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Abstract

This study aimed to determine the effect of consumer behavior on the acceptability of pasta made from blended finger millet flour, guided by Consumer Perception Theory. Consumer acceptance was evaluated among 356 respondents drawn from a target population of 15,840 customers, purposively sampled across 8 restaurants in Nairobi. Data on consumer acceptance was collected through questionnaires and analyzed using multiple linear regression. The analysis revealed that consumer behaviour attributes of finger millet flour pasta (FMFP) significantly explained 79.9% of the variation in pasta acceptability. Results showed that contextual and intrinsic attributes had a significant impact on consumer acceptability, while psychological attributes had insignificant effect consumer acceptability. Thus, the study concludes that consumer behavior, particularly contextual and intrinsic behaviour attributes, plays a crucial role in shaping the acceptability of finger millet pasta. These findings emphasize the importance of aligning product development and marketing strategies with the identified consumer behavior attributes to enhance acceptance. Furthermore, the study holds important policy implications, suggesting that educational programs should be supported to raise awareness of the nutritional benefits of millet, positioning it as a key component in food security and sustainable agriculture efforts. Collaborations with health professionals to conduct awareness workshops could further promote millet's role in a balanced diet.

Keywords: *Consumer Behavior, Acceptability, Pasta, Finger Millet Flour, Contextual, Intrinsic, Psychological Attributes*

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1. Introduction

In contemporary society, the demand for millet-based foods, including finger millet, has grown significantly, with consumers increasingly showing a preference for these nutritious options (Reddy & Patel, 2023; Khayeka-Wandabwa et al., 2024). Yet, consumer acceptance of new food products, especially millet-based innovations like finger millet blended pasta, remains a critical factor influencing market success (Baker et al., 2022; Lu et al., 2024). Modern consumers often exhibit food neophobia and have limited time to prepare millet-based meals, thus favouring convenient, ready-made options (Shah et al., 2024). The likelihood of acceptance of finger millet blended products hinges on specific consumer behaviour attributes, namely intrinsic factors, psychological predispositions, and contextual elements (Raimondo et al., 2024; Mazurek et al., 2024; Just & Goddard, 2023).

Consumer behaviour is all activities, actions, and decisions that people make before and during purchasing of products or services (Rondoni et al., 2020). This behaviour allows them to make decisions about food purchase decision including what the consumers need to buy. An understanding of how consumers behaves towards a product enables an understanding of how they will react or respond to a new product or service (Chakraborty and Dash, 2023). The consumer behaviour will activate consumer acceptance or preference of a given food product, purchase intention, habits, attitude, and product image (Rossi and Rivetti, 2023). Behaviour of consumer are dynamic interaction between food attributes and human feeling (Ali et al., 2021). The consumer behaviour enables food items to be marketed (Chakraborty et al., 2022). Consumer behaviour and acceptance of product is closely linked with consumer assessment of satisfaction or dissatisfaction with food products.

Acceptance of any food product is a product of their perception about the product, which is closely related to the sense of humans (Le-Anh and Nguyen-To, 2020). These senses that affect consumer acceptance of product are appearance, taste, smell/odour and texture. Food processing can utilize the organoleptic properties to evaluate product value as well as be able to connect a product to consumer perception (Kusumowardani et al., 2022). There are numerous studies concerning the organoleptic properties of food items from all sources including cereal grains such as wheat, maize, sorghum, rice, and maize (Sangamithra et al., 2016) than millets, including finger millet (Balasubramanian and Viswanathan, 2010). Data on the organolepetic attributes lack in many regions including in the Sub-Saharan Africa where there is increasing opportunity for making finger millet pasta.

In Kenya, however, the influence of these consumer behaviour attributes on the acceptance of millet-based products remains underexplored. Despite the potential for locally sourced millet pasta, there are currently no established protocols for producing finger millet-based pasta, limiting its manufacturing feasibility and hindering local production. Moreover, creating nutritionally balanced and consumer-friendly food products that align with consumer expectations and sensory preferences is a continual challenge, even for more familiar food items (Oladunjoye et al., 2021). Finger millet blended pasta presents unique challenges as an emerging product in the Kenyan market, particularly in meeting consumer demands for optimal proximate composition and desirable physical characteristics.

Accepting a new food product involves more than just fulfilling nutritional needs; it requires appealing to various consumer behavioral attributes—intrinsic, psychological, and contextual—which are closely tied to consumer acceptability of Finger millet blended pasta (Hoffmann et al., 2020). Since finger millet blended pasta is yet to be developed in Kenya,

understanding how sensory attributes impact consumer acceptance remains speculative. Therefore, comprehensive insights into these behavioral drivers are essential for successfully introducing millet-based pasta products that are both nutritionally beneficial and culturally acceptable to the Kenyan consumer market.

