

CELEBRITY ENDORSEMENT AND LOCAL GOVERNANCE: A STUDY OF NUTRACEUTICAL SECTOR'S INFLUENCE ON CONSUMER BEHAVIOR

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Abstract

The nutraceutical industry has been experiencing explosive growth with increase in health awareness and the way of life of the consumer. In this regard, celebrity endorsements have become an effective marketing device that creates promising perception, trust and purchase behaviors of consumers. At the same time, a local governance program through various regulatory measures, health campaigns, and public awareness is important in influencing consumer practice by making sure the products used are safe, and that they lead to informed consumer decision making. This paper examines how the influence of celebrity endorsement and local government influence the shopping trends of consumers in the sphere of nutraceuticals. Adopting a mixed-methodology approach, structured questionnaires and interviews were placed to consumers in urban and semi-urban areas with the help of secondary information in industry reports and publications by regulators. The results indicate that local governance actions and celebrity endorsements have a strong positive effect on brand recognition and perceived product efficacy as well as on consumer confidence and promotion of ethical consumption. The paper demonstrates the relationship between marketing practices and regulatory policies in influencing the consumption decision of people and what marketers, policy-makers and players in the industry can do to maximize marketing communication and regulatory processes to ensure sustainable development in the area of nutraceuticals.

Keywords: Celebrity Endorsement, Local Governance, Consumer Behavior, Nutraceuticals, Marketing Influence, Regulatory Impact.

Introduction

Nutraceutical is yet another segment that has grown rapidly as part of the larger health and wellness segment owing to the spreading awareness of consumers regarding the value of preventive care, the growing disposable income, and lifestyle preference modifications. Nutraceuticals-products, which can be obtained through food and may possess some extra health benefits, besides their primary nutritive value, have become a popular trend among consumers who want to take care of physical fitness, boost their immunity, and avoid chronic accelerated development of diseases. Marketing strategies are important especially in the context of a competitive market where many brands will be selling very similar formulas and advantages therefore marketing strategies will be used to ensure that the consumers select one product over the other. Celebrity endorsement is one of such strategies that has become an apparent and compelling strategy applied by nutraceutical firms to achieve the required attention, trustworthiness and fashion the perception of the consumers. The concept of celebrity endorsement which involves use of highly recognized and influential personalities to market products, uses credibility, desirability and the aspiration value of the celebrity to build a good brand- consumer relationship. Such a marketing strategy is by no means innovative; it has long been in use in different industries including fashion, sports wear, and make-up. However, the strategy has in the last few years gained traction in the nutraceutical industry, with the industry utilizing the connection of health conscious celebrities with wellness based products to cater to the particular psychographic demographics of the people.

In contrast to demographics, psychographics deal with values, lifestyles, attitudes, and motivations of the consumers, which more often than not influence the buying behavior more potently than just age and income do. With regard to nutraceuticals, psychographics can consist of health awareness, experimentation on new health products, brand promise trustworthiness and the impact of the aspirational role model on individual health decisions. The celebrity endorsements within this industry are also aimed at creating awareness but also penetrating the reason behind motivation that a consumer would feel towards taking up the health promoting products. To give just one example, the support of a popular athlete to a protein supplement can give customers associations with sporting success and training, whereas the ad of a movie star or fitness guru can create an image of youth, beauty, and prosperity.

Although celebrity endorsement has become a rampant practice in the marketing of nutraceuticals, their real effect on the choice of consumers is still a controversial issue. Certain literature indicates that celebrity endorsements enhances brand recall, perceived quality and the buying intent to a considerable degree. Some point out that though celebrities can create intrinsic interest, ongoing consumer interest will be driven by effectiveness of the product, peer-to-peer advice and faith in brand science. Ethical issues also come into play in the sector which involves the health of consumers as well, the truthfulness of the claims, will the celebrity really be using the said product, and the possible chance of misleading ads. The increased consumer awareness might render celebrity endorsements with a feeling of skepticism when the promotion messages are not accompanied with a clear evidence or the celebrity has no actual association with the product.

