

The potential of AI-driven marketing in healthcare and related virtuous contemplations: A systematic review

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ABSTRACT

In the era of artificial intelligence (AI), marketing has transformed into a data-driven discipline that offers unprecedented opportunities for personalisation. However, this evolution raises significant ethical concerns regarding consumer trust and data privacy. This study explores the ethical implications of AI-driven marketing, particularly in the healthcare sector, emphasising the need for transparency and accountability. The primary aim of this research is to identify and discuss the ethical dilemmas that arise from integrating AI into marketing strategies. It seeks to highlight the balance between providing personalised services and maintaining consumer trust, while advocating responsible AI practices. A systematic literature review was conducted, focusing on articles published between 2015 and 2024. The search utilised the phrase "Ethical considerations in AI-driven marketing in healthcare", enabling a comprehensive examination of the relevant literature. This approach facilitated an understanding of the historical context and current ethical challenges associated with AI in marketing. The findings indicate a significant increase in publications addressing AI ethics in marketing, particularly from 2018 to 2024. Key themes identified include the importance of transparency in data collection, the necessity of informed consent, and the ethical implications of personalisation versus intrusion. The analysis reveals that although AI can enhance customer engagement, it also poses risks related to data privacy and algorithmic bias. The study concludes that ethical considerations must be central to AI-driven marketing strategies. Organisations are urged to implement robust data protection measures, ensure transparency in AI usage, and respect consumer choices to foster trust. Striking a balance between personalisation and privacy intrusion is critical, as failure to address these ethical concerns could undermine consumer confidence and brand integrity.

INTRODUCTION

Data privacy and obtaining consent are significant components of AI marketing. In this age of artificial

intelligence (AI), marketing has evolved into a data-driven, personalised, and highly effective discipline. AI-powered marketing tools and algorithms offer organisations

valuable insights, strategies, and unprecedented opportunities to understand and engage with their specific audiences. This technological advancement raises important ethical concerns about how the pursuit of quality services intersects with consumer trust.

This study delves into the complex relationship between ethical considerations in AI-driven healthcare marketing and the delicate balance between providing quality service, safeguarding consumer trust, and ethical practices. This study explores themes on AI marketing and then examines the ethical dilemmas that arise when AI is integrated into marketing strategies. It emphasises the importance of transparency and accountability in AI-driven marketing strategies. It argues that transparency is crucial for building consumer trust by clearly communicating data collection, AI usage, and decision-making processes. These processes must comply with data privacy regulations, making the mandatory acquisition of consent a significant element of AI marketing.

It further stresses the importance of robust data protection measures to effectively safeguard customer data and prevent breaches and misuse; how to maintain a balance between personalisation and intrusion as a key AI focus that enables highly targeted advertising strategies; and the significance of respecting user choices and refraining from overly intrusive methods that could undermine consumer trust. The authors of this paper argue that ethical considerations in AI marketing should include in-depth discussions of data security, customer profiling, accessibility, and ethical development. These are essential aspects of ethical considerations within AI marketing strategy.

This demonstrates that achieving a successful balance between providing quality services and earning consumer trust in AI-driven marketing requires a proactive commitment to ethical standards. Hence, the study advocates for the responsible development of AI through ongoing monitoring and adaptability to evolving ethical norms. By adhering to these principles, organisations can fully leverage AI in marketing their products and services while prioritising consumer trust as a key factor in their success. Thus, ensuring ethical AI-based marketing

practices is crucial for providing quality service and building consumer trust.

De-Arteaga et al. (2019) have highlighted the prevalence of bias in AI systems, which can lead to the unjust treatment of specific groups and undermine the fairness of AI-driven marketing campaigns. According to Thandayuthapani et al. (2024), in today's digital marketing landscape, marketers face challenges in distinguishing themselves from their competitors. Customers are inundated with generic messages, which can lead to decreased brand remembrance. AI offers a novel solution to personalised marketing. By leveraging AI's data-analysis capabilities, service providers can personalise marketing communications and material according to individual customer preferences, purchasing patterns, and online behaviour.

This shift towards personalised marketing enables brands to build deeper connections with consumers, encouraging engagement, brand loyalty, and ultimately a significant competitive edge. Insights into customer preferences are provided by data from purchase history, demographics, and previous interactions. Consumer or customer interests can be inferred from browsing patterns, content consumption, and time allocated to web pages. The sentiment of customers and their level of affinity towards a brand can be gauged by engaging with them on social media platforms, including through liking, sharing, and commenting.

