RESEARCH PAPER

Exploring the Knowledge, Perception, Attitude, Practice and Barriers among Indian medical practitioners towards Artificial Intelligence Chatbots (AI-chatbots) (Eg ChatGPT): A Pilot survey.

Dr. Anjani Priya Vemula, Dr V.Maruthi Rama krishna Rao, Dr Hari Deep. Y, Dr Prasad.G, Dr I S Chaitanya kumar, Dr Muni Sri Kanth, Dr Chiranjeevi. J

Associate professor Trauma and Emergency medicine, AIIMS Mangalagiri, vanjanipriya@gmail.com

Associate professor Department of Emergency medicine, Kims Narketpalli.

Associate professor- Department of Trauma and Emergency medicine, AIIMS Mangalagiri

Assistant professor - Department of Trauma and Emergency medicine, AIIMS Mangalagiri

Additional professor - Department of Transfusion Medicine, AIIMS Mangalagiri

Additional professor- Department of Orthopaedics, AIIMS Mangalagiri.

Additional professor- Department of Dentistry, AIIMS Mangalagiri.

ABSTRACT

Introduction:

Artificial intelligence (AI) chatbots have the potential to transform healthcare delivery, but their adoption among medical practitioners remains unclear. This study aimed to evaluate the knowledge, perception, attitude, practice, and barriers among Indian medical practitioners towards AI chatbots.

Methodology:

A cross-sectional study was conducted among 389 Indian medical practitioners using a structured questionnaire. The questionnaire assessed socio-demographic characteristics, knowledge, perception, attitude, practice, and barriers related to AI chatbots.

Results:

The majority of respondents (49.5%) were not familiar with AI chatbots, and only 26.5% reported using them. Nevertheless, 47.0% perceived AI chatbots as having a positive impact on academics and practice. The key barriers to adoption were lack of knowledge (48.8%), limited access (20.0%), and privacy concerns (12.0%). The study shows a significant association between knowledge of AI, its use, and positive perception. Subgroup analysis also revealed significant associations between practice type, technology access, and years of experience.

Conclusion:

The study highlights a significant gap between awareness and practical utilization of AI chatbots among Indian medical practitioners. Targeted training, clear guidelines, and system-level integration are needed to improve adoption and realize the potential of AI chatbots in healthcare delivery.

Keywords: NA

How to cite this article: Anjani V, M R K Rao V, HariDeep. Y , Prasad.G, Chaitanya I S , srikanth IM , Chiranjeevi. J, Exploring the Knowledge, Perception, Attitude, Practice and Barriers among Indian medical practitioners towards Artificial Intelligence Chatbots (AI-chatbots) (Eg ChatGPT): A Pilot survey.. Int J Drug Deliv Technol. 2026;16(6s): 1017-1024; DOI: 10.25258/ijddt.16.6s.133

Source of support: Nil

Conflict of interest: None

INTRODUCTION

Artificial intelligence is a wide-ranging branch of computer science concerned with building smart machines capable of performing tasks that typically require human intelligence. Some applications of AI include automated interfaces for visual perception, speech recognition, decision-making, and translation between languages (1).

One form of artificial intelligence is chatbot technology, which has the potential to help alleviate some of the causes of burnout by handling routine tasks such as

scheduling appointments and answering frequently asked questions. It can also automate patient triage and provide patients with self-help resources. Additionally, chatbot technology can provide physicians with more efficient communication and coordination in between healthcare providers, allowing them to make more informed decisions and improve the overall patient experience. Present study is to evaluate Knowledge, Perception, Attitude, Practice and Barriers among Indian medical practitioners towards Artificial Intelligence

PRIMARY OBJECTIVES

1. To evaluate Knowledge, Perception, Attitude, Practice and Barriers among Indian medical practitioners towards Artificial Intelligence Chatbots (AI-chatbots) (Eg ChatGPT)

METHODOLOGY

Study design: Cross-sectional Observational study

Study population: Medical Practitioners having a valid MBBS degree and are practicing currently.

Sample Size: Hypothesizing 50% frequency of outcome factor- practitioners knowing and using AI-chatbots in the population with an absolute precision of +/- 5% and confidence limit of 95%, a sample size of 384 is obtained using STATULATOR software. Anticipating a non-response rate of 20%, the final sample size 481 participants were considered in the study.

