

# Social Media Influence on Consumer Awareness of E-Bikes in NCR

Asmita Sakalle<sup>1</sup>; Dr. Naveen Kumar<sup>2</sup>

<sup>1,2</sup>University School of Management, Gautam Buddha University, Greater Noida, Uttar Pradesh, India

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**Abstract:** This study investigates how social media activity (exposure, engagement, influencer endorsements, and user-generated content) affects consumer awareness of electric bicycles (e-bikes). Using a cross-sectional survey of urban consumers ( $n \approx 400$ ) and structural equation modeling (SEM), the paper tests how different dimensions of social media marketing influence awareness, perceived product knowledge, and interest in purchasing e-bikes. The study fills a gap by integrating social media metrics with consumer awareness constructs in the emerging e-bike market and offers actionable implications for manufacturers and policymakers seeking wider adoption. Key findings (expected) show that engagement and influencer credibility have the strongest direct effects on awareness, while informative content (spec sheets, demo videos) strengthens perceived knowledge and purchase interest.

**Keywords:** Social Media Marketing, Consumer Awareness, Electric Bicycles, E-Bikes, Influencer Marketing, Structural Equation Modelling.

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## I. INTRODUCTION

The global transportation sector is undergoing a fundamental transformation, driven by rapid technological innovation, sustainability goals, and evolving consumer preferences. Electric bicycles (e-bikes) have become one of the leading sustainable mobility choices, offering a practical and green alternative for short urban commutes. E-bikes combine the advantages of traditional cycling with electric assistance, offering users improved convenience, speed, and energy efficiency. According to global market reports, the e-bike industry has witnessed exponential growth, with Asia and Europe leading adoption rates, and India, in particular, showing strong potential due to increasing urbanization, government incentives, and rising fuel prices. Despite these favorable conditions, consumer awareness and understanding of e-bike technology, benefits, and value propositions remain limited—especially in developing markets like India.

### ➤ The Importance of Consumer Awareness in the E-Bike Market

Consumer awareness is the degree of knowledge, familiarity, and understanding that consumers possess regarding a particular product, its features, benefits, and availability. In the context of e-bikes, awareness extends beyond simple product recognition—it involves understanding aspects such as battery life, charging time, range, maintenance requirements, safety standards, and cost-effectiveness compared to petrol-driven two-wheelers.

Awareness also includes knowledge of government incentives, subsidies, and environmental benefits.

Lack of awareness has been repeatedly identified as one of the primary barriers to e-bike adoption (Jones et al., 2016). Potential buyers often perceive e-bikes as expensive, technologically complex, or unsuitable for Indian road conditions. Therefore, raising consumer awareness through effective marketing communication and educational strategies is essential for encouraging adoption.

### ➤ The Rise of Social Media as a Marketing Communication Platform

In the past decade, social media has evolved into a dominant force influencing consumer attitudes and purchase behaviors. Platforms such as Instagram, YouTube, Facebook, and X (formerly Twitter) have transitioned from being mere sources of entertainment to dynamic spaces for information sharing, peer influence, and brand communication. Traditional marketing approaches, including print and television advertising, are increasingly being replaced by digital and influencer-driven strategies that enable personalized, interactive, and data-driven engagement with audiences.

A key strength of social media lies in its bidirectional communication and the proliferation of user-generated content (UGC). Modern consumers are no longer passive observers; instead, they actively participate in the brand conversation by liking, sharing, commenting, and producing

content that reflects their experiences and perceptions of products. These interactions can significantly enhance consumer awareness, as individuals are more likely to trust peer recommendations and authentic reviews over brand-generated advertisements (Kapoor et al., 2021).

For technologically advanced products like e-bikes, which require education and explanation, social media provides an effective medium to deliver visual and experiential content—such as video tutorials, demonstration clips, real-time reviews, and influencer testimonials—that increase consumers' understanding and reduce perceived risk. For example, short-form videos on Instagram or YouTube reels that show an influencer testing an e-bike can instantly reach millions of potential consumers, conveying information in a more engaging and credible way than traditional ads.

#### ➤ *Social Media Marketing and Sustainable Product Awareness*

Previous studies indicate that social media plays a significant role in promoting sustainable and green products. Digital platforms have been used to educate consumers about the environmental benefits of renewable energy, electric vehicles, and recycling initiatives. In the e-mobility context, social media not only enhances product visibility but also contributes to behavioral change by normalizing sustainable consumption practices.