AI algorithms can uncover hidden patterns and customer segments. For example, AI identifying a group of customers who frequently purchase running shoes and have recently downloaded a fitness app enables brands to personalise marketing messages by offering targeted discounts on running equipment or sharing exercise tips that match their fitness goals.

Meanwhile, conventional marketing could divide customers based on factors such as age, location, frequency of purchase, browsing habits, and preferences. AI can generate more detailed categories using a broader array of information such as buying patterns, online activities, and interactions on social platforms. Having identified these customer segments, AI enables brands to personalise marketing messages based on them. For example, an online

store could send personalised emails to shoppers who left items in their carts, giving them reasons to finalise their transaction. This degree of customisation ensures that marketing messages are pertinent and captivating, thus enhancing the chances of converting customers.

AI goes further than fixed segmentation; it enables personalised experiences in real time. This indicates that marketing messages can be adapted in real time according to a customer's current engagement and actions. Imagine a client exploring a travel site and browsing through different destinations. AI can evaluate this live activity and showcase custom pop-up advertisements with exclusive deals on hotels or flights for those particular locations. Consequently, one would agree that AI chatbots found on websites can customise customer service engagements, offering product suggestions or responding to inquiries based on the customer's browsing habits.

Artificial intelligence is transforming the marketing field with personalisation. Brands can develop precise marketing campaigns tailored to individual customers by utilising AI for data analysis, segmentation, and real-time personalisation tools. This promotes more involved participation and encourages greater brand devotion, which ultimately leads to business success. AI offers the means to bring about the future of marketing by enabling the establishment of authentic connections with consumers (Okorie et al., 2023), but not without caution or ethical implications.

Moreover, AI-powered chatbots on websites can personalise customer-service interactions by providing customised product recommendations or answering questions related to the customer's browsing history. AI analyses behaviour in real time and displays personalised pop-up ads promoting special offers on medical tourism accommodations or flights (Thandayuthapani et al., 2024). The AI real-time features significantly enhance the user experience, such that clients now encounter more personalised marketing catering to their individual needs and interests, fostering a stronger connection with the brand rather than feeling bombarded by generic messages (Mayo et al., 2024). There is significant potential in AI-powered customisation, but it is crucial to prioritise ethical data management and ensure transparency. Consumers

must feel comfortable with how their data is used to enhance their experiences. Brands should be transparent about the use of AI in personalisation and avoid misleading customers (McGurk et al., 2024).

Using AI's tools for data analysis, segmentation, and real-time personalisation allows brands to create accurate marketing campaigns that resonate with customers individually. AI properties and developing genuine connections with customers are essential for the future of advertising, and AI provides the tools to make that goal a reality. Also, by analysing vast customer data such as purchase history, website activity, and social-media interactions, AI uncovers hidden insights and groups customers into numerous categories. As AI technology progresses, the possibilities for tailored marketing become limitless, though not without ethical implications for customers (McLaughlin, 2024). The prioritisation of ethical considerations and responsible data practices through consumer and brand selection is important. This paper aims to spur conversations and conscientious debates on the subject.

This study addresses several gaps in the existing literature regarding ethical considerations in AI-driven marketing, particularly in the healthcare sector. There is a notable absence of thorough discussions and frameworks addressing the ethical implications of AI in marketing. While many studies touch on the benefits of AI, they often overlook the ethical dilemmas that arise from its integration into marketing strategies.

In summary, this study aims to fill these gaps by providing a comprehensive examination of the ethical considerations in AI-driven marketing, particularly in healthcare, and advocating for responsible practices that prioritise consumer trust and data privacy. Based on the focus of the research on the ethical implications of AI-driven marketing in the healthcare sector, this study aims to answer the following research questions:

1. What are the key ethical dilemmas faced by organisations when implementing AI-driven marketing strategies in the healthcare sector?
2. How does the integration of AI in marketing practices affect consumer trust and perceptions of data privacy in healthcare?

- What strategies can organisations employ to ensure transparency and accountability in their AI-driven marketing efforts while maintaining consumer trust?

These questions encapsulate the core themes of the research and address the critical ethical considerations surrounding AI in marketing.

