

Factors Affecting Reversal of Plant-Based Meat Consumption : An Empirical Analysis

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Abstract

Purpose : This study showed how sustainable marketing, sensory perceptions, and consumer switching from plant-based to animal-based foods interacted. It examined how sustainable marketing and sensory impressions mediated psychological factors—desire, dissonance, and disillusion—on dietary choices and their impact on sustainable food practices.

Design/Methodology/Approach : The study analyzed 185 random samples over two months using partial least squares structural equation modeling (PLS-SEM).

Findings : PLS-SEM showed that sensory perceptions and sustainable marketing significantly moderated psychological variables' effect on dietary reversal. Positive sensory experiences helped plant-based diets stick since sensory impressions significantly inhibit reversion. Sustainable marketing improved sensory impressions but reduced dietary reversals. These findings showed that sensory and marketing methods were essential for dietary impact.

Limitations/Implications : Future research could examine digital marketing strategies' qualitative and long-term effects on sustainable dietary preferences across diverse cultural contexts to improve global understanding and industry application.

Practical Implications : This study helped marketers and policymakers develop methods that used sensory appeal and sustainability claims to switch consumers to more sustainable diets.

Originality/Value : The research provided a framework for focused marketing techniques that encouraged plant-based diets and improved consumer behavior in sustainable food consumption.

Keywords : plant-based meat, reversal, sustainable marketing, sensory perceptions

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Plant-based meats are becoming more popular as a sustainable alternative to animal goods. This trend emphasizes the necessity to examine food choice determinants in the context of global sustainability challenges due to environmental, health, and ethical concerns (Jallinoja et al., 2016). At the same time, plant-based diets are fashionable, but hard to stick to. Mismatched product experiences can encourage consumers to return to animal-based meals, threatening their long-term viability and acceptance (Bryant & Sanctorem, 2021). Recent studies have examined plant-based meats' sensory and ethical appeal but not how desire, dissonance, and disillusionment impact consumer behavior. Furthermore, this study analyses how psychology, sensory perceptions, and marketing affect food choices (Apostolidis & McLeay, 2019; Twine, 2018). This study

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also suggests that hedonic preferences and sustainable marketing may support plant-based diets. Specifically, it examines how sensory impressions and sustainable marketing affect food choices psychologically.

Plant-based diets are popular because of consumer interest in sustainability. This confirms growing evidence that plant-based diets are healthier and better for the environment. Recent market dynamics reveal more consumer sustainability attention, making dietary reversal significant. This study addresses the worldwide demand for sustainable food (Bryant & Sanctorem, 2021; Fiorentini et al., 2020). Understanding these mechanisms increases sustainable consumption in the face of environmental challenges (Montesdeoca et al., 2022). This study will inform plant-based diet consumer's decision-making for marketers and regulators. Understanding this research's complex sensory, psychological, and marketing interactions can encourage and promote sustainable diets (Montesdeoca et al., 2022).

Literature Review

The comprehensive examination of the intricate interplay between consumption patterns and marketing strategies in the production of plant-based meat products delved into multiple subheadings, each addressing a specific facet of this complex landscape. Additionally, the research delved into sensory perception and marketing gimmicks, highlighting the role of sensory marketing in influencing consumers' understanding and actions (Krishna, 2012).

Sensory Perception with Marketing Gimmicks

Research on perception and marketing stunts showed that sensory marketing influenced consumer psychology, advertising knowledge, assessment, and conduct. Customers tended to prefer sophisticated, multimodal sensory marketing experiences, which affected their purchases (Krishna, 2012). According to modern research, marketing alternative meat products must comprehend customers' sensory preferences to meet shifting consumer expectations (Grahl et al., 2018). This was necessary for the success of alternative meat products. Kumar and Jain (2024) utilized the theory of planned behavior to confirm that materialism and environmental concern predicted sustainable consumption. Green consumerism marketers could learn from their meta-analysis that these factors strongly influenced sustainable consumption.

Organizational learning to adapt and innovate in fast-changing marketplaces was key to modern marketing strategies (Grahl et al., 2018). Nowadays, marketing employs new advertising and sensory inputs to impact customer emotions and decisions positively. New goods focused on ethical marketing and sensory design to be appealing and sustainable (Grahl et al., 2018; Kaljonen et al., 2019). Market offerings met consumer and environmental needs using these techniques. Sustainable marketing substantially influenced consumer preference for plant-based or animal-based diets. Honest and realistic marketing language may have created a sustained desire for plant-based solutions, reducing customer disillusionment and dissonance.

Ecologically responsible diets require consumer trust and satisfaction, which could be fostered through ethical methods. According to Dsouza et al. (2024), Indian agritourism promotes sustainability, which might affect the plant-based meat industry. In line with sustainability, agritourism experiences that teach customers about sustainable agriculture and local food systems may have boosted plant-based meat sales. The plant-based meat industry needs actual green brand connotations, as noted in Khattri and Tomar's (2024) study on greenwashing in Indian packaged food. Plant-based meat marketing claims could have affected customer trust and brand loyalty as people become more environmentally conscious. Truthful environmental pledges, rather than greenwashing, build customer trust and promote plant-based diets.

