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The use of digital tools by general practitioners in Finnish public health centres

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Abstract

Electronic health services (eHealth) have increased rapidly in the last few years. These services hold the potential to facilitate today's challenging primary care. The aim of the study was to examine how digitalisation manifests in Finnish health centres in 2021. We aimed to find out which digital tools are used in health centres and how they are exploited. In addition, we were interested in general practitioners' attitudes towards digitalisation in their everyday work. An online survey was distributed to general practitioners (GPs) working in primary health care centres throughout Finland, and 265 GPs replied. A health portal and various digital calculators were used daily. In remote communication with their patients, general practitioners preferred telephone calls over new tools (chat/video). Attitudes towards eHealth were positive, but digital tools were not yet commonly used. The implementation of digital solutions still needs more effort.

Keywords: telemedicine, ehealth, remote consultation, primary health care, general practitioners

Introduction

Digital health is defined by the World Health Organization (WHO) as "the use of digital technologies for health". This includes the implementation of technologies – i.e. virtual care and remote monitoring – and tools that enable data exchange and sharing across the health ecosystem, creating a continuum of care [1]. In this article, we refer to digital health care services as electronic health services (eHealth).

Healthcare is facing many challenges, and eHealth solutions hold the potential to bring some relief to the situation. The European Commission has proposed a Digital Compass for the EU's digital decade, in which key public services would be 100% available online by 2030 [2]. This means making online public services accessible for everyone, easy-to-use, efficient, and personalised, and tools with high security and privacy standards [2]. This puts pressure on public healthcare to develop

services since it comprises a large portion of public services.

There are indications that eHealth services may improve access to care and make the health system more patient-centred [3]. There is also evidence that eHealth solutions may be as effective as face-to-face interventions, although they are not suitable for all consultation situations [4,5]. It is important to create new ways to communicate with health care for patients living in rural areas. In a systematic review, video consultations have been found to have the potential to address many of the key challenges to providing health care to a widely dispersed population over a substantial land area [6]. Furthermore, the use of digital applications has shown the potential to improve health outcomes among those living with chronic diseases [7–9].

According to a systematic review, primary care patients have perceived electronic consultations to improve self-care, communication, and engagement with the clinician, especially among patients with long-term conditions and those living in remote regions [10]. On the other hand, another systematic review has shown that even though patients are satisfied with video consultations, they prefer face-to-face consultations [11]. In addition, patients have concerns regarding the privacy and security of their data [12]. Considering professionals, physicians have perceived eHealth to be useful [13]. Furthermore, professionals with previous experience with eHealth were more open to its implementation and considered that the benefits of technology outweigh its possible difficulties and shortcomings [13]. However, in the UK, doctors still preferred telephone over video consultations, and telephone consulting was considered sufficient for many problems [14].

Developing digital health competence in clinical work seems also to depend on the practitioners' will to study [15]. In terms of GP education, medical students' competencies have been previously evaluated in a thesis [16]. Furthermore, the Finnish MEDigi project's eHealth division has assessed the current situation of eHealth education and defined eHealth competency goals for the degree of licentiate of medicine [17–19]. To date, eHealth competence has appeared to be fragmented in undergraduate medical education [17,20] and presumably also in continuing education.

From a theoretical point of view, the Technology Acceptance Model (TAM) shows a three-stage process, where external factors (system design features) trigger cognitive responses (perceived ease of use and perceived usefulness), which form an effective response (attitude towards using technology/intention), influencing use behaviour [21,22]. The ease of use plays a significant role in the acceptance of digital technologies [22].

Changing procedures takes time [23,24]. The literature shows multiple barriers to adopting eHealth solutions, e.g. technical challenges, resistance to change, cost, information security, and a lack of recognised standards [25,26]. Integrating eHealth into health care requires changes in organisation, structure, and care processes [27,28]. It has also been shown that digital-first approaches in primary care could increase the general practitioner's workload [29]. Due to these multiple barriers, implementing digital tools in the work of GPs involves change management. In studies concerning change management, open innovation has been beneficial [30,31]. In addition, letting professionals concentrate on patient-centred care and use digital health services jointly with traditional methods have seemed to have had a positive effect on implementation [32]. Blended care – i.e. combining

face-to-face care with remote options – that is personalised to the individual patient seems promising [33].