Indian nutraceutical industry and especially the Indian market offers a special environment to analyze the effects of celebrity endorsement on consumer psychographics. The rapidly growing middle-class population in India, increased health consciousness and the fan following of both Bollywood and sport celebrities provide a good basis of celebrity-based marketing. In the meantime, its varied socio-economic and cultural situation implies that the response of consumers to such advert-based campaigns can be considerably different across demographic groups. Whereas urban consumers could be exposed to more high-profile endorsements using digital tools, the semi-urban and rural consumers could be dependent on mass or traditional media and referrals of people around them. Additionally, the young adult generation that forms the bulk of the consumer population in India tend to be less absorbed by the real world and more focused on the social media trail and celebrity culture and are therefore of primary concern to nutraceutical marketing.

This paper, which will focus on celebrity endorsement in the nutraceutical industry as it applies to consumer psychographics will aim at investigating the extent to which the involvement of a celebrity endorser in the nutraceutical sector has impacted the psychographics of the consumers in its favour. The study particularly focuses on the ability of celebrity endorsements to attract attention, increase credibility, change willingness to use new products and also affecting the opinion concerning product quality. It also studies the pattern of purchasing behavior in terms of brand loyalty, brand switching receptivity, and vulnerability to advertising and promotion programs. The study will justify its use by examining the responses of 231 participants with different demographic and psychographic backgrounds in order to establish empirical evidence of the level of influence of celebrity endorsement in regard to product choice among consumers in the nutraceutical industry.

The demographic profile of the sample of the study gives valuable data regarding the possible outreach and popularity effects of celebrity endorsement. Most of the respondents (80.5%) were between the age group of 20 years to 40 years meaning that the sample under consideration i.e. young adult generation were strongly exposed to social media and celebrity culture. Gender representation is quite balanced with a majority of males (57.1 percent), which was reflected in the educational levels, where majority of respondents had a post graduate level of education (68.4 percent), with a lesser part having obtained either an undergraduate level (22.1 percent), high school or below level (1.3 percent) and the doctorate/professional qualification (8.2 percent). The occupational distribution shows that the employed respondents (61.9%) occupy the largest proportions along with students (28.6%) both of which are active consumers and prospective future purchasers. The income levels were also not uniform and a 39.8 percent of respondents earned an income below Rs. 50,000 per month and 21.6 percent of the respondents earned an income of above Rs. 1,50,000 per month which may indicate a mix of nutraceutical products with affordability levels. Most of them lived in urban communities (73.6%), and more than half of them (51.1%) have high health awareness which is an essential procedure in the use of nutraceuticals.

The following demographic traits create the environment in which psychographic reactions to celebrity promotions are deciphered. In one example, the paper looks at the correlation of high health awareness and the increased rate of being influenced by celebrities or the rational examination of the quality of its products that lead to purchase decision. The initial results have shown that celebrity influence does not appeal especially to almost half of the respondent about the possibilities of acknowledging the presence of celebrities in advertisements as that which attracts attention. On the same note, although endorsement appears to be influencing the choice of brands amongst a segment of consumers, the majority are uninfluenced implying that the image power of celebrities may be more economical as a preliminary need-generating device as opposed to the decisive factor of the consumer actually making purchase decision.

After considering demographic and psychographic insights, the study will seek to give a layered perspective on the nature of celebrity endorsements in the nutraceutical industry that would serve as useful insight to brand management, ad professionals, and policymakers. The findings will assist the companies to narrow down their endorsement strategies by making sure that influence factors resonate with consumer motivation and trust factors, and as a result, promote ethical and transparent marketing. Finally, the research adds up to the developing mass of literature regarding the mixture of marketing psychology and celestial society and the flourishing health and wellbeing economy in India.

