

Exploring barriers to digitalized wellbeing services for children and families in Finland – a qualitative study from a leadership perspective

Melanie Rydgren¹, Malin Andtfolk¹, Linda Estman²

¹ Department of Health Sciences, Faculty of Education and Welfare Studies, Åbo Akademi University, Finland; ² Department of Caring and Ethics, The Faculty of Health Sciences, University of Stavanger, Norway

Melanie Rydgren, RN, MHsc, Department of Health Sciences, Faculty of Education and Welfare Studies, Åbo Akademi University, PO Box 311, FI-65101 Vaasa, FINLAND. Email: mrydgren@abo.fi

Abstract

Digital health services have the potential to improve healthcare quality and patient safety within the wellbeing sector, but their adoption has many barriers. The aim of this study was to explore barriers to digitalized wellbeing services for children and families in Finland from healthcare leaders' views. Seven leaders from the Finnish wellbeing sector participated in the study. The data were thematically analyzed using an inductive approach. The results revealed two themes: internal and external barriers to digitalization within the healthcare context. Internal barriers encompassed four subthemes: operational differences and diversity in interactions, organizational changes and resource constraints, lack of digital competence and training, and insufficient coordination and unclear responsibilities. External barriers were identified as challenges related to technology development, challenges with laws and regulations, lack of updated education and research, and challenges related to citizens. By addressing these obstacles, healthcare leaders can enhance their capacity to drive digital transformation and improve access and equity within digital wellbeing services for children and families.

Keywords: digital health, family, leadership, diffusion of innovation, health services administration

Introduction

Wellbeing services for children and families refer to publicly provided healthcare and social welfare services that support children's growth, development, and overall family wellbeing. These include preventive and curative health services, family counseling, early childhood support, and social care [1,2]. Digital solutions in these services aim to improve access, continuity of care, and equity, for example through online counseling, remote consultations,

and mobile health applications [3,4]. Finland has actively pursued digitalization of healthcare and social welfare services, especially following the 2023 Health and Social welfare services reform [5]. Children and family services are increasingly adopting digital platforms, yet unique challenges exist due to children's rights, safeguarding needs, and data protection requirements [6,7]. Studies show that digital technologies can improve access to services, strengthen family engagement, and support early intervention through increased collaboration and

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digital delivery models [3,8]. Examples include digital parenting tools supporting family wellbeing, as well as integrated service portals and digitally supported family services developed to improve access and service coordination [9,10].

Digital healthcare services can improve quality and patient safety in healthcare and social welfare sectors, but adoption faces multiple barriers [11,12]. Implementation often fails in these complex and regulated settings [13,14]. Technological barriers include compatibility, interoperability, and infrastructure demands [15,16]. Organizational barriers such as resistance to change and bureaucracy hinder progress [17], while behavioral barriers reflect end-user reluctance [18]. Financial limitations [19], legal complexities related to regulation and privacy [20,21], and structural misalignments of existing infrastructures [18] further complicate integration. Addressing these requires reconfiguring processes, workflows, and roles for sustainable technology use.

Traditionally, healthcare leaders have held responsibility for clinical healthcare services and management [22]. However, their role has expanded to include the digital transformation within healthcare organizations [23,24]. Their leadership and strategic decisions play a key role in enabling the positive impact of digitalization on healthcare and social welfare services [25,26]. Leadership engagement and strategic decision-making are essential for overcoming implementation barriers. Previous studies have indicated that a proactive, strategic, and dedicated leader is crucial for navigating and successfully implementing digitalization [27,28]. However, there is limited evidence on how leaders experience and manage barriers within children and family wellbeing services, both in Finland and internationally. While research on digitalization in healthcare has been rapidly expanding [29], the

perspective of healthcare leaders has been under-emphasized [30]. Thus, the aim of this study was to explore barriers to digitalized wellbeing services for children and families in Finland from healthcare leaders' views.

Material and methods

This study is part of the project *Improved Access to Welfare Services by Digital Solutions* conducted in Finland 2021–2024 [31–33]. In this study, we collected data on leaders' perspectives on digitalization and cooperation. A purposive sample of healthcare leaders involved in developing or implementing digital services for children and families were invited to participate. Seven female leaders from the wellbeing sector participated, working on strategic (5) and operative (2) levels. Data were collected through individual semi-structured interviews October–November 2022. The interview guide was developed based on previous research [34,35], including the themes digitalization of services, coordination of services and service design. Interviews were performed digitally by two of the authors (MR, LE) in Swedish and Finnish for 45–60 minutes.

