THE IMPACT OF DIGITAL MARKETING STRATEGY ON PROMOTING LOCAL PHARMACEUTICAL PRODUCTS

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Abstract

This study investigates the influence of digital marketing strategies on the promotion of locally manufactured pharmaceutical products in Saudi Arabia, aligning with the country's Vision 2030 digital transformation agenda. A cross-sectional survey was conducted among 218 licensed pharmacists using a structured questionnaire. Four core dimensions of digital marketing — content marketing, email marketing, online advertising, and social media marketing (SMM) — were examined through multiple regression analysis. The results demonstrate that SMM exerts the strongest effect, followed by online advertising, while content marketing shows a moderate influence. In contrast, email marketing exhibited no statistically significant impact. These findings underscore the dominant role of interactive and visually driven digital tools, particularly social media — in enhancing the visibility and adoption of local pharmaceutical products. The study contributes to the growing body of digital health marketing literature by providing region-specific empirical evidence and offering actionable insights for pharmaceutical firms, marketers, and policymakers. The implications support the development of data-driven, culturally adaptive marketing frameworks to improve industry competitiveness and consumer reach in the evolving Saudi healthcare ecosystem. The study builds on recent findings by Al-Assaf et al. (2025) and Al Ghadeer et al. (2025), emphasizing the rising relevance of digital platforms in healthcare marketing. It underscores the need for targeted digital efforts to effectively engage pharmacists and boost the visibility of local pharmaceutical products in Saudi Arabia.

Keywords: Marketing, Analysis of Health Care Markets, Brand, Technological Change, Pharmaceuticals

1. INTRODUCTION

Digital marketing has evolved into an indispensable element of modern business strategies, enabling organizations to pursue multiple objectives simultaneously, including addressing customer needs, enhancing market visibility, and driving sustainable profit growth. This transformation has been particularly pronounced during the global shift from traditional commerce to electronic and digital marketplaces (Mohammed et al., 2023). The rapid expansion of the Internet as a central driver of economic development has further amplified the importance of digital marketing in contemporary business ecosystems (Al-Assaf et al., 2025; Al Ghadeer et al., 2025).

Within the pharmaceutical industry, digital marketing has gained significant strategic value, offering new opportunities to engage patients, healthcare professionals, and other stakeholders, while disseminating reliable information and strengthening trust and brand credibility (Suleiman & Albarq, 2025; Mohammad et al., 2024). By integrating data-driven and technology-enabled marketing approaches, pharmaceutical companies have been able to streamline communication processes, enhance public perception, and optimize customer acquisition efforts, thereby achieving a competitive edge in the market (Mohammad et al., 2024).

Core components of these strategies include search engine marketing, digital advertising, targeted email campaigns, and interactive promotional content, each contributing to stronger market positioning and enhanced consumer engagement (Alzyoud et al., 2024). Collectively, these approaches exemplify how digital marketing serves as a strategic lever for growth and differentiation in highly competitive and regulated sectors such as pharmaceuticals.

Al Ghadeer et al. (2025) found that the promotion of local pharmaceutical products in Saudi Arabia has gained significant momentum through the adoption of innovative digital marketing strategies. These strategies utilize tools such as social media platforms, search engine marketing, and online advertising to enhance consumer engagement and strengthen market visibility (Al-Assaf et al., 2025). Integrating digital marketing elements has emerged as a significant driver in promoting local pharmaceutical products in the rapidly evolving pharmaceutical industry landscape (Alzoubi et al., 2024). Despite recognizing the importance of integrating digital marketing elements into promoting the pharmaceutical industry (Alzyoud et al., 2024), there remains a notable gap in understanding the specific impact of these digital elements on product promotion in the pharmacy landscape of the capital, Saudia Arabia. This knowledge gap stems from the limited studies that quantitatively evaluate the effectiveness of digital marketing elements in promoting pharmaceutical products in general and the lack of such studies in Saudi Arabia. A comparative perspective can be drawn with the evolving pharmaceutical marketing landscape in Saudi Arabia, where both markets share characteristics of high internet penetration and technologically adept consumers. Despite growing interest in digital health marketing, the existing literature reveals several gaps. While prior studies have examined general adoption trends, there is a limited understanding of how digital marketing tools and channels influence market engagement, patient outreach, and organizational performance. Empirical evidence on the comparative effectiveness of specific digital platforms in achieving measurable consumer outcomes within the pharmaceutical sector remains scarce.

