



INSTAGRAM MARKETING AND BRAND IMAGE: EVIDENCE FROM PHARMACEUTICAL INDUSTRIES IN NORTH-CENTRAL NIGERIA

Oluwaseun Oladeji^{1,*}, Babatola, Felix Akinlade², Oyelade, K.a³, Adewuyi, J.o³

¹Federal University of Agriculture and Developmental Studies, Iragbiji, Osun State Nigeria

²Dept. of Business Administration, Joseph Ayo Babalola University Ikeji Arakeji Osun State Nigeria

³Department of Business Administration, Federal University of Agriculture and Development Studies Iragbiji, Osun State, Nigeria

***Corresponding author:** oluwaseun.oladeji@fuadsi.edu.ng; +2348039479317; ORCID: 0009-0003-5719-4993

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ABSTRACT

The increasing use of social media has created new opportunities for pharmaceutical organizations to communicate with stakeholders and shape favourable brand perceptions. This study examined the predict of Instagram marketing on the brand image of pharmaceutical industries in North-Central Nigeria, with particular focus on Instagram content quality and source credibility. The study adopted a quantitative cross-sectional survey design. The population comprised 4,000 staff of 14 selected registered pharmaceutical companies operating in Kwara State, Niger State and the Federal Capital Territory, Abuja. A sample of 364 respondents was determined using the Taro Yamane formula and selected through a multistage sampling technique. Data were collected using a structured questionnaire measured on a five-point Likert scale. The instrument demonstrated acceptable reliability, with an overall Cronbach's alpha coefficient of 0.87. Data were analyzed using descriptive statistics, Pearson correlation and multiple regression analysis at the 0.05 level of significance. The findings revealed that Instagram content quality had a significant positive predictor on brand image ($\beta = .371$, $t = 6.77$, $p < .001$). Source credibility also had a significant positive predictor brand image ($\beta = .502$, $t = 9.12$, $p < .001$). The regression model was statistically significant ($F = 214.02$, $p < .001$) and explained 57.9% of the variation in brand image. Source credibility exhibited a stronger relative predictive relationship with brand image than content quality. The study concludes that effective Instagram marketing can predict pharmaceutical brand image when organizations provide relevant, informative and professionally presented content through credible and trustworthy sources. Pharmaceutical companies should therefore integrate content quality and source credibility into their digital marketing strategies.

1. INTRODUCTION

The rapid expansion of digital technologies has significantly transformed the way organizations communicate with stakeholders, promote their products and manage their brands. Social media platforms have become important channels through which organizations disseminate information, engage audiences and establish distinctive brand identities (Candra, 2023). Among these platforms, Instagram has gained considerable relevance because of its emphasis on visual and interactive communication, enabling organizations to combine images, videos, captions, stories and other forms of content in presenting their brands. Recent studies indicate that social-media marketing can influence consumers' perceptions and evaluations of brands by facilitating continuous communication and interaction between organizations and their audiences (Candra, 2023; Pham et al., 2024). Consequently, organizations are increasingly expected not only to maintain a social-media presence but also to ensure that their digital communication contributes positively to how their brands are perceived.

In Instagram marketing, the quality of content represents an important consideration in shaping brand-related perceptions. Social-media users are exposed to large volumes of competing information, making the relevance, informativeness, clarity, accuracy and attractiveness of organizational content important in gaining attention and establishing favorable perceptions. Recent research on social-media marketing suggests that the characteristics and quality of brand-generated content can influence consumers' evaluations of organizations and their brands (Ghobadi Saki et al., 2023; Ahmad et al., 2026). For pharmaceutical organizations, the importance of content quality may be even greater because communication frequently concerns products and services associated with health, safety and well-being. Pharmaceutical communication therefore requires more than promotional appeal; it requires information that is clear, useful, professionally presented and sufficiently credible to support a favorable perception of the organization. Thus, the extent to which pharmaceutical firms provide quality content through Instagram may have implications for their overall brand image (Ghobadi Saki et al., 2023).

Beyond the quality of content, the credibility of the source communicating information through Instagram is particularly important in pharmaceutical marketing. Source Credibility Theory proposes that the effectiveness of communication is influenced by perceptions of the source's expertise and trustworthiness (Norouzi & Barzegar, 2025). In contemporary social-media environments, source credibility remains relevant because audiences must continually evaluate whether information is reliable, knowledgeable and worthy of confidence. Recent studies have continued to demonstrate the importance of source credibility in digital and social-media communication, particularly where consumers evaluate information, endorsers and brand-related messages (Norouzi & Barzegar, 2025). This issue is particularly significant for pharmaceutical organizations because stakeholders may associate the credibility of the information communicated online with the competence, professionalism and reliability of the organization itself. Where Instagram communication is perceived as credible, it may strengthen favorable associations with the pharmaceutical brand; conversely, questionable or poorly presented information may undermine confidence in the organization and adversely affect its image.

Despite the increasing importance of Instagram in organizational communication, concerns remain about whether pharmaceutical organizations are adequately utilizing the platform to create and maintain favorable brand images. Social-media marketing research has expanded considerably, but existing studies often examine several platforms collectively, making it difficult to determine the specific contribution of Instagram to brand-related outcomes. Similarly, a substantial proportion of empirical research has been conducted in sectors such as fashion, hospitality, tourism, retailing and other consumer-oriented industries, with comparatively less attention devoted to pharmaceutical organizations. Recent studies have

demonstrated relationships between social-media activities, content characteristics, source credibility and brand-related outcomes, but the evidence remains context-dependent (Ghobadi Saki et al., 2023; Niaz & Irshad, 2026). This creates a need for further investigation into how the specific characteristics of Instagram communication operate within sectors where information credibility and professional reputation are particularly important.