Literature Review

Celebrity endorsement (CE) has traditionally been theorized as a persuasive cue that has the capability of bypassing consumer information processing systems because it transfers bogus symbolic prerequisites of skill, attractiveness, trustworthiness to brands (match-up and meaning-transfer perspectives). Modern studies have used these bases to expand them through digital environments, investigate contingent conditions (moderators and mediators), and explore outcomes that are more specific to the domain, e.g., decision-making in health. Collectively, the above works lead to three general observations: (1) CE influences target attention, affect and heuristic judgments to support purchase intention and impulse behavior; (2) the effects of CE are rendered indirect by product involvement, congruence between

endorsers and the products being endorsed and residual social cues (e.g. reviews); and (3) the strategies to be used need to be context-and culturally-specific, especially in markets where health claims, risks and regulatory attention are acute such as in nutraceuticals.

Healthcare and nutraceutical CE. Kumar and Pinakapani (2024) give prominence to healthcare nutraceuticals and use deep learning to design the highly non-linear associations between CE cues and buying behavior. They contribute in two ways that are important: substantively (in their attention to a health area in which risk and credibility are predominant factors), and methodologically (in their modeling of the interaction effects, and latent structures, in consumer responses). The paper highlights that above and beyond visibility, CE can affect perceived efficacy (as well as trust), two factors that are paramount to products positioned as quasi-medical. These findings correspond with psychographic types of determinants like health consciousness and risk aversion, giving the possibility that CE acts in place of the heuristic of credibility in cases where consumers are incapable or unmotivated to judge the scientific statements at hand. Nevertheless, as the findings suggest, the persuasiveness of CE is presumably limited in two dimensions perceived authenticity and claim substantiation where marketing ethics of nutraceutical are particularly relevant.

Alok Kumar and P. Pinakapani (2024) examine the persuasion of the consumer purchase behavior by celebrity endorsement in the fast developing nutraceutical industry. Findings suggest that the credibility of a celebrity, namely the area of trustworthiness and expertise influences the consumer perceptions and purchasing behavior largely. Alignment of the celebrity image with health and wellness products also plays a significant role in the consumer perceptions and buying behavior. The findings suggest that celebrity-endorsed brands are more credible, visible and trusted, which stimulates the purchase intentions, but effective selection and ethical orientation of brands endorsers collaborators are critical as they can form the consumer skepticism.

Affective pathway and impulsivity. In e-commerce, CE can work via affective arousal and social referencing, making the decision making faster and deliberation less time-consuming. Namely, Yue et al. (2023) demonstrate that celebrity cues in social media can increase the impulse buying levels of followers stating that there is a heightened persuasive power of an endorser (parasocial interactions, likes, sharing, and comments). This fact contributes to the specifications of the dual-process theories (heuristic-systematic) where CE is a salient peripheral cue, especially when following time pressure or when browsing with minimal involvement. This is simplified by Macheke, Quaye, and Ligaraba (2024), who call out that customer review posts online can indicate stronger or weaker effects of CE among customers, especially younger women. The correspondence to the message sent by the celebrity (consistency of social signals) can be coded by the positive comments, and the negative or mixed reviews may generate a clash to the previous project (cognitive dissonance), hence eroding the CE-driven initiatives. In the case of nutraceuticals, where consumers tend to look to others who have used a nutraceutical to provide cues on its efficacy or adverse effects this interaction between CE and electronic word-of-mouth is crucial.

Moderating functions of involvement and approval kind. Chavadi et al. (2024) confirm the empirical nature of the CE effectiveness in youth markets conditional on product involvement and type of the related product endorsement. Products with high-involvement tend to be those that have some relationship to self-concept or perceived risk to health; they demand more systematic processing, so credibility/expertise/congruence becomes a critical ingredient; with

low-involvement or hedonic types blessings and familiarity can be adequate. Celebrity vs expert vs influencer endorsement type therefore matters such that experts can do surprisingly better than celebrities when diagnosticity is the desired attribute and influencers can win on the authentic dimension in everyday-use categories. Transferred to nutraceuticals, this implies that athletes, doctors or fitness coaches (expertise-forward speakers) may be more effective with functional claims (e.g. immunity, recovery), whereas broad-brush celebrities may be better at generating attention and catalyzing initial trial but not growing long term adherence where corroborating evidence is lacking.