2. Theoretical Framework

The framework proposed by Ratchford and Andreasen (1974), as expanded by Deliza and Ares (2018), is particularly effective for analyzing consumer behavior in relation to food product acceptance, particularly for novel items like finger millet blended pasta. When new food products enter the market, consumers frequently display reluctance to try and accept them due to inherent biases, neophobia, or unfamiliarity with ingredients or processing methods (Wee et al., 2014; Feldmann & Hamm, 2015). This hesitation, especially in the context of innovative food technologies, often poses a barrier to the successful adoption of products that could contribute positively to food security, as is the case with finger millet, which is both nutrient-dense and suited to diverse agro-climatic conditions. Acceptance of such a product relies on multiple layers of consumer behavior, including intrinsic, psychological, and contextual factors. Intrinsic consumer behavior attributes encompass personal preferences linked to sensory perceptions such as taste, texture, and aroma, where consumers often rely on memory and previous food experiences to form expectations and acceptance (Tuorila & Recchia, 2014). Psychological factors, including attitudes, beliefs, and personal values about health, nutrition, and sustainability, play a crucial role in shaping the willingness to adopt a new product, as consumers may perceive millet as a "healthier" or "more sustainable" choice. Lastly, contextual behavioral attributes—such as cultural norms, social influences, and availability—shape consumer openness to trying finger millet pasta, particularly in a market like Kenya, where familiarity with millet might affect the level of acceptance. Overall, this model emphasizes how consumer acceptance of new foods is a multi-dimensional process influenced by the interaction of intrinsic sensory triggers, psychological attitudes, and contextual conditions, underscoring the importance of addressing these attributes to enhance consumer acceptability of finger millet blended pasta and similar products.

3. Review of Literature and Hypotheses Development

Recent research has delved into intrinsic consumer behaviors related to specific product attributes, shedding light on how sensory elements such as taste, appearance, and smell shape consumer attitudes and preferences (Bangsa & Schlegelmilch, 2020; Dhaliwal et al., 2020). Intrinsic behavior encompasses these sensory attributes, which directly influence consumer expectations about food items (Piqueras-Fiszman & Spence, 2014). Elements like taste, flavor, and texture are fundamental to the product's nature and cannot be changed without altering its core physical characteristics (Brečić et al., 2017). Together, these intrinsic qualities are pivotal in shaping consumers' attitudes and acceptance levels (Valero-Cases et al., 2023). Coderoni and Perito (2021) showed that food neophobia can decrease the likelihood of consumers purchasing upcycled products. Providing consumers with knowledge about a product's benefits has been shown to increase purchase intentions, particularly when comparing novel items to conventional alternatives (Bhatt et al., 2020). Given the foundational impact of intrinsic attributes, the study hypothesizes:

H1: Intrinsic consumer behaviour attributes have significant positive effect on consumer acceptability of finger millet blended pasta

Understanding the psychological behavior of consumers—particularly their attitudes, emotions, personality traits, and neophobia—is essential in gauging the acceptance of new food products, as these factors consistently shape food choices. Research by Coderoni and Perito (2021) indicates that food neophobia reduces consumers' willingness to purchase upcycled products. In contrast, increasing consumer awareness of product benefits tends to boost purchase intentions, especially when comparing novel items to traditional products (Bhatt et al., 2020). Emotions elicited through packaging also contribute significantly to product acceptance, with packaging able to evoke emotional responses that guide consumer choices (Merlo et al., 2019). Emotions like disgust and anxiety, for instance, are particularly influential in triggering food aversion or avoidance behaviors (Fox et al., 2018; Harris et al., 2019). Maratos and Staples (2015) further noted that anxiety towards unfamiliar foods leads to lower acceptance and increased rejection, particularly in children. These observations align with studies that show individuals with greater food neophobia exhibit more intense physiological responses, such as increased pulse and respiration, when presented with unfamiliar foods (Raudenbush & Capiola, 2012; Torrico et al., 2019). In cross-cultural contexts, Torrico et al. (2019) found that consumer responses vary, with Asian participants showing heightened body temperature and negative emotions toward unfamiliar foods, whereas Western participants displayed more positive reactions toward familiar foods, further illustrating the link between food neophobia and product disliking (Jaeger et al., 2022). Emotional responses during food tasting provide insight into product liking and approach-based behaviors, with repeated exposure potentially fostering greater acceptance over time. Thus, based on these findings, the study hypothesizes:

H2: Psychological consumer behaviour attributes have significant positive effect on consumer acceptability of finger millet blended pasta