Social media also has become an increasingly important environment for organizational communication and health-related information dissemination. Nigerian digital communication research has drawn attention to the opportunities created by social-media platforms while also highlighting concerns relating to information quality, credibility, ethics and responsible communication (Sunday & Nwagbara, 2025; Egbozimba, 2026). In pharmaceutical marketing, these concerns are particularly important because the organization's online communication can contribute to perceptions of its professionalism, reliability and overall reputation.

However, empirical evidence specifically examining the relationship between Instagram content quality, source credibility and pharmaceutical brand image in North-Central Nigeria remains limited. Furthermore, much of the available social-media research focuses on consumers or purchasing outcomes, whereas less attention has been given to the perspectives of pharmaceutical-industry staff who are directly involved in or knowledgeable about organizational marketing and communication activities.

OBJECTIVE OF THE STUDY

The main objective of the study is to examine the extent to which Instagram marketing predicts the brand image of pharmaceutical industries in North Central Nigeria. Specifically, the study seeks to:

- i. Examine the extent to which Instagram content quality predicts the brand image of pharmaceutical industries in North Central Nigeria.
- ii. Determine the extent to which source credibility of Instagram communication predicts the brand image of pharmaceutical industries in North Central Nigeria.

RESEARCH QUESTIONS

The study is guided by the following research questions:

- i. What predict does Instagram content quality have on the brand image of pharmaceutical industries in North-Central Nigeria?
- ii. What predict does source credibility of Instagram communication have on the brand image of pharmaceutical industries in North-Central Nigeria?

RESEARCH HYPOTHESES

The following null hypotheses are formulated and tested at the 0.05 level of significance:

1. **H₀₁:** Instagram content quality has no significant predict on the brand image of pharmaceutical industries in North-Central Nigeria
2. **H₀₂:** Source credibility of Instagram communication has no significant predict on the brand image of pharmaceutical industries in North-Central Nigeria

2. LITERATURE REVIEW

Concept of Instagram Marketing

Instagram marketing refers to the strategic use of Instagram by organizations to communicate with audiences, promote products and services, disseminate information, build relationships and develop

favourable perceptions of a brand. The platform provides organizations with opportunities to communicate through visual and interactive formats, including photographs, videos, Stories, Reels, captions, comments and direct messaging. Consequently, Instagram has evolved beyond being a platform for social interaction into an important marketing environment through which organizations can communicate their identity and engage stakeholders. Recent research indicates that social-media marketing activities can influence brand-related outcomes by providing opportunities for organizations to create content, interact with audiences and develop relationships with stakeholders (Wies et al., 2023; Moorman et al., 2024).

The relevance of Instagram marketing is particularly evident in industries where organizational reputation and information communication are important. In the healthcare sector, digital platforms provide organizations with opportunities to disseminate health-related information, communicate organizational values and interact with stakeholders. Moorman et al. (2024) noted that developments in healthcare marketing have been accompanied by changes in the way organizations and stakeholders interact, creating new opportunities and challenges for marketing communication. Similarly, recent research on digital strategies in healthcare demonstrates the increasing importance of social-media platforms in contemporary healthcare communication (Azmi et al., 2026). For pharmaceutical organizations, Instagram can therefore function as a communication channel through which the organization presents its products, expertise and corporate identity.

Instagram Content Quality

Content quality refers to the extent to which information communicated through an organization's Instagram platform is informative, relevant, accurate, clear, useful and appropriately presented to the target audience. In social-media environments, content constitutes one of the primary means through which organizations communicate their values and differentiate themselves from competing brands. Unlike conventional advertising, Instagram allows organizations to provide continuous streams of visual and textual information, making the quality of such information important for maintaining audience attention and developing favourable perceptions.

High-quality Instagram content should provide information that is relevant to the audience's needs while maintaining clarity, consistency and credibility. The visual nature of Instagram also means that presentation can influence how audiences process organizational messages. Recent research demonstrates that characteristics of social-media content can influence user engagement and brand-related responses, suggesting that organizations need to consider not only the frequency of their posts but also the quality and characteristics of the content they provide (Wies et al., 2023; Adam, 2026). Content that is informative and relevant can communicate organizational competence, whereas poorly presented or irrelevant content may weaken perceptions of professionalism.

The importance of content quality is even more pronounced in the pharmaceutical industry. Pharmaceutical organizations communicate information relating to products, health conditions and medication, making accuracy and clarity important considerations. In such a context, content should not be evaluated solely on the basis of its entertainment or visual appeal. It should also provide useful and responsible information that reflects the organization's professional identity. Recent research on healthcare marketing emphasizes the distinctive nature of healthcare exchanges and the need for organizations to consider trust and information-related factors in their marketing activities (Moorman et al., 2024).

Source Credibility

Source credibility refers to the extent to which a recipient perceives a source of information as trustworthy, knowledgeable and reliable. The concept is particularly relevant to digital marketing because social-media users encounter information from organizations, employees, influencers, professionals and other users whose expertise and trustworthiness may differ considerably. In evaluating social-media messages, audiences may therefore consider whether the communicator possesses adequate knowledge and whether the information provided can be trusted.

Source credibility is particularly important when the subject of communication involves products or information associated with health and well-being. Pharmaceutical organizations are expected to communicate information in a manner that demonstrates expertise, professionalism and trustworthiness. Where stakeholders perceive a pharmaceutical organization's Instagram communication as credible, the communication may strengthen confidence in the organization and contribute to favourable brand associations. Conversely, questionable information, exaggerated claims or poorly presented messages may negatively influence perceptions of the organization.

Contemporary research continues to demonstrate the relevance of credibility in social-media communication. Research on social-media influencers, for instance, has examined how characteristics associated with credible communicators influence audience responses and engagement (Singh et al., 2026). Similarly, studies of digital marketing emphasize the importance of trustworthy and authentic communication in developing relationships between organizations and audiences. These arguments are especially applicable to pharmaceutical organizations, where perceived expertise and trustworthiness can become part of the organization's broader brand image.