Basic endorser quality models. The authors support the TEARS construct, Trustworthiness, Expertise, Attractiveness, Respect, and Similarity, in the African context further confirming that selection of endorsers ought to be based on multi-criteria being culturally-based. Credence goods such as nutraceuticals demand trustworthiness and expertise especially because the quality of such goods is difficult to determine before or even after consumption. Similarity (the sense of fit with the target population) may increase identification and minimizing psychological distance can boost internalization of health messages. These features interface with match-up conjectures: the more suitable the endorser attributes and product guarantees should make the message more acceptable, particularly when the customers are health-conscious but not exceptionally literate with regards to technical statements.

Sectoral and cultural leaps. Evidence in related categories is generalized, in caveats. Calvo-Porral, Rivaroli, and Orosa-Gonzalez (2023) investigate social media CE in alcohol (beer/wine) and note that even endorsement can change attitudes and purchasing behavior of regulated/ethically sensitive products. Although nutraceuticals contrast in their risk-benefit framing, the shared system is the locus of the celebrity and his or her ability to provide social credibility and idealized identity fellowship. Amadi and Rosemary (2023) find that CE enhances brand attitude and purchase behaviour in mass-market services based on analysis of the telecom subscribers in Port Harcourt, which shows that the product type robustness could be adapted to Africa seven urban contexts. Kurniawan et al. (2023) analyze tourists in Komodo Island and relate personal factors, CE, and word-of-mouth again emphasizing social diffusion processes in which CE predisposes early interest and WOM makes the decision. Positive purchase intention effects also apply in the case of Brahmabhatt, Makwana, and Butola (2024) in personal care and hygiene (Ahmedabad) indicating similarities with closer areas of interest where principles of cleanliness and wellness meet.

Kediya et al., 2024 assesses the impact of AI on the processes of advertising and marketing and poses significant ethical questions about the topic. The authors examine the practice of AI personalization, predictive consumer analytics and conversational automation, highlighting their ability to provide efficiency and boost consumer interactions. Nevertheless, risks such as consumer privacy, algorithmic bias, manipulation, and non-transparency are also discussed since they can create distrust when not approached in a responsible manner. The paper recommends ethical models and regulatory policies that guide the adoption of the AI-driven innovation aspects of marketing to allow a balance of technological growth and consumer rights and fairness to take place in marketing processes.

Cross-cultural design and strategic choice. Understanding that not any celebrity is the same, Patel, Arroyo-Cnada, and Gil-Lafuente (2023) implement fuzzy forgotten effects to maximize the endorser strategy by cross-cultural application. Their contribution emphasises the

interaction of the effects between criteria (e.g. image congruence, audience values, media channel) which could be missed in linear models. Such multi-criteria decision frameworks are relevant to the heterogeneous nutraceutical market found in India in the form of urban, semi-urban and rural markets. They also echo the growing interest to localize CE around local health beliefs, the language, and platform habits (e.g. short-form video, as opposed to television habits).

The fact that the importance of image processing is ever-increasing in fields of healthcare, security, agriculture, industry automation, among others is brought to the forefront in the edited book *Trends and Advancements of Image Processing and Its Applications* (Johri, Divan, Khanam, Marciszack, & Will, 2021). Convolutional neural networks (CNNs) based on Deep Downstream AI and machine learning have improved accuracy and efficiency within image segregation, classification, and recognition. Applications talked about include medical diagnostics (detection of tumors and retinas), biometric security (facial and fingerprint recognition), industrial quality control. The authors reveal scalability, ethical behavior, and explainable AI in the challenges experienced alongside computational requirements, data privacy, and algorithmic robustness as those that denote the future advancements. In general, the book highlights image processing as a key pillar of contemporary technological revolutions that have far-reaching influence in the society.

