

SUSTAINABLE CONSUMER BEHAVIOUR TOWARDS ECO-FRIENDLY PRODUCTS: A STUDY AMONG GENERATION Z

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ABSTRACT

This study looks at what makes people, especially those from Generation Z, want to buy recycled products used for hygiene. The study uses a theory called the Theory of Planned Behavior. It adds two ideas: Green Self-Identity, which's how much a person sees themselves as someone who cares about the environment and Social Norms which is how people around them behave. These two things are looked at to see how they affect the way people think and what they buy. A lot of data was collected from 1,113 people. Some of them also gave detailed answers in interviews. The data was analyzed using a method called Structural Equation Modeling. This helped to see how the different ideas are connected and how they affect each other. The results show that people who think they are green have a positive effect on their attitudes toward buying eco-friendly products.. Those attitudes lead to a stronger desire to buy such products.. There is a problem. When people feel that others around them do not care about the environment it makes them less likely to act on their feelings. Looking at age groups it seems that Generation Y is more affected by what others think than Generation Z. For Generation Z the influence of others is very small. This suggests that young people today are more likely to make choices based on their values rather than what others expect. The study gives some ideas for companies and people who make rules. They can focus on making products that're easy to understand and that show they care about the planet. They can also try to make it more common for people to use products.

Keywords: Green Self-Identity, Social Norms, Generation Z, Recycled Absorbent Hygiene Products, Purchase Intention, Theory of Planned Behavior, Sustainable Consumption

I. INTRODUCTION

Rapid industrialization, urbanization, population growth, and consumption-oriented lifestyles have intensified environmental challenges such as resource depletion, waste generation, pollution, and greenhouse-gas emissions. The traditional linear economic model of "take, make, use and dispose" has placed considerable pressure on natural resources and waste-management systems. Consequently, sustainable consumption and circular-economy approaches have gained increasing importance as alternative models for reducing environmental pressure and promoting resource efficiency.

A circular economy aims to retain the value of materials and products for as long as possible through strategies such as reuse, recycling, recovery, remanufacturing, and resource regeneration. However, technological advancement alone cannot ensure the successful adoption of circular products. Consumer acceptance and willingness to purchase products containing recycled materials are equally important. This issue becomes particularly complex when recycled products originate from waste streams associated with bodily fluids or personal hygiene.

Absorbent Hygiene Products (AHPs), including diapers, sanitary pads, and similar products, constitute an important but challenging category within circular-economy initiatives. Used AHPs contain potentially recoverable materials such as plastics, cellulose fibres, and superabsorbent polymers. Technological developments have created opportunities for recovering and transforming these materials into secondary resources. Nevertheless, consumers may associate such products with contamination, unpleasantness, hygiene risks, and social stigma.

The distinction between an individual's environmental values and socially acceptable consumption choices therefore becomes important. A consumer may consider themselves environmentally responsible but may hesitate to purchase recycled AHPs because of anticipated social judgment. This creates a psychological conflict between internal environmental identity and external social expectations.

The Theory of Planned Behavior (TPB) provides an established framework for explaining behavioral intentions through attitudes, subjective norms, and perceived behavioral control. However, conventional TPB may not fully explain sustainable consumption decisions because environmental behavior can also be strongly influenced by an individual's self-concept. Green Self-Identity refers to the extent to which a person perceives environmental responsibility as part of their identity. Individuals with strong Green Self-Identity may develop more favorable attitudes toward environmentally friendly products.

At the same time, Social Norms may strengthen or weaken the translation of environmental identity into attitudes and intentions. The influence of social norms may also vary across generations because different cohorts have developed under different social, technological, and cultural environments.

Therefore, this study examines the relationship between Green Self-Identity, Consumer Attitude, Social Norms, and Purchase Intention toward recycled AHPs, with particular emphasis on differences between Generation X, Generation Y, and Generation Z.

II. STATEMENT OF THE PROBLEM

Although advances in recycling technology have made it increasingly possible to recover valuable materials from used absorbent hygiene products, consumer acceptance remains a

major challenge. Consumers may express strong environmental concerns but hesitate to purchase products manufactured from recycled hygiene waste because of perceived hygiene risks, contamination concerns, disgust, and social stigma.

