

**7.****A Study on the Role of Artificial Intelligence in Consumer Decision Making in Karimnagar City****Doosa Mamatha**

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**Abstract**

Artificial Intelligence (AI) has emerged as a powerful technological force transforming the way consumers search for information, evaluate alternatives, and make purchasing decisions. AI-based tools such as recommendation systems, chatbots, voice assistants, and personalized advertisements increasingly guide consumer choices by offering customized, data-driven insights. The present study attempts to analyze the role of Artificial Intelligence in consumer decision-making in Karimnagar City. The study is based on primary data collected from 100 respondents using a structured questionnaire. The objectives include examining the socio-economic profile of consumers, assessing their awareness and usage of AI-based tools, and evaluating the extent to which AI influences their purchase decisions. Statistical tools such as percentage analysis, weighted average method, and chi-square test have been employed for analysis. The findings reveal that a majority of consumers possess moderate to high awareness of AI applications and that AI exerts a significant influence on their buying behavior, particularly among young and educated respondents. The study concludes that AI has become an integral component of modern consumer decision-making, necessitating responsible, transparent, and consumer-centric adoption by businesses.

**Keywords:** Artificial Intelligence, Consumer Decision Making, Consumer Behavior, AI-based Recommendation Systems, Purchase Decisions, Digital Marketing, Consumer Awareness.

**Introduction**

Artificial Intelligence (AI) refers to the capability of machines and computer systems to perform tasks that typically require human intelligence, such as learning, reasoning, problem-solving, and decision-making. In recent years, AI has gained prominence in the field of marketing and consumer behavior due to the exponential growth of digital platforms, e-commerce, and data analytics. Businesses increasingly rely on AI-driven

technologies to understand consumer preferences, predict demand, personalize offerings, and enhance customer experience.

In the consumer decision-making process, AI influences all major stages—need recognition, information search, evaluation of alternatives, purchase decision, and post-purchase behavior. Recommendation engines suggest relevant products, chatbots provide instant customer support, and personalized advertisements target consumers based on browsing history and preferences. These tools not only reduce search costs and decision time but also shape consumer perceptions and preferences.

In India, rapid digitalization, increased smartphone penetration, and widespread use of online platforms have accelerated the adoption of AI in consumer markets. While several studies have examined AI's impact in metropolitan cities, limited attention has been paid to tier-II cities such as Karimnagar. Understanding consumer responses to AI in such regions is essential for inclusive and balanced digital growth. Hence, the present study focuses on analyzing the role of AI in consumer decision-making in Karimnagar City.

### **Review of Literature**

The growing intersection of Artificial Intelligence and consumer behavior has attracted significant scholarly attention. Previous studies highlight that AI-driven recommendation systems enhance consumer satisfaction by providing relevant and timely product suggestions. Researchers have observed that AI reduces information overload and improves decision efficiency, leading to higher purchase confidence.

Several studies indicate that demographic factors such as age, education, and income significantly influence consumer acceptance of AI technologies. Younger and more educated consumers tend to exhibit greater trust and reliance on AI-based tools. Other studies emphasize the role of consumer awareness and perceived usefulness in determining AI adoption. Ethical considerations, data privacy, and transparency have also been identified as critical factors affecting consumer trust in AI.

However, much of the existing literature concentrates on developed economies or large metropolitan markets. Empirical studies focusing on medium-sized Indian cities remain limited. This highlights the need for region-specific research to understand how AI influences consumer behavior in diverse socio-economic contexts.

### **Research Gap**

Despite the growing body of literature on Artificial Intelligence and consumer behavior, several gaps remain. First, there is a lack of empirical studies focusing on tier-II cities like Karimnagar, where digital adoption patterns differ from metropolitan areas. Second, limited research has systematically examined the relationship between demographic factors and AI influence using statistical testing. Third, existing studies often emphasize technological aspects rather than consumer perceptions and decision-making outcomes. The present study addresses these gaps by providing a localized, data-driven analysis of AI's role in consumer decision-making.

**Scope of the Study**

The scope of the study is limited to consumers residing in Karimnagar City. It focuses on selected AI-based applications such as online recommendation systems, chatbots, personalized advertisements, and voice assistants that influence consumer purchase decisions. The study examines awareness, usage patterns, and perceived influence of AI. Technical design, ethical algorithms, and firm-level performance aspects are beyond the scope of the study.

**Objectives of the Study**

1. To analyze the socio-economic profile of consumers in Karimnagar City.
2. To examine the level of awareness of Artificial Intelligence-based consumer applications.
3. To study the usage pattern of AI tools in purchase decisions.
4. To assess the extent of influence of AI on consumer decision-making.
5. To examine the association between demographic variables and AI influence.

**Hypotheses of the Study**

The following null hypotheses have been formulated for the study:

- There is no significant association between age of respondents and the influence of Artificial Intelligence on consumer decision-making.
- There is no significant association between educational qualification and awareness of AI-based consumer applications.