METHODS

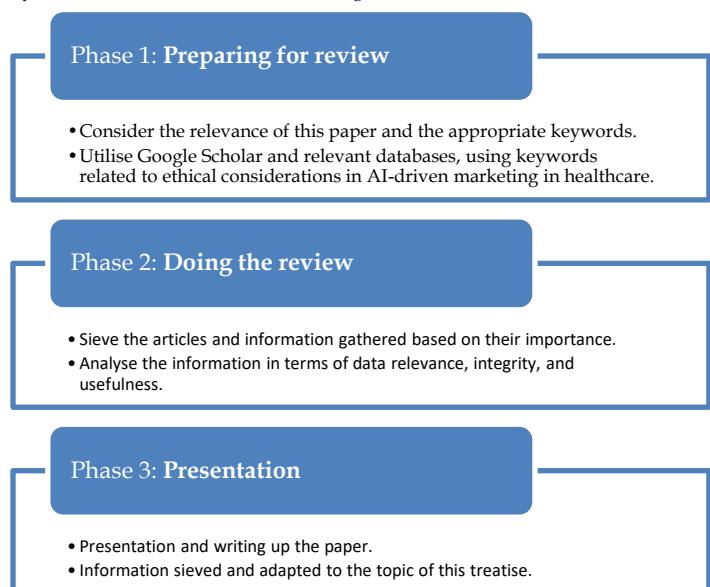
The PRISMA analysis of the literature review indicates a systematic approach to identifying, screening, and analysing relevant studies on ethical considerations in AI-driven marketing. This structured approach enhances the credibility of the research and contributes to the ongoing discourse on ethical AI practices in marketing.

The phrase **“Ethical considerations in AI-driven marketing in healthcare”** was utilised during the preliminary literature search. This enabled the authors to determine the topic’s initial relevance and critical importance in this era of AI dominance. As the title suggests, the search aimed to obtain information that would support the discussion of AI ethics. The authors gathered relevant and credible information to substantiate the views discussed in this paper.

The authors examined all relevant articles published between 2015 and 2024, thus enabling a decade-long retrospective assessment. This approach facilitated a comprehensive understanding of the historical context and present conditions regarding ethical considerations in AI-driven marketing in healthcare in South Africa. Each article was carefully evaluated for relevance, with only those closely aligned with the research topic selected.

The protocol used in gathering information for this paper can be summarised as follows.

Figure 1:
Systematic Literature Review Process Diagram (Authors’ initiative)



Google Scholar and other identified academic databases were examined and recognised as highly valuable for this review. The literature exploration conducted between September 2024 and October 2024 yielded the initial information used to compile this treatise. The most recent sources were prioritised to ensure the work remained current.

Using the phrase **“Ethical considerations in AI-driven marketing in healthcare”** on Google Scholar helped streamline the relevance of the information gathered. The search identified over 160 potentially relevant articles, necessitating further refinement to achieve a manageable dataset. Keywords played an important role in filtering the large dataset. The same search terms yielded approximately ten articles per page until the authors had narrowed the results sufficiently.

In summary, a PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) analysis of the literature review was conducted as follows:

1. Identification

- Search Strategy:** The authors utilised the phrase **“Ethical considerations in AI-driven marketing in healthcare”** during the preliminary literature search. They aimed to gather relevant and credible information from academic databases, including

Google Scholar, focusing on articles published between 2015 and 2024.

- **Number of Records Identified:** The search yielded more than 160 articles, which were subsequently narrowed down through keyword filtering.

2. Screening

- **Inclusion Criteria:** Articles were selected based on their relevance to the research topic, specifically focusing on ethical considerations in AI-driven marketing within the healthcare sector.
- **Exclusion Criteria:** The review excluded books and literature that did not directly address AI marketing ethics, as well as works discussing the predatory effects of AI on marketing ethics in developing nations.

3. Eligibility

- **Full-Text Review:** The authors conducted a thorough evaluation of selected articles to ensure alignment with the research objectives.
- **Final Selection:** The final literature review provided a comprehensive analysis of the ethical implications of AI in marketing, particularly in healthcare, highlighting the importance of transparency, accountability, and consumer trust.

4. Inclusion

- **Final Number of Studies Included:** A total of twenty-six articles were included in the final analysis.

