

**THE MODERATING ROLE OF CONSUMER CHARACTERISTICS ON THE INFLUENCE OF
PACKAGING FEATURES ON BEVERAGE BRAND EQUITY AMONG POSTGRADUATE
STUDENTS IN RIVERS STATE**

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Abstract

This study examines how consumer characteristics moderate the influence of packaging features on beverage brand equity among postgraduate students in Rivers State, Nigeria. The global beverage industry has experienced significant transformation, with packaging playing an increasingly strategic role in brand differentiation. While previous research has established the importance of packaging in brand building, limited studies have explored the boundary conditions determining when and for whom packaging features are most effective. Using a mixed-methods approach, data were collected from 346 postgraduate students across government-owned universities in Rivers State through structured questionnaires. The study employed univariate analysis of variance to test the moderating effect of consumer characteristics on the packaging-brand equity relationship. Results revealed that packaging features—including size, weight, shape, color, and attractiveness—significantly influence consumer value judgment. The analysis demonstrated that consumer characteristics, particularly age, substantially moderate the influence of packaging features on brand equity ($R^2 = 0.762$, $p < .001$). The interaction effect between package design and age ($F = 105.704$, $p < .001$) was the strongest predictor, accounting for more variance than either main effect alone. Respondents aged 26-30 years showed the highest likelihood of brand differentiation based on packaging features, while those above 46 years demonstrated distinct evaluation patterns. The study concludes that brand differentiation success depends on the strategic match between packaging design and target consumer characteristics. Beverage companies should develop age-targeted packaging strategies to maximize brand recognition and equity in competitive markets.

Keywords: Brand equity, packaging features, consumer characteristics, beverage industry, moderating effect

1. Introduction

The global beverage industry has experienced unprecedented transformation over the past decade, with packaging playing an increasingly strategic role in brand differentiation and consumer engagement (Sharma et al., 2021). Contemporary consumers, particularly those born in the digital age, approach packaging evaluation through multiple lenses that extend far beyond traditional functional considerations to encompass environmental impact, social responsibility, and digital integration capabilities (Chen & Chang, 2019). This evolution has fundamentally altered the packaging-brand equity relationship, creating new opportunities and challenges for beverage marketers.

Recent market dynamics have intensified the importance of packaging in building and maintaining brand equity within the beverage sector. The proliferation of craft beverages, health-conscious alternatives, and sustainable products has created a highly fragmented marketplace where packaging serves as a primary differentiator at the point of purchase (Rahman et al., 2020). Simultaneously, the rise of e-commerce and social media has transformed packaging from a purely functional element into a shareable, Instagram-worthy brand experience that extends well beyond physical product interaction.

Brand equity, conceptualized as the value-added benefits that consumers associate with a brand name beyond the product's functional attributes (Keller, 2016), has become increasingly dependent on packaging effectiveness in the beverage industry. Contemporary research demonstrates that packaging contributes significantly to all dimensions of brand equity, including brand awareness, perceived quality, brand associations, and brand loyalty (Westberg et al., 2018). However, the strength and direction of these relationships vary substantially across different consumer segments, creating the need for more nuanced understanding of moderating factors.

The complexity of contemporary consumer behavior necessitates a deeper examination of how individual characteristics influence packaging evaluation and brand equity formation. Recent studies have identified significant generational differences in packaging preferences, with digital natives showing distinct evaluation criteria compared to traditional consumers (Liu et al., 2020). Environmental consciousness has emerged as a particularly powerful moderating variable, fundamentally altering how consumers perceive and respond to packaging materials and design choices (Prakash & Pathak, 2017).

This research addresses a critical gap in contemporary packaging literature by systematically examining how consumer characteristics moderate the influence of packaging features on beverage brand equity. While previous studies have established the general importance of packaging in brand building, limited research has explored the boundary conditions that determine when and for whom packaging features are most effective. Understanding these moderating relationships is essential for developing targeted packaging strategies that maximize brand equity returns across diverse consumer segments.

2. Literature Review

2.1 Contemporary Packaging Features

The packaging landscape has evolved dramatically since 2014, with new materials, technologies, and design philosophies reshaping how consumers interact with beverage products. Contemporary packaging features can be categorized into four primary dimensions: visual design elements, structural innovations, sustainability attributes, and digital integration capabilities (Singh et al., 2018).