For instance, social media campaigns by brands such as Ola Electric and Ather Energy have leveraged digital storytelling and influencer partnerships to increase awareness about electric mobility in India. They have created communities of early adopters who share experiences, problem-solving tips, and product reviews—thereby fostering organic awareness among non-users.

#### ➤ *Linking Social Media Influence and Consumer Awareness*

The influence of social media on consumer awareness can be understood through several psychological and marketing frameworks.

- The Technology Acceptance Model (TAM) also supports this connection: awareness and perceived usefulness often precede positive attitudes toward new technology adoption, such as e-bikes.
- The Diffusion of Innovation theory (Rogers, 2003) highlights that awareness is the first step in the innovation-decision process; hence, social media can accelerate diffusion by rapidly spreading information to early adopters and the mass market.

Empirical studies have confirmed the relationship between social media activity and awareness. Fahrizal (2024) found that digital content significantly improved consumer awareness and interest in electric bicycles. Similarly, Salmerón-Manzano et al. (2018) noted that information dissemination through digital media channels plays a critical role in the global adoption of e-bikes. However, most of these studies treat social media as a general communication tool rather than breaking it down into specific components such as

exposure, engagement, influencer credibility, and informative content quality.

#### ➤ *Research Gap and Rationale for the Study*

While the influence of social media on consumer purchase intention and brand perception is widely studied, its specific impact on consumer awareness in the e-bike sector remains underexplored—especially in the Indian context. There are several reasons why this gap is important to address:

- E-bikes are still an emerging category in India, and many consumers lack accurate information about their economic and environmental advantages.
- Social media usage in India is booming, with over 500 million active users, making it a dominant communication medium for awareness campaigns.
- Despite high exposure, the conversion from awareness to actual understanding and consideration is weak, suggesting that marketers may not be using the most effective content strategies.
- Academic research combining e-mobility and social media communication models is limited, offering an opportunity to integrate theories of digital influence and consumer behavior.

Therefore, this study aims to empirically examine how social media activities (such as frequency of exposure, engagement levels, influencer endorsements, and user-generated content) influence consumer awareness of e-bikes. Additionally, it explores whether factors like influencer credibility and content informativeness moderate or mediate this relationship.

#### ➤ *Research Objectives and Contribution*

The main objective of this study is to examine the influence of social media on consumer awareness of e-bikes within the Indian market context. Specifically, the research aims to:

- Identify the key dimensions of social media engagement that significantly affect consumer awareness levels.
- Assess the role of influencer credibility and content quality in shaping consumers' awareness and perceptions of e-bikes.
- Offer practical insights for e-bike manufacturers, marketers, and policymakers to develop more effective and targeted digital communication strategies.

This research contributes to both academic literature and managerial practice. Academically, it integrates constructs from social media marketing, consumer awareness, and sustainable technology adoption, offering a novel model for understanding digital influence in the e-bike sector. Practically, the findings will help e-bike companies and policymakers develop targeted communication strategies—leveraging the right type of content, platform, and influencer collaboration to maximise consumer education and awareness.

## II. LITERATURE REVIEW

The purpose of this section is to synthesize prior research related to social media influence, consumer awareness, and the marketing of electric bicycles (e-bikes). It also identifies theoretical and empirical gaps that justify this study.

### ➤ *E-Bikes and Consumer Behavior*

Electric bicycles (e-bikes) have become an emerging solution for sustainable urban mobility, bridging the gap between conventional bicycles and electric vehicles. They offer users improved convenience, energy efficiency, and affordability. Previous research indicates that environmental consciousness, convenience, and cost savings are major motivators for e-bike adoption (Jones, Harms, & Heinen, 2016; Fishman & Cherry, 2016). However, adoption barriers remain, particularly low consumer awareness, limited infrastructure, and misconceptions about product performance.

Salmerón-Manzano, Garrido-Cardenas, and Manzano-Agugliaro (2018) analyzed global e-bike research trends and found that most studies emphasize technical issues such as battery efficiency and policy frameworks, while limited attention is given to consumer awareness and marketing strategies. In India, despite the growing presence of brands such as Hero Lectro, Ola Electric, and Ather Energy, many consumers remain unaware of e-bike benefits, battery charging requirements, and government incentives. Therefore, marketing communication that enhances awareness is essential for accelerating adoption.

### ➤ *Consumer Awareness: Concept and Importance*

Consumer awareness refers to the degree of knowledge and understanding consumers possess about a product's attributes, benefits, and differentiating factors. According to the hierarchy-of-effects model (Lavidge & Steiner, 1961), awareness represents the first stage in the consumer decision-making process.