The data were analyzed following Braun and Clarke's (2021) thematic analysis framework [36], which provided a comprehensive guide for identifying, analyzing, and reporting patterns within the data. The interviews were carefully reviewed and manually transcribed (MR, LE), with initial impressions noted during transcription. Key meaningful units were extracted by the first author and developed into codes. The authors analyzed the data by collaboratively grouping codes into clusters, from which subthemes were identified to capture nuanced aspects of the data. These subthemes were subsequently integrated into main themes that represented broader patterns within the data. The

themes were meticulously reviewed and validated through discussions with the third author (MA) and by working iteratively with the data until satisfactory themes reflective of the content were obtained.

Ethical considerations

This research adhered to the principles of good scientific practice outlined by TENK (2023) and the Declaration of Helsinki by the World Medical Association [37,38]. Ethical approval from the wellbeing services county was obtained prior to contacting the participants. The participants received information about the study, including its purpose and research methods. Confidentiality was assured, and the participants were informed of the voluntary nature of their participation. Before engaging in the interviews, all participants provided informed consent.

Results

The results of this study revealed two themes related to digitalized wellbeing services for children and families in Finland: *internal* and *external barriers to digitalization*, as reported by the healthcare leaders. The two themes and eight subthemes are presented in Figure 1.

Internal barriers

Operational differences and diversity in interactions

The data highlight the complexity of digitalized wellbeing services for children and families in Finland, emphasizing significant operational differences and diversity in patient interactions, posing a challenge in finding a universal technology solution. P3 explained: “*a chat function in social care may not work in the same way as a chat function in specialized healthcare.*” Not all nursing activities within

child- and family care are suitable for digital platforms, especially those involving sensitive subjects that require face-to-face interactions. P2 explained, “*the most important thing was that the nurse saw the child. Because we have a responsibility as nurses. If a child needs a physician or hospital care, we must see the child.*” However, offering both digital and traditional services proves challenging, as it demands additional resources and may increase the strain on both personnel and clients.

Organizational changes and resource constraints

The reform introduced barriers related to organizational changes and resource constraints also within digitalized wellbeing services for children and families. A common obstacle to the advancement of digital initiatives mentioned by the participants was merging and reorganization of personnel. They highlighted that these obstacles caused a lack of co-operation and common structures, and digital solutions from projects have not been implemented in the long term. The reform was described as overwhelming, diverting resources, and resulting in reprioritization of digitalization. P6 expressed: “*They are really busy with that new organization. There is so much, like transferring new organizations, making the whole basic structure work.*”

Lack of digital competence and training

The participants in this study identified barriers related to digital literacy, pointing out the organization's lack of adequate training on digital services. The ongoing reform exacerbated the issue, creating uneven digital competencies among personnel working with care for children and families. Short implementation processes and poor time planning hindered the acceptance and use of new technologies, resulting in a lack of evidence and follow-up on the effects of implementing digital services. A participant (P4) described it as follows: “*Not so that*

today is the last day with this old system and tomorrow we start with the new one. Then, someone comes back to work from a week off and you do it by trial and error; you click here and there."

Personnel often had to adapt to new systems without adequate training and with a lack of IT support staff. Participants highlighted resistance to technology stems from the belief that they cannot fully replace physical visits for children and families, as the comprehensive assessments and emotional support provided in face-to-face interactions are deemed irreplaceable.

Insufficient coordination and unclear responsibilities

The operations within care for children and families widely vary, and not all aspects are suitable for digitalization. The coordination of digital services is often overwhelming, with many sectors involved and unclear responsibilities. Participants highlighted non-integrated digital tools hinder comprehensive collaboration, and previous failures in implementation create resistance among staff in this area. Insufficient coordination negatively impacts qualitative care, as personnel lack a unified understanding of responsibilities and digital services available. P1 indicated: "*The responsibility for digitalization is unclear. It is difficult for leaders to get an overview of what is going on in the organization.*" One participant (P3) articulated that the responsibility for digitalization does not fall under her purview: "*I am a social care professional and not an IT professional.*"

Negative attitudes and disinterest among healthcare leaders toward digitalization in care for children and families influence the culture of change. Resistance persists owing to entrenched working methods and criticism of excessive technology use in healthcare. The participants mentioned usability issues, fear of unpredictable technology, and previous failed implementations

contribute to skepticism and a lack of trust in new digital initiatives.

