UNIVERITY OF SOPRON
ALEXANDRE LAMFALUSSY
FACULTY OF ECONOMICS

THE DIFFUSION AND USE OF DIGITAL HEALTH SOLUTIONS AMONG FAMILIES WITH CHILDREN

PhD theses

Erika Krisztina Kovács

Sopron

2026

PhD School: István Széchényi Management and Organisation Sciences Doctoral School

Head of Doktoral School: Prof. Dr. Csilla Obádovics

PhD Program: Business Administration and Management

Supervisor: Prof. Dr. Csilla Obádovics

……

Signature of Supervisor

1 BACKGROUND OF THE RESEARCH, RELEVANCE OF THE TOPIC, OBJECTIVES AND HYPOTHESES

1.1 Background of the research topic and scientific context

The rapid expansion of digital health solutions has become one of the defining drivers of transformation in healthcare systems, health preservation practices, and health-related information acquisition over the past decade. Online health information seeking, mobile applications, digital self-monitoring devices, and remote forms of care have increasingly become part of everyday health management. For the population, these tools not only provide faster access to information and services, but also create new opportunities for monitoring health status, supporting prevention, and making more informed individual decisions. The development of digital health can also be interpreted as a form of social innovation, as it involves not only technological novelties, but also new forms of cooperation, new user roles, and changes in health-related behavioural patterns. International and Hungarian literature typically interprets these developments as technological innovation, diffusion processes, or adaptation linked to digital skills.

At the same time, less attention has been paid to the social and life-situation contexts in which digital health solutions are embedded. The adoption of digital health is not merely a technological issue, but also a decision-making process shaped by household roles, responsibility relations, trust, and the evaluation of risks. It is not irrelevant, for example, whether a person makes decisions solely about their own health or evaluates a situation affecting another family member, especially a child. Acceptance and actual use of technology often depend on how well a given solution fits everyday routines, how trustworthy it is perceived to be, and to what extent it supports autonomy and a sense of security. In particular, the literature pays limited attention to how family and parental roles influence decisions related to digital health, technology acceptance, and concrete patterns of use.

1.2 Relevance and social importance of the research

The relevance of the topic is reinforced by the fact that decisions concerning children's health create a specific context of responsibility. For parents, the use of digital tools, management of health-related data, selection of information sources, or acceptance of digital monitoring solutions require more careful consideration. In decisions affecting children's health, technological usefulness is often accompanied by stronger concerns regarding safety, reliability, and control. Therefore, examining families with children is especially

suitable for understanding under what social and decision-related conditions digital health solutions are accepted.

The timeliness of the research was further increased by the COVID-19 pandemic, which significantly accelerated the spread of digital health solutions. Telemedicine, online consultation, digital appointment booking, and electronic access to medical documents became widely used during the pandemic, while solutions that had previously diffused more slowly gained faster acceptance. This also created new decision-making situations in paediatric care, where decisions on the use of digital solutions are typically made by parents.

The relevance of the topic is also strengthened by national and European policy developments. In Hungary, the continuous expansion of the Electronic Health Service Space (EESZT), e-prescriptions, online access to medical records, and digital administrative solutions increasingly integrate digital tools into everyday healthcare practice. At the European Union level, the Digital Decade programme treats the development of digital skills, the digitalisation of public services, and the strengthening of digital health infrastructure as strategic priorities. As a result, the social conditions and user patterns of digital health use represent a particularly timely field of research today.

1.3 Objectives of the research

The aim of the dissertation is to explore how the use of digital health solutions is related to parental status and what differences can be identified between digital decisions concerning one's own health and those concerning a child's health. The study seeks to determine how parental roles are associated with patterns of digital health use, information-seeking behaviour, and attitudes towards digital health.

A further objective is to explore the structure of parental digital health attitudes, identify distinct attitude profiles, and examine how these profiles are related to actual patterns of use and decision-making.

1.4 Hypotheses

H1. Respondents living in a household with children and respondents without children differ in digital health-related

(a) digital confidence and/or

(b) patterns of service use.

H2. Parents follow different information-seeking and health-monitoring practices regarding their own health and their children's health; in child-related situations, prevention and control receive greater emphasis.

H3. Parental digital health attitudes are organised along multiple dimensions, and well-interpretable attitude profiles can be identified based on combinations of these dimensions.

H4. Different attitude profiles are associated with different digital health usage patterns and child-related decision patterns (e.g. device use, monitoring, willingness to share data, acceptance or restriction).

2 RESEARCH QUESTIONS, METHODS AND THEIR JUSTIFICATION

2.1 Main research questions

The central question of the dissertation was how the use of digital health solutions reflects broader social patterns and how these are related to parental status. The research was based on the assumption that the adoption of digital health is not merely a technological issue, but also a decision-making process shaped by family roles, responsibility relations, and the evaluation of risks.