Different digital services have increased in Finnish health care in recent years [34–37], and the Covid-19 pandemic has accelerated their growth [38]. According to a survey conducted in the EU in 2020, remote services with a doctor were more common in Finland compared to the EU average, and they continued to increase due to the pandemic [39]. Various digital tools have been available for doctors in Finnish primary healthcare, which include, e.g. decision-making tools, electronic calculators, the Terveysportti health portal (doctor's databases), digital clinical tools (e.g. the digital stethoscope and digital otoscope), and communication tools, such as video and chat platforms.

Despite the recent increase in eHealth, to our knowledge, there are no research data on the actual use of different digital tools and materials at general practitioners' appointments and consultations in Finnish primary care. In our own experience, it seems that there is the potential to use digital tools more extensively in the practical work of primary care GPs. In addition, there is a lack of research on Finnish primary care GPs' attitudes and competencies towards eHealth.

In this study, we aim to find out how GPs have experienced digitalisation and to examine which digital tools and materials are used most by GPs in Finnish health centres in their everyday work. Furthermore, our aim was to examine what kind of attitudes GPs have towards digitalisation and to investigate their competencies in eHealth, including capabilities in patient encounters in a digital environment and information security.

Material and methods

The online survey was sent by a professor of general practice in each of the five university hospital regions to the chief physicians of primary health centres, who delivered the survey to general practitioners in their health centres. The survey was sent twice to the chief physicians, first in October and again in November 2021. Some 266 physicians responded to the questionnaire. Approximately 4,000 physicians work in these public health care centres in Finland (Finnish Medical Association). We do not know how many of them ultimately received the questionnaire.

A part of the questionnaire was based on the competencies of eHealth defined by the MEDigi eHealth Division [17]. We chose the competencies defined in undergraduate medical education as the basis for the self-assessment of the questionnaire [17–19]. Questions concerning attitudes and competencies were based on indicators developed in Pihlajasalo's thesis [16]. The same questions concerning attitudes and competencies were asked first from medical students in another ongoing study.

The survey consisted of multiple-choice questions, Likert scale statements, and open-ended questions. All questions were presented in Finnish. The Likert scale statements included three areas: issues concerning the management of digital security, patient encounters in a digital environment, and the GP's capability to practise digital medicine. The questions or statements were not tied to any specific period.

The responses were collected with Microsoft Forms® and analyses were performed with SPSS version 28.0. The responses to questions regarding the use of digital tools and materials were originally categorised into five classes (used daily, weekly,

less than weekly, not in use even though available at my work site, not available at my worksite) but were combined into three categories (used at least weekly, used less than weekly, not in use) for the analyses. The responses to questions regarding the capability to practise digital medicine, information security, and encountering patients were originally categorised into five classes (agree, partly agree, neither agree nor disagree, partly disagree, disagree) but were similarly combined into three categories (agree or partly agree, neither agree nor disagree, disagree or partly disagree) for the analyses. Descriptive statistics were used in the analyses of the survey's responses. Distributions of the responses regarding the use of digital tools were analysed by the frequency of use.

Ethics

Participants were informed that participation was voluntary and anonymous. Distribution of the survey to the GPs' email addresses was managed by the network of directors of public health. No linkage key was established and the participants' IP numbers were not accessible by any party. Further approvals were not required according to Finland's health research legislation [40].

Results

Characteristics of the participants

We received 266 answers to the questionnaire, and the final data consisted of 265 replies; one reply was excluded because of a refusal to participate in the study (Table 1). Nearly half (45%; n=121) of the participants were licensed medical specialists in general practice. The majority of the participants worked in a sub-urban municipality, i.e. less than 50km from the central hospital (34%, n= 91) or in the same city as the central hospital (28%, n=73). The majority of the participants (79%, n=210) worked primarily through face-to-face consultations, and only 6% (n=16) worked mainly through remote consultations. We received answers from all age categories.