Consumer Meat Eating Practices

Consumer behavior and meat consumption studies have given surprising insights into people's preferences and decisions. Research on functional specialty meat preferences was conducted by Petrescu and Petrescu-Mag (2018). The research evaluated how religion affected halal beef preferences (Jusmaliani & Nasution, 2021). Focus groups in four countries suggested the influence of media on meat intake (Happer & Wellesley, 2019). In Brazil, the “state of barbecue” highlighted that culture and geography played key roles in meat consumption and intention, including the consumption of cultured meat (Fernandes et al., 2021). This research identified mental barriers to eco-friendly acts like meat reduction and promotes healthy eating (Graves & Roelich, 2021).

Font-i-Furnols and Guerrero (2014) discovered that purchasers' tastes and perceptions of meat and meat products significantly influenced their decision-making. Similarly, a study of Portuguese beef buyers revealed important preferences (Paiva et al., 2022). A study of Indian women's meat-eating behaviors, attitudes, and preferences was also conducted by Mohan et al. (2022). Montesdeoca et al. (2022) found a correlation between food, vegetarianism, and eco-conscious shopping. The survey highlighted beef-eaters opinions. In a similar vein, Kalavadia and Debnath (2024) examined Generation Z's ice cream purchasing behavior, suggesting that young consumers' tastes and beliefs about ethical sourcing may impact their plant-based meat choices.

Sustainability in Meat-Eating Practices

Research on increasing bean intake in meat-eating societies has pros and disadvantages (Jallinoja et al., 2016). Meat's cultural relevance and relationship to unsustainable eating behaviors in households and restaurants showed its complexity (Biermann & Rau, 2020). Veganism and other sustainable diets might have helped create a more sustainable food system (Twine, 2018). A study on framing tactics to encourage healthy, environmentally friendly, low-meat diets was conducted (De Boer & Aiking, 2017). Studies have covered empowered meat consumers' and anti-consumers' views on sustainable food and labeling (Apostolidis & McLeay, 2019). Qualitative research has illuminated consumer views on meat reduction efforts (Mylan, 2018). Research on Nordic food consumption practices, including meat reduction, and their motives was conducted (Niva et al., 2014). According to a study, Norwegian consumers were prepared to decrease their meat intake for environmental sustainability (Austgulen et al., 2018). Experimental research on sustainable eating and transitions emphasizes mindfulness and speculation (Kaljonen et al., 2019). These studies informed efforts to promote sustainable diets and reduce meat consumption by revealing the elements influencing consumers' adoption of ecologically responsible diets.

Meat Reversal and Sensory Perception

Recent research has shown that customer views of meat and meat substitutes affected quality ratings. Ramanathan et al. (2020) stated that flesh-hue biochemical interactions affected post-harvest meat quality. Grahl et al. (2018) researched the sensory acceptability of sustainable meat substitutes such as soy and algae, finding that market adoption depends on customer expectations. These studies showed that improving sensory and chemical profiles enhanced beef product quality and sustainability, combining customer preferences with product creation to promote marketability and consumer enjoyment in the changing food landscape. The research showed meat quality, acceptability, and customer perception. It considered customer expectations, sensory qualities, and alternative sources to enhance the quality of meat and meat replacements and their sustainability. To explain rapid plant-based meat purchases in a stimulus–organism–response paradigm, Sen (2024) studied impulsive buying using external and situational stimuli. Interesting in-store displays and timed marketing encouraged impulsive plant-based meat purchases, especially if they promoted health and sustainability. Bash et al.'s (2024) restaurant

social media influencer study improved plant-based meat perceptions. Influencers promoted plant-based meats by showcasing taste and texture.

Reversal to Animal Meat from Plant-Based Meat

Studies explored meat-eating reversal, cultural adaptation, and adjustment in new cultures. Kim and Park (2009) studied U.S. Korean Americans' identity reversal through a new wedding ritual. They examined foreign college students' move from plant-based meat alternatives, highlighting food's cultural significance. Plant-based meats attracted health-conscious and eco-conscious consumers. Age, wealth, and education influenced buying decisions, often with a desire for healthier and more sustainable plant-based products (Alamanos et al., 2013). Understanding these consumer segments helped marketers and strategists create effective marketing strategies that highlighted plant-based meats' health and environmental benefits without making misleading claims that could disillusion and create dissonance among consumers, turning them back to traditional meats (Ali et al., 2010). Jain and Jain's (2024) study on customer willingness to pay for premium goods like Unibic Cookies revealed that hedonic preferences were vital in the plant-based meat sector. By highlighting taste and sensory satisfaction, sustainable marketing may have encouraged customers to spend more on plant-based meats.

Materials and Methods

Type of Research

Our study employs an exploratory research design, ideal for delving into the nascent interactions between sustainable marketing, sensory perceptions, and dietary choices concerning shifts from plant-based to animal-based meats. This approach allows for flexibility in uncovering new insights and patterns within consumer behavior, fostering the development of hypotheses and expanding the theoretical framework on sustainable consumer practices and marketing strategies.