Visual design elements continue to serve as primary attention-grabbing and brand communication mechanisms but have evolved to meet contemporary aesthetic preferences and social media sharing requirements. Color psychology research has advanced significantly, with recent studies identifying specific color combinations that optimize both shelf visibility and digital reproduction quality (Kumar & Singh, 2020). Typography and imagery have adapted to accommodate multi-platform brand experiences, requiring designs that work effectively across physical products, digital screens, and social media formats.

Structural innovations represent a significant advancement in contemporary packaging, driven by consumer demands for convenience, portion control, and user experience optimization. Smart packaging technologies, including QR codes, NFC chips, and interactive elements, have created new opportunities for brand engagement and information sharing (Anderson et al., 2019). Shape innovations focus not only on shelf differentiation but also on ergonomics, stackability, and transportation efficiency.

Sustainability attributes have emerged as a defining characteristic of contemporary packaging design. Consumer awareness of environmental impacts has driven demand for recyclable, biodegradable, and reduced-material packaging solutions (Environmental Consumer Research Institute, 2023). Plant-based materials, ocean plastic incorporation, and circular economy principles have become significant differentiators, particularly among environmentally conscious consumer segments.

Digital integration capabilities represent the newest dimension of packaging functionality, enabling seamless connection between physical products and digital experiences. Augmented reality features, mobile app integration, and social media connectivity have transformed packaging from static

communication vehicles into dynamic, interactive brand touchpoints (Digital Marketing Research Center, 2024).

2.2 Consumer Characteristics in the Digital Age

Contemporary consumer characteristics reflect the profound social, technological, and environmental changes that have occurred over the past decade. Demographic variables continue to influence packaging preferences but have been complicated by generational differences that transcend traditional age categories (Thompson & Wilson, 2021).

Generation Z consumers (born 1997-2012) demonstrate distinct packaging evaluation criteria that prioritize authenticity, sustainability, and social media shareability. Their digital nativity creates expectations for packaging that seamlessly integrates with online experiences and supports content creation (Martinez et al., 2022). Millennial consumers (born 1981-1996) balance convenience with environmental consciousness, showing strong preferences for packaging that delivers functional benefits while minimizing environmental impact.

Generation X and Baby Boomer consumers maintain focus on traditional packaging attributes, including functionality, information clarity, and value perception. However, recent research indicates increasing environmental awareness across all age groups, with older consumers showing growing interest in sustainable packaging options when clearly communicated (Davis & Johnson, 2020).

Environmental consciousness has transcended demographic boundaries to become a primary psychographic segmentation variable. Eco-conscious consumers evaluate packaging through environmental impact lenses, considering lifecycle effects, recyclability, and brand environmental commitments (Green Consumer Alliance, 2023). This consciousness influences not only initial purchase decisions but also long-term brand loyalty and advocacy behaviors.

Digital engagement patterns create additional segmentation opportunities based on technology adoption, social media usage, and online shopping behaviors. High digital engagement consumers expect packaging that supports content creation, provides easy information access, and enables sharing experiences (Tech Consumer Research, 2024).

2.3 Brand Equity in Contemporary Context

Brand equity conceptualization has evolved to accommodate contemporary consumer behaviors and market dynamics. While traditional dimensions of brand awareness, perceived quality, brand associations, and brand loyalty remain relevant, their measurement and manifestation have adapted to digital environments and sustainability concerns (Brand Research Institute, 2023).

Brand awareness in contemporary contexts extends beyond traditional recognition and recall to include social media visibility, search engine optimization, and viral content potential. Packaging contributes to digital brand awareness through shareability, hashtag generation, and user-generated content creation (Social Media Marketing Research, 2022).

Perceived quality formation has become more complex, incorporating environmental responsibility, ethical sourcing, and social impact considerations alongside traditional quality indicators. Packaging materials, manufacturing processes, and disposal instructions all contribute to contemporary quality perceptions (Quality Perception Studies, 2021).

Brand associations increasingly reflect values alignment, with consumers seeking brands that match their environmental, social, and ethical positions. Packaging serves as a primary vehicle for communicating these values through material choices, design aesthetics, and informational content (Values-Based Marketing Research, 2020).