Contextual factors in food related research have also received considerable attention (Mercy et al., 2023). These refer to factors such as personal, social, environmental, cultural, economic are important in food choice behaviour. Contextual factors encompass objective elements like monetary incentives, costs, regulations, public policy, and norms, along with subjectively perceived resources, which can all play a critical role in influencing consumer acceptability of food products (Baker et al., 2022). These contextual variables interact with consumer attitudes to shape food acceptability (Grimmer et al., 2015). Notably, variables such as perceived busyness, perceived wealth, and perceived power significantly impact consumer behavior, affecting environmental choices like sustainable consumption (Sadiq et al., 2023). Perceived busyness, often associated with time constraints, and perceived wealth, related to monetary resources, are instrumental in framing consumers' environmental contexts and can systematically influence food acceptance. These factors help explain why consumers with limited time and financial resources may exhibit lower levels of food acceptability for sustainable products (Steg & Vlek, 2009). For instance, the more time consumers perceive they have, the more likely they are to act in environmentally friendly ways (Grimmer et al., 2015). Research shows that consumers involved in local consumption schemes, such as negotiating prices or sourcing crops, commit significant time to these activities, emphasizing how time constraints influence environmental behaviors (Dubuisson-Quellier & Lamine, 2008). Similarly, recycling efforts, which often require additional time and effort, demonstrate how perceived time availability can impact consumer behavior (Vining & Ebreo, 1992). Likewise, perceived wealth affects the resources available for consumers to purchase certain products, as products with environmentally sustainable attributes, like local or green foods, may be costlier (Stern, 2000; Dubuisson-Quellier & Lamine, 2008). Thus, consumer acceptability of food

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products, especially those with sustainable aspects, hinges on the consumers' perceived resources, time, and financial availability. Based on these insights, the study hypothesizes.

H3: Contextual consumer behaviour attributes have significant positive effect on consumer acceptability of finger millet blended pasta

4. Methodology

Sampling

The target population for this consumer acceptance study comprised customers from eight Nairobi restaurants offering millet-based products, which consented to participate. Each restaurant had an average seating capacity of 22 customers per day. Over the three-month (90-day) study period, the estimated total customer population was calculated as 15,840, based on the formula: 8 restaurants × 22 customers/day × 90 days. The sample size, drawn from this target population, was determined using Slovin's formula (Tejada and Punzalan, 2012), resulting in a sample of 390 customers, sufficient to meet the Central Limit Theorem ($n \geq 60$). Simple random sampling was used to select participants, while proportionate sampling ensured each restaurant contributed proportionally to the sample..

Data Collection Instruments

This study used two research-administered questionnaires. The first questionnaire gathered organoleptic evaluation responses from a panel rating the consumer behaviour attributes of the finger millet pasta. The second questionnaire focused on consumer acceptance, employing a hedonic evaluation test to assess if the new pasta product met consumer expectations. Consumers rated their acceptance of the pasta on a 5-point hedonic scale (1 = "dislike extremely" to 5 = "like extremely") for the four sensory attributes. Pasta samples were presented sequentially to minimize ranking bias. Following the organoleptic evaluation, a sample of 390 consumers from eight Nairobi restaurants participated in the acceptance test. Reliability was confirmed through a Cronbach's Alpha test, with scores ≥0.70 indicating acceptable reliability (Alkhadim, 2022).

Data Analysis and model specification

The collected data was organized and edited to ensure completeness, comprehensibility, and consistency, classified and coded for analysis. The data was analyzed using Statistical Package for the Social Sciences (SPSS) version 26.0, STATISTICA 13.1 (StatSoft©, Inc. Tulsa, USA). To evaluate consumer acceptance, the normality distribution of data was tested using skweness and kurtosis. In a normally distributed data, one-way ANOVA was done (Karimova *et al.*). Multiple linear regression, Principal Component Analysis (PCA) were used to examine significant relationships among attributes. The Regression model was as follows:

$$Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \varepsilon_1$$

Where
Y is consumer acceptability of finger millet blended pasta;
β_0 = constant (coefficient of intercept);
X_1= Intrinsic consumer behaviour attributes
X_2= Psychological consumer behaviour attributes
X_3= Contextual consumer behaviour attributes,

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ε =Error Term; B_1, B_2, B_3, B_4 = regression coefficient of four variables

All assumptions of regression of linearity, normality, homoscedasticity, multicollinearity and autocorrelation were tested. Normality was tested using normal Q-Q Plot of the studentized residuals, linearity using scatter plots, homoscedasticity using Levene's test of variance, multicollinearity used Tolerance and Variance Inflation Factor (VIF) while autocorrelation used Durbin Watson.

5. Findings

This section presents results, interprets them, and discusses their findings relative to other studies done elsewhere. A total of 390 self-administered questionnaires were distributed out of which 356 were returned. This resulted in a return rate of 91.3%. The overall return rate was found to be suitable for analysis and making interpretations and conclusions for this study since return rate of 60-100% is considered adequate to validate survey based studies (Meyer *et al.*, 2022).

Descriptive statistics

Consumers who use millet based products will quite easily accept to eat food pasta made from millet (Hema *et al.*, 2022). Therefore, information concerning utilization of millet products was obtained from the consumers who use millet as their food. The frequency of use of millet based food pasta are provided in Table 1.

