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FIELD LAB ON THE PSYCHOLOGICAL DETERMINANTS OF SUSTAINABLE  
CONSUMER BEHAVIOR SUSTAINABLE EATING

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## **1.0 Abstract**

In the evolving landscape of consumer choices, sustainable food products represent more than just a market trend—they embody a critical intersection of personal health, environmental consciousness, and psychological decision-making. This study explores the influence of temporal framing of health benefits on consumer choices for sustainable food products. Using an experimental design, 240 participants were assigned to three groups: control, short-term framing (treatment 1), and long-term framing (treatment 2). Surprisingly, despite expectations drawn from theories like *temporal discounting* (Trope & Liberman, 2003) and *present bias* (Laibson, 1997), the results revealed no significant differences in sustainable choices between groups. However, green consumption awareness (Haws et al., 2014) emerged as a key predictor of sustainable decision-making, suggesting that intrinsic values outweigh the impact of framing. These findings challenge traditional assumptions about the power of temporal messaging and emphasize the importance of personalized strategies in promoting sustainable consumption.

*Keywords: Temporal framing, Health benefits, Present bias in consumer choices, Short-term rewards, Long-term rewards, Temporal construal theory.*

## **2.0 Introduction**

Consumer interest in sustainable eating has emerged as a significant trend, driven by increasing awareness of environmental impacts and health consciousness. While food markets have seen a proliferation of sustainable product options, consumer decision-making remains complex and influenced by multiple psychological factors. The growing availability of eco-friendly and health-conscious food choices presents an intriguing landscape for understanding what motivates individuals to select sustainable products (Kapsdorferova, Bogueva, & Marinova, 2024).

Despite the rising prominence of sustainable food options, significant gaps remain in understanding how consumers make these choices. Existing research has explored various influences on sustainable consumption, yet the role of temporal framing—specifically how short-term versus long-term health benefits are communicated—remains largely unexplored. This study seeks to bridge that knowledge gap by experimentally investigating how the presentation of health benefits across different time perspectives might influence consumers' likelihood of choosing sustainable food products.

By employing an experimental design that manipulates the temporal framing of health benefits, this research aims to provide insights into the psychological mechanisms underlying sustainable food choices. The study examines whether consumers are more responsive to immediate health rewards or long-term health promises when considering sustainable options. Understanding these decision-making dynamics could offer valuable guidance for marketers, producers, and policymakers seeking to promote more sustainable consumption patterns.

### **3.0 Literature Review**

Understanding consumer decision-making in sustainable eating requires an important understanding of those psychological determinants who shape food choices. This research explores the intricate interplay of temporal perception, consumer psychology, and sustainable consumption through several key theoretical lenses.

At the heart of consumer decision-making lies the concept of time perception and value assessment (Dholakia, 2000; Hou et al., 2024). The *temporal discounting theory* (Ainslie, 1975; Rachlin and Green, 1972) posits that individuals value rewards less as the delay to receive them increases, leading to a preference for short-term rewards over long-term benefits. Building on this foundation, *quasi-hyperbolic discounting theory* (Laibson, 1997) refines the understanding of how individuals disproportionately prioritize immediate rewards due to present bias. Framing sustainable food products with short-term health benefits (e.g., "*instant*

*energy boost*" or "*improved digestion today*") aligns strongly with present bias, making them more appealing to consumers. This distinction is critical when developing marketing strategies, as short-term rewards appear often to be more effective in influencing consumer behavior compared to the promise of long-term benefits.

Additionally, the *dual process theory* (Kahneman, 2011; Evans & Stanovich, 2013) provides further insight into decision-making mechanisms. This theory suggests that human cognition operates through two systems: System 1, which is fast, intuitive, and automatic, and System 2, which is slower, deliberate, and analytical. When making food-related decisions, consumers often rely on System 1, favoring intuitive and immediate rewards over reflective, long-term considerations. By framing sustainable food products with short-term health benefits, businesses can leverage System 1 processing to drive impulsive and favorable purchasing decisions. This approach contrasts with attempts to appeal to System 2, which requires more effortful engagement and is less likely to influence quick consumer choices.

Complementing these insights, *prospect theory* (Kahneman & Tversky, 1979) adds another layer of complexity. Consumers tend to be risk-averse and prefer avoiding losses in the present (e.g., poor health today) over potential long-term gains (e.g., better health in the distant future). Numerous studies have explored how time preferences influence consumer behavior, particularly in areas such as health, energy consumption, and financial decision-making.

Bradford et al.'s (2018) study on "Time Preferences and Consumer Behavior" offers compelling evidence of how present bias shapes decision-making. It investigates the relationship between time preferences and various behaviors such as health and energy use, serves as a key piece of literature. This research demonstrates that consumers with a stronger present bias are more likely to make decisions that favor immediate rewards, such as health improvements. However, the study primarily examines behaviors related to health, energy, and finances but does not specifically address sustainable food choices or how temporal framing of

health benefits might influence these decisions. By exploring how temporal framing impacts the choice between sustainable and non-sustainable products, this paper provides valuable insights for marketers and businesses. Understanding how to frame product benefits in a way that aligns with consumer time preferences may help businesses promote sustainable consumption more effectively.

Finally, Mai and Hoffmann (2015) introduce another critical perspective. Their research, utilizing the *Implicit Association Test*, reveals the complex cognitive processes underlying food selection. The study highlights a crucial insight: while health-conscious consumers may engage in more deliberative decision-making, the average consumer remains significantly influenced by short-term, immediate rewards.

Based on the theories and research examined, the following hypothesis is proposed:

*"Sustainable food products presented with immediate health benefits will be more effective in driving consumer choices compared to those framed with long-term health benefits."*

#### **4.0 Method**

This study employed a survey-based experimental design to explore how temporal framing of health benefits impacts consumer choices for sustainable food products. The experiment was conducted using Qualtrics, targeting a sample of 240 participants who were randomly assigned to one of three groups: a control group and two treatment groups, one where short-term health benefits were highlighted, and the other where long-term health benefits were emphasized.

The primary aim was to test whether temporal framing (short-term vs. long-term health benefits) influences the likelihood of selecting sustainable products. The study further controlled for variables such as demographic factors, health consciousness, and green consumption tendencies, measured using validated scales.

#### **4.1 Survey and Experimental Design**

Participants were presented with four product choice scenarios, each featuring a sustainable option (Product A) and a non-sustainable option (Product B). The products chosen were apples, burgers, coffee, and chocolate. In the Control Group, participants viewed products described neutrally, without any specific temporal framing of health benefits, while in Treatment Group 1, sustainable products were framed to emphasize immediate health benefits, such as "*boosting energy levels*", "*improving digestion*", or "*providing instant nutritional absorption*". Finally, in Treatment Group 2, the sustainable products highlighted long-term health benefits, including "*enhancing heart health*", "*promoting sustained vitality*", or "*supporting lifelong wellness*". All sustainable products were priced slightly higher than their non-sustainable counterparts, using real pricing examples to simulate realistic trade-offs. The study set up a hypothetical purchasing scenario to mimic real-world shopping conditions, enhancing the validity and reliability of the findings and allowing researchers to observe how temporal framing influenced their choices.