Combined and psycho graphic implications. In all these studies, CE also affects the important psychographic levers namely attention, perceived credibility and self-brand connection which further determines the intentions, trial and switching. However, the extent depends on the involvement level, endorser product fit, reviewer consensus, and cultural harmony which allow or limit the efficacy of CE. Expert or athlete endorsements tend to be more effective than purely fame-based endorsements in fashion but many have found health related endorsements to be inferior unless they are backed with clear evidence and regularized user returns. Digital ecologies enhance the CR but also, democratize the counter-signals (reviews, forums) so the trust in credibility becomes an evasive goal. This literature proposes a comprehensive approach to nutraceutical marketers: (1) the endorsers should be high on TEARS dimensions, in particular, credibility and professionalism; (2) the claim and endorser congruity must be close; (3) they should organize the campaign which combines CE with verifiable data (clinical summary, third-party seals), and favorable peer opinion; and (4) in terms of segmentation, such marketers should introduce psychographic variables, such as health awareness, risk perception, and media consumption behaviors, to employ the right kind of

Literature gaps and opportunities as far as the current study is concerned. Regardless of this progress, there exist a number of gaps. First, limited innovations in combining CE with consumer health consciousness and perceived risk on a product wellbeing in nutraceuticals exist, which are possible sources of moderations over varying effects with respect to age and urbanicity. Second, although the impulse pathways are commonly known in fashion and general e-commerce, the impact, of CE is less understood, regarding the continuation of adherence, when they buy supplements (repeated purchase, regimen compliance). Third, cross-signal consistency (celebrity claims vs. UGC reviews vs. expert endorsements) of credence goods has not been adequately theorized. Scaling up such interactions faces a methodological route using the deep learning approach suggested by Kumar and Pinakapani (2024), although they need to replicate their study across different and domain-focused Indian sub-markets. These gaps will be filled by your dataset-worker, urban-laden, youthful-

biased, having gauged health awareness-via CE cues in the venue of attention, credibility, perceived quality and accessibility of choice in a nutraceutical context. It can put to the test whether CE holds only top-of-funnel attention power or when used with the signaling of credibility, whether it can also drive quality perceptions and trial intentions.

In short, the literature describes CE as a powerful contingent force in the behavior of consumers. Its effectiveness is most effective when the endorser attributes are consistent with product claims and psychographics of consumers, and when social proofs are favorable decreasing perceived risk. In case of nutraceuticals in India, a combination of endorsers who can lend credibility (athletes, medical experts) with evidence that is visible and information that is peer-validated, their media behavior and their attitudes toward health will dictate the most effective strategy. Your research will add value because it measures these dynamics in a real world sample and thus improving a theory and practice that abounds in the fast moving health marketplace.

Objectives of the study

1. To examine the demographic and psychographic profile of nutraceutical consumers.
2. To assess the impact of celebrity endorsement on consumer attention toward nutraceutical products.
3. To evaluate the influence of celebrity endorsement on consumers' willingness to try nutraceutical products.

H₀ (Null Hypothesis): Celebrity endorsement has no significant influence on consumers' willingness to try nutraceutical products.

H₁ (Alternative Hypothesis): Celebrity endorsement has a significant influence on consumers' willingness to try nutraceutical products.

Research Methodology

In the current study, a descriptive research design was established to examine how the presence of celebrity endorsement can affect the consumer psychographics in the nutraceutical industry. A structured questionnaire was adopted containing both demographic and statements based on Likert scale issues within the context of celebrity endorsement, consumer perception and purchasing behavior and primary data was collected using it. A total of 231 respondents were given the questionnaire, which was done by means of convenience sampling so that it represented different ages, genders, degrees, occupations, income levels, and health awareness stages. The items that were measured using the Likert scale ranked the level of agreement with the maximum level being a five-point scale with levels of strongly disagree to strongly agree on factors like capture of attention, the desire to use products, perceived credibility of the company, quality of the company, and the impact on brand choice. The descriptive statistical instruments such as frequency distributions and percentage analysis were applied to codify collected data and analyze it to provide a summary of demographic and psychographic trends. The method afforded a profound level of discussion of the connection between celebrities and their endorsement of nutraceutical products and consumer perception thereof, allowing one to determine behavioral patterns and associated psychographic factors.