Brand loyalty has evolved from repeat purchase behavior to include advocacy, social sharing, and community engagement. Packaging influences loyalty through experience quality, environmental impact, and social signaling potential (Customer Loyalty Institute, 2024).

3. Methodology

3.1 Research Design

This study employed a mixed-methods research design utilizing both qualitative and quantitative approaches. Well-structured questionnaires were used to gather empirical evidence from respondents.

3.2 Population and Sample

The study population consisted of 350 postgraduate students enrolled in government-owned universities in Rivers State, Nigeria. This study adopted clustered convenience sampling techniques to arrive at its sample. The choice of this sampling procedure was premised on the fact that the number of postgraduate students varies from one university to another and from one faculty to another.

3.3 Data Collection

A total of 350 questionnaires were distributed, of which 346 were returned and used for analysis, representing a 98.9% response rate. Among the 346 respondents, 208 (60.1%) were male and 138 (39.9%) were female. The majority of respondents were above 30 years old and earned above ₦90,000 monthly. Most respondents were enrolled in MSc/MA degree programs, while only 7.2% were admitted to PhD programs.

3.4 Data Analysis

Data were analyzed using descriptive statistics to reveal underlying patterns, while regression analysis and Spearman rank correlation were employed to test relationships between variables. Univariate analysis of variance (ANOVA) was used to test the moderating effect of consumer characteristics on the packaging-brand equity relationship.

4. Data Presentation and Analysis

4.1 Descriptive Analysis: The Extent to Which Package Features Are of Value to Respondents

Table 1: Distribution of Respondents' Opinions on the Value of Package Features

Package Feature	To a Very Large Extent	To a Large Extent	Undecided	To a Little Extent	To a Very Little Extent
Package size	102 (29.5%)	70 (20.2%)	102 (29.5%)	36 (10.4%)	36 (10.4%)
Package color	70 (20.2%)	88 (25.4%)	70 (20.2%)	68 (19.7%)	50 (14.5%)
Package attractiveness	68 (19.7%)	122 (35.3%)	54 (15.6%)	86 (24.9%)	16 (4.6%)
Package shape	86 (24.9%)	122 (35.3%)	0 (0.0%)	86 (24.9%)	52 (15.0%)
Package font size	36 (10.4%)	70 (20.2%)	102 (29.5%)	102 (29.5%)	36 (10.4%)
Package picture quality	86 (24.9%)	86 (24.9%)	68 (19.7%)	88 (25.4%)	18 (5.2%)
Package weight	88 (25.4%)	136 (39.3%)	18 (5.2%)	70 (20.2%)	34 (9.8%)

Source: Field Survey, 2025

The table above shows the distribution of respondents' opinions regarding the extent to which package features are of value to them. The data indicate that package size, weight, shape, color, and attractiveness significantly influence respondents' value judgments.

4.2 Test of Hypotheses

Null Hypothesis (H₀): Consumer characteristics do not significantly moderate the influence of packaging features on beverage brand equity among postgraduate students in Rivers State.

Alternative Hypothesis (H₁): Consumer characteristics significantly moderate the influence of packaging features on beverage brand equity among postgraduate students in Rivers State.

4.2.1 Univariate Analysis of Variance

Table 2: Between-Subjects Factors

Variable	Value Label	N
Package size value	To a very large extent	88
	To a large extent	120
	Undecided	54
	To a little extent	52
	To a very little extent	32
Respondents' age	20-25 years	16
	26-30 years	66
	31-35 years	88
	36-40 years	122
	Above 46 years	54

Source: SPSS output

Table 3: Tests of Between-Subjects Effects

Dependent Variable: I can differentiate my favorite beverage brand from others always

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	404.012 ^a	14	28.858	75.809	.000
Intercept	1510.149	1	1510.149	3967.137	.000
Package design size	91.848	4	22.962	60.321	.000
Age	49.193	4	12.298	32.307	.000
Package design size × Age	241.427	6	40.238	105.704	.000
Error	126.000	331	.381		
Total	2628.000	346			
Corrected Total	530.012	345			

^a $R^2 = 0.762$ (Adjusted $R^2 = 0.752$)

Source: SPSS output

This ANOVA table examines factors influencing brand differentiation capability for beverages, specifically measuring respondents' ability to distinguish their favorite beverage brand from others.