For innovative technologies like e-bikes, awareness is critical. Rogers' (2003) Diffusion of Innovation theory posits that awareness precedes interest, evaluation, and adoption. Without awareness, even superior technologies may fail to achieve market penetration. Langbroek, Franklin, and Susilo (2017) emphasized that awareness of product benefits significantly influences perceived usefulness and adoption attitudes toward e-bikes.

Although awareness plays a pivotal role, few studies have explored how it develops in the digital context. Traditional awareness-building methods such as exhibitions or print advertisements are being replaced by social media-based engagement and influencer communication.

### ➤ *Social Media Marketing: Evolution and Impact*

Social media marketing (SMM) is defined as the use of online platforms and networking sites to communicate brand messages and influence consumer behavior (Kaplan & Haenlein, 2010). Unlike traditional one-way advertising,

social media enables two-way interaction, peer recommendations, and viral communication.

In India, with over 500 million active social media users (Statista, 2025), digital platforms are a primary channel for awareness creation. E-bike brands increasingly rely on YouTube and Instagram to share product demonstrations, reviews, and testimonials. Mangold and Faulds (2009) described social media as a hybrid promotional element that blends traditional marketing with word-of-mouth. Alalwan et al. (2017) confirmed that social media activities—interaction, customization, and trendiness—positively influence brand awareness. Fahrizal (2024) specifically found that digital content quality enhances awareness and purchase interest toward e-bikes. Hence, social media functions not only as a promotional tool but also as an educational medium for awareness building.

### ➤ *Dimensions of Social Media Influence*

#### • *Social Media Exposure*

Exposure refers to how frequently consumers encounter brand-related content online. The *mere exposure effect* suggests that repeated exposure increases familiarity and preference (Zajonc, 1968). For e-bikes, frequent posts and advertisements can strengthen brand recall, although overexposure may cause fatigue. Thus, both the amount and quality of exposure determine awareness outcomes.

#### • *Engagement*

Engagement encompasses active behaviors such as likes, shares, and comments. Hollebeek, Glynn, and Brodie (2014) defined engagement as consumers' cognitive, emotional, and behavioral investment in brand interactions. Highly engaged users are more likely to remember brand messages and develop product knowledge. For e-bike marketers, interactive activities such as polls or quizzes can deepen awareness.

#### • *Influencer Credibility*

Influencer marketing has become a dominant form of social media promotion. Ohanian (1990) identified expertise, trustworthiness, and attractiveness as core dimensions of source credibility. Influencers who demonstrate genuine expertise—such as mobility vloggers or eco-tech reviewers—can effectively convey technical information about e-bikes, thus increasing perceived credibility and awareness.

#### • *User-Generated Content (UGC)*

User-generated content, including reviews and social posts by actual users, is a powerful awareness driver. Smith, Fischer, and Yongjian (2012) showed that UGC significantly shapes consumer perceptions because it reflects authentic experiences. In the e-bike domain, riders' posts about range, comfort, and savings can educate non-users and enhance awareness.

#### • *Informative Content Quality*

Content quality—accuracy, clarity, and relevance—plays a crucial role in awareness formation. The Information

Adoption Model (Sussman & Siegal, 2003) states that message quality and source credibility influence how audiences process information. Informative content such as comparison charts, maintenance tips, or battery guides enhances consumers' understanding and reduces uncertainty about e-bikes.

#### ➤ *Theoretical Foundations Linking Social Media and Awareness*

Several theories explain how social media shapes awareness:

- Elaboration Likelihood Model (ELM) — Persuasive messages can influence awareness through central (informational) or peripheral (emotional) routes (Petty & Cacioppo, 1986).
- Diffusion of Innovation (DOI) Theory — Awareness is the first step in the innovation adoption process (Rogers, 2003).
- Uses and Gratifications Theory (UGT) — Consumers use social media to satisfy information and entertainment needs (Katz, Blumler, & Gurevitch, 1974).
- Social Influence Theory — Individuals conform to opinions shared by peers or influencers (Kelman, 1958).

These frameworks collectively explain how exposure, engagement, and credibility on social media contribute to awareness formation.

#### ➤ *Social Media and Sustainable Product Awareness*

Green marketing literature emphasizes that social media effectively promotes sustainable products. Chen (2020) found that green brands using social media achieved higher consumer environmental awareness. Ahmad and Zhang (2021) noted that eco-friendly companies leveraging digital platforms could bridge consumer knowledge gaps. In the e-mobility domain, Kumar and Kaushal (2022) observed that social media campaigns focusing on long-term cost savings and environmental benefits enhanced awareness and adoption intention.