Research Design

✍ **Methods of Data Collection :** Data collection was done through a survey developed on Google Forms and circulated to the respondents. Every respondent went through a research brief and a basic write-up on how his/her contribution could help the critical part of the research. A total of 185 respondents from Mumbai, Pune, Bengaluru, Chennai, and Delhi, aged between 18 and 60, participated in the online survey.

✍ **Tools Used for Data Collection :** The online Google form captured the responses from each respondent using a Likert scale method.

✍ **Sampling Technique and Sizing :** Sampling followed a random technique.

✍ **The Framework :** Further developing the relation between antecedent desire, dissonance, and disillusion with mediation from sustainable marketing and sensory perception. The impact of meat reversal is studied.

✍ **Type of Analysis :** Research evaluates using empirical analysis by mentioning the responses using the Likert scale and numeric style. The analysis is a mediation analysis to assess the impact of sustainable marketing and sensory perception on meat-eating reversal.

✍ **Software :** SPSS and PLS-SEM contribute to the empirical analysis.

- ✦ **Reliability Value** : The Cronbach's alpha of the study is very positive, 0.833, and suggests advancing the survey.
- ✦ **Period of Study** : The study occurred from January 2024 to May 2024.

Research Gaps

- ✦ Existing studies lack integration of sensory perceptions and sustainable marketing efforts with psychological drivers (desire, dissonance, disillusionment) influencing reversal to animal-based diets.
- ✦ Limited research explores how combined marketing and sensory perception factors impact consumer retention in plant-based diets.
- ✦ There is a need for a deeper understanding of how specific elements of desire, dissonance, and disillusionment modify the consumer's decision-making toward dietary choices.

Research Questions

- ✦ How do sustainable marketing and sensory perceptions mediate the relationship between psychological factors and the reversal from plant-based to animal-based diets?
- ✦ What is the role of desire, dissonance, and disillusionment in influencing consumers' shift back to animal-based diets despite sensory and marketing efforts?
- ✦ How do variations in sensory experiences impact consumers' adherence to plant-based diets within the context of different marketing strategies?

Research Objectives

- ✦ To analyze the mediating role of sustainable marketing and sensory perceptions in the relationship between psychological factors (desire, dissonance, and disillusionment) and dietary reversals.
- ✦ To identify which psychological factors most significantly deter or promote the reversal to animal-based diets.
- ✦ To determine the effectiveness of sensory perceptions in maintaining consumer commitment to plant-based diets amid varying levels of sustainable marketing.

Hypotheses

- ✦ **H1** : Sensory perceptions mediate the relationship between desire, dissonance, and disillusion in the likelihood of reversing from plant-based to animal-based meats.
- ✦ **H2** : Sustainable marketing efforts mediate the impact of desire, dissonance, and disillusion on dietary reversal, reducing the likelihood of reverting to animal-based diets.
- ✦ **H3** : Higher levels of desire, dissonance, and disillusionment will increase the probability of dietary reversal, which mitigates effective and sustainable marketing and enhanced sensory perceptions.

Development of Model

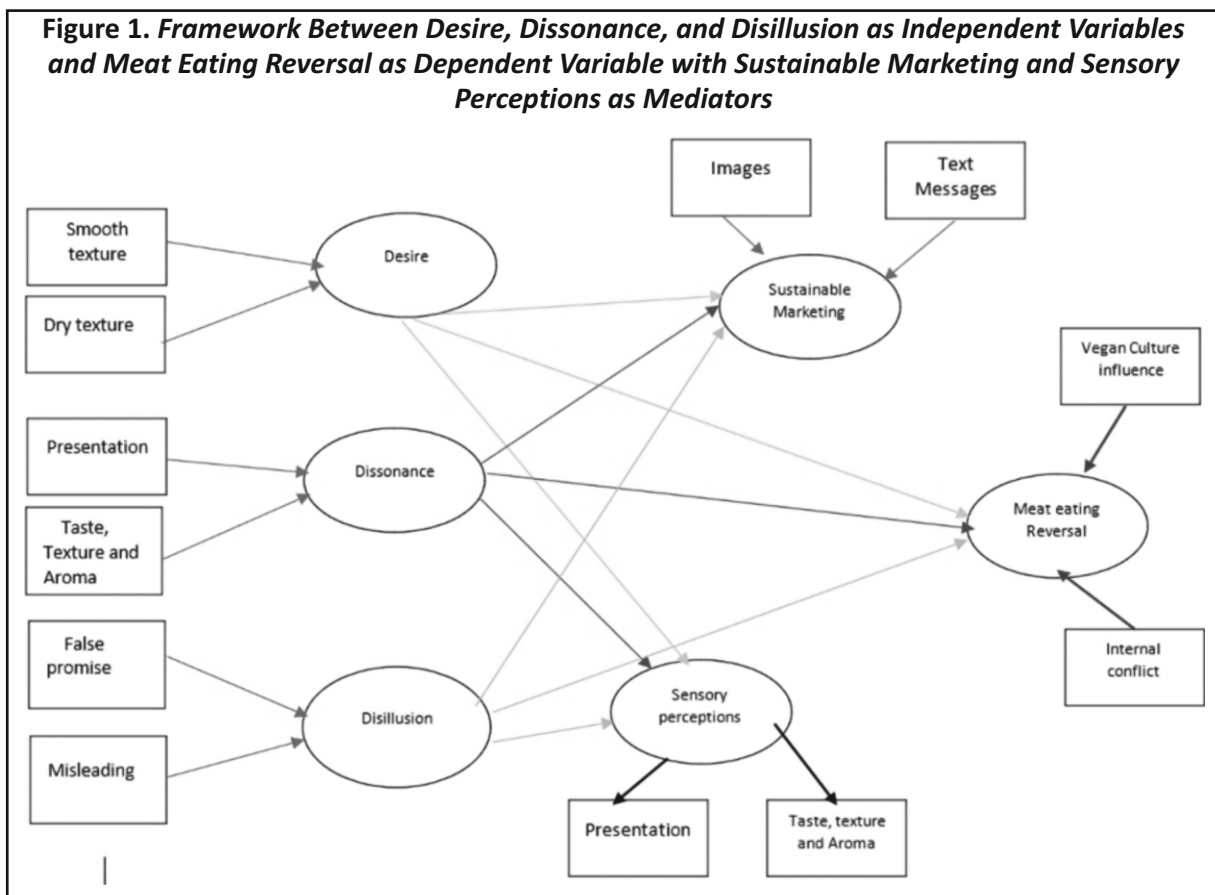
Figure 1 shows how psychological variables, marketing methods, and sensory impressions affect customers' dietary choices, notably their switch from plant-based to animal-based proteins.