The central problem is therefore not merely technological but behavioral. There may be a gap between what consumers believe about environmental sustainability and what they are willing to purchase. An individual's Green Self-Identity may encourage sustainable attitudes, but negative Social Norms may weaken this relationship when the product category is socially sensitive.

Furthermore, the strength of this relationship may differ across generations. Generation Z is frequently associated with greater environmental awareness and digital exposure, whereas Generation Y may experience stronger tensions between sustainability values, social acceptance, and practical consumption considerations. Generation X may demonstrate different patterns due to differences in socialization and consumption experience.

Hence, understanding how Green Self-Identity and Social Norms jointly influence attitudes and purchase intentions is essential for developing effective strategies for the adoption of recycled AHPs.

III. RESEARCH GAP

Existing research on sustainable consumption has extensively applied the Theory of Planned Behavior to explain green purchase intentions. However, several important gaps remain.

First, traditional TPB-based studies generally emphasize attitudes, subjective norms, perceived behavioral control, and intentions without adequately incorporating Green Self-Identity as an important psychological determinant.

Second, much of the existing research on AHP recycling concentrates on technological processes, material recovery, waste management, and environmental benefits rather than the consumer psychology underlying acceptance of products manufactured from recycled AHP waste.

Third, social norms may not always operate as a positive influence. In socially sensitive product categories, perceived social judgment may discourage sustainable consumption. Therefore, the role of Social Norms as a boundary condition requires greater investigation.

Finally, generational differences in the relationship between Green Self-Identity, Social Norms, and green purchase intention remain insufficiently explored. This study addresses these gaps by integrating self-identity, social influence, and generational cohort differences into an extended TPB framework.

IV. NEED FOR THE STUDY

The successful development of a circular economy depends not only on technological innovation but also on consumer acceptance of recycled products. Understanding consumer psychology is particularly important for recycled AHPs because hygiene-related perceptions and social stigma can create barriers that are absent in many other recycled product categories.

Generation Z is becoming an increasingly influential consumer group and is frequently associated with environmental awareness, digital connectivity, and value-driven consumption. Comparing Generation Z with Generation Y and Generation X can therefore provide valuable insights into whether younger consumers are genuinely less affected by social judgment or whether their environmental attitudes are disconnected from purchasing behavior.

The study is also important for marketers because it can identify whether sustainable brands should emphasize environmental identity, social approval, product safety, or a combination of these factors. The findings may also assist policymakers and circular-economy organizations in designing communication strategies that improve consumer confidence in recycled hygiene products.

V. OBJECTIVES OF THE STUDY

Objective 1

To examine the effect of Green Self-Identity on Consumer Attitude toward recycled eco-friendly products.

This objective determines whether consumers who strongly identify themselves as environmentally responsible develop more favorable attitudes toward products manufactured using recycled materials.

Objective 2

To examine the influence of Consumer Attitude on Purchase Intention toward recycled absorbent hygiene products.

This objective evaluates whether favorable consumer evaluations of recycled AHPs translate into a stronger intention to purchase them.

Objective 3

To examine the moderating role of Social Norms in the relationship between Green Self-Identity and Consumer Attitude.

This objective investigates whether perceived social approval or disapproval changes the extent to which Green Self-Identity influences consumers' attitudes toward recycled AHPs.

Objective 4

To compare the moderating effect of Social Norms across Generation X, Generation Y, and Generation Z.

This objective determines whether different generational cohorts respond differently to social pressure when evaluating recycled hygiene products.