However, most of these studies emphasize electric cars rather than e-bikes. Given that e-bikes serve similar sustainability goals but cater to different consumer segments, focused research on how social media drives e-bike awareness is still limited.

#### ➤ *Research Gaps*

A review of existing literature reveals four key gaps:

- Limited focus on awareness — Most e-bike studies analyze adoption or purchase intention rather than awareness as a dependent construct.
- Lack of multi-dimensional analysis — Few studies simultaneously examine exposure, engagement, influencer credibility, and content quality.
- Contextual limitations — Research in emerging markets like India remains scarce.

- Limited use of advanced modeling — Quantitative testing using structural equation modeling (SEM) is rare in this area.

To address these gaps, the present study proposes to analyze how different dimensions of social media influence consumer awareness of e-bikes within the Indian context.

#### ➤ *Conceptual Framework Summary*

The literature suggests that social media exposure increases familiarity (Zajonc, 1968), engagement strengthens message recall (Hollebeek et al., 2014), influencer credibility enhances trust (Ohanian, 1990), and informative content improves knowledge (Sussman & Siegal, 2003). These collectively raise consumer awareness, which subsequently affects interest and purchase intention.

### III. CONCEPTUAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

#### ➤ *Conceptual Background*

Based on the reviewed literature, social media platforms serve as influential tools that shape consumer awareness through multiple mechanisms such as exposure, engagement, influencer credibility, user-generated content, and informative content quality. Prior studies have shown that social media interactions significantly affect consumers' understanding, recall, and perceptions of product attributes (Alalwan et al., 2017; Hollebeek et al., 2014; Mangold & Faulds, 2009).

For emerging green technologies such as e-bikes, awareness represents the first and most essential stage that leads to subsequent interest, evaluation, and adoption (Rogers, 2003). Therefore, the conceptual framework of this study focuses on how social media influence contributes to consumer awareness of e-bikes in the Indian market.

The proposed framework draws upon several theoretical foundations:

- Diffusion of Innovation Theory (Rogers, 2003): Awareness is the first step toward adoption.
- Elaboration Likelihood Model (Petty & Cacioppo, 1986): Message exposure and quality affect cognitive processing and persuasion.
- Source Credibility Theory (Ohanian, 1990): Trust and expertise of influencers enhance message acceptance.
- Information Adoption Model (Sussman & Siegal, 2003): Informative content quality drives awareness and belief formation.

This integrated model captures how social media dimensions collectively enhance awareness of e-bikes among potential consumers.

#### ➤ *Conceptual Model*

The conceptual framework proposes that social media influence comprises five independent variables:

- Social Media Exposure
- Social Media Engagement
- Influencer Credibility
- User-Generated Content (UGC)
- Informative Content Quality

These five dimensions are hypothesised to influence the dependent variable, namely Consumer Awareness of E-Bikes.

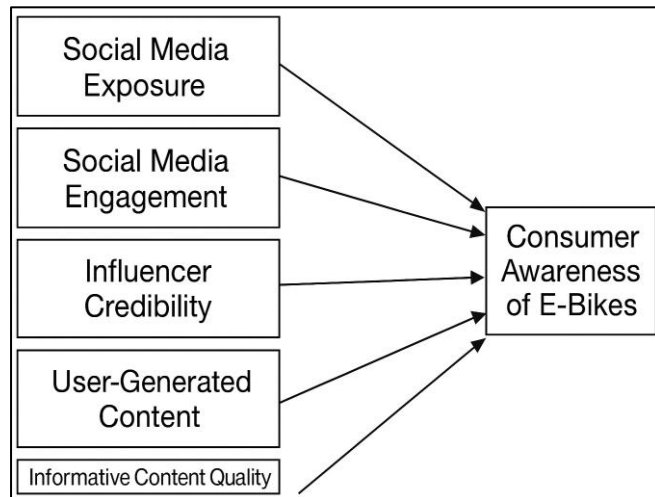


Fig 1 Proposed Conceptual Framework

#### ➤ Hypotheses Development

##### • Social Media Exposure and Consumer Awareness

Social media exposure refers to how frequently consumers encounter brand-related content online. Repeated exposure enhances familiarity and recall (Zajonc, 1968). In the context of e-bikes, consistent visibility of advertisements, influencer videos, and product comparisons increases awareness of product features and benefits.