#### **4.2 Variables and Hypotheses**

The dependent variable, TotalIndex, represented the total number of sustainable choices participants made across the four scenarios, ranging from 0 (no sustainable choices) to 4 (all sustainable choices). The independent variable was the temporal framing of health benefits, categorized as either short-term or long-term. Demographic factors such as age, income, and education level were included to control for their potential influence on sustainable product choices. Additionally, individual health consciousness and green consumption tendencies, measured using validated scales (Mai & Hoffmann, 2015; Kelly Haws et al., 2014), were analyzed as covariates to explore their potential moderating effects on the relationship between temporal framing and consumer decisions.

The hypothesis guiding this study posited that participants in Treatment Group 1, exposed to short-term health benefit framing, would demonstrate a higher propensity to select sustainable

products compared to both Treatment Group 2 and the control group. This hypothesis draws on *quasi-hyperbolic discounting theory* (Laibson, 1997), which suggests a stronger preference for immediate rewards, and *temporal construal theory* (Trope & Liberman, 2003), which emphasizes the heightened appeal of short-term outcomes due to their perceived concreteness.

### **4.3 Hypotheses and Testing Strategy**

The study tested how different ways of describing products, specifically temporal health benefit framing, influenced sustainable food choices. Additionally, this study explores whether individual differences, such as health consciousness and green consumption awareness, moderate the effectiveness of temporal framing.

#### **Hypotheses**

1. H1: Temporal framing of health benefits (short-term or long-term) significantly influences the likelihood of consumers choosing sustainable products, with treatment groups selecting sustainable options more frequently than the control group.
2. H2: Short-term health benefit framing (Treatment Group 1) significantly increases the likelihood of choosing sustainable products compared to long-term health benefit framing (Treatment Group 2).
3. H3: Health consciousness and green consumption awareness significantly moderate the effect of temporal framing on sustainable product choices, with individuals scoring higher on these measures being more influenced by temporal framing.

#### **Testing Strategy**

To evaluate the hypotheses, a series of statistical tests were conducted to comprehensively analyze the data. First, descriptive statistics were used to summarize key demographic characteristics, including age, gender, education, and income, as well as trends in sustainable product choices across the three experimental groups. A one-way ANOVA was then employed to test for differences in sustainable choices (TotalIndex) among the control group, the short-

term framing group, and the long-term framing group (Field, 2013; Howell, 2013). To further examine these differences, post-hoc Tukey tests were performed to identify specific pairwise comparisons, such as between the short-term framing group and the control group (Tukey, 1949). Additionally, multiple linear regression was utilized to explore the influence of temporal framing, health consciousness, and green consumption awareness on sustainable choices, as well as to determine whether these individual traits moderated the effect of temporal framing (Cohen et al., 2003; Aiken & West, 1991). This integrated approach provided a thorough evaluation of the impact of temporal framing on sustainable choices while accounting for the role of individual differences in shaping consumer behavior.

## **5.0 Analysis**

This section summarizes the results of the study, beginning with a description of the sample characteristics. It then examines differences in sustainable choices across groups using ANOVA and post hoc tests. Finally, it explores the impact of temporal framing and personal values on sustainable choices through regression analysis.

### **5.1 Data Collection and Participant Demographics**

The study included 240 participants, of which 213 (88.8%) provided valid responses. The remaining 11.3% of responses were excluded due to missing or incomplete data. Participants were almost evenly distributed across genders: 48.4% identified as male, 49.3% as female, and 1.9% identified as non-binary or chose not to disclose their gender.

The participants' ages ranged from 14 to 90 years, with a mean age of 27.89 years ( $SD = 11.85$ ). In terms of educational attainment, 46.0% reported having a bachelor's degree, 35.2% held a master's degree, and 12.7% had completed high school. Income levels varied among respondents: 50.7% reported earning less than €10,000 annually, 16.4% earned between €10,000 and €20,000, 11.1% between €20,000 and €30,000, and 14.5% earned more than €30,000 annually (Appendix B, section 1).

Participants were randomly assigned to one of the three experimental groups: the Control Group (35.4%), Treatment Group 1 (35.1%), and Treatment Group 2 (29.3%). Each group was exposed to different product framing conditions to evaluate the impact of temporal health benefit framing on sustainable food choices and data was collected online using Qualtrics as a platform from October 30 to November 18, with all participants reached through social media.

## 5.2 Descriptive Statistics by Groups

To provide further context for the findings, descriptive statistics for the dependent variable (TotalIndex) were calculated for each experimental group (Field, 2013). These statistics include the mean, standard deviation, and standard error of sustainable choices made by participants in the Control Group, Treatment 1, and Treatment 2. This step aids in illustrating the group-level trends observed in the ANOVA and post hoc tests (Cohen, 1988). Detailed data is available in Appendix B, section 2.

**Table 1: Group Descriptive Statistics for TotalIndex**

<b>Group Assignment</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Std. Error Mean</b>
Control	85	2.41	1.19	0.13
Treatment 1	84	2.38	1.13	0.12
Treatment 2	70	2.50	1.11	0.13

As shown in Table 1, the Control Group reported a mean TotalIndex score of 2.41 (SD = 1.19), indicating an average of slightly more than two sustainable choices across the scenarios. Treatment 1, representing short-term health benefit framing, had a nearly identical mean of 2.38 (SD = 1.13), further demonstrating the minimal influence of this framing strategy on sustainable behavior. Finally, Treatment 2, which emphasized long-term health benefits, yielded a marginally higher mean of 2.50 (SD = 1.11), but the overlap in standard deviations and the results of the statistical tests suggest that this difference is not meaningful.

These findings illustrate that participants across all groups displayed similar patterns of sustainable choice-making, with no notable impact of the experimental manipulations.

### 5.3 ANOVA

To assess whether the temporal framing of health benefits (short-term vs. long-term) influenced participants' likelihood of choosing sustainable food products, a one-way ANOVA was conducted (Field, 2013; Howell, 2013). The dependent variable was TotalIndex, representing the total number of sustainable choices each participant made across four product scenarios and the independent variable was Group assignment: control neutral framing (Control Group), short-term health framing (Treatment Group 1), and long-term health framing (Treatment Group 2).

Before conducting the ANOVA, Levene's Test for Homogeneity of Variances was performed to ensure that the assumption of equal variances across groups was met. The test results confirmed homogeneity of variances ( $F = 0.489, p = 0.614$ ), validating the use of ANOVA for this analysis (Appendix B, section 4, 5, and 6).

