“Determinants of consumer-based brand equity in the FMCG personal care sector: An empirical PLS-SEM examination”

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DETERMINANTS OF CONSUMER-BASED BRAND EQUITY IN THE FMCG PERSONAL CARE SECTOR: AN EMPIRICAL PLS-SEM EXAMINATION

Abstract

The growing competitiveness of India's FMCG personal care sector has increased the strategic importance of strengthening Consumer-Based Brand Equity (CBBE), particularly in categories with high product similarity and low switching costs. Understanding the determinants of brand equity is therefore essential for guiding brand differentiation and long-term consumer loyalty. This study aims to identify and examine the determinants of consumer-based brand equity in the FMCG personal care sector using PLS-SEM. Primary data were collected from 1,137 consumers across five major Indian regions between October 2024 and March 2025 using purposive sampling and structured questionnaire. Eight constructs and sixteen hypotheses were tested using Partial Least Squares Structural Equation Modelling. The results show strong and statistically significant effects across all hypothesized paths ($p < 0.001$). Brand association demonstrated the strongest influence on brand preference ($\beta = 0.400$, $t = 12.633$), while brand awareness had its highest effect on brand trust ($\beta = 0.333$, $t = 9.912$). Perceived quality showed the strongest influence on brand experience ($\beta = 0.261$, $t = 7.970$). The mediating constructs — brand experience, preference, trust, and loyalty — significantly predicted overall brand equity, with brand trust exerting the greatest influence ($\beta = 0.242$, $t = 6.034$). The model demonstrated substantial explanatory power, with R^2 values ranging from 0.425 to 0.491, and acceptable model fit (SRMR = 0.054; NFI = 0.765). The results establish that cognitive and experiential brand drivers jointly shape CBBE, offering actionable insights for marketers aiming to strengthen loyalty and competitive positioning in the Indian FMCG personal care market.

Keywords brand equity, branding, awareness, association, experience, preference, quality, trust, loyalty, consumers, FMCG, CPG

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INTRODUCTION

The Consumer-Packaged Goods (CPG) sector has become increasingly competitive, with rapid product proliferation and shrinking consumer attention spans placing unprecedented pressure on brands to differentiate themselves. As markets become more fragmented and choicer overload intensifies, firms are compelled to build strong Customer-Based Brand Equity (CBBE) to secure consumer preference and long-term retention (Aaker & Joachimsthaler, 2000). Contemporary marketing scholarship consistently identifies CBBE as a critical driver of marketplace success, shaping how consumers perceive, evaluate, and respond to brands (Lei & Chu, 2015; Jain & Sharma, 2019). Foundational frameworks conceptualize brand equity through dimensions such as brand awareness, associations, perceived quality, and loyalty, which collectively determine the differential response to

marketing efforts (Kumar, 2024; Keller, 2016). This relevance has become even more pronounced in the CPG domain, where low-involvement decision-making heightens the importance of strong, memorable brand cues (Panigrahi et al., 2021; Kumar et al., 2023).

Although research in this area has increased, the problem continues to persist: empirical evidence on how individual brand equity dimensions collectively shape overall CBBE in the CPG sector remains inconsistent and fragmented. While some studies emphasize the cognitive role of awareness and associations (Jadhav & Verma, 2024; Singh & Verma, 2017; Brodie et al., 2013), others highlight perceived quality and loyalty as dominant predictors of brand strength (Panigrahi et al., 2021). Moreover, the influence of digital retailing, sustainability cues, and rapidly changing consumer expectations has altered how consumers interpret brand signals, yet the literature has not fully reconciled how these shifts modify classical brand equity relationships (Beniwal et al., 2024; Shariq, 2019). This creates uncertainty about which components hold the greatest strategic importance for CPG brands today.

Methodologically, previous research often examines brand equity dimensions in isolation or within limited conceptual models, resulting in partial explanations of consumer behavior (Abbasi et al., 2024; Aravindakshan et al., 2004). There remains a clear need for an integrated, empirically validated framework that captures the multidimensional nature of CBBE in the context of modern CPG consumption. Addressing this scientific gap is essential, as strong brand equity not only influences consumer evaluations but also drives trust, satisfaction, and long-term behavioral outcomes (Chaudhuri & Holbrook, 2001; Maheshwari et al., 2014; Chen et al., 2022). This unresolved problem forms the foundation of the present study.

1. LITERATURE REVIEW AND HYPOTHESES

Consumer-Based Brand Equity (CBBE) has long been recognized as a multidimensional construct shaped by consumers' cognitive, emotional, and behavioral evaluations of a brand. Foundational perspectives emphasize that brand associations, awareness, perceived quality, trust, preference, loyalty, and experience interact in complex ways to shape consumer judgments and long-term relational outcomes. Within the Consumer-Packaged Goods (CPG) sector, these dynamics become even more critical due to habitual purchasing patterns, low involvement decision cycles, and heightened market competition.

A significant body of research affirms that brand associations serve as one of the most influential components of CBBE, shaping how consumers encode meaning, emotions, and symbolic value into a brand. Associations contribute to differentiation, emotional bonding, and brand positioning (Aaker, 1996; Keller, 2016; Christodoulides et al., 2015). Strong association strength, as highlighted by French and Smith (2013), reinforces the mental network that consumers rely on during brand evaluation. Empirical studies reveal that associations influence preference, purchase intention, loyalty, and brand performance across diverse contexts (Chang & Liu, 2009; Leckie et al., 2016; Bakshi & Mishra, 2016; Sarkar & Mishra, 2017; Saleem et al., 2017). These associations are further strengthened when aligned with personal values, emotional experiences, and perceptions of trust or reliability (Iglesias et al., 2011; (Buil et al., 2013; Rather, 2020). In sectors such as FMCG and services, brand image — an extension of brand associations — plays a crucial mediating role between perceived quality, preference, and loyalty (Saleem et al., 2017; Chang & Liu, 2009).

Brand awareness, which reflects consumers' ability to recognize or recall a brand, has been shown to reduce purchase risk, enhance familiarity, and influence brand choice likelihood (Keller, 2009; Keller, 2016). Awareness is closely intertwined with association strength (French & Smith, 2013), forming the foundational cognitive layer of brand knowledge. Prior research indicates that higher awareness facilitates stronger brand engagement, loyalty, and enhanced consumer decision-making (Leckie et al., 2016; Chang & Liu, 2009). Awareness has also been linked to trust formation, preference develop-

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ment, and habitual purchasing patterns in competitive markets (Dodds et al., 1991; Yoo et al., 2000; Huang & Sarigöllü, 2012; Singh et al., 2022; Jin & Muqaddam, 2019). Studies noting the mediating influence of brand image in the association between awareness and loyalty highlight its importance in relational brand outcomes (Saleem et al., 2017).