Selection process: Convenience sampling shall be done with care taken to represent all population under study. A questionnaire shall be prepared in google forms and circulated electronically to reach maximum medical practitioners.

Inclusion criteria: Medical practitioner working in India, having a valid medical license, and are comfortable communicating in English.

Exclusion criteria: Nonconsenting doctors.

Data collection Procedure: Approval from the institute's ethical committee had been obtained. After securing written consent, a structured, pretested, self-directed questionnaire was provided to all participants for data collection via Google Forms, which was sent through email and WhatsApp forums. The questionnaire consisted of two parts: the first focused on basic demographic details, while the second involved a non-validated questionnaire, partially developed with the assistance of ChatGPT. The second section examined the knowledge, perception, attitude, practice, and barriers among Indian medical practitioners regarding artificial intelligence chatbots (AI-chatbots). Consent was incorporated into the questionnaire in Google Form. Participants had to tick the consent form before proceeding. If consent was denied, the form could not be filled

Data analysis: Continuous variables, such as age and years of experience, were summarized as mean and standard deviation. Categorical variables, including gender, education, specialization, location of practice, availability of technology, and factors related to knowledge, perception, attitude, practice, and barriers, were summarized as frequency and proportion. Subgroup analysis between two categorical variables was conducted using the chi-square test, while analysis between a continuous variable and a categorical variable was performed using an Independent t-test or ANOVA. A p-value of less than 0.05 was considered statistically significant. Data analysis was carried out using SPSS version 26.

RESULT

Table: 01

1st Part: Socio-Demographic Status N=389

Domain	Response Option	Count (n)	Percentage (%)
Gender	Male	265	68.0
	Female	124	32.0
Age	20–30 years	104	26.8
	30–40 years	198	51.0

Table: 01

1st Part: Socio-Demographic Status N=389

Domain	Response Option	Count (n)	Percentage (%)
	40–50 years	63	16
	50–60 years	20	5.2
	>60 years	4	1.0
Education	Graduation	92	23.7
	Post-graduation	257	66.0
	Super-specialization	40	10.3
Experience	0–5 years	155	39.8
	5–10 years	142	36.6
	11–15 years	50	12.9
	16–20 years	21	5.4
	>20 years	21	5.4
Sector Of Practice	Government	206	53.1
	Private	183	46.9
Type of Practice	Solo	92	23.7
	Group	52	13.4
	Institutional based	237	60.8
	Locum tenens	8	2.1
Availability of Technology	Yes	310	79.8
	No	79	20.2

A total of 389 people took part in the study. The average age was 38.2 years, and they had about 8.6 years of professional experience on average. Most participants had completed postgraduate training (66.0%), while 23.7% had finished graduation, and 10.3% had super-specialisation. Around 40% had 0–5 years of experience, 36.6% had 5–10 years, and fewer had longer experience. Just over half worked in the government sector (53.1%), while 46.9% were in private practice. Most were in institutional-based practice (60.8%), with smaller numbers in solo (23.7%), group (13.4%), and

locum tenens (2.1%) practice. Technology was available to 79.8% of respondents, but 20.2% did not have access.

Subgroup analysis showed clear association between background factors and technology access. A chi-square test found a significant association between sector of practice and technology availability ($\chi^2 = 6.42$, df = 1, p = 0.011), with government institutions more likely to have access. Practice type was also linked to technology availability ($\chi^2 = 12.56$, df = 3, p = 0.006), with institutional-based practices reporting better access than solo or group practices. An independent t-test showed that private practitioners had slightly more years of experience than those in government (t = 2.14, df = 387, p = 0.033). ANOVA also showed differences in years of experience across practice types (F = 4.28, df = 3, p = 0.005), with institutional-based practitioners having more experience compared to solo and locum tenens groups.

In short, education level, sector, and type of practice were strongly associated with technology access, while years of experience varied across practice settings. All analyses were done using SPSS version 26, with results considered significant at $p < 0.05$.