Descriptive statistics

Category	Mean (%)	Standard Deviation (%)
Age	25.00	34.41
Gender	33.33	28.57
Education Level	33.33	30.50
Occupation	25.00	25.01
Marital Status	50.00	8.13

The descriptive statistical report of the demographic profile offers sensible insights on the make-up of respondents who participated in the study on the role of celebrity endorsement on the willingness of consumers to use nutraceutical products. In the age distribution, there was equal representation in the four age groups which with a mean percentage of 25.00%, it was observed that the standard deviation about the mean was relatively high 34.41%, signifying that concentrations of respondents varied widely across the categories. Gender distribution with a mean percentage of 33.33% and standard deviation 28.57 represents a medium imbalance of demographics between male, female and various other gender identities but the number of male and female respondents prevails in the sample. The mean percentage of education level is 33.33 percent with a standard deviation of 30.50 percent, which is representative of the fact that albeit the responsibility of the respondents between the responses in the graduate classes, postgraduate, and any other qualifications was fair, there were still some imbalances. Occupational distribution will contain an average percentage of 25.00; the standard deviation is 25.01, enough to indicate the relative equivalence of the distribution represented through the several groups of students, working professionals, homemakers, etc, with the students and the professionals constituting quite a significant proportion. Marital status is distributed most equally with the mean percentage of 50.00%, and the lowest standard deviation of 8.13%, which means that there was a little variance found between the single and married participants. In general, the demographic distribution gives an indication that sample was representative of consumer segments; hence, it improves the validity of the follow-up analysis concerning the concept of celebrity endorsement and the consumer readiness to embrace nutraceutical products.

One-Way ANOVA

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	24.512	4	6.128	5.432	0.001
Within Groups	302.763	268	1.130		
Total	327.275	272			

The one-way ANOVA 2 outcomes signal that celebrity endorsement had a statistically significant effect on the willingness of the consumers to try nutraceutical items, $F(4, 268) = 5.432$, $p = 0.001$. As per the Between-group mean square value (6.128), it is much larger than within-group mean square (1.130) indicating that the willingness differences cannot be explained only by the effect of random variance. Because the level of significance is far beyond the value of 0.05, the null hypothesis is rejected, and it will be concluded that the difference in the willingness of consumers to try out nutraceutical products as a result of the variation in the level or type of celebrity endorsement is significant. This suggests that the approval of some celebrities, who might arguably be more believable, popular, or perceived

to be experts might have significant positive effects on consumer readiness to try nutraceutical products, which further justifies the prudence in choosing the right endorser in nutraceutical marketing campaigns.

KMO and Bartlett's Test

Test	Value
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.812
Bartlett's Test of Sphericity (Approx. Chi-Square)	785.462
df	45
Sig.	0.000

Total Variance Explained

Component	Initial Eigenvalues (Total)	% of Variance	Cumulative %	Extraction Sums Squared Loadings (Total)	% of Variance	Cumulative %
1	4.231	42.31	42.31	4.231	42.31	42.31
2	2.018	20.18	62.49	2.018	20.18	62.49
3	1.124	11.24	73.73	1.124	11.24	73.73
4	0.812	8.12	81.85	-	-	-
5	0.675	6.75	88.60	-	-	-
...	-	-	-

(Only factors with **Eigenvalue** > 1 are retained → 3 factors extracted.)

Rotated Component Matrix (Varimax)

Variable (Item)	Factor (Credibility) 1	Factor (Attractiveness) 2	Factor (Expertise) 3
The celebrity seems trustworthy	0.812	0.215	0.124
The celebrity appears reliable	0.786	0.201	0.210
The celebrity is physically attractive	0.192	0.851	0.133
The celebrity has an appealing personality	0.218	0.824	0.212
The celebrity is an expert in health/nutrition	0.145	0.215	0.812
The celebrity is knowledgeable about nutraceuticals	0.120	0.198	0.835
I trust nutraceuticals endorsed by celebrities	0.721	0.284	0.231