RESULTS

Table 1:
Year of Publication

Year of Publication	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Frequency	0	0	0	1	1	2	0	2	2	8	10	Yet to know

Table 1 demonstrates the time-based distribution of pivotal articles. The year 2024 is notable for having the greatest number of published articles. The analysis clearly indicates a substantial upswing in the volume of articles issued between 2018 and 2023 focusing on matters related to AI. This surge in article production can be attributed to contemporary challenges in AI and its increasing global relevance.

Table 2:
Thematic Categorisation of Designated Publications

Ethical considerations in AI-driven marketing in healthcare in South Africa	Ethics and AI
20	6

In **Table 2**, ethical implications or considerations in AI-driven marketing appear frequently in marketing publications; however, these often do not match the depth of consideration, discussion, and solutions needed for addressing ethical concerns and apprehensions.

Figure 2:
Frequently Used Phrases and Keywords

Word	Length	Count	%	Prospects and virtu	%
ai	2	173	4,30	173	4,30
marketing	9	104	2,58	104	2,58
ethical	7	88	2,19	88	2,19
data	4	81	2,01	81	2,01
consumer	8	40	0,99	40	0,99
can	3	39	0,97	39	0,97
trust	5	33	0,82	33	0,82
customer	8	32	0,79	32	0,79
privacy	7	31	0,77	31	0,77
driven	6	30	0,74	30	0,74
transparency	12	25	0,62	25	0,62
content	7	22	0,55	22	0,55
considerations	14	21	0,52	21	0,52
information	11	21	0,52	21	0,52
customers	9	20	0,50	20	0,50

Note: This image was imported directly from the analysis software

Figure 2 provides data on the most frequently used phrases in this investigation, complementing **Figure 3**, which visually depicts the same data through a tree map. According to **Figure 2** and the visual depiction in **Figure 3**, the most frequently used phrase in the study is “AI”, which appears 173 times, representing 4.3% of the total word count. It is followed by the word “marketing”, which appears 104 times.

Figure 3:
Treemap of the Most Frequent Words



Note: This image was imported directly from the analysis software

Figure 3 is a visually engaging treemap that quickly conveys which terms have the highest frequency in the summary of information obtained from this investigation.

Table 3:
Overview of AI-Driven Market Advantages and Ethical Concerns

Advantages of AI in Marketing	Ethical Implications of AI
Personalised content generation.	Data privacy
Predictive analytics.	Data safety
Great potential to increase profits; simplification of operations.	Transparency
Strengthening of customer relationships and improved brand image.	Accountability
Ability to generate engaging content (text, images, videos).	Understandability
Improved customer experience.	Trust
Customer-loyalty retention.	Lack of consent
Personalised product suggestions.	Manipulation of data
Automated chatbot responses.	Misinformation (lies)
Creation of dynamic emails and curated content.	Robot-steered decision-making
Decreased time and resources needed for content creation.	Unauthorised access to information
Immediate, data-driven responses to consumer interaction.	Lack of data verification
	Lack of frequency capping

Advantages of AI in Marketing	Ethical Implications of AI
Efficiency	False content
Cost reduction	Plagiarism
Scalability	Effects on personal autonomy
Personalization	Lack of auditability
Automation	Accuracy issues
Data analysis	Diversity concerns
Customization	Non-discrimination
Automation	Sustainability
Efficiency	Public awareness
Cost reduction	Repeatability
Scalability	Replicability

Table 3 displays a summary of the results regarding the ethical implications of AI. More risks may emerge as AI continues to advance.

DISCUSSION

Benefits of Using AI in Healthcare Marketing

The results show that, in today's ever-changing marketing environment, artificial intelligence (AI) is increasingly regarded as a powerful tool that helps private and public healthcare entities operate more effectively in the digital space (Matheen et al., 2024). Eryilmaz (2023) asserts that the progress of AI presents significant challenges concerning personal data privacy and calls for interdisciplinary strategies and legal measures to address potential risks. AI-powered marketing technologies, such as predictive data analytics, virtual assistants, and tailored content generators, have transformed how organisations interact with their target audiences. These developments hold great potential to improve quality, simplify operations, strengthen customer relationships, and enhance corporate image. However, beneath the surface of this technological revolution lies a complicated network of ethical concerns. Further, Rana et al. (2024) noted that AI offers various advantages, including delivering timely customer support, generating content for diverse business operations, overseeing HR functions, offering immediate client responses, providing product and service information, managing product processes, and executing digital marketing strategies. AI is also available around the clock due to automation. Rana et al. (2024) affirm that AI enhances the effectiveness of business operations, including those in healthcare, by reducing the need for manual work in daily tasks, allowing staff to focus on more strategic

activities. AI decreases the costs associated with hiring additional employees for routine tasks and allows entities to carry out multiple business functions more efficiently and effectively. It also has the potential to give healthcare establishments a competitive edge by improving their capacity to serve both customers and employees.

