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Attitudes Towards Large Language Model-based AI systems as an Information Source for Shared Decision Making in Radiation Oncology

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Keywords: radiotherapy, Large Language Models (LLMs), shared decision making (SDM), cancer care, artificial intelligence (AI), ChatGPT

Abstract

Background

Implementing structured shared decision making (SDM) requires high-quality, reliable patient information. In radiation oncology, patients often have limited knowledge and misconceptions about therapy and side effects, affecting their decision-making. Large Language Model-based AI systems (LLMs) may help by providing evidence-based information in accessible language, but successful implementation depends on the willingness of patients and health care professionals (HCPs) to adopt these technologies.

Methods:

A survey was conducted among patients undergoing radiation therapy and HCPs between 03/2024-02/2025. Data was collected using structured electronic questionnaires (32 items for patients, 35 for HCPs). The survey assessed sociodemographic characteristics, the status of SDM in oncology, sources of information relevant to SDM, and current and anticipated LLM applications. Data were analyzed using descriptive statistics and logistic regression analysis.

Results

The internet was the prime information source for patients (n=400). Regarding current use of LLMs, a large discrepancy between patients and HCPs (n=200) was observed (18.2% vs. 69.5%). Although 77% of HCPs believed that patients will rely on LLMs in the future, only 29.1% of patients agreed. Most patients (65.8%) stated that even as LLMs improve, they will continue to trust physicians more; 46% of HCPs shared this view. Only 16.5% of patients were convinced that LLMs provide all relevant data for SDM in cancer care. Familiarity with technology was the strongest predictor of LLM use among patients.

Conclusion

Only a minority of radiation oncology patients currently use LLMs, and many remain skeptical about their future role—contrasting with the more optimistic expectations of HCPs.

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Implications for Practice:

The use of Large Language Model-based AI systems (LLMs) among healthcare professionals (HCPs) in radiation oncology is approximately four times higher than among patients. While most HCPs anticipate increasing patient reliance on LLMs, few patients share this view, consistently expressing greater trust in physicians. Despite LLMs' potential to support shared decision-making (SDM) in cancer care, a critical barrier remains: the disconnect between professional optimism and patient skepticism. This challenge is not solely technical; effective implementation must focus on building patient trust, clearly demonstrating benefits, and ensuring that LLMs empower rather than alienate those they are intended to support.

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Introduction

Shared decision-making (SDM) is a central component of patient-centered care, particularly in oncology. Due to the technical nature of radiation therapy (RT), patients often experience higher levels of fear compared to other cancer treatments (1-4). Moreover, their limited prior knowledge of RT may contribute to increased skepticism regarding potential side effects. Consequently, patients express a strong desire to be actively involved in treatment decision-making (5, 6) .

To address this knowledge gap, evidence-based information sources and decision aids are essential for supporting patients' participation in SDM. These tools are crucial for helping patients understand their treatment options and enabling informed engagement. Nevertheless, although they are essential for SDM, their use in clinical settings remains limited. However, the development of individualized decision aids for each patient is a time-intensive process that requires continuous review and updates to ensure relevance and actuality, making them not always readily available.

As a result, patients frequently turn to alternative sources of information such as internet search engines, leading to unverified information without the necessary accuracy, evidence and personalization. Artificial intelligence (AI) systems, particularly those based on Large Language Models have the potential to serve as an informational resource for both patients and healthcare professionals (HCPs). When properly configured, Large Language Model-based AI systems (LLMs) can provide evidence-based, physician verified information in clear, easily understandable language. Several studies have investigated the quality and accuracy of AI systems in medical contexts—with and without the use of Retrieval-Augmented Generation (RAG), a method that enhances responses by integrating relevant external information retrieved from trusted sources before generating output (7-12). While the quality and accuracy of LLMs are of utmost importance, the equally important aspects of patient acceptance and engagement are often overlooked (13). For example, Reis et al. conducted an online survey to evaluate patients` acceptance of digital medical advice provided by AI, physicians, or AI supervised by physicians. Their findings indicated that participants were less willing to follow recommendations when AI was involved in their generation (14).

The primary objective of our survey study was to assess the interest of radiation oncology patients in utilizing LLMs as a source of medical information. Secondary objectives included evaluating the perceived future potential of LLMs as an informational resource and decision-support tool for SDM among both patients and HCPs.

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Methods

Study design

The study was conducted at the Department of Radiation Oncology, Technical University of Munich, Germany, from March 2024 to February 2025. This prospective, cross-sectional survey study was supported by the Bavarian Center for Cancer Research (BZKF) and approved by the local institutional review board (2024-89-S-SB). All participants provided their written consent to take part in the anonymous online survey.

Questionnaire Design

Two structured questionnaires were developed in collaboration with experts in oncology, radiation oncology, SDM, and palliative care through moderated group discussions with professionals. Patients were not involved in the questionnaire design. In addition, a non-systematic literature search was conducted before designing the questionnaire to identify relevant topics, expectations, and concerns related to the use of LLMs in SDM. The survey items were designed to capture attitudes toward LLMs specifically, rather than toward technological innovations more broadly. The patient questionnaire consisted of 32 questions covering four categories: sociodemographic data, status of SDM in cancer care, current information sources for SDM, and current and future use of LLMs. The HCP questionnaire consisted of 35 questions divided into four sections: sociodemographic data, current status of SDM, current and future use of LLMs among patients, and personal experience with LLMs. To avoid misunderstandings, the patient questionnaire makes it clear that it refers specifically to “physicians,” rather than to HCPs in general. Both questionnaires are available in the Supplemental Material (Questionnaire 1 and 2).

Participants

Participants were required to have sufficient proficiency in German and the physical and mental ability to complete a structured questionnaire. The patient survey was administered to eligible cancer patients treated at the Department of Radiation Oncology.

Out of 438 patients invited to participate, 400 completed the survey, resulting in a response rate of 91.3%. Recruitment was consecutive during patients’ visits; this may have introduced selection bias depending on which patients presented on specific days.

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The second online survey was administered to HCPs in radiation oncology via a link that was distributed within the department of radiation oncology, a social media link and the German society of radiation oncology (DEGRO, approximately 2000 email addresses). A total of 200 HCPs responded. The exact response rate cannot be determined due to the data collection method.

At the beginning of the questionnaire, all participants were provided with the following introductory statement to avoid ambiguity concerning LLMs: “AI refers to computer programs or machines that are designed to perform tasks that would typically require human intelligence. Such systems are capable of learning, adapting to different situations, and making decisions without being explicitly programmed. Large Language Model-based AI systems, like ChatGPT, utilizes machine learning and AI to engage in human-like conversations and respond to questions or requests.“

Statistical analysis

For the analysis of the primary outcome, patients’ interest in using LLMs for medical information, and the secondary outcomes, data from the online survey were analyzed descriptively and visualized using SPSS, Excel, and R. Continuous variables are reported as mean ± SD for normally distributed data and as median [interquartile range (IQR)] for skewed data. Categorical variables are presented as total numbers with the corresponding percentage.

To identify factors associated with patients’ interest in LLMs, we performed a multivariable logistic regression analysis. The Likert items on LLM interest (outcome) and SDM interest were dichotomized into “Disagreement” (responses “Does not apply,” “Rather does not apply,” or “Neutral”) versus “Agreement” (responses “Rather applies” or “Applies”), in order to provide a clinically interpretable distinction between patients with and without relevant interest. The original five-point Likert scales for technical affinity, SDM interest, and LLM interest were relabeled as ordered factors with descriptive levels. For the two interest items, responses of “Does not apply,” “Rather does not apply,” or “Neutral” were grouped into “Disagreement,” and responses of “Rather applies” or “Applies” were grouped into “Agreement,” yielding simple binary indicators. Because collapsing categories may reduce variability, we conducted a sensitivity analysis using ordinal logistic regression with the original ordered Likert responses to confirm robustness of the findings. “Neutral” responses were used as the reference category for variables of LLM interest, technology affinity and SDM interest. The model included age, gender, education level, technical affinity, and interest in SDM as independent variables. Education was recoded

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into a three-level factor (low, secondary, tertiary) using predefined categories. There was no missing data. Statistical significance was defined as $\alpha = 0.05$.