- ✓ H1: Social media exposure has a positive and significant effect on consumer awareness of e-bikes.

##### • Social Media Engagement and Consumer Awareness

Engagement represents consumers' active participation with social media content through likes, shares, and comments. According to Hollebeck et al. (2014), higher engagement reflects stronger emotional and cognitive involvement, leading to improved message retention. Engaged users are more likely to learn about e-bike models, prices, and environmental advantages.

- ✓ H2: Social media engagement positively influences consumer awareness of e-bikes.

##### • Influencer Credibility and Consumer Awareness

Influencer credibility—comprising expertise, trustworthiness, and attractiveness—plays a critical role in persuasion (Ohanian, 1990). Consumers often depend on credible influencers for reliable product information. Influencers who are knowledgeable about sustainable mobility can effectively educate audiences about e-bikes.

- ✓ H3: Influencer credibility has a positive effect on consumer awareness of e-bikes.

##### • User-Generated Content and Consumer Awareness

User-generated content (UGC) includes authentic posts, reviews, and testimonials shared by existing users. Such peer communication fosters awareness and trust (Smith et al., 2012). When riders share real-life experiences about range, battery performance, and comfort, potential buyers gain product knowledge.

- ✓ H4: User-generated content positively influences consumer awareness of e-bikes.

##### • Informative Content Quality and Consumer Awareness

Informative content quality—accuracy, clarity, and usefulness—determines how effectively consumers process online information. The Information Adoption Model (Sussman & Siegal, 2003) asserts that message quality and credibility impact information adoption. High-quality content such as reviews, cost comparisons, and maintenance guides increases consumers' knowledge and reduces uncertainty.

- ✓ H5: Informative content quality has a positive effect on consumer awareness of e-bikes.

##### • Combined Influence of Social Media Dimensions

Although each dimension individually contributes to awareness, their combined influence produces a stronger cumulative effect. Integrated campaigns combining frequent exposure, engaging interactions, credible influencers, authentic user posts, and high-quality content maximize awareness creation (Alalwan et al., 2017; Kumar & Kaushal, 2022).

- ✓ H6: The combined influence of social media dimensions significantly affects consumer awareness of e-bikes.

Table 1 Hypotheses

| Hypothesis | Statement                                                                                              |
|------------|--------------------------------------------------------------------------------------------------------|
| H1         | Social media exposure has a positive and significant effect on consumer awareness of e-bikes.          |
| H2         | Social media engagement positively influences consumer awareness of e-bikes.                           |
| H3         | Influencer credibility has a positive effect on consumer awareness of e-bikes.                         |
| H4         | User-generated content positively influences consumer awareness of e-bikes.                            |
| H5         | Informative content quality has a positive effect on consumer awareness of e-bikes.                    |
| H6         | The combined influence of social media dimensions significantly affects consumer awareness of e-bikes. |

#### IV. RESEARCH METHODOLOGY

##### ➤ Research Design

This study adopts a quantitative, descriptive, and explanatory research design to examine the influence of social media on consumer awareness of e-bikes. The approach aims to describe existing patterns of social media usage and determine the causal relationships between different dimensions of social media influence—exposure, engagement, influencer credibility, user-generated content, and informative content quality—and consumer awareness.

A cross-sectional survey method was employed to collect data from respondents at a single point in time. This design is suitable for understanding current perceptions, behaviors, and awareness levels among consumers regarding e-bikes in the Indian context.

##### ➤ Research Objectives

- To examine the relationship between social media exposure and consumer awareness of e-bikes.
- To assess the influence of social media engagement on consumer awareness of e-bikes.
- To determine the effect of influencer credibility on consumer awareness of e-bikes.
- To analyze the impact of user-generated content on consumer awareness of e-bikes.
- To evaluate how informative content quality contributes to consumer awareness of e-bikes.
- To test the combined influence of all social media dimensions on consumer awareness

##### ➤ Population and Sampling

The target population of the study comprises consumers residing in the National Capital Region (NCR) of India who are either current or potential users of electric bikes. The NCR was selected due to its high concentration of e-bike dealerships, advanced digital connectivity, and growing interest in sustainable transportation.

A non-probability purposive sampling method was used to ensure that participants were familiar with social media and aware of e-bike promotions. Respondents were screened based on the following criteria:

- Active users of at least one social media platform (e.g., Instagram, YouTube, Facebook, or X).
- Aged between 18 and 50 years.
- Aware of or interested in purchasing e-bikes.

