

A Study on Consumer-Based Brand Equity for Air Conditioners in Hyderabad

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Abstract

The Indian air conditioner market has grown tremendously due to increasing urbanization, disposable incomes, and climate change. As a result, air conditioners have become a necessity and not a luxury item. With regards to this, the rapidly developing metro city of Hyderabad is servicing a huge market of valued customers that use brand equity drivers such as price, energy efficiency, and other attributes that go as far as loyalty. This research seeks to understand the impact of equity brand on customer's choices among the various air conditioner brands in Hyderabad. A structured questionnaire was developed, and data was collected through an online survey from 151 respondents derived from a diverse population. The research employed Chi-square tests, ANOVA, and regression techniques to test and measure the contribution of brand image, quality appraisal, and loyalty to consumer choice.

From this, it was found that brand trust and brand awareness do affect consumers' purchasing decisions most significantly and about this, LG came out on top. The research paper stresses the need for competitive branding, energy-efficient technology, and superior marketing to build and maintain brand loyalty in the highly competitive air conditioner market

Introduction:

This area of air conditioning considers cooling things inside India and has become one of the areas that have improved quite rapidly in the fast past years due to reasons like urbanization, increased middle-class population, increased disposable income per person, and changes in climate. In India where the climate is such that it becomes extremely hot during summer seasons, air conditioners in any case for the consumer and a company end up being more than luxury. They become necessity. According to the market reports report by the Indian Brand Equity Foundation (IBEF), the Indian HVAC market is expected to move to the stage of USD 9.77 billion by 2026 at a compound annual growth rate (CAGR) of 7.5% in the period 2021- 2026. The pattern behind this widespread development is based on the increasing demand for energy-efficient technological advanced cooling systems and heating systems in a residential, commercial, or industrial segment. International brands as well as domestic markets are fighting with each other in garnering a larger share of the market fraction with a greater fraction of business.

With an increasing amount of competition among l k-scale players like LG, Samsung, Daikin, Voltas, and Blue Star, decisions for the consumers have become richer and much more complex. It is true that a great deal will be dependent on price and energy efficiency, but also brand equity, trust, and perceived quality begin playing a role in consumer choices. To this end, Consumer-based Brand Equity (CBBE) has been defined in the context of conceptualizing the performance of a brand, the degree of value consumers places on a brand, and awareness levels associated with the brand, relationships with a brand, perceived brand quality, and brand loyalty. Strong brand equity raises customer perceived trust, establishes loyalty, and further affects consumer purchase behavior in those markets where majority products possess a close similarity in technical features as well as price. Brands are, increasingly, getting attracted towards the agriculture of high-performance cooling appliances and equally focusing on sustainability, innovation and post-purchase support.

Hyderabad, with a population exceeding 10 million, is one of the fastest-growing cities and thus constitutes a good market for air conditioner manufacturers. The very high summer heat here, coupled with the IT and real estate boom in Hyderabad, has really augured well for the demand for air conditioners both in the commercial and residential sectors. Also, the Hyderabad market is a mix-from middle-class families to higher-end earners-who are taking into consideration not just energy efficiency, but also the brands and aspirational values, into consideration before making a purchase. Gradually, the culture is even taking a large change over inverter AC models as well as appliances with higher energy-star ratings, following trends all over urban India. KPMG studies suggest that 75% of Indian urban households are now considering energy efficiency as one of the topmost priorities in making purchases of home electronics and that sustainability is becoming a differentiator among brands in this market.

While it so much must do that it has such a huge growth potential; Hyderabad is a specific challenge for air conditioner makers. This population diversity means that not only will one have to cater to more tastes and preferences, but also different price points. Price sensitivity is also a main consideration especially with lower- and middle-income families, which would be the ones choosing budget-in or no brand goods. Furthermore, maximum clutter advertisement is a direct result of very intense competition among the major branded firms in the market. It has become increasingly difficult for the enterprises to stand out from the crowd. Brands, therefore, need a localized approach for marketing, better after-sales services, and a bit of customization to deal with the peculiar climatic conditions of our city if they want to succeed in Hyderabad. Those companies inculcating energy efficiency, cost- effectiveness, advanced technological and customer excellence into their brand value proposition would do best in gaining market share as well as building loyal consumers in a long-term perspective.