IV's: Independent Variables in the Framework as Depicted Below

- ⇒ **Desire** : The *smooth texture* and *dry texture* construct measure consumer preferences and appetites for plant-based diets.
- ⇒ **Dissonance** : Dissonance, which includes *expectations* and *comparison*, refers to the cognitive conflict customers face when plant-based products fall short of animal-based ones.
- ⇒ **Disillusionment** : The component, consisting of *false promises* and *false*, addresses skepticism and disappointment caused by false marketing claims regarding plant-based foods' benefits and features.

DV's: Dependent Variables in the Framework as Depicted Below

- ⇒ **Meat Eating Reversal** : The primary outcome, demonstrating consumers' return to animal-based products, is impacted by many causes.



↳ **Mediators** : Through the use of *images* and *text messages*, sustainable marketing can influence consumers' sensory perceptions and decisions to switch to animal-based meals. This mediator should improve plant-based choices' appeal and quality.

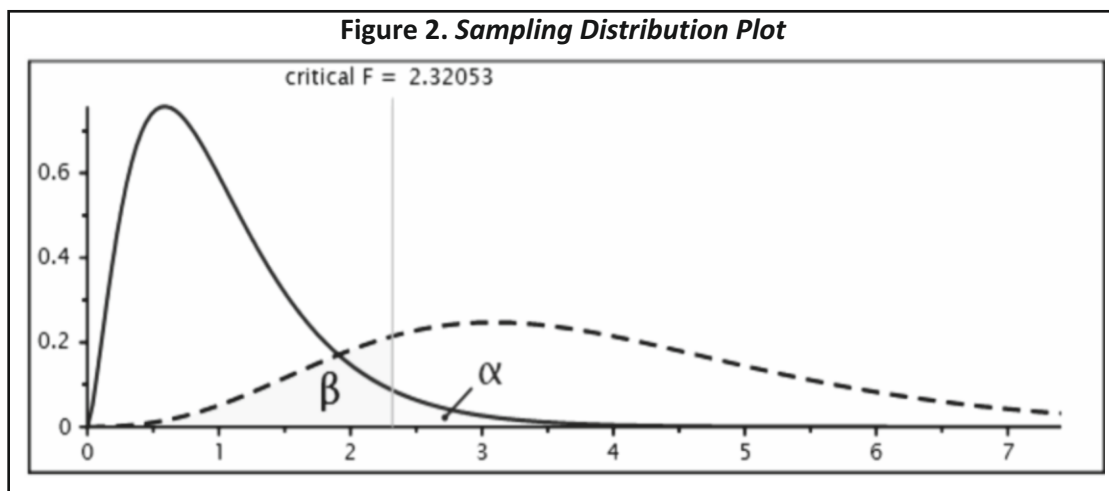
Sensory impressions, such as *presentation* and *taste, texture, and aroma*, play a vital role in converting plant-based foods into customer satisfaction and adherence to plant-based diets.

Theory Implications

The theory shows how psychology and marketing affect plant-based diet adoption. To manage dietary reversals, it emphasizes the need to understand how each component affects food choices and address both interior reasons and external views. The model incorporates psychological motivations, sensory experiences, and marketing methods to explain dietary behavior, making it theoretically significant. This approach provides a comprehensive framework for evaluating how multiple factors affect consumer eating patterns, providing a solid platform for empirical testing and validation in future research.