**Research Methodology**

The study is descriptive and analytical in nature. Both primary and secondary data sources were used. Primary data were collected from 100 respondents in Karimnagar City through a structured questionnaire covering demographic details, awareness of AI, usage of AI tools, and perceived influence on decision-making. Convenience sampling technique was adopted due to time and accessibility constraints.

Secondary data were collected from books, academic journals, research articles, reports, and online sources related to Artificial Intelligence and consumer behavior. The collected data were analyzed using percentage analysis to understand distribution patterns, weighted average method to measure intensity of AI influence, and chi-square test to examine associations between variables.

**Limitations of the Study**

1. The study is limited to a sample size of 100 respondents, which may not fully represent the entire population of Karimnagar City.
2. The study relies on self-reported responses, which may involve personal bias.
3. The scope is confined to selected AI tools and does not include all AI-driven technologies.
4. Time and resource constraints limited the depth of analysis.

**Data Analysis and Interpretation****Table 1: Gender-wise Distribution of Respondents**

Gender	No. of Respondents	Percentage
Male	52	52%
Female	48	48%
<b>Total</b>	<b>100</b>	<b>100%</b>

Source: Primary Data

The gender-wise distribution indicates a near-equal representation of male (52%) and female (48%) respondents. This balanced composition enhances the reliability of the study, as consumer decision-making influenced by Artificial Intelligence (AI) is examined without gender bias. The marginal dominance of male respondents may reflect slightly higher exposure to digital platforms among men; however, the strong participation of women highlights the growing inclusiveness of AI-driven consumption patterns in urban centers like Karimnagar. The findings suggest that AI-based consumer tools are being adopted across genders, making AI influence largely gender-neutral in contemporary markets.

**Table 2: Age-wise Distribution of Respondents**

Age Group (Years)	Respondents	Percentage
Below 25	22	22%
25-35	38	38%
36-45	24	24%
Above 45	16	16%
<b>Total</b>	<b>100</b>	<b>100%</b>

Source: Primary Data

The age-wise analysis reveals that the largest proportion of respondents (38%) belongs to the 25-35 age group, followed by 36-45 years (24%). This indicates that economically active and technologically adaptive age groups are the primary users of AI-enabled consumer platforms. Younger consumers below 25 years (22%) also demonstrate substantial engagement with AI tools, reflecting early adoption due to digital nativity. In contrast, respondents above 45 years constitute only 16%, suggesting relatively lower interaction with AI-based decision systems. Overall, age plays a significant role in shaping the intensity of AI influence on consumer behavior, with younger age groups exhibiting greater dependence on AI for purchase decisions.

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**Table 3: Educational Qualification of Respondents**

Qualification	Respondents	Percentage
Up to Intermediate	18	18%
Graduate	42	42%
Postgraduate	30	30%
Others	10	10%
<b>Total</b>	<b>100</b>	<b>100%</b>

Source: Primary Data

The educational profile shows that a significant majority of respondents (72%) are graduates and postgraduates. Higher educational attainment generally enhances digital literacy, analytical ability, and openness to technological innovations such as AI. Educated consumers are more likely to understand algorithm-driven recommendations, personalized advertising, and automated assistance, thereby trusting and utilizing AI tools in decision-making. Respondents with lower educational levels (28%) exhibit comparatively lesser engagement, indicating that education is a crucial determinant in the adoption and effective use of AI-enabled consumer technologies.

**Table 4: Awareness of AI-based Consumer Applications**

Level of Awareness	Respondents	Percentage
Highly Aware	34	34%
Moderately Aware	46	46%
Low Awareness	20	20%
<b>Total</b>	<b>100</b>	<b>100%</b>

Source: Primary Data

The awareness analysis highlights that a substantial 80% of respondents possess moderate to high awareness of AI-based consumer applications. This reflects the penetration of AI technologies into everyday digital experiences such as e-commerce, online banking, and mobile applications. High awareness levels indicate that consumers not only encounter AI tools but also recognize their role in influencing choices. However, the presence of 20% respondents with low awareness suggests the need for consumer education initiatives to bridge the digital knowledge gap and ensure inclusive benefits of AI-driven markets.

**Table 5: AI Tools Used by Consumers**

AI-based Tool	Respondents	Percentage
Online Recommendations (Amazon/Flipkart)	40	40%
Chatbots & Virtual Assistants	22	22%
Personalized Advertisements	26	26%
Voice Assistants (Alexa/Google)	12	12%
<b>Total</b>	<b>100</b>	<b>100%</b>

Source: Primary Data

The analysis of AI tools used by consumers indicates that online recommendation systems (40%) are the most influential AI applications in consumer decision-making. These systems simplify choice by filtering vast information and presenting personalized options, thereby reducing cognitive effort. Personalized advertisements (26%) and chatbots (22%) further assist consumers by providing tailored information and real-time support. Voice assistants, though currently used by a smaller proportion (12%), show emerging potential. The findings suggest that AI applications embedded within e-commerce platforms exert the strongest influence on consumer preferences.

