numerical measurement of respondents' perceptions and behavioral tendencies and statistical testing of the proposed relationships. The explanatory design was considered appropriate because the study aimed not only to describe BYOB practices but also to explain how environmental and psychological factors influence intention and actual behavior. BYOB Intention was positioned as a mediating variable, while Environmental Awareness, Attitude toward Behavior, Subjective Norms, and Perceived Behavioral Control functioned as independent variables. BYOB Actual Behavior served as the dependent variable. The research was conducted from September to November 2025 using an online survey, with additional offline questionnaire distribution when necessary to reach eligible respondents.

The study focused on the community of Pontianak because the city had implemented a policy restricting businesses from providing single-use plastic bags through the Mayor of Pontianak Circular Letter No. 43 of 2024, which began to be implemented on January 1, 2025. This setting provided a relevant context for examining whether a government environmental intervention was reflected in consumers' intentions and actual shopping behavior. The population consisted of residents of Pontianak who had been exposed to the BYOB policy and had experience shopping at retail stores or traditional markets affected by the policy. Because the population could not be precisely enumerated, purposive sampling was employed (Soomro et al., 2024; Gumasing & Niro, 2023). Eligible respondents were residents of Pontianak aged at least 17 years who had shopped at locations affected by the BYOB policy and were aware of or had encountered information concerning the policy.

Data were collected primarily through a structured questionnaire distributed online using Google Forms through social media and communication platforms, including WhatsApp, Facebook, Instagram, and TikTok. Offline

distribution was also used when appropriate to complement online recruitment and reach eligible respondents. The questionnaire measured all constructs using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The study used 25 indicators across the research constructs. Based on the sampling requirements, a minimum of 125 respondents was considered sufficient, while the study targeted approximately 250 respondents to obtain more robust empirical evidence. Before the main survey, a pilot test involving 30 respondents was conducted to evaluate the clarity and consistency of the questionnaire items. Secondary data were obtained from scientific publications, government documents, policy materials, and relevant previous studies used to support the development of the research framework and measurement indicators.

The collected data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4. Data analysis consisted of measurement model assessment, structural model assessment, hypothesis testing, and mediation analysis (Luong, 2025; Liao, 2024). The measurement model was evaluated through indicator loadings, convergent validity, discriminant validity, and construct reliability. Convergent validity was assessed using indicator loadings and Average Variance Extracted (AVE), while construct reliability was evaluated using Composite Reliability. The structural model was assessed using path coefficients, coefficient of determination (R^2), effect size (f^2), and predictive relevance (Q^2). Model fit was additionally examined using SRMR and NFI. Hypotheses were tested through bootstrapping at a 5% significance level, with statistical significance determined using the corresponding t-statistic and p-value. Mediation analysis was performed to determine whether BYOB Intention mediated the relationships between the independent variables and BYOB Actual Behavior.

RESULTS AND DISCUSSION

Results

Respondent Characteristics

The study involved 285 respondents from different regions of Indonesia who met the established criteria. The respondents were at least 17 years old and represented different age groups and geographical backgrounds. The demographic characteristics consisted of gender, age, and domicile. The distribution of respondents is presented in the following tables.

Table 1. Gender Distribution of Respondents

Gender	Number	Percentage (%)
Male	94	33%
Female	191	67%
Total	285	100%

Table 1 shows that the respondents consisted of 94 males (33%) and 191 females (67%). Female respondents therefore constituted the larger proportion of the sample, while male respondents accounted for approximately one-third of the total respondents. The age distribution indicates that the respondents represented a relatively broad range of ages, from 17 to 57 years. The detailed distribution is presented below.

Table 2. Age Distribution of Respondents

Age	Number	Percentage (%)
17	5	1.75%
18	10	3.51%
19	20	7.01%
20	32	11.23%
21	44	15.44%
22	46	16.14%
23	24	8.42%
24	14	4.91%
25	16	5.61%
26	10	3.51%
27	9	3.16%
28	10	3.51%
29	2	0.70%
30	10	3.51%
31	4	1.40%
33	2	0.70%
34	4	1.40%
35	2	0.70%
36	1	0.35%
37	3	1.05%
38	4	1.40%
39	1	0.35%
41	1	0.35%
42	2	0.70%
43	2	0.70%
48	1	0.35%
50	3	1.05%
57	3	1.05%
Total	285	100%

Table 2 shows that the largest age groups were 22 years with 46 respondents (16.14%), 21 years with 44 respondents (15.44%), and 20 years with 32 respondents (11.23%). Respondents aged 23 years accounted for 24 respondents (8.42%), while 19-year-old respondents accounted for 20 respondents (7.01%). The remaining respondents were distributed across the other age groups, with individual proportions ranging from 0.35% to 5.61%.