Results

1. Participants

Out of the 400 cancer patients, 225 (56.3%) patients were female and 175 (43.7%) were males with a median age of 64.1 years (range 17-89 years). Most patients had a lower (37.0%, n=148) or upper (21.0%, n=84) secondary level as their highest educational qualification. Predominant diagnoses were breast cancer (23.0%, n=92), head and neck cancer (16.0%, n=64), and brain tumors (15.3%, n=61) (Supplementary Table S1).

HCPs` had a median age of 40.5 years (range 20-77 years), with 53.5% (n=107) females. 82% (n=164) worked at a university hospital, mostly in radiation oncology or with a direct interdisciplinary connection to radiation oncology. Most participants were physicians (50.5%, n=101) or nurses (24.0%, n=48) (Supplementary Table S2).

2. Technical affinity and preferred information sources

As shown in Figure 1, technical affinity was self-assessed on a five-point Likert scale. Among patients, 55.5% (n=222) either “tended to agree” or “completely agreed” with having technical affinity, compared to 85.5% (n=171) of HCPs. Only a small fraction of HCPs expressed disagreement; patient responses were more broadly distributed. Regarding information sources for treatment decisions with multiple possible answers, patients reported primarily using the internet (26.1%, n=148), followed by second opinions from other doctors (23.9%, n=136) and friends and acquaintances (16.4%, n=93) (Figure 1). In contrast, HCPs recommended mainly second opinions (29%, n=173), followed by informed consent documents (19.3%, n=115) and informational brochures from professional societies (16.6%, n=99).

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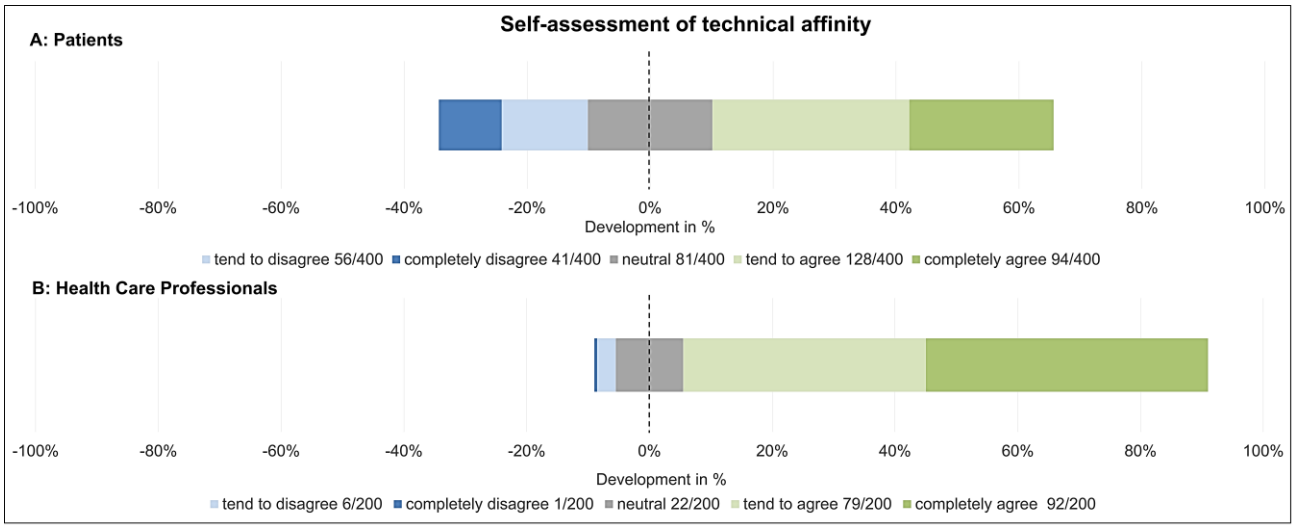