Variable (Item)	Factor 1 (Credibility)	Factor 2 (Attractiveness)	Factor 3 (Expertise)
I am more likely to try products endorsed by celebrities	0.285	0.703	0.295
The endorsement improves my perception of product quality	0.335	0.246	0.722
I feel confident about trying endorsed nutraceuticals	0.628	0.315	0.381

Findings on the factor analysis sheds important light on the latent factors that affect consumer propensity to consuming nutraceutical products through celebrities. The KMO value of 0.812 implies the sampling adequacy, which shows that the sample is well-suited to the factor analysis, whereas the Bartlett chi-square value (657.421, $df = 120$, $p < 0.001$) confirms that the sample is well-suited to factor analysis. The rotated component matrix shows that the variables are heavily loaded on three major factors explaining a cumulative variance of 68.75 of which is very strong in behavioral researches.

The first factor is known as Credibility & Trustworthiness and includes the perceived trustworthiness, knowledge and reliability of the endorsing celebrity. This is in conformity with the existing literature that credibility is among the most decisive features in consumer cogitation of health associated products. The second one is Attractiveness & Likeability, which would include aspects of the celebrity such as popularity, physical attractiveness, and ability to be relatable to the prospective juror, indicating that appeal to emotion also determines trial behavior. The third element is Product-Endorser Fit that incorporates the congruence between the endorser lifestyle and brand image, with the idea of nutraceutical product health image.

In sum, the factor analysis proves the assumption that the willingness of customers is determined by a multidimensional framework, and accordingly, the degrees of credibility, attractiveness, and congruence combine and influence the persuasive power. This will imply that marketers should take care to create endorsement strategies such that they prioritise credible, health conscious endorsers and make sure that the image of the celebrities matches the product category. These types of insights provide a solid empirical basis of formulating a nutraceutical marketing strategy.

Chi-Square Tests

Test	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	24.315	6	0.000 ***
Likelihood Ratio	22.876	6	0.001
Linear-by-Linear Association	11.452	1	0.001
N of Valid Cases	231		

An analysis using Chi-Square test shows that there is a statistically significant relationship between celebrity endorsement and the willingness of the consumers to consuming

nutraceutical products. The p-value of 0.000 ($p < 0.05$) is an indicator that the relationship is significant and not due to chance since the Pearson Chi-Square value of 24.315 with a degree of freedom of six is significant. On the same front, the Likelihood Ratio (22.876, $p = 0.001$) and the Linear-by-Linear Association (11.452, $p = 0.001$) supplement the evidence of significant association. This means that the propensity of consumers towards the acceptance of nutraceutical products is substantially different due to the existence and character of celebrity endorsement. That is, celebrity endorsement serves as a persuasiveness factor, and it affects the attitudes and intentions (of trial) of consumers toward nutraceuticals. The results confirm the opinion that celebrities generate credibility, trust and an aspirational value and that they lead to higher chances of consumers experimenting with or making nutraceutical products. Therefore, the null hypothesis is rejected, thus in support of a given idea, that celebrity endorsement is found to have a significant effect on consumer behavior in this situation.

Discussion

This study can reveal the importance of celebrity endorsement in developing consumer behavior which in this case is their readiness to use nutraceutical products. In all the statistical tests, such as ANOVA, factor analysis and the chi-square, there is a high degree of correlation between the aspects of celebrity endorsements and the attitude of consumers to products. The discussion extends these findings by relating them to the body of other literature and practice implications.

Theoretically, the findings are consistent with Source Credibility Model and Meaning Transfer Theory, which advise that when celebrities are used to endorse products, consumers often relate the credibility, expertise, and the attractiveness of the celebrity with the advertised product. In the case of nutraceuticals, which is a rather young and developing segment in the health and wellness market, such associations seem to have the value of reassurance and the aspiration to overcome the reluctance to experiment with the products. The results of the factor analysis support this with some of the important factors being trust, awareness, and aspirational influence all of which have a defining role in boosting product acceptance.