Accordingly, the primary aim of this research is to evaluate the effectiveness of digital marketing strategies employed by pharmaceutical companies and determine their contributions to market success and patient engagement. The study seeks to answer the following research questions:

RQ1: How do digital marketing strategies influence consumer engagement in the pharmaceutical sector?

RQ2: Which digital channels are most effective for reaching targeted healthcare audiences?

RQ3: How can these strategies be optimized to enhance overall market performance?

This research is grounded in the technology acceptance model (TAM) and health communication frameworks, providing a robust conceptual lens for analyzing stakeholder behavior, technology adoption, and communication effectiveness. By leveraging these frameworks, the study connects digital marketing initiatives with behavioral and market-level outcomes.

The significance of this study is twofold. Academically, it contributes to filling a notable gap in literature by providing empirical insights into the measurable impact of digital marketing on healthcare engagement. Practically, it offers actionable recommendations to pharmaceutical firms seeking to optimize their marketing strategies, enhance consumer trust, and improve patient-centered outcomes.

This study advances the scientific understanding of pharmaceutical marketing and digital advertising by empirically examining the influence of key digital marketing components on the promotion of local pharmaceutical products within the pharmacy sector of Saudi Araiba City. The research provides evidence-based insights into the real-world effectiveness of various digital marketing strategies, highlighting their contributions to brand visibility, consumer engagement, and overall market performance. These findings enrich the existing body of literature, offering a foundation for subsequent scholarly investigations into the dynamic and expanding role of digital marketing in the pharmaceutical industry.

From a practical perspective, the implications of this study are substantial for local pharmaceutical manufacturers, pharmacy owners, and marketing practitioners in Riyadh city. By identifying the digital marketing elements that yield the highest promotional effectiveness, this research delivers actionable insights that can directly inform business strategies and marketing resource allocation. The results enable decision-makers to prioritize digital initiatives, optimize promotional campaigns, and more effectively reach targeted consumer segments. Additionally, the study offers practical benefits for local pharmacies, emphasizing digital channels that maximize the visibility of local

pharmaceutical products, strengthen customer engagement, and enhance the overall efficiency of promotional efforts.

In conclusion, digital marketing holds substantial potential for promoting local pharmaceutical products in Saudi Arabia, positioning them as credible and competitive alternatives in the regional healthcare market (Suleiman & Ming, 2025). Recent empirical studies have reinforced the strategic importance of social media and online engagement in shaping consumer awareness, behavior, and purchase decisions (Miozza et al., 2024). The expected outcomes of this research include actionable insights into the comparative effectiveness of digital marketing channels, providing clear guidance for both academic inquiry and practical application in the pharmaceutical sector.

This paper is structured as follows: Section 1 is the introduction. Section 2 reviews the relevant literature on digital marketing in the pharmaceutical industry. Section 3 outlines the research methodology, including sample selection, data collection, and analytical procedures. Section 4 presents the empirical findings, while Section 5 discusses their practical and policy implications. Finally, Section 6 concludes the paper by summarizing the key insights, highlighting limitations, and suggesting directions for future research.

2. LITERATURE REVIEW

2.1. Promotion of local pharmaceutical products

The promotion of local pharmaceutical products in Saudi Arabia has gained considerable momentum through the adoption of innovative digital marketing strategies. These strategies leverage tools such as social media platforms, search engine marketing, and online advertising to enhance consumer engagement and increase market visibility, as highlighted by Al-Assaf et al. (2025). Parallels can be drawn between the effectiveness of digital marketing in Saudi and the evolving landscape in Saudi Arabia, where both markets are characterized by widespread internet penetration and a technologically adept consumer base.

The present study underscores the critical role of culturally tailored content and Arabic-language campaigns in effectively promoting local pharmaceutical products. Additionally, the increasing reliance on online pharmacies and e-commerce platforms reflects a broader shift toward convenience and digital accessibility in healthcare consumption. However, several challenges remain, including concerns over privacy, data security, and consumer trust. Addressing these concerns requires transparent communication and strict adherence to national regulatory standards.

Al Ghadeer et al. (2025) further emphasize the strategic role of data analytics in enhancing marketing performance. By enabling pharmaceutical firms to segment audiences, track behavioral trends, and assess campaign effectiveness, data-driven marketing supports more precise and impactful promotional efforts. These approaches are closely aligned with the goals of Saudi Arabia's Vision 2030,

which emphasizes innovation and economic diversification through digital transformation.

