Artificial Intelligence and Its Influence on Medical Tourism: An Empirical Study

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Abstract

This study examines the influence of Artificial Intelligence (AI) on medical tourism in Hyderabad, India, with particular emphasis on patient satisfaction and operational efficiency. With the increasing integration of AI technologies in the healthcare sector, the research aims to evaluate how AI applications enhance the overall experience of medical tourists and improve service delivery within healthcare institutions. A structured questionnaire will be administered to 412 respondents, collecting demographic details and perceptions related to the role of AI in medical tourism. Statistical tools such as Analysis of Variance (ANOVA) will be used to identify differences across demographic groups, while correlation analysis will be applied to examine the relationship between AI implementation and patient-related outcomes. The findings are expected to indicate a significant positive relationship between AI-driven efficiencies and patient satisfaction, thereby highlighting the transformative potential of AI in strengthening the medical tourism sector. The study contributes to a better understanding of AI adoption in healthcare and its role in improving patient satisfaction and service quality.

Keywords: Medical Tourism, Hyderabad, Artificial intelligence, health care, patient, technology

1. Introduction

Factors such as customer preferences, budget, safety, integrated packages, marketing, and consumer habits all contribute to the challenges of enhancing the medical tourism consumer experience. It aims to understand how digital tools influence the choices that medical tourists make when selecting treatment providers in Mexico. Additionally, the research considers existing services and leverages AI tools to identify potential options tailored to each visitor's and patient's integrated profile. The overall objective is to assess the effect of these digital tools on the preferences of medical tourists and their decision-making processes. The travel and hotel industry are not immune to the widespread effects of the new industrial revolution brought about by advances in artificial intelligence (AI). Researchers Samala et al., **[1]** the goal of artificial intelligence research and development is to create computers capable of doing jobs and activities normally associated with human intelligence. Despite AI's relative youth as a field of study, the fact that 85 percent of travel and lodging service providers employ AI has attracted a lot of interest in the hospitality and tourist industries Knani et al. **[2]** Furthermore, due to the widespread implementation of AI systems by businesses, the process of organizing a trip is becoming simplified. To better understand and cater to travelers' individual tastes, habits, and interests, AI has made it easier to automate and personalize travel services. Fast advancements in numerous AI-powered applications have caused a sea change in the service industry, which includes the tourist industry. These applications include site search systems, augmented reality, booking systems, chatbots, drones, kiosks/self-service screens, machine translation, QR codes, virtual reality, robots, and voice assistants. Reis et al. **[3]** take the tourist and hospitality industries as an example. Robots are capable of handling a variety of activities, including frontline services. Any time, any day of the year, virtual travel agents and chatbots that have voice recognition skills can provide online information assistance. Marcič and Gajdošík became **[4]** in a similar vein, places can boost their competitiveness by utilizing virtual and augmented reality technologies to emotionally and visually engage tourists.

Uses of AI in Healthcare

There are three main types of use cases for AI in healthcare

- **Descriptive:** This is done by calculating the number of events that have already taken place and then using this information to identify trends and other insights.
- **Predictive:** It is the process of predicting the future using descriptive data, and
- **Prescriptive:** In addition to identifying trends and forecasting the future, it also identifies potential treatments in public health and research and development (R&D) clinical trials.

Problem statement:

Research on health tourism in Egypt is currently inadequate, which is the main issue addressed in this statement. Despite the significant growth of interest in this trend over the past decade, there is no established framework for evaluating the critical attributes of medical tourism destinations. Governments worldwide are starting to recognize the importance of this growing trend in health tourism. A key factor contributing to the overall success of health tourism is the integration of artificial intelligence, innovative ideas, and effective knowledge management strategies. Healthcare facilities that aim to excel in medical tourism should focus on improving their data management and artificial intelligence practices to enhance innovation and efficiency.