Table 1. Characteristics of the participants.

		n	%
Education	Licenced medical specialist for general practice	121	45
	Doctor in training specializing in general practice	62	23
	Specializing in other field	5	2
	Doctor in spesific training in general practice	28	10
	Other specialist	23	9
	Other doctor	26	10
Age	<30 years	28	11
	30-39 years	78	29
	40-49 years	59	22
	50-59 years	54	20
	>60 years	46	17
University hospital area			
	Helsinki University Hospital	17	6
	Kuopio University Hospital	74	28
	Oulu University Hospital	9	3
	Tampere University Hospital	111	42
	Turku University Hospital	53	20
	No answer	1	0

Digital tools and materials

In communicating with patients, the majority of the participants (n=264) used traditional telephone consultations daily or at least weekly (Figure 1). Text messages were also used commonly (Figure 1). The use of chat and video tools was rare. The main reason for not using a video tool was that it was not available (32%, n=84). Altogether, 17% (n=46) of the participants replied that the tool existed but was not used, and 15% (n=41) considered their patients not suitable for video consulting. Moreover, 8% (n=22) did not want to use video consulting. Poor Internet connection was the reason for not using the video tool in only one reply. Regarding digital materials, almost all (n=263) of the participants used the Terveysportti health portal (doctor's database) and database calculators daily. Digital diagnostic tools (e.g. digital stethoscope or digital otoscope) and OmaOlo symptom assessment were rarely used for clinical work.

Competencies and capabilities related to patient encounters in a digital environment

The majority of the participants considered themselves to be aware of which conditions are suitable for a remote consultation (80%, n=209), what kind of service formats exist in a digital environment (77%, n=201), and what kind of factors affect interaction in a digital environment (70%, n=182) (Figure 2).

Altogether 40% (n=103) considered themselves able to perform a video consultation and 23% (n=59) considered themselves able to perform a chat consultation. Only 17% (n=46) felt they had had sufficient training to perform a video consultation.

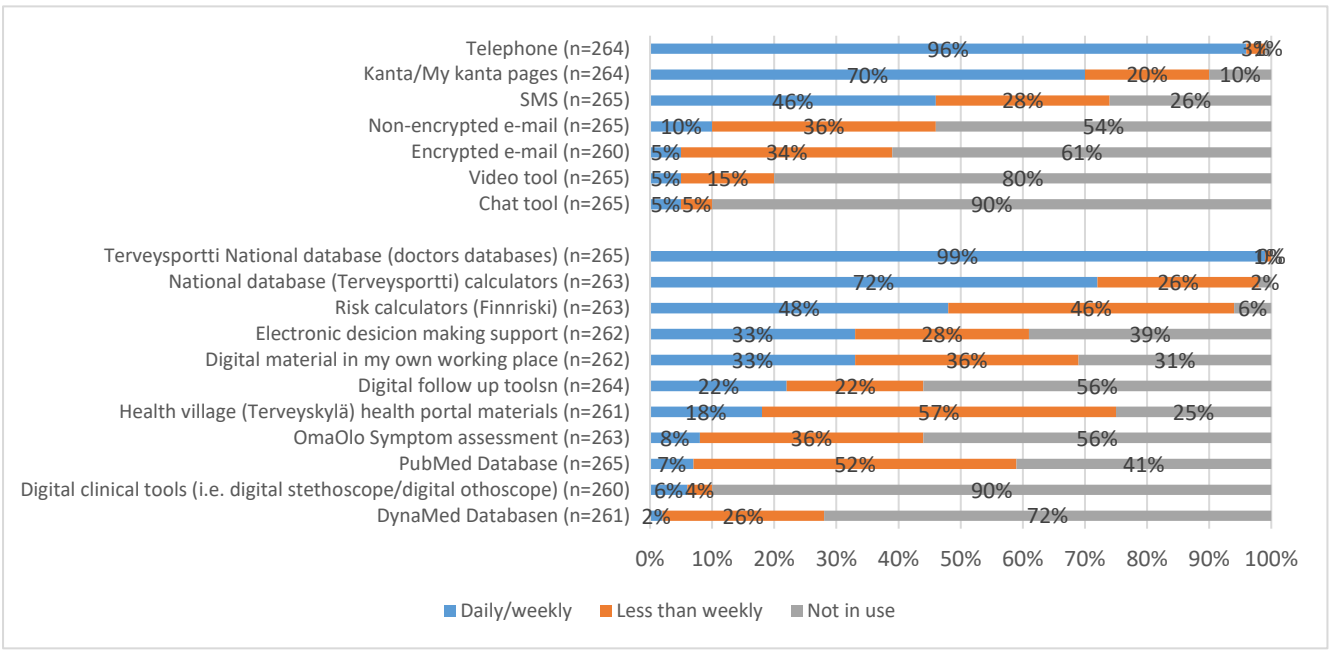

Figure 1. Use of digital tools and materials.