In conclusion, digital marketing presents significant potential for advancing the promotion of local pharmaceutical products in Saudi Arabia, positioning them as trustworthy and competitive alternatives in the broader healthcare market (Suleiman & Ming, 2025). Recent empirical studies have reinforced the strategic relevance of social media in fostering consumer awareness and brand engagement, particularly within the Middle East, where digital adoption is rapidly expanding (Miozza et al., 2024). Within the Saudi context, Suleiman (2025) provides further evidence that digital marketing significantly influences healthcare consumer behavior, underscoring the increasing reliance on digital channels for acquiring pharmaceutical information and shaping purchase decisions.

2.2. Digital marketing

Digital marketing has become a transformative tool in enhancing the promotion of local pharmaceutical products and consumer engagement, particularly in the pharmaceutical industry. Suleiman and Albarq (2025) emphasized the growing influence of digital marketing over traditional practices in the pharmaceutical sector, emphasizing the efficiency of digital strategies in reaching targeted audiences with reduced costs and enhanced precision, Al Ghadeer et al. (2025) further emphasized the role of digital marketing in increasing sales of online medicines and healthcare products, showcasing its potential to drive growth in previously untapped markets, In Saudi Arabia, Al Yahya et al. (2020) conducted a study emphasizing the impact of digital marketing on local pharmacies demonstrating its effectiveness in improving communication and promoting pharmaceutical products, Similarly Ben Said et al. (2020) identified the prevalence and perceived effectiveness of digital marketing among Saudi community pharmacies finding it to be a crucial element in modern pharmaceutical business models, Suleiman (2025) provided a comprehensive review of digital pharmaceutical marketing, concluding that digital strategies enable companies to better connect with healthcare professionals and consumers, Karen and Zai (2022) and Putri (2021) demonstrated that digital marketing fosters stronger promotion of local pharmaceutical products by leveraging targeted campaigns and interactive advertisements creating deeper consumer connections, These findings align with Sugita and Handayani's (2024) work, which underscored the role of digital marketing in not only enhancing the promotion of local pharmaceutical products but also shaping brand image. This study applies these insights to the Saudi pharmaceutical sector, evaluating digital marketing's role in fostering the promotion of local pharmaceutical products and supporting Saudi Vision 2030's goals of innovation and economic diversification.

2.2.1. Content marketing

Content marketing plays a pivotal role in enhancing the promotion of local pharmaceutical products by providing valuable and engaging information

tailored to target audiences, Suleiman and Albarq (2025) emphasize that high quality, informative content fosters trust and credibility, positioning brands as thought leaders in their industries. Nyange (2024) found that consistent content dissemination across digital platforms boosts consumer recall and loyalty. especially in competitive sectors like sportswear. In the pharmaceutical context Parekh et al. (2016) emphasized the effectiveness of content marketing in educating healthcare professionals and consumers, which enhances the visibility and relevance of local pharmaceutical products. Tailored content strategies allow pharmaceutical companies to address specific customer needsthereby reinforcing the promotion of local pharmaceutical products.

2.2.2. Email marketing

Email marketing remains an effective tool for maintaining consistent communication with consumers, which fosters the promotion of local pharmaceutical products and enhances consumer loyalty, Mishra and Tripathi (2018) observed that personalized email campaigns significantly improve customer engagement and awareness in healthcare product marketing. Karen and Zai (2022) emphasized the role of email marketing in digital campaigns, noting its ability to deliver targeted relevant content directly to consumers. In the pharmaceutical industry Parekh et al. (2016) emphasized email marketing as a cost effective approach for sharing updates about products and services ensuring continuous consumer interaction and promoting local pharmaceutical products.

### 2.2.3. Online advertising marketing

Paid advertising campaigns play a crucial role in amplifying the promotion of local pharmaceutical products through widespread exposure across digital platforms, Sugita and Handayani (2024)

illustrated how paid advertising effectively captures consumer attention particularly in technology sectors, Suleiman and Albarq (2025) noted that pharmaceutical companies benefit from targeted advertising campaigns which reach specific consumer segments and healthcare professionals, Al Yahya et al. (2020) found that paid advertising strategies have been instrumental in increasing the promotion of local pharmaceutical products in Saudi Arabia by leveraging social media and search engine platforms.