Sampling

The analysis employs a multiple linear regression with a fixed model, as shown in Figure 2, where the independent variables' influence on the dependent variable is tested for significance. The sample size is set to 92 based on an *a priori* power analysis, which assumes an effect size (f^2) of 0.15, considered medium per Cohen's classification, with an alpha error probability of 0.05 and a beta error probability of 0.2, ensuring an 80% power to detect effects. The regression model uses five predictors, resulting in a noncentrality parameter (λ) of 13.800 and a critical F -value of 2.3205. The resulting power of the test is 0.8041921, indicating that the model has adequate power to detect the specified effect size under the given conditions with a minimum sample size of 92.



Empirical Analysis and Results

Age and Demographics of the Sample

The data shows the age distribution of 185 research participants, categorized into three groups: 18–30, 30–45, and 45–60. The most prevalent age group in the sample is 18–30, comprising of 64.3% of the individuals. The second-

Table 1. Age Details

		Age			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	10	119	64.3	64.3	64.3
	11	50	27.0	27.0	91.4
	12	16	8.6	8.6	100.0
	Total	185	100.0	100.0	

largest age group is 30–45, with 27.0% of participants. Finally, 8.6% of the participants were 45–60 years old, as depicted in Table 1. According to these findings, the majority of study participants were in the 18–30 age group. Assessing the sample's representativeness and drawing population implications requires understanding the age distribution. Random sampling ensured fairness and impartiality in selecting the participants. The data collection period, spanning from January to May 2024, ensured comprehensive coverage and minimized temporal biases.

Reliability of the Data

Table 2 depicts reliability statistics for a survey, with Cronbach's alpha at 0.833, indicating good internal consistency among the 14 standardized items used in the study. A high Cronbach's alpha suggests that the survey items are well-correlated, providing reliable measures for the studied constructs.

Table 2. Reliability Analysis

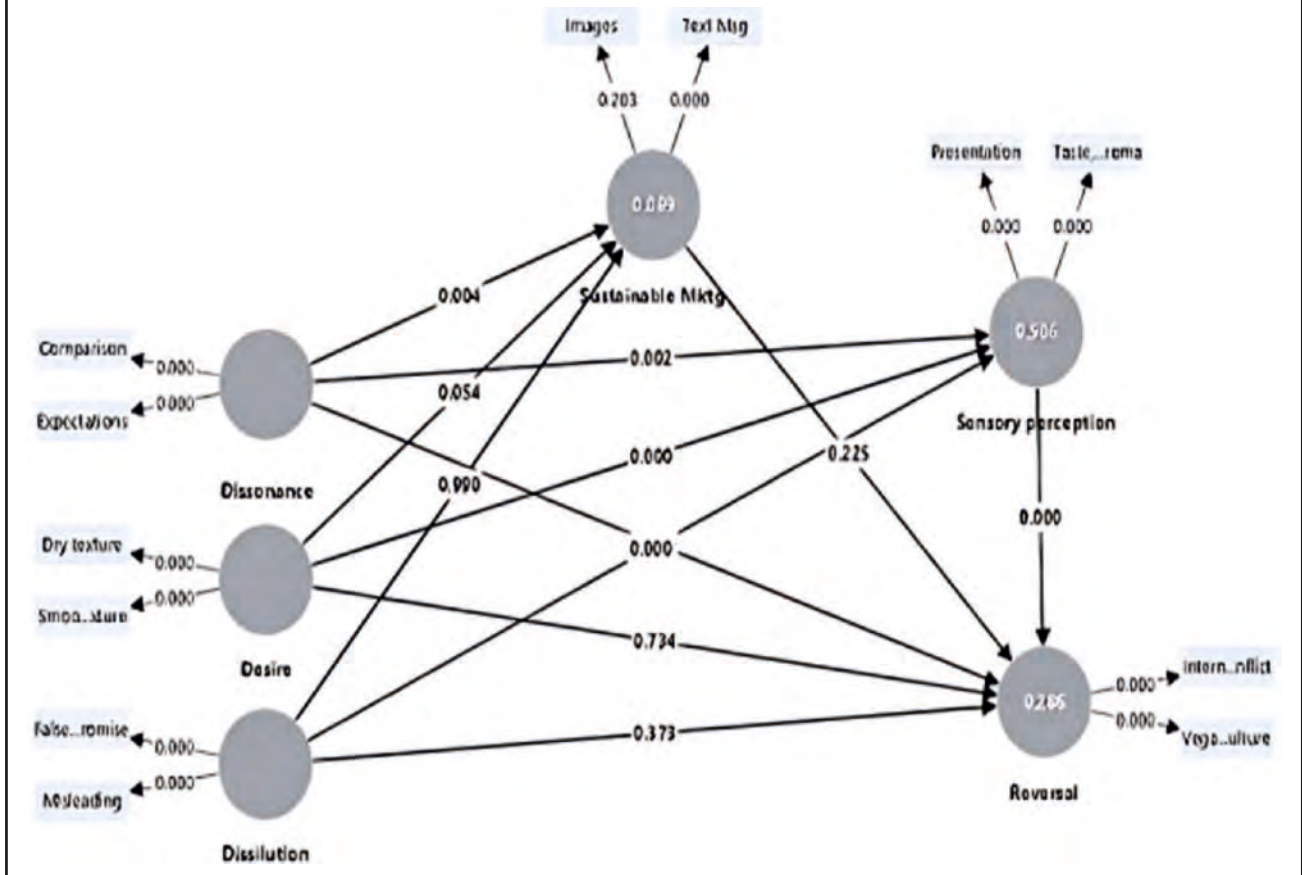
Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items
0.833	0.790	14