Concept of Brand Image

Brand image represents the set of perceptions, beliefs and associations that stakeholders hold regarding a brand. It reflects how an organization or its products are perceived based on information, experiences and interactions with the organization. Brand image may incorporate perceptions of quality, reliability, professionalism, credibility and other associations that distinguish one organization from another.

In contemporary digital environments, brand image is increasingly influenced by online communication because social-media platforms provide organizations with continuous opportunities to present themselves to stakeholders. Instagram is particularly relevant because organizations can use visual and textual content to communicate their identity and create associations around their brands. Research examining social-media communication has demonstrated that online brand activities can contribute to brand-related outcomes by shaping audience perceptions and facilitating interaction (Ghobadi Saki et al., 2023; Praswati et al., 2025).

Instagram Content Quality and Brand Image

The relationship between content quality and brand image can be explained through the role of organizational communication in shaping stakeholder perceptions. When an organization's Instagram content is informative, relevant, clear and professionally presented, it provides stakeholders with cues about the organization's competence and values. Repeated exposure to consistent and useful content may consequently contribute to favourable associations with the brand.

Empirical research supports the broader relationship between social-media communication and brand-related outcomes. Ghobadi Saki et al. (2023), for example, examined Instagram-related marketing and brand image, demonstrating the relevance of Instagram communication to perceptions of brands. Similarly, research on social-media content indicates that the characteristics of content can influence

engagement and audience responses (Adam, 2026). Although these studies provide useful evidence, much of the existing literature is concentrated in consumer-oriented industries and does not sufficiently address pharmaceutical organizations in the Nigerian context.

The pharmaceutical industry provides a distinctive context because content quality incorporates not only attractiveness and engagement but also informational value and professionalism. Therefore, when pharmaceutical organizations provide relevant and useful Instagram content, stakeholders may interpret such communication as evidence of organizational competence and professionalism.

Source Credibility and Brand Image

Source credibility provides another mechanism through which Instagram communication may influence brand image. When stakeholders perceive an organization's communication as coming from a knowledgeable and trustworthy source, they may be more willing to accept the information and develop positive perceptions of the organization (Singh et al., 2026). Expertise can signal competence, while trustworthiness can reduce uncertainty regarding the information being communicated. Together, these characteristics can influence the way stakeholders evaluate the organization behind the message.

The relationship is particularly important in pharmaceutical marketing because the credibility of health-related information can influence perceptions of organizational professionalism and reliability (Moorman et al., 2024). Pharmaceutical firms therefore have a strong incentive to ensure that their Instagram communication demonstrates expertise and trustworthiness. Recent research into healthcare marketing highlights the changing nature of healthcare communication and the importance of developing appropriate relationships with stakeholders in increasingly digital environments (Moorman et al., 2024). Research on social-media influencers likewise continues to demonstrate the importance of source characteristics in influencing audience responses (Singh et al., 2026).

3. EMPIRICAL REVIEW

Wies et al. (2023) empirically examined social-media influencer characteristics and their relationship with audience engagement. Using large-scale social-media data, the study demonstrated that characteristics of social-media content and the source of that content can influence users' engagement with brands and influencers. The study provides evidence that the characteristics surrounding social-media communication matter for audience responses.

However, the study concentrated primarily on influencer-based communication and engagement rather than pharmaceutical organizations, and engagement rather than organizational brand image constituted the principal outcome. Consequently, its findings provide useful support for the importance of social-media communication characteristics but leave uncertainty regarding whether content quality contributes specifically to pharmaceutical brand image.

Ghobadi Saki et al. (2023) investigated the relationship between social-media marketing activities and brand-related outcomes in the Instagram environment. Their findings provide direct evidence that Instagram-based marketing activities can contribute to consumers' perceptions of brands. The study is particularly relevant because it focuses on Instagram rather than treating social media as a single undifferentiated platform. Nevertheless, the study was conducted within a consumer-oriented context and focused on consumer perceptions rather than staffs' assessment of pharmaceutical organizations. The contextual and sectoral differences therefore limit direct generalization of the findings to pharmaceutical industries in North-Central Nigeria.

Khan and Fatma (2026) examined brand-generated content on social media using the Stimulus-Organism-Response and Elaboration Likelihood perspectives. Their empirical analysis highlights the role of

organizationally generated social-media content in shaping consumer responses and brand-related evaluations. The study strengthens the argument that the content produced by organizations can function as an important marketing stimulus. However, the research examined brand-generated content from a consumer perspective and did not specifically isolate Instagram content quality as an explanatory variable. It also did not focus on pharmaceutical organizations or the Nigerian environment. Thus, while the study provides contemporary evidence concerning the role of brand-generated content, its findings cannot fully explain how pharmaceutical employees evaluate the quality of Instagram communication in relation to organizational brand image.

Praswati (2025) investigated the relationship between social-media marketing, brand image and word-of-mouth in healthcare clinics. The study is particularly relevant to the present research because it moves beyond general consumer industries into the healthcare sector. The findings indicate that social-media marketing can contribute to brand image and related outcomes within healthcare organizations. However, the study focused on healthcare clinics rather than pharmaceutical industries and incorporated social-media marketing as a broader construct rather than concentrating specifically on Instagram content quality. The difference in organizational setting is important because pharmaceutical companies operate within a distinct regulatory and informational environment.

Al-Malik and Ilmi (2026) examined Instagram marketing and brand awareness among Generation Z in an Indonesian creative photography studio. The study found a significant relationship between Instagram-based marketing activities and brand-related outcomes. Its Instagram-specific focus provides useful evidence that platform-specific marketing can contribute to brand perceptions. However, the study focused on Generation Z consumers and a creative photography business rather than pharmaceutical-industry employees. The industry, geographical setting and respondent characteristics therefore differ substantially from those of the present study.