The respondents were also distributed across provinces in Indonesia. This distribution demonstrates that the sample included respondents from multiple geographical areas rather than being concentrated in a single province.

Table 3. Respondent Distribution by Domicile

Domicile	Number	Percentage (%)
Aceh	3	1.05%
Bali	5	1.75%
Banten	10	3.51%
Bengkulu	1	0.35%
Special Region of Yogyakarta	10	3.51%
DKI Jakarta	17	5.96%
Gorontalo	1	0.35%
Jambi	1	0.35%
West Java	30	10.53%
Central Java	22	7.72%
East Java	36	12.63%
West Kalimantan	82	28.77%
South Kalimantan	2	0.70%
Central Kalimantan	2	0.70%
East Kalimantan	6	2.11%
North Kalimantan	1	0.35%
Bangka Belitung Islands	2	0.70%
Riau Islands	1	0.35%
Lampung	6	2.11%
Maluku	1	0.35%
North Maluku	1	0.35%
West Nusa Tenggara	1	0.35%
East Nusa Tenggara	4	1.40%
Papua	1	0.35%
West Papua	1	0.35%
Southwest Papua	1	0.35%
Highland Papua	1	0.35%
South Papua	1	0.35%
Central Papua	1	0.35%
Riau	8	2.81%
West Sulawesi	1	0.35%
South Sulawesi	6	2.11%
Central Sulawesi	2	0.70%
Southeast Sulawesi	1	0.35%
North Sulawesi	3	1.05%
West Sumatra	3	1.05%
South Sumatra	2	0.70%
North Sumatra	8	2.81%
Total	285	100%

Table 3 shows that respondents came from a wide geographical distribution. The largest number was from West Kalimantan, with 82 respondents (28.77%), followed by East Java with 36 respondents (12.63%), West Java with 30 respondents (10.53%), Central Java with 22 respondents (7.72%), and DKI Jakarta with 17 respondents (5.96%). The remaining respondents were distributed among other provinces, with each province contributing between 1 and 10 respondents.

Convergent Validity

The measurement model was first evaluated through convergent validity using the outer loading values of each indicator. The results of the measurement model are presented in Table 4.

Table 4. Convergent Validity Test Results (Outer Loadings)

Variable	Indicator	Outer Loading	Result
Environmental Awareness (X1)	X1_1	0.939	Valid
	X1_2	0.931	Valid
	X1_3	0.906	Valid
	X1_4	0.918	Valid
	X1_5	0.927	Valid
Attitude Toward Behavior (X2)	X2_1	0.926	Valid
	X2_2	0.937	Valid
	X2_3	0.897	Valid
	X2_4	0.939	Valid
	X2_5	0.918	Valid
Subjective Norms (X3)	X3_1	0.861	Valid
	X3_2	0.889	Valid
	X3_3	0.864	Valid
	X3_4	0.882	Valid
	X3_5	0.821	Valid
Perceived Behavioral Control (X4)	X4_1	0.908	Valid
	X4_2	0.926	Valid
	X4_3	0.907	Valid
	X4_4	0.869	Valid
	X4_5	0.918	Valid
BYOB Intention (M1)	M1_1	0.922	Valid
	M1_2	0.930	Valid
	M1_3	0.892	Valid
	M1_4	0.939	Valid
	M1_5	0.909	Valid
BYOB Actual Behavior (Y1)	Y1_1	0.906	Valid
	Y1_2	0.838	Valid
	Y1_3	0.929	Valid
	Y1_4	0.910	Valid
	Y1_5	0.911	Valid

Table 4 shows that all indicators have outer loading values above 0.70. The lowest loading is X3_5 at 0.821, whereas the highest loading values are X1_1 and X2_4 at 0.939. All indicators for Environmental Awareness, Attitude Toward Behavior, Subjective Norms, Perceived Behavioral Control, BYOB Intention, and BYOB Actual Behavior are therefore classified as valid for further structural model analysis.