Perceived quality represents another crucial antecedent of consumer evaluations, shaping judgments of a product's excellence or superiority (Zeithaml, 1988; Netemeyer et al., 2004). Research consistently demonstrates that perceived quality strengthens brand image, loyalty, and brand performance across industries (Saleem et al., 2017; Sarkar & Mishra, 2017; Iglesias et al., 2011). High-quality perceptions enhance trust, emotional attachment, and consumer satisfaction, ultimately reinforcing brand preference and repurchase behavior (Buil et al., 2013; Yin Wong & Merrilees, 2007; Das, 2014; Ebrahim et al., 2016). Within online service contexts, elements such as system responsiveness and efficiency have been shown to positively influence perceived quality and brand equity (Abu ELSamen, 2015). The literature underscores that perceived quality forms a foundation for behavioural intentions such as switching resistance, positive word-of-mouth, and long-term loyalty (Pappu & Quester, 2006; Odin et al., 2001).

Brand experience has emerged as a powerful force in shaping modern brand equity, encompassing the sensory, emotional, cognitive, and behavioral responses triggered by brand-related stimuli (Brakus et al., 2009; Kumar & Nayak, 2019). Experiential engagement strengthens memory structures, enhances emotional bonds, and contributes to lasting brand relationships. The studies emphasize that brand experience is more influential than attitude alone in building brand equity (Zarantonello & Schmitt, 2013), and that rich experiences significantly affect awareness, associations, and loyalty (Swaminathan et al., 2022; Moreira et al., 2017; Esch et al., 2006). Brand-related communications and touchpoints generate coherent experiences that enhance image consistency and improve perceived quality (Yoo et al., 2000; Smith & Swinyard, 1983).

Brand preference, reflecting a consumer's inclination toward choosing one brand over another, often results from favourable associations, perceived value, and emotional attachment. Prior evidence suggests that preference is driven by brand image, perceived quality, and customer satisfaction (Saleem et al., 2017; Abu ELSamen, 2015). Market orientation, engagement, and trust further strengthen preference and contribute to brand performance in B2B and CPG sectors (Sarkar & Mishra, 2017; Leckie et al., 2016; Bakshi & Mishra, 2016). Preference is commonly viewed as a transitional stage between cognitive evaluation and behavioural loyalty (Chang & Liu, 2009; Buil et al., 2013), making it a core dimension within the broader CBBE framework.

Brand trust functions as a relational cornerstone, reflecting consumers' belief in a brand's reliability, honesty, and integrity (Chaudhuri & Holbrook, 2001). Trust lowers perceived risk, enhances purchase confidence, and strengthens long-term brand attachments (Kumar Mishra et al., 2016). Numerous studies confirm that trust is shaped by perceived value, satisfaction, and experiential consistency (Abu ELSamen, 2015; Iglesias et al., 2011; Ghosh, 2016; Kumar & Reinartz, 2016). Research demonstrates that trust serves as a critical antecedent of loyalty, positive word-of-mouth, and brand performance (Mishra et al., 2021; Bakshi & Mishra, 2016; Delgado-Ballester, 2004). Trust also mediates relationships between brand associations, perceived quality, and consumer behavioral intentions (French & Smith, 2013; Chang & Liu, 2009).

Brand loyalty, one of the most influential indicators of brand equity, encompasses both behavioural and attitudinal commitment (Ismail et al., 2021; Oliver, 1999; Aaker, 1996; Lassoued & Hobbs, 2015). Recent studies highlight emotional engagement, authenticity, psychological contract fulfilment, and innovativeness as significant contributors to loyalty formation (Chinomona, 2016; Iglesias et al., 2011; Gahlot Sarkar & Sarkar, 2016). Longitudinal evidence suggests that loyal customers demonstrate stronger resistance to competitor offerings and contribute more significantly to long-term market performance (Singh & Banerjee, 2018; Veloutsou & Moutinho, 2009; Hellier et al., 2003). Loyalty is also a key behavioral outcome that links trust, preference, awareness, and perceived quality to overall brand equity.

Brand equity itself represents the cumulative value added to a product or service through brand-related perceptions, attitudes, and behaviours (Keller, 2016; Shariq, 2019). Substantial research has affirmed its role in shaping purchase intentions, brand advocacy, price tolerance, and resonance (Farjam & Hongyi, 2015; Pappu & Quester, 2006; Kwon & Lennon, 2009). Corporate brand equity has been linked to performance outcomes in retail, B2B, and emerging market environments (Samiee & Chabowski, 2021; Veloutsou & Moutinho, 2009; Das, 2014; Syed Alwi & Kitchen, 2014). Recent insights demonstrate that CSR-driven, socially conscious branding also strengthens brand image, trust, and overall brand equity (Khan et al., 2022).

Collectively, the literature indicates that cognitive antecedents such as association strength, awareness, and perceived quality initiate the brand-building process, while emotional and relational mechanisms — experience, preference, trust, and loyalty — serve as pathways that shape behavioral outcomes and overall brand equity. However, existing studies often examine these constructs in isolation or in limited combinations, resulting in fragmented insights into how they operate together within low-involvement CPG products.

The aim of this study is to identify and empirically examine the determinants of Consumer-Based Brand Equity (CBBE) in India's FMCG personal care sector by analysing the direct and indirect effects of brand association, brand awareness, and perceived quality on brand equity through the mediating roles of brand experience, brand preference, brand trust, and brand loyalty using PLS-SEM.

Accordingly, the present study proposes the following hypotheses:

H1a: Brand association positively influences brand experience.

H1b: Brand association positively influences brand preference.

H1c: Brand association positively influences brand trust.

H1d: Brand association positively influences brand loyalty.

H2a: Brand awareness positively influences brand experience.

H2b: Brand awareness positively influences brand preference.

H2c: Brand awareness positively influences brand trust.