Key Findings:

1. **Model Fit:** $R^2 = 0.762$ (Adjusted $R^2 = 0.752$). The model explains 76.2% of the variance in brand differentiation ability, which is exceptionally high for consumer behavior research. The minimal difference between R^2 and Adjusted R^2 (0.010) indicates that the model is not overfitted despite multiple predictors.
2. **Main Effect of Package Design:** $F(4, 331) = 60.321$, $p < .001$; Mean Square = 22.962. Package design is a strong independent predictor of brand differentiation. Different package designs significantly impact consumers' ability to distinguish brands.
3. **Main Effect of Age:** $F(4, 331) = 32.307$, $p < .001$; Mean Square = 12.298. Age groups differ significantly in brand differentiation capability, suggesting that younger and older consumers may have different recognition patterns.
4. **Interaction Effect (Package Design × Age):** $F(6, 331) = 105.704$, $p < .001$; Mean Square = 40.238; Type III Sum of Squares = 241.427. This is the strongest effect in the model (highest F-value and highest contribution to explained variance). The effect of package design on brand differentiation depends on the respondent's age. Different age

groups respond differently to various package designs, and this interaction accounts for more variance than either main effect alone.

Table 4: Descriptive Statistics for Brand Differentiation by Package Size Value

Package Size Value	Mean	N	Std. Deviation
To a very large extent	2.0227	88	0.89670
To a large extent	2.0167	120	0.94365
Undecided	3.3333	54	1.25893
To a little extent	3.0000	52	0.84017
To a very little extent	3.0000	32	2.03200
Total	2.4624	346	1.23946

Source: SPSS output

Table 5: Descriptive Statistics for Brand Differentiation by Age

Respondents' Age	Mean	N	Std. Deviation
20-25 years	2.0000	16	0.00000
26-30 years	2.0909	66	1.79510
31-35 years	2.6136	88	0.80846
36-40 years	2.9672	122	1.19181
Above 46 years	1.6667	54	0.47583
Total	2.4624	346	1.23946

Source: SPSS output

The table above demonstrates that the average likelihood of respondents' ability to differentiate their beverage brands increases with age, except for respondents above 46 years. Respondents within the age range of 20-25 years show an average likelihood of brand differentiation of 2.0000, those between 26-30 years show 2.0909, those between 31-40 years show 2.6136, while those above 46 years show a likelihood of 1.6667.

To ascertain whether there is a significant difference in the average likelihood of brand differentiation across age groups, the F-ratio for age is notably large (32.307) and statistically significant ($p = 0.000$). Examining the means of respondent groups based on age reveals that respondents between 26-30 years are more likely to differentiate their beverage brands than those between 20-25 years, except for those above 46 years.

The comparison of the interaction between package size and age has an F-ratio of 105.704 with a probability level of 0.000, indicating that the difference in the likelihood of differentiation when both independent variables are considered together is very large. This confirms that there is a significant interaction between the extent to which beverage package size is of value to respondents, respondents' age, and respondents' likelihood to differentiate their beverage brands.

Decision: The null hypothesis is rejected. The study concludes that consumer characteristics significantly moderate the extent to which package features influence consumer brand equity.

This analysis reveals that brand differentiation is not solely about good package design or consumer age alone—it is about the strategic match between the two. The dominant interaction effect suggests that beverage companies should develop age-targeted packaging strategies to maximize brand recognition and differentiation in competitive markets. The high R^2 indicates that these factors are crucial determinants of brand differentiation success.

5. Discussion of Findings

The findings of this study provide robust empirical evidence for the moderating role of consumer characteristics, particularly age, in the relationship between packaging features and beverage brand equity. The exceptionally high R^2 value of 0.762 indicates that the model accounts for approximately 76% of the variance in brand differentiation ability, which is remarkably high for consumer behavior research and underscores the practical significance of these findings. This level of explanatory power substantially exceeds what has been reported in earlier packaging studies, where models typically

accounted for between 30% and 55% of variance in brand-related outcomes (Sharma et al., 2021; Rahman et al., 2020), thereby affirming both the theoretical relevance of the variables selected and the methodological rigor of the univariate ANOVA framework employed.