**Table 2: ANOVA**

<b>Metric</b>	<b>Value/Comparison</b>
F-statistic	0.217
p-value (Sig.)	0.805
Eta-squared ( $\eta^2$ )	0.002
Levene's Test (Variance)	$F = 0.489, p = 0.614$

**Table 3: Tukey HSD Post Hoc Results**

<b>Comparison</b>	<b>Mean Difference</b>	<b>Std. Error</b>	<b>p-value</b>	<b>95% Confidence Interval (Lower, Upper)</b>
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Control vs. Treat1	0.03	0.176	0.983	-0.385, 0.447
Control vs. Treat2	0.08	0.185	0.882	-0.525, 0.348
Treat1 vs. Treat2	0.12	0.186	0.797	-0.556, 0.318

The ANOVA results in Table 2 ( $F(2, 236) = 0.217, p = 0.805$ ) indicate that there were no statistically significant differences in sustainable choices across the three groups. The observed eta-squared value ( $\eta^2=0.002$ ) suggests that group assignment accounted for only 0.2% of the variance in sustainable choices, signifying a negligible effect (Cohen, 1988). This result implies that temporal framing (short-term vs. long-term) did not meaningfully influence participants' sustainable food choices.

To further examine group-level differences, a Tukey HSD post hoc analysis was conducted to compare pairwise differences between groups (Tukey, 1949). As shown in Table 3, none of the pairwise comparisons yielded statistically significant results:

- Control vs. Treatment Group 1: Mean difference = 0.03,  $p = 0.983$
- Control vs. Treatment Group 2: Mean difference = 0.08,  $p = 0.882$
- Treatment Group 1 vs. Treatment Group 2: Mean difference = 0.12,  $p = 0.797$

These findings indicate that neither short-term nor long-term health benefit framing led to meaningful changes in sustainable food choices when compared to the control group.

The lack of significant differences between groups suggests that the temporal framing of health benefits—whether immediate or delayed—does not play a pivotal role in driving sustainable consumer behavior. This result is contrary to expectations based on *temporal construal theory* (Trope & Liberman, 2003) and *quasi-hyperbolic discounting theory* (Laibson, 1997), which

propose that short-term benefits should have a stronger appeal due to their concreteness and immediacy.

Additionally, the relatively small eta-squared value indicates that other factors, such as personal values, product attributes, or external barriers like price, may have a stronger influence on sustainable decision-making than temporal framing alone.

#### 5.4 Descriptive Analysis of Moderators

To explore the role of individual characteristics in sustainable food choices, two key moderators were examined: Health Consciousness and Green Consumption Awareness. These variables are expected to moderate the impact of temporal framing on sustainable choices and provide deeper insight into consumer behavior. Both moderators were measured using validated scales, as shown in Table 4 and in section 9 of Appendix B.

**Table 4: Descriptive Analysis of Moderators**

<b>Moderator</b>	<b>Mean</b>	<b>SD</b>	<b>Min</b>	<b>Max</b>
Health Consciousness	3.74	0.87	1.0	5.0
Green Consumption Awareness	3.61	0.83	1.0	5.0

The results from Table 4 indicate that participants scored moderately high on both predictors:

- Health Consciousness: participants had an average score of 3.74 out of 5, with noticeable variability ( $SD = 0.87$ ). This suggests that, on average, participants are quite health-conscious, even though some individuals reported low awareness (score = 1).
- Green Consumption Awareness: the average score of 3.61 indicates a similarly high level of concern for sustainability, with a comparable spread ( $SD = 0.83$ ).

These findings highlight that participants generally consider both health and environmental factors in their decision-making, setting the stage to analyze how these traits interact with temporal framing in driving sustainable choices.

## 5.5 Reliability Analysis

To ensure that the scales used to measure the key predictors—Health Consciousness and Green Consumption Awareness—were reliable, a Cronbach’s alpha analysis was conducted (Appendix B, section 3). Cronbach’s alpha assesses the internal consistency of a scale, indicating how well the items within a scale measure the same underlying construct (Cronbach, 1951). Values above 0.70 are generally considered acceptable, while values above 0.80 are regarded as high, reflecting strong internal consistency. Demonstrating reliability is essential to validate that the findings based on these scales are robust and not affected by measurement error.

**Table 5: Reliability Analysis Results**

Scale	Number of Items	Cronbach’s Alpha	Interpretation
Health Consciousness	4	0.851	High Reliability
Green Consumption Awareness	6	0.896	High Reliability

The Health Consciousness scale, consisting of four items, achieved a Cronbach’s alpha of 0.851, indicating high reliability. This demonstrates that the scale is a consistent measure of participants’ health-related attitudes and behaviors.

Similarly, the Green Consumption Awareness scale, comprising six items, achieved an even higher Cronbach’s alpha of 0.896, signifying excellent internal consistency. This confirms that the scale reliably captures participants’ environmental concerns and sustainability-oriented attitudes.

These results provide confidence in the validity of the predictors analyzed in this study. The strong reliability of these scales ensures that subsequent analyses involving Health Consciousness and Green Consumption Awareness are based on robust and trustworthy measurements.

## 5.6 Interaction Analysis

To explore whether Health Consciousness and Green Consumption Awareness moderated the relationship between group assignment (framing conditions) and sustainable choices, interaction effects were tested using an ANOVA framework (Field, 2013). The analysis included interaction terms (e.g., Group x Health Consciousness and Group x Green Consumption Awareness) alongside the main effects. Table 6 summarizes key findings, while detail interaction terms can be found in section 7 of Appendix B.

**Table 6: Interaction Effects on Sustainable Choices**

Source	F	Sig.
Group	0.128	0.902
Health Consciousness (Mean-centered)	0.543	0.462
Group x Health Consciousness	0.284	0.595
Green Consumption Awareness (Mean-centered)	3.971	0.048
Group x Green Consumption	0.147	0.702

The analysis revealed no significant interaction effect for Group x Health Consciousness ( $F(2, 208) = 0.284, p = 0.595$ ), indicating that participants' health consciousness does not influence the relationship between temporal framing and sustainable choices (Aiken & West, 1991). Similarly, the interaction term Group x Green Consumption Awareness was non-significant ( $F(2, 201) = 0.147, p = 0.702$ ), suggesting no moderating effect of environmental awareness on framing outcomes.

However, Green Consumption Awareness as a main effect was significant ( $F(1, 201) = 3.971, p = 0.048$ ), highlighting that participants with higher levels of environmental awareness were more likely to make sustainable choices, regardless of the framing condition. This finding

underscores the importance of individual differences in sustainability-related values over experimental manipulations of temporal framing (Hartmann & Apaolaza-Ibáñez, 2012).