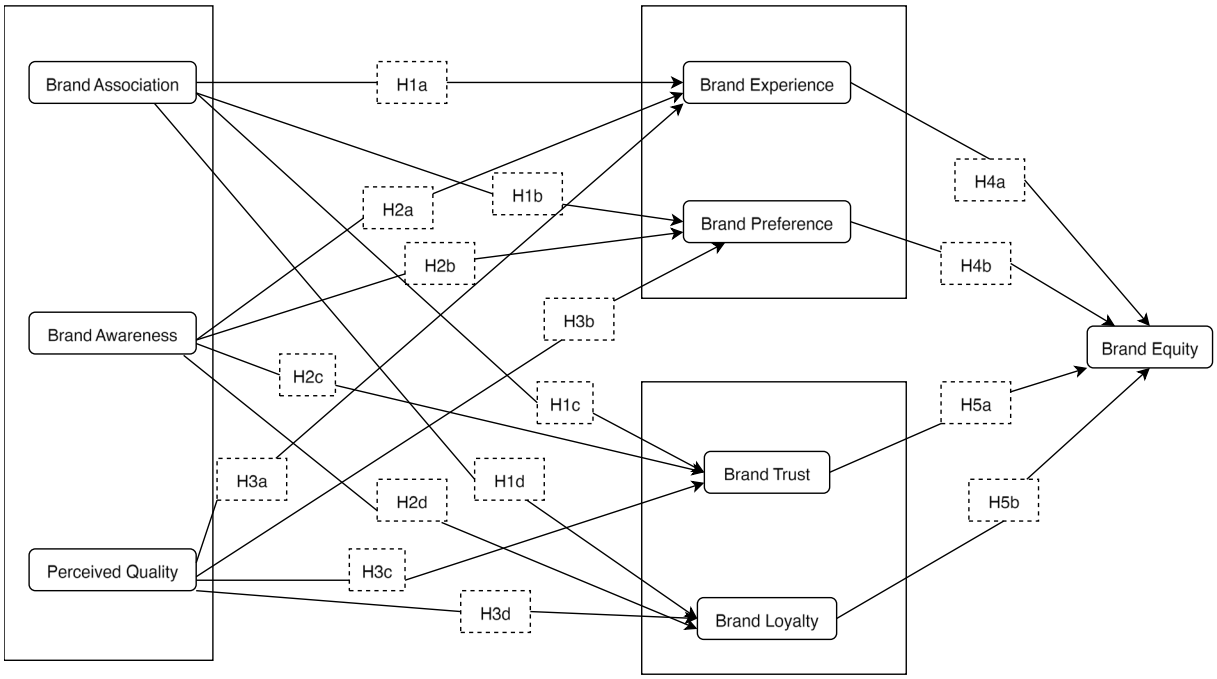

Figure 1. Conceptual model

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H2d: Brand awareness positively influences brand loyalty.

H3a: Perceived quality positively influences brand experience.

H3b: Perceived quality positively influences brand preference.

H3c: Perceived quality positively influences brand trust.

H3d: Perceived quality positively influences brand loyalty.

Furthermore, the literature suggests that these experiential and relational constructs — brand experience, preference, trust, and loyalty — serve as key pathways leading to overall brand equity (Keller, 2016; Khan et al., 2022). Thus, the following hypotheses are advanced:

H4a: Brand experience positively influences brand equity.

H4b: Brand preference positively influences brand equity.

H5a: Brand trust positively influences brand equity.

H5b: Brand loyalty positively influences brand equity.

Based on the reviewed literature and the hypotheses developed, a conceptual framework has been formulated to depict the directional relationships among the key antecedents, mediators, and brand equity. The proposed model is shown in Figure 1.

2. METHODOLOGY

Quantitative, cross-sectional research design was adopted in this study to empirically test the hypothesized relationships in the proposed conceptual model. Partial Least Squares Structural Equation Modelling (PLS-SEM) was chosen as the primary analytical approach considering the complexity of the model, predictive orientation of the study and the latent-variable structure of the constructs. PLS-SEM is appropriate for theory development, handling non-normal data, and estimating models with multiple endogenous constructs (Hair et al., 2021). SmartPLS 4.0 software was employed for data analysis.

The target population for the study consisted of consumers regularly purchasing the fast-moving consumer good, specifically the Consumer-Packaged Goods (CPG). The study concentrated on five CPG personal care brands selected at random namely Dove (Unilever), Colgate (Colgate-Palmolive), Nivea (Beiersdorf), Pantene (Procter & Gamble) and L'Oréal Paris. In order to capture responses from respondents who had prior experience with the brands selected for the study, a non-probability purposive sampling method was adopted. Data were collected using a structured questionnaire that was administered through online survey platforms. Participation was voluntary, and informed consent was obtained prior to data collection. Confidentiality and anonymity were maintained by not including questions that will reveal personally identifiable information.

All constructs were measured using multi-item scales adapted from prior validated studies. Table 1 presents the sources of scale for each construct used in the study.

Table 1. Measurement scales

Construct	Source of scale
Brand Equity	Yoo et al. (2000)
Brand Experience	Brakus et al. (2009)
Brand Loyalty	Chaudhuri and Holbrook (2001)
Brand Preference	Buil et al. (2013)
Perceived Quality	Pappu and Quester (2006), Aaker (1996)
Brand Trust	Chaudhuri and Holbrook (2001), Delgado-Ballester (2004)
Brand Awareness	Aaker (1996), Yoo et al. (2000)
Brand Association	Aaker (1996), Buil et al. (2013)

Data were collected in three phases:

- Phase 1: the internal consistency of the questionnaire was assessed and confirmed by estimating the Cronbach's Alpha using the responses of 50 respondents.
- Phase 2: the survey was administered through online survey platforms.

- Phase 3: the responses were screened to eliminate incomplete responses and inconsistent responses that would be outliers adversely affecting the analysis and results of the study.

A total of 1,200 respondents' responses were gathered of which valid responses of 1,137 respondents cleared the data cleaning process, which is adequate for PLS-SEM estimation.

The cleaned dataset was analysed using PLS-SEM beginning with an evaluation of the reflective measurement model, including assessments of factor loadings, internal consistency reliability (Cronbach's Alpha and composite reliability), convergent validity (AVE), and discriminant validity using the Fornell-Larcker criterion and HTMT ratios. Multicollinearity was examined through VIF values.

Data were analyzed using a structured multi-stage approach. After initial data cleaning and screening to remove incomplete or inconsistent responses, descriptive statistics were computed to profile the sample. The cleaned dataset was then analyzed using Partial Least Squares Structural Equation Modelling (PLS-SEM) in SmartPLS 4.0. The analysis proceeded with an evaluation of the reflective measurement model, including assessments of factor loadings, internal consistency reliability (Cronbach's Alpha and composite reliability), convergent validity (AVE), and discriminant validity using the Fornell-Larcker criterion and HTMT ratios. Multicollinearity was examined through VIF values. The model was assessed through path coefficients, t-values, and p-values obtained via bootstrapping with 5,000 resamples. Evaluations of R^2, effect sizes, predictive relevance, and overall model fit indices such as SRMR and NFI was also carried out. This systematic approach ensured robust validation of the measurement and structural aspects of the proposed model.

3. RESULTS

The sample consisted of 1,137 participants, of whom 88% were female (n = 995) and 12% were male (n = 142), indicating a strong predominance of female respondents in the study. In terms of age distribution, the largest segment of participants was below 25 years old (39%), followed by those aged 25-30 years (19%). Respondents aged 35-40 years accounted for 18%, while 15% were between 40-45 years, and 9% were above 45 years. This distribution reflects a sample that is largely composed of younger and early middle-aged consumers.