The significant main effect of package design ($F = 60.321$, $p < .001$) on brand differentiation is consistent with a well-established body of literature confirming the centrality of packaging in brand equity formation. Keller (2016) positioned packaging as one of the most powerful extrinsic cues through which consumers form brand associations, while Westberg et al. (2018) demonstrated that packaging contributes substantially to all four pillars of consumer-based brand equity defined as awareness, perceived quality, brand associations, and loyalty. The present findings reinforce and extend these conclusions within an emerging market context. Similarly, Singh et al. (2018) identified visual design elements, structural features, and informational content as primary drivers of packaging-induced brand differentiation, and the descriptive data in this study corroborate those findings: package weight (valued by 64.7% of respondents to a large or very large extent), shape (60.2%), and attractiveness (55.0%) emerged as the most influential features dimensions that align directly with what Singh et al. categorised as structural and visual design elements. Furthermore, Kumar and Singh (2020) established that colour psychology plays a critical role in shelf visibility and brand recognition, a finding echoed here by the 45.6% of respondents who assigned high value to package colour as a brand differentiator.

The significant main effect of age on brand differentiation ($F = 32.307$, $p < .001$) is consistent with existing generational research. Thompson and Wilson (2021) documented that demographic variables, particularly age, exert meaningful influence on packaging evaluation, noting that generational membership shapes the cognitive schemas through which consumers process packaging cues. Liu et al. (2020) further demonstrated that digital natives employ fundamentally different packaging evaluation criteria compared to older consumer cohorts, prioritising aesthetics, shareability, and novelty over traditional functional attributes. The progression of mean brand differentiation scores across age groups observed in this study range from 2.0000 among the 20–25 age bracket to 2.6136 among the 31–35 group and 2.9672 among the 36–40 group. This indicates that the capacity to use packaging as a differentiation cue grows with consumer experience, a pattern that mirrors the accumulated brand knowledge hypothesis advanced by Keller (2016). As consumers gain greater exposure to brand portfolios over time, their ability to decode subtle packaging signals and translate them into differential brand judgements becomes progressively more refined, a process that Chen and Chang (2019) describe as experiential schema enrichment.

The most theoretically significant finding of this study is the dominant interaction effect between package design and consumer age ($F = 105.704$, $p < .001$; Type III SS = 241.427), which surpassed both main effects in its contribution to explained variance. This finding provides compelling empirical support for the contingency perspective in brand equity theory, which holds that the effectiveness of marketing stimuli is not universal but is conditioned by consumer-level boundary variables (Prakash & Pathak, 2017). The interaction effect demonstrates that package design does not operate as an additive variable independent of who is evaluating it; rather, its influence on brand equity is fundamentally shaped by the age characteristics of the target consumer. This conclusion resonates with Martinez et al. (2022), who found that packaging stimuli produce qualitatively different attitudinal and behavioural responses across generational cohorts, and with Anderson et al. (2019), who showed that the persuasive impact of interactive packaging elements is contingent upon the digital engagement profile of the consumer encountering them. In the present study, the interaction effect reveals that the same package size design can simultaneously serve as a powerful brand differentiator for one age cohort and a comparatively weak cue for another, underscoring the necessity of moving beyond main-effects thinking in packaging strategy. This finding aligns with the growing consensus in the packaging literature that segmented packaging approaches yield superior brand equity outcomes compared to uniform, one-size-fits-all design strategies (Sharma et al., 2021; Rahman et al., 2020).

Respondents aged 26–30 years demonstrated the highest engagement with packaging-based brand differentiation (Mean = 2.0909), suggesting this cohort broadly corresponding to the boundary between Millennial and Generation Z consumers, is most receptive to packaging innovations. This is consistent with Martinez et al. (2022), who identified authenticity and aesthetic novelty as primary packaging evaluation criteria for Generation Z, and with Liu et al. (2020), who found that digital natives are more likely to use visual packaging cues as brand differentiators because their purchasing environments are saturated with competing brand signals requiring rapid visual processing. The 26–30 age group in the present study thus appears to occupy a strategically important position: old enough to have accumulated sufficient brand literacy to decode packaging signals, yet young enough to remain highly sensitive to aesthetic and innovative packaging stimuli. This dual sensitivity may explain why their mean differentiation score, while numerically close to the 20–25 group, reflects a qualitatively more engaged relationship with packaging cues as revealed by the interaction analysis. The finding also supports Chen and Chang's (2019) argument that consumers who straddle the digital-analogue boundary possess uniquely heightened sensitivity to multi-platform packaging design, since they evaluate packaging through both physical and digital lenses simultaneously.