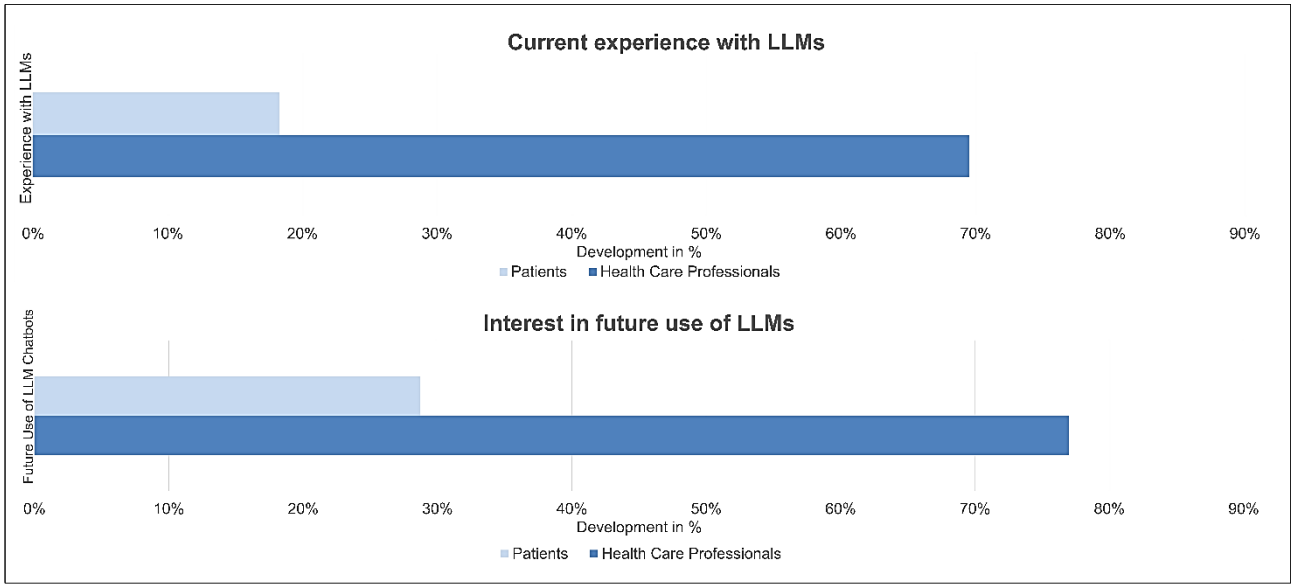

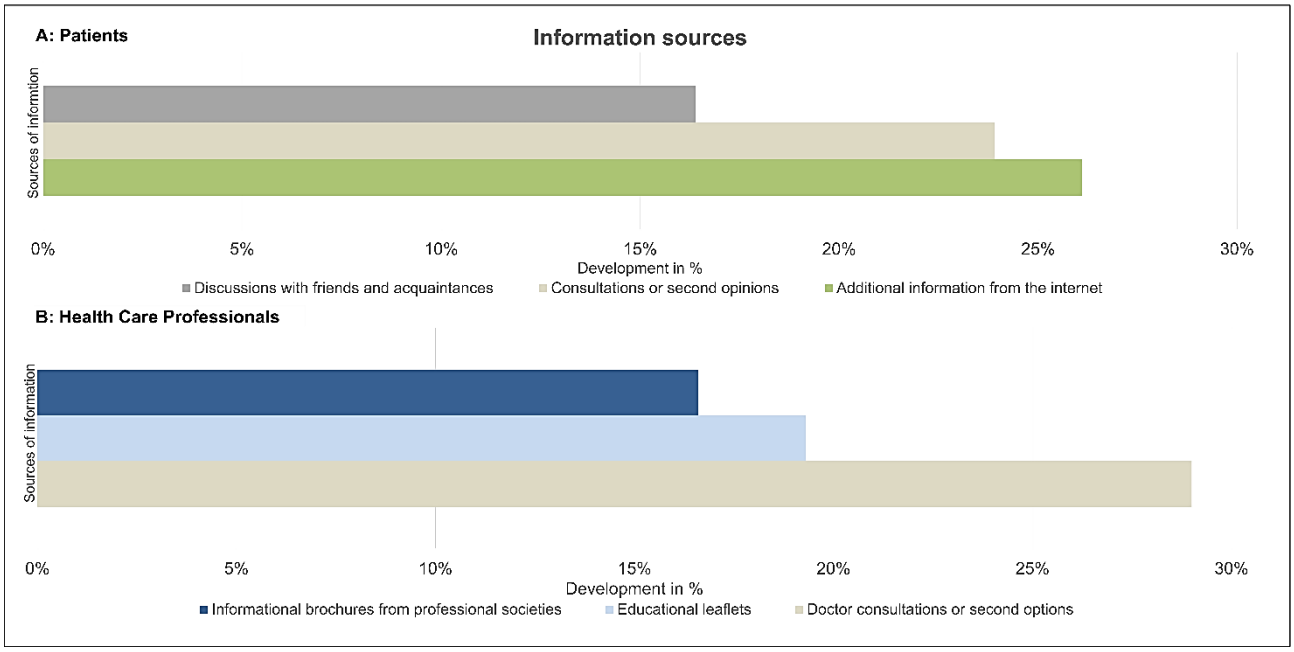

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Figure 1: Technological affinity, information behavior, and perspectives on AI in oncology between patients (A) and professionals (B).

Technological affinity: "Self-assessment of technical affinity, Q: Would you consider yourself to be technically savvy?".

Current experience with LLMs: Q: Have you ever interacted with an artificial intelligence (e.g., ChatGPT)? ".

Interest in future use of LLMs: Patients: Q: "I would generally be interested in asking questions to a specially trained chatbot". Professionals: Q: "Do you think that patients will increasingly rely on AI and chatbots in the future, regardless of professional recommendations?"

Information sources: Patients: Q: "Where did you obtain this additional information (beyond what was provided by your doctors)?; Professionals: Q: "What sources of information do you provide or recommend to patients for making informed decisions in oncology?"

3. Current LLM experience and Interest in LLMs as information source for SDM

Although LLMs are increasingly discussed as potential tools in healthcare, current experience with LLMs and attitudes toward their use varied considerably between patients and HCPs. As shown in Figure 1, 81.8% (n=327) of patients reported no prior experience with LLMs, versus 30.5 % (n=61) of HCPs. This major difference suggests that despite growing attention to AI in healthcare, patients remained skeptical about the role of LLMs in SDM. Only 43% (n=174) of patients supported the idea of physicians using LLMs to generate personalized information, and just 28,7% (n=115) expressed personal interest in using LLMs themselves. These findings suggest that patient skepticism toward LLMs may be driven by underlying factors such as digital confidence or interest in collaborative decision-making. Multivariable logistic regression analysis (Supplementary Table S3) revealed that technical affinity was the strongest independent predictor of expressing interest in LLM use. Participants with higher self-assessed technical affinity were 40% more likely to express interest in LLMs (Odds Ration 1.40, 95% CI: 1.15–1.70, $p < 0.001$), whereas each additional year of age was associated with 2% lower odds of reporting greater interest in LLMs (OR = 0.98, 95% CI: 0.97–1.00, p = 0.04). This association was further reflected in the distribution of technical affinity by age (Supplementary Figure S1), showing that older patients more frequently reported low technical affinity. An interaction term of age and technical affinity was found not significant. Additionally, a strong interest in SDM was associated with substantially greater LLM interest (OR = 3.42, 95% CI: 1.35–8.58, $p = 0.009$). Gender showed no significant effect (OR = 0.94, 95% CI: 0.61–1.47, p = 0.79). Similarly, education level was not significantly associated with LLM interest, although participants with tertiary education tended to have higher odds compared to those

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with low education (OR = 1.41, 95% CI: 0.82–2.43, p = 0.22). Sensitivity analyses of the ordinal logistic regression confirmed these trends (Supplementary Table S4).

4. Future perspectives on LLMs as information source

Only 37.8% (n=151) of patients believed consulting an LLM regarding medical decisions could be helpful in the future. In contrast, a significantly higher proportion of HCPs anticipated an increased role of LLMs: 70.5% (n=141) of HCPs expected that patients will increasingly use LLMs as an information source (Figure 2A), and 75.5% (n=151) of HCPs could envision utilizing LLMs themselves to support patient decision-making. Furthermore, 77% of HCPs (n=154) believed patients will increasingly rely on LLMs, independent of physician recommendation. 65.8% (n=263) of patients expected to continue trusting physicians over LLMs, compared to 46% (n=92) of HCPs, 30% (n=60) expressing doubt that patients will maintain a stronger trust in physicians over LLMs (Figure 2B).

Despite the rapid development of LLMs, only 16.5% (n=66) of patients believed that LLMs could provide all relevant information for SDM in radiation oncology. In comparison, 32% (n=64) of HCPs considered this likely (Figure 2C).

The majority of patients (71.5%, n=286) and HCPs (81.5%, n=163) agreed that LLMs cannot fully replace the physician-patient interaction within the context of SDM (Figure 2D). These findings highlight that even with optimism from HCPs, significant patient doubts remain, especially regarding trust and the desire for human involvement.

There were no differences in responses across the various HCP subgroups. The detailed responses to all items are provided in the supplementary dataset (Supplemental Figures S2-S33).

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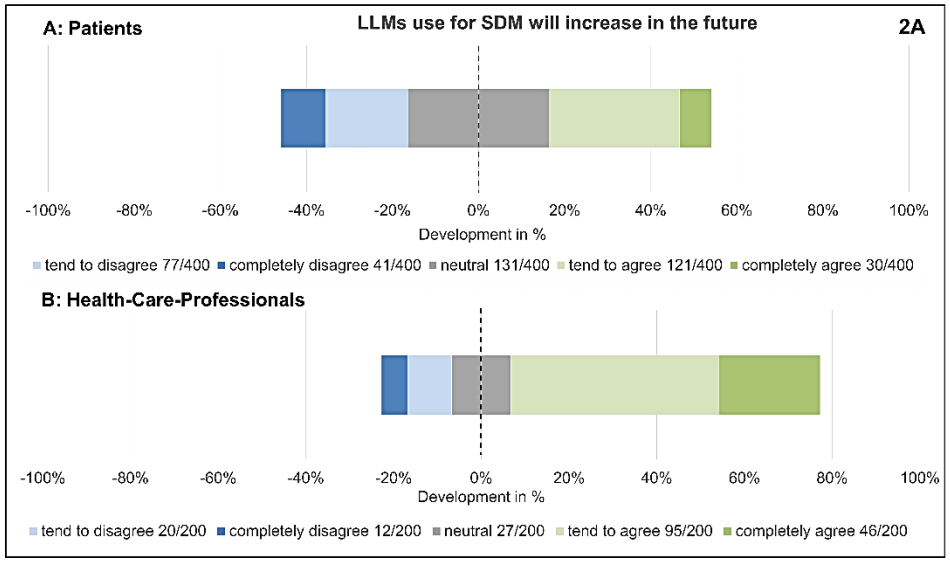