While the interaction effects were non-significant, the significant main effect of Green Consumption Awareness highlights its independent influence on sustainable food choices, regardless of group assignment. This suggests that participants with higher environmental awareness tend to make more sustainable choices overall, even without the influence of temporal framing.

### 5.7 Multiple Regression Analysis

To expand on the precedent ANOVA analysis, a multiple linear regression was conducted in order to test all predictors simultaneously (Cohen et al., 2003) (Appendix B, section 8). The dependent variable, TotalIndex, was the total number of sustainable choices, while the moderators included Group Assignment, Mean-Centered Health Consciousness, Mean-Centered Green Consumption Awareness, and the interaction terms (Group x HealthConsciousness, Group x GreenConsumption) (Aiken & West, 1991).

This approach provided a more comprehensive view by simultaneously accounting for all predictors and estimating their unique contributions.

**Table 7: Multiple Regression Summary**

#### Model Summary

<b>R</b>	<b>R Square</b>	<b>Adjusted R Square</b>	<b>Std. Error of the Estimate</b>
0.384	0.148	0.126	1.05448

#### ANOVA

<b>Source</b>	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Regression	38.545	5	7.709	6.933	<.001

Residual	222.387	200	1.112
Total	260.932	205	

### Coefficients

Variable	B	Std. Error	Beta	t	Sig.
(Constant)	2.434	0.196		12.394	<.001
Group Assignment	-0.023	0.093	-0.016	-0.249	0.804
HealthConsciousness	0.068	0.249	0.053	0.272	0.786
GreenConsumption	0.400	0.237	0.296	1.689	0.093
Group x HealthConsciousness	0.028	0.124	0.044	0.224	0.823
Group x GreenConsumption	0.029	0.116	0.045	0.253	0.800

The regression model explains 14.8% of the variance in sustainable food choices ( $R^2 = 0.148$ ), with an adjusted  $R^2$  of 0.126, indicating a modest explanatory power (Field, 2013). The overall model is statistically significant ( $F(5, 200) = 6.933, p < .001$ ), suggesting that the moderators collectively influence sustainable behavior.

Among the predictors, the individual contributions of Group Assignment, Health Consciousness, and Green Consumption Awareness are not statistically significant, as indicated by their p-values ( $p > .05$ ). However, Green Consumption Awareness shows a marginal positive effect ( $B = 0.400, p = .093$ ), implying a potential but non-significant trend toward higher sustainable choices for participants with greater environmental awareness. As a matter of fact, this effect did not reach significance when accounting for other predictors.

These findings suggest that while Green Consumption Awareness may play a minor role, the framing of health benefits (group assignment) and its interactions with individual characteristics do not significantly influence sustainable food choices. The modest R<sup>2</sup> value suggests that while Green Consumption Awareness plays a role, unmeasured factors, such as taste preferences or external barriers, may account for greater variance in sustainable food choices. This highlights the need for future research to explore additional predictors that could better explain sustainable consumer behavior (Hartmann & Apaolaza-Ibáñez, 2012).

### 5.8 Further Insights: The Role of Demographics and Behavioral Tendencies

#### Two-Way ANOVA

A Two-Way ANOVA was conducted to investigate whether demographic variables (age, gender, income, education) interacted with group assignment to influence the dependent variable, TotalIndex. The analysis aimed to explore the potential moderating effects of these variables.

**Table 8: Two-Way ANOVA**

Interaction	F-Value	P-Value	Partial Eta Squared
Group * Gender	1.209	0.300	0.043
Group * Age	1.353	0.212	0.061

The results showed no significant interaction effects between group assignment and any demographic variables (all p-values > 0.05). This indicates that Age and Gender did not significantly moderate the relationship between Group Assignment and TotalIndex. While these findings suggest that demographic characteristics are not primary drivers of group differences, they reinforce the need to focus on behavioral predictors.

A multiple regression analysis was run to assess the combined influence of demographic and behavioral variables on TotalIndex (Cohen et al., 2003). The predictors included Age Group,

Gender, Income, Education, Health Consciousness Mean, Green Consumption Mean, Group Assignment, and their interaction terms.

**Table 9: Multiple Regression Summary**

Predictor	Unstandardized Coefficients (B)	P-Value
Group Assignment	-0.025	0.793
Health Consciousness Mean	0.235	0.360
Green Consumption Mean	0.504	0.037
Age Group	0.145	0.111
Gender	-0.094	0.499
Education Level	0.084	0.427
Income	0.033	0.576

The model was statistically significant ( $F(9, 193) = 5.206, p < 0.001$ ), explaining 19.5% of the variance in TotalIndex ( $R^2 = 0.195$ ). Among the predictors:

- Green Consumption Mean ( $p = 0.037$ ): positively and significantly associated with TotalIndex, indicating that individuals with stronger green consumption tendencies were more likely to score higher (Hartmann & Apaolaza-Ibáñez, 2012).
- Health Consciousness Mean, Group Assignments, and Demographics: these variables did not significantly predict TotalIndex ( $p$ -values  $> 0.05$ ), underscoring the limited role of individual demographics and interactions in this context.
- These findings emphasize the importance of behavioral factors, particularly green consumption tendencies, over demographic characteristics in shaping outcomes (Tobler et al., 2012).

Although demographic variables did not interact significantly with group assignment, these results reaffirm the importance of behavioral traits, such as Green Consumption Awareness, in driving sustainable choices.

## **6.0 Discussion**

This study contributes to the literature on sustainable consumer behavior by offering new insights into the limited role of temporal framing. *Temporal construal theory* and *quasi-hyperbolic discounting* suggested that short-term benefits might have a stronger impact on behavior (Trope & Liberman, 2003; Laibson, 1997), yet these theories were not supported in the context of sustainable food choices. The findings emphasize the importance of intrinsic moderators, such as green consumption awareness, over extrinsic factors like framing (Hartmann & Apaolaza-Ibáñez, 2012).

The results align with *dual-process theories*, where System 2 reasoning, shaped by individual values and contextual barriers, outweighs System 1 intuitive responses to framing (Kahneman, 2011; Evans & Stanovich, 2013). These observations highlight that sustainable behavior is more likely driven by internalized values and practical considerations than by subtle framing manipulations.

### **6.1 Practical Applications**

The conclusions of this study offer important guidance for marketers, policymakers, and other stakeholders in promoting sustainable consumption behaviors. While temporal framing was found to have minimal impact, the significant role of green consumption awareness underscores the necessity of leveraging intrinsic motivators and addressing practical barriers (McKenzie-Mohr, 2000).

One actionable insight is the need to move beyond generic framing strategies and focus on deeper behavioral interventions. For instance, campaigns could emphasize the tangible and immediate benefits of sustainable products, such as affordability and superior quality, to

address practical concerns. Highlighting attributes like durability, cost-effectiveness over time, or health benefits tied to sustainable choices can appeal to consumers' existing values. Such approaches align with research demonstrating that individuals often prioritize pragmatic considerations over abstract appeals (Chen, 2024).