Gonçalves et al. (2023) hypothesise that AI influences various areas such as marketing strategies, business models, customer service, and consumer behaviour. They cite instances where marketers utilise AI to gain deeper insight into consumer desires and needs, thereby enhancing decision-making and improving customer lifetime value. This also has the potential to reduce costs and increase revenue. Although AI has transformed customer experience, both employees and consumers remain hesitant to embrace it. These concerns appear justified, given the increasingly advanced capabilities of AI. As a machine capable of handling complex cognitive tasks, AI demonstrates strong skills in analysing data, learning, and making autonomous decisions. Businesses are increasingly relying on AI's predictive abilities to create highly personalised services that improve interactions. The remarkable capabilities of AI have contributed to inflated perceptions of its influence on consumers' daily lives.

Ethical Implications

Ethical Issues Related to Customisation and Personalisation in Marketing

The integration of AI and robotics in healthcare represents a new phase of medical advancement, offering improved diagnostics, more efficient procedures, and enhanced patient care (Xiao et al., 2019). However, personalisation and the intrusion upon personal data when marketing new treatment models raise ethical dilemmas. Organisations often encounter ethical challenges related to data privacy, consent, fairness, and algorithmic bias when navigating this terrain (Matheen et al., 2024).

Belenguer (2022) pointed out that AI bias arises when machine-learning outcomes lead to unjust treatment of certain individuals or groups. This highlights the importance of personalisation. Personalisation enables companies to tailor marketing materials and recommendations according to individual preferences, ultimately enhancing consumer engagement and

conversion rates. Ethical concerns arise when personalisation becomes intrusive, making customers feel uneasy, violated, or overwhelmed. Balancing customisation and privacy is crucial for ethical and effective AI-powered marketing. The careless collection and management of digital personal information by online platforms pose serious threats to privacy. Instances of privacy breaches affecting users of online marketing services continue to be a concern (Wang et al., 2021).

AI algorithms use extensive datasets to forecast consumer preferences, customise content, and improve the effectiveness of advertising with precision. According to Liu et al. (2024), AI's ability to predict consumer needs introduces further moral concerns. Advances in AI now enable task automation and the delivery of customised content using data-driven healthcare marketing strategies, thereby helping consumers make informed decisions. Yet, if AI can accurately predict an individual's preferences, some may view it as a potential intrusion into their freedom of choice, with ethical implications. Moral concerns also extend to the transparency and fairness of algorithms used in marketing healthcare products and services.

The presence of AI in marketing has created numerous ethical issues that require careful consideration (André et al., 2017). Businesses are required to adhere strictly to data protection laws and regulations to safeguard customer information and prevent data abuse (Sharma et al., 2023). This includes employing strong data security measures, obtaining clear consent from consumers for the collection and use of their data, and ensuring transparency regarding the purpose and processing of consumer information (Patel, 2024).

Accountability, Responsibility, Trust, and Privacy Issues in Using AI for Marketing

The development and implementation of AI systems in healthcare marketing must prioritise algorithmic fairness and inclusivity. Organisations must obtain informed and explicit consent from consumers regarding data usage and put in place strong data protection measures to prevent breaches and misuse. Issues of equity and prejudice in AI algorithms are equally urgent. Prejudiced AI may perpetuate unfair treatment, unintentionally singling out or

excluding groups based on gender, race, age, or other characteristics.

Transparency and accountability are emphasised as fundamental principles in ethical AI-driven marketing. As consumers become increasingly aware of the data-driven nature of modern marketing, they demand greater transparency regarding data collection, usage, and the methods used to generate personalised recommendations. A lack of transparency in AI-driven marketing can diminish consumer trust and damage brand reputation.

Hermann (2021) notes that accountability strengthens trust by ensuring that organisations take responsibility for their actions. Consumers are more likely to trust companies that handle data carefully and respond to concerns fairly. Without transparency and accountability, consumer trust quickly deteriorates. As AI becomes more integrated into marketing strategies, customers increasingly seek assurances that their data and interactions are managed ethically.