VI. HYPOTHESES OF THE STUDY

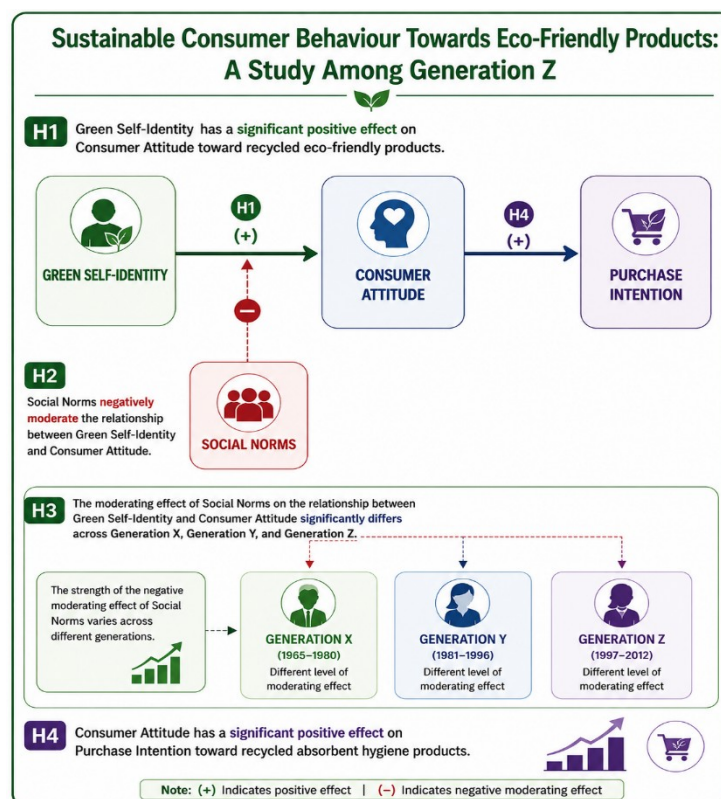


Figure 1: Hypothesised relationships of the study

H1: Green Self-Identity has a significant positive effect on Consumer Attitude toward recycled eco-friendly products.

H2: Social Norms negatively moderate the relationship between Green Self-Identity and Consumer Attitude.

H3: The moderating effect of Social Norms on the relationship between Green Self-Identity and Consumer Attitude significantly differs across Generation X, Generation Y, and Generation Z.

H4: Consumer Attitude has a significant positive effect on Purchase Intention toward recycled absorbent hygiene products.

VII. LITERATURE REVIEW

Casalegno et al. (2022) – Generation Z and the Sustainable Purchase Gap

Research on Generation Z highlights a potential gap between environmental concern and actual sustainable purchasing behavior. Although younger consumers frequently express strong environmental values, their purchase decisions can still be influenced by price, convenience, product performance, trust, availability, and social perceptions. This suggests that environmental awareness alone may not guarantee sustainable consumption. For recycled AHPs, the gap may become even more significant because consumers must evaluate both environmental benefits and concerns relating to hygiene and product safety. The present study addresses this issue by examining Green Self-Identity as an internal psychological factor and Consumer Attitude as the immediate mechanism leading to Purchase Intention. It further considers whether Generation Z is less vulnerable to negative S

Yamane and Kaneko (2021) – Generational Environmentalism

Research on generational environmentalism suggests that environmental attitudes and behaviors may differ across age cohorts because individuals develop their values within different social, economic, and technological environments. Younger consumers have increasingly been exposed to climate-change discussions, sustainability campaigns, environmental activism, and digital information. As a result, younger generations may demonstrate stronger environmental concern and greater awareness of sustainable consumption. However, environmental concern does not always result in actual purchasing behavior. Differences in income, product availability, social expectations, and personal values can affect the translation of environmental attitudes into intentions. The present study considers these generational differences by comparing Generation X, Generation Y, and Generation Z. The comparison is particularly useful for identifying whether younger consumers are genuinely less influenced by social pressure when considering socially sensitive recycled products

Puntillo et al. (2021) – Circular Economy and Absorbent Hygiene Products

Research on circular-economy approaches to absorbent hygiene products demonstrates that used AHPs can potentially become sources of valuable secondary materials. Recycling technologies can separate and recover components such as cellulose, plastics, and superabsorbent materials. Such processes can reduce waste sent to landfills and support resource recovery. However, the environmental and technological feasibility of recycling does not automatically guarantee consumer acceptance of products containing recovered materials. Consumer perceptions regarding safety, cleanliness, quality, and contamination remain important barriers. Therefore, technical innovation must be accompanied by behavioral and marketing research. The present study contributes to this area by shifting attention from the technological recovery of AHP materials toward consumer psychology. It examines how environmental identity and social expectations influence the willingness to accept products associated with recycled hygiene waste.

Barbarossa and De Pelsmacker (2016) – Green Self-Identity and Eco-Friendly Consumption

Barbarossa and De Pelsmacker investigated the relationship between consumers' environmental identity and their responses to environmentally friendly products. Their research emphasizes that consumers who perceive environmental responsibility as an important part of their identity are more likely to develop favorable evaluations of sustainable alternatives. Green Self-Identity can therefore function as an internal motivational mechanism that encourages consumers to choose products consistent with their environmental values. The relevance of this finding becomes particularly strong when consumers face choices between conventional and recycled products. In the context of recycled AHPs, a strong environmental identity may reduce the psychological distance between consumers and products made from recovered materials. The present study builds upon this relationship by examining whether Green Self-Identity directly influences Consumer Attitude and whether Social Norms can weaken this relationship.