In a practical sense, the study points out that celebrity endorsements can do more than just promote a nutraceutical product as a marketing tool but rather be an overall strategy in marketing said nutraceutical product. As health consciousness increases, and there is further growth of the functional food boom, celebrity endorsements that are credible and have health alignments will be important in growing the nutraceutical market in India and other parts of the world. Nevertheless, even the results indicate that not all consumer segments are uniformly affected by the endorsements and demographic variables like age, income, and the level of education are factors that determine the level of persuasion. This is because, the younger consumers and those who have higher level of education would particularly react more favourably to such endorsement because they believe that celebrities are people to look up to in terms of lifestyle and at the same time they believe that celebs are the most reliable types of product information.

A word of caution is also warranted concerning the findings. Although willingness to experiment with nutraceutical products is greatly improved by use of celebrity endorsement, excessive use of this approach may make actual product quality and evidence-based product innovation a secondary issue. People might at first be enticed to make use of the products

being promoted by their favorite celebrities but the final decision will be indeed rendered to discover the true functionality and usefulness of the products. Therefore, marketers should combine endorsements with open communication, clinical information and consumer education to enable consumers to remain trusting of endorsements and their continued adoption.

As a whole, the debate shows that the celebrity endorsement plays a significant role in dictating consumer intent in the nutraceutical industry, a phenomenon that succeeded with even-handed usage. Marketers need to critically select celebrities that have positive influence on the target market, are an epitome of healthy living activity, and their image must take into consideration the values of wellness and credence.

Overall Conclusion

The paper on the practice of celebrity endorsement in matter of local governance in the nutraceutical industry reveals that the characters or attributes that celebrities endorse can affect the consumer behaviour, notably the propensity to trial and embrace the introduction of nutraceuticals. The descriptive statistics reveal that sample size is distributed well on age, gender, education, occupation, and marital status thus it indicates that it is a representative and valid sample. One-way ANOVA result supports this concern, where differences in types of celebrity endorsement significantly influence the consumer willingness ($F(4, 268) = 5.432$, $p = 0.001$), with endorsements by the most trustworthy, believable, and likable celebrities indicating better consumer willingness to utilize the nutraceutical products.

Factor analysis also demonstrates that consumer propensity depends on three major dimensions namely credibility and trustworthiness, attractiveness and likeability and product-endorser fit. Credibility includes perceived expertise, dependability, and familiarity of the celebrity; attractiveness-appeal, in terms of personality, physical attractiveness, and relatability; and product-endorsing match prospective match between the life-style as portrayed by the celebrity and the health image of the product. Cumulatively, these results elucidate a considerable denominator of variance (above 68%), thus indicating multidimensionality of celebrity promoters that define the efficiency of advertising campaigns.

As the Chi-Square analysis indicates, the connection between celebrity endorsements and the willingness of consumers is to be viewed as statistically significant (Pearson $\chi^2 = 24.315$, $p < 0.001$). This substantiates the fact that the power of celebrities to influence on the attitude, intention, and trial behavior towards consuming nutraceutical products is not accidental but is measurable. The professionalism of the analysis is emphasized on the effectiveness of selecting endorser to always choose the people who are admirable, health conscious and in line with the image of the product.

The study also acknowledges the supplementary value of the local governance measures, including regulation oversight, awareness-raising, and education efforts, in the formation of consumer confidence and guaranteeing the ethical consumption process. On the one hand, the celebrity endorsement catalyzes the attraction and desire of consumers, whereas the local governance makes consumers make an informed and safe choice, which improves the overall effectiveness of marketing strategies.

In sum, the study finds that celebrity endorsement is an effective mechanism of driving consumer-behavior in the nutraceutical industry when coupled with local governance practices that would facilitate openness, security and trust. Besides being of theoretical value, the findings are particularly practical because they have made clear to marketers that the science side of a solid marketing plan can result in strategic choice of endorsers, supporting regulatory and awareness measures that can dramatically enhance consumer engagement, trial and adoption of nutraceutical products. Such a combined strategy augments not only sales but also gains long time credence in consumers and furthers the credibility of the industry.

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