Khan et al. (2025) examined social-media marketing activities in the Indian airline industry and their implications for brand equity and electronic word-of-mouth. The study reported that social-media marketing activities can contribute to important brand-related outcomes. Although the research demonstrates the strategic importance of social-media marketing for organizational branding, it investigated the airline sector and considered social-media marketing as a broader construct rather than isolating Instagram content quality. The study therefore provides sectoral evidence but does not address the information-intensive pharmaceutical environment or the North-Central Nigerian context.

Singh et al. (2026) conducted a content analysis of social-media influencers in firm-based marketing campaigns and examined the role of influencers across different phases of marketing campaigns. The study highlights the strategic importance of source characteristics and credibility in social-media marketing and emphasizes the potential implications of credible communication for brand outcomes. However, the study concentrated on influencers and firm-based campaigns rather than the credibility of pharmaceutical organizations' own Instagram communication. In addition, its content-analysis approach differs from the employee-based survey design proposed in the present study.

Marti-Ochoa et al. (2025) examined brand perception through user engagement and sentiment trends on TikTok. Their findings demonstrate that social-media content, engagement and perceptions of authenticity and credibility can influence how audiences perceive brands. The study provides evidence of the relationship between digital communication and brand perception. However, it examined TikTok rather than Instagram and relied on social-media content and sentiment data rather than responses from organizational employees. Consequently, it demonstrates the importance of credibility and engagement in

digital environments but does not establish how source credibility affects pharmaceutical brand image on Instagram.

Moorman et al. (2024) examined the changing nature of marketing in the healthcare sector and identified significant changes in healthcare exchanges arising from digital technologies and changing stakeholder behaviour. Although the article provides a strong contemporary healthcare-marketing foundation, it is primarily a conceptual/research-direction contribution rather than a direct empirical test of Instagram source credibility and brand image. It therefore establishes the importance of examining digital marketing within healthcare-related sectors but does not provide direct evidence for the specific relationship tested in this study.

4. THEORETICAL REVIEW

Source Credibility Theory

Source Credibility Theory is principally associated with Hovland et al., (1953), who developed the theory in their work *Communication and Persuasion*. The theory emerged from research on persuasive communication and explains that the effectiveness of a message is partly determined by the perceived credibility of the person or organization communicating it. Hovland et al. (1953) identified expertise and trustworthiness as central characteristics through which audiences evaluate the credibility of a source. The theory has remained relevant in contemporary digital communication because audiences continue to assess the reliability and competence of sources when encountering information online (Kim & Goodman, 2026).

The major assumption of Source Credibility Theory is that people are more likely to accept and be persuaded by information when they perceive its source as credible. Credibility is primarily associated with the source's expertise and trustworthiness. Expertise concerns the extent to which the source is perceived to possess relevant knowledge or competence, whereas trustworthiness concerns the extent to which the source is perceived as honest, dependable and unbiased. In social-media environments, these characteristics can influence how audiences evaluate organizational messages and subsequently develop attitudes toward the communicating organization or brand. Recent studies continue to apply these dimensions in examining digital and social-media communication (Supriyadi & Syah, 2024; Saad, 2025).

A major strength of Source Credibility Theory is its simplicity and explanatory power. By emphasizing expertise and trustworthiness, the theory provides a clear framework for understanding why audiences may accept some sources and reject others. It is also sufficiently flexible to be applied to traditional advertising, electronic word-of-mouth, influencer marketing and social-media communication. Recent empirical research continues to demonstrate the usefulness of credibility-related constructs in explaining responses to online information and marketing messages (Supriyadi & Syah, 2024; Nnanna-Ohuonu, 2025). Its continued application in digital environments demonstrates that perceptions of competence and trust remain important even as communication technologies change.

Despite its usefulness, Source Credibility Theory has some limitations. First, credibility is subjective, meaning that different individuals may evaluate the same source differently based on their experiences, knowledge and expectations. Second, the original framework was developed largely in traditional communication environments and may not fully capture the complexity of contemporary social-media communication, where users can simultaneously encounter information from organizations, influencers, customers and anonymous sources. Third, credibility does not necessarily guarantee persuasion because audiences may consider other factors, such as the quality of the message, personal relevance, prior beliefs and the attractiveness of the communication. Recent scholarship consequently suggests that expertise and

trustworthiness should not be treated as the only determinants of credibility in contemporary digital environments (Crano & Riffat, 2026).

Application of Source Credibility Theory to the Present Study

Source Credibility Theory provides the principal theoretical explanation for the role of source credibility in the relationship between Instagram marketing and pharmaceutical brand image. The theory proposes that the effectiveness of communication depends partly on how recipients perceive the credibility of the source delivering the message. In the present study, source credibility is operationalized primarily through respondents' perceptions of the pharmaceutical organization's expertise, trustworthiness and reliability in its Instagram communication. These dimensions reflect the extent to which the organization is perceived as knowledgeable, competent, honest and dependable when communicating pharmaceutical and health-related information.

The theory also provides a basis for understanding how the characteristics of Instagram communication may contribute to favorable organizational perceptions. High-quality Instagram content that is accurate, informative, relevant, clear and useful can provide communication cues through which respondents evaluate the competence and professionalism of the organization communicating the information. Thus, content quality is not treated as a dimension of source credibility; rather, it represents a characteristic of the message environment that may reinforce perceptions of the organization as knowledgeable and professionally competent.