External barriers

Challenges related to technology development

The digitalization of healthcare services faces significant technological challenges. Technologies that lack user-friendliness and are not tailored to the needs of end users within care for children and families negatively impact their implementation. According to P7, "*The tech-companies may sell a half-finished concept. We are promised the moon. And when we put it into use, it turns out to be not quite like that and only then does the development work begin.*" The introduction of underdeveloped technologies affects personnel's attitudes, potentially increasing their resistance to digitalization. The lack of communication between digital platforms and programs creates additional workloads and poses threats to patient safety, such as settings not being saved when the staff rotates between departments, information not automatically transferring to the system where the patient is registered, ultimately impairing the overall care process. P4 revealed: "*When they use [a digital system], and we do not have it here, you immediately encounter a problem. You do not see the test result. You list what tests have been taken; it takes a really long time. Also, mistakes can occur here. You might accidentally state wrong numbers or hear them incorrectly. The errors probably increase.*"

The participants shed light on the existing gap between technology companies and healthcare providers, expressing the absence of a *common language* between these fields. The complexity of healthcare is often overlooked in technological development, which leads to solutions that do not cater to needs within the healthcare sector. The participants underscored the importance of involving

end users, such as care personnel and families, in the early stages of product development to address these issues.

According to the participants, digital services fall short of providing comprehensive assessments compared with physical visits. Digital services are perceived as obstacles to patient contact, lacking the smoothness necessary for optimal engagement. Technical malfunctions were identified as a hindrance to effective utilization, as P1 expressed: *"It should be easy to use. If it is too complicated, both from the client's point of view and the staff's point of view, then it is probably not used even though it is available."*

Challenges with laws and regulations

Participants highlighted that legislation could pose significant obstacles to the implementation of digital services, particularly in bilingual countries. They mentioned that bilingual municipalities face the challenge of ensuring services in both languages, adding complexity to the development and implementation, and preventing adoption of technologies.

Confidentiality requirements present challenges for organizations, potentially hindering collaboration and the development. Accessing digital wellbeing services proved to be difficult for children and families, as many digital platforms necessitate strong authentication methods often inaccessible to marginalized individuals. Participants mentioned that addressing high data security and protection requirements is crucial and demands a substantial amount of resources. The utilization of technology in healthcare may have implications for the legal status of personnel, as assessments on a digital platform might be intricate. According to P2, *"Well one thing is how you as a nurse assess the situation.*

It can sometimes be better to have a physical

healthcare appointment so that there are no false assessments. You cannot get an exact understanding of the situation remotely."

Lack of updated education and research

Participants identified a lack of education in digitalization and data security as a key factor contributing to the insufficient preparedness for digital services for children and families. Several participants described how this gap affects their ability to engage with digital tools and systems. Moreover, the absence of evidence was noted as a barrier to informed decision-making and effective implementation strategies. The need for more comprehensive education in digitalization across all healthcare professions was a recurring theme in the data.

Challenges related to citizens

The participants underscore the challenges related to citizens, as the rapid evolution of digital development often surpasses individuals' capacity to adapt, creating a dynamic where certain citizens may feel overwhelmed. A recurring theme in the data was related to varied circumstances among clients, including differences in digital literacy and resource access, which contribute to the risk of excluding some individuals from the digital services.

The imposition of high confidentiality requirements acts as a potential barrier, impacting on the accessibility of services for clients. Technical issues can occasionally compromise clients' healthcare experience and cause frustration, as P4 observed: *"They think there are far too many clicks and a lot of bad internet connection. The families have complained that it is too difficult."* A notable discrepancy exists between the public's demands and understanding of the intricate efforts required for digital services to operate effectively.