Table 1: Frequency of use of millet products

Attribute	Frequency	Percent	Attributes scores	Weighted score
Never	0	3.7	13	0.04
Rarely	112	17.1	183	0.51
Sometimes	184	57.6	820	2.30
Always	29	18.0	320	0.90
Total	**356**	**100**		**3.79 ± 0.83**

The most frequented hospitality establishments for purchasing millet based food products among the respondents are shown in Figure 1. Majority of the consumers frequently purchased millet based food items from restaurants (32.9%), kiosks (15.2%), cafes (15.2%) and other establishments such as inns (13.2%), hotels (12.6%) and from unidentified food vendors (11%).

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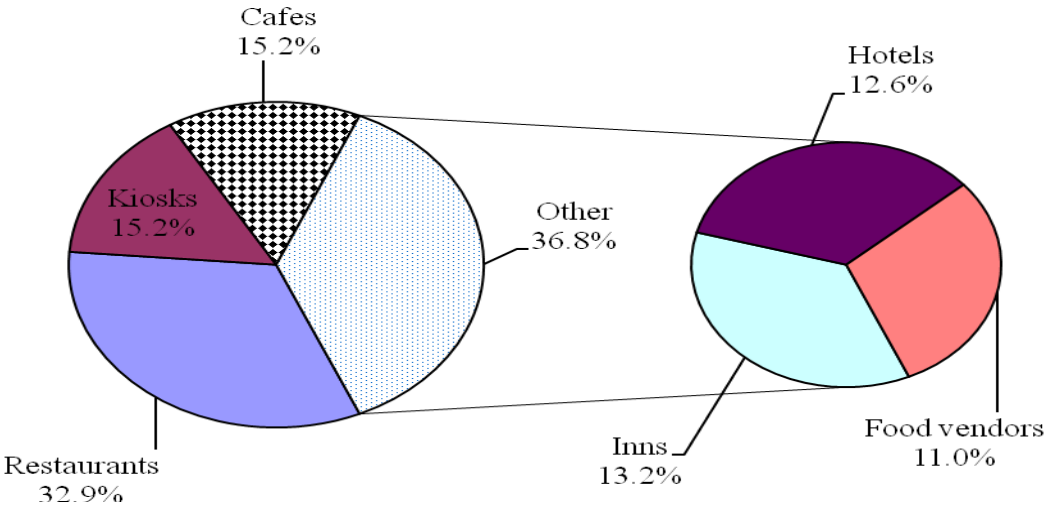

Figure 4.9: Frequented hospitality establishments for purchasing millet based food products

The frequency of purchasing pasta among the respondents is provided in Table 3. The overall mean score (**3.84 ± 0.93)** show pasta being purchased at moderate frequency among the respondents. The consumers indicate that they purchase pasta from supermarkets (93.6%) and other retail shops (6.4%).

Table 3. Frequency of purchasing pasta

Attribute	Frequency	Percent	Attributes scores	Weighted score
Never	9	2.5	9	0.03
Occasionally	17	4.8	34	0.10
Rarely	61	17.1	183	0.51
Sometimes	205	57.6	820	2.30
Always	64	18.0	320	0.90
Total	**356**	**100**		**3.84 ± 0.93**

The overall acceptability of the finger millet blended pasta was 7.24 ± 1.56 out of 9-point hedonic scale indicating high level of acceptability.. There were significant differences in the acceptability of pasta among consumers frequenting different eateries to purchase millet-based foods (Kruskall Wallis ANOVA; H = 13.453, df = 5, P = 0.0324). Customers who frequently purchased their finger millet products from restaurants had the higher rating for acceptance of finger millet pasta compared to other hospitality establishments.

The mean score (mean ± SD), skewness and kurtosis of intrinsic consumer behaviour is shown in Table 4. The overall mean score for intrinsic consumer behaviour was 3.75 ± 0.79/5.00. Skewness was 0.17 indicating more skewed towards higher score than the mean. Highest scoring attributes were good knowledge of FMP and family background (mean = 3.82 ± 0.8). Higher rating was also determined for lifestyle allows for it (3.81 ± 0.74).

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Table 4: Intrinsic behavioural attributes of finger millet blended pasta

Statement	Mean	Std. Dev	Skewness	Kurtosis
Income to afford pasta	3.62	0.80	0.288	0.45
Personal taste of the food	3.74	0.81	0.144	-0.10
Good knowledge of FMP	3.82	0.80	0.159	0.05
Lifestyle allows for it	3.81	0.74	0.086	-0.16
Family background	3.82	0.80	0.159	0.05
Overall	**3.75**	**0.79**	**0.170**	**0.06**

Response to psychological consumer behavioural attributes of finger millet blended pasta is shown in Table 5. The mean score (mean ± SD), skewness and kurtosis of intrinsic psychological consumer behavioural attributes is shown in Table 5. The overall mean score for psychological consumer behavioural attributes was **3.55 ± 0.69/5.00** showing moderate levels of psychological consumer behavioural attributes. Skewness was 0.1360 indicating more skewed towards higher score than the mean while kurtosis suggest normal distribution. The highest scoring attributes towards acceptability was positive perception about millet pasta, and personal belief in millet pasta.