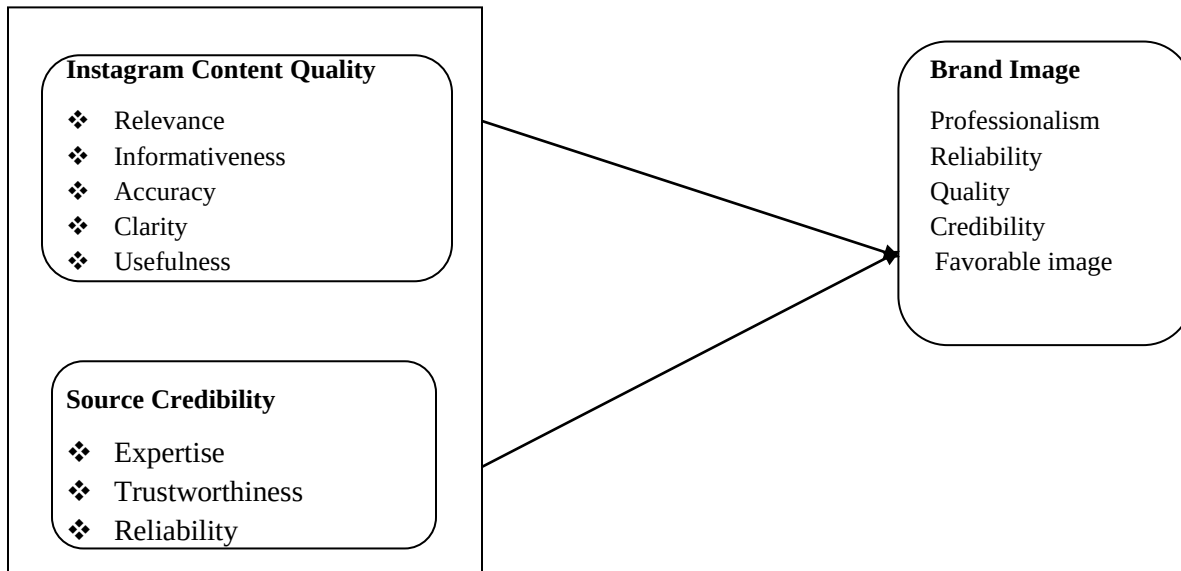
Within the present study, brand image represents respondents' overall perception of the pharmaceutical organization, including perceptions of professionalism, reliability, quality and credibility. The proposed relationships therefore assume that exposure to relevant, informative and professionally presented Instagram content can contribute to favorable organizational perceptions, while perceptions of a credible source can strengthen confidence in the organization and its brand. The theoretical model consequently links Instagram content quality and source credibility with brand image, with Source Credibility Theory providing the principal explanation for the role of expertise, trustworthiness and reliability in digital pharmaceutical communication.

Accordingly, the theory is applied to the present study through the following conceptual relationships: Instagram content quality provides informational and presentation cues; source credibility reflects perceived expertise, trustworthiness and reliability of the communicating organization; and brand image reflects the resulting overall perception of the pharmaceutical organization. This theoretical alignment provides the basis for examining whether Instagram content quality and source credibility significantly predict brand image among the selected respondents. Source Credibility Theory explains the source-credibility mechanism, while content quality represents a message characteristic that may provide clues about organizational competence and professionalism.

Conceptual Framework

INSTAGRAM MARKETING

BRAND IMAGE



Source: (Researcher, 2026)

5. METHODOLOGY

Research Design

The study adopted a quantitative, cross-sectional survey design to examine the relationship between Instagram marketing and brand image among pharmaceutical companies in North-Central Nigeria. Data were collected using an adapted structured questionnaire from established scales in the literature and was administered to eligible staff of selected registered pharmaceutical companies. The quantitative approach was considered appropriate because it enabled the study to obtain standardized responses and statistically examine the predicts of Instagram content quality and source credibility on brand image. The study was conducted in North-Central Nigeria, which comprises Benue, Kogi, Kwara, Nasarawa, Niger and Plateau States, together with the Federal Capital Territory (FCT), Abuja. The pharmaceutical companies considered for the study were identified from the register of the Pharmacy Council of Nigeria (PCN). For manageability and adequate geographical representation, three locations Kwara State, Niger State and the Federal Capital Territory, Abuja was selected for the study.

Population of the Study

The population comprised 4,000 staffs of 14 selected registered pharmaceutical companies operating within the selected locations in North-Central Nigeria, based on information obtained from the Pharmacy Council of Nigeria (2024). The study focused on individual staffs that were sufficiently knowledgeable about their organizations' marketing and communication activities, particularly those involved in marketing, sales, public relations, digital communication and management. This criterion was necessary because the study examined organizational Instagram practices and their perceived contribution to brand image.

Sample Size

A multistage sampling technique was employed to select the participating companies and staffs. The use of multistage sampling enabled the study to move systematically from the broader population of pharmaceutical companies in North-Central Nigeria to the selected companies and finally to individual respondents. The sampling procedure was considered appropriate because the study population was geographically dispersed and comprised employees with varying levels of involvement in organizational marketing activities.

The population is large and hence TamaroYamine formula (1973) was used to determine the sample size for the study.

Population size (N) = 4000 (the total population size)

Margin of error (E) = let assume a margin of error of 5%, which corresponds to 0.05.

$$n = \frac{N}{1 + N(e^2)}$$

$$n = \frac{4000}{1 + 4000(0.0025)}$$

$$n = \frac{4000}{10.0025}$$

$$n = 363.63$$

$$n = \sim 364 \text{ staffs respondents}$$

Hence, sample size is therefore approximately to 364 respondents from the population of 4000.

Instrument and Measurement of Variables

Data were collected through a structured questionnaire developed from measures used in previous empirical studies and adapted to the pharmaceutical industry context. The questionnaire consisted of sections covering respondents' demographic characteristics, Instagram content quality, source credibility and brand image. Responses were measured using a five-point Likert scale, ranging from 1 = strongly disagree to 5 = strongly agree.