Yun and Silk (2011) – Self-Identity and Social Influence

Research on self-identity and social influence suggests that individuals with strong internal identities may sometimes act according to personal values even when social expectations are inconsistent with those values. Self-identity can provide an internal reference point for decision-making, reducing dependence on external approval. However, the strength of this independence may vary according to the product category and social environment. This perspective is particularly relevant to sustainable consumption because environmentally conscious consumers may purchase green products as an expression of their personal identity. Nevertheless, socially sensitive products may create stronger psychological barriers than conventional green products. The present study extends this reasoning to recycled AHPs by examining whether Green Self-Identity remains influential when consumers face social stigma and hygiene-related concerns. It also investigates whether this relationship differs among generational cohorts.

Whitmarsh and O'Neill (2010) – Green Self-Identity

Whitmarsh and O'Neill examined the role of environmental identity in explaining pro-environmental behavior. Their work demonstrated that an individual's perception of themselves as environmentally responsible can contribute significantly to environmentally friendly actions. Green Self-Identity represents the degree to which environmental responsibility forms part of an individual's self-concept. Individuals who strongly identify as environmentally conscious are more likely to perceive sustainable behaviors as consistent with who they are. This concept is particularly relevant to green purchasing because consumers may use environmentally friendly products to express their identity and values. The study contributes to sustainable consumption literature by showing that identity-based variables can provide explanatory power beyond conventional behavioral models. The present study applies this

concept to recycled AHPs to determine whether environmental identity produces favorable attitudes toward products associated with hygiene-related waste.

Fielding et al. (2008) – Social Norms and Environmental Identity

Fielding and colleagues examined how social influences and environmental identity interact in shaping environmentally responsible behavior. Social norms can influence individuals by communicating what behaviors are considered appropriate or expected within a particular social group. When environmentally friendly behavior receives social approval, norms may reinforce individual environmental values. However, the effect of social norms may become more complicated when sustainable behavior involves social discomfort or stigma. In such situations, individuals may experience pressure to conform to conventional expectations even when their personal values favor sustainability. This perspective is important for recycled AHPs because consumers may hesitate to purchase products associated with bodily waste due to anticipated social judgment. The present study therefore treats Social Norms not simply as a direct predictor but as a moderating condition that can influence the relationship between Green Self-Identity and Consumer Attitude.

Ajzen (1991) – Theory of Planned Behavior

Ajzen's Theory of Planned Behavior provides one of the most widely used frameworks for explaining human behavioral intentions. The theory proposes that behavioral intention is primarily determined by three factors: attitude toward the behavior, subjective norms, and perceived behavioral control. Attitude represents an individual's favorable or unfavorable evaluation of a particular behavior, while subjective norms reflect perceived social pressure to perform or avoid the behavior. Perceived behavioral control concerns the individual's perception of their ability to perform the behavior. In sustainable consumption research, TPB has been extensively applied to explain environmentally responsible purchasing decisions. However, the framework may not completely capture the influence of self-concept and identity. This limitation has encouraged researchers to extend TPB with variables such as Green Self-Identity, environmental concern, moral norms, and personal values

VIII. CONCEPTUAL FRAMEWORK

The conceptual framework proposes that Green Self-Identity positively influences Consumer Attitude, which subsequently influences Purchase Intention. Social Norms are introduced as a moderator of the relationship between Green Self-Identity and Consumer Attitude. Generational cohort is considered a grouping variable to determine whether the moderating relationship differs among Generation X, Generation Y, and Generation Z.

Conceptual Relationship

Green Self-Identity (GSI)



Consumer Attitude (ATT)

↓

Purchase Intention (INT)

Social Norms (SN) → Moderate the GSI → ATT relationship

Generational Cohort: Generation X | Generation Y | Generation Z

IX. RESEARCH METHODOLOGY

Research Design

The study adopted a mixed-method sequential research design. Quantitative data were collected through a structured questionnaire and analyzed using Structural Equation Modeling. Qualitative interviews were subsequently conducted to provide contextual explanations for the quantitative findings.