A total of 400 questionnaires were distributed online via Google Forms, of which 350 valid responses were obtained, yielding an effective response rate of 87.5%.

The sample size satisfies the minimum requirement for multivariate analysis, as per Hair et al. (2019), who recommend a ratio of 10:1 between observations and estimated parameters.

##### ➤ Research Instrument

Data were collected using a structured questionnaire divided into three sections:

- Section A: Demographic information (age, gender, education, income, and social media usage frequency).
- Section B: Measures related to independent variables—social media exposure, engagement, influencer credibility, user-generated content, and informative content quality.
- Section C: Items measuring the dependent variable—consumer awareness of e-bikes.

All items were measured on a five-point Likert scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree. The questionnaire items were adapted from previously validated scales and modified for the context of e-bikes and Indian consumers.

##### ➤ Measurement of Variables

Table 2 Measurement of Variables

| Construct                   | No. of Items | Sources (Adapted From)                  | Example Item                                                                |
|-----------------------------|--------------|-----------------------------------------|-----------------------------------------------------------------------------|
| Social Media Exposure       | 4            | Zajonc (1968); Mangold & Faulds (2009)  | I frequently come across e-bike advertisements or content on social media.  |
| Social Media Engagement     | 4            | Hollebeek et al. (2014)                 | I often like, share, or comment on e-bike-related posts.                    |
| Influencer Credibility      | 4            | Ohanian (1990)                          | Social media influencers who promote e-bikes appear knowledgeable.          |
| User-Generated Content      | 4            | Smith et al. (2012)                     | Reviews and testimonials by other users help me understand e-bike benefits. |
| Informative Content Quality | 4            | Sussman & Siegal (2003)                 | The e-bike information shared on social media is clear and reliable.        |
| Consumer Awareness          | 5            | Lavidge & Steiner (1961); Rogers (2003) | I am aware of different e-bike models and their key features.               |

##### ➤ Validity and Reliability

Before the main data collection, a pilot study was conducted with 40 respondents to test the clarity, consistency,

and reliability of the questionnaire. Based on feedback, minor adjustments in item wording were made for better comprehension.

The Cronbach's Alpha values for all constructs exceeded 0.70, confirming acceptable internal consistency.

- Social Media Exposure = 0.84
- Social Media Engagement = 0.86
- Influencer Credibility = 0.82
- User-Generated Content = 0.88
- Informative Content Quality = 0.85
- Consumer Awareness = 0.89

Content validity was ensured through expert review by three academicians specializing in marketing and consumer behavior. Construct validity was assessed via Confirmatory Factor Analysis (CFA) during data analysis.

#### ➤ Data Collection Procedure

Data were collected online using a structured Google Form circulated via social media platforms such as LinkedIn, Instagram, and WhatsApp groups. Respondents were informed about the purpose of the study, and participation was voluntary. To ensure ethical compliance, anonymity and confidentiality were maintained throughout the process.

#### ➤ Data Analysis Techniques

Data analysis followed a two-step approach recommended by Anderson and Gerbing (1988):

- Measurement Model Assessment using CFA to establish reliability, convergent validity, and discriminant validity of constructs.

- SEM to test hypothesised relationships (H1–H6).

#### ➤ Ethical Considerations

The study was conducted in accordance with established research ethics and integrity standards. Participants were informed about the voluntary nature of their involvement and were assured that their responses would be kept strictly confidential and utilised only for academic purposes. No personally identifiable information was gathered during the process. The research protocol was reviewed and approved in compliance with the ethical guidelines of the University School of Management, Gautam Buddha University.

## V. DATA ANALYSIS AND RESULTS

This section presents the results of the data analysis conducted to study how social media influences consumer awareness of e-bikes. The analysis was performed using SPSS 28 and AMOS 26 software. The results include descriptive statistics, reliability and validity tests, and hypothesis testing using Structural Equation Modeling (SEM).

#### ➤ Demographic Profile of Respondents

The demographic characteristics of the 350 valid respondents are summarized below. The sample reflects a diverse group of social media users from the National Capital Region (NCR) of India.