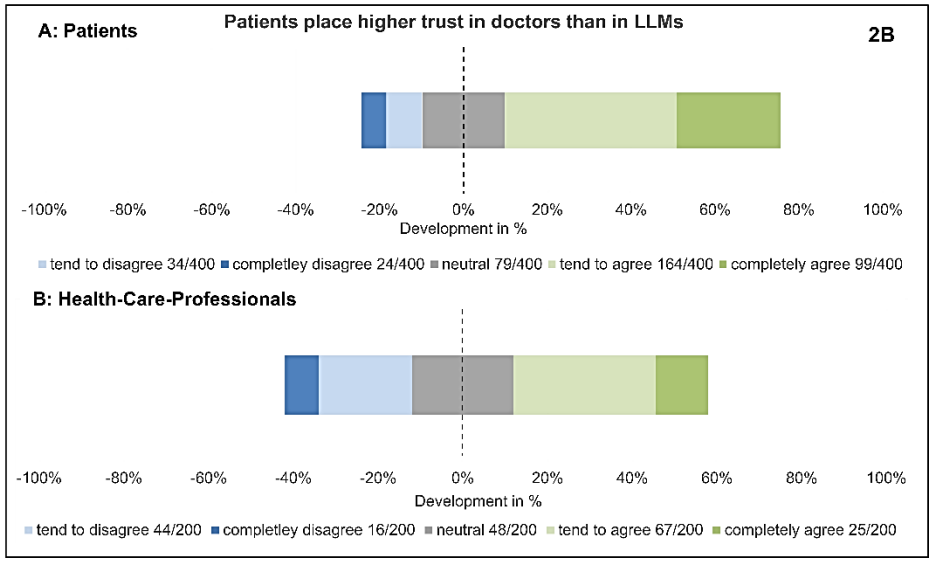

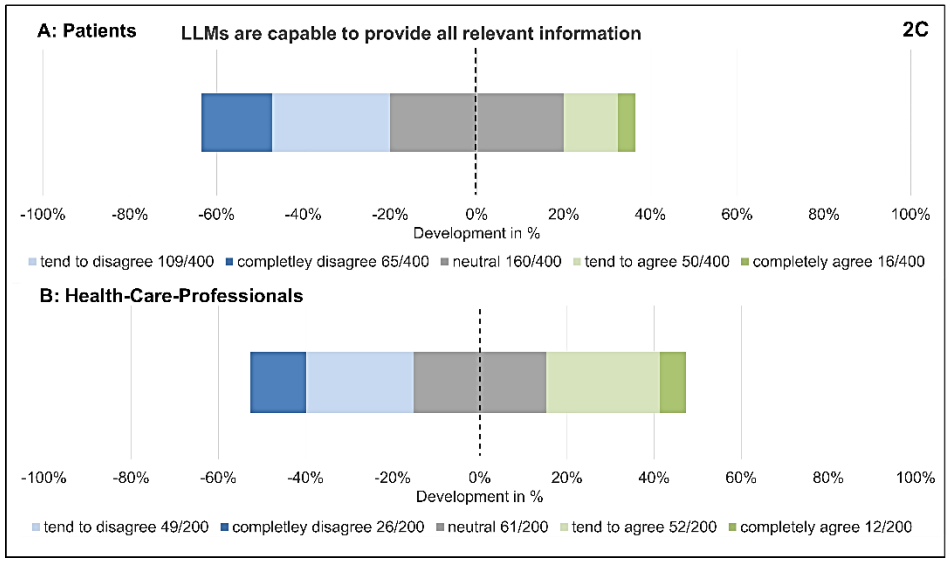

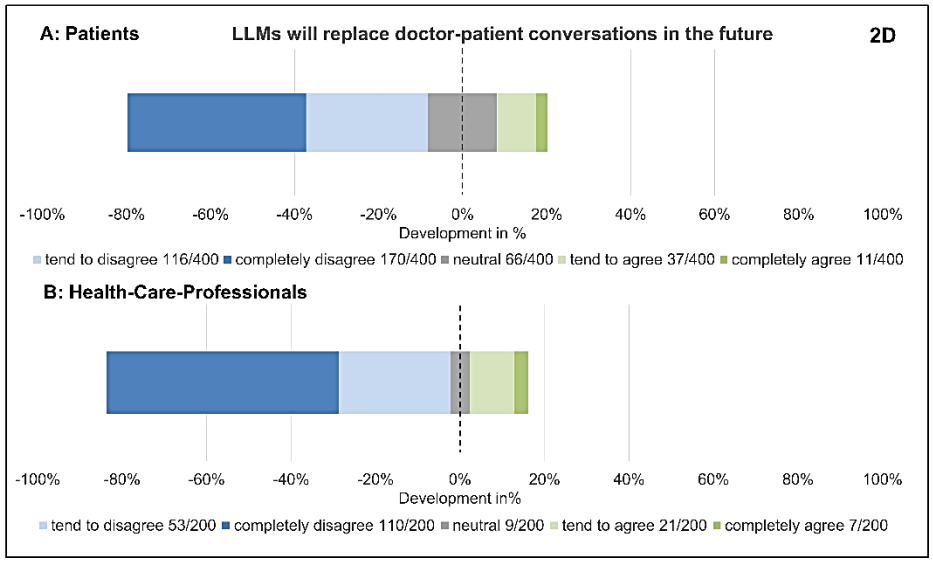

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Figure 2: Perspectives on the future use of LLMs in SDM in cancer care.

2A: Patients: Q: “Do you think that consulting artificial intelligence could be helpful to you as a patient when making medical decisions?”; Professionals: Q: “Could you imagine using AI more frequently in the future to better inform patients regarding oncological decisions?”;
2B: Patients: Q:” I would trust the statements of doctors more than those of artificial intelligence in the decision-making process.”; Professionals: Q:” In the future, will patients trust the statements of doctors more than those of AI in the decision-making process?”;
2C: Patients: Q: “ AI provides me with all the information relevant to the decision-making process.”; Professionals: Q: “Does AI provide patients with all the information relevant to the decision-making process?”;
2D: Patients: Q: “Do you think that AI will replace doctor-patient conversations for shared decision-making in the future?”; Professionals: Q:” Do you think that AI will replace doctor-patient conversations for shared decision-making in the future?”

Discussion

Our study highlights significant differences in the perceptions of radiation oncology patients versus HCPs in radiation oncology regarding the role of LLMs in SDM. While most HCPs foresee a growing integration of LLMs into clinical workflows and express optimism regarding their potential, patients remain more hesitant, exhibiting limited current usage, lower trust, and concerns about the replacement of direct physician interactions. These differences are crucial to consider for the future development and implementation of LLMs in oncology care.

LLMs have a unique potential to address individualized patient education which is essential for enabling the process of SDM. Even though RT is a crucial part of oncology, the topic of SDM in radiation oncology has been underexplored, and only very few studies specifically address SDM in this field (15). Whereas some components of SDM, such as patient empowerment and HCP education, can easily be transferred from other specialties, information sources and decision aids specific to radiation oncology are complex due to technical, physical, and biological considerations. Therefore, there is a strong need for efficient individualized patient education in radiation oncology, particularly because patients usually have little prior knowledge or contact before therapy.

The creation of LLMs for patient education is currently underway in several scientific and commercial projects (12, 16-20). LLMs can provide evidence-based, personalized information and patient decision

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aids for the SDM process in radiation oncology that is accessible, easy to understand, and reduces the need for patients to search confounding and often unverified sources on the internet.

Although patients often use the internet for supplementary information, this does not imply trust in its reliability. HCPs recommend more structured, evidence-based sources, which patients perceive as more trustworthy. Therefore, frequent online information seeking can coexist with skepticism toward LLMs, emphasizing the need to demonstrate reliability and clinical value when integrating LLMs into SDM.

While HCPs see the potential of LLMs, our results show that most patients do not embrace this potential and express low interest in LLMs for their radiation oncology care. This skepticism may be driven by the current limitations of LLMs, such as the possibility of generating inaccurate or unverified information ("hallucinations"), which patients are less able to assess than professionals (21, 22).

While LLM-supported tools may eventually become embedded in routine healthcare workflows irrespective of individual interest, their meaningful use within SDM continues to depend on patient engagement and perceived autonomy. Our participants did not explicitly express concerns that LLM-based applications might be imposed on them in future care scenarios; however, the comparatively low intention among patients to rely on LLMs suggests a desire to retain control over how such technologies are used in decision-making processes. In contrast, HCPs - who reported both greater familiarity and higher expectations for future LLM utility - may anticipate a more rapid integration of these systems into clinical practice. This divergence underscores that even if LLMs become ubiquitous, acceptance cannot be assumed, particularly in contexts such as SDM where trust, interpersonal communication, and patient empowerment remain central. Ensuring that LLM use supports rather than replaces patient autonomy will therefore be critical as implementation progresses. Moreover, our group undertakes a systematic analysis to delineate the circumstances in which the deployment of AI and LLMs requires the explicit procurement of patient consent from the patients' perspective.