For the purposes of this study, Instagram marketing is examined through two focal characteristics of Instagram communication: content quality and source credibility. Content quality was assessed in terms of the relevance, informativeness, accuracy, clarity and usefulness of the information presented on the company's Instagram platform. Source credibility was assessed through perceptions of the organization's expertise, trustworthiness and reliability in its Instagram communication. Brand image was measured through staffs' perceptions of the organization's professionalism, reliability, quality, credibility and overall favourable image.

A pilot test was also conducted before the main survey to identify ambiguities and improve the clarity of the instrument. The reliability of the measurement scales was assessed using Cronbach's alpha, with acceptable reliability determined in accordance with established statistical standards. Exploratory Factor Analysis (EFA) was conducted to assess the underlying factor structure and provide evidence of construct validity for the measurement instrument.

Table 1*Pilot Test*

Construct	No. of Items	Cronbach's Alpha	Decision
Instagram Content Quality	7	0.86	Reliable
Source Credibility	6	0.84	Reliable
Brand Image	7	0.88	Reliable
Overall scale	20	0.87	Reliable

Table 1.1*KMO and Bartlett's Test*

Test	Statistic	df	Sig.
Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy	0.872	—	—
Bartlett's Test of Sphericity	1,846.327	190	<0.001

Sources and Adaptation of Measurement Items

Variable measured	Questions Dimensions	Adapted from	Response scale
Instagram Content Quality (7)	Relevance, Informativeness, Accuracy, Clarity, Usefulness	Ducoffe (1996), information-quality literature, social-media information-quality literature, health-information-quality literature	5-point Likert
Source Credibility (6)	Expertise, Trustworthiness, Reliability	Ohanian (1990), source-credibility literature	5-point Likert
Brand Image(7)	Professionalism, Reliability, Quality, Credibility, Favourable Image	Brand/corporate-image literature, perceived-quality/brand-image literature	5-point Likert
Total (20 items)			

Source (Researcher, 2026)

Data Collection and Analysis

Data were analyzed using descriptive and inferential statistics. Descriptive statistics, including frequencies, percentages, means and standard deviations, were used to summarize the characteristics of the respondents and study variables. Pearson correlation was used to examine the associations among the variables, while multiple regression analysis was employed to determine the predicts of Instagram content quality and source credibility on brand image. The hypotheses were tested at the 0.05 level of significance.

The regression model: $BI = \beta_0 + \beta_1 ICQ + \beta_2 SC + \varepsilon$

Where:

BI = Brand Image

ICQ = Instagram Content Quality

SC = Source Credibility

β_0 = Constant

β_1 and β_2 = Regression coefficients

ε = Error term

6. ANALYSIS AND DISCUSSIONS OF FINDINGS

Table 2

Questionnaire Response Rate

Questionnaire status	Frequency	Percentage (%)
Questionnaires administered	364	100.0
Valid questionnaires returned	364	100.0
Invalid/incomplete questionnaires	0	0.0
Total	364	100.0

Source: Field Survey, 2026.

Table 3

Demographic Characteristics of Respondents

Variable	Category	Frequency	Percentage (%)
Gender	Male	218	59.9
	Female	146	40.1
	Total	364	100.0
Age	18–27 years	48	13.2
	28–37 years	126	34.6
	38–47 years	118	32.4
	48 years and above	72	19.8
	Total	364	100.0
Education	ND/NCE	36	9.9
	HND/Bachelor's	196	53.8
	Master's	108	29.7
	PhD/Professional	24	6.6
	Total	364	100.0
Experience	Below 5 years	92	25.3
	5–10 years	146	40.1
	Above 10 years	126	34.6
	Total	364	100.0

Source: Field Survey, 2026.

Table 4

Descriptive Statistics of Study Variables

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Instagram Content Quality	364	1.80	5.00	3.84	0.67
Source Credibility	364	1.75	5.00	3.91	0.64
Brand Image	364	1.90	5.00	3.88	0.65

Source: Field Survey, 2026.

Table 4 presents the descriptive statistics for the study variables. Instagram content quality recorded a mean of 3.84 (SD = 0.67), while source credibility had the highest mean of 3.91 (SD = 0.64). Brand image recorded a mean of 3.88 (SD = 0.65). The mean scores, which are generally above the midpoint of

the measurement scale, suggest favourable perceptions of Instagram content quality, source credibility, and brand image among the respondents. The relatively low standard deviations also indicate reasonable consistency in respondents' assessments.

Table 5
Correlation Matrix

Variables	1	2	3
1. Instagram Content Quality	1.000		
2. Source Credibility	.612**	1.000	
3. Brand Image	.684**	.721**	1.000

Source: Field Survey, 2026. $p < 0.001$

Table 5 reports the correlation matrix among the study variables. Instagram content quality was positively and significantly correlated with brand image ($r = .684$, $p < .001$). Similarly, source credibility demonstrated a positive and significant relationship with brand image ($r = .721$, $p < .001$). Instagram content quality was also significantly associated with source credibility ($r = .612$, $p < .001$). These findings indicate that higher perceptions of Instagram content quality and source credibility are associated with more favourable brand image perceptions

Table 6
Regression Model Summary

Model	R	R ²	Adjusted R ²	Std. Error of Estimate
1	.761	.579	.577	.419

Predictors: Instagram Content Quality and Source Credibility

Dependent variable: Brand Image.

Table 6 presents the regression model examining the joint predicts of Instagram content quality and source credibility on brand image. The model produced an R value of .761 and an R² of .579, indicating that Instagram content quality and source credibility jointly explained 57.9% of the variation in brand image. The adjusted R² of .577 further indicates that the model retained substantial explanatory power after adjustment for the predictors.

Table 7
ANOVA for Regression Model

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	75.214	2	37.607	214.02	<.001
Residual	63.414	361	.176		
Total	138.628	363			

Dependent variable: Brand Image.