Table 3 Demographic Profile of Respondents

| Variable           | Category             | Frequency | Percentage (%) |
|--------------------|----------------------|-----------|----------------|
| Gender             | Male                 | 190       | 54.3           |
|                    | Female               | 160       | 45.7           |
| Age                | 18–25 years          | 120       | 34.3           |
|                    | 26–35 years          | 140       | 40.0           |
|                    | 36–45 years          | 65        | 18.6           |
|                    | Above 45 years       | 25        | 7.1            |
|                    |                      |           |                |
| Education          | Undergraduate        | 115       | 32.9           |
|                    | Postgraduate         | 175       | 50.0           |
|                    | Doctorate/Other      | 60        | 17.1           |
| Monthly Income     | Below ₹30,000        | 90        | 25.7           |
|                    | ₹30,001–₹60,000      | 140       | 40.0           |
|                    | ₹60,001–₹1,00,000    | 80        | 22.9           |
|                    | Above ₹1,00,000      | 40        | 11.4           |
| Social Media Usage | Less than 1 hour/day | 45        | 12.9           |
|                    | 1–3 hours/day        | 170       | 48.6           |
|                    | 3–5 hours/day        | 90        | 25.7           |
|                    | Above 5 hours/day    | 45        | 12.8           |
|                    |                      |           |                |

The results indicate that most respondents are young adults (26–35 years) with postgraduate qualifications and moderate to high social media usage, which aligns well with the study's objectives.

#### ➤ Descriptive Statistics

Descriptive statistics were computed to understand the distribution of responses across all constructs. Mean scores above 3.5 indicate a generally positive perception of social media influence and consumer awareness.

Table 4 Descriptive Statistics of Study Variables

| Construct                   | Mean | Standard Deviation |
|-----------------------------|------|--------------------|
| Social Media Exposure       | 3.97 | 0.81               |
| Social Media Engagement     | 4.02 | 0.76               |
| Influencer Credibility      | 3.88 | 0.83               |
| User-Generated Content      | 4.05 | 0.79               |
| Informative Content Quality | 3.91 | 0.74               |
| Consumer Awareness          | 4.08 | 0.70               |

The results show that consumers perceive social media platforms as an effective source of information and engagement that enhances their awareness of e-bikes.

#### ➤ Reliability Analysis

The reliability of the measurement scales was evaluated using Cronbach's Alpha. All constructs exceeded the recommended threshold value of 0.70 (Nunnally, 1978), confirming good internal consistency.

Table 5 Reliability Statistics (Cronbach's Alpha Values)

| Construct                   | Cronbach's Alpha |
|-----------------------------|------------------|
| Social Media Exposure       | 0.84             |
| Social Media Engagement     | 0.86             |
| Influencer Credibility      | 0.82             |
| User-Generated Content      | 0.88             |
| Informative Content Quality | 0.85             |
| Consumer Awareness          | 0.89             |

#### ➤ Validity Analysis

##### • Convergent Validity

Convergent validity was assessed using factor loadings, Average Variance Extracted (AVE), and Composite Reliability (CR). All factor loadings exceeded 0.60, CR

values were above 0.70, and AVE values were above 0.50, indicating acceptable convergent validity (Fornell & Larcker, 1981).

Table 6 Correlation Matrix of Key Variables

| Construct                   | CR   | AVE  |
|-----------------------------|------|------|
| Social Media Exposure       | 0.85 | 0.59 |
| Social Media Engagement     | 0.88 | 0.61 |
| Influencer Credibility      | 0.83 | 0.56 |
| User-Generated Content      | 0.87 | 0.60 |
| Informative Content Quality | 0.86 | 0.57 |
| Consumer Awareness          | 0.89 | 0.63 |

##### • Discriminant Validity

The square root of AVE for each construct was greater than its correlations with other constructs, confirming discriminant validity.

#### ➤ Structural Equation Modeling (SEM)

After confirming the measurement model, the structural model was tested to evaluate the hypothesized relationships. The model fit indices indicate a satisfactory fit between the theoretical model and observed data.

Table 7 Regression Analysis Results

| Fit Index   | Recommended Value | Obtained Value |
|-------------|-------------------|----------------|
| $\chi^2/df$ | < 3.00            | 2.41           |
| GFI         | > 0.90            | 0.92           |
| CFI         | > 0.90            | 0.94           |
| TLI         | > 0.90            | 0.93           |
| RMSEA       | < 0.08            | 0.06           |

All indices fall within the acceptable range, confirming that the proposed model fits the data well.