2.2.4. Social media marketing

Social media marketing (SMM) plays a crucial role in promoting local pharmaceutical products in Saudi Arabia. enabling companies to reach wider audiences, enhance brand visibility and engage directly with consumers. As digital platforms gain popularity in the region, pharmaceutical organizations are leveraging social media to build trust and foster stronger connections with their target market, Mukherjee et al. (2021) emphasize the importance of social media in improving pharmaceutical brand visibility, using platforms like Facebook, Instagram and Twitter to enhance consumer engagement share educational content, and demonstrate product effectiveness, ultimately influencing consumer purchasing decisions, Warbung et al. (2023) emphasize how SMM influences brand equity positively impacting customer perceptions of product quality and trustworthiness, This is especially important in Saudi Arabia's competitive pharmaceutical market where consumer trust is a key driver in purchasing decisions. Moreover Wang et al. (2019) note that SMM efforts can enhance customer retention and loyalty. For the pharmaceutical industry engaging content and effective communication on social media help convert first time buyers into repeat customers contributing to long term success for local pharmaceutical brands in Saudi Arabia.

Figure 1. Research model
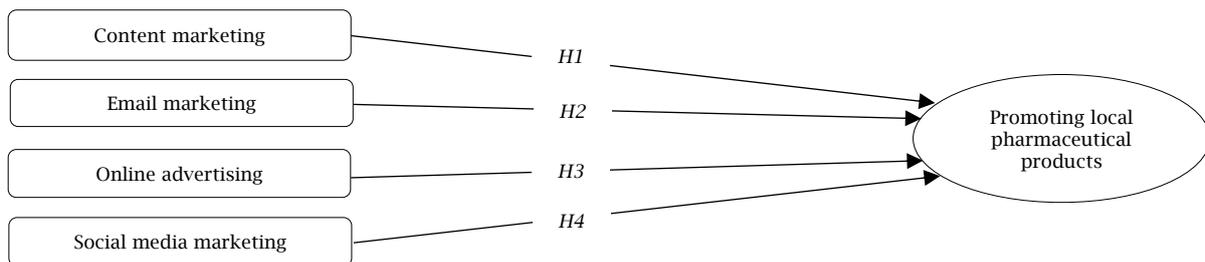
Source: Authors' elaboration.

2.3. Research hypothesis

After implementing the current cross-sectional study, it is expected the overall outcomes would be able to validate or reject a number of research assumption, which can be expressed in the following:

H1: Digital marketing has a significant positive effect on promotion of local pharmaceutical products in the pharmaceutical industry in Saudi Arabia.

H1a: Content marketing has a significant positive effect on promotion of local pharmaceutical products in the pharmaceutical industry in Saudi Arabia.

H1b: Email marketing has a significant positive impact on promotion of local pharmaceutical products in the pharmaceutical industry in Saudi Arabia.

H1c: Online advertising marketing significantly influences promotion of local pharmaceutical

products in the pharmaceutical industry in Saudi Arabia.

H1d: SMM has a significant positive effect on Promotion of local pharmaceutical products in the pharmaceutical industry in Saudi Arabia.

3. METHODOLOGY

3.1. Study design

This study employed a cross-sectional research design to investigate the impact of digital marketing on the promotion of local pharmaceutical products in Saudi Arabia. Data were collected over a period of approximately six weeks, from February 1, 2025, to March 20, 2025, using a structured online survey hosted on the Typeform platform. This tool was selected for its functionality and ease of access in administering digital questionnaires. A convenience sampling technique was used to recruit participants, who were invited via social media platforms such as Facebook, Twitter, LinkedIn, and WhatsApp. Participation was entirely voluntary, and all respondents provided informed consent prior to taking part in the survey. Ethical considerations were adhered to throughout, with assurances of participant anonymity and minimal risk. The survey instrument was developed based on validated scales adapted from prior literature. A total of 25 elements, incorporated from existing literature, adapted from Schneider et al. (2023) and Al-Assaf et al. (2025) were used to compute the five constructs. All constructs were measured on five-point Likert scale consisting of the below points: 1 — strongly disagree, 2 — disagree, 3 — neither agree nor disagree, 4 — agree, 5 — strongly agree. This format enabled the quantification of attitudes and perceptions toward various digital marketing practices.

In designing this study, several alternative research methods were evaluated to determine the most appropriate approach for investigating the impact of digital marketing strategies on the promotion of local pharmaceutical products. Qualitative methods, such as in-depth interviews or focus group discussions with pharmacy owners, healthcare professionals, and consumers, could have provided rich contextual insights into perceptions and experiences related to digital marketing initiatives. Similarly, a case study approach examining specific pharmaceutical companies or successful digital campaigns could have yielded a more detailed understanding of best practices and market dynamics. A longitudinal study design was also considered, which would allow the observation of changes in consumer engagement and market performance over time, thereby capturing the long-term effects of digital marketing strategies.