Population and Sample

The study focused on consumers from northern Italy who had awareness of recycling and sustainable consumption. A total of 1,113 valid responses were obtained through an online survey using snowball sampling.

The generational distribution was:

Generation	Percentage
Generation Z	55.1%
Generation Y	27.7%
Generation X	17.2%

Females represented 67.4% of the quantitative sample.

In addition, seven Generation Y consumers participated in structured open-ended interviews to provide qualitative insights into social judgment, hygiene concerns, and attitudes toward recycled AHPs.

Sampling Technique

Snowball sampling was used to reach eligible respondents through online networks. Screening questions were employed to ensure that respondents possessed sufficient awareness of recycling and were able to evaluate the subject matter.

Measurement of Variables

The constructs were measured using seven-point Likert-type scales ranging from strong disagreement to strong agreement.

The principal constructs were:

- Green Self-Identity (GSI)
- Social Norms (SN)
- Consumer Attitude (ATT)
- Purchase Intention (INT)

Measurement items were adapted from established literature, particularly studies relating to TPB, green self-identity, environmental behavior, and sustainable consumption.

Perceived Behavioral Control was excluded from the proposed model because the study context assumed relatively high accessibility of the product category in the target market.

Data Analysis

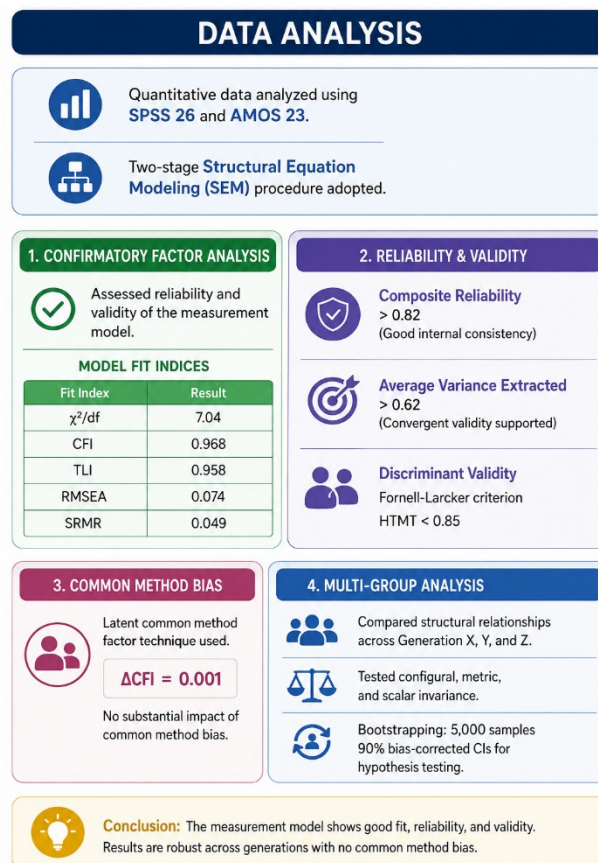


Figure 2: Data analysis procedure

The quantitative data were analyzed using SPSS 26 and AMOS 23.

A two-stage Structural Equation Modeling procedure was adopted.

Confirmatory Factor Analysis

Confirmatory Factor Analysis was conducted to assess the reliability and validity of the measurement model.

The reported model-fit indices were:

Fit Index	Result
χ^2/df	7.04
CFI	0.968
TLI	0.958
RMSEA	0.074
SRMR	0.049

Composite Reliability values exceeded 0.82, indicating satisfactory internal consistency. Average Variance Extracted values exceeded 0.62, supporting convergent validity. Discriminant validity was assessed using the Fornell-Larcker criterion and HTMT ratios, with HTMT values below 0.85.

Common Method Bias

Common Method Bias was assessed using the latent common method factor technique. The change in CFI was $\Delta CFI = 0.001$, indicating that common method bias did not substantially affect the results.

Multi-Group Analysis

Multi-group analysis was performed to determine whether the structural relationships differed across Generation X, Generation Y, and Generation Z.

Configural, metric, and scalar invariance were assessed before comparing the structural relationships. Bootstrapping with 5,000 samples and 90% bias-corrected confidence intervals was used for hypothesis testing.