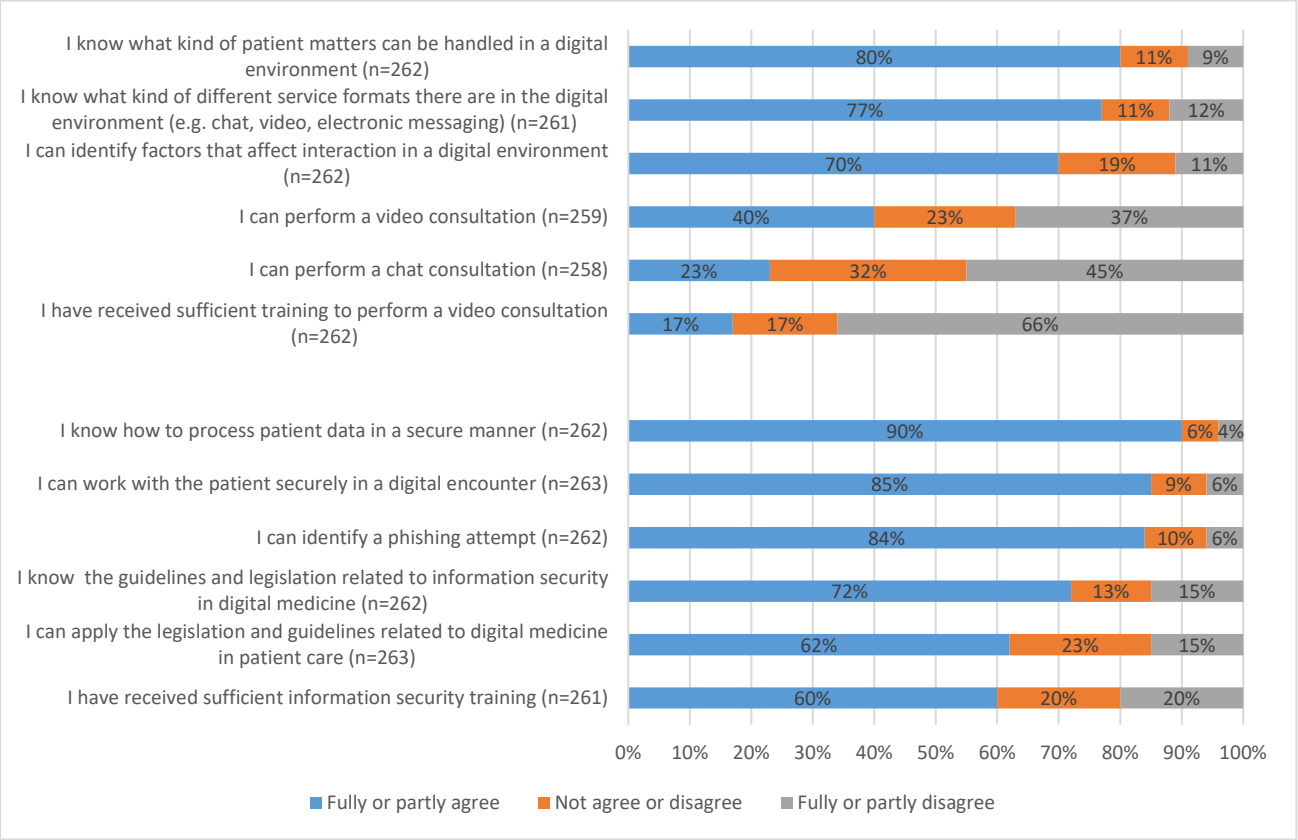

Figure 2. Competencies in communicating digitally and information security.

Capabilities in information security

The participants perceived themselves to be competent in information security. The majority (90%; n=236) felt they could process patient data securely, and 85% (n=225) felt that they could work with a patient securely in a digital encounter. More than half of the participants (60%, n= 155) felt themselves sufficiently educated in digital security.

Readiness for digital medicine

The vast majority (94%, n=247) felt that it is important for the physician to be able to make use of the patient's own health information when treating him/her (Figure 3). Altogether 91% (n=239) of the participants thought that the change caused by the digitalisation of health care will be significant in the practical work of GPs in the coming years. Nearly 90% (n=232) felt that it is important for the GP to be able to utilise digital applications in patient care. Over two-thirds of the participants (72%, n=189) thought that the use of the patient's health applications was beneficial for his/her health care, and they also considered themselves to be well versed in utilising the patient's own health information in patient care (70%, n=184).