The gap between patient and HCP expectations may also be influenced by age and technical affinity. Older patients more frequently reported low technical affinity, which was the strongest predictor of LLM interest. However, age alone was not the primary factor even though the surveyed professionals had a median age of 40, while patients had a median age of 64; interest in SDM and comfort with technology appear more important. Patients with strong SDM preferences were markedly more interested in using

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LLMs, indicating that those who seek active involvement in decisions may view such tools as supportive rather than substitutive. Gender, education and other demographic properties did not significantly influence LLM acceptance.

The most important impact factor for LLMs skepticism was low technical affinity. Although current skepticism toward LLMs is largely driven by concerns regarding the insufficient quality and credibility of LLMs in comparison to human experts, the rapid progress in both scientific and commercial projects as well as increasing integration of electronic communication in healthcare suggests that such concerns may become less justified in the future. This underscores the potential of LLMs to improve patient–clinician interactions (23). However, recent population-based studies show that LLM use is already widespread and increasing, both for general and health-related purposes. This suggests that the comparatively low use observed in our cohort may be related to the specific characteristics of oncology patients rather than general public trends (24, 25).

While familiarity with LLMs is expected to increase over time - as is typically the case with technological innovations - experience suggests that the acceptance of such tools will likewise grow. This development can be supported by continuously promoting education and exposure to the topic, as well as by providing guidance to patients in their use.

The discrepancy between patients' and HCPs' perspectives may additionally reflect differences in professional exposure: HCPs are generally more familiar with digital innovations and may therefore anticipate their potential benefits more readily, whereas patients may experience LLMs as abstract, complex, or potentially risky. Such psychological barriers - such as uncertainty, fear, or a perceived lack of control - were not assessed in our study but represent important factors for future research.

The application of LLMs in the preparatory phase of medical consultations may transform the dynamics of patient–physician communication by establishing a shared foundation of knowledge. Such an approach may enable patients to perceive the interaction as more equitable and to prepare targeted questions in advance, ultimately fostering patient empowerment and supporting SDM. However, a potential drawback lies in the risk that patients may be exposed to unfiltered or distressing medical information that they are unable to interpret or emotionally process without professional support. In such cases - particularly when discussing sensitive topics such as prognostic outcomes in metastatic cancer - human interaction and empathetic communication remain indispensable (26). This may also account for the continued higher level of trust patients place in physicians, based on the assumption that physicians demonstrate empathy and draw upon their clinical experience during the consultation. These

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considerations highlight why, despite ongoing advancements in LLM technologies, in our study three-quarters of both patients and HCPs did not believe that LLMs would be able to fully replace physician-patient interactions and believe that LLMs should function as supportive tools rather than autonomous decision-makers within SDM. For this reason, the Technical University of Munich is currently preparing a randomized trial in which different application methods of LLMs as information sources for patients in the SDM process will be investigated.

Structured integration strategies may help strengthen trust and demonstrate clinical value—for example, supervised use of LLMs before consultations, or incorporating LLM-generated information into patient education workflows. Such models could help patients acquire preliminary knowledge, bridge waiting times efficiently, and bring targeted questions into the clinical encounter, while ensuring that any unclear or anxiety-provoking content is directly discussed with their physician.

Limitations. In our study, the patient sample was recruited from a single radiation oncology department in Germany and therefore represents a small and specific patient population with severe illnesses; results may differ in other cultural or healthcare contexts (27). Recruitment occurred consecutively during clinic visits, which may have introduced a selection bias depending on which patients were present on specific days. HCPs participated via online link, likely leading to overrepresentation of digitally engaged individuals and inflating positive attitudes toward LLMs. Survey-based research inherently includes self-selection and social desirability bias. Although we do not assume substantial changes in understanding or awareness of LLMs during the one-year recruitment period, temporal effects cannot be completely ruled out. We asked participants about potential confounders such as digital experience, technical affinity, and education, which are reported in the results and supplemental material. However, disease-specific factors, emotional burden, and psychological variables were not captured. Finally, challenges such as data privacy, reliability of AI outputs, workflow integration, and regulatory considerations represent additional barriers to successful implementation and should be addressed in future studies.

The current study results clearly indicate that the successful implementation of LLMs in clinical practice depends not only on technological development but also on systematic education and training for both patients and HCPs. Additional barriers - such as technical reliability, privacy protection, patient confidentiality, regulatory constraints, and the practical integration into clinical workflows - must be

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addressed. Only by meeting these requirements LLM-based systems can unfold their full potential as safe, supportive, and meaningful tools within modern radiation oncology care.

To the best of our knowledge, our study is the first to compare the perspectives of patients and HCPs regarding the use of LLMs in SDM in radiation oncology, thereby addressing an existing knowledge gap with high impact on the success and adoption of LLMs. While the potential of SDM is currently the focus of extensive research, providing structured guidance and education, and preserving physician-patient interactions as the core of SDM are essential for its future applicability. Future research should explore longitudinal changes in patient attitudes, the impact of exposure and education on acceptance, and strategies for integrating LLMs into routine clinical workflows safely and effectively.

Conclusion

LLMs hold significant promise in supporting SDM in cancer care. While HCPs involved in RT generally maintain a positive outlook on the potential of LLMs, patients remain more skeptical and show lower interest in using LLMs. The key challenges will not only involve advancing and tailoring LLMs specifically for radiation oncology but also carefully explore how to integrate these tools into clinical practice in a way that prioritizes patient interests and ensures tangible benefits for patients.

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Declarations

Acknowledgements

Not applicable.

Authors' contributions

1) Guarantor of integrity of the entire study – RM, KJB
2) Study concepts and design – RM, LMB, KJB, NAM, SEC
3) Literature research - RM, KJB
4) Clinical studies – RM, LMB
5) Experimental studies/data analysis - N/A
6) Statistical Analysis - RM, LMB, JN, KJB
7) Manuscript preparation - RM, LMB, NAM, JN, KJB
8) Manuscript editing - RM, LMB, STB, SK, JN, SM, LA, JL, LCA, MT, NAM, SEC, KJB

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Competing interests

The authors have no relevant financial or non-financial interests to disclose.

Availability of data and materials

The datasets analyzed during the current study are available from the corresponding author upon reasonable request.

Ethics approval and consent to participate

The study was approved by the local institutional review board (2024-89-S-SB), and all participants provided written informed consent. The procedures set out in this trial, pertaining to the conduct, evaluation, and documentation of this trial, are designed to ensure that all persons involved in the trial by Good Clinical Practice (GCP) and the ethical principles described in the applicable version of the Declaration of Helsinki (2008 Version of the Declaration of Helsinki, adopted at the 59th WMA General Assembly, Seoul, October 2008). The trial will be carried out in keeping with local legal and regulatory requirements.