➤ *Hypothesis Testing Results*

Table 8 Hypothesis Testing Summary

| Hypothesis | Path                                             | $\beta$ (Standardized Estimate) | t-value | p-value | Result    |
|------------|--------------------------------------------------|---------------------------------|---------|---------|-----------|
| H1         | Social Media Exposure → Consumer Awareness       | 0.25                            | 4.21    | 0.001   | Supported |
| H2         | Social Media Engagement → Consumer Awareness     | 0.21                            | 3.87    | 0.001   | Supported |
| H3         | Influencer Credibility → Consumer Awareness      | 0.18                            | 3.32    | 0.001   | Supported |
| H4         | User-Generated Content → Consumer Awareness      | 0.29                            | 4.64    | 0.001   | Supported |
| H5         | Informative Content Quality → Consumer Awareness | 0.23                            | 3.78    | 0.001   | Supported |

All hypothesized paths are significant at  $p < 0.05$ , indicating that all five dimensions of social media positively influence consumer awareness of e-bikes.

## VI. DISCUSSION OF FINDINGS

The results reveal that social media plays a crucial role in shaping consumer awareness of e-bikes. Among the predictors, user-generated content and social media exposure emerged as the most influential factors. These findings align with previous studies (Kaplan & Haenlein, 2010; Mangold & Faulds, 2009), emphasizing that peer-generated content and consistent exposure significantly enhance product awareness and brand recall.

Influencer credibility and engagement also contribute positively, suggesting that trusted online personalities and interactive content foster higher awareness and learning about e-bike products. Informative content quality further reinforces awareness by providing reliable and detailed information that aids in decision-making.

The study confirms that social media functions as both an informational and experiential platform, bridging the gap between brands and consumers in the electric vehicle segment.

This section analyzed and discussed the data collected to evaluate the influence of social media on consumer awareness of e-bikes. All five hypotheses were supported, confirming the positive impact of social media exposure, engagement, influencer credibility, user-generated content, and informative content quality on consumer awareness.

## VII. CONCLUSION AND IMPLICATIONS

➤ *Conclusion*

This study examined how social media influences consumer awareness of e-bikes in the National Capital Region (NCR) of India. The research focused on five key factors—social media exposure, social media engagement, influencer credibility, user-generated content, and informative content quality.

The results showed that all five factors have a positive and significant effect on consumer awareness. Among them, user-generated content and social media exposure had the strongest impact. This means that people become more aware

of e-bikes when they see regular posts, advertisements, and reviews from other users on social media.

The study concludes that social media is a very effective tool for increasing public awareness about e-bikes. It helps people learn about new models, prices, and benefits. When companies share useful and interesting information online, consumers become more knowledgeable and confident about e-bikes.

➤ *Theoretical Implications*

This research adds to the existing studies on digital marketing and consumer behavior by showing how social media can shape awareness about eco-friendly products. It proves that online exposure, engagement, and shared content play a major role in the first stage of the buying process—awareness.

➤ *Hypotheses Hypotheses Hypotheses Managerial Implications*

The findings give practical suggestions for marketers and companies in the e-bike industry:

- Encourage user-generated content: Brands should motivate customers to share their experiences, reviews, and videos online. These real stories build awareness and trust.
- Work with influencers: Partnering with trusted and knowledgeable influencers can increase product awareness among a wider audience.
- Create useful content: Companies should share simple and informative content such as comparisons, FAQs, and demo videos that help people understand e-bikes better.
- Increase online visibility: Regular posting, sponsored ads, and active participation on social platforms help keep e-bikes visible to consumers.
- Engage with followers: Responding to comments, questions, and feedback builds positive relationships and long-term awareness.

➤ *Policy Implications*

Government organizations promoting electric mobility can use social media campaigns to increase public awareness about the environmental and financial benefits of e-bikes. Online campaigns, webinars, and digital advertisements can help reach young audiences and encourage sustainable transport choices.

### ➤ Limitations of the Study

- The study focused only on the NCR region, so results may differ in other areas.
- Data were collected at one point in time; long-term studies might show more trends.
- The study looked only at awareness, not at purchase behavior or satisfaction.

### ➤ Future Research Directions

Future research can study how awareness leads to actual purchase or loyalty. Researchers can also include new variables such as trust, attitude, or perceived value. Studies in other regions or comparing electric scooters and bikes can also be helpful.

Researchers can also use artificial intelligence or big data to study how social media comments and posts influence consumer opinions.

## VIII. SUMMARY

In short, this study proves that social media plays a major role in spreading awareness about e-bikes. When companies share reliable information and engage with users online, people become more aware and interested in sustainable products. The study provides useful insights for marketers, researchers, and policymakers to promote e-bikes and support eco-friendly transportation in India.

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