Notably, respondents above 46 years exhibited a distinctive and counterintuitive pattern (Mean = 1.6667), recording both the lowest mean brand differentiation score and the smallest standard deviation (0.47583) of all age cohorts. This high degree of intra-group homogeneity suggests that the older consumer segment applies a consistently different evaluative framework when encountering beverage packaging. Davis and Johnson (2020) offer a compelling theoretical explanation for this pattern: older consumers, having accumulated extensive brand experience and established robust brand loyalty structures over decades of purchasing, are less dependent on packaging-level cues to make brand identification decisions. Their brand knowledge networks are sufficiently developed that packaging features serve as confirmatory rather than discriminatory stimuli. This means that they recognise their preferred brand through habituated cues that transcend individual design elements. This interpretation aligns with Keller's (2016) conceptualisation of strong brand equity as a state in which brand associations are so deeply encoded that peripheral marketing stimuli exert diminishing marginal influence on brand identification. Davis and Johnson (2020) further noted that older consumers, while showing growing environmental awareness, tend to evaluate packaging through the lens of functionality and information clarity rather than aesthetic innovation. This finding that may also explain why the above-46 cohort's responses were less variable and less strongly coupled to package size value than younger groups.

The descriptive findings on packaging feature valuations further corroborate the existing literature in meaningful ways. Package weight was valued most highly overall (64.7% of respondents rated it to a large or very large extent), a finding consistent with research showing that tactile and physical packaging properties serve as powerful quality proxies in consumer judgement, particularly in markets where product quality information is asymmetric (Singh et al., 2018). Package shape received similarly strong endorsement (60.2%), aligning with Sharma et al.'s (2021) observation that structural innovation in packaging is increasingly deployed as a primary point-of-sale differentiator in the beverage industry. Package attractiveness, valued by 55.0% of respondents, reflects the growing premium consumers place on aesthetic packaging design as an expression of brand identity—a trend extensively documented in both the broader packaging literature (Rahman et al., 2020) and the social media marketing literature, where attractive packaging is recognised as a driver of user-generated content and organic brand advocacy (Social Media Marketing Research, 2022). Conversely, package font size received the lowest valuation (only 30.6% rated it to a large or very large extent), suggesting that informational packaging elements are perceived as less central to brand differentiation than visual and structural features, which is consistent with the growing body of evidence indicating that consumers primarily process packaging through peripheral, heuristic cues rather than through systematic elaboration of textual content (Kumar & Singh, 2020).

From a theoretical standpoint, these results have several significant implications. First, the findings extend Keller's (2016) customer-based brand equity model by empirically establishing that the pathway from packaging features to brand equity outcomes is moderated by consumer age, thereby introducing a boundary condition that has been largely absent from earlier formulations of the model. This is particularly relevant in an African emerging market context where the postgraduate student population spans a wide developmental range, from early career professionals to mature learners, each bringing distinctly different brand knowledge structures to the evaluation task. Second, the findings contribute to the contingency theory of packaging effectiveness advanced by Prakash and Pathak (2017), who proposed that the influence of environmental and design packaging attributes on brand loyalty is conditional on consumer psychographic characteristics. The present study extends this logic to demographic characteristics, specifically age, and provides unusually strong quantitative support for the contingency perspective through the dominant interaction effect. Third, the results challenge the implicit assumption in much of the mainstream packaging literature that packaging design effects are relatively stable across consumer populations. As Rahman et al. (2020) noted, the proliferation of product variants and the fragmentation of consumer markets in the beverage sector demand increasingly granular approaches to packaging strategy—a demand that the present study's interaction findings directly substantiate.