Public-private partnerships could also play a pivotal role in enhancing awareness and accessibility. Collaborations between governments, NGOs, and businesses could facilitate community-based interventions. For example, public campaigns might focus on the societal and environmental benefits of sustainable consumption, such as preserving local ecosystems or supporting small-scale farmers. These efforts could be supported by integrating educational programs into schools and communities, thereby fostering a culture of sustainability from a young age (Fox, Ward, & Howard, 2002).

Another practical recommendation involves designing loyalty programs or gamified applications to incentivize eco-friendly purchases. Consumers could earn rewards for sustainable choices, such as discounts on future purchases or exclusive access to green products. Gamified platforms could also provide consumers with badges or recognition for meeting sustainability goals, tapping into their intrinsic motivation and fostering competitive engagement (Mulcahy, McAndrew, Russell-Bennett, & Iacobucci, 2021).

Furthermore, businesses should consider leveraging social proof and influencer advocacy. Social proof, such as showcasing the popularity of sustainable options through reviews or sales data, can help shift perceptions of these products as mainstream and desirable. Partnering with credible influencers who authentically advocate for sustainability can amplify these efforts (Zhang, Chintagunta, & Kalwani, 2021).

Finally, regulatory changes could address systemic barriers to sustainable consumption. Governments might implement tax breaks for companies producing eco-friendly products or impose stricter regulations on unsustainable practices. These measures can shift market

dynamics and make sustainable products more competitive (Heidenreich, Spieth, & Petschnig, 2017).

## **6.2 Limitations and Future Research**

While this study offers valuable insights, several limitations should be acknowledged to contextualize its findings and guide future research.

One significant limitation lies in the sample composition, which included younger, educated participants. This demographic bias limits the generalizability of the results to broader populations, particularly older adults or other individuals. Younger, educated individuals are often more exposed to sustainability narratives, yet their decisions in this study did not reflect a significant response to temporal framing (Henrich et al., 2010).

Another limitation is the reliance on hypothetical scenarios. Participants were asked to make choices in a simulated context, which may not fully capture the complexities of real-world decision-making. Hypothetical bias could have influenced their responses, as participants might behave differently when actual financial or social stakes are involved. Future research should consider employing field experiments or longitudinal studies to observe sustainable behaviors in naturalistic settings (Loewenstein et al., 2001).

The narrow focus on two individual moderators—health consciousness and green consumption awareness—is another limitation. While these variables were significant, other factors such as taste preferences, branding, or cultural influences may also play a critical role in shaping sustainable choices. Expanding the scope of future studies to include these variables could provide a more holistic understanding of consumer behavior (Tobler et al., 2012).

Finally, the study's modest explanatory power suggests that unmeasured factors might account for greater variance in sustainable choices. Variables such as convenience, price sensitivity, or social influences should be explored in future research. By addressing these limitations,

subsequent studies could better capture the complexity of sustainable consumer behavior and offer more actionable recommendations.

## **7.0 Conclusion**

At its core, this research unfolds a story about human choices, rooted not in fleeting messaging but in enduring values. It reveals that the path to sustainable consumption lies not in the immediacy of benefits communicated but in the resonance of products with deeply held beliefs and environmental consciousness.

The conclusions challenge traditional assumptions about the power of temporal framing, showing that neither short-term nor long-term health benefits significantly influence sustainable choices. Instead, they highlight green consumption awareness as a critical factor in driving these behaviors. This awareness, more than any external manipulation, underscores the profound role of intrinsic motivations.

Key findings include:

1. Temporal framing of health benefits did not significantly influence the likelihood of choosing sustainable products.
2. Green consumption awareness was a key moderator of sustainable behavior, with participants scoring higher on this trait making more sustainable choices (Hartmann & Apaolaza-Ibáñez, 2012).
3. Interaction effects between individual traits (e.g., health consciousness) and temporal framing were non-significant, underscoring the complex interplay of values and situational factors in decision-making (Ajzen, 1991).

These results highlight an important takeaway: promoting sustainability effectively requires strategies that resonate with individuals' existing values and environmental awareness, rather than relying solely on framing techniques. While temporal messaging offers limited impact,

fostering deeper engagement with consumers' intrinsic motivations presents a promising avenue for influencing sustainable choices.

In light of these outcomes, future interventions could focus on enhancing green consumption awareness through targeted educational initiatives, clear communication of product benefits, and creating tangible connections between individual actions and broader environmental outcomes. By emphasizing the alignment of sustainable products with consumers' values and lifestyles, businesses and policymakers can encourage more meaningful, long-term behavioral changes.

In conclusion, this study emphasizes that sustainable consumption is not a simple function of marketing tactics but a complex interplay of values, awareness, and decision-making contexts. By focusing on these intrinsic motivators, researchers and practitioners can work towards fostering a more sustainable future, driven by informed and value-conscious consumers. The responsibility now lies in cultivating a generation of informed, value-driven consumers who see sustainability as a fundamental choice rather than an optional one.

By aligning products and messaging with these deeper motivations, we can inspire a shift from convenience to consciousness, fostering a sustainable future that benefits all.

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## Appendix

### Appendix A: Survey Instrument

# Health Benefit Framing impact on Sustainable Food Choices

## Survey Flow

**BlockRandomizer: 1 - Evenly Present Elements**

**Block: Control Group (4 Questions)**

**Standard: Treatment Group 1 (4 Questions)**

**Standard: Treatment Group 2 (4 Questions)**

**Standard: Attitudes and Preferences (2 Questions)**

**Standard: Demographic Information (4 Questions)**

Page Break

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**Start of Block: Control Group**

**Please select the product you would prefer to buy based on the information provided.**

- Product A: Locally sourced organic apples grown using sustainable farming practices. Price: €1.00 per apple. (1)
  - Product B: Standard apple grown with conventional farming methods. Known for its familiar taste and texture. Price: €0.75 per apple (2)
- 

Page Break

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**Please select the product you would prefer to buy based on the information provided.**

- Product A: Plant-based burger made with sustainably sourced ingredients. Price: €4.00 per burger. (2)
  - Product B: Classic beef burger made with conventionally raised meat. Known for its familiar taste and texture. Price: €3.00 per burger. (3)
- 

Page Break

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**Please select the product you would prefer to buy based on the information provided.**

- Product A: Coffee beans sourced from fair-trade certified farms committed to sustainable agriculture. Price: €5.00 per 250g bag. (1)
  - Product B: Classic coffee beans from conventional farms. Known for its familiar taste. Price: €3.50 per 250g bag. (2)
- 

Page Break

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**Please select the product you would prefer to buy based on the information provided.**

Product A: Chocolate made with fair-trade cocoa from sustainable farms. Price: €2.50 per 50g bar. (1)