The majority (69%; n=183) were interested in developing procedures by experimenting with new solutions. Only a third (31%, n=83) considered themselves involved in developing procedures in their unit and were given time for it. When asked whether they were developing procedures boldly in health care based on experimenting with ideas, only 38% (n=100) of the participants fully or partly agreed.

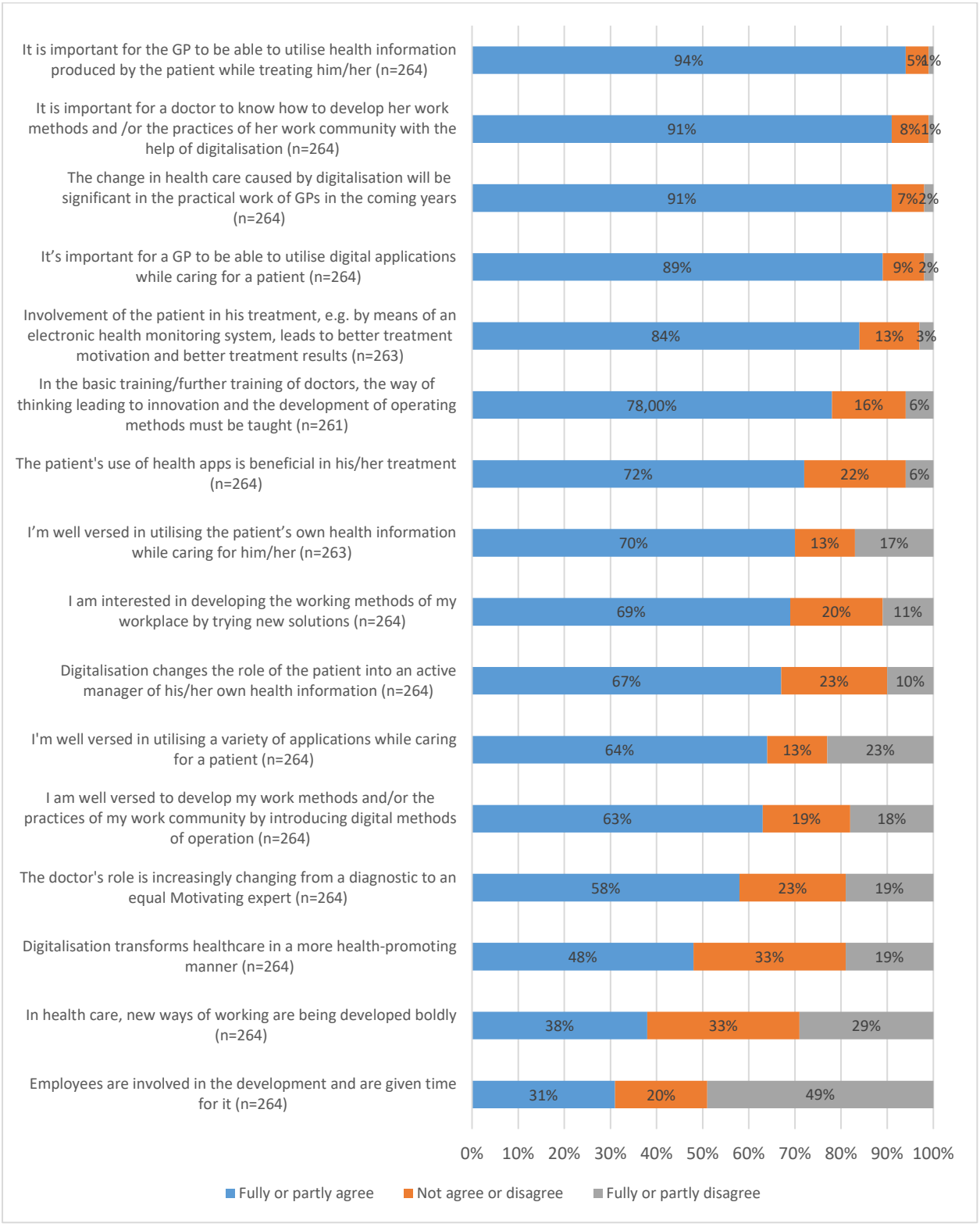

Figure 3. Abilities and attitudes towards eHealth.