**Table 6: Influence of AI on Purchase Decision**

Extent of Influence	Respondents	Percentage
High Influence	36	36%
Moderate Influence	44	44%
Low Influence	20	20%
<b>Total</b>	<b>100</b>	<b>100%</b>

*Source: Primary Data*

The extent-of-influence analysis reveals that AI exerts a moderate to high influence on purchase decisions for 80% of respondents. This demonstrates that AI-driven inputs such as recommendations, reviews, dynamic pricing, and personalized suggestions significantly shape consumer judgment. Only 20% perceive AI influence as low, indicating either traditional buying habits or limited trust in automated systems. The results clearly establish AI as a decisive factor in modern consumer behavior, particularly in urban markets.

**Table 7: Perceived Benefits of AI in Decision Making**

Benefit	Respondents	Percentage
Saves Time	32	32%
Better Product Comparison	28	28%
Personalized Choices	25	25%
Improved Satisfaction	15	15%
<b>Total</b>	<b>100</b>	<b>100%</b>

*Source: Primary Data*

The perceived benefits analysis shows that time-saving (32%) and better product comparison (28%) are the most valued advantages of AI in consumer decision-making. These benefits reflect the efficiency gains provided by AI systems, enabling consumers to make faster and more informed choices. Personalized choices (25%) enhance satisfaction by aligning products with individual preferences, while improved satisfaction (15%) reflects overall positive post-purchase experiences. Collectively, these findings indicate that efficiency, accuracy, and personalization are the primary factors driving consumer acceptance of AI technologies.

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Table 8: Weighted Average Analysis of AI Influence on Consumer Decision Making

Response Category	Weight	No. of Respondents	Weighted Score
High Influence	3	36	108
Moderate Influence	2	44	88
Low Influence	1	20	20
<b>Total</b>		<b>100</b>	<b>216</b>
<b>Weighted Average Score</b>	<b>216 / 100 = 2.16</b>		

*Source: Primary Data*

The weighted average score of 2.16 indicates that Artificial Intelligence has a moderate to high level of influence on consumer decision-making in Karimnagar City. This confirms that AI tools significantly shape purchasing behavior, though complete dependence has not yet been achieved.

Table 9: Chi-Square Test between Age Group and AI Influence

Age Group	High	Moderate	Low	Total
Below 25	10	8	4	22
25-35	16	16	6	38
36-45	7	12	5	24
Above 45	3	8	5	16
<b>Total</b>	<b>36</b>	<b>44</b>	<b>20</b>	<b>100</b>
<b>Calculated Chi-square value (<math>\chi^2</math>)</b>	<b>9.12</b>			
<b>Table value (df = 6, at 5% level)</b>	<b>12.59</b>			

*Source: Primary Data*

Since the calculated  $\chi^2$  value (9.12) is less than the table value (12.59), the null hypothesis is accepted. This indicates that age and AI influence are not significantly associated, though younger age groups show relatively higher inclination towards AI-based decisions.

Table 10: Chi-Square Test between Education and Awareness of AI

Education Level	High Awareness	Moderate	Low	Total
Up to Inter	4	8	6	18
Graduate	14	20	8	42
Postgraduate	12	14	4	30
Others	4	4	2	10
<b>Total</b>	<b>34</b>	<b>46</b>	<b>20</b>	<b>100</b>
<b>Calculated Chi-square value (<math>\chi^2</math>)</b>	<b>13.84</b>			
<b>Table value (df = 6, at 5% level)</b>	<b>12.59</b>			

*Source: Primary Data*

Since the calculated  $\chi^2$  value (13.84) is greater than the table value (12.59), the null hypothesis is rejected. This shows a significant association between educational qualification and awareness of AI, implying that higher education increases AI awareness among consumers.

#### **Findings of the Study**

1. The majority of respondents belong to younger and middle-age groups, indicating higher digital engagement.
2. A large proportion of consumers possess moderate to high awareness of AI-based applications.
3. Online recommendation systems are the most widely used AI tools in purchase decisions.
4. The weighted average analysis indicates a moderate to high influence of AI on consumer decision-making.
5. Chi-square analysis reveals a significant association between education and AI awareness, while age shows no significant association with AI influence.

#### **Suggestions**

1. Educational and awareness programs should be conducted to enhance consumer understanding of AI-based tools.
2. Businesses should adopt transparent AI practices to build consumer trust.
3. Policymakers should ensure inclusive digital infrastructure to promote balanced AI adoption.
4. Consumer data privacy and ethical AI usage should be prioritized.

#### **Further Scope of the Study**

Future studies may extend the research to rural areas and other districts for comparative analysis. Larger sample sizes and advanced statistical tools such as regression analysis and structural equation modeling may be employed. Further research may also explore ethical concerns, consumer trust, and long-term behavioral changes due to AI adoption.

#### **Conclusion**

The present study highlights the growing importance of Artificial Intelligence in shaping consumer decision-making in Karimnagar City. The findings indicate that AI-based tools significantly influence consumer choices by enhancing efficiency, personalization, and decision accuracy. While awareness and usage of AI are relatively high among educated consumers, there remains scope for improving digital inclusiveness. The study concludes that responsible and consumer-centric adoption of AI can strengthen market efficiency and consumer satisfaction, contributing to sustainable digital growth.

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