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440 **Consent for publication**

441 Not applicable.

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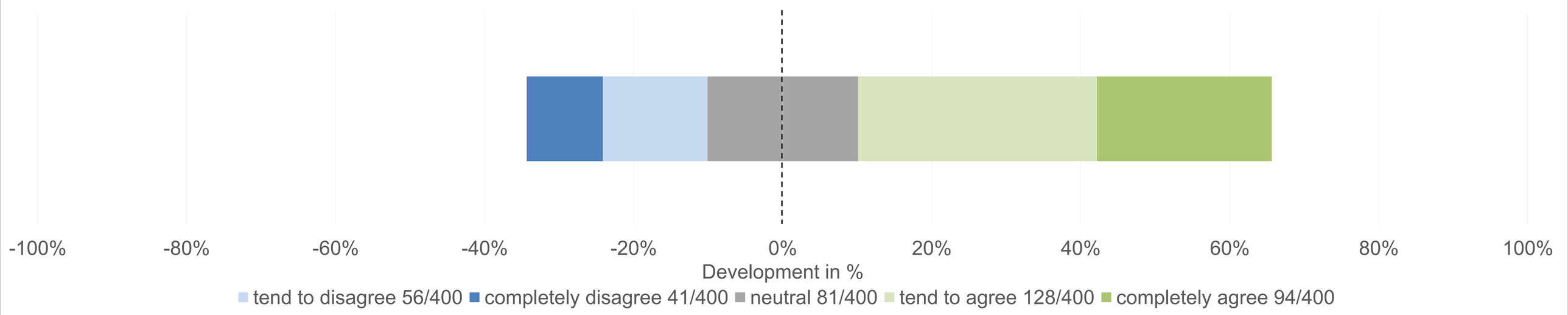
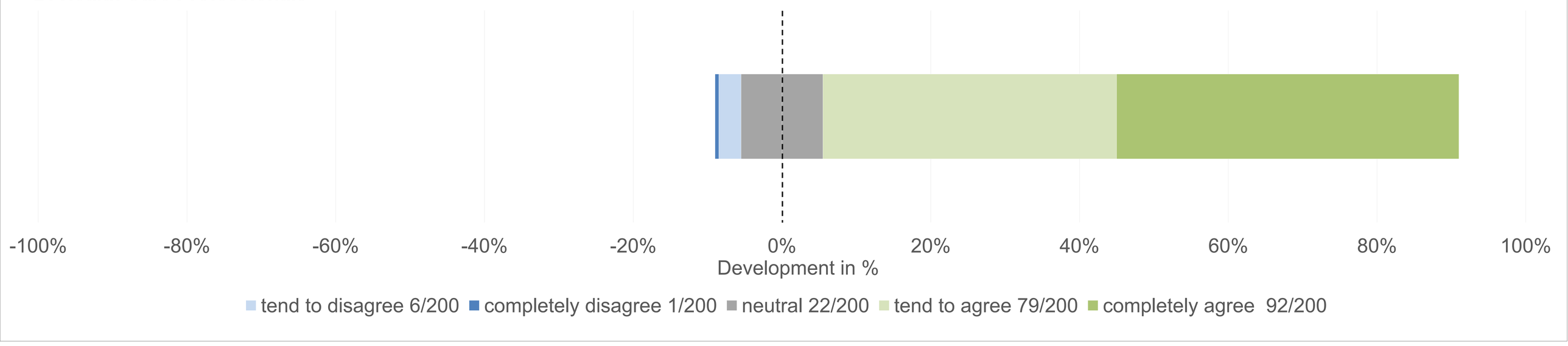
Click here to access/download Figure Technical Affinity, Interest in Future, Information Sources