Educational attainment varied considerably: 22% of respondents had not completed high school, 17% had completed high school, 9% held a college degree, and the majority, 53%, were postgraduates. This indicates a relatively well-educated sample, with more than half possessing postgraduate qualifications.

With respect to brand usage, the highest proportion of participants (52%) reported purchasing Dove (Unilever) products, followed by Colgate (19%), Nivea (15%), Pantene (8%), and L'Oréal Paris (6%). This distribution highlights Dove's dominant market presence among the surveyed consumers, as shown in Table 2.

Table 2. Participants' demographic data

Demographic variable	Category	Frequency	Percentage (%)
Gender	Female	995	88%
	Male	142	12%
Age group	Below 25	443	39%
	25-30	215	19%
	35-40	207	18%
	40-45	175	15%
	Above 45	97	9%
Education level	Below high school	253	22%
	High school completed	190	17%
	College degree	97	9%
	Postgraduate	597	53%
Brands purchased by customers	Dove (Unilever)	593	52%
	Colgate (Colgate-Palmolive)	213	19%
	Nivea (Beiersdorf)	173	15%
	Pantene (Procter & Gamble)	95	8%
	L'Oréal Paris (L'Oréal Group)	63	6%

These percentages indicate the relative distribution of brand usage within the sample and it is visually presented in the radar chart. Among the five brands, Dove shows clear dominance while the other brands exhibit comparatively smaller but distinct consumer bases within the dataset. While

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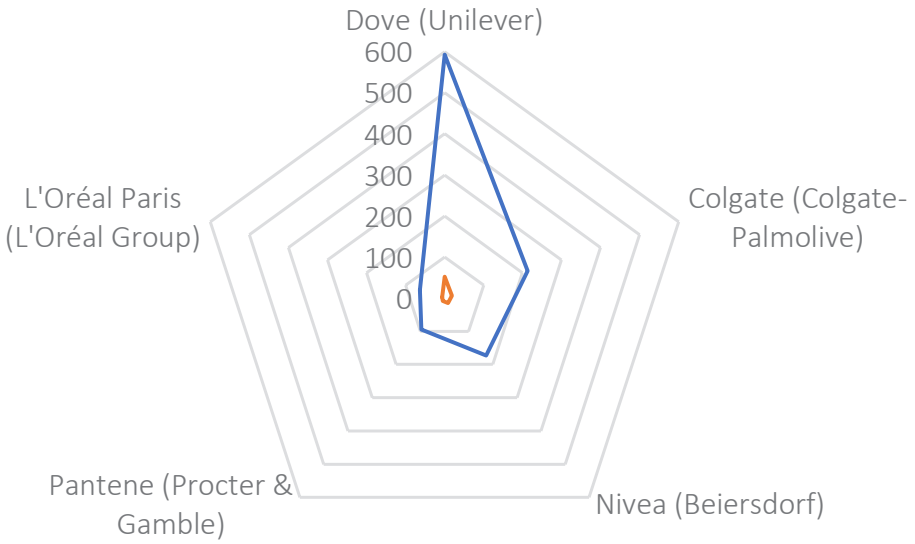

Figure 2. Brand-wise respondent distribution

this provides an overview of brand representation in the sample, it does not imply in brand equity or loyalty, which needs to be further examined.

Prior to testing the structural relationships, the measurement model was evaluated through the analysis of indicator reliability, internal consistency, convergent validity, and discriminant validity. Figure 3 and Table 3 show the results of the measurement model assessment for the reflective constructs derived from PLS-SEM analysis.