Table 5: Mean Rating of Psychological Consumer Behavioural Attributes

Statement	Mean	Std. Dev	Skewness	Kurtosis
Millet pasta is good for human body	3.62	0.80	0.288	0.45
Personal belief in millet pasta	3.82	0.81	0.144	-0.10
Positive perception about millet pasta	3.84	0.83	0.159	0.05
Has motivation to consume millet pasta				
Image of Kenyan made millet pasta is good	3.72	0.74	0.086	-0.16
Overall	**3.55**	**0.69**	**0.170**	**0.06**

Response to contextual consumer behavioural attributes of finger millet blended pasta is shown in Table 6. The mean score (mean ± SD), skewness and kurtosis of contextual consumer behavioural attributes are shown in Table 4.25. The overall mean score for contextual consumer behavioural attributes was 3.71 ± 0.82/5.00. Skewness was 0.60 indicating more skewed towards higher score than the mean. Highest scoring attributes economic conditions (mean = 3.87 ± 0.61), and liking the way the food is prepared (mean = 3.92 ± 0.74) and Market conditionality (3.86 ± 0.61).

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Table 6: Mean Rating of The Contextual Consumer Behavioural Attributes

Statement	Mean	Std. Dev	Skewness	Kurtosis
Served in good dinning environment	3.52	0.70	0.278	0.35
Market conditionality	3.86	0.61	0.144	0.21
Economic conditions	3.87	0.61	0.154	0.33
High product research and innovation	3.82	0.57	0.249	0.42
Ease of availability	3.47	0.44	0.036	0.12
Overall	3.732	0.76	0.1722	0.286

Relationship between consumer behavior and acceptability of pasta

The correlation analysis in Table 7 indicates the strength and direction of relationships between various behavioral attributes and consumer acceptability of finger millet blended pasta. A strong positive correlation exists between consumer acceptability and intrinsic behavioral attributes ($r = 0.722$, $p < 0.01$), suggesting that as intrinsic motivations increase, consumer acceptance of the pasta also rises. Additionally, contextual behavioral attributes show a moderate positive correlation with consumer acceptability ($r = 0.482$, $p < 0.01$), indicating that external factors moderately impact acceptance. In contrast, psychological behavioral attributes have a weak and statistically insignificant relationship with consumer acceptability ($r = 0.084$), showing minimal influence on consumer choices for this product. These results suggest that intrinsic motivations play the most significant role in influencing consumer acceptance of finger millet blended pasta, with contextual factors also contributing but to a lesser extent.

Table 7 Correlation Analysis

	CA	PBA	IBA	CBA
Consumer acceptability of finger millet blended pasta (CA)	1			
Psychological behavioural attributes (PCBA)	0.084	1		
Intrinsic behavioural attributes (IBA)	.722**	0.113	1	
Contextual behavioural attributes (CBA)	.482**	-0.068	.274**	1

** Correlation is significant at the 0.01 level (2-tailed).

Multiple Linear Regression (hypotheses testing)

The multiple linear regression analysis in Table 8 tests three hypotheses on the effects of different behavioral attributes on consumer acceptability of finger millet blended pasta. The model's summary statistics reveal a strong fit, with an R of 0.799, an R^2 of 0.613, and an adjusted R^2 of 0.601, showing that 61.3% of the variability in consumer acceptability can be explained by these behavioral attributes. The ANOVA test confirms the model's overall significance ($F = 39.9688$, $p < 0.001$). In summary, intrinsic and contextual attributes significantly positively impact consumer acceptability of finger millet pasta, while psychological attributes do not have a significant effect. The unstandardized coefficient for intrinsic behavioral attributes is positive ($\beta = 0.285$, $p = 0.013$), supporting H1. This indicates that intrinsic factors positively and significantly influence consumer acceptability. The

coefficient for psychological attributes (β = -0.213) is negative and statistically insignificant (p = 0.227), suggesting no meaningful effect. Therefore, H2 is not supported, as psychological attributes do not significantly influence consumer acceptability. Contextual attributes show a positive and statistically significant effect (β = 0.341, p = 0.014), supporting H3 and indicating that contextual factors moderately enhance consumer acceptability.