Self-assessment of technical affinity

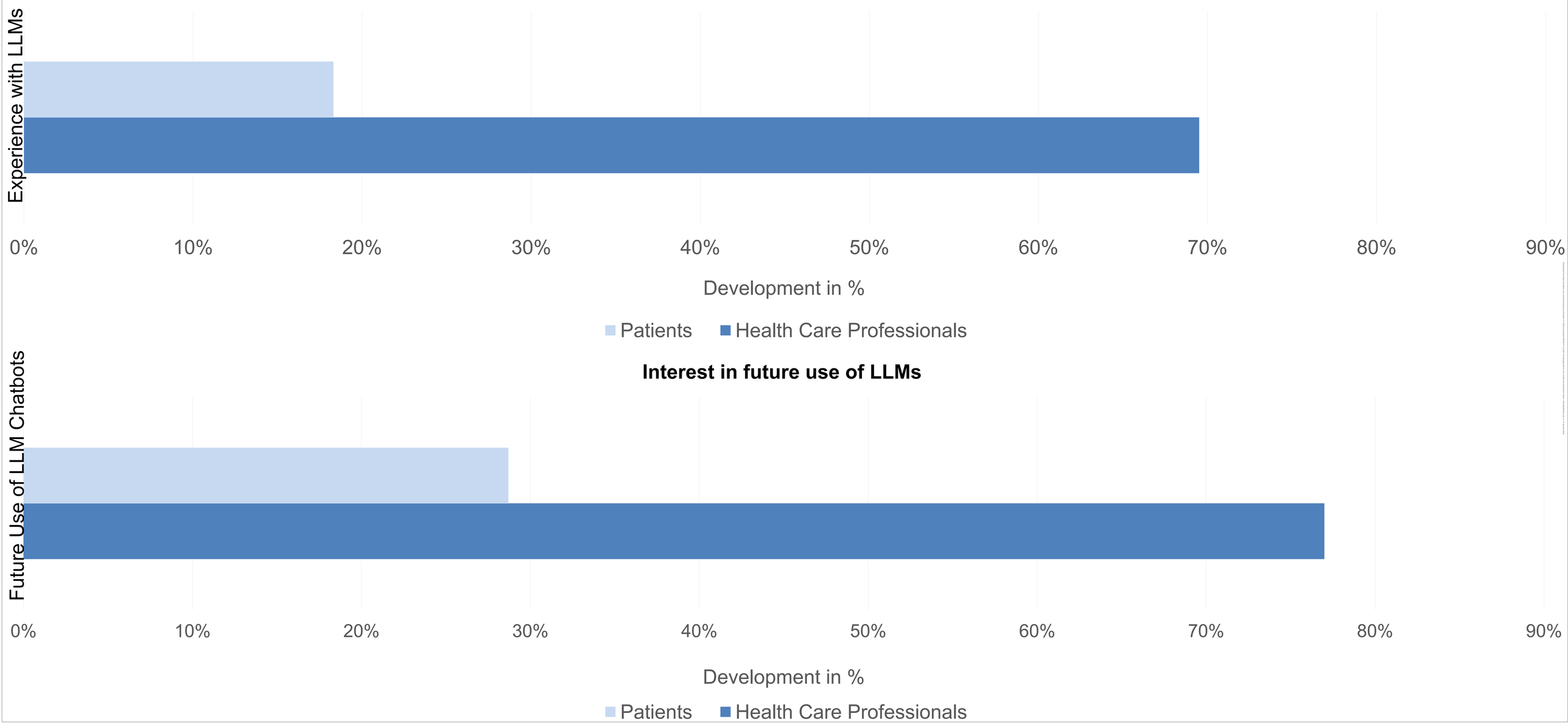
A: Patients



B: Health Care Professionals



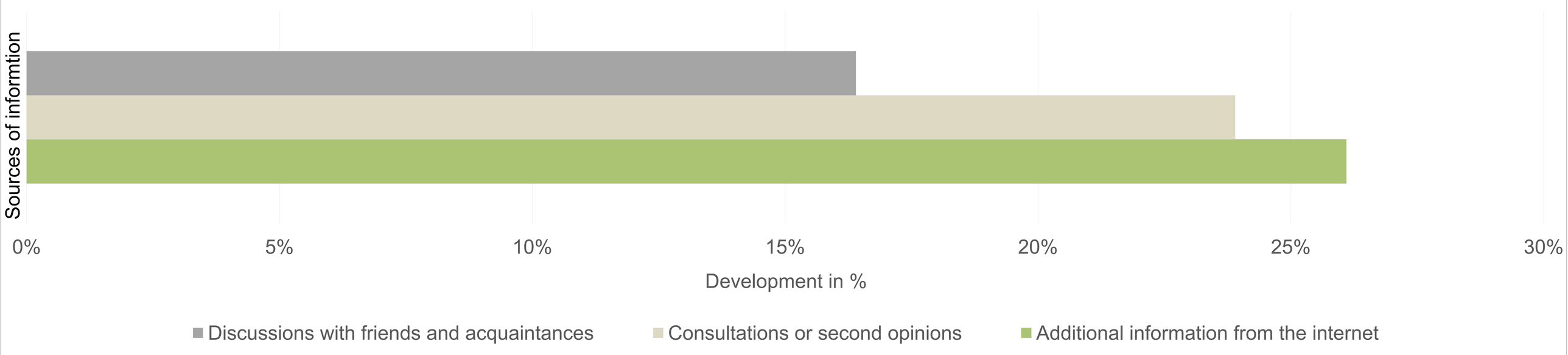
Current experience with LLMs



Interest in future use of LLMs

Information sources

A: Patients



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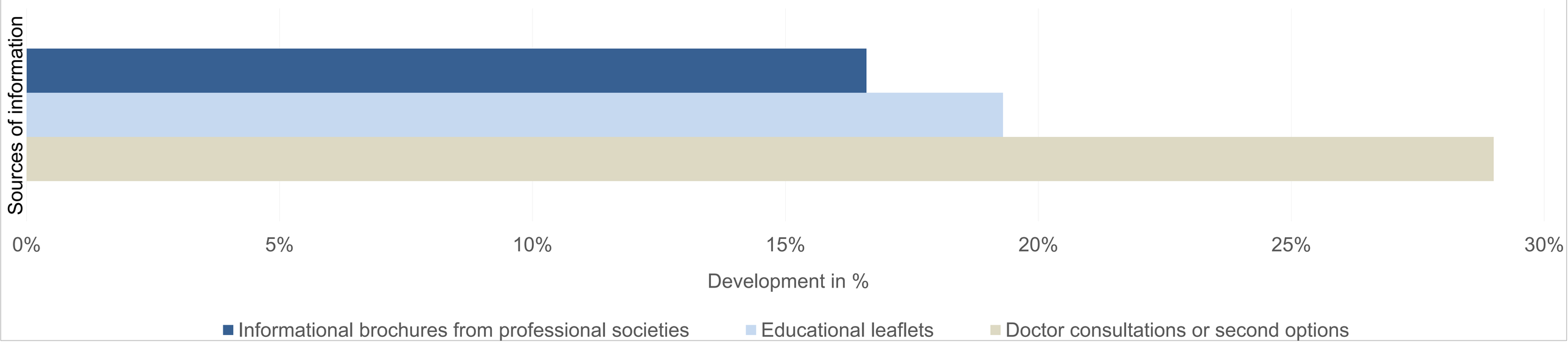
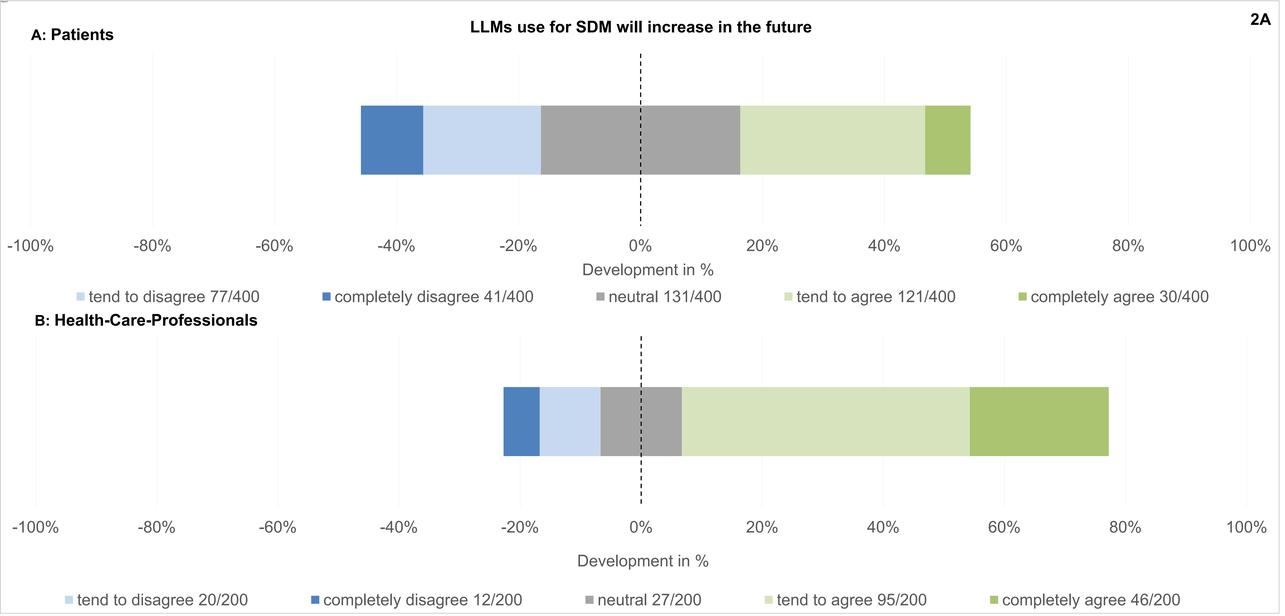
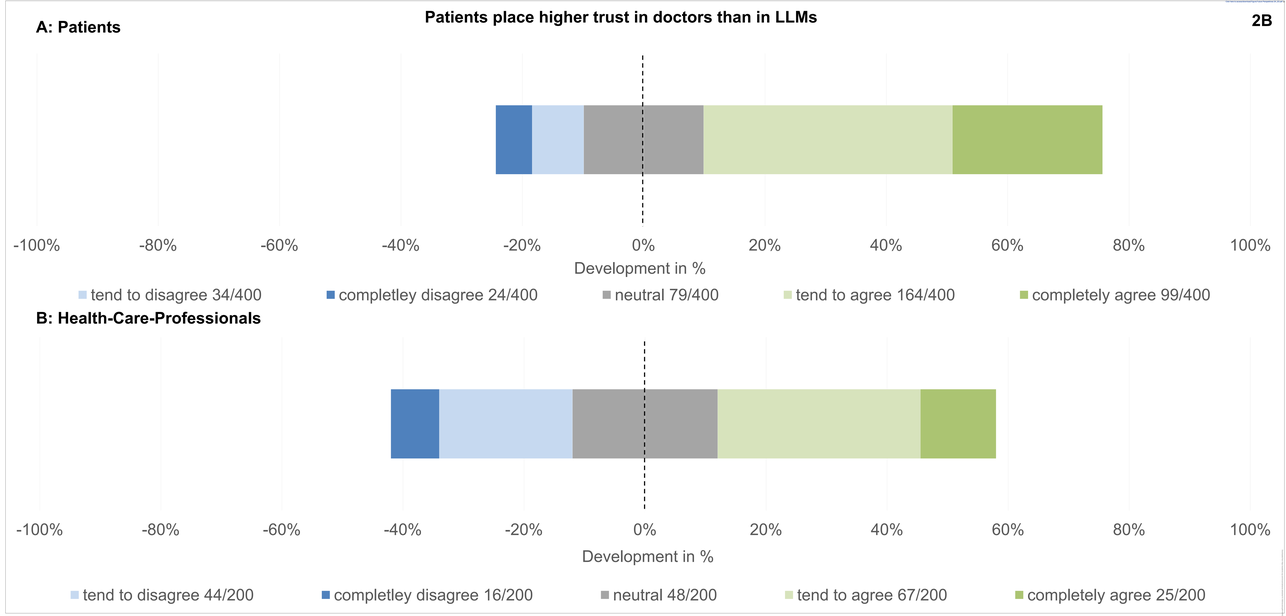
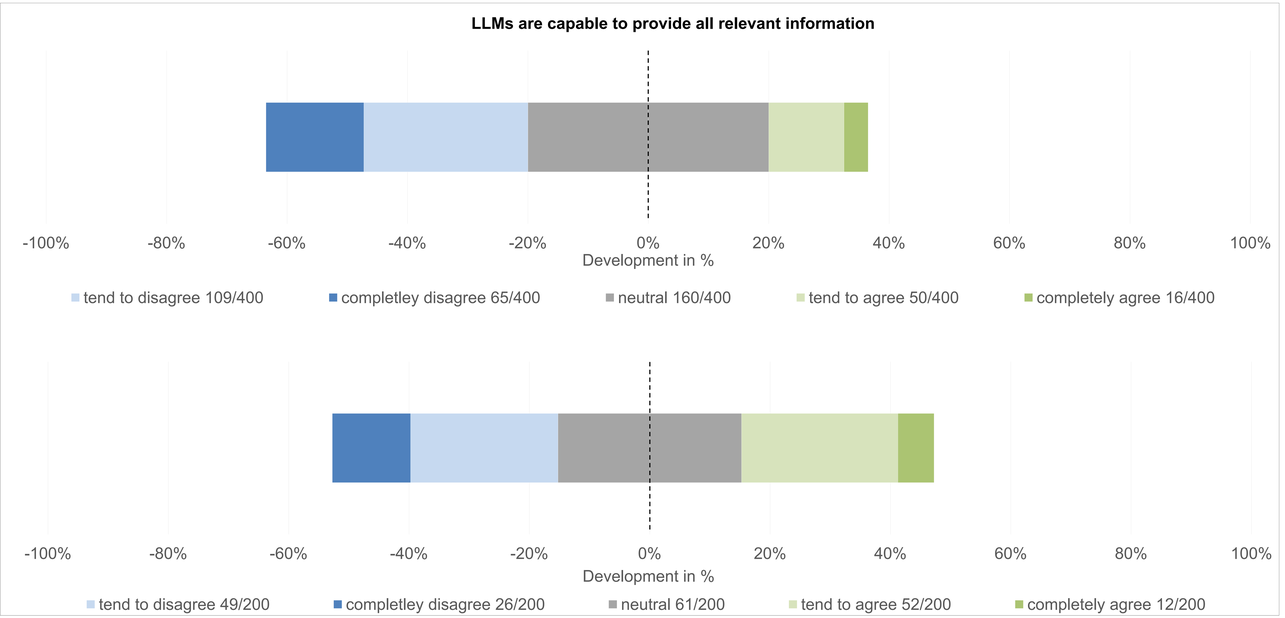
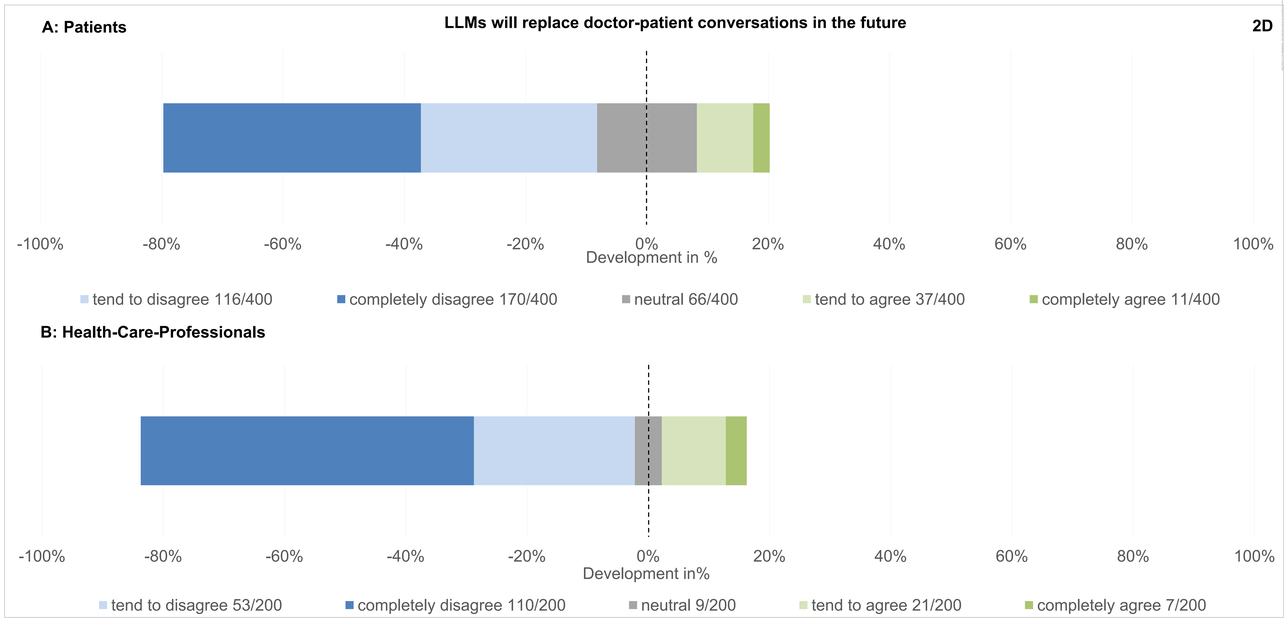