Transparency involves openly communicating how AI is utilised in marketing strategies (Hermann, 2021). This includes sharing information about data collection and usage, algorithms employed, and procedures used to generate personalised recommendations. Consumers tend to trust organisations more when they understand how their data is used and how AI shapes their experiences. Transparency is also essential in AI-enabled advertising. Businesses should be open about using AI algorithms, thereby ensuring customers have insight into how their information is processed.

Data breaches, algorithmic bias, and invasive marketing practices can erode trust between organisations and their consumers. Transparency promotes ethical AI practices by fostering trust and demonstrating a commitment to fairness. Ethical deployment of AI in marketing requires systematic evaluation from multiple stakeholder perspectives (Sharma et al., 2023). Ethical considerations in AI marketing revolve around data privacy and informed consent. Collecting and handling personal information without clear permission can violate privacy and lead to legal consequences (Gerke et al., 2019).

Transparency guidelines also emphasise the importance of creating AI systems that are auditable. Transparency ensures equity by ensuring AI systems are comprehensible, interpretable, secure, and precise. Considering potential risks and negative consequences of AI systems is crucial. Another ethical challenge is balancing personalisation and non-intrusion. Although AI allows highly targeted marketing, improper use can lead to intrusive experiences that provoke consumer frustration (Mohan et al., 2023).

Effective systems management and regulatory mechanisms are essential for overseeing privacy practices in the age of big data. For example, limiting the frequency of advertisements helps prevent overwhelming consumers. Belenguer (2022) noted that AI systems must not unnecessarily dominate, manipulate, deceive, or coerce humans. Ongoing ethical development is required to prevent misuse and consumer alienation.

Sharma et al. (2023) emphasise that AI developers and content creators should receive ethics training to improve their understanding of ethical concerns in AI-driven marketing. Encouraging users to provide feedback on AI-generated content helps organisations improve quality and address ethical issues. Regular audits and monitoring of AI-generated content ensure alignment with ethical standards and prevent violations.

Despite many laws concerning data privacy at national and international levels, there is a noticeable absence of regulations governing emerging technologies. AI raises many questions in diverse fields such as ethics, law, aesthetics, medicine, and art. Addressing AI-related challenges requires awareness that the technology can both create and solve problems. Data security requires that all data be obtained with consent and used appropriately. Fairness and inclusivity in data usage require algorithms designed to protect consumer information. Compliance with data privacy regulations is essential to maintain trust and prevent misuse (André et al., 2017). Regular audits are necessary to detect and correct bias and ensure fairness in AI-driven campaigns.

Businesses and governments should adopt a culture of accountability and responsibility for the outcomes produced by AI-powered marketing initiatives. Systematic audits should be conducted to identify and rectify bias,

ensuring that campaigns uphold fairness and non-discrimination (Hermann, 2024). By upholding ethical practices, businesses can build trust and contribute to the responsible development of AI (Sharma et al., 2023).

Limitations, Key Findings, and Recommendations

The study underscores the necessity for organisations to be transparent about their data collection practices and the algorithms employed in AI-driven marketing. Such transparency is essential for building consumer trust and ensuring compliance with data privacy regulations. Additionally, the authors emphasise the importance of obtaining explicit consent from consumers before collecting and using their data. This requirement is crucial for safeguarding consumer privacy and preventing data misuse.

The research further discusses the ethical dilemma of personalising marketing efforts without crossing the line into intrusive practices that could alienate consumers. It highlights the need for a careful balance to maintain trust. The prevalence of bias in AI systems is identified as a significant concern, as it can result in unfair treatment of specific demographic groups. The study therefore calls for ongoing monitoring and evaluation of AI algorithms to ensure fairness and inclusivity.

The authors advocate for the continuous ethical development of AI technologies, suggesting that organisations should implement robust data protection measures and conduct regular audits to ensure compliance with ethical standards. Based on the findings, the study offers several recommendations for organisations utilising AI in marketing:

1. **Enhance Transparency:** Organisations should clearly communicate their data collection methods and the use of AI in marketing strategies to foster consumer trust.
2. **Obtain Informed Consent:** It is essential to implement processes that ensure consumers provide explicit consent for data collection and use, reinforcing their privacy rights.
3. **Implement Ethical Guidelines:** Establishing comprehensive ethical guidelines for AI-driven marketing practices can help organisations

navigate the complexities of data management and algorithmic fairness.