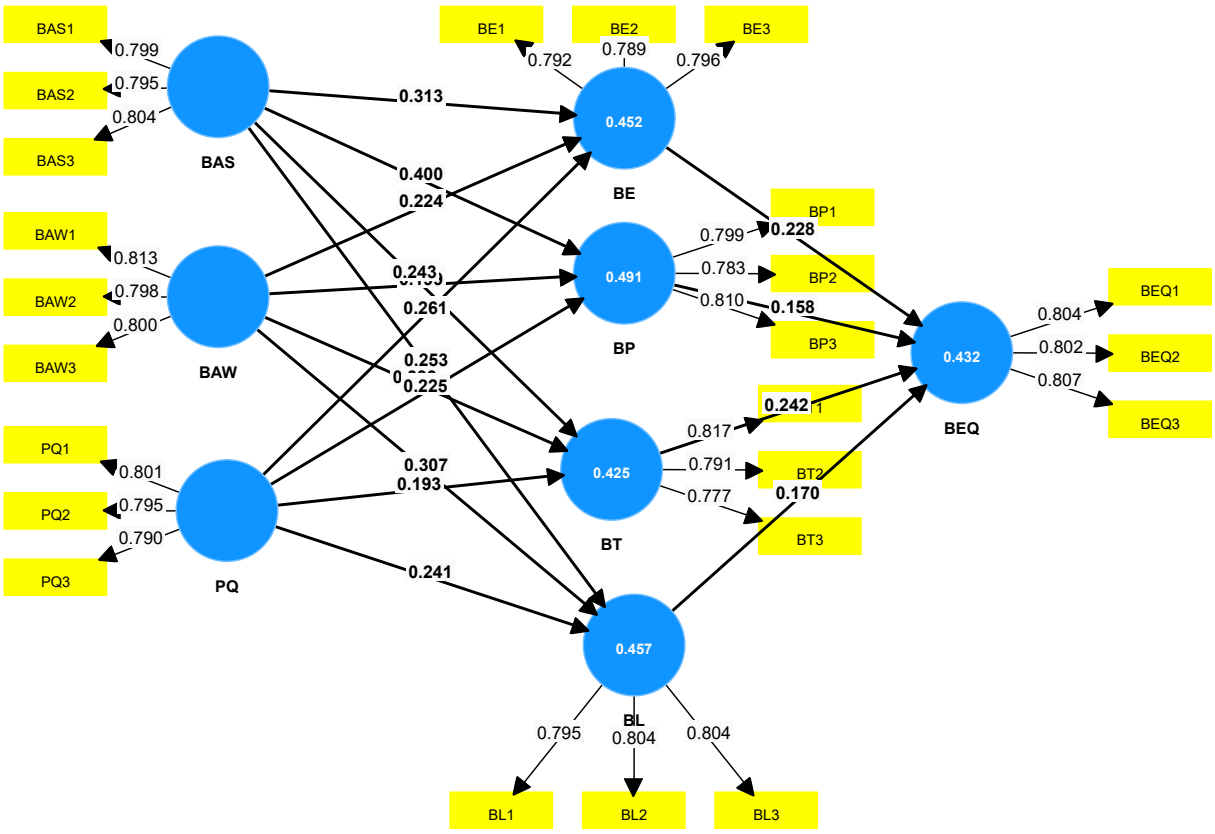

Figure 3. PLS-SEM

Table 3. Validity statistics

Construct/item	Factor loading	Cronbach's Alpha	Composite Reliability	Average Variance Extracted
Brand Equity				
The product gains value from this brand.	0.804	0.727	0.846	0.647
In contrast to other brands, this one is my top pick.	0.802			
Compared to other brands, I am willing to pay more for this one.	0.807			
Brand Experience				
My senses are strongly affected by this brand.	0.792	0.704	0.835	0.628
This brand has a visually appealing appearance in my opinion.	0.789			
This brand is immediately recognizable because to its distinctive design and feel.	0.796			
Brand Loyalty				
I'm probably going to repurchase this brand in the future.	0.795	0.721	0.843	0.642
I think of myself as a brand loyalist.	0.804			
I would advise others to use this brand.	0.804			
Brand Preference				
Compared to other brands, I like this one more.	0.799	0.713	0.840	0.636
When it comes to this product category, this brand is my first pick.	0.783			
My favourite brand among rivals is this one.	0.810			
Perceived Quality				
The quality of this brand is reliable.	0.801	0.710	0.838	0.633
Compared to other brands on the market, this one is of higher quality.	0.795			
I know that this brand will always function nicely.	0.790			
Brand Trust				
Regarding its goods and services, this company is truthful.	0.817	0.709	0.838	0.632
This brand, in my opinion, always conducts itself honorably.	0.791			
Product information from this brand is honest and straightforward.	0.777			
Brand Awareness				
Among rival brands, I can identify this one.	0.813	0.726	0.845	0.646
When I go shopping for this kind of thing, I am aware of this brand.	0.798			
When I think of a product, I can quickly think of this brand.	0.800			
Brand Association				
Good experiences are linked to this brand.	0.799	0.718	0.842	0.639
This brand is associated with deep emotional values in my mind.	0.795			
This brand embodies the qualities I want in a product.	0.804			

The strength of relationship between the individual indicators and their assigned constructs represented by the factor loadings are found to be greater than 0.70, the established cut-off value, indicating that the indicators share a lot of variance with the construct (Hair et al., 2019; Henseler, 2017; Fornell & Larcker, 1981). The indicators are, therefore, strong representatives of the corresponding constructs. Cronbach's Alpha and Composite Reliability (CR), used to measure internal consistency reliability or how closely related are the indicators as a group, are found to be greater than 0.70, the established cut-off value, for all indicators (Bagozzi & Yi, 1988; Chin, 2010; Ringle et al., 2014; Ringle et al., 2020), establishing that the indicators for a single construct are consistent and measure the same underlying construct. Further, the results show that all construct have the Average Variance Extracted (AVE) values between 0.628 and 0.647, which is higher than 0.50, the cutoff point suggested by Fornell and Larcker (1981). According to Hair et al. (2019), this suggests strong convergent validity. On average, the constructs capture more variance from their corresponding indicators than is left unexplained. The results, thus, collectively establish that the measurement model used in the study has indicator reliability, internal consistency, and convergent validity. Thus, satisfying the key criteria required for reflective constructs in PLS-SEM, supporting the suitability of the measurement model for further structural analysis.

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Table 4. Fornell-Larcker criterion (discriminant validity)

Items	BAS	BAW	BE	BEQ	BL	BP	BT	PQ
BAS	0.799							
BAW	0.592	0.804						
BE	0.586	0.554	0.793					
BEQ	0.546	0.613	0.550	0.804				
BL	0.565	0.591	0.578	0.532	0.801			
BP	0.639	0.561	0.573	0.519	0.557	0.797		
BT	0.545	0.585	0.554	0.557	0.592	0.560	0.795	
PQ	0.540	0.556	0.554	0.550	0.549	0.551	0.510	0.795

To assess discriminant validity in the measurement model, the Fornell-Larcker criterion was applied. According to Fornell and Larcker (1981), discriminant validity is established when the square root of the Average Variance Extracted (AVE) for each construct exceeds its correlations with other constructs. This method remains one of the most popular methods to confirm that constructs are empirically distinct in Partial Least Squares Structural Equation Modelling (PLS-SEM) (Chin, 2010; Hair et al., 2021; Sarstedt et al., 2019) due to its ease of use and interpretability despite the proposal of other techniques like the Heterotrait-Monotrait (HTMT) ratio of correlations (Ali et al., 2018; Henseler et al., 2015). Additionally, model consistency and reliability are supported by the use of AVE alongside internal consistency metrics such as Cronbach's Alpha and Composite Reliability (Dijkstra & Henseler, 2015). These tests, collectively, confirm that the measurement model has both discriminant and convergent validity, ensuring that the constructs being measured in the study are accurate and unique (Fornell & Larcker, 1981; Hair et al., 2021; Franke & Sarstedt, 2019).

Table 4 presents the results from the application of Fornell-Larcker criterion in the present study. It can be observed that all diagonal values, the square root of the AVE (highlighted in bold), are greater than that construct's highest correlation with any other construct in the model, inter-construct correlations shown by the off-diagonal values in its row and column. For instance, the square root of the AVE for BAS (0.799) is greater than its correlation with BP (0.639) and BAW (0.592). Similarly, BE (0.793) shows higher square root of the AVE than its correlation with BL (0.578) and BP (0.573). This pattern holds for all the constructs confirming that they are empirically distinct, in other words, results confirm discriminant validity.

Considering that Heterotrait-Monotrait (HTMT) ratio of correlations is contemporary and overcomes the drawbacks of the Fornell-Larcker criterion when constructs are conceptually comparable, present study applied the method to further confirm the discriminant validity. HTMT values below the 0.85 threshold indicate sufficient discriminant validity between constructs (Henseler et al., 2015). Table 4 presents the HTMT matrix and it is observed that all the HTMT values, except between brand association (BAS) and brand preference (BP), are found to be below 0.85 threshold. Hence, the discriminant validity between these constructs is established. HTMT value between BAS and BP is observed to be 0.893, which is marginally above the cautious threshold value of 0.85 but it is lower than the liberal 0.90 cutoff

Table 5. HTMT matrix

Items	BAS	BAW	BE	BEQ	BL	BP	BT	PQ
BAS								
BAW	0.821							
BE	0.823	0.776						
BEQ	0.756	0.843	0.769					
BL	0.786	0.817	0.811	0.735				
BP	0.893	0.779	0.808	0.720	0.777			
BT	0.762	0.813	0.784	0.775	0.828	0.787		
PQ	0.756	0.775	0.784	0.765	0.767	0.775	0.718	

used in some research (Hair et al., 2012; Voorhees et al., 2016), and hence it can be considered acceptable and discriminant validity between these constructs is also established.