Discussion

The main findings of the study are that digital portals and tools like the Terveysportti health portal (doctor's databases) and various digital calculators are used by general practitioners daily. In terms of remote consultations, the telephone is still the most used tool rather than any new digital tools (chat/video) in health centre work. GPs perceived themselves to be competent in terms of information security, and the participants seemed quite confident that they could work securely in a digital environment. Additionally, GPs consider healthcare digitalisation useful and important, and they estimate their eHealth skills to be sufficient, but they call for more training. The GPs are also interested in developing procedures at their worksite, but they feel they could be more involved than they are now.

Concerning the use of remote or digital tools, it seems that to date, only “old tools” like the telephone and the Terveysportti health portal have been successfully implemented in the everyday work of Finnish GPs. In a recent UK study, the telephone was preferred over new tools as well [14]. It seems likely that the new digital tools, as stated previously, are not sufficiently integrated into the care processes [28].

Our findings are also in line with GPs’ positive attitudes towards the importance of eHealth [13]. GPs’ confidence in performing remote consultations and feeling secure in information security in our study is a positive finding in comparison with previous findings in a systematic review, in which confidentiality and security issues were described more as barriers to adopting eHealth solutions [25].

Despite the positive assessment of their eHealth competencies, the participants called for eHealth training. In a previous study, healthcare professionals' perceptions of their own digital health competencies were divided, with the participants either reporting sufficient competencies or perceiving a lack of skills in some areas [32]. Since the training of health care professionals is considered essential to ensure the implementation of eHealth solutions [5], an emphasis should be placed on training eHealth competencies throughout the GP curriculum from undergraduate studies to continuing medical education.

Moreover, our results suggest a discrepancy between attitudes and practice: GPs perceive themselves as competent in information security and working in a digital environment, but new digital tools are still rarely used. When reflecting on the Technology Acceptance Model [19,20], the new tools may simply not be good or useful enough for GPs – it might be that the new tools give no added value to everyday work. On the other hand, it is possible that implementation just proceeds slowly, as shown previously [23,24].

According to our results, GPs are willing to participate in development procedures in primary care centres. Considering change management, open dialogue with employees has had a positive effect on implementing digital solutions [15,30,31]. To ensure that the new digital tools really benefit both patients and professionals and integrate smoothly into care processes, GPs as well as other professionals need to be involved in the development and management of these tools.

Strengths and limitations

The main limitation of this study was the low response rate, and therefore the study population may not fully represent health centre GPs in Finland. The number of participants answering the questions was only 265, while approximately 4000

GPs are working in Finnish health centres. Despite the small number of participants, the strength of the study was that it covered every university hospital district in Finland and the responders represent Finnish health centre GPs quite well. We received answers from all age groups, and nearly half of the participants were specialised in general practice. Interest in the topic may have had an impact on the motivation to complete the survey, so the positive attitudes towards eHealth may be overrepresented in the responses of GPs in this survey. Survey questions concerning competencies were self-assessed by the responders and not objectively measured. In addition, recall bias is possible.

Conclusions

It seems that eHealth practices have not yet been implemented to their full extent in GPs' work in Finland, even though GPs' attitudes towards eHealth are positive overall. Training in eHealth competence should be systematic from undergraduate medical education and continue as part of medical education after graduation. The eHealth solutions should be integrated seamlessly into best practices and designed to fluently support operational structures and core values and the principles of primary care instead of being deployed as extras without added value. Implementation requires the utilisation of recent research data and the best practices to be available for the organisation and GPs. All new practices need time to take root. New innovations that speed up and facilitate the provision of care and reduce burdens are attractive to both the professional and the patient.

Conflict of interest

The authors have no conflict of interest.

References

[1] World Health Organization (WHO). Global strategy on digital health 2020-2025. Geneva: WHO; 2021. Available from: https://www.who.int/publications/i/item/9789240020924

[2] European Comission. Strategy and policy: Priorities: A Europe fit for the digital age: Europe's Digital Decade: Digital targets for 2030 [Internet]. European Comission; 2021 [cited 15 October 2022]. Available from: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/europe-fit-digital-age/europes-digital-decade-digital-targets-2030_en

[3] McGrail KM, Ahuja MA, Leaver CA. Virtual Visits and Patient-Centered Care: Results of a Patient Survey and Observational Study. J Med Internet Res. 2017 May 26;19(5):e177. https://doi.org/10.2196/jmir.7374