Partial Least Squares

The structural equation model depicted in Figure 3 shows how many structures affect the switch from plant-based to animal-based meats. This approach emphasizes sustainable marketing, sensory perception, and psychological elements like desire, dissonance, and disillusionment. Sustainable marketing improves sensory impressions with a coefficient of 0.089 in both images and text messages. This suggests that effective, sustainable marketing can improve plant-based meats' sensory experiences. However, coefficients near zero indicate that sustainable marketing has a minimal direct effect on the reversal choice.

The coefficient of 0.586 for sensory perception suggests that favorable sensory experiences with plant-based diets reduce the likelihood of consumers reverting to animal products, and it also shows the importance of sensory quality in keeping customers on plant-based diets. Psychological elements, like as desire, discord, and disappointment, also matter. Desire, dehydrated texture, has a high adverse effect on reversal (coefficient of -0.734), suggesting that a strong preference for plant-based diets can inhibit reversion to animal products. Expectations have a value of 0.054; however, false promise and misleading have coefficients of 0.373 and 0.000, respectively, demonstrating that disappointment affects eating decisions differently.

Figure 3. Structural Equation Modeling



Outer Loadings

Table 3's SEM outer loadings demonstrate a significant latent component-observed variable link. The high loadings suggest a considerable association, supporting the validity of the model construct. Smooth and dry textures have desired construct loadings >0.95, with p -values of 0.000. The incredibly high t - statistics demonstrate the dependability.

✧ False promise and misleading have loadings over 0.93, indicating disappointment. They fit the model well with high loadings, low p -values, and substantial t -statistics.

✧ Comparisons and expectations capture dissonance. Comparison has a 0.854 dissonance loading, and expectations have a 0.924 loading. Comparison is more changeable, but both are important.

✧ Reverse construct indicators are near-perfect with vegan culture and 0.98 internal confidence loadings. Towering t -statistics are reliable and significant.

✧ Presentation, taste, texture, and scent predict 0.886 and 0.920 loadings. Significant p -values model-fit and show statistical significance.

✧ Effective, sustainable marketing metrics vary. Images may not be credible indicators in this model due to their 0.452 loading and 0.203 p -value. Text messages have a varied standard deviation but a statistically significant loading of 0.984.

Table 3. Outer Loadings

	Original Sample (<i>O</i>)	Sample Mean (<i>M</i>)	Standard Deviation (<i>STDEV</i>)	<i>t</i> -statistics ($ O/STDEV $)	<i>p</i> -values
Comparison <– Dissonance	0.854	0.851	0.037	22.969	0.000*
Dry Texture <– Desire	0.960	0.959	0.009	106.417	0.000*
Expectations <– Dissonance	0.924	0.924	0.013	68.588	0.000*
False Promise <– Disillusion	0.934	0.933	0.015	61.321	0.000*
Images <– Sustainable Mktg	0.452	0.446	0.355	1.272	0.203**
Internal Conflict <– Reversal	0.979	0.979	0.005	204.089	0.000*
Misleading <– Disillusion	0.954	0.953	0.008	113.981	0.000*
Presentation <– Sensory Perception	0.886	0.884	0.026	33.688	0.000*
Smooth Texture <– Desire	0.963	0.963	0.008	123.062	0.000*
Taste, Texture, Aroma <– Sensory Perception	0.920	0.920	0.011	82.226	0.000*
Text Msg <– Sustainable Mktg	0.984	0.866	0.267	3.679	0.000*
Vegan Culture <– Reversal	0.977	0.977	0.005	183.588	0.000*

Note. * denotes that the values are statistically significant, while ** denotes that the value is not statistically significant.

Table 4. Total Indirect Effect

	Original Sample (<i>O</i>)	Sample Mean (<i>M</i>)	Standard Deviation (<i>STDEV</i>)	<i>t</i> -statistics ($ O/STDEV $)	<i>p</i> -values
Desire → Reversal	0.201	0.187	0.064	3.123	0.002*
Disillusion → Reversal	0.124	0.120	0.043	2.878	0.004*
Dissonance → Reversal	0.044	0.045	0.061	0.721	0.471**

Note. * denotes that the values are statistically significant, while ** denotes that the value is not statistically significant.

Total Indirect Effect

The total indirect effects in Table 4 show how desire, disillusion, and dissonance mediate reversal in the model. Notably, desire has a considerable impact with an initial sample effect size of 0.201, a sample mean of 0.187, a robust *t*-statistic of 3.123, and a significant *p*-value of 0.002. Desire indirectly drives reversal, suggesting that heightened desire increases the inclination to revert to past behaviors or decisions.