Despite the merits of these alternative approaches, a quantitative survey method was selected because it enables the collection of generalizable data from a broad sample of stakeholders in the Riyadh city pharmacy sector. This method allows for statistical analysis to identify trends, measure relationships between digital marketing elements and market outcomes, and provide evidence-based recommendations for both academic and practical applications. The consideration of alternative methods strengthens the study's methodological rigor and underscores the rationale for the chosen research design.

3.3. Population and sample

The target population comprised licensed pharmacists practicing in Saudi Arabia. To ensure statistical validity, the minimum required sample size was calculated using a confidence level of 95%, a 5% margin of error, and an assumed response distribution of 50%. The sample size calculation followed the standard formula:

$$n = \frac{P \times (100 - P) \times z^2}{d^2} \qquad (1)$$

where,
- P is the anticipated prevalence;
- d is the desired precision;
- z is the z-score corresponding to the 95% confidence level.

Based on these parameters, the minimum required sample size was determined to be 215 respondents. This ensures adequate representativeness in the absence of prior local studies on the specific research topic.

3.4. Research instrument

The questionnaire was divided in two parts. First part includes demographic data for respondents. A second part measured includes the latent variables that are important in the current study to evaluate the influence of digital marketing strategies on the promotion of local pharmaceutical products. The instrument was grounded in established studies to ensure both reliability and content validity. The research instrument was piloted through personal interviews with a few customers to check the content validity of items and to test its appropriateness. Pre-testing was insightful for examining and evaluating the research instrument which led to some minor alterations in the items developed. The questionnaire comprised the following key sections:

Independent variables:
- content marketing (five items)
- email marketing (five items)
- online advertising (five items)
- SMM (five items)

Dependent variable:
- promotion of local pharmaceutical products (five items)

Each item was rated on a five-point Likert scale, capturing the intensity of respondents' perceptions and experiences. To further enhance face validity, the instrument was reviewed by ten academic and industry experts in the fields of digital marketing and pharmaceutical sciences. Their feedback was incorporated to ensure alignment with the research objectives and contextual relevance.

3.6. Reliability analysis

Cronbach's alpha test is utilized to evaluate the reliability of the research instrument, ensuring internal consistency among the items in the questionnaire, Table 1 presents the reliability coefficients for various components of digital marketing and their impact on promoting local pharmaceutical products. The results indicate that all constructs exhibit acceptable to high reliability, with Cronbach's alpha values exceeding the 0.70 threshold, which is widely recognized as an acceptable standard in social science research (Sarram et al., 2024). Specifically online advertising demonstrates the highest reliability ($\alpha = 0.855$), followed by promoting local pharmaceutical products ($\alpha = 0.887$) and email marketing ($\alpha = 0.814$), The remaining constructs (SMM, digital marketing, and content marketing) also exhibit acceptable reliability with values of 0.765, 0.747 and 0.709 respectively. These findings confirm the internal consistency of the questionnaire items, supporting the robustness of the measurement tool used in this study.

Table 1. Reliability analysis using Cronbach's alpha

Research variables	Cronbach's alpha	N of items
Content marketing	0.709	5
Email marketing	0.814	5
Online advertising	0.855	5
Social media marketing	0.765	5
Digital marketing	0.747	5
Promoting local pharmaceutical products	0.887	5

Source: Authors' elaboration.

4. RESULTS

This section presents the findings derived from analyzing the study data using SPSS 28. The first part provides descriptive statistics of the respondents' demographic information, while the second part examines the study hypotheses using multiple linear regression.

4.1. Demographic data for respondents

The following table presents descriptive statistics for respondents' demographic data including the frequency and percentage for each of them:

Table 2. Descriptive statistics of demographic data for respondents

	Demographic variables	Frequency	Percent
Gender	Female	19	8.7
	Male	199	91.3
Age	30-39 years old	80	36.7
	40-49 years old	37	17
	50-59 years old	15	6.9
	60-69 years old	1	0.4
	Less than 30 years	85	39
Social status	Married	133	61
	Others	1	0.5
	Single	84	38.5
Service years	10-14 years	73	33.5
	15 years and more	16	7.3
	5-9 years	58	26.6
	Less than five years	71	32.6
Educational qualification	Bachelor's degree in pharmacy	124	56.8
	Fellowship	23	10.6
	Postgraduate studies/specialization	71	32.6

Note: n = 218.
Source: Authors' elaboration.