4. **Conduct Regular Audits:** Organisations should routinely audit their AI systems to identify and address biases, thereby ensuring fair and equitable marketing practices.
5. **Educate Stakeholders:** Providing ethics training for AI developers and marketers can deepen their understanding of the ethical implications of their work and promote responsible AI usage.
6. **Engage Consumers:** Encouraging consumer feedback on AI-generated content can help organisations refine their marketing strategies while addressing ethical concerns.

By adhering to these recommendations, organisations can effectively leverage AI in marketing while prioritising ethical considerations and consumer trust, ultimately promoting sustainable business practices in the healthcare sector.

This research clearly shows that advancements in technology come with complex ethical consequences that require careful contemplation (Elendu et al., 2024). Thus, the ethical considerations surrounding the promotion of healthcare products and services using AI—and the unintended ethical impacts—require continual and rigorous monitoring. They necessitate a thorough evaluation of the rapidly unfolding AI technologies currently emerging (Gonçalves et al., 2023).

However, several limitations were encountered in this research. The paper did not include books addressing specific subjects in AI due to the lack of textbook-based material on AI marketing ethics. There is a growing need to strengthen context-related literature on AI ethics in marketing globally. The paper also did not discuss the predatory effects of AI on marketing ethics in developing nations, where the ethical implications may be more severe as a result of technological limitations. Furthermore, multidisciplinary research is needed and should be integrated across fields such as biology, computer science, education, and health.

Based on the findings and discussions presented in the study, several areas for future research are recommended:

- 1. Interdisciplinary Approaches:** Research integrating insights from various fields – such as biology, computer science, education, and health – is needed to comprehensively address the ethical implications of AI in marketing. This multidisciplinary perspective can enhance understanding and foster innovative solutions.
- 2. Global Perspectives on AI Ethics:** Future studies should investigate the ethical implications of AI-driven marketing in developing nations, where technological deficiencies may exacerbate ethical issues. Understanding these unique challenges can inform more equitable AI practices.
- 3. Consumer Perceptions and Trust:** Research should examine consumer attitudes towards AI in marketing, particularly concerning trust and transparency. Understanding how consumers perceive AI-driven personalisation can provide valuable insights for practitioners.
- 4. Algorithmic Fairness and Bias:** There is a pressing need for studies examining the prevalence of bias in AI algorithms used in marketing. Research should aim to develop frameworks that promote fairness and inclusivity, especially in interactions with diverse consumer groups.
- 5. Longitudinal Studies on Ethical Practices:** Conducting longitudinal research to assess the long-term effectiveness of ethical guidelines and practices in AI marketing can provide insights into their impact on consumer trust and business outcomes.
- 6. Impact of Regulatory Frameworks:** Future research should evaluate the effectiveness of existing data protection regulations and their influence on ethical AI marketing practices. This will help inform sound policy development.
- 7. Consumer Education and Awareness:** Investigating the role of consumer education in enhancing understanding of AI technologies can support trust-building. Studies should explore effective strategies for educating consumers about their data rights and the ethical use of AI.
- 8. Ethical Training for AI Developers:** Research should focus on developing training programmes for AI developers and marketers that emphasise

ethical considerations in AI-driven marketing. Ensuring that ethical principles are embedded in the design and deployment of AI systems is essential.

By addressing these areas, future research can contribute to a more ethical and responsible approach to AI-driven marketing, ultimately enhancing consumer trust and promoting sustainable business practices.

CONCLUSION

This study explored ethical considerations surrounding AI-driven marketing in the healthcare sector, emphasising the balance between leveraging AI for personalised marketing and maintaining consumer trust. While AI offers opportunities for targeted marketing and enhanced engagement, it also raises significant ethical concerns regarding data privacy, transparency, and algorithmic bias. Policymakers should establish robust regulatory frameworks governing ethical AI use, such as the GDPR and Fair Information Practice Principles (FIPPs). Marketers must prioritise ethical practices, including human oversight, accountability, fairness, and regular audits. Educating stakeholders and engaging consumers are critical components of ethical AI adoption.

By adhering to these principles, organisations can leverage AI effectively while safeguarding ethical standards and consumer trust, ultimately contributing to sustainable marketing practices in the healthcare sector.

Ethical Approval: Nil required.

Conflicts of Interest: None declared.

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