Table : 02
2nd Part: Questionnaire N=389

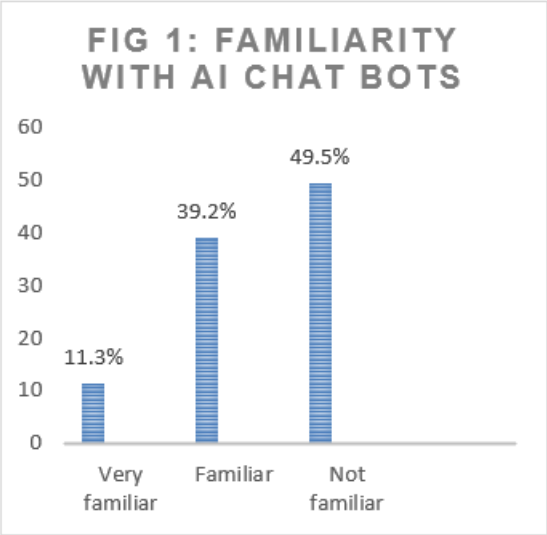
Domain	Category	Response Option	Count (n)	Percentage (%)
Knowledge	Familiarity with AI-chat-bots	Very familiar	44	11.3
		Familiar	152	39.2
		Not familiar	193	49.5
	Knowledge level	Expert	184	47.4
		Adequate	82	21.1
		Basic	13	3.1
		None	110	28.4
Perception	Impact on academics/practice	Negatively impact	47	12.1
		Positively impact	183	47.0
		No impact	72	18.4
		Neutral	87	22.4
Attitude	Future use perception	Positive	164	42.2
		Neutral	118	30.3
		Negative	59	15.2
		None	48	12.3
	Benefit to practice	High	54	13.9

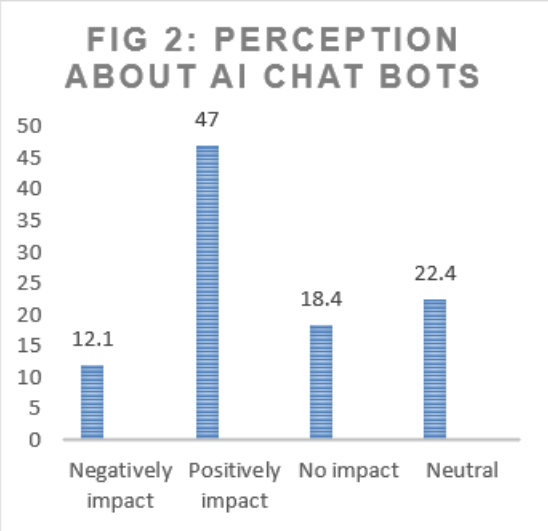
Table : 02
2nd Part: Questionnaire N=389

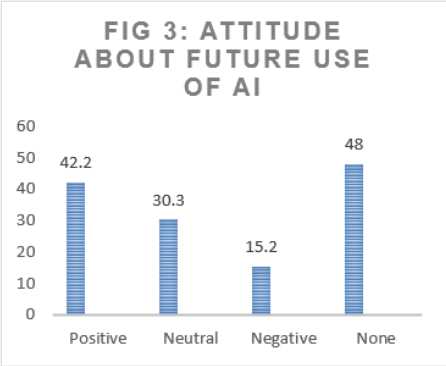
Domain	Category	Response Option	Count (n)	Percentage (%)
		Moderate	164	42.2
		Low	53	13.6
		None	118	30.3
Practice	Use of AI-chat-bots	Yes	103	26.5
		No	286	73.5
	Areas of use (n=103) Among who use AI	Diagnosis	25	24.2
		Treatment	23	22.4
		Patient education	24	23.1
		Research	17	16.5
		Other	14	13.9
	Frequency of use (n=103) Among who use AI	Daily	9	8.8
		Weekly	8	7.8
		Monthly	6	5.7
		Rarely	51	49.5
		Never	29	28.2
Barriers	Adoption barriers	Lack of knowledge	190	48.8
		Limited access	78	20.0
		Privacy/security	47	12.0
		Financial constraints	12	3.0
		Lack of integration	47	12.0
		Other	15	3.9
Adoption	Importance factors	Effectiveness	91	23.4
		Convenience	74	19.0