Discriminant Validity

Discriminant validity was assessed using the Fornell–Larcker criterion and the Heterotrait–Monotrait ratio (HTMT). The Fornell–Larcker results are presented first to assess the distinctiveness among the constructs.

Table 5. Discriminant Validity Based on the Fornell–Larcker Criterion

Variable	BYOB Intention (M1)	Environmental Awareness (X1)	Attitude Toward Behavior (X2)	Subjective Norms (X3)	Perceived Behavioral Control (X4)	BYOB Actual Behavior (Y1)
BYOB Intention (M1)	0.919					
Environmental Awareness (X1)	0.796	0.924				
Attitude Toward Behavior (X2)	0.812	0.835	0.923			
Subjective Norms (X3)	0.649	0.613	0.642	0.864		
Perceived Behavioral Control (X4)	0.820	0.771	0.786	0.674	0.906	
BYOB Actual Behavior (Y1)	0.738	0.691	0.702	0.664	0.756	0.899

Table 5 shows that the square roots of AVE on the diagonal are higher than the correlations between the respective construct and the other constructs. The diagonal values range from 0.864 to 0.924. The highest interconstruct correlation is 0.820 between BYOB Intention and Perceived Behavioral Control, while the lowest is 0.613 between Environmental Awareness and Subjective Norms. The Fornell–Larcker criterion is therefore fulfilled for all constructs.

The HTMT analysis provides an additional assessment of discriminant validity.

Table 6. Heterotrait–Monotrait Ratio (HTMT)

Variable	BYOB Intention (M1)	Environmental Awareness (X1)	Attitude Toward Behavior (X2)	Subjective Norms (X3)	Perceived Behavioral Control (X4)	BYOB Actual Behavior (Y1)
BYOB Intention (M1)	—					
Environmental Awareness (X1)	0.832	—				
Attitude Toward Behavior (X2)	0.849	0.872	—			
Subjective Norms (X3)	0.688	0.648	0.680	—		
Perceived Behavioral Control (X4)	0.863	0.810	0.826	0.718	—	
BYOB Actual Behavior (Y1)	0.777	0.727	0.738	0.713	0.801	—

Table 6 shows that all HTMT values are below 0.90. The highest value is 0.872 between Attitude Toward Behavior and Environmental Awareness, followed by 0.863 between Perceived Behavioral Control and BYOB Intention. The lowest HTMT value is 0.648 between Environmental Awareness and Subjective Norms. These results indicate that the constructs meet the discriminant validity requirements.

Reliability and Average Variance Extracted

After validity was established, the internal consistency and convergent measurement quality of each construct were assessed using Cronbach's alpha, composite reliability, and AVE.

Table 7. Reliability and Average Variance Extracted (AVE)

Variable	Cronbach's Alpha	Composite Reliability (rho_a)	Composite Reliability (rho_c)	AVE	Result
BYOB Intention (M1)	0.954	0.954	0.964	0.844	Reliable
Environmental Awareness (X1)	0.957	0.958	0.967	0.854	Reliable
Attitude Toward Behavior (X2)	0.957	0.958	0.967	0.853	Reliable

Subjective Norms (X3)	0.915	0.919	0.936	0.746	Reliable
Perceived Behavioral Control (X4)	0.945	0.945	0.958	0.821	Reliable
BYOB Actual Behavior (Y1)	0.941	0.943	0.955	0.809	Reliable

Table 7 shows that all constructs have Cronbach's alpha values above 0.70, ranging from 0.915 to 0.957. Composite reliability (rho_a) ranges from 0.919 to 0.958, while composite reliability (rho_c) ranges from 0.936 to 0.967. The AVE values range from 0.746 to 0.854. The lowest AVE is observed for Subjective Norms at 0.746, while the highest is observed for Environmental Awareness at 0.854. All constructs are therefore classified as reliable and meet the required measurement criteria.