X. RESULTS AND FINDINGS

Effect of Green Self-Identity on Consumer Attitude

The analysis demonstrated a strong and statistically significant positive relationship between Green Self-Identity and Consumer Attitude.

$$\beta = 0.554, p < 0.001$$

Therefore, H1 is supported.

The result indicates that consumers who strongly perceive themselves as environmentally responsible tend to develop more favorable attitudes toward recycled eco-friendly products.

Effect of Consumer Attitude on Purchase Intention

Consumer Attitude was found to have a strong positive influence on Purchase Intention.

$$\beta = 0.543, p < 0.001$$

Therefore, H4 is supported.

This finding demonstrates that favorable consumer evaluations of recycled AHPs are associated with stronger intentions to purchase such products.

The model explained approximately 30.6% of the variance in Purchase Intention ($R^2 = 0.306$).

Moderating Role of Social Norms

Social Norms significantly and negatively moderated the relationship between Green Self-Identity and Consumer Attitude.

$$\beta = -0.102, p < 0.01$$

Therefore, H2 is supported.

The negative coefficient suggests that social pressure can weaken the positive effect of Green Self-Identity on attitudes toward recycled AHPs.

This finding is particularly relevant because AHPs are associated with personal hygiene and bodily waste, which may generate stronger social discomfort than ordinary recycled products.

Generational Differences

The multi-group analysis revealed significant differences across generations.

Generation	Moderating Effect of SN	p-value	Interpretation
Generation X	$\beta = -0.099$	0.403	Not significant
Generation Y	$\beta = -0.274$	< 0.01	Significant negative effect
Generation Z	$\beta = -0.019$	0.633	Not significant

The strongest negative moderation was observed among Generation Y.

For Generation Z, the relationship was statistically insignificant, indicating that social norms did not significantly weaken the relationship between Green Self-Identity and Consumer Attitude.

Therefore, H3 is supported at the cohort-comparison level, with the principal generational difference being the significant negative moderation observed for Generation Y.

XI. QUALITATIVE FINDINGS

The seven qualitative interviews with Generation Y respondents provided additional explanations for the quantitative findings.

Three broad themes emerged:

Hygiene and Safety Concerns

Respondents expressed concerns about whether products manufactured from recycled AHP waste would be sufficiently clean and safe. This indicates that technical recycling processes must be communicated clearly to consumers.

Social Judgment

Some respondents indicated that purchasing or using products associated with recycled hygiene waste could attract negative reactions from family members, friends, or wider society. Such anticipated judgment may weaken positive environmental attitudes.

Conflict between Environmental Values and Social Acceptance

The interviews suggested that consumers may simultaneously support environmental sustainability and feel uncomfortable with recycled hygiene products. This creates a conflict between personal environmental identity and perceived social expectations.

These qualitative observations provide contextual support for the negative moderating effect identified among Generation Y.

XII. MANAGERIAL IMPLICATIONS

Green Brand Positioning

Companies should position recycled AHPs as innovative, safe, environmentally responsible, and technologically advanced products. Marketing communication should connect the product with consumers' environmental identity.

Transparent Safety Communication

Manufacturers should clearly explain the recycling process, sterilization procedures, quality standards, testing procedures, and safety certifications. Transparency can reduce uncertainty regarding recycled hygiene products.

Destigmatization Campaigns

Marketing campaigns should normalize the concept of recycling AHP materials rather than emphasizing the original waste source. Communication should focus on resource recovery, circularity, safety, and environmental benefits.

Generation-Specific Marketing

For Generation Z, marketing can emphasize authenticity, environmental impact, innovation, and individual values.

For Generation Y, communication should place greater emphasis on social acceptance, safety, credibility, and normalization.

For Generation X, educational campaigns and clear evidence of product quality may help reduce uncertainty.

Influencer and Peer Communication

Environmental influencers, sustainability advocates, healthcare professionals, and credible experts can help normalize recycled AHP products and reduce negative perceptions.

XIII. SUGGESTIONS

Strengthen environmental brand identity: Brands should connect recycled AHP products with authentic sustainability values and measurable environmental benefits.

Provide transparent safety information: Consumers should receive clear information regarding sterilization, quality testing, material recovery, and regulatory compliance.

Normalize recycled hygiene products: Communication should avoid presenting recycled AHPs as unusual or inferior products.

Use credible influencers: Sustainability experts and trusted public figures can demonstrate the safety and environmental value of recycled products.

