Professionals – developers of digital social and healthcare

The health and welfare care sector requires sustainable, efficient, and environmentally friendly practices to adapt to continually evolving needs. The exponential growth of digital social and healthcare has created a crucial necessity for professionals' engagement both in management and practical solutions. The expansion of remote care options frees up time for personalized service, meeting the demands for faster, more cost-effective treatment, and enhancing patient safety. Professionals from various fields play pivotal roles in ensuring the research, development, and deployment of digital solutions. They are responsible for ensuring that these digital social and healthcare initiatives align with the real-world needs of patients/clients and healthcare providers, comply with regulatory requirements, and ultimately, enhance care outcomes.

The #eHealth2023 conference main theme was 'Human-oriented approach in eHealth and digital services' and covered various subtopics updating the knowledge about international and national digital health trends and solutions. To emphasize the human-oriented approach during the conference, the new concept of collaborative workshops was presented for the first time. Service design with Co-design methods can support combining insights from different disciplines in the context or environment. Moreover, the relationship between care services changes when patient involvement is more prominent. Based on feedback, the conference participants are willing to have more networking and conversations in multidisciplinary settings. The workshop concept is to enrich the conference program in the future, too. Another novel element in healthcare is the utilization of artificial intelligence (AI), which is already used in diagnosing diseases, monitoring patients, and planning healthcare

resources. Today professionals from many fields actively collaborate for more transparent and understandable AI models than before. AI enables, among other things, physicians to use their time more efficiently in the future.

In his keynote, Ilias Iakovidis from the European Commission discussed digital and green transition in the health sector. A sustainable health sector should be financially stable, deliver high-quality care, and avoid causing adverse ecological damage. Currently, at the global level, the healthcare sector produces, on average, 4% of CO_2 emissions, and in industrialized countries, even 10%, which is more than the aviation and shipping sectors. To combat this challenge, circular economy and modifications of manufacturing and consumption processes are needed. Those topics were further discussed in a series of podcasts (https://soundcloud.com/laurea-ammattikorkeakoulu/sets/ehealth-podcast) which were published during the conference. Finally, among the presentations in the conference, seven topics are discussed in research articles and one topic in practical project article in this special journal issue. They reveal the vast potential of digital health and are briefly summarized in the following chapters.

In their article, Wang et al. investigate tensions and paradoxes perceived by the multiple stakeholders in the co-creation of health services through data within the MyData health ecosystem. Instead of attempting to forcefully merge the perspectives of all stakeholders, the paradoxes approach acknowledges and accepts the existence of contradictions and tensions. By doing so, it becomes possible to navigate the complex landscape while still addressing the concerns of various stakeholders. The study had 30 semi-structured interviews with physicians,

health technology companies' representatives, IT experts, policymakers, and citizens to broaden the understanding of the MyData platform. Based on results, the study suggests that managing stakeholder tensions and paradoxes should emphasize: 1) foster shared value and social contribution to society, 2) establish trustworthiness of companies and emphasize their role in co-creating health value, and 3) enhance the legitimacy of the entire ecosystem. To achieve these objectives, strategic communication among stakeholders should be prioritized.

The paper by Särestöniemi et al. presented microwave technology and simulation-based radio channel evaluations for breast tumor detection using breast models developed for different breast densities. The paper suggests that the monitoring vest could have remarkable potential for conducting breast cancer screening, e.g., in smaller healthcare centers in rural areas and as a user-friendly home monitoring device for risk groups. The results shown in this paper prove the necessity of developing comprehensive reference data banks using breast models with different breast density categories since tissue constitution affects clearly on detectability of tumors. In general, such tailored 3D-models could serve as digital twins for different breast study applications. Especially, they would be useful for a tailored breast tumor self-monitoring vest.

Telephone consultation was discussed as a sustainable method of service delivery in occupational medicine in an article by O´Reilly et al. Their study sought to gather further information on the perceived benefits and limitations of telephone consultation as per its current users (Occupational health physicians) and identify ways to improve the practice of telephone consultation. This study highlights a current gap in policy and guidance for the

practice. The main findings from this study identified five major themes: Quality of care, Professional standards, Barriers to telephone consultation, Optimal use of telephone consultation, and Potential improvements and useful change for telephone consultation. However, clinical governance for telephone consultation in Ireland is currently lacking, and there is no clinical guidance available that is specific for occupational medicine. If telephone consultation is to be considered a sustainable method of service delivery in occupational medicine, those deficiencies should be addressed.

In their qualitative study, Tikkanen et al. focused on how higher education institutions (HEIs) co-create service ecosystems with public, private, and third-sector organizations in the health and welfare sector. The study contributes to research on service ecosystem design and research on innovation in the health and welfare sector by discussing how HEIs play an important role in the co-creation of these ecosystems. The results indicated that the professionals in the healthcare sector recognize the importance of professional competencies needed to collaborate in ecosystems, further highlighting the role of HEIs. Nevertheless, development and learning need to be systematically integrated into the practices and structures in the field. The study also supports the notion in service ecosystem research that versatile ecosystem actors take into account different institutional logics, which guide their planned activities.

The development of technology has created opportunities for functions of nursing care. These e-opportunities will influence how nurse leaders effectively support virtual working. In their article, Numanovic et al. study e-leadership in nursing. The findings of the systematic literature review indicate a readiness for e-leadership among nurse leaders. There are several advantages but also many

disadvantages regarding e-leadership in nursing. Nurse leaders need sufficient training in e-leadership since digitalization is progressing in healthcare.

Kyytsönen et al. aimed in their survey to describe nurses' (RNs) assessments of the Health information systems and client information systems (in short: IS). The results of the study are encouraging to wellbeing service counties that are facing the need of implementing a new IS to the area's service producers. On the other hand, RNs seem to form a solid perspective on the IS within the first six months of its implementation highlighting the importance of a successfully led implementation of an IS.

Sormunen et al. aimed their cross-sectional study to evaluate the use of digital occupational health (OH) services among employer customers. The aim was to find out factors associated with the usefulness and ease of using these digital services. A total of 455 respondents took part in the study, and the most frequently utilized digital OH services were the ability to update personnel's information in the OH patient registry (48.0%) and remote action plan negotiations (37.1%). The study produced new information of the use and experiences of using digital OH services among employer customers.

Airikkala et al. described results of the DIGIDIA project (Promoting digital skills in the low labour market-driven diabetes patients) in their article 'DIGIDIA-project: Experiences of video-enabled receptions for prevention of type 2 diabetes'. The aim of the project was to develop digital competence, health literacy, and practices that enable preparation for future unforeseen events. The project focused on developing health communication and digital inclusion among individuals at risk of type 2 diabetes, those with pre-diabetes, and recently diagnosed individuals. The project showed that when designing digital services, it is important to consider that digital skills of the people vary greatly, and some citizens do not have sufficient digital skills to utilize these services. Strengthening and supporting digital skills of the citizens should be integrated into every healthcare encounter.

The digital operating environment of healthcare is undergoing rapid transformation. The European Union's Digital Compass influences national implementation strategies and legislation. In Finland, a new national healthcare digitization strategy was unveiled at the end of 2023. The European Union has reached a negotiation outcome on the Artificial Intelligence Act (EU AI Act), and the European Health Data Space (EHDS) is currently undergoing the approval process in the European Parliament. Various European countries are developing assessment and reimbursement procedures for digital applications. The future is expected to bring citizen-centric, real-world data (RWD)-based, and more intelligent healthcare services.

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