Despite being less significant than desire, disillusion has an impact size of 0.124 in the original sample and 0.120 in the sample mean. A *t*-statistic of 2.878 and *p*-value of 0.004 indicate its considerable but lower significance in mediating reversal compared to desire.

Dissonance appears not to affect reversal. The effect sizes are small at 0.044 and 0.045 for the original and mean samples, with a *t*-statistic of 0.721 and a non-significant *p*-value of 0.471. Dissonance does not significantly affect reversal, suggesting that unmet expectations may not strongly influence reversion.

Total Direct Effect

The overall impacts in Table 5 show how psychological factors affect reversal, sensory perception, and sustainable marketing in the context of sustainable food consumer behavior.

Table 5. Total Direct Effect

	Original Sample (<i>O</i>)	Sample Mean (<i>M</i>)	Standard Deviation (STDEV)	t-statistics (<i>O</i> /STDEV)	p-values
Desire → Reversal	0.159	0.156	0.113	1.414	0.157**
Desire → Sensory Perception	0.378	0.376	0.085	4.447	0.000*
Desire → Sustainable Mktg	-0.424	-0.378	0.220	1.927	0.054**
Disillusion → Reversal	0.196	0.196	0.083	2.368	0.018*
Disillusion → Sensory Perception	0.309	0.310	0.064	4.817	0.000*
Disillusion → Sustainable Mktg	0.001	-0.000	0.101	0.012	0.990**
Dissonance → Reversal	0.184	0.188	0.105	1.757	0.079**
Dissonance → Sensory Perception	0.226	0.227	0.072	3.149	0.002*
Dissonance → Sustainable Mktg	0.393	0.363	0.135	2.901	0.004*
Sensory perception → Reversal	0.400	0.393	0.099	4.024	0.000*
Sustainable Mktg → Reversal	-0.118	-0.123	0.097	1.214	0.225**

Note. * denotes that the values are statistically significant, while ** denotes that the value is not statistically significant.

Desire has little direct effect on reversal ($p = 0.157$). However, a robust t -statistic of 4.447 and a p -value < 0.0001 demonstrate that it improves sensory perception. It means increased desire improves product sensory experiences. Desire negatively affects sustainability marketing, nearly reaching statistical significance, suggesting increased desire may restrict its effectiveness.

Statistics show that disillusion increases reversion, suggesting customers may return to old habits. Disillusion, like desire, enhances product sensory perception. It does not statistically affect sustainable marketing. Dissonance moderately improves reversal but not significantly. Dissonance strongly affects sensory perception and sustainable marketing, suggesting it can improve sensory awareness and sustainability. Sensory perception and sustainable marketing affect reversal. Positive sensory experiences substantially dissuade reversion. Sustainable marketing has a negative but non-significant effect on reversal, suggesting that sustainability activities may discourage it.

Model Fit

The standardized root mean square residual (SRMR) values for both the saturated and estimated models indicate a good fit, as shown in Table 6, with all values below the 0.08 threshold, suggesting the model reproduces the observed data well. The original sample values are close to 0.075 and 0.076, respectively, indicating acceptable fits. The sample mean values at 0.044 and 0.045, along with narrow confidence intervals, confirm the model's robustness and consistency across different samples or conditions.

Table 6. Standardized Root Mean Square Residual

	Original Sample (<i>O</i>)	Sample Mean (<i>M</i>)	95%	99%
Saturated model	0.075	0.044	0.055	0.064
Estimated model	0.076	0.045	0.056	0.065

Note. The bold values are within acceptable limits but below the threshold of 0.8.

Table 7. Discrepancy by Unweighted Least Squares

	Original Sample (<i>O</i>)	Sample Mean (<i>M</i>)	95%	99%
Saturated model	0.442	0.156	0.238	0.318
Estimated model	0.455	0.161	0.248	0.328

Note. The bold values are within acceptable limits but below the threshold of 0.5.

Table 8. Geodesic Distance

	Original Sample (<i>O</i>)	Sample Mean (<i>M</i>)	95%	99%
Saturated Model	0.315	0.297	0.324	0.338
Estimated Model	0.302	NA	0.352	0.417

Note. The bold values are within acceptable limits of 0.5.

The d_{ULS} values for the saturated and estimated models are within acceptable ranges, indicating a good model fit, as shown in Table 7. The original sample values for the saturated and estimated models are 0.442 and 0.455, respectively, well below the commonly accepted thresholds, demonstrating a reliable model configuration. The sample mean values are also reasonably low at 0.156 and 0.161, confirming model consistency. The 95% and 99% confidence intervals are narrow, supporting the model's stability across different samples or testing conditions. The original sample (*O*) values, as shown in bold in Table 7, are within acceptable limits. They are less than the threshold of 0.5 for the original sample, but still, the gap is less.