Table 8: Multiple Linear Regression Results

	Unstandardized Coefficients		Standardized Coefficients		
	B	**Std. Error**	**Beta**	**t**	**Sig.**
(Constant)	3.085	0.397		7.771	0.000
Intrinsic behavioural attributes	0.285	0.151	0.255	1.889	0.013
Psychological behavioural attributes	-0.213	0.018	-0.043	-1.209	0.227
Contextual behavioural attributes	0.341	0.159	0.142	0.067	0.014
Model Summary Statistics					
R	0.799				
R Square	0.613				
Adjusted R Square	0.601				
ANOVA statistic for model fitness					
F	39.9688				
Sig.	.000				

a Dependent Variable: consumer acceptability of finger millet blended pasta

6. Discussion of the results

The results show that intrinsic and contextual attributes significantly influence consumer acceptability of finger millet blended pasta, while psychological attributes do not have a significant effect. This aligns with recent studies indicating that intrinsic qualities—like taste, smell, and texture—are fundamental in shaping consumer expectations and preferences. Research by Piqueras-Fiszman & Spence (2014) and Valero-Cases et al. (2023) emphasizes that intrinsic attributes influence consumer acceptability directly, as they are essential to the product's sensory experience and appeal. Since sensory elements are integral to the product itself, changes to these features could affect its core appeal. Similarly, Coderoni & Perito (2021) observed that educating consumers on product benefits positively impacts their willingness to try unfamiliar items. Thus, intrinsic attributes play a foundational role in determining consumer openness to new food items like millet-blended pasta.

The non-significant impact of psychological factors suggests that individual emotions and attitudes, while influential in certain food contexts, may not strongly drive the acceptability of this specific product. This contrasts with findings from Coderoni & Perito (2021), who showed that factors like food neophobia, anxiety, or aversion could influence consumer choices. Such attributes, as noted by Maratos & Staples (2015) and Raudenbush & Capiola (2012), might play a more prominent role in contexts involving highly unfamiliar or novel foods, where consumers exhibit stronger emotional responses.

Contextual factors are also critical, as shown by the significant effect of contextual attributes in the model. These attributes encompass social, cultural, and economic factors that interact with personal preferences to shape consumer behavior (Mercy et al., 2023). Perceived

resources, such as available time and income, often influence consumers' environmental and sustainable choices, as seen in research by Grimmer et al. (2015) and Steg & Vlek (2009). For instance, perceived time constraints may limit sustainable food choices, while perceived wealth influences the affordability of sustainably produced foods. In this study, the impact of contextual factors underscores the importance of socio-economic influences on consumer behavior, suggesting that consumer acceptability of millet-blended pasta is sensitive to broader situational elements, aligning with trends observed in food acceptability studies on sustainable consumption (Stern, 2000).

7. Conclusions

The findings indicate that consumer behavior, particularly contextual and intrinsic behaviour attributes, plays a crucial role in shaping the acceptability of finger millet pasta. Contextual factors—such as the dining environment, market conditions, economic considerations, product innovation, and ease of availability—significantly enhance consumer acceptability by creating favorable circumstances that encourage the choice of millet pasta. Intrinsic attributes, including income level, taste preference, product knowledge, lifestyle compatibility, and family background, also positively influence acceptability, closely aligning with individual and cultural influences that guide food selection. However, psychological attributes—such as beliefs about health benefits, positive perceptions, motivation, and a favorable image of Kenyan-made millet products—did not show a statistically significant impact on consumer openness and acceptance. Together, these findings underscore the importance of contextual and intrinsic factors in consumer acceptability, highlighting the need to focus on external and sensory appeal over psychological motivations. This comprehensive understanding of consumer behavior suggests that strategies emphasizing sensory appeal, market accessibility, and cultural relevance can effectively broaden the consumer base for millet-based products and support their wider market adoption.

8. Study Implications

Theoretical Implications

The findings of this study contribute to Consumer Perception Theory by illustrating how various attributes—contextual, intrinsic, and psychological—impact consumer acceptability of finger millet pasta. This theory posits that individuals interpret and assign meaning to products based on multiple factors, including sensory experiences and personal beliefs. The results highlight the need for a nuanced understanding of consumer perceptions that incorporates not only individual preferences but also broader contextual elements. For instance, the cultural associations tied to millet may significantly shape consumer attitudes and perceived value of finger millet pasta, indicating that theories of consumer perception must account for these socio-cultural factors. Furthermore, the study emphasizes the importance of integrating consumer behavior analysis into product development processes, providing a robust framework for companies to understand the complex dynamics that drive food choices.

Managerial/Practical Implications

From a managerial perspective, the insights gleaned from this study underscore the importance of tailoring product development and marketing strategies to align with the identified consumer behavioral attributes. Companies should prioritize creating favorable contextual conditions, such as enhancing the dining environment and ensuring the accessibility of millet pasta. This

can be achieved through promotional pricing, bundle deals, and innovative marketing campaigns that emphasize the unique qualities of millet pasta. Additionally, educational initiatives should be developed to inform consumers about the health benefits of millet and to dispel any misconceptions surrounding this alternative food source. By organizing tasting events and engaging with consumers through interactive content, businesses can foster a personal connection to millet pasta, thereby enhancing its acceptability. These efforts, when effectively implemented, can lead to increased consumer engagement and a larger market share for millet-based products.