2A
LLMs use for SDM will increase in the future
A: Patients
-100% -80% -60% -40% -20% 0% 20% 40% 60% 80% 100%
Development in %
tend to disagree 77/400
completely disagree 41/400
neutral 131/400
tend to agree 121/400
completely agree 30/400
B: Health-Care-Professionals
-100% -80% -60% -40% -20% 0% 20% 40% 60% 80% 100%
Development in %
tend to disagree 20/200
completely disagree 12/200
neutral 27/200
tend to agree 95/200
completely agree 46/200


2B
Patients place higher trust in doctors than in LLMs
A: Patients
-100% -80% -60% -40% -20% 0% 20% 40% 60% 80% 100%
Development in %
tend to disagree 34/400
completley disagree 24/400
neutral 79/400
tend to agree 164/400
completely agree 99/400
B: Health-Care-Professionals
-100% -80% -60% -40% -20% 0% 20% 40% 60% 80% 100%
Development in %
tend to disagree 44/200
completley disagree 16/200
neutral 48/200
tend to agree 67/200
completely agree 25/200


LLMs are capable to provide all relevant information
-100% -80% -60% -40% -20% 0% 20% 40% 60% 80% 100%
Development in %
tend to disagree 109/400
completley disagree 65/400
neutral 160/400
tend to agree 50/400
completely agree 16/400
-100% -80% -60% -40% -20% 0% 20% 40% 60% 80% 100%
Development in %
tend to disagree 49/200
completley disagree 26/200
neutral 61/200
tend to agree 52/200
completely agree 12/200


2D
LLMs will replace doctor-patient conversations in the future
A: Patients
-100% -80% -60% -40% -20% 0% 20% 40% 60% 80% 100%
Development in %
tend to disagree 116/400
completely disagree 170/400
neutral 66/400
tend to agree 37/400
completely agree 11/400
B: Health-Care-Professionals
-100% -80% -60% -40% -20% 0% 20% 40% 60% 80% 100%
Development in%
tend to disagree 53/200
completely disagree 110/200
neutral 9/200
tend to agree 21/200
completely agree 7/200

Graphical Abstract

Universitäts Klinikum

Graphical Abstract

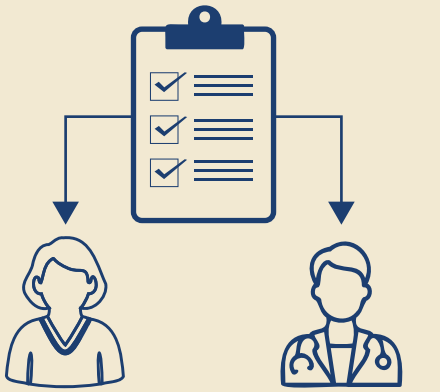
AIM & METHODS

Aim

To investigate the current and future attitudes of patients and health care professionals (HCPs) in radiation oncology (RadOnc) towards the use of Large Language Models (LLMs) as an information source and decision aid for shared decision making (SDM).

Method

- Expert-informed online questionnaires.
- Co-developed with specialists in oncology, SDM, and palliative care.
- Conducted from March 2024 to February 2025.



Patients

- n = 400
- Median age: 64.1

Health care professionals

- n = 200
- Median age: 40.5

RESULTS

Questions	Patients	Health care professionals
Prior LLM experience	18.2%	69.5%
LLMs provide all relevant information to the decision making process	16.5%	32%
Trust expected to remain higher in physicians rather than in LLMs	65.8%	46%

Percentages refer to the proportion of respondents selecting “agree” or “tend to agree” on a Likert scale of agreement.

LLMs could enhance SDM in cancer care, but patient skepticism persists. The challenge is to tailor LLMs for RadOnc and integrate them to deliver patient-centered benefit.

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