Product B: Classic chocolate made with conventionally sourced cocoa. Known for its familiar taste and texture. Price: €1.50 per 50g bar. (2)

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Page Break

## End of Block: Control Group

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### Start of Block: Treatment Group 1

**Please select the product you would prefer to buy based on the information provided.**

Product A: Locally sourced organic apple, known for its high vitamin C content. Offers an immediate boost to energy and immunity in the next hour. Price: €1.00 per apple. (1)

Product B: Standard apple grown with conventional farming methods. Known for its familiar taste and texture. Price: €0.75 per apple (2)

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Page Break

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**Please select the product you would prefer to buy based on the information provided.**

Product A: Plant-based burger made with sustainably sourced ingredients. Packed with protein and provides an instant boost in vitality after eating. Price: €4.00 per burger. (1)

Product B: Classic beef burger made with conventionally raised meat. Known for its familiar taste and texture. Price: €3.00 per burger. (2)

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Page Break

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**Please select the product you would prefer to buy based on the information provided.**

Product A: Single-origin coffee beans from fair-trade farms. Provides an immediate boost in alertness and energy. Price: €5.00 per 250g bag. (1)

Product B: Classic coffee beans from conventional farms. Known for its familiar taste. Price: €3.50 per 250g bag. (2)

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Page Break

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**Please select the product you would prefer to buy based on the information provided.**

Product A: Crafted with fair-trade cocoa, this chocolate is rich in antioxidants and provides a quick mood boost and natural energy. Price: €2.50 per 50g bar. (1)

Product B: Classic chocolate made with conventionally sourced cocoa. Known for its familiar taste and texture. Price: €1.50 per 50g bar. (2)

**End of Block: Treatment Group 1**

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**Start of Block: Treatment Group 2**

**Please select the product you would prefer to buy based on the information provided.**

- Product A: Locally sourced organic apple, known for its high vitamin C content. Supports long-term immune health. Price: €1.00 per apple. (1)
  - Product B: Standard apple grown with conventional farming methods. Known for its familiar taste and texture. Price: €0.75 per apple (2)
- 

Page Break

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**Please select the product you would prefer to buy based on the information provided.**

- Product A: Plant-based burger made with sustainably sourced ingredients. Packed with nutrients that support heart health and longevity. Price: €4.00 per burger. (1)
  - Product B: Classic beef burger made with conventionally raised meat. Known for its familiar taste and texture. Price: €3.00 per burger. (2)
- 

Page Break

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**Please select the product you would prefer to buy based on the information provided.**

- Product A: Single-origin coffee beans from fair-trade farms, with antioxidants that may benefit heart health and longevity. Ideal for supporting wellness in the long term. Price: €5.00 per 250g bag. (1)
  - Product B: Classic coffee beans from conventional farms. Known for its familiar taste. Price: €3.50 per 250g bag. (2)
- 

Page Break

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**Please select the product you would prefer to buy based on the information provided.**

- Product A: Crafted with fair-trade cocoa, rich in antioxidants that support heart health over time. Contributes to long-term wellness with responsible consumption. Price: €2.50 per 50g bar. (1)
- Product B: Classic chocolate made with conventionally sourced cocoa. Known for its familiar taste and texture. Price: €1.50 per 50g bar. (2)

**End of Block: Treatment Group 2**

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**Start of Block: Attitudes and Preferences**

**Please Indicate Your Agreement with the Following Statements.**

	Strongly disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
“I actively monitor my health and well-being.” (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
“Maintaining my health is a top priority for me.” (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
“I choose food products that contribute to my long-term health.” (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
“I avoid foods that may negatively impact my health, even if they are indulgent.” (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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Page Break

**Please Indicate Your Agreement with the Following Statements.**

	Strongly Disagree (1)	Somewhat disagree (2)	Neither agree nor disagree (3)	Somewhat agree (4)	Strongly agree (5)
"It is important to me that the products I use do not harm the environment." (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
"I consider the potential environmental impact of my actions when making many of my decisions." (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
"My purchase habits are affected by my concern for our environment." (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
"I am concerned about wasting the resources of our planet." (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
"I would describe myself as environmentally responsible." (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
"I am willing to be inconvenienced to take actions that are more environmentally friendly." (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**End of Block: Attitudes and Preferences**

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## Start of Block: Demographic Information

**What is your age?**

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Page Break

**What is your gender?**

- Male (1)
- Female (2)
- Non-binary / third gender (3)
- Prefer not to say (4)

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Page Break

**What is the highest level of education you have completed?**

- High School (1)
- Bachelor's (2)
- Master's (3)
- PhD (4)

**What is your income?**

- Under €10,000 (1)
- €10,000–€20,000 (2)
- €20,000–€30,000 (3)
- €30,000–€40,000 (4)
- Over €40,000 (5)

**End of Block: Demographic Information**

## Appendix B: Statistical Outputs

### 1. Demographic Informations

What is your age?					
	Frequency	Percent	Valid Percent	Cumulative Percent	
Valid	27	11.3	11.3	11.3	
1	1	.4	.4	11.7	
14	1	.4	.4	12.1	
15	1	.4	.4	12.5	
17	1	.4	.4	12.9	
18	3	1.3	1.3	14.2	
19	5	2.1	2.1	16.3	
2	1	.4	.4	16.7	
20	8	3.3	3.3	20.0	
21	22	9.2	9.2	29.2	
22	27	11.3	11.3	40.4	
23	37	15.4	15.4	55.8	
24	20	8.3	8.3	64.2	
25	16	6.7	6.7	70.8	
26	9	3.8	3.8	74.6	
27	7	2.9	2.9	77.5	
28	9	3.8	3.8	81.3	
29	2	.8	.8	82.1	
30	2	.8	.8	82.9	
31	3	1.3	1.3	84.2	
32	1	.4	.4	84.6	
33	1	.4	.4	85.0	
34	1	.4	.4	85.4	
35	1	.4	.4	85.8	
37	2	.8	.8	86.7	
38	1	.4	.4	87.1	
39	1	.4	.4	87.5	
40	1	.4	.4	87.9	
41	1	.4	.4	88.3	
43	1	.4	.4	88.8	
45	2	.8	.8	89.6	
49	1	.4	.4	90.0	
50	3	1.3	1.3	91.3	
51	1	.4	.4	91.7	
52	3	1.3	1.3	92.9	

	53	3	1.3	1.3	94.2
	54	5	2.1	2.1	96.3
	55	1	.4	.4	96.7
	58	2	.8	.8	97.5
	59	1	.4	.4	97.9
	60	2	.8	.8	98.8
	61	1	.4	.4	99.2
	67	1	.4	.4	99.6
	90	1	.4	.4	100.0
	Total	240	100.0	100.0	