Policy Implications

The findings also hold significant policy implications for promoting the acceptance of millet pasta within the food industry. Policymakers should consider supporting educational programs that raise awareness about the nutritional benefits of millet and its potential role in promoting food security and sustainable agriculture. This could involve partnerships with health professionals to conduct workshops that highlight millet's advantages, thereby reinforcing positive consumer perceptions. Additionally, policies encouraging local agricultural production of millet can enhance product availability and affordability, supporting community economies while fostering a positive image of Kenyan-made products. By collaborating with local suppliers and promoting economic support initiatives, policymakers can create a conducive environment for the growth of millet-based products, ultimately contributing to a healthier, more sustainable food system.

9. Suggestions for Future Studies

The study has provided crucial evidence on the factors influencing consumer acceptability of finger millet pasta; however, it was limited to millet. Future research should replicate this investigation using cassava as a binder, as it may offer a more cost-effective alternative to eggs while maintaining similar protein-binding properties. Additionally, studies could explore the interplay between consumer behavior and sensory attributes across various contexts, examine the impact of marketing strategies on attitudes toward alternative pasta products, and conduct longitudinal research to assess how shifts in economic conditions and dietary trends influence consumer perceptions and acceptability over time.

REFERENCES

Ali, T., Alam, A., & Ali, J. (2021). Factors affecting consumers' purchase behaviour for health and wellness food products in an emerging market. *Global Business Review, 22*, 151-168.

Alkhadim, G. S. (2022). Cronbach's alpha and semantic overlap between items: A proposed correction and tests of significance. *Frontiers in Psychology*, *13*, 171.

Baker, M. T., Lu, P., Parrella, J. A., & Leggette, H. R. (2022). Consumer acceptance toward functional foods: A scoping review. *International Journal of Environmental Research and Public Health, 19*, 1217.

Balasubramanian, S., & Viswanathan, R. (2010). Influence of moisture content on physical properties of minor millets. *Journal of Food Science and Technology, 47*, 279-284.

Bangsa, A. B., & Schlegelmilch, B. B. (2020). Linking sustainable product attributes and consumer decision-making: Insights from a systematic review. *Journal of Cleaner Production, 245*, 118902.

Bhatt, S., Ye, H., Deutsch, J., Ayaz, H., & Suri, R. (2020). Consumers' willingness to pay for upcycled foods. *Food Quality and Preference, 86*, 104035.

Brečić, R., Mesić, Ž., & Cerjak, M. (2017). Importance of intrinsic and extrinsic quality food characteristics by different consumer segments. *British Food Journal, 119*(4), 845-862.

Chakraborty, D., & Dash, G. (2023). Using the consumption values to investigate consumer purchase intentions towards natural food products. *British Food Journal, 125*, 551-569.

Chakraborty, D., Siddiqui, A., Siddiqui, M., & Alatawi, F. M. H. (2022). Exploring consumer purchase intentions and behavior of buying Ayurveda products using SOBC framework. *Journal of Retailing and Consumer Services, 65*, 102889.

Coderoni, S., & Perito, M. A. (2021). Approaches for reducing wastes in the agricultural sector. An analysis of Millennials' willingness to buy food with upcycled ingredients. *Waste Management, 126*, 283-290.

Deliza, R., & Ares, G. (2018). Consumer perception of novel technologies. In *Fruit Preservation: Novel and Conventional Technologies* (pp. 1-20).

Dhaliwal, A., Singh, D. P., & Paul, J. (2020). The consumer behavior of luxury goods: A review and research agenda. *Journal of Strategic Marketing*, 1-27.

Feldmann, C., & Hamm, U. (2015). Consumers' perceptions and preferences for local food: A review. *Food Quality and Preference, 40*, 152-164.

Grimmer, K., Kay, D., Foot, J., & Pastakia, K. (2015). Consumer views about aging-in-place. *Clinical Interventions in Aging*, 1803-1811.

Harris, H. A., Staton, S., Morawska, A., Gallegos, D., Oakes, C., & Thorpe, K. (2019). A comparison of maternal feeding responses to child fussy eating in low-income food secure and food insecure households. *Appetite, 137*, 259-266.

Hoffmann, N. C., Symmank, C., Mai, R., Stok, F. M., Rohm, H., & Hoffmann, S. (2020). The influence of extrinsic product attributes on consumers' food decisions: review and network analysis of the marketing literature. *Journal of Marketing Management, 36*(9-10), 888-915.

Jaeger, S. R., Prescott, J., & Worch, T. (2022). Food neophobia modulates importance of food choice motives: Replication, extension, and behavioural validation. *Food Quality and Preference, 97*, 104439.

Just, D. R., & Goddard, J. M. (2023). Behavioral framing and consumer acceptance of new food technologies: Factors influencing consumer demand for active packaging. *Agribusiness, 39*, 3-27.

Khayeka-Wandabwa, C., Choge, J. K., Linnemann, A. R., & Schoustra, S. (2024). Linking fermented foods to microbial composition and valorisation: Blueprint for Kenya. *Food Reviews International*, 1-21.