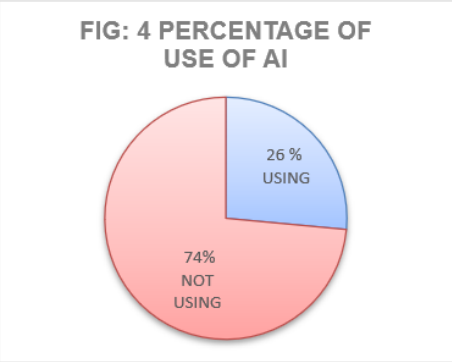
Table : 02
2nd Part: Questionnaire N=389

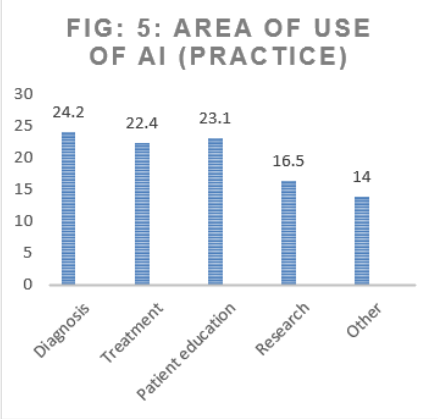
Domain	Category	Response Option	Count (n)	Percentage (%)
		Safety	77	19.8
		Financial feasibility	47	12.1
		Others	100	25.7
Features	Specific capability requested	Yes	179	46.0
		No	210	54.0

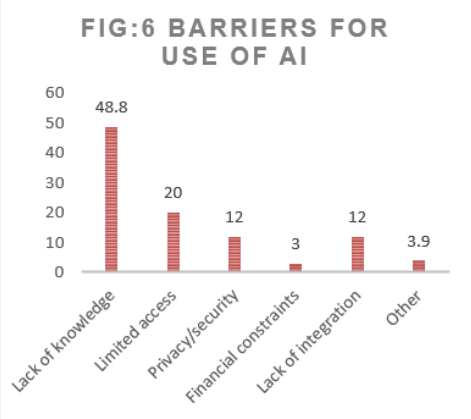












The survey shows that the majority reported limited familiarity with AI chat-bots, with nearly half (49.5%) indicating they were not familiar, while only 11.3% described themselves as very familiar. Knowledge levels were quite divided: 47.4% of respondents said they were experts, while 28.4% admitted they had no knowledge at all. In terms of perception, almost half (47.0%) felt that AI chatbots would have a positive impact on academics and practice. About 12.1% thought they would have a negative impact, and the rest were either neutral or unsure.

Attitudes toward future use were mostly positive, with 42.2% saying they were open to using chatbots. On the other hand, 15.2% were against it, and 12.3% had no opinion. When asked about benefits to practice, most respondents saw a moderate benefit (42.2%), while 30.3% felt there was no benefit at all.

Actual use of AI chat-bots was limited, with only 26.5% reporting usage. Among those who used them, the most common applications were diagnosis (24.2%), patient education (23.1%), and treatment (22.4%), followed by research (16.5%). However, frequency of use was low, with nearly half (49.5%) reporting rare use and 28.2% reporting never using them. Barriers to adoption were dominated by lack of knowledge (48.8%), followed by limited access (20.0%), privacy and security concerns (12.0%), and lack of integration (12.0%). Financial constraints were reported by only 3.0%. Regarding adoption factors, effectiveness (23.4%), safety (19.8%), and convenience (19.0%) were the most valued, though a notable proportion (25.7%) cited other unmeasured factors. In terms of requested features, 46.0% wanted specific capabilities, while 54.0% did not.

Inferential analysis demonstrated significant associations between knowledge level and use of AI chat-bots, with experts more likely to report usage ($p < 0.05$). Perception of positive impact was significantly associated with future use perception ($p < 0.05$). Years of experience were significantly related to knowledge level ($p < 0.05$), while age was associated with attitude toward future use ($p < 0.05$). Lack of knowledge was strongly associated with non-use ($p < 0.001$). Overall, the findings highlight a paradox: despite limited familiarity and practice, respondents expressed generally positive perceptions and attitudes towards AI chat-bots. The dominant barrier remains lack of knowledge, suggesting that targeted training and integration strategies could substantially improve adoption.