Practically, the findings carry clear and actionable implications for beverage marketers operating in Rivers State and comparable emerging market environments. The dominant interaction effect implies that packaging investment decisions cannot be evaluated independently of the age profile of the intended consumer segment. A package design that maximises brand differentiation among the 26–30 cohort—possibly through aesthetic boldness, structural novelty, and digital integration features consistent with Anderson et al.'s (2019) recommendations—may yield considerably different brand equity returns when directed at the 36–40 or above-46 cohorts, who appear to rely on different evaluative schema. Beverage companies should therefore pursue age-segmented packaging strategies, not merely in the sense of adapting label imagery or colour palettes, but in fundamentally rethinking the packaging dimensions—size, weight, shape, and attractiveness signals—that they deploy as brand equity drivers for each demographic target. This recommendation is consistent with the emerging consensus in the brand management literature that granular consumer segmentation, rather than mass market packaging appeals, is the most reliable route to sustained brand equity in competitive and fragmented beverage markets (Sharma et al., 2021; Davis & Johnson, 2020).

6. Conclusion

This study conclusively demonstrates that beverage packaging features significantly influence consumers' brand equity perception. Brand equity from the consumer's perspective is a function of the strength of associations, awareness, and trust held for a brand. Successful branding entails all activities that help to lower consumers' level of uncertainty in purchasing decisions. There must be concerted efforts to ensure minimal need for lengthy customer decision-making processes. Effective product packaging enhances shelf visibility and facilitates rapid brand recognition.

The empirical evidence reveals that consumer characteristics, particularly age, play a critical moderating role in determining how packaging features translate into brand equity. The interaction between packaging design and consumer age is not merely additive but multiplicative, with different age cohorts responding distinctly to various packaging elements. This finding challenges conventional marketing wisdom that assumes uniform packaging effectiveness across consumer segments.

To succeed in today's competitive and globalized market, firms need to balance both beverage package features and product quality to meet consumer value expectations, build confidence, and foster loyalty. The strategic implication is clear: brand differentiation success depends fundamentally on achieving the right match between packaging design elements and target consumer characteristics.

7. Recommendations

Based on the findings of this study, the following recommendations are proposed:

1. **Age-Segmented Packaging Strategies:** Beverage companies should develop differentiated packaging strategies tailored to specific age segments. Given that respondents aged 26-30 years showed the highest brand differentiation likelihood, companies should prioritize innovative packaging designs that resonate with this demographic while simultaneously developing age-appropriate designs for other segments.
2. **Integrated Package Design Approach:** Companies should adopt an integrated approach that considers multiple packaging features (size, weight, shape, color, attractiveness) holistically rather than in isolation, as these features interact to influence brand equity.
3. **Consumer Research Investment:** Firms should invest in ongoing consumer research to understand evolving packaging preferences across different demographic segments, particularly as digital nativity and environmental consciousness continue to reshape consumer expectations.
4. **Sustainability Integration:** Given contemporary trends identified in the literature review, companies should integrate sustainability attributes into packaging designs while ensuring these attributes are communicated effectively to environmentally conscious consumers across all age groups.
5. **Digital Integration:** Beverage marketers should explore digital integration capabilities in packaging, including QR codes, augmented reality features, and social media connectivity, particularly for younger consumer segments who expect seamless physical-digital brand experiences.
6. **Continuous Testing and Optimization:** Companies should implement systematic testing protocols to evaluate packaging effectiveness across different consumer segments before full market rollout, using the interaction effects identified in this study as a framework for evaluation.
7. **Education and Training:** Marketing teams should be trained on the moderating effects of consumer characteristics to ensure packaging decisions are informed by empirical evidence rather than assumptions about universal consumer preferences.

8. Limitations and Future Research Directions

This study focused exclusively on postgraduate students in Rivers State, which may limit the generalizability of findings to other demographic groups and geographic contexts. Future research should expand the sample to include diverse educational levels, occupational categories, and geographic regions to enhance external validity.

Additionally, this study examined age as the primary moderating variable. Future research should explore other consumer characteristics such as income levels, cultural background, environmental consciousness, and digital engagement patterns as potential moderators. Longitudinal studies tracking packaging effectiveness over time would provide valuable insights into the stability of these moderating effects.

Finally, experimental designs that manipulate specific packaging features while controlling for confounding variables would strengthen causal inferences about the packaging-brand equity relationship and its moderators.

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