[4] Speyer R, Denman D, Wilkes-Gillan S, Chen YW, Bogaardt H, Kim JH et al. Effects of telehealth by allied health professionals and nurses in rural and remote areas: A systematic review and meta-analysis. J Rehabil Med. 2018 Feb 28;50(3):225-235. https://doi.org/10.2340/16501977-2297

[5] Carrillo de Albornoz S, Sia KL, Harris A. The effectiveness of teleconsultations in primary care: systematic review. Fam Pract. 2022 Jan 19;39(1):168-182. https://doi.org/10.1093/fampra/cmab077

[6] Bradford NK, Caffery LJ, Smith AC. Telehealth services in rural and remote Australia: a systematic review of models of care and factors influencing success and sustainability. Rural Remote Health. 2016 Oct-Dec;16(4):3808. https://doi.org/10.22605/RRH4268

[7] Whitehead L, Seaton P. The Effectiveness of Self-Management Mobile Phone and Tablet Apps in Long-term Condition Management: A Systematic Review. J Med Internet Res. 2016 May 16;18(5):e97. https://doi.org/10.2196/jmir.4883

[8] Benhamou PY. Improving diabetes management with electronic health records and patients' health records. Diabetes Metab. 2011 Dec;37 Suppl 4:S53-6. https://doi.org/10.1016/S1262-3636(11)70966-1

[9] Kruse CS, Argueta DA, Lopez L, Nair A. Patient and provider attitudes toward the use of patient portals for the management of chronic disease: a systematic review. J Med Internet Res. 2015 Feb 20;17(2):e40. https://doi.org/10.2196/jmir.3703

[10] Mold F, Hendy J, Lai YL, de Lusignan S. Electronic Consultation in Primary Care Between Providers and Patients: Systematic Review. JMIR Med Inform. 2019 Dec 3;7(4):e13042. https://doi.org/10.2196/13042

[11] Thiyagarajan A, Grant C, Griffiths F, Atherton H. Exploring patients' and clinicians' experiences of video consultations in primary care: a systematic scoping review. BJGP Open. 2020 May 1;4(1):bjgpopen20X101020. https://doi.org/10.3399/bjgpopen20X101020

[12] Lounsbury O, Roberts L, Goodman JR, Batey P, Naar L, Flott KM et al. Opening a "Can of Worms" to Explore the Public's Hopes and Fears About Health Care Data Sharing: Qualitative Study. J Med Internet Res. 2021 Feb 22;23(2):e22744. https://doi.org/10.2196/22744

[13] Ruiz Morilla MD, Sans M, Casasa A, Giménez N. Implementing technology in healthcare: insights from physicians. BMC Med Inform Decis Mak. 2017 Jun 27;17(1):92. https://doi.org/10.1186/s12911-017-0489-2

[14] Murphy M, Scott LJ, Salisbury C, Turner A, Scott A, Denholm R, et al. Implementation of remote consulting in UK primary care following the COVID-19 pandemic: a mixed-methods longitudinal study. Br J Gen Pract. 2021 Feb 25;71(704):e166-e177. https://doi.org/10.3399/BJGP.2020.0948

[15] Jarva E, Mikkonen K, Andersson J, Tuomikoski A-M, Kääriäinen M, Meriläinen M et al. Aspects associated with health care professionals' digital health competence development – a qualitative study. FinJeHeW 2022;14(1):79-91. https://doi.org/10.23996/fjhw.111771

[16] Pihlajasalo T. Opiskelijoiden osaaminen ja asenteet sähköisiä terveyspalveluja ja terveydenhuollon digitalisoitumista kohtaan ennen ja jälkeen opetuspilotin [Students' competencies and attitudes towards electronic health services and the digitalisation of healthcare before and after the teaching pilot]. Oulu: University of Oulu; 2017. Available from: http://urn.fi/URN:NBN:fi:oulu-201704041428

[17] Tuovinen T, Reponen J, Isoviita VM, Koskela T, Levy A, Pääkkönen J, et al. Sähköisten terveyspalveluiden opetus lääketieteessä. Lääketieteellinen aikakauskirja Duodecim. 2021;137(17):1807-13. http://urn.fi/URN:NBN:fi:tuni-202109107045

[18] Levy A, Reponen J. Digital Transformation of Medical Education: MEDigi Project Report. Oulu: University of Oulu; 2021. Available from: http://urn.fi/urn:isbn:9789526232454

[19] Levy AR, Kulmala P, Kulmala R, Merenmies J, Jääskeläinen J, Kortekangas-Savolainen O et al.