Coefficient of Determination

The structural model was subsequently assessed using R-square to determine the proportion of variance explained in the endogenous constructs.

Table 8. Coefficient of Determination (R-Square)

Variable	R-Square	R-Square Adjusted	Model Strength
BYOB Intention (M1)	0.764	0.760	Strong
BYOB Actual Behavior (Y1)	0.614	0.612	Moderate

Table 8 shows that BYOB Intention has an R-square value of 0.764 and an adjusted R-square value of 0.760. This means that 76.4% of the variance in BYOB Intention is explained jointly by Environmental Awareness, Attitude Toward Behavior, Subjective Norms, and Perceived Behavioral Control. The remaining 23.6% is attributable to factors outside the model.

BYOB Actual Behavior has an R-square value of 0.614 and an adjusted R-square value of 0.612. Thus, 61.4% of the variance in BYOB Actual Behavior is explained jointly by Environmental Awareness, Attitude Toward Behavior, Subjective Norms, Perceived Behavioral Control, and BYOB Intention, while the remaining 38.6% is explained by factors outside the structural model.

Effect Size

The effect size analysis was conducted to determine the contribution of individual predictor constructs to the endogenous constructs.

Table 9. Effect Size (f-Square)

Relationship	f-Square	Effect Category
BYOB Intention (M1) → BYOB Actual Behavior (Y1)	0.110	Large
Environmental Awareness (X1) → BYOB Intention (M1)	0.059	Large
Attitude Toward Behavior (X2) → BYOB Intention (M1)	0.080	Large
Subjective Norms (X3) → BYOB Intention (M1)	0.014	Small
Perceived Behavioral Control (X4) → BYOB Intention (M1)	0.178	Large
Perceived Behavioral Control (X4) → BYOB Actual Behavior (Y1)	0.181	Large

Table 9 shows that the largest f-square value is 0.181 for the relationship between Perceived Behavioral Control and BYOB Actual Behavior. This is followed by the relationship between Perceived Behavioral Control and BYOB Intention with an f-square value of 0.178. BYOB Intention toward BYOB Actual Behavior has an f-square value of 0.110, while Attitude Toward Behavior and Environmental Awareness toward BYOB Intention have values of 0.080 and 0.059, respectively. Subjective Norms toward BYOB Intention has the smallest f-square value at 0.014.

Direct Hypothesis Testing

The direct relationships in the structural model were tested using bootstrapping in SmartPLS 4. The decision criteria were based on the t-statistic and p-value obtained from the bootstrapping procedure.

Table 10. Direct Hypothesis Testing Results

Hypothesis	Path	O	M	STDEV	T Statistics	P Values	Result	Decision
H1	X1 → M1	0.228	0.231	0.086	2.652	0.008	Significant	Accepted
H2	X2 → M1	0.277	0.277	0.083	3.336	0.001	Significant	Accepted
H3	X3 → M1	0.081	0.081	0.041	1.985	0.047	Significant	Accepted
H4	X4 → M1	0.372	0.368	0.066	5.660	0.000	Significant	Accepted
H5	M1 → Y1	0.359	0.356	0.075	4.806	0.000	Significant	Accepted
H6	X4 → Y1	0.595	0.594	0.053	11.202	0.000	Significant	Accepted

Table 10 shows that all six direct hypotheses are statistically significant. Environmental Awareness has a positive path coefficient of 0.228 toward BYOB Intention, with a t-statistic of 2.652 and p-value of 0.008. Attitude Toward

Behavior has a path coefficient of 0.277, with a t-statistic of 3.336 and p-value of 0.001. Subjective Norms has a path coefficient of 0.081, with a t-statistic of 1.985 and p-value of 0.047.

Perceived Behavioral Control has a path coefficient of 0.372 toward BYOB Intention, with a t-statistic of 5.660 and p-value of 0.000. BYOB Intention has a positive path coefficient of 0.359 toward BYOB Actual Behavior, with a t-statistic of 4.806 and p-value of 0.000. The strongest direct relationship in the model is Perceived Behavioral Control toward BYOB Actual Behavior, with a path coefficient of 0.595, a t-statistic of 11.202, and a p-value of 0.000. Therefore, H1 through H6 are accepted.