The demographic data of the respondents, as presented in Table 2, provides a detailed breakdown of their characteristics. The majority of respondents were male (199, 91.3%), while females represented a smaller portion of the sample (19, 8.7%). In terms of age, the largest group of respondents were within the 30-39 years old range (80, 36.7%), followed by those under 30 years old (85, 39%). Smaller proportions of respondents were aged 40-49 years old (37, 17%), and 50-59 years old (15, 6.9%), with only one respondent (0.4%) in the 60-69 years old category.

Regarding social status, most respondents were married (133, 61%) while 84 respondents (38.5%) were single and a very small number (1, 0.5%) identified as "others". The service years' data shows that a significant portion of respondents had 10-14 years of experience (73, 33.5%) followed by those with less than five years of experience (71, 32.6%), and 5-9 years of experience (58, 26.6%). Only 16 respondents (7.3%) had 15 or more years of experience. Educational qualifications were diverse, with the majority holding a Bachelor's degree in pharmacy (124, 56.8%). A smaller proportion had postgraduate studies or specialization — (71, 32.6%); and 23 respondents (10.6%) had a fellowship.

This demographic breakdown, including frequencies and percentages, provides useful context for understanding the characteristics of the study sample, which may influence the perceptions and responses regarding the impact of digital marketing on promoting local pharmaceutical products in Saudi Arabia.

4.2. Description of study variables

Descriptive analysis of the study variables focusing on the mean, standard deviation (SD) and their relative importance for each construct provides a comprehensive understanding of participants' perceptions regarding the impact of digital marketing on the promotion of local pharmaceutical products in Saudi Arabia. These statistical measures emphasize central tendencies and differences in participants' responses. It emphasizes how various factors such as SMM, content marketing, online advertising and email marketing, influence the promotion of local pharmaceutical products, The ranking of the items provides a clear view of the digital marketing strategies considered most important by participants while the SD reveals the consistency of their answers, This section is crucial for understanding the relative importance and diversity of factors that contribute to the promotion of local pharmaceutical products as it provides valuable insights for subsequent analysis and conclusions.

Table 3. Means and standard deviation for content marketing

Items	Mean	SD	Rank
Content marketing materials enable the customer to make informed decisions about pharmaceutical products.	2.78	0.84	5
Content marketing efforts contribute to the overall brand image of local pharmaceutical products.	2.89	0.83	3
Content marketing creates a connection between in customers and local pharmaceutical products.	2.94	0.84	2
High-quality content increases the credibility of information about local pharmaceutical products.	2.84	0.93	4
Content marketing plays a significant role in educating consumers about local pharmaceutical products.	2.97	0.85	1
Content marketing	2.92	0.49	

Source: Authors' elaboration.

The table above presents the descriptive statistics (means and SD) for the content marketing dimension, The statement "*Content marketing plays a significant role in educating consumers about local pharmaceutical products*" recorded the highest mean (2.97) ranking first among the items. This indicates that respondents strongly recognize the role of content marketing in consumer education. On the other hand, the statement "*Content marketing materials enable the customer to make informed decisions about pharmaceutical products*" recorded the lowest mean (2.78), ranking fifth. This suggests that respondents perceive this aspect of content marketing as less influential compared to other items, the overall mean score for the *content marketing* dimension was (2.92) reflecting a moderate level of agreement among respondents regarding its role in promoting local pharmaceutical products.

Table 4. Means and standard deviation for online advertising

Items	Mean	SD	Rank
Online advertising helps introduce new local pharmaceutical products.	3.01	0.92	2
Online advertising is useful in attracting the customer towards the local pharmaceutical product.	2.96	0.88	4
Online advertisements related to local pharmaceutical products are actively interacted with.	2.97	0.86	3
Online advertising helps in spreading awareness about local pharmaceutical products.	2.86	0.87	5
Online advertising positively affects customers' perception of local pharmaceutical products.	3.12	0.88	1
Online advertising	2.98	0.51	

Source: Authors' elaboration.

Table 4 presents the descriptive statistics (means and SDs) for the online advertising dimension. The statement "*Online advertising positively affects customers' perception of local pharmaceutical products*" recorded the highest mean (3.12), ranking first among the items. This indicates that respondents highly recognize the impact of online advertising in shaping customer perceptions. Conversely the statement "*Online advertising helps in spreading awareness about local pharmaceutical products*" recorded the lowest mean (2.86), ranking fifth. This suggests that respondents perceive this aspect of online advertising as relatively less effective compared to other items. The overall mean score for the *online advertising* dimension was mean (2.98) reflecting a moderate level of agreement among respondents regarding its role in promoting local pharmaceutical products.