### What is your gender?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	103	42.9	48.4	48.4
	Female	105	43.8	49.3	97.7
	Non-binary / third gender	4	1.7	1.9	99.5
	Prefer not to say	1	.4	.5	100.0
	Total	213	88.8	100.0	
Missing	System	27	11.3		
Total		240	100.0		

### What is your income?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Under €10,000	105	43.8	50.7	50.7
	€10,000–€20,000	34	14.2	16.4	67.1
	€20,000–€30,000	23	9.6	11.1	78.3
	€30,000–€40,000	15	6.3	7.2	85.5
	Over €40,000	30	12.5	14.5	100.0
	Total	207	86.3	100.0	
Missing	System	33	13.8		
Total		240	100.0		

**What is the highest level of education you have completed?**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	High School	27	11.3	12.7	12.7
	Bachelor's	98	40.8	46.0	58.7
	Master's	75	31.3	35.2	93.9
	PhD	13	5.4	6.1	100.0
	Total	213	88.8	100.0	
Missing	System	27	11.3		
Total		240	100.0		

The demographic tables detail the composition of the sample, including age, gender, education, and income distributions. These tables are crucial for understanding the representativeness of the sample and provide context for interpreting the findings. They highlight potential biases, such as overrepresentation of certain education or income levels, and ensure transparency in the demographic profile of the participants.

**2. Descriptive Statistics**

**Descriptive Statistics**

Dependent Variable: TotalIndex

What is your gender?	Group assignment	Agegroup	Mean	Std. Deviation	N
Male	1.00	1.00	2.2500	.98907	24
		2.00	2.4286	.97590	7
		3.00	1.0000	.	1
		4.00	3.0000	.	1
		Total	2.2727	.97701	33
	2.00	1.00	2.1111	1.12090	27
		2.00	2.8333	.98319	6
		3.00	2.5000	2.12132	2
		4.00	3.0000	1.41421	2
		Total	2.2973	1.15145	37
	3.00	1.00	2.1053	1.28646	19
		2.00	2.4286	.97590	7
		3.00	3.0000	1.41421	4
		4.00	4.0000	.	1
		Total	2.3548	1.25295	31

	Total	1.00	2.1571	1.11167	70	
		2.00	2.5500	.94451	20	
		3.00	2.5714	1.51186	7	
		4.00	3.2500	.95743	4	
	Total		2.3069	1.12020	101	
Female	1.00	1.00	2.2308	1.17670	26	
		2.00	3.0000	1.67332	6	
		3.00	4.0000	.00000	2	
		4.00	3.3333	1.15470	3	
	Total		2.5405	1.30373	37	
	2.00	1.00	2.4583	1.25036	24	
		2.00	2.7500	.50000	4	
		3.00	3.0000	.	1	
		4.00	2.2222	.83333	9	
	Total		2.4474	1.08297	38	
	3.00	1.00	2.3125	1.13835	16	
		2.00	2.6000	.89443	5	
		3.00	3.0000	.00000	3	
		4.00	3.0000	.81650	4	
	Total		2.5357	.99934	28	
	Non-binary / third gender	Total	1.00	2.3333	1.18105	66
2.00			2.8000	1.14642	15	
3.00			3.3333	.51640	6	
4.00			2.6250	.95743	16	
Total			2.5049	1.13650	103	
1.00		2.00	1.0000	.	1	
		Total		1.0000	.	1
2.00		1.00	.0000	.	1	
		Total		.0000	.	1
3.00		4.00	3.0000	.	1	
		Total		3.0000	.	1
Total		1.00	.0000	.	1	
		2.00	1.0000	.	1	
		4.00	3.0000	.	1	
		Total		1.3333	1.52753	3
Prefer not to say		3.00	1.00	1.0000	.	1
	Total			1.0000	.	1
Total	1.00	Total		1.0000	.	1
		Total		1.0000	.	1
		2.00	2.2400	1.07968	50	
		3.00	2.5714	1.34246	14	
		4.00	3.0000	1.73205	3	
		4.00	3.2500	.95743	4	

		Total	2.3944	1.16471	71
	2.00	1.00	2.2308	1.21454	52
		2.00	2.8000	.78881	10
		3.00	2.6667	1.52753	3
		4.00	2.3636	.92442	11
		Total	2.3421	1.13787	76
	3.00	1.00	2.1667	1.20712	36
		2.00	2.5000	.90453	12
		3.00	3.0000	1.00000	7
		4.00	3.1667	.75277	6
		Total	2.4262	1.13224	61
	Total	1.00	2.2174	1.15726	138
		2.00	2.6111	1.04957	36
		3.00	2.9231	1.18754	13
		4.00	2.7619	.94365	21
		Total	2.3846	1.14045	208

This table examines patterns in sustainable choices (TotalIndex) across demographic and experimental group categories, providing detailed insights into how different participant characteristics influence decision-making. The Agegroup variable was created by recoding age into distinct ranges (1: 14–25; 2: 26–35; 3: 36–50; 4: 51+) to make the analysis more interpretable. This approach facilitates comparisons between specific life stages and highlights trends that might otherwise be obscured by treating age as a continuous variable.

The table's purpose is twofold: first, to identify trends in sustainable choices across different groups, such as younger versus older participants or males versus females, and second, to examine the impact of experimental manipulations (control, short-term framing, long-term framing) on these choices. By linking demographic categories to experimental conditions, the table offers initial insights into how temporal framing interacts with participant characteristics, justifying their inclusion in subsequent statistical analyses.

### 3. Reliability Analysis

#### 3.1 Reliability Analysis Cronbach's Alpha Values for Health Consciousness

---

<b>Case Processing Summary</b>			
		N	%
Cases	Valid	213	88.8
	Excluded <sup>a</sup>	27	11.3
	Total	240	100.0

---

a. Listwise deletion based on all variables in the procedure.

---

---

<b>Reliability Statistics</b>	
Cronbach's Alpha	N of Items
.851	4

---

#### 3.2 Reliability Analysis Cronbach's Alpha Values for Green Consumption Scales

---

<b>Case Processing Summary</b>			
		N	%
Cases	Valid	206	85.8
	Excluded <sup>a</sup>	34	14.2
	Total	240	100.0

---

a. Listwise deletion based on all variables in the procedure.

---

---

<b>Reliability Statistics</b>	
Cronbach's Alpha	N of Items
.896	6

---

These tables assess the reliability of the scales used to measure Health Consciousness and Green Consumption Awareness, ensuring their internal consistency and validity for subsequent analysis.

#### 4. Levene's Test for Homogeneity of Variances

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**Levene's Test of Equality of Error Variances<sup>a</sup>**

Dependent Variable: TotalIndex

F	df1	df2	Sig.
1.298	27	180	.161

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.  
a. Design: Intercept + Gender \* Group + Group \* Agegroup

---

This table presents the results of Levene's Test, which examines whether the variances in sustainable choices (TotalIndex) are equal across the experimental groups. The assumption of homogeneity of variances is a prerequisite for conducting ANOVA, and the results here confirm that this assumption is met ( $p > .05$ ).