Indirect Hypothesis Testing

The mediation analysis examined whether BYOB Intention transmits the effects of Environmental Awareness, Attitude Toward Behavior, Subjective Norms, and Perceived Behavioral Control to BYOB Actual Behavior.

Table 11. Indirect Hypothesis Testing Results

Hypothesis	Path	O	M	STDEV	T Statistics	P Values	Result	Decision
H7	X1 → M1 → Y1	0.082	0.083	0.037	2.233	0.026	Significant	Accepted
H8	X2 → M1 → Y1	0.100	0.099	0.037	2.684	0.007	Significant	Accepted
H9	X3 → M1 → Y1	0.029	0.030	0.017	1.672	0.095	Not Significant	Not Accepted
H10	X4 → M1 → Y1	0.133	0.130	0.032	4.178	0.000	Significant	Accepted

Table 11 shows that BYOB Intention significantly mediates the relationships between Environmental Awareness and BYOB Actual Behavior, between Attitude Toward Behavior and BYOB Actual Behavior, and between Perceived Behavioral Control and BYOB Actual Behavior. The indirect effect of Environmental Awareness through BYOB Intention is 0.082, with a t-statistic of 2.233 and p-value of 0.026. The indirect effect of Attitude Toward Behavior is 0.100, with a t-statistic of 2.684 and p-value of 0.007. The indirect effect of Perceived Behavioral Control is 0.133, with a t-statistic of 4.178 and p-value of 0.000.

In contrast, the indirect effect of Subjective Norms through BYOB Intention is not statistically significant, with a path coefficient of 0.029, a t-statistic of 1.672, and a p-value of 0.095. Accordingly, H7, H8, and H10 are accepted, whereas H9 is not accepted.

Discussion

The findings demonstrate that Environmental Awareness significantly influences BYOB Intention, indicating that greater awareness of environmental problems is associated with stronger willingness to bring reusable bags. This finding is consistent with the broader understanding that environmental awareness can strengthen individuals' motivation to adopt environmentally responsible consumption practices. The significant indirect effect through BYOB Intention further indicates that awareness does not operate only as a cognitive understanding of environmental problems but can be translated into behavioral motivation. Theoretically, this finding strengthens the application of the Theory of Planned Behavior by showing that environmental awareness can function as an important antecedent of intention within an environmentally oriented behavioral context (Buhmann et al., 2024; Wang et al., 2024). Practically, the finding suggests that BYOB campaigns should not focus solely on prohibiting plastic bags but should communicate concrete environmental consequences and benefits to strengthen consumers' willingness to adopt reusable-bag practices.

The significant relationship between Attitude Toward Behavior and BYOB Intention indicates that favorable evaluations of bringing reusable bags contribute substantially to consumers' willingness to perform the behavior. The corresponding significant indirect effect through BYOB Intention also demonstrates that positive attitudes can be translated into actual BYOB behavior through behavioral intention (Ayeh et al., 2023; Wang et al., 2025). This result is broadly consistent with the central proposition of the Theory of Planned Behavior that favorable attitudes toward a behavior encourage stronger intentions to perform that behavior. The finding also highlights that merely providing information about plastic waste may be insufficient when individuals do not perceive BYOB practices as useful, convenient, or personally beneficial. Theoretically, the result reinforces the importance of attitudinal evaluation in explaining environmentally responsible behavior. Practically, BYOB programs should therefore emphasize convenience, economic benefits, environmental benefits, and the positive identity associated with reusable-bag use.

Subjective Norms produced a significant positive effect on BYOB Intention, although the magnitude of the relationship was comparatively weaker than several other predictors (Savari et al., 2023; Rozenkowska, 2023). This finding indicates that social expectations still contribute to individuals'

willingness to adopt BYOB practices, but their influence may not be equally strong across all respondents. More importantly, the indirect relationship between Subjective Norms and BYOB Actual Behavior through BYOB Intention was not statistically significant. This difference suggests that perceived social expectations may encourage people to express an intention to bring reusable bags without necessarily producing sufficient motivational strength to translate that intention into actual behavior. Theoretically, this finding illustrates that the normative component of the Theory of Planned Behavior may operate differently from attitudinal and control-related factors in environmentally responsible practices (Liu & Wang, 2024; Fauzi et al., 2024). Practically, BYOB policies should therefore strengthen social reinforcement through visible community participation, peer influence, family involvement, and consistent public examples rather than relying only on formal appeals or recommendations.