Regression coefficients, standard errors, and significance tests get distorted by high collinearity between predictor constructs (Hair Jr, 2020). Hence inner model was tested for collinearity among the predictor constructs using the Variance Inflation Factor (VIF) (Becker et al., 2012; Henseler, 2017). While some studies advise a cautious threshold of 3.3 to ensure robust estimations, a VIF value below 5.0 is generally seen as acceptable (Diamantopoulos & Siguaw, 2006; Kock & Lynn, 2012). The results in Table 5 show that all the VIF values range between 1.607 and 1.884, which are below the stringent threshold of 3.3 demonstrating that multicollinearity is not a critical issue in this study. According to Sarstedt et al. (2019), low VIF values indicate that the concerned variable does not overly overlap with other predictors and offer unique and significant explanatory power. The low VIFs also suggest that there is little bias from predictor interdependence when interpreting the model's path coefficients (Kline, 2015; Ringle et al., 2020).

The results presented in Table 6 validate the measurement model suggested in the study. Following the validation, the structural model was assessed to test the hypothesised relationships. The coefficient of determination (R^2) for endogenous constructs is used to assess the explanatory power of the structural model. According to Cohen (1988), R^2 values can be categorized as weak (0.02 to 0.13), moderate (0.13 to 0.26), or substantial (≥ 0.26). R^2 values of the structural model of the present study is presented in Table 7. The R^2 values range from 0.425 to 0.491 indicating substantial or high degree of explanatory power. The results imply that the predictor constructs account for 42.5% to 49.1% of the variance in the dependent variables (Hair et al., 2021).

Table 7. The coefficient of determination (R^2) for endogenous constructs

Item	R^2
BE	0.452
BEQ	0.432
BL	0.457
BP	0.491
BT	0.425

The overall model consistency in PLS-SEM is tested using the Standardized Root Mean Square Residual (SRMR) and the Normed Fit Index (NFI) as supplementary goodness-of-fit measures (Hair et al., 2021). The SRMR quantifies the discrepancy between the observed correlations and the model-implied correlations. According to Henseler et al. (2015), an SRMR value less than 0.08 is generally considered indicative of a good fit. The NFI measures the improvement in fit of the proposed model over a null model. Values closer to 1 represent a better fit. However, there is no universal threshold for NFI in PLS-SEM. Values above 0.90 are often desired and values above 0.70 considered acceptable in exploratory research (Dijkstra & Henseler, 2015; Hu & Bentler, 1999).

Table 8. Model Fit

Item	Saturated model	Estimated model
SRMR	0.054	0.068
NFI	0.765	0.748

The results presented in Table 8 show that SRMR values for both the saturated and estimated models are 0.054 and 0.068, respectively. The SRMR values are below the threshold of 0.08 indicating an acceptable fit. The NFI values, at 0.765 and 0.748, are within an acceptable range for explor-

Table 6. VIF Inner Model Matrix

Items	BAS	BAW	BE	BEQ	BL	BP	BT	PQ
BAS			1.709		1.709	1.709	1.709	
BAW			1.754		1.754	1.754	1.754	
BE				1.831				
BEQ								
BL				1.884				
BP				1.799				
BT				1.838				
PQ			1.607		1.607	1.607	1.607	

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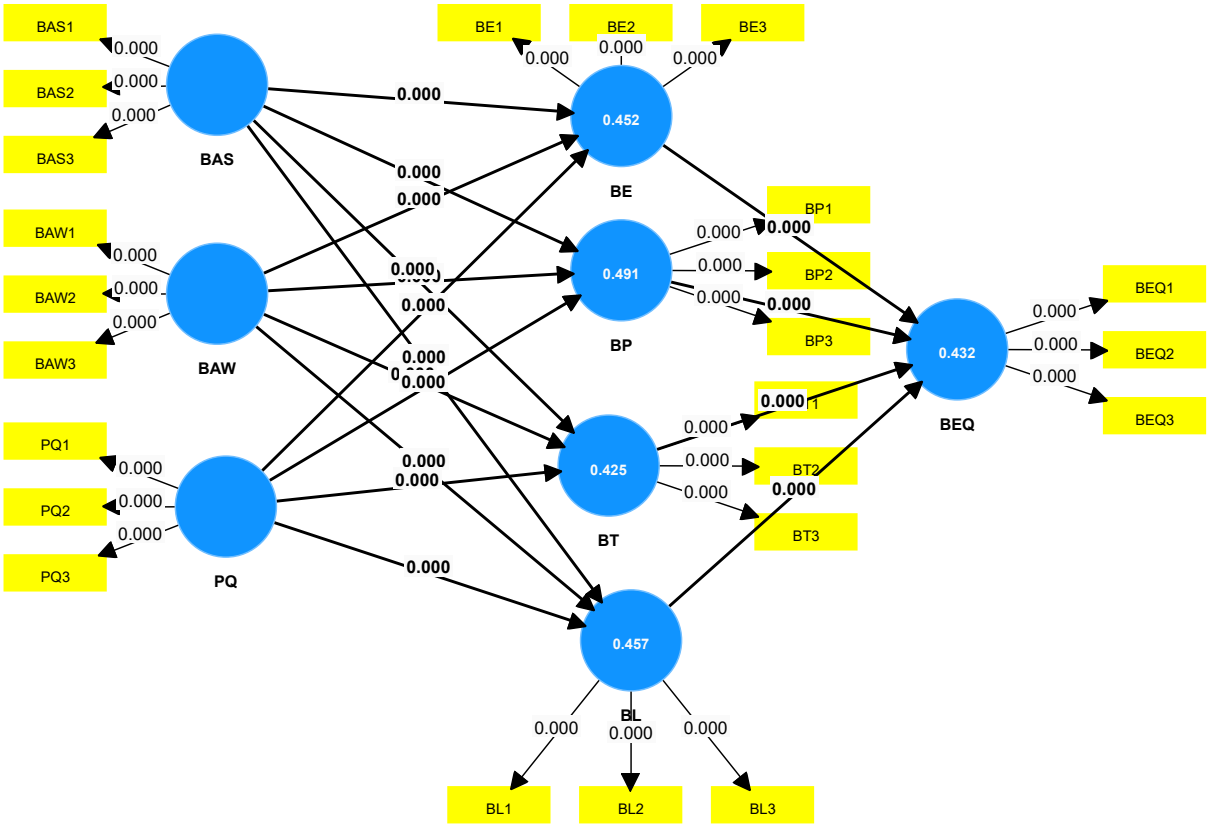

Figure 4. Results of Bootstrapping (PLS-SEM)

atory research, though they fall marginally below the optimal level of 0.90 (Chin et al., 2012; Hwang et al., 2021). The results indicate a reasonable overall model consistency confirming both its theoretical and empirical validity (Rigdon, 2012; Sarstedt et al., 2014).