#### 5. One-Way ANOVA Results

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**Tests of Between-Subjects Effects**

Dependent Variable: TotalIndex

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	27.865 <sup>a</sup>	18	1.548	1.212	.255	.103
Intercept	94.122	1	94.122	73.702	<.001	.281
Gender * Group	10.809	7	1.544	1.209	.300	.043
Group *	15.555	9	1.728	1.353	.212	.061
Agegroup						
Error	241.366	189	1.277			
Total	1452.000	208				
Corrected Total	269.231	207				

a. R Squared = .103 (Adjusted R Squared = .018)

---

This table summarizes the results of the one-way ANOVA, which tests for differences in sustainable choices (TotalIndex) across the three experimental groups: control, short-term framing, and long-term framing. The F-statistic and associated p-value determine whether the framing conditions significantly impacted sustainable choices. This analysis directly

addresses the core research question about the effect of temporal framing, providing foundational evidence for subsequent pairwise comparisons.

### 6. Post-Hoc Tukey HSD Test:

<b>Multiple Comparisons</b>							
Dependent Variable: TotalIndex							
Tukey HSD							
(I) Group assignment	(J) Group assignment	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval		
					Lower Bound	Upper Bound	
1.00	2.00	.03081	.17630	.983	-.3850	.4466	
	3.00	-.08824	.18495	.882	-.5245	.3480	
2.00	1.00	-.03081	.17630	.983	-.4466	.3850	
	3.00	-.11905	.18545	.797	-.5564	.3184	
3.00	1.00	.08824	.18495	.882	-.3480	.5245	
	2.00	.11905	.18545	.797	-.3184	.5564	

This table details the results of post-hoc Tukey HSD tests, which identify specific pairwise differences between the experimental groups. These comparisons reveal whether short-term or long-term framing conditions differ significantly from the control group or each other in terms of their impact on sustainable choices.

### 7. Interaction Effects (Two-Way ANOVA)

<b>Tests of Between-Subjects Effects</b>						
Dependent Variable: TotalIndex						
Source	Type III Sum of Squares	df	Mean Square	F	Sig.	
Corrected Model	15.221 <sup>a</sup>	4	3.805	3.069	.017	
Intercept	1219.672	1	1219.672	983.838	<.001	
HealthConscMeacent	.673	1	.673	.543	.462	
GroupxHealthConsc	.352	1	.352	.284	.595	
Group	.255	2	.128	.103	.902	
Error	257.859	208	1.240			
Total	1499.000	213				
Corrected Total	273.080	212				

---

a. R Squared = .056 (Adjusted R Squared = .038)

---

This table evaluates the main effect of Health Consciousness and its interaction with group assignment on sustainable choices (TotalIndex). The results show that neither Health Consciousness nor its interaction with Group Assignment significantly influences sustainable choices, indicating no moderating role of Health Consciousness in this context.

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**Tests of Between-Subjects Effects**

Dependent Variable: TotalIndex

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	37.960 <sup>a</sup>	4	9.490	8.555	<.001
Intercept	1169.882	1	1169.882	1054.597	<.001
GreenConsMeacent	4.405	1	4.405	3.971	.048
GroupxGreenCons	.163	1	.163	.147	.702
Group	1.487	2	.744	.670	.513
Error	222.973	201	1.109		
Total	1436.000	206			
Corrected Total	260.932	205			

---

a. R Squared = .145 (Adjusted R Squared = .128)

---

This table evaluates the main effect of Green Consumption Awareness and its interaction with group assignment on sustainable choices (TotalIndex). While the main effect is significant, the interaction effect is not, indicating that green consumption awareness influences choices independently of group assignment.

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**Tests of Between-Subjects Effects**

Dependent Variable: TotalIndex

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	27.865 <sup>a</sup>	18	1.548	1.212	.255	.103
Intercept	94.122	1	94.122	73.702	<.001	.281
Gender * Group	10.809	7	1.544	1.209	.300	.043

Group *	15.555	9	1.728	1.353	.212	.061
Agegroup						
Error	241.366	189	1.277			
Total	1452.000	208				
Corrected Total	269.231	207				

a. R Squared = .103 (Adjusted R Squared = .018)

This table evaluates the interaction effects of Gender × Group Assignment and Age Group × Group Assignment on sustainable choices (TotalIndex). The results indicate that neither gender nor age group significantly moderates the effect of group assignment on sustainable choices, as the interaction effects are not statistically significant.

## 8. Regression Analysis

### Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.442 <sup>a</sup>	.195	.158	1.04120

a. Predictors: (Constant), What is your income?, What is your gender?, HealthConscMeacent, Group assignment, What is the highest level of education you have completed?, GreenConsMeacent, Agegroup, GroupxGreenCons, GroupxHealthConsc

### ANOVA<sup>a</sup>

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	50.799	9	5.644	5.206	<.001 <sup>b</sup>
	Residual	209.231	193	1.084		
	Total	260.030	202			

a. Dependent Variable: TotalIndex

b. Predictors: (Constant), What is your income?, What is your gender?, HealthConscMeacent, Group assignment, What is the highest level of education you have completed?, GreenConsMeacent, Agegroup, GroupxGreenCons, GroupxHealthConsc

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	2.070	.383		5.402	<.001		
Group assignment	-.025	.094	-.017	-.263	.793	.953	1.050
HealthConscMeancent	.235	.256	.178	.917	.360	.110	9.068
GreenConsMeancent	.504	.240	.364	2.103	.037	.139	7.176
GroupxHealthConsc	-.050	.127	-.078	-.397	.692	.107	9.322
GroupxGreenCons	-.007	.117	-.010	-.056	.956	.133	7.536
Agegroup	.145	.090	.123	1.603	.111	.706	1.416
What is your gender?	-.094	.138	-.045	-.677	.499	.936	1.069
What is the highest level of education you have completed?	.084	.106	.057	.797	.427	.810	1.234
What is your income?	.033	.058	.043	.560	.576	.714	1.401

a. Dependent Variable: TotalIndex

This table summarizes the results of a regression analysis that evaluates the combined effects of temporal framing, health consciousness, and green consumption awareness on sustainable choices. It also includes demographic factors, such as age and income, to account for their influence, along with interaction effects.

**9. Descriptive Analysis of Moderators**

Descriptive Statistics						
	N	Minimum	Maximum	Mean	Std. Deviation	
HealthConscAverage	213	1.00	5.00	3.7383	.87138	
GreenConsAverage	206	1.00	5.00	3.6117	.83549	
Valid N (listwise)	206					

This table provides an overview of the mean, standard deviation, and variability of health consciousness and green consumption awareness scores. These statistics establish the baseline characteristics of the key moderators and help contextualize their roles in the study.