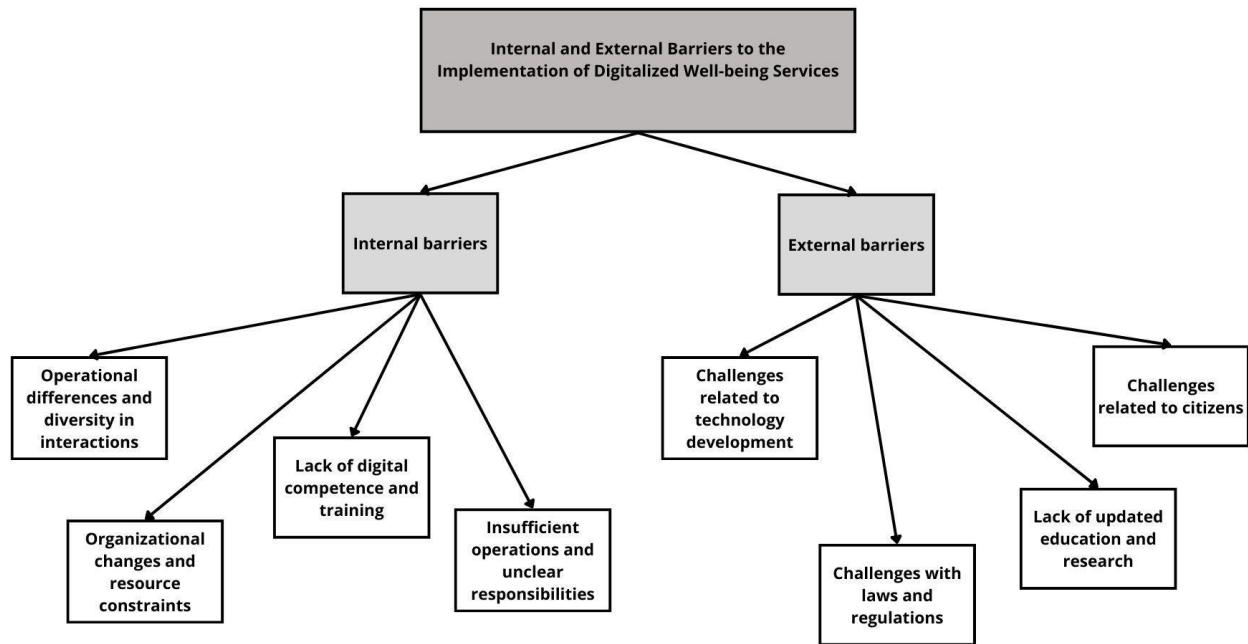


Figure 1. Internal and external barriers to the implementation of digitalized wellbeing services.

Furthermore, participants reported that attitudes and resistance to change were perceived as significant barriers to the implementation of digital well-being services. According to the participants, some citizens expressed limited trust in the quality and reliability of digital solutions, which contributed to skepticism regarding their potential to replace traditional healthcare. Progress in digitalization was sometimes obstructed by the view that services should not be developed further if they cannot be made accessible to everyone. This perception was described as a common obstacle to the advancement of digital initiatives.

Discussion

This qualitative study explored barriers to digitalized wellbeing services for children and families from healthcare leaders' views. The main findings identified internal barriers across four subthemes: operational differences, organizational change and limited resources, lack of digital competence, and

unclear coordination. The main findings also identified external barriers across four subthemes: issues with technological development, legal and regulatory challenges, outdated education and research, and difficulties related to citizens. In the following sections, we discuss the findings of the study, including avenues for improvement.

Internal barriers to digital transformation and avenues for improvement

The operational differences and diversity of interactions within digitalized service environments reflect the multifaceted needs, preferences, and backgrounds of children, families, and service providers. According to previous research [39], cultural, linguistic, socio-economic, and developmental differences should be considered when designing and delivering technology for diverse populations. Similarly, the leaders in this study emphasized that the complexity of care, particularly in services targeting children and families, poses challenges for digital adaptation. Consistent with

previous research [40,41], the leaders noted that certain nursing tasks and interpersonal interactions are difficult to transfer to digital platforms, which aligns with the idea that uniform technological solutions may not meet the needs of all groups. Our findings add to this discourse by illustrating how the gap between high expectations and the limited functionality of current systems leads to frustration and disappointment among leaders.

Consistent with a previous study [42], resistance to digitalization of services was prevalent among leaders and personnel, which might stem from employees' general inherent aversion to change. Organizational barriers to adapting digital solutions, entrenched working methods and criticism of excessive technology use in healthcare have led to resistance among staff. These findings align with prior studies emphasizing the importance of fostering a culture of change as a prerequisite for successful digital implementation [43]. Leaders must perform their critical duty to engage employees, develop new competencies, and formulate clear guidelines for handling resistance [44,45]. Another crucial component in digitalization is to allocate sufficient resources. Similar to Muktamar et al. [46], our study also identified practical constraints such as staff overload, lack of IT support, and inadequate technical infrastructure. These issues underline the need for organizations to not only support cultural change but also ensure that leaders are provided with the concrete resources and tools necessary to implement and sustain digitalization initiatives.