Table 5. Means and standard deviation for SMM

Items	Mean	SD	Rank
SMM platforms help share information about local pharmaceutical products.	3.03	0.88	2
SMM activities are effective in engaging with customers interested in local pharmaceutical products.	3.06	0.88	1
SMM enhances the awareness of local pharmaceutical products.	2.85	0.88	4
SMM efforts positively influence the reputation of local pharmaceutical products.	2.98	0.88	3
SMM helps create a positive brand image for local pharmaceutical products.	3.03	0.85	2
SMM	**3.01**	**0.52**	

Source: Authors' elaboration.

The Table 5 above presents the descriptive statistics (means and SD) for the SMM dimension, The statement "*SMM activities are effective in engaging with customers interested in local pharmaceutical products*" recorded the highest mean (3.06), ranking first. This indicates that respondents highly acknowledge the role of social media in fostering customer engagement. On the other hand,

the statement "*SMM enhances the awareness of local pharmaceutical products*" recorded the lowest mean (2.85), ranking fourth. This suggests that respondents perceive this aspect of SMM as relatively less impactful compared to other elements. The overall mean score for the *SMM* dimension was mean (3.01) reflecting a moderate level of agreement among respondents regarding its role in promoting local pharmaceutical products.

Table 6. Means and standard deviation for promoting local pharmaceutical products

Items	Mean	SD	Rank
Promoting local pharmaceutical products is crucial to introducing the quality of local pharmaceutical products.	2.95	0.85	2
Local pharmaceutical products are being promoted effectively in the era of digital marketing.	3.01	0.90	1
The effectiveness of promoting local pharmaceutical products increases when advanced methods are used.	2.75	0.88	4
Promoting local pharmaceutical products is a responsible and ethical business practice that benefits our society.	2.83	0.87	3
Promoting local pharmaceutical products is crucial to boosting local pharmaceutical industries.	2.72	0.85	5
Promoting local pharmaceutical products.	**2.89**	**0.52**	

Source: Authors' elaboration.

Table 6 presents the descriptive statistics (means and SD) for the promoting local pharmaceutical products dimension, the statement "*Local pharmaceutical products are being promoted effectively in the era of digital marketing*" recorded the highest mean (3.01) ranking first. This suggests that respondents recognize the impact of digital marketing in enhancing the promotion of local pharmaceutical products. Conversely, the statement "*Promoting local pharmaceutical products is crucial to boosting local pharmaceutical industries*" had the lowest mean (2.72), ranking fifth. This indicates that respondents perceive this aspect of promotion as relatively less influential compared to other factors. The overall mean score for the *promoting local pharmaceutical products* dimension was mean (2.89) reflecting a moderate level of agreement among respondents regarding its importance in the pharmaceutical industry.

4.3. Hypotheses testing

The results of the multiple regression analysis, presented in Table 7, show a significant relationship between various digital marketing strategies and performance.

Table 7. Multiple regression analysis results for testing the impact of digital marketing on promoting the local pharmaceutical products

Model	β	Std. error	t	Sig.*
(Constant)	0.080	0.187	0.426	0.670
Content marketing	0.194	0.059	3.311	0.001
Email marketing	0.114	0.069	1.637	0.103
Online advertising	0.275	0.064	4.308	0.000
SMM	0.362	0.061	5.963	0.000

*Note: * statistically significant ($p < 0.05$). R= 0.748, R^2 = 0.559, F = 67.5, F(Sig.) = 0.00.*
Source: Authors' elaboration.

The model has strong explanatory power, with an R value of 0.748, indicating a high correlation between the strategies and performance. The R^2 value of 0.559 suggests that 55.9% of the variance in performance is explained by the independent variables, and the model is statistically significant (F = 67.5 and p = 0.000). Among the strategies, SMM has the strongest and most significant impact on performance (β = 0.362 and p = 0.000), indicating that effective SMM plays a critical role in improving performance. Online advertising (β = 0.275 and p = 0.000) also significantly influences performance, emphasizing its importance in reaching and influencing consumers. Content marketing (β = 0.194 and p = 0.001) demonstrates a moderate but statistically significant effect on performance, showing that valuable content contributes to better performance outcomes. However, email marketing ((β = 0.114 and p = 0.103) does not have a significant impact on performance, as its p-value exceeds the 0.05 threshold. Overall, the results suggest that SMM and online advertising are the most influential strategies in enhancing performance, while email marketing does not appear to have a significant effect in this context.