Research Methodology Objectives of the Study

- **To examine how consumer perceptions of brand equity impact their preferences for air conditioners brands**

(This Objective is the comprehension of the importance of consumer attitudes to. Brand equity in relation to brand selection by use of brand equity). components considering brand awareness, perceived quality, and loyalty in the choice of air conditioner brands.)

- **To evaluate the effectiveness of different dimensions of brand equity (such as brand awareness, perceived quality and brand loyalty), in influencing brand preference in the air conditioner market.**

(To examine how much each variable of brand equity (e.g., recognition, trust, and product satisfaction) leverage help. consumers with their final decisions.)

Hypotheses:

- **H1:** The association between brand recognition, perceived quality, and brand preference for air conditioners in Hyderabad is positive and is characterized by high consumer preference.
- **H2:** Brand loyalty is a major determinant in a consumer's brand repeat purchase intention as consumers are very inclined to go for different brands but prefer a known brand.

Scope of the Study: The ranges of this study are concentrated within the group of air conditioners users in Hyderabad by examining their brand preference for different commodities using brand equity factors. It captures respondents from different strata to buy understanding the brand image and the elements that impact purchasing decisions. The research combines primary and secondary data sources to create a fuller picture of

the area of study.

Data collection

- **Primary data:** Obtained through a structured questionnaire of air conditioners buyers and users in Hyderabad. The questionnaire designed was both closed and open-end in nature to capture demographics, brand awareness, quality perceptions, and loyalty to the brand. The survey is distributed Online through Google form.
- **Secondary data:** Obtained from market consultancy reports and studies, consumer reviews, and various other internet sources pertaining to the air conditioner market, its brand equity, and the general consumer behaviour.

Sample Design

- Target population: Individual in Hyderabad who owns or use air conditioners spanning various demographics such as age, income, profession
- Sample size: A total of 151 respondents
- Sampling method: Combination of convenience sampling and Random sampling (to minimize bias and enhance variability)

Data Analysis: Descriptive analysis to summarize consumers characteristics, while Chi- squares tests analyse demographic influence on brand preference. ANOVA compare preferences across groups, and Correlation & regression analysis measures the impact of brand equity factors on consumer decisions

DATA ANALYSIS:

CHI- SQUARES TESTS

Table -1

Which air conditioner do you prefer? (Please select one)	Composite score of Brand Equity			
Crosstab				
Count	Composite score of Brand Equity			
	Least recognized associated brand	Moderately and recognized associated brand	Highly recognized associated brand	Total
Which air conditioner brand do you prefer? (Please select one)	LG	31	56	102
	Samsung	6	8	23
	Voltas	1	5	9
	Daikin	3	5	9
	Hitachi	1	0	1
	Blue star	0	2	3
	Lloyd	2	0	3
	Hisense	1	0	1
Total	30	45	76	151
	Value	df	P=	
Pearson Chi-Square	18.859 ^a	14	0.170	
Likelihood Ratio	20.493	14	0.115	
Linear-by-Linear Association	2.306	1	0.129	
N of Valid Cases	151			
a. 19 cells (79.2%) have expected count less than 5. The minimum expected count is .20.				

A statistical inspection identifies the absence of a considerable relationship between brand preference and the overall brand equity composite score, which consists of measurement levels ranging from "Least recognized"

to "Moderately recognized" and the maximum level of recognition of "Highly recognized." Although the differences exist in brand recognition, as LG seems to enjoy the highest preference across groups, the Chi-Square statistical test (p -value=0.170) and the likelihood ratio test (p -value=0.115) would suggest that the differences observed are equally likely to be due to random chance than anything else. Moreover, many cells in this test had low expected counts (over 79% with fewer than 5), which raises the validity concern of the results. Another factor at play is that brands such as Samsung, Voltas,

and Daikin are receiving far much less preference, primarily in the Highly recognized category, while LG has a strong preference.