Kusumowardani, N., Tjahjono, B., Lazell, J., Bek, D., Theodorakopoulos, N., Andrikopoulos, P., & Priadi, C. R. (2022). A circular capability framework to address food waste and losses in the agri-food supply chain: The antecedents, principles and outcomes of circular economy. *Journal of Business Research, 142*, 17-31.

Le-Anh, T., & Nguyen-To, T. (2020). Consumer purchasing behaviour of organic food in an emerging market. *International Journal of Consumer Studies, 44*, 563-573.

Lu, P., Parrella, J. A., Xu, Z., & Kogut, A. (2024). A scoping review of the literature examining consumer acceptance of upcycled foods. *Food Quality and Preference*, 105098.

Mazurek, A., Palka, A., Kowalski, S., & Skotnicka, M. (2024). Acceptance of muffins (sweet and savory) with the addition of *T. molitor*, *A. diaperinus*, *A. domesticus*, *R. differens*, considering psychological factors (Food Neophobia Scale, Consumer Attitude). *Foods, 13*, 1735.

Oladunjoye, A. O., Eziama, S. C., & Aderibigbe, O. R. (2021). Proximate composition, physical, sensory and microbial properties of wheat-hog plum bagasse composite cookies. *LWT, 141*, 111038.

Piqueras-Fiszman, B., & Spence, C. (2014). Colour, pleasantness, and consumption behaviour within a meal. *Appetite, 75*, 165-172.

Raimondo, M., Spina, D., Hamam, M., D'Amico, M., & Caracciolo, F. (2024). Intrinsic motivation strongly affects the readiness toward circular food consumption: Evidence from the motivation–opportunity–ability model. *British Food Journal, 126*, 715-737.

Ratchford, B. T., & Andreasen, A. A. (1974). A study of consumer perceptions of decisions. *Advances in Consumer Research, 1*, 1-12.

Raudenbush, B., & Capiola, A. (2012). The effects of food neophobia and food neophilia on diet and metabolic processing. *Food and Nutrition Sciences, 3*(10), 1397.

Reddy, R., & Patel, D. (2023). A study on consumers' awareness and preference towards millets and its products in Vizianagaram District, Andhra Pradesh, India. *Asian Journal of Agricultural Extension, Economics & Sociology, 41*, 9-16.

Rondoni, A., Asioli, D., & Millan, E. (2020). Consumer behaviour, perceptions, and preferences towards eggs: A review of the literature and discussion of industry implications. *Trends in Food Science & Technology, 106*, 391-401.

Rossi, C., & Rivetti, F. (2023). Young consumers' purchase behaviour of sustainably-labelled food products: What is the role of scepticism? *Food Quality and Preference, 105*, 104772.

Sadiq, B. D., Nkama, I., & Esther, O. C. (2022). Effect of processing on the antinutrient content of extruded snacks from cocoyam–Bambara groundnut flour blends. *Asian Food Science Journal*, *21*, 19-27.

Sangamithra, A., Gabriela, J. S., Prema, R. S., Nandini, K., Kannan, K., Sasikala, S., & Suganya, P. (2016). Moisture dependent physical properties of maize kernels. *International Food Research Journal*, *23*, 109.

Shah, P., Mehta, N., & Shah, S. (2024). Exploring the factors that drive millet consumption: Insights from regular and occasional consumers. *Journal of Retailing and Consumer Services*, *76*, 103598.

Steg, L., & Vlek, C. (2009). Encouraging pro-environmental behaviour: An integrative review and research agenda. *Journal of Environmental Psychology*, *29*(3), 309-317.

Stern, P. C. (2000). New environmental theories: Toward a coherent theory of environmentally significant behavior. *Journal of Social Issues*, *56*(3), 407-424.

Tejada, J. J., & Punzalan, J. R. B. (2012). On the misuse of Slovin's formula. *The Philippine Statistician*, *61*, 129-136.

Torrico, D. D., Fuentes, S., Gonzalez Viejo, C., Ashman, H., Ashman, H., & Dunshea, F. R. (2021). Cross-cultural effects of food product extrinsic cues on consumer acceptance: A review. *Foods*, *10*(11), 2590.

Tuorila, H. and Recchia, A. (2014). Sensory perception and other factors affecting consumer choice of olive oil. *Olive oil sensory science*: 55-80.

Valero-Cases, E., Frutos, M. J., & Pérez-Llamas, F. (2023). Development of synbiotic vegan beverages: probiotic viability, sensory profile, consumers' acceptance and functional stability. *International Journal of Food Science & Technology*, *58*(5), 2325-2335.

Vining, J., Linn, N., & Burdge, R. J. (1992). Why recycle? A comparison of recycling motivations in four communities. *Environmental management*, *16*, 785-797.

Wee, C.S., Ariff, M.S.B.M., Zakuan, N., Tajudin, M.N.M., Ismail, K. and Ishak, N. (2014). Consumers perception, purchase intention and actual purchase behavior of organic food products. *Review of integrative business and economics research*. **3**: 378.