Adopt generational marketing: Communication strategies should be adapted according to the different psychological responses of Generation X, Y, and Z.

Highlight circular-economy benefits: Marketers should explain how recycling AHP materials reduces waste and conserves resources.

Build consumer trust: Certifications, third-party testing, transparent labeling, and evidence-based claims should be used to improve credibility.

XIV. THEORETICAL IMPLICATIONS

The study contributes to sustainable consumer behavior literature by extending the Theory of Planned Behavior through the inclusion of Green Self-Identity and Social Norms.

First, the significant GSI–ATT relationship demonstrates the importance of identity-based psychological factors in explaining sustainable consumption.

Second, the negative moderation of Social Norms shows that social influence does not necessarily promote sustainable behavior. In socially stigmatized product categories, social expectations can act as a barrier.

Third, the generational analysis demonstrates that the same psychological mechanism may operate differently across consumer cohorts. Therefore, sustainable consumption models should consider demographic and generational heterogeneity rather than assuming that environmental attitudes operate uniformly across consumers.

XV. LIMITATIONS OF THE STUDY

The study has several limitations.

Geographical limitation: The data were collected in northern Italy; therefore, the findings may not be directly generalizable to other countries or cultural contexts.

Sampling limitation: Snowball sampling may introduce selection bias because respondents may be connected through similar social networks.

Self-reported data: Respondents may provide socially desirable answers, particularly when discussing environmental responsibility.

Purchase intention: The study measures intended purchasing behavior rather than actual long-term purchasing behavior.

Cross-sectional design: The data were collected at one point in time, preventing strong conclusions about changes in consumer attitudes over time.

Qualitative sample size: Only seven qualitative interviews were conducted, all involving Generation Y respondents.

Cohort coverage: Baby Boomers were not included in the generational comparison.

XVI. FUTURE SCOPE OF THE STUDY

Future research can extend the present study in several directions.

First, longitudinal research can examine whether purchase intentions translate into actual purchases of recycled AHP products over time.

Second, cross-cultural studies can compare consumers from developed and emerging economies to determine whether cultural values influence the role of social norms.

Third, future studies can examine the influence of price sensitivity, income, education, environmental knowledge, perceived risk, trust, disgust, and perceived product quality.

Fourth, researchers can compare recycled AHPs with other recycled products to determine whether social stigma produces category-specific effects.

Fifth, future studies can include additional generational cohorts, including Baby Boomers, to provide a broader understanding of age-related differences.

Finally, experimental research can test different marketing messages, such as environmental benefit messages, safety messages, certification messages, and social-normalization messages, to identify which communication strategy most effectively increases consumer acceptance.