Quite negligible consumer preferences are seen in brands like Hitachi and Hisense, which could indicate little recognition or consumer interest.

TABLE -2

Which air conditioner do you prefer? (Please select one)	ase select one)	*sitescoreofPe	rceivedQualit	y
Crosstab				
Count	CompositescoreofPerceivedQuality			
		Moderately satisfied with perceived quality and Brand Loyalty	Highly satisfied with perceived quality and Brand Loyalty	Total
Which air conditioner brand do you prefer? (Please select one)	1			
LG	15	31	56	102
Samsung	9	6	8	23
Voltas	3	1	5	9
Daikin	1	3	5	9
Hitachi	0	1	0	1
Blue star	1	0	2	3
Lloyd	1	2	0	3
Hisense	0	1	0	1
Total	30	45	76	151
	Value	df	P=	
Pearson Chi-Square	18.859 ^a	14	0.170	
Likelihood Ratio	20.493	14	0.115	
Linear-by-Linear Association	2.306	1	0.129	
N of Valid Cases	151			
a. 19 cells (79.2%) have expected count less than 5. The minimum expected count is .20.				

Likewise, there is no significant connection between brand preference as opposed to perceived quality and satisfaction. The Pearson Chi-Square ($p = 0.170$), Likelihood Ratio ($p = 0.115$), and Linear-by-Linear Association test ($p = 0.129$), all point toward brand preference not being particularly aligned to consumer levels of satisfaction. While LG is still rated as the most preferred brand with the highest number of satisfied customers, brands like Samsung and Daikin gather lesser votes from highly satisfied groups. Further, use of this analysis is shown to be unfit for small sample sizes, as a tendency for cells to have low expected counts operates against the test's reliability. With 151 respondents, while LG is favoured, little show any significant statistical relationship between brand preference and satisfaction in any meaningful way.

• Anova :

able-3

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Gender	Between Groups	2.204	4	0.551	2.276	0.064
	Within Groups	35.346	146	0.242		
	Total	37.550	150			
Age	Between Groups	2.265	4	0.566	1.683	0.157
	Within Groups	49.139	146	0.337		
	Total	51.404	150			

Marital Status	Between Groups	0.418	4	0.104	1.435	0.225
	Within Groups	10.628	146	0.073		
	Total	11.046	150			
Educational Qualification	Between Groups	8.418	4	2.105	6.148	0.000
	Within Groups	49.979	146	0.342		
	Total	58.397	150			
Income level	Between Groups	16.828	4	4.207	5.395	0.000
	Within Groups	113.860	146	0.780		
	Total	130.689	150			

Eta-squared		0.059	Lower	Upper	0.123	95% Confidence	
Epsilon-squared		0.033	-0.027	0.099			
Eta-squared		0.044	0.000	0.101			
Epsilon-squared		0.018	-0.027	0.076			
Eta-squared		0.038	0.000	0.091			
Epsilon-squared		0.011	-0.027	0.066			
Eta-squared		0.144	0.039	0.231			
Epsilon-squared		0.121	0.013	0.210			
Eta-squared		0.129	0.029	0.213			
Epsilon-squared		0.105	0.002	0.192			
a. Eta-squared and Epsilon-squared are estimated based on the fixed-effect model.							
b. Negative but less biased estimates are retained, not rounded to zero.							

Having higher education and greater income means a wider range of brand preferences. ANOVA results show that education ($p = 0.000$, $F = 6.148$) and income ($p = 0.000$, $F = 5.395$), are brand preference factors for the statistically significant group. Additionally, gender ($p = 0.064$), age ($p = 0.157$), and marriage ($p = 0.225$) have little to no influence on the brands that the consumers choose. This was further corroborated by the effect size analysis, with educational qualification ($\eta^2 = 0.144$) and income level ($\eta^2 = 0.129$) having moderate impacts in favour of their consideration for purchasing adjustment. The smaller effect sizes for gender, age, and marital status depict their selection in brand preference as minimal. The results indicate that consumers with high brand preferred, and expenses are best targeted with premium branding, and elevated consumer engagement strategies.