DISCUSSION

The present cross-sectional study explored the knowledge, perception, attitude, practice, and barriers related to the use of artificial intelligence (AI)–based chatbots among medical practitioners. The findings reveal a notable discrepancy between awareness and practical utilization of AI chatbots in healthcare, despite

generally favorable perceptions regarding their potential benefits.

Although AI technologies have gained global attention for their applications in diagnostics, clinical decision support, and administrative assistance, nearly half of the respondents in the present study reported unfamiliarity with AI chatbots. Similar observations have been reported in prior studies, suggesting that while clinicians may be aware of AI as a concept, detailed understanding and functional literacy remain limited[1,2]. This knowledge gap may hinder informed adoption and contributes to hesitancy in integrating such tools into routine practice.

Despite limited familiarity, a considerable proportion of participants perceived AI chatbots as having a positive impact on medical education and clinical practice. This finding aligns with earlier research demonstrating optimism among healthcare professionals regarding the role of AI in enhancing efficiency, reducing workload, and supporting evidence-based decision-making[3,4]. However, the presence of neutral and negative perceptions in a substantial subset of respondents indicates uncertainty, possibly driven by limited hands-on experience and concerns regarding reliability and accountability.

Actual use of AI chatbots in clinical practice was low, with only a minority of participants reporting prior utilization. Similar low adoption rates have been documented in studies conducted across different healthcare systems[5,6]. This gap between positive perception and real-world use highlights the challenges associated with translating technological potential into clinical reality. Limited integration with existing health information systems and absence of institutional endorsement may further contribute to low adoption.

The most prominent barrier identified in this study was lack of knowledge, followed by limited access to technology and concerns related to data privacy and security. These findings are consistent with previous literature, which identifies insufficient training, ethical concerns, and uncertainty regarding data governance as major obstacles to AI implementation in healthcare[7,8]. Privacy and cybersecurity concerns are particularly relevant in the context of AI chatbots that process sensitive patient information, emphasizing the need for robust regulatory and ethical frameworks.

From a policy and educational perspective, the findings underscore the importance of incorporating AI literacy into undergraduate medical education and continuing professional development programs. Structured training initiatives, coupled with clear national guidelines on ethical use and data protection, may improve clinicians' confidence and readiness to adopt AI-based tools.

LIMITATIONS

The study has several limitations. The cross-sectional design limits causal inference, and the use of self-reported data may introduce response bias. Additionally, the study did not evaluate clinical outcomes or the accuracy of AI chatbot–assisted decision-making. Future research should involve longitudinal and interventional designs to assess the impact of AI chatbot integration on clinical efficiency, patient outcomes, and healthcare quality.

CONCLUSION

In summary, while medical practitioners demonstrate generally positive perceptions toward AI chatbots, their actual use in clinical practice remains limited due to knowledge gaps, infrastructural limitations, and ethical concerns. Addressing these barriers through education, policy support, and system-level integration will be critical to realizing the full potential of AI chatbots in healthcare delivery.

REFERENCES

1. Topol EJ. High-performance medicine: the convergence of human and artificial intelligence. Nat Med. 2019;25(1):44-56.
2. Davenport T, Kalakota R. The potential for artificial intelligence in healthcare. Future Healthc J. 2019;6(2):94-8.
3. Esteva A, Robicquet A, Ramsundar B, et al. A guide to deep learning in healthcare. Nat Med. 2019;25(1):24-9.
4. Shortliffe EH, Sepúlveda MJ. Clinical decision support in the era of artificial intelligence. JAMA. 2018;320(21):2199-200.
5. Oh S, Kim JH, Choi SW, et al. Physician confidence in artificial intelligence: an online mobile survey. J Med Internet Res. 2019;21(3):e12422.
6. Castagno S, Khalifa M. Perceptions of artificial intelligence among healthcare staff. BMC Med Inform Decis Mak. 2020;20:337.
7. Price WN, Cohen IG. Privacy in the age of medical big data. Nat Med. 2019;25(1):37-43.
8. Morley J, Machado CCV, Burr C, et al. The ethics of AI in health care. J Med Ethics. 2020;46(4):205-11.