#AI4Care - Accelerating Nursing Care with the Help of AI: Current Issues and Recommendations

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Background–Recent advances in artificial intelligence such as privacy-preserving federated learning not only affect diagnostic and therapeutic medicine but also offer great potential for nursing care, an underserved area of healthcare. In Germany, approximately 4.25 million people are in need of long-term care, many of which are cared for in their own homes needing support for activities of daily living such as washing, clothing, or toileting.

Aim, methods, data–Within a 10-month exploratory project (BMBF-16SV8508), we used multiple methods to reveal the potentials, needs, framework and success conditions for AI in nursing care. First, we conducted a scoping review on methods and applications of AI in nursing care. Second, we conducted workshops and expert interviews to identify AI-related needs of care stakeholders. Third, we held the #AI4Care Datathon to identify promising solutions as well as to identify data availability and quality issues.

Results–The analysis revealed a low status of AI adoption in nursing care with some promising exceptions in, for instance, nurse scheduling, documentation support and sensor-based ambient as well as wearables-based intelligence for fall detection, monitoring of urinary incontinence, and early detection of deteriorating mental conditions. The gearing of solutions to individualized care needs and combination of different data sources and modalities were identified as potentials, which however remain largely unrealized today.

Based on the analyses, we formulated ten recommendations for the meaningful use of AI in nursing care. These are namely (1) inclusion of care professionals into the development/evaluation of AI solutions, (2) interdisciplinary teams to companion the actual AI development team, (3) use of methodological guidance, i.e., to increase data quality and reduce data-related biases, (4) consultation with data "squad" teams to increase adherence to AI guidelines and best practices, (5) implementation of data governance boards to support in data use, sharing, and privacy preservation, (6) inclusion of ethical, legal, and social science experts from the outset to incorporate related questions early on, (7) implementation of a strong scientific advisory board to further increase procedural and methodological quality, (8) use of interoperability standards and infrastructures, (9) consequent evaluation and transfer into nursing practices and systems to ensure real value creation for people in need for care and/or caregivers, (10) develop cross-project data platforms for data sharing/reuse in nursing.

Conclusion–Future AI projects in nursing care are especially promising but should consider the mentioned guidelines and recommendations to increase chances of practical adoption and outcome quality. Policy makers and sponsors will need to find ways to translate them into conditions of funding to speed up the development of nursing care with the help of AI.

References:

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