Following the confirmation of model's theoretical and empirical validity, the structural model was evaluated by testing the hypothesized paths through the bootstrapping procedure in SmartPLS. The results presented in Table 9 and Figure 4 show that, consistent with *H1a*, brand association demonstrates a strong, positive and significant effect on brand experience ($\beta = 0.313$, $t = 9.543$, $p < 0.001$). *H1b* was supported with results showing significant positive influence of brand association on brand preference ($\beta = 0.400$, $t = 12.633$, $p < 0.001$). Positive significant influence of brand association on brand trust (*H1c*) is supported with $\beta = 0.243$, $t = 6.691$, $p < 0.001$. With $\beta = 0.253$, $t = 7.228$, $p < 0.001$, the hypothesized relationship in *H1d* is supported, there is significant positive influence of brand association on brand loyalty. The path from brand association to brand preference is found to be strongest in the model.

The results further show that the brand awareness has significant positive influence on brand experience ($\beta = 0.224$, $t = 6.418$, $p < 0.001$), preference ($\beta = 0.199$, $t = 6.147$, $p < 0.001$), trust ($\beta = 0.333$, $t = 9.912$, $p < 0.001$) and loyalty ($\beta = 0.307$, $t = 8.266$, $p < 0.001$). The path from brand awareness to brand trust being the strongest. Similarly, the results support that the perceived quality has significant positive influence on brand experience ($\beta = 0.261$, $t = 7.970$, $p < 0.001$), preference ($\beta = 0.225$, $t = 6.679$, $p < 0.001$), trust ($\beta = 0.193$, $t = 5.517$, $p < 0.001$) and loyalty ($\beta = 0.241$, $t = 6.660$, $p < 0.001$). While hypotheses *H3a*, *H3b*, *H3c*, and *H3d* are accepted, it can be observed that perceived quality has highest influence on brand experience.

The results confirm that brand experience ($\beta = 0.228$, $t = 5.941$, $p < 0.001$), brand preference ($\beta = 0.158$, $t = 3.990$, $p < 0.001$), brand trust ($\beta = 0.242$, $t = 6.034$, $p < 0.001$), and brand loyalty ($\beta = 0.170$, $t = 4.248$, $p < 0.001$) have significant positive influence on brand equity. While brand trust has the highest influence over brand equity, the hypotheses *H4a*, *H4b*, *H5a*, and *H5b* are accepted.

Table 9. Test of hypothesized relationships

Hypothesis	Relationship	Path coefficient	t-value	p-value	Hypothesis verification
H1a	BAS → BE	0.313	9.543	0.000	Accepted
H1b	BAS → BP	0.400	12.633	0.000	Accepted
H1c	BAS → BT	0.243	6.691	0.000	Accepted
H1d	BAS → BL	0.253	7.228	0.000	Accepted
H2a	BAW → BE	0.224	6.418	0.000	Accepted
H2b	BAW → BP	0.199	6.147	0.000	Accepted
H2c	BAW → BT	0.333	9.912	0.000	Accepted
H2d	BAW → BL	0.307	8.266	0.000	Accepted
H3a	PQ → BE	0.261	7.970	0.000	Accepted
H3b	PQ → BP	0.225	6.679	0.000	Accepted
H3c	PQ → BT	0.193	5.517	0.000	Accepted
H3d	PQ → BL	0.241	6.660	0.000	Accepted
H4a	BE → BEQ	0.228	5.941	0.000	Accepted
H4b	BP → BEQ	0.158	3.990	0.000	Accepted
H5a	BT → BEQ	0.242	6.034	0.000	Accepted
H5b	BL → BEQ	0.170	4.248	0.000	Accepted

The results indicate that all the 16 hypotheses (H1a-H5b) are supported. Each path was found to be statistically significant at $p < 0.001$, with corresponding t-values higher than the critical value of 1.96. Thus, the statistical significance is confirmed at the 0.05 level (Hair et al., 2021). In alignment with the accepted standards for structural equation modelling, substantial empirical support is found for the theoretical model proposed in the study through the confirmation of all hypothesized relationships (Henseler et al., 2015; Sarstedt et al., 2022).

4. DISCUSSION

The study proposed a structural model that intended to delineate the pathways that culminate in Consumer-Based Brand Equity (CBBE) in low involvement Consumer-Packaged Goods (CPG) segment within the Fast-Moving Consumer Goods (FMCG) sector. The empirical validation of all 16 hypotheses provided robust support to the proposed model and revealed the nuances of relationships that were hypothesized offering strategic guidance.

Key finding of the study is the strongest individual effect of brand association (BAS) in the entire model. By significantly influencing brand preference (*H1b*: $\beta = 0.400$) in the CPG segment, where purchasing frequency and product involvement differ from other product categories, brand association can be identified as the powerful driver of consumer choice than brand awareness and perceived quality. This confirms and extends the works of Buil et al. (2013) and Christodoulides and De Chernatony (2010) by demonstrating these relationships within a fully integrated model specific to the CPG context. The finding also extends the work of Keller (1993) on brand knowledge by providing empirical evidence to the argument that consumers' positive brand association is a critical lever for driving brand preference or for making a brand top choice of the consumers. Besides, the result strongly supports the concept of the accessibility-diagnosticity framework (Feldman & Lynch, 1988), where easily accessible information (like brand name) is used heavily in judgment, especially in low-involvement CPG decisions. Further, the significant impact of BAS on brand experience (*H1a*: $\beta = 0.313$) implies that consumers' brand associations are fundamental to shaping of their subjective and sensory responses during their brand interactions extending beyond being a cognitive relationship. This is consistent with the conceptualizations by Brakus et al. (2009). Thus, the study highlights primacy of brand association in shaping consumer perception.

The study also finds that brand awareness (BAW) plays dual role with strong influence over brand trust (*H2c*: $\beta = 0.333$) and brand loyalty (*H2d*: $\beta = 0.307$). However, the effects are strategically distinct. The stronger influence on brand trust is in alignment the mere exposure effect (Zajonc, 1968)

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and trust-building literature. In the context of FMCG/CPG frequent exposure and higher visibility leads to familiarity, reduced perceived risk and fosters trust. While this significant link can be considered as its role as a gatekeeper, the significant influence of BAW on brand loyalty can be attributed as its role as a defensive barrier against competition. Well-known brands are the hardest for the consumers to abandon. Brand awareness, thus, is a strategic asset for the brands for the reinforcement of consumer relationships not just a marketing starting point.