• Correlation

Table – 4

Correlation	Brand Awareness s	Brand Loyalty	Perceived Quality	Brand Association	Consumer Preference
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Brand Awareness	Pearson Correlation	1	.644**	.693**	.659**	.508**
	Sig. (2-tailed)		0.000	0.000	0.000	0.000
	N	151	151	151	151	151
Brand Loyalty	Pearson Correlation	.644**	1	.623**	.733**	.820**
	Sig. (2-tailed)	0.000		0.000	0.000	0.000
	N	151	151	151	151	151
Perceived Quality	Pearson Correlation	.693**	.623**	1	.693**	.462**
	Sig. (2-tailed)	0.000	0.000		0.000	0.000
	N	151	151	151	151	151
Brand Association	Pearson Correlation	.659**	.733**	.693**	1	.556**
	Sig. (2-tailed)	0.000	0.000	0.000		0.000
	N	151	151	151	151	151
Consumer Preference	Pearson Correlation	.508**	.820**	.462**	.556**	1
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	
	N	151	151	151	151	151

It was established through correlation analysis that relationships among brand equity factors are significant. Brand awareness was found to correlate positively with brand loyalty ($r = 0.644$, $p < .01$), perceived quality ($r = 0.693$, $p < .01$), brand association ($r = 0.659$, $p < .01$), and consumer preference ($r = 0.508$, $p < .01$), evidencing that visibility holds significance in forming perceptions and preferences toward the product and the brand. Brand loyalty is highly correlated with brand association ($r = 0.733$, $p < .01$) and consumer preference ($r = 0.820$, $p < .01$), which shows that loyal consumers tend to engage deeply and prefer their chosen brand to the other competing brands. Although the link of perceived quality and consumer preference is in the moderate range ($r = 0.462$, $p < .01$), whereas quite strongly connected with brand associations ($r = 0.693$, $p < .01$) hence confirming that perception in turn further strengthens positive brand associations. In addition, brand associations have a strong positive influence on consumer preference ($r = 0.556$, $p < .01$), affirming the importance of the symbolic meaning of a brand's positioning. In summary, brand awareness, loyalty, and positive brand associations can engender consumer preference, which will sustain the conceivable long-term success of the brand.

REGRESSION

Table-5

Variables Entered/Removed ^a				
Model	Variables Entered	Variables Removed	Method	
1	Brand Association, Brand Awareness, Perceived Quality, Brand Loyalty ^b		Enter	
a. Dependent Variable: Consumer Preference				
b. All requested variables entered.				
Model Summary				
Model	R	R Square	Adjusted Square	Std. Error of the Estimate
1	.824 ^a	0.679	0.670	0.566
a. Predictors: (Constant), Brand Association, Brand Awareness, Perceived Quality, Brand Loyalty				

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	98.773	4	24.693	77.160	.000 ^b
Residual	46.724	146	0.320		
Total	145.497	150			

a. Dependent Variable: Consumer Preference

b. Predictors: (Constant), Brand Association, Brand Awareness, Perceived Quality, Brand Loyalty

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
	B	Std. Error	Beta			
1 (Constant)	-0.111	0.279			-0.399	0.690
Brand Awareness	0.006	0.025	0.018		0.252	0.801
Brand Loyalty	0.387	0.031	0.900		12.311	0.000
Perceived Quality	-0.020	0.024	-0.059		-0.808	0.420
Brand Association	-0.023	0.024	-0.075		-0.958	0.339

a. Dependent Variable: Consumer Preference

Brand loyalty emerges as the most striking determiner of consumer preference ($\beta = 0.900$, $p < 0.01$), indicating that consumers loyal to a brand could be more prone to preferring it. The model has good explanatory power ($R^2 = 0.679$), which means that 67.9% of the variance in consumer preference is explained by the predictors. The F-statistic (77.160, $p < 0.01$) demonstrates the statistical significance of the model. However, brand awareness ($p = 0.801$), perceived quality ($p = 0.420$), and brand association ($p = 0.339$) do not have any significant impact on consumer preference, delegating those factors to mere contributions of brand perception without seriously affecting actual consumer decision-making. This study therefore highlights the pertinent role of brand loyalty in consumer behaviour and suggests that

companies should foster its concomitant development by establishing and nurturing strong relations with their customers to effectuate preference and retention.