The d_G values show that the model maintains adequate fit and robustness, as shown in Table 8. For the saturated model, the original sample value is 0.315, with the sample mean at 0.297, indicating good fit consistency. The 95% and 99% confidence intervals are closely grouped between 0.324 and 0.338, affirming model stability. The estimated model presents a slightly improved original sample value at 0.302. Although the sample mean isn't available, the 95% and 99% confidence intervals widen slightly to 0.352 and 0.417, suggesting a slightly less stable but acceptable fit under varying conditions or sample variations. Hence, the bold values in the originality sample (*O*) show a stable model.

Discussion and Conclusion

The study examines plant-based meat consumer behavior using psychological aspects, sustainable marketing, and sensory perceptions. This study joins a growing corpus of research on dietary preferences for sustainable and ethically produced food.

➤ **Framework Development :** After a thorough literature assessment, the model identifies desire, dissonance, and disillusionment as the psychological drivers of consumer reversion from plant-based to animal-based meals. Various factors influence meat-eating reversal, the dependent variable (DV). Sustainable marketing and sensory perceptions mediate psychological factors on reversal.

Results of Hypotheses

➤ **H1. Sensory Perceptions as Mediators.** SEM analysis reveals a significant mediation impact of sensory perceptions ($p < 0.001$), indicating a substantial role. Improved sensory attributes, such as taste and texture,

significantly reduce psychological discomforts like dissonance and disillusion, reducing the likelihood of dietary reversal (path coefficient = 0.226, $p = 0.002$ and 0.309, $p < 0.001$). Hence, H1 is accepted.

➤ **H2. Sustainable Marketing Impact.** SEM research shows a mediation route coefficient of 0.089 for sustainable marketing's sensory perceptions, indirectly impacting nutrition. Despite minor direct effects on reversal (path coefficient = -0.118 , $p > 0.05$), sustainable marketing significantly improves customer perceptions and mitigates psychological consequences. It reduces animal-based diet reversion. Hence, H2 is accepted.

➤ **H3. Psychological Factors.** Research indicates that psychological factors individually increase reversal probabilities (desire, dissonance, and disillusionment) (p -values < 0.05), but effective marketing (path coefficient for marketing's impact on sensory perceptions = 0.378, $p < 0.001$) and sensory improvements significantly reduce this likelihood. Sensory impressions significantly reduce reversal (path coefficient = -0.400 , $p < 0.001$), indicating successful mitigation. Hence, H3 is accepted.

This study highlights the intricacy of consumer decision-making regarding plant-based diets and how numerous factors affect them. The study fills gaps by integrating sensory impressions, marketing, and psychological aspects to provide actionable insights into how to continue consumer movements toward more sustainable diets. These findings will enrich consumer behavior and food sustainability literature, providing a solid foundation for future study, marketing, and product development.

Managerial Implications

Marketing that is environmentally responsible and sensory impressions have a significant role in influencing customer decisions regarding meat reversal. Inaccurate information may lead to disillusionment and dissonance, which in turn pushes customers back to eating meat despite early switches to plant-based diets. Therefore, it is essential that marketing be both transparent and factual. Enhancing sensory appeal and putting an emphasis on accurate communication are two things that are necessary for marketers and strategists. It is possible to develop customer trust and foster a long-lasting demand for plant-based diets by accurately matching marketing messaging with the true sensory attributes of these foods. The fact that this strategic honesty complies with ethical norms and promotes sustainable consumption habits makes it an essential practice for maintaining the long-term retention of consumers and the satisfaction of their allegiance to the brand.

This research contributes to the body of knowledge by shedding light on the ways in which sustainable marketing and sensory perceptions directly affect consumer behavior with regard to plant-based diets. Further, this contrasts with prior studies, which may not have properly integrated these aspects with consumer psychology. It differentiates itself by concentrating on the psychological influence of marketing correctness and sensory experience, therefore filling in the gaps in our understanding of the reasons why consumers would return to eating beef. This approach emphasizes the importance of truthful marketing. It contributes to the discussion on ethical marketing practices by highlighting the role that these activities play in promoting sustainable consumer habits and changes in diet over the long run. One of the most significant contributions that this innovative approach makes to the academic literature on sustainable marketing and customer retention methods is that it is original.

Limitations of the Study and Scope for Further Research

This study suggests several future research avenues. The following analysis could examine the long-term effects of sustainable marketing and sensory impressions on customer behavior in various global markets. Furthermore, this would help us understand these processes across cultures. Future research may examine how digital

marketing technologies affect customer perceptions and behaviors, and this will show how digital platforms can encourage sustainable diets. This study establishes and aligns these directions with evolving market trends and customer preferences, enriching both scholarly literature and industrial practices.

Authors' Contribution

Kunal Gadkari conceived the idea and developed the quantitative design for the empirical study. Dr. Tripti Dhote filtered research papers based on keywords and generated codes relevant to the study design. Kunal Gadkari supervised the analytical methods and oversaw the study. The survey is in the English language. Kunal Gadkari performed the numerical computations using SPSS 20.0 and PLS-SEM and wrote the manuscript in consultation with Dr. Tripti Dhote.

Conflict of Interest

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial or non-financial interest in the subject matter or materials discussed in this manuscript.

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