Special attention was paid to whether differences can be observed between respondents living in a household with children and those without children regarding the use of digital health solutions. In addition, the study compared digital information-seeking, monitoring, and decision-making practices concerning one's own health and a child's health.

A further aim of the dissertation was to explore the structure of parental digital health attitudes and to examine how different attitude profiles are related to actual patterns of use and decision-making.

2.2 Data sources and data collection

The macro-level analysis of the research relied on Eurostat data and examined the main patterns of online health information seeking, the use of digital health services, and the prevalence of digital skills across European Union member states. The international comparative analysis made it possible to interpret the development of digital health in a broader European context and to identify Hungary's position and relative standing among EU countries.

The micro-level empirical investigation was based on an original questionnaire survey that measured digital health-related usage practices, attitudes, and decision-making criteria. The questionnaire covered, among other topics, online health information seeking, the use of digital health services, the use of health-monitoring devices, as well as trust-related and risk-perception factors associated with digital solutions. The survey made it possible to examine separately situations concerning one's own health and those concerning a child's health, thereby revealing the specific characteristics of parental decision-making.

To complement the interpretation of the quantitative findings, semi-structured in-depth interviews were conducted with parents. The aim of the qualitative investigation was to explore the decision-making logics, evaluation criteria, and dilemmas underlying the questionnaire results. The interviews contributed to understanding how parents perceive the benefits and risks of digital health solutions, what sources they consider trustworthy, and how responsibility and the need for control appear in decisions affecting their children's health.

2.3 Justification of the applied statistical and qualitative methods

The data were processed using descriptive statistics, chi-square tests, and McNemar tests. Descriptive analyses were used to present the main characteristics of the sample and the key patterns of digital health use, while association tests made it possible to identify differences between groups. Exploratory factor analysis was applied to reveal the structure of parental attitudes, while cluster analysis enabled the identification of different attitude profiles.

Thematic analysis of the in-depth interviews contributed to the interpretation of the quantitative findings, especially in relation to trust, control, data protection, and parental responsibility. The qualitative results also helped uncover the motivations and evaluation criteria underlying the observed statistical relationships.

The combined use of quantitative and qualitative methods made it possible not only to identify statistical differences, but also to interpret the social and family embeddedness of digital health-related decisions. This methodological approach provided a more nuanced picture of the practical, value-based, and responsibility-related factors shaping the use of digital health solutions.

3 RESULTS AND THESES OF THE DISSERTATION

3.1 Detailed summary of the empirical findings

The empirical investigation of the dissertation aimed to explore the social patterns of digital health solution use, with particular attention to the role of parental status. The findings showed that digital health-related usage practices cannot be regarded as a homogeneous phenomenon: their intensity, purpose, and decision-making context vary across the examined groups.

Differences were identified between respondents living in a household with children and those without children regarding the use of digital health solutions. Among parents, the use of digital tools was more frequently associated with prevention, caregiving, and family health management, while among respondents without children it was more strongly linked to individual health needs and immediate health problems.

The research also demonstrated that parents follow different digital information-seeking and monitoring practices concerning their own health and their children's health. In child-related situations, prevention, more regular attention, the search for trustworthy information sources, and the need for control proved to be more pronounced. In contrast, digital practices related to one's own health were more occasional, problem-oriented, and situation-dependent.

Based on the results of the factor analysis, parental digital health attitudes show a multidimensional structure. Four main dimensions were identified: acceptance of digital solutions, parental need for control, caution, and digital risk perception. This suggests that parents' relationship to digital health cannot be described along a simple acceptance–rejection continuum, but is organised around several interrelated considerations.

Cluster analysis identified three well-interpretable attitude profiles. The Controlling–Cautious group displayed both openness and an increased need for supervision. The Low-Involvement group was characterised by more moderate interest and more limited use, while members of the Accepting group showed a more positive attitude towards digital health solutions and a more active usage pattern.

Different usage patterns and child-related decision patterns were associated with the identified attitude profiles. More open profiles showed more frequent information-seeking, more intensive use of

digital devices, and greater willingness to share data, while the more cautious groups were characterised by stronger concerns related to safety and control.

The findings of the in-depth interviews confirmed the main conclusions of the quantitative analyses. In parental decision-making, alongside technological usefulness, trust, preference for expert sources, concerns related to data protection, and responsibility for the child were strongly present. The qualitative findings also indicated that the same digital tool may be judged very differently depending on whether it concerns personal use or a decision affecting a child's health.

Overall, the empirical findings demonstrate that the use of digital health solutions is not determined solely by technological access or digital competence, but rather by socially embedded decision-making processes in which family roles, responsibility, trust, and risk evaluation all play a decisive role.