5. DISCUSSION

The findings of this study highlight the significant impact of digital marketing strategies on the promotion of local pharmaceutical products in Saudi Arabia. The results from the multiple regression analysis indicate that SMM exerts the most substantial influence, followed by online advertising and content marketing. These findings align with prior research emphasizing the growing role of digital channels in shaping consumer behavior within the healthcare sector (Al Ghadeer et al., 2025).

SMM has emerged as a particularly powerful strategy, enabling pharmaceutical companies to interact directly with consumers, build brand trust, and disseminate information rapidly. Platforms such as Facebook, Instagram, and Twitter facilitate real-time communication and relationship-building, which are essential for promoting pharmaceutical products in a digitally connected society. Recent literature has shown that SMM can significantly influence patients' trust and willingness to engage with pharmaceutical brands (Suleiman & Ming, 2025).

Content marketing also demonstrated a notable effect by helping educate consumers and improve brand credibility. Informative and evidence-based content increases consumers' perceived value of pharmaceutical products and supports better health literacy (Ben Said et al., 2020). This supports previous studies suggesting that high-quality content marketing enhances not only consumer engagement but also pharmaceutical brand loyalty (Suleiman & Albarq, 2025).

While email marketing showed the least impact among the strategies examined, it still serves as a targeted and professional communication tool, especially useful in B2B contexts within the pharmaceutical supply chain (Chaffey & Smith, 2017). However, its lower effectiveness in this study may reflect saturation or reduced engagement with email among certain demographics in the region.

The study findings affirm that the integration of digital marketing strategies, particularly those emphasizing interactivity and personalization, is critical in enhancing promotional effectiveness. This conclusion echoes broader trends in digital health marketing, where consumer-centric approaches are increasingly driving strategic innovation (Kotler et al., 2022).

6. CONCLUSION

This research provides robust empirical evidence on the pivotal role of digital marketing in promoting local pharmaceutical products within Saudi Arabia, a market undergoing rapid digital transformation in line with Vision 2030. By analyzing the relative impact of SMM, online advertising, content marketing, and email marketing, the study demonstrates how each digital strategy contributes to market engagement, consumer awareness, and brand credibility. The findings indicate a clear hierarchy of effectiveness, with SMM exerting the strongest influence due to its interactive, visual, and community-based nature, which aligns closely with regional consumer preferences. Online advertising, including search engine and display campaigns, delivers broad visibility and precise audience targeting, reinforcing awareness and consideration. Content marketing provides moderate but strategically valuable contributions, particularly in educating consumers, supporting brand credibility, and fostering long-term engagement, though its effects may require more time to materialize. In contrast, email marketing, while historically important, exhibits a limited direct impact in the local market, reflecting consumer preference for real-time, visual, and mobile-first digital interactions.

The practical contributions of this research are multifaceted for pharmaceutical companies, local pharmacies, and marketing professionals. Organizations should prioritize interactive, community-driven platforms and leverage social media and influencer collaborations to build trust and accelerate the adoption of local products. Integrated campaigns combining online advertising with content marketing can create synergistic effects, guiding consumers from awareness to engagement and purchase. Marketing investments should focus on high-return, measurable channels, while less effective tools such as generic email marketing can be repurposed for business-to-business communications or loyalty programs. Fostering trust and sustaining consumer loyalty are most effectively achieved through culturally tailored Arabic-language content, supported by transparent communication regarding privacy, authenticity, and adherence to regulatory standards. These strategies also align with Saudi Arabia's Vision 2030 by supporting local pharmaceutical industry growth, digital economy expansion, and reducing reliance on imported products, while providing policymakers with insights into the sector's digital readiness.

From a theoretical standpoint, this research advances the understanding of digital marketing in regulated healthcare contexts by validating the applicability of the TAM and health communication frameworks in explaining stakeholder engagement and consumer behavior. The findings emphasize the mediating role of digital trust and content credibility in determining marketing effectiveness and contribute region-specific empirical evidence to the global literature, addressing a gap in Middle Eastern digital health marketing studies. By bridging theory and practice, this work provides a foundation for future academic investigations and the development of contextually relevant strategies in emerging healthcare markets.

While the study provides valuable insights, certain limitations should be acknowledged. The use of a convenience sampling method and reliance on self-reported data may restrict the generalizability of the findings. Additionally, the exclusive focus on licensed pharmacists omits perspectives from consumers and other stakeholders. Future research could expand the sample to include a broader range of participants, adopt longitudinal designs to examine causal relationships, and incorporate qualitative methods to uncover deeper insights into user behavior and preferences in digital pharmaceutical marketing.

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