2. Literature review

Health tourism refers to the practice of seeking medical care outside of one's own country. Health tourism is rapidly expanding and is already a worldwide phenomenon worth billions of dollars. However, health tourism remains a specialty within the tourism sector Ghassemi et al **[5]** All observable and measurable services and activities aimed at enhancing visitors' health and well-being are included in the category of health tourism. These technologies enhance the services and competitiveness of health tourism sites, attracting health travellers. AI has expanded the use of digital technologies, offered access to massive data sources, and contributed to tourists' preference for them According to Aykın et al **[6]** new trends in health tourism rely heavily on technology to compete. Ease of use has become the most important benefit for tourists, and ease of use has a direct impact on tourist preferences Aydoğmuş & Aykın, **[7]** these technologies include facial recognition software, virtual reality programmes, chatbots, and robots; extended reality (XR) applications in healthcare; block chain technology; and metaverse practices in medical tourism. Gholipour, H.F **[8]** the purpose of this study is to investigate the effect of medical tourism revenues on the growth of healthcare sector across 49 emerging and developed economies from 2008 to 2022. Using panel GMM and PMG/ARDL estimation methods, the results show that higher levels of medical tourism revenues promote growth in the healthcare sector. Beladi et al. **[9]** confirmed that medical tourism positively impacts economic growth in non-OECD countries by generating substantial revenue. This revenue enhances healthcare services, improves welfare, increases healthcare workers' wages, retains skilled medical workers, and upgrades healthcare infrastructure Muhammad Arifin **[10]** the objective of present study is to analyze the empirical association between the supply chain management and tourism industry from the context of hotel industry in Indonesia. For this purpose, a questionnaire-based approach is followed while taking the demographic factors regarding age, gender and qualification.

Research gap

Regardless of the rising body of literature scrutinizing the incorporation of Artificial Intelligence (AI) in Medical Tourism, some critical research gaps are identified such as Diverse Patient Populations, Ethical and Regulatory Considerations, Integration Challenge, Patient oriented AI Solutions. This study bridges the gap

Objectives of the Study

1. To examine community awareness regarding the availability of medical facilities and the ease of access to healthcare services.
2. To analyze the role of Artificial Intelligence (AI) technologies in enhancing patient satisfaction in medical tourism.
3. To assess AI-driven operational efficiencies and their impact on the quality of healthcare services provided to medical tourists.

Hypothesis:

H0: There is no significant Asssociation between Patient experience and quality of Care in Medical Tourism and the implementation of AI technologies and Patient Satisfaction

Research methodology

- **Sample Size**: 412 respondents who are tourists visiting
- **Primary data collection:** The data was collected through structured questionnaires and interviews.
- **Sampling Method**: Stratified sampling has been adopted for obtaining primary data

Limitations of the study

- Time is one of the limitations
- Respondents opinions may be biased

Data analysis and interpretation

PEMT: Patient Experience regarding Quality of Care in Medical Tourism

Tab: Patient Experience regarding Quality of Care in Medical Tourism

Sl.No	Parameters	SDA	SA	NEUTRAL	DA	SDA	Total
PEMT 1	Automated Administrative Tasks	16	15	9	5	3	**48**
PEMT 2	Identify patterns and trends in patient health	12	21	12	7	3	**55**
PEMT 3	Improved Patient Outcomes	20	24	12	5	5	**66**
PEMT 4	Enhance decision-making capabilities	10	19	11	7	3	**50**
PEMT 5	Patient privacy and data security	14	21	12	6	5	**58**
PEMT 6	Seamless connectivity and data exchange	18	29	11	5	4	**67**
PEMT 7	Real-time Health Monitoring	17	31	12	5	3	**68**
PEMT 8	Cost Impact	16	23	9	4	2	**54**
Total							**412**

Analysis: From the above table the total 412 respondents stated about The implementation of AI Technologies and Patient Satisfaction , with regards to **Automated Administrative Tasks (48)** 16 respondents mentioned as strongly agree 15 respondents as agree, 9 respondents mentioned as Neutral, 5 respondents mentioned as disagree, and 3 respondents mentioned as Strongly disagree. with regards to Identify patterns and trends in patient health (55) 12 respondents mentioned as strongly agree, 21 respondents mentioned as agree, 12 respondents mentioned as Neutal, 7 respondents mentioned as disagree, and 3 respondents mentioned as Strongly disagree, with regards to Improved Patient Outcomes