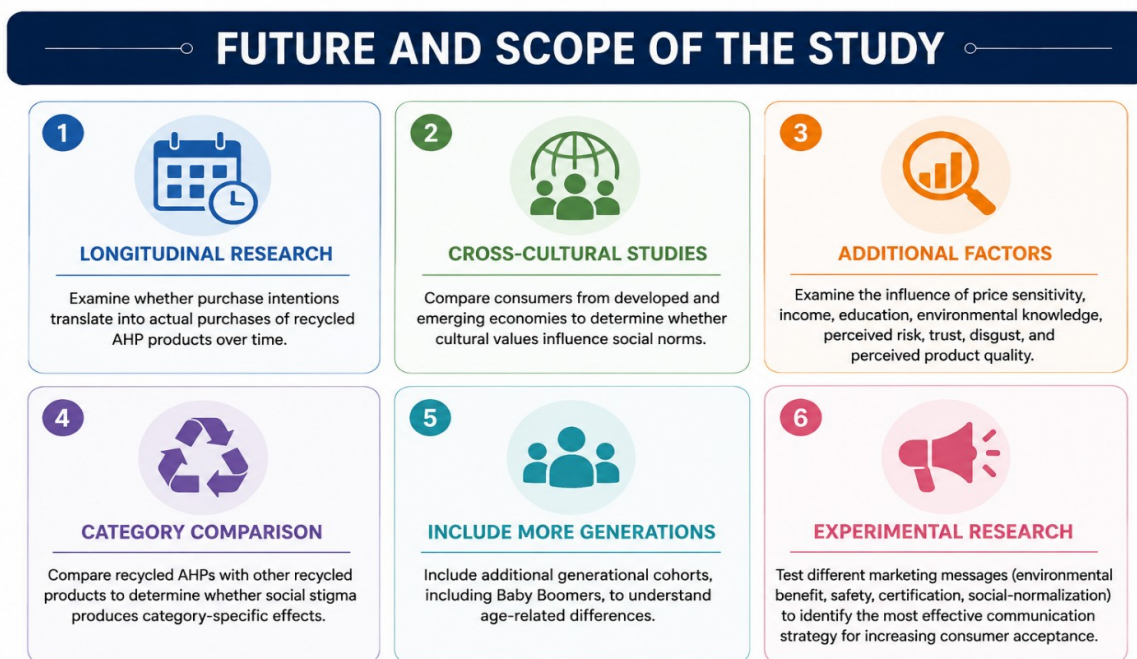


Figure 3: Future scope of the study

XVII. CONCLUSION

The study provides important insights into the psychological mechanisms underlying consumer acceptance of recycled absorbent hygiene products. The findings demonstrate that Green Self-Identity plays a significant role in developing favorable Consumer Attitudes toward sustainable

recycled products. Consumer Attitude, in turn, significantly increases Purchase Intention, confirming the importance of positive product evaluations in sustainable consumption.

At the same time, Social Norms can act as a barrier when recycled products are associated with hygiene-related stigma. The overall negative moderating effect demonstrates that social expectations can weaken the influence of environmental identity. However, the generational analysis reveals that this effect is not uniform. Generation Y demonstrates a significant negative moderating effect, whereas Generation Z shows no statistically significant social-norm dampening effect.

These findings suggest that Generation Z may be comparatively more willing to translate environmental identity into positive attitudes independently of social approval. Nevertheless, this should be interpreted within the specific sample and recycled-AHP context rather than as a universal characteristic of all Generation Z consumers.

From a practical perspective, the adoption of recycled AHPs requires more than technological innovation. Manufacturers and marketers must build consumer trust, communicate safety transparently, reduce hygiene-related stigma, and normalize the use of recycled materials. Combining circular-economy innovation with consumer psychology can therefore contribute to greater acceptance of sustainable products and support the transition toward a more resource-efficient economy.

Hypothesis Summary

Hypothesis	Relationship	Result
H1	GSI → ATT	Supported
H2	SN negatively moderates GSI → ATT	Supported
H3	SN moderation differs across generations	Supported
H4	ATT → INT	Supported

Overall Research Model

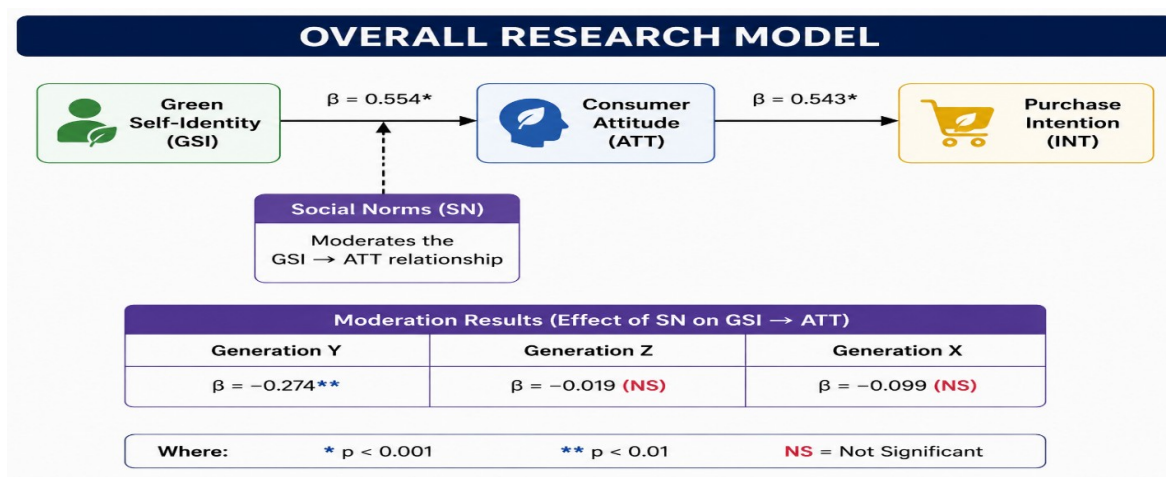


Figure 4: Overall research model

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