Findings and Conclusions

1. Gender versus Brand Equity:

Males showed a stronger link with high-reputation brands (41-out-of-81 respondents) than did females (35-over-70 respondents). But brand equity is not affected much by gender (Chi-Square test, $p = 0.638$).

2. Gender versus Perceived Quality:

Both male and female respondents had equal perceptions about quality and brand loyalty. There is no significant relationship in consideration of gender and satisfaction ($p = 0.638$).

3. Age versus Brand Equity:

Brand recognition is maximized for younger consumers (18-24) with 59 high- recognition associations, while brand recognition among older groups (35-44 and 45- 54) is rather limited. A strong association between age and brand equity appears ($p = 0.001$), suggesting that younger consumers are more brand aware.

4. Age versus Perceived Quality:

Satisfaction among younger respondents (18-24) appears higher regarding perceived quality and loyalty with 34 levels of perceived satisfaction. Older respondents, compared with younger respondents, are less satisfied with hopefully considerable statistical evidence ($p = 0.001$).

5. Education and Brand Equity:

Highest brand recognition was found in postgraduates (64 of 107 respondents). The level of education correlates with brand recognition to a considerable degree ($p = 0.003$).

6. Educational Qualification versus Perceived Quality:

Postgraduates appear to have the highest satisfaction perceived regarding brand loyalty and perceived quality. The relation of education level and satisfaction appears to be significant ($p = 0.003$).

7. Income Level and Brand Equity:

Association with well-known brands is strong with the lower-income consumer class (<25,000) (72 of 124 respondents). There is a significant relationship between income level and brand equity ($p = 0.007$).

8. Income Level and Perceived Quality:

Lower income groups exhibit greater levels of satisfaction related to perceived quality and attachment to brands. Satisfaction finds strong correlation with respect to income level ($p = 0.007$).

9. Brand Awareness and Loyalty:

Brand awareness has a positive correlation with brand loyalty ($r=0.644$, $p < 0.01$). This emphasizes the relevance of being visible in the market to retain consumers.

10. Customer Preference Regression Analysis:

Of the four independent constructs, brand loyalty is the most influencing in consumer preference ($\beta=0.900$, $p<0.000$). The effect of brand awareness and perceived quality on consumer preference could be said to be negligible. The model demonstrates a high level of explanatory power ($R^2=0.679$, $F=77.160$, $p<0.01$).

Conclusion and Strategic Implications

1. Demographics Affect Brand Strategies:

Targeting younger consumers (18-24) and postgraduates who show the highest level of brand recognition and satisfaction becomes the focus of brands. Brands should be emphasized in these high-engagement demographics in marketing. No statistically significant differences in brand equity and perceived quality would suggest opportunities for unisex marketing strategies.

2. Income Level Influences:

Lower-income markets relate more strongly to brands and are said to be more satisfied with perceived quality. Therefore, this segment needs to be mainly targeted by value-based marketing strategies.

3. Brand Loyalty as a Key Driver:

Brand loyalty has the strongest effect on consumer preference. Companies should work to build trust and retention by utilizing personalized engagement with their customers and loyalty programs.

4. **Role of Brand Awareness:**

Brand awareness is positively correlated with loyalty and has a moderate direct effect on consumer choice. Improving brand visibility and brand message consistency needs to be in the objectives for building long-term equity of the brand.

5. **Strategic Marketing Directions:**

Campaigns targeting consumers by age, education level, and income bracket will generate increased touchpoints. Strengthening associations of perceived quality will enhance brand loyalty, leading to purchase decisions.

Final Insight

This study establishes that brand loyalty and awareness are the two most important dimensions of brand equity affecting consumer preference in the air conditioning industry. The companies should take a demographic perspective and develop data-intensive strategies focused on loyalty to ensure their growth in the market.

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