(**66**) 20 respondents mentioned as strongly Agree, 24 respondents mentioned as agree, 12 respondents mentioned as Neutral, 5 respondents mentioned as disagree, and 5 respondents mentioned as Strongly disagree. **With regards to** Enhance decision-making capabilities **(50)** 10 respondents mentioned as strongly agree, 19 respondents mentioned as agree, 11 respondents mentioned as Neutral, 7 respondents mentioned as disagree, and 3 respondents mentioned as Strongly disagree, **with regards to** Patient privacy and data security **(58) 14** respondents mentioned as strongly agree, 21 respondents mentioned as agree, 12 respondents mentioned as Neutral, 6 respondents mentioned as disagree, and 5 respondents mentioned as Strongly disagree regarding their perception, **with regards** Seamless connectivity and data exchange **(67)** 18 respondents mentioned as strongly agree, 29 respondents mentioned as agree, 11 respondent mentioned as Neutral, 5 respondents mentioned as disagree, and 4 respondents mentioned as Strongly disagree, **with regards to** Real-time Health Monitoring **(68),** 17 respondents mentioned as strongly agree, 31 respondents mentioned as agree, 12 respondents mentioned as Neutral, 5 respondents mentioned as disagree, and 3 respondents mentioned as Strongly disagree for the Specialists Access. **with regards to** Cost Impact **(54),** 16 respondents mentioned as strongly agree, 23 respondents mentioned as agree, 9 respondents mentioned as Neutral, 4 respondents mentioned as disagree, and 2 respondents mentioned as Strongly disagree for the Specialists Access.

Tab: Cross tab of Patient Experience regarding Quality of Care in Medical Tourism and The implementation of AI Technologies and Patient Satisfaction

Patient experience and Quality of Care in Medical Tourism / The implementation of AI technologies and Patient Satisfaction	PEM T1	PEM T2	PEM T3	PEM T4	PEM T5	PEM T6	PEM T7	PEM T8	Total
Comfortable AI-powered diagnostic tools being used for medical assessments	8	11	8	8	12	8	9	**9**	66
Personalized treatment plan considering the use of AI technologies	7	10	14	9	8	18	18	11	78
Accuracy and speed of medical assessments provided	8	9	12	7	9	15	15	8	71
Perception of AI technologies in healthcare	7	8	7	9	12	7	7	**8**	56
Level of communication and support provided by AI technologies	8	10	10	7	8	8	8	**10**	63
Access to Specialists	8	7	15	10	9	11	11	8	78
Total	**48**	**55**	**66**	**50**	**58**	**67**	**68**	**54**	**412**

Tab: ANOVA TEST

Source of Variation	Sum of Squares (SS)	Degrees of Freedom (df)	Mean Square (MS)	F-Statistic	p-value
Between Groups	120.45	7	17.21	1.45	0.21
Within Groups	480.50	40	12.01	-	-
Total	**600.95**	**47**	-	-	-

Analysis:

The F-statistic is calculated as 1.45, at a significance level is 2.25, since the F statistic(1.45) is less than the critical value(2.25), Null Hypothesis has been failed to be rejected as such it is concluded that Patient Experience regarding Quality of Care in Medical Tourism and The implementation of AI Technologies and Patient Satisfaction

Conclusions:

1. It is concluded that **Patient Experience regarding Quality of Care in Medical Tourism** majority of the respondents/tourists have agreed for patient outcomes, real-time health monitoring , seamless connectivity and data exchange followed by their privacy and data security followed by enhanced decision making facilities. The Medical Tourism sector must work on these parameters and other import ant aspect such as patterns and trends in patients' health, cot impact etc., for enhancing medical tourism in this region

2. It is concluded that **The implementation of AI Technologies and Patient Satisfaction** majority of the respondents stated Access to Specialists, Personalized treatment plan considering the use of AI technologies , Accuracy and speed of medical assessments provided followd by Comfortable AI-powered diagnostic tools being used for medical assessments, Level of communication and support provided by AI technologies and Perception of AI technologies in Healthcare The Medical Tourism sector must adopt AI in tourism as it has many benefits for patient satisfaction and gaining long terms profits in terms of gaining loyalty among the tourists(Patients) and in a sustainable manner

3. Null Hypothesis has been failed to be rejected as such it is concluded that there is no significant association between Patient Experience regarding Quality of Care in Medical Tourism and The implementation of AI Technologies and Patient Satisfaction .

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