Another foundational reveal of the study is the consistent significant influence of perceived quality (PQ) over consumer response constructs. The substantial significant influence of PQ over brand experience (*H3a*: $\beta = 0.261$) confirms that quality is an active ingredient in developing brand experience. However, while all the PQ's paths are significant, they are not the strongest drivers. Hence, in the FMCG/CPG sector quality operates as a fundamental or basic minimum requirement absence of which could be detrimental to the brand. It can be said that PQ's presence is leveraged through brand association and trust that is created through quality. Furthermore, this study confirms that trust, experience, preference, and loyalty mediate and reinforce these linkages, amplifying the impact of the primary brand cues on the development of overall brand equity — an area that previous studies have only partially explored.

Brand trust (BT) emerges as the most critical driver of brand equity (*H5a*: $\beta = 0.242$). This finding reinforces Morgan's and Hunt's (1994) commitment-trust theory, demonstrating that in a low-involvement, high-switching environment, trusting connections with the consumers is the ultimate economic asset. It is a direct contributor to brand value than a positive brand experience (*H4a*: $\beta = 0.228$) or loyalty (*H5b*: $\beta = 0.170$). While brand experience and brand loyalty are vital elements, they will translate into lasting brand equity only when they are built on the foundation of brand trust.

Consumers, generally, depended mainly on product performance cues or advertising claims, whereas contemporary markets emphasize experiential and relational factors like trust, satisfaction, and consistent brand interactions. In this context, present study provides a validated hierarchical model for CBBE in FMCG/CPG showing how cognitive elements (BAS, BAW, PQ) are channelled through affective and relational responses (BT, BE) to build a lasting brand equity (BEQ) that creates economic value. In other words, the model proposed and validated in this study provides the practitioners with focus elements that could help them achieve brand equity. The practitioners must focus on building distinctive and positive brand associations, maintain high visibility as a deliberate strategy that fosters familiarity and trust, and strategically communicate the essence of quality that enhances the consumer's daily experience. The priority of the practitioners must be to design the customer interactions towards building and reinforcing trust, which can safeguard and enhance brand equity.

Nevertheless, additional studies could explore how consumer-based brand equity influences retention, advocacy, and long-term purchase behavior across various product categories. Researchers and industry professionals can further refine their understanding of how-to best leverage cognitive and experiential branding components in the evolving FMCG marketplace by examining these potential extensions.

CONCLUSION

In the low-involvement FMCG personal care industry this study provides empirical validation for a hierarchical and integrative model of Consumer-Based Brand Equity (CBBE). The results verify that perceived quality brand association and brand awareness serve as fundamental cognitive drivers that start the brand-building process. Through important relational and experiential mediators such as brand loyalty, trust, preference and experience these drivers indirectly impact consumers which in turn leads to increased brand equity overall. Therefore, the findings support the idea that brand equity development in competitive FMCG markets is a sequential and interdependent process.

Among the antecedent's brand association stood out as a particularly powerful strategic lever that significantly influenced downstream behavioural outcomes and shaped brand preference. Likewise, brand trust showed the strongest direct impact on total brand equity underscoring its critical function in securing enduring customer relationships. These results imply that maintaining differentiation and competitive advantage in low-involvement categories requires emotional and symbolic associations in addition to trust-building strategies.

From a managerial perspective, firms should focus on creating unique and emotionally compelling brand associations maintain steady market visibility to increase awareness and frame perceived quality as a comprehensive brand experience rather than just a functional feature.

Future studies could apply longitudinal or experimental designs to more firmly establish interconnection expand this model across various product categories and cultural contexts and measure indirect and mediation effects to improve comprehension of the process of brand equity formation.

AUTHOR CONTRIBUTIONS

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Visualization: Varun Jewargi, Amith Donald Menezes.
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Writing – review & editing: Amith Donald Menezes, Subrahmanya Kumar N.

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APPENDIX A. QUESTIONNAIRE

Part A: Participant information and consent

Before beginning the survey, please note that your participation is entirely voluntary and you may withdraw at any time without any penalty. The survey does not collect any personal identifying information, and all responses will remain strictly confidential and used solely for academic research purposes. By proceeding with the survey, you acknowledge that you have read the information provided and give your informed consent to participate.

- ☐ I consent to participate in the survey
- ☐ I do NOT consent to participate in the survey (survey ends)

Part B: Demographic information

1. Gender

- ☐ Male
- ☐ Female
- ☐ Other
- ☐ Prefer not to disclose

2. Age group

- ☐ Below 25 years
- ☐ 25-30 years
- ☐ 30-35 years
- ☐ 35-40 years
- ☐ 40-45 years
- ☐ Above 45 years

3. Education level

- ☐ Below high school
- ☐ Completed high school
- ☐ College degree
- ☐ Postgraduate degree

4. Product category usage screening

Have you purchased any personal care / CPG product in the last 6 months?

- ☐ Yes
- ☐ No (survey ends)

5. Brand familiarity selection

Please choose the brand you are most familiar with:

- ☐ Dove (Unilever)
- ☐ Colgate (Colgate-Palmolive)

- ☐ Nivea (Beiersdorf)
- ☐ Pantene (Procter & Gamble)
- ☐ L'Oréal Paris (L'Oréal Group)
- ☐ I am not familiar with any of the above brands (survey ends)

Part C: Measurement items

Please indicate your level of agreement with each statement regarding the brand you selected above.

Scale: 1 = strongly disagree, 2 = disagree, 3 = slightly disagree, 4 = neutral, 5 = slightly agree, 6 = agree, 7 = strongly agree.

No	Particulars	Questions	Choose your response
1	Brand Equity	The product gains value from this brand.	
2		In contrast to other brands, this one is my top pick.	
3		Compared to other brands, I am willing to pay more for this one.	
4	Brand Experience	My senses are strongly affected by this brand.	
5		This brand has a visually appealing appearance in my opinion.	
6		This brand is immediately recognizable because to its distinctive design and feel.	
7	Brand Loyalty	I'm probably going to repurchase this brand in the future.	
8		I think of myself as a brand loyalist.	
9		I would advise others to use this brand.	
10	Brand Preference	Compared to other brands, I like this one more.	
11		When it comes to this product category, this brand is my first pick.	
12		My favorite brand among rivals is this one.	
13	Perceived Quality	The quality of this brand is reliable.	
14		Compared to other brands on the market, this one is of higher quality.	
15		I know that this brand will always function nicely.	
16	Brand Trust	Regarding its goods and services, this company is truthful.	
17		This brand, in my opinion, always conducts itself honorably.	
18		Product information from this brand is honest and straightforward.	
19	Brand Awareness	Among rival brands, I can identify this one.	
20		When I go shopping for this kind of thing, I am aware of this brand.	
21		When I think of a product, I can quickly think of this brand.	
22	Brand Association	Good experiences are linked to this brand.	
23		This brand is associated with deep emotional values in my mind.	
24		This brand embodies the qualities I want in a product.	

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