Table 7 shows that the overall regression model was statistically significant ($F = 214.02$, $p < .001$). This indicates that Instagram content quality and source credibility, when considered jointly, significantly

predict brand image. Thus, the regression model provides a statistically significant explanation of variations in brand image among the respondents

Table 8
Regression Coefficients

Predictor	B	Std. Error	Beta (β)	t	Sig.
Constant	1.042	.168	—	6.20	<.001
Instagram Content Quality	.318	.047	.371	6.77	<.001
Source Credibility	.456	.050	.502	9.12	<.001

Dependent variable: Brand Image.

Table 8 presents the individual predicts of the predictors on brand image. Instagram content quality had a significant positive predictor on brand image ($\beta = .371$, $t = 6.77$, $p < .001$). Source credibility also had a significant positive predictor on brand image ($\beta = .502$, $t = 9.12$, $p < .001$). Comparatively, source credibility had the stronger standardized predict, suggesting that it made a greater contribution to brand image than Instagram content quality within the model.

Table 9
Summary of Hypotheses Testing

Hypothesis	B	T	p-value	Decision
H ₀₁ : Instagram Content Quality → Brand Image	.371	6.77	<.001	Rejected
H ₀₂ : Source Credibility → Brand Image	.502	9.12	<.001	Rejected

Table 9 summarizes the hypotheses tested in the study. The null hypothesis stating that Instagram content quality has no significant predictor on brand image was rejected ($\beta = .371$, $t = 6.77$, $p < .001$). Similarly, the null hypothesis that source credibility has no significant predictor on brand image was rejected ($\beta = .502$, $t = 9.12$, $p < .001$). The findings therefore provide empirical evidence that both Instagram content quality and source credibility significantly and positively predict brand image

The findings indicate that Instagram content quality is a significant positive predictor of brand image of pharmaceutical companies in North-Central Nigeria. The regression result shows that Instagram content quality has a significant positive predictor on brand image ($\beta = .371$, $t = 6.77$, $p < .001$). This suggests that higher perceived quality of the organizations, Instagram content is associated with more favourable staff perceptions of the pharmaceutical brand.

The result is further supported by the correlation coefficient, which shows a strong positive relationship between Instagram content quality and brand image ($r = .684$, $p < .001$). The overall regression model explains 57.9% of the variation in brand image ($R^2 = .579$), indicating that Instagram content quality and source credibility jointly provide substantial explanatory power. This finding is consistent with recent social media marketing literature, which emphasizes that content quality is central to audience engagement and brand-related outcomes. Kundu et al. (2026), for example, identify content quality, influencer credibility and emotional appeal as important factors in influencer marketing effectiveness. Similarly, Kumar et al. (2026), in their study of Instagram-based brand communication, demonstrate that

different message characteristics can influence customer engagement behaviour. The present finding extends these observations to the pharmaceutical sector in North-Central Nigeria, suggesting that Instagram content is not merely a means of creating online visibility but can contribute to how staffs perceive the overall image of a pharmaceutical brand. This is particularly important for pharmaceutical companies, where informative, credible and professionally presented content can contribute to favourable brand associations.

The study also found that source credibility has a significant positive predictor on brand image ($\beta = .502$, $t = 9.12$, $p < .001$). Among the two predictors, source credibility produced the larger standardized coefficient, indicating that it makes a comparatively stronger contribution to brand image than Instagram content quality. The correlation result likewise reveals a strong positive association between source credibility and brand image ($r = .721$, $p < .001$). This finding provides empirical support for Source Credibility Theory, which proposes that the perceived expertise and trustworthiness of a communicator can predict the effectiveness of persuasive communication.

The result is consistent with contemporary studies of influencer and social media marketing. Wellman (2024), in extending Source Credibility Theory to the Instagram wellness-influencer environment, demonstrates the continuing importance of perceived credibility in understanding how audiences respond to social media communicators. Similarly, Jenkins et al., (2020) identify expertise, trustworthiness and authenticity as important elements of influencer credibility. Khanali and Moeini (2026) also report the importance of trustworthiness, reliability and authenticity in shaping staffs' responses to influencer marketing. The stronger coefficient obtained for source credibility in the present study therefore suggests that, within the pharmaceutical context, who communicates information and how credible that source appears may be particularly important in shaping brand image.

Taken together, the findings demonstrate that Instagram marketing can function as an important mechanism for pharmaceutical brand-image formation. While quality content contributes significantly to favourable brand perceptions, source credibility appears to provide a stronger prediction of brand image in the present study.

This is theoretically meaningful because pharmaceutical products involve health-related information for which staffs may place considerable emphasis on trust, expertise and reliability. The findings therefore suggest that pharmaceutical companies should not concentrate solely on attractive Instagram content; they should also ensure that information is communicated by credible and appropriately qualified sources. This interpretation is consistent with recent research showing that credibility and authenticity are increasingly important in digital influencer and health-related communication (Wellman, 2026; Jenkins et al., 2020).

Overall, the results support both hypotheses tested in the study: Instagram content quality is significantly associated with brand image, while source credibility also is significantly associated with brand image. The evidence therefore reinforces the argument that effective Instagram marketing involves more than maintaining a social media presence. It requires pharmaceutical companies to combine high-quality, relevant content with credible communication in order to develop favourable and trustworthy brand associations among their audiences

7. Conclusion and Recommendations

Conclusion

Overall, the findings indicate that Instagram communication characteristics are significantly associated with perceived brand image among employees of the selected pharmaceutical companies in North-Central Nigeria. Instagram content quality and source credibility were both significant positive predictors of

employee-perceived brand image, with source credibility demonstrating the stronger relative contribution. The findings suggest that, from the perspective of organizational employees who are knowledgeable about pharmaceutical marketing and communication activities, relevant, informative and professionally presented Instagram content, together with credible and trustworthy communication, may contribute to favorable perceptions of the pharmaceutical organization. These findings should not, however, be interpreted as direct evidence of consumer perceptions because the respondents were pharmaceutical-industry employees.