Challenges arise when there is an imbalance between technology, culture, skills, or attitudes. Lack of digital skills and insufficient training hinder implementation of digital services [47]. A unit's adaptive capacity depends on leadership, training, and non-technical skills [40], and successful technology implementation is dependent on optimizing social

and organizational components in a sustainable way.

Digitalization has become an integral part of the workplace and leaders are responsible for driving this digital transformation. Similar to a previous study [43], leaders in our study are facing predetermined decisions regarding the implementation of digital systems, resulting in an imbalance between the degrees of participation and responsibility. Addressing these challenges requires changes in organizational culture and a higher degree of participation. Walsh et al. [48] means improving coordination as a priority for better healthcare service delivery, underlining the need to involve leaders in decision-making processes to create a sustainable digital transformation.

External barriers to digital transformation and avenues for improvement

Previous research has shown that technology lacking ease of use and adaptation to end-user needs negatively affects its implementation [49]. This aligns with our results, as the leaders described frustrations with underdeveloped technology and delayed development processes. This disconnect often results in solutions not meeting the needs of healthcare environments. Technical resistance may be due to staff having doubts about the safety and ability of the technology to meet the required standards. Therefore, end users should be included in the early stages of product development to ensure that solutions are tailored to their requirements.

Leaders expressed obstacles that organizations face when the rules are ambiguous or in the early stages of development, hindering collaboration and exploration of different solutions. This finding aligns with previous research that emphasizes the need for clear legislative frameworks to support

innovation and inter-organizational cooperation in digital healthcare [50]. Given the complex nature of the healthcare sector and the rapid development of digital transformation, revised legislation and guidelines are needed, as well as training around digitalization and data security.

In line with prior research [51], this study also highlights the challenges that citizens face in adapting to digital transformation. Like previous findings, our results suggest that rapid technological development can outpace individuals' ability to adapt, contributing to feelings of being overwhelmed. Furthermore, high demands on confidentiality and technical problems hinder accessibility and compromise the care experience. A gap exists between the public's demands and understanding of the complexities of digital healthcare services. Attitudes, resistance and skepticism about the reliability of digital services persist due to concerns about fair access hinder meaningful progress in digitalization [51,52].

This study has the potential to contribute to organizational development processes and organizational management while promoting healthcare leaders. The findings of this study can also be used to set criteria and guidelines to ensure motivated and digitally competent leaders.

Limitations

The purposive sampling of seven female healthcare leaders from the wellbeing sector limits the diversity of viewpoints. The sample size is small but sufficient for achieving data saturation [53]. Although the semi-structured interviews were conducted by experienced researchers and lasted sufficiently long, the digital collection method may have influenced participants' responses compared to face-to-face settings [54]. To enhance credibility and confirmability when using reflexive thematic analysis

framework [36], several researchers independently reviewed and coded the transcripts, discussed emerging themes collaboratively, and validated the final themes through consensus meetings. These processes align with best practices for enhancing trustworthiness in qualitative research [55].

Conclusion

The rise of modern technologies has prompted digital transformation to emerge as a prevalent concern across various industries, including healthcare. This qualitative study examined barriers to digitalized healthcare and social welfare services within the context of children and families, from healthcare leaders' point of view. Through thematic analysis we clarified that healthcare leaders shared similar opinions and barriers in their interviews. The internal barriers to digitalization that emerged in the analyses include operational differences and diversity in interactions, organizational changes and resource constraints, lack of digital competence and training, and insufficient coordination and unclear responsibilities. On the other hand, the external barriers to digitalization include challenges related to technological development, laws and regulations, lack of updated education and research, and citizens. This shows that the successful implementation of technology within an organization depends on the joint optimization of social and organizational components. However, further research incorporating more attributes and a large sample size is recommended. By acknowledging and navigating these obstacles, healthcare leaders can enhance their capacity to drive digital transformation effectively within organizations, fostering success amid the rapid changes brought about by the digital era.

Author contributions

Conceptualization, Methodology, Investigation, Data curation, Formal analysis, Writing—original draft, Writing—review and editing (MR, LE, MA), Supervision (LE), Project administration, Validation, Visualization, Funding acquisition (LE). All authors approved the final manuscript as submitted and agreed to be accountable for all aspects of the work.

Conflict of interest

The authors declare no conflict of interest.

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