Awareness and Training Offers on Digitalization and Artificial Intelligence in the German Healthcare System – an Exploratory Survey (Work in Progress)

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Abstract. The successful implementation of digital technologies and Artificial Intelligence (AI) in healthcare requires adequate competencies among healthcare professionals. While undergraduate medical curricula increasingly address digital health topics, little is known about awareness and training offers for healthcare staff outside of initial education. This exploratory study investigates the availability of such programs and the perceived needs for additional training in the German healthcare system. Data collection is based on an online survey, with currently 21 participants from diverse healthcare domains. Preliminary results indicate that some training activities exist, but they are often fragmented, poorly disseminated, and not tailored to specific professional needs. Respondents emphasized a strong demand for practice-oriented, interdisciplinary, and continuous training formats. As this is a work-in-progress study, further data collection and extended analysis are planned until spring 2026.

Keywords: Artificial Intelligence; Digital Health; Medical Education.

1 Introduction

The digital transformation of healthcare is progressing rapidly, with Artificial Intelligence (AI) considered a key technology to improve diagnostics, therapy, and care pathways [1]. Beyond technical and regulatory aspects, the adoption of AI in clinical practice crucially depends on healthcare professionals' competencies and acceptance. While medical curricula have started to include digital health components, the current status of awareness and training opportunities beyond formal education remains unclear. In particular, there is limited transparency regarding available programs, their uptake, and the specific needs of healthcare staff. These challenges have also been highlighted in international policy frameworks on digital health and AI [2,3].

2 Conclusion

To address the research question 'Which awareness and training offers exist regarding digitalization and AI in the German healthcare system?', an exploratory online survey was conducted. The questionnaire included closed and open-ended items on the following topics:

- Awareness and visibility of existing programs,
- Previous experience with digitalization and AI-related training,
- Perceived future needs,
- Preferred formats, duration, and thematic priorities.

At the time of writing, 21 respondents from various healthcare domains (including nursing, administration, IT, and medicine) participated. Data collection is ongoing, and results presented here are preliminary. The responses provide initial insights into the current state of awareness and training needs for digitalization and AI in German healthcare.

Respondents represented a broad age range, with the groups 25-29 years (4,8%), 30-39 years (19%), 40-49 years (19%), 50–59 years (28,6%) and 60–69 years (28,6%). Most participants identified as female (76%), followed by male (24%). The professional backgrounds were diverse, including physicians, medical students, and representatives from public health, nursing, and administrative roles. Only a minority of participants had received professional training specifically on AI: 29% reported having attended at least one training course, while 71% indicated they did not. Among those trained, the most common formats were short lectures or information sessions (<2 hours) and online modules. However, the perceived usefulness of these training courses was rated low to moderate. Respondents expressed a clear preference for interactive and flexible formats: On-site workshops (38%), Live online webinars (67%), and Self-paced online courses (57%). This indicates a demand for both digital and face-to-face opportunities, ideally in blended learning combinations. Short formats were favored: 1–2 hour sessions (62%), half-day workshops (33%), and longer-term programs such as multi-day courses or continuing education programs were also mentioned by 38% of respondents. Most participants preferred an application-oriented/practice-based level (81%), highlighting the importance of direct clinical or organizational use cases. Introductory courses were selected by 32%, while 33% indicated interest in specialized, advanced training as well as 38% in strategic management with a focus on implementation.

Thematic priorities were diverse but consistent across respondents: Large language models (81%), Ethical and legal frameworks (57%), practical implementation of AI tools in everyday work (57%), and data management and data protection in AI applications (52%). This shows a strong demand for content that combines technical insight with regulatory and ethical considerations [3,4].

Regarding responsible institutions, participants most often expected offers from: Medical associations e.g. Ärztekammer (62%), Universities and higher education institutions (38%), Professional associations e.g. Marburger Bund (29%), and Associations of Statutory Health Insurance Physicians (24%). This reflects a desire for training offers backed by trusted and authoritative institutions.

Overall, these preliminary results highlight a critical gap in the availability and visibility of structured training opportunities for AI in healthcare. The results indicate limited prior exposure to structured AI training among healthcare professionals, combined with a strong interest in accessible, practice-oriented, and interdisciplinary learning opportunities. These findings underscore the importance of coordinated, accessible training strategies to ensure the sustainable integration of AI into healthcare practice. Although isolated initiatives exist, they are often poorly disseminated and not adapted to the diverse needs of healthcare professionals. Respondents emphasized the importance of practice-oriented and interdisciplinary formats, aligning with international calls for upskilling the health workforce [1,3,5].

As the current sample is limited to 21 participants, results should be interpreted with caution. Further data collection is ongoing and expected to provide a broader and more representative picture by spring 2026. Future analyses will explore subgroup differences (e.g., between clinical and administrative staff) and examine correlations between digital competence levels and training needs.

References

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