Recommendations

Based on the findings of the study, the following recommendations are made.

First, pharmaceutical companies should prioritize the quality of their Instagram content. Since Instagram content quality was found to have a significant positive predictor on brand image ($\beta = .371, p < .001$), companies should develop content that is relevant, informative, professionally presented and appropriate to the needs of their target audiences. Rather than focusing predominantly on promotional messages, pharmaceutical companies should use Instagram to provide meaningful product information, health education, responsible awareness content and other information capable of strengthening positive brand associations.

Second, pharmaceutical companies should place greater emphasis on source credibility when developing Instagram marketing campaigns. Source credibility recorded the stronger predict on brand image ($\beta = .502, p < .001$). Companies should therefore ensure that health and pharmaceutical information communicated through Instagram is associated with credible and appropriately qualified professionals. Where influencers or other external communicators are used, companies should select individuals whose expertise, reputation and values are consistent with the pharmaceutical brand.

Third, pharmaceutical companies should combine attractive content with credible communication. The findings show that both content quality and source credibility significantly predict brand image. Consequently, companies should avoid treating visual appeal as sufficient for effective Instagram marketing. High-quality content is likely to have greater value when audiences also perceive the communicator as knowledgeable, trustworthy and reliable.

Fourth, pharmaceutical marketing managers should establish clear quality-control procedures for Instagram communication. Given the sensitivity of pharmaceutical and health-related information, organizations should review social media content before publication to ensure that information is accurate, understandable and consistent with the company's desired brand image and applicable professional and regulatory requirements.

Finally, pharmaceutical companies should evaluate Instagram marketing beyond measures of reach and engagement. Managers should assess whether their Instagram activities are actually improving staffs' perceptions of the brand. Regular monitoring of audience feedback, content performance and brand-image indicators can help companies identify which types of content and sources generate the most favourable brand responses.

Limitations of the Study

Despite its contribution, the study has some limitations. First, the study was restricted to selected pharmaceutical companies in North-Central Nigeria. Consequently, the findings are not directly generalizable to pharmaceutical companies operating in other geopolitical zones of Nigeria or to other industries with different marketing and staff characteristics.

Second, the study employed a cross-sectional survey design, meaning that data were collected at a particular point in time. As a result, the study provides evidence of significant relationships between Instagram marketing variables and brand image but does not establish how these relationships may change over an extended period.

Third, the study relied on self-reported questionnaire responses. Respondents' perceptions may therefore have been predicted by personal experiences, recall, social desirability or differences in their interpretation of the questionnaire items. Although appropriate procedures were applied to collect quantitative data, self-reported measures may not capture every aspect of actual staffs' behaviour.

Finally, the study focused specifically on Instagram content quality and source credibility as dimensions of Instagram marketing. Other characteristics of Instagram marketing, such as interactivity, influencer brand fit, visual appeal, electronic word-of-mouth, paid advertising and algorithmic visibility, were outside the specific scope of this study.

Suggestions for Further Studies

Future studies could extend this research beyond North-Central Nigeria by examining pharmaceutical companies in other geopolitical zones. A broader geographical scope would provide opportunities to compare whether the influence of Instagram marketing on brand image differs across regions and staff contexts.

Future research could also employ a longitudinal design to examine changes in brand image over time as pharmaceutical companies introduce different Instagram strategies. Such an approach could provide stronger evidence regarding the long-term effects of Instagram marketing rather than relying on observations from a single period.

Further studies should consider incorporating additional dimensions of Instagram marketing, including interactivity, influencer brand fit, electronic word-of-mouth, Instagram advertising, visual storytelling and user-generated content. Examining these variables alongside content quality and source credibility could provide a more comprehensive explanation of how Instagram contributes to pharmaceutical brand image

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Questionnaire

S/N	ITEMS	SA	A	U	SD	A
1.	The content posted by our organization on Instagram is relevant to the information needs of its target audience.					
2.	Our organization's Instagram posts address issues that are relevant to its customers and stakeholders.					
3.	Our organization's Instagram posts provide adequate information about its pharmaceutical products and services.					
4.	The Instagram content provided by our organization helps the audience to understand its pharmaceutical products and services better.					
5.	The information about pharmaceutical products posted by our organization on Instagram is accurate.					
6.	Our organization makes efforts to ensure that the information posted on Instagram is factually correct.					
7.	Our organization communicates pharmaceutical information clearly through its Instagram posts.					
8.	The messages contained in our organization's Instagram posts are easy for the target audience to understand.					
9.	The information provided by our organization on Instagram is useful to its target audience.					
10.	Our organization's Instagram content provides information that can assist the audience in evaluating its products and services.					
11.	The individuals or professionals used to communicate pharmaceutical information on our organization's Instagram platform demonstrate adequate expertise.					
12.	The sources used in our organization's Instagram communication are knowledgeable about the pharmaceutical products and issues they discuss.					
13.	The sources used by our organization on Instagram are perceived as trustworthy by the target audience.					
14.	The information communicated by the sources used on our organization's Instagram platform is presented honestly.					
15.	The sources used in our organization's Instagram communication provide dependable information.					
16.	The sources used by our organization on Instagram consistently provide reliable pharmaceutical information.					
17.	Our organization's Instagram communication contributes to the perception that the organization is professional.					
18.	The quality of our organization's Instagram communication contributes to the perception that the organization is reliable.					
19.	Our organization's Instagram communication contributes to a perception of high quality in its pharmaceutical products and services					
20.	Our organization's credible Instagram communication strengthens the perception that the organization is credible.					