Perceived Behavioral Control emerged as one of the most influential determinants in the proposed model. It significantly affected BYOB Intention and BYOB Actual Behavior, while its indirect effect through BYOB Intention was also significant (Colombo et al., 2023; Liu & Park, 2024). This pattern indicates that individuals are more likely to intend to bring reusable bags and actually perform the behavior when they perceive that they have sufficient ability, resources, opportunities, and control to do so. The result is particularly important because actual environmental behavior often depends not only on motivation but also on whether individuals can practically implement their intentions. Theoretically, this finding supports the behavioral-control component of the Theory of Planned Behavior by demonstrating its relevance to both intention and actual behavior. Practically, policymakers and retailers should reduce situational barriers by making reusable bags accessible, affordable, convenient to carry, and easy to use. Such interventions can strengthen both consumers' perceived control and their capacity to consistently practice BYOB behavior (Hamid et al., 2023; Nguyen et al., 2023).

The mediation findings provide an integrated explanation of how psychological and environmental factors are translated into actual BYOB behavior. BYOB Intention significantly mediated the relationships between Environmental Awareness, Attitude Toward Behavior, and Perceived Behavioral Control and BYOB Actual Behavior. These findings indicate that environmental awareness alone does not automatically produce behavior; rather, awareness becomes behaviorally meaningful when it contributes to an intention to act. Similarly, favorable attitudes and stronger perceived control can facilitate actual behavior partly through the formation of behavioral intention. In contrast, the non-significant mediation involving Subjective Norms demonstrates that social expectations did not sufficiently translate into actual behavior through intention

in this model (Deka et al., 2023; Liu & Park, 2024). Theoretically, these findings contribute to a more differentiated understanding of the Theory of Planned Behavior by showing that its components do not necessarily exert equivalent motivational pathways. The model therefore provides a more nuanced explanation of how BYOB intentions develop and become behavioral practices.

Overall, this study contributes to the understanding of environmentally responsible consumption by integrating Environmental Awareness with the core psychological components of the Theory of Planned Behavior to explain BYOB Actual Behavior. The findings suggest that effective plastic-reduction initiatives should simultaneously address environmental understanding, positive behavioral evaluation, perceived behavioral control, and behavioral intention. The relatively stronger role of Perceived Behavioral Control particularly indicates that environmental policies should move beyond awareness-oriented campaigns toward interventions that make sustainable behavior practically achievable (Zhang et al., 2024; Zong et al., 2023). Meanwhile, the weak normative pathway indicates that social influence requires stronger collective reinforcement if it is expected to generate consistent behavioral change. Theoretically, the study contributes by demonstrating that awareness and TPB constructs can operate through different pathways in explaining BYOB practices (Naskar & Lindahl, 2026; Qiu et al., 2025). Practically, the findings provide guidance for governments, retailers, and environmental campaigns to design interventions that combine education, positive framing, social reinforcement, and removal of practical barriers to encourage sustained reusable-bag behavior.

CONCLUSION

This study demonstrates that Environmental Awareness, Attitude Toward Behavior, and Perceived Behavioral Control play important roles in shaping BYOB Actual Behavior through BYOB Intention, whereas Subjective Norms do not produce a significant indirect effect. The main lesson from these findings is that encouraging reusable-bag practices requires more than social expectations; individuals need sufficient environmental awareness, favorable attitudes, and a sense of control to translate intention into actual behavior. Scientifically, this study contributes to the application of the Theory of Planned Behavior by integrating environmental awareness with behavioral and control-related factors to explain BYOB practices across diverse Indonesian communities. However, the study is limited by the range of variables included and therefore cannot capture all social, cultural, situational, and institutional factors influencing BYOB behavior. Future research should incorporate additional determinants and consider qualitative or mixed-method approaches to explore cultural and contextual mechanisms more deeply. Practically, governments and stakeholders

should strengthen environmental education, community-based initiatives, and practical support systems, including educational institutions and civil society, to create social environments that facilitate consistent and sustained BYOB behavior.

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