3.2 New scientific results and theses

T1. Distinct patterns of digital health use are associated with parental status.

The research confirmed that differences can be observed between respondents living with children and those without children regarding

the use of digital health solutions. These differences appear primarily in the purpose and context of use.

T2. Digital decisions concerning one's own health and a child's health are organised according to different logics.

The study established that parents follow different digital information-seeking and monitoring practices regarding their own health and their children's health. In child-related situations, prevention, control, and the search for trustworthy sources play a stronger role.

T3. Parental digital health attitudes display a multidimensional structure and can be grouped into clearly identifiable profiles.

Based on factor and cluster analysis, parental attitudes are organised along four main dimensions, resulting in three distinct attitude profiles.

T4. Different usage patterns and child-related decision patterns are associated with the identified attitude profiles.

The identified attitude profiles showed significant differences in digital health device use, information-seeking behaviour, and monitoring and data-sharing practices concerning children's health.

4 UTILISATION OF RESEARCH RESULTS AND MAIN CONCLUSIONS

The findings of the dissertation can be utilised from scientific, policy, and practical perspectives alike. One of the most important conclusions of the research is that the use of digital health solutions cannot be interpreted solely as a matter of technological development or digital competence. Usage patterns are also significantly shaped by family roles, responsibility contexts, trust, and decision-making considerations related to the evaluation of risks.

From a scientific perspective, the research contributes to a better understanding of the social embeddedness of digital health. Examining parental status offers a new perspective for Hungarian and international studies dealing with the acceptance and use of digital health solutions. The findings suggest that analysing household and life-situation factors will remain justified in the future interpretation of technology use.

From a health policy and public service development perspective, the research highlights that the design of digital systems should take into account the diverse needs of users. For families with children, easy-to-use, reliable, transparent, and secure digital services are particularly important. In situations affecting children’s health, access to trustworthy information sources and professional support is of special significance.

The findings also provide useful lessons for market actors and developers. In parents' digital health-related decisions, convenience and time-saving considerations are accompanied by a strong emphasis on trust, data protection, measurement accuracy, and child-friendly operation. This indicates that the success of future developments depends not only on technological innovation, but also on building user trust.

The research also showed that users cannot be regarded as a homogeneous group. Different attitude profiles reflect different motivations, concerns, and usage habits; therefore, differentiated treatment of target groups is justified when designing development programmes, communication strategies, and educational interventions.

Overall, the findings of the dissertation suggest that the future development of digital health depends not only on technology, but also on social acceptance and usability. A key condition for successful digital health developments is that they fit users' real-life situations, decision-making logics, and expectations of trust.

5 LIMITATIONS OF THE RESEARCH AND FURTHER DIRECTIONS

When interpreting the results of the research, it should be taken into account that the questionnaire survey was conducted on a non-

representative sample; therefore, the findings are primarily exploratory in nature. The aim of the in-depth interviews was likewise not representativeness, but rather to support the interpretation of the quantitative findings.

A further direction for research could be the implementation of a representative nationwide survey, as well as longitudinal analyses examining changes in digital health-related attitudes over time.

It would also be particularly justified to investigate decision-making processes within families with children in greater detail, as well as to analyse how new technologies – especially health applications based on artificial intelligence – appear in the trust relations and decision-making practices of families.

6 SCIENTIFIC PUBLICATIONS RELATED TO THE TOPIC OF THE DISSERTATION

Kovács, E. K. (2026). Digital Integration of Older Adults in Europe: Linking Skills, E-Health Use and Growth Patterns. Prosperitas, in press.

Kovács, E. K., & Faragó, B. (2026). A digitális egészségügyi információkeresés diffúziós mintázatai a magyar lakosság körében: a szülői státusz szerepe. Magyar Tudomány, forthcoming.

Kovács, E. K., & Kelen, A. (2025). A gyermekkori elhízás hosszú távú társadalmi költségei és a compliance szerepe a prevencióban. In Tanulmánykötet 2025.

Kelen, A., & Kovács, E. K. (2024). Járóbeteg-irányítási rendszerben történő időpont-előjegyzés mérföldköveinek bemutatása a digitális egészségügyet befolyásoló tényezők tükrében. IME – Innováció Menedzsment Egészségügy.

Kovács, E. K. (2024a). A digitális egészségügyi ellátás, mint innováció mérési lehetőségei. In Tanulmánykötet 2024.

Kovács, E. K. (2024b). Telemedicina a hazai gyermekgyógyászati járóbeteg-szakellátásban. IME – Innováció Menedzsment Egészségügy.

Kovács, E., & Németh, O. (2022). A társadalmi innovációk sikertényezőinek alkalmazási lehetőségei a magyarországi telemedicina fejlesztésekre. Gazdaság & Társadalom.