National MEDigi project: systematic implementation of digitalization to undergraduate medical and dental education in Finland. FinJeHeW. 2019;11(4):357-361. https://doi.org/10.23996/fjhw.83309

[20] Paré G, Raymond L, Pomey MP, Grégoire G, Castonguay A, Ouimet AG. Medical students' intention to integrate digital health into their medical practice: A pre-peri COVID-19 survey study in Canada. Digit Health. 2022 Jul 21;8:20552076221114195. https://doi.org/10.1177/20552076221114195

[21] Davis F. User acceptance of information technology: system characteristics, user perceptions and behavioral impacts. Int J Man Mach Stud. 1993;38(3):475-487. https://doi.org/10.1006/imms.1993.1022

[22] Davis FD. Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. MIS Quarterly 1989;13(3):319–40. https://doi.org/10.2307/249008

[23] Grol R, Grimshaw J. From best evidence to best practice: effective implementation of change in patients' care. Lancet. 2003 Oct 11;362(9391):1225-30. https://doi.org/10.1016/S0140-6736(03)14546-1

[24] Glasgow RE, Lichtenstein E, Marcus AC. Why don't we see more translation of health promotion research to practice? Rethinking the efficacy-to-effectiveness transition. Am J Public Health. 2003 Aug;93(8):1261-7. https://doi.org/10.2105/AJPH.93.8.1261

[25] Scott Kruse C, Karem P, Shifflett K, Vegi L, Ravi K, Brooks M. Evaluating barriers to adopting telemedicine worldwide: A systematic review. J Telemed Telecare. 2018 Jan;24(1):4-12. https://doi.org/10.1177/1357633X16674087

[26] Versluis A, van Luenen S, Meijer E, Honkoop PJ, Pinnock H, Mohr DC et al. SERIES: eHealth in primary care. Part 4: Addressing the challenges of implementation. Eur J Gen Pract. 2020 Dec;26(1):140-145. https://doi.org/10.1080/13814788.2020.1826431

[27] Tossaint-Schoenmakers R, Versluis A, Chavannes N, Talboom-Kamp E, Kasteleyn M. The Challenge of Integrating eHealth Into Health Care: Systematic Literature Review of the Donabedian Model of Structure, Process, and Outcome. J Med Internet Res. 2021 May 10;23(5):e27180. https://doi.org/10.2196/27180

[28] Neves AL, Burgers J. Digital technologies in primary care: Implications for patient care and future research. Eur J Gen Pract. 2022 Dec;28(1):203-208. https://doi.org/10.1080/13814788.2022.2052041

[29] Salisbury C, Murphy M, Duncan P. The Impact of Digital-First Consultations on Workload in General Practice: Modeling Study. J Med Internet Res. 2020 Jun 16;22(6):e18203. https://doi.org/10.2196/18203

[30] Hanelt A, Bohnsack R, Marz D, Antunes Marante C. A Systematic Review of the Literature on Digital Transformation: Insights and Implications for Strategy and Organizational Change. Journal of Management Studies 2021;58(5):1159-1197. https://doi.org/10.1111/joms.12639

[31] Berman S, Marshall A. The next digital transformation: From an individual-centered to an everyone-to-everyone economy. Strategy and Leadership 2014;42(5):9-17. https://doi.org/10.1108/SL-07-2014-0048

[32] Jarva E, Oikarinen A, Andersson J, Tuomikoski AM, Kääriäinen M, Meriläinen M, MIkkonen K. Healthcare professionals' perceptions of digital health competence: A qualitative descriptive

study. Nurs Open. 2022 Mar;9(2):1379-1393. https://doi.org/10.1002/nop2.1184

[33] van der Kleij RMJJ, Kasteleyn MJ, Meijer E, Bonten TN, Houwink EJF, Teichert M, et al. SERIES: eHealth in primary care. Part 1: Concepts, conditions and challenges. Eur J Gen Pract. 2019 Oct;25(4):179-189. https://doi.org/10.1080/13814788.2019.1658190

[34] Ruotanen R, Kangas M, Tuovinen T, Keränen N, Haverinen J, Reponen J. Finnish e-health services intended for citizens – national and regional development. FinJeHeW. 2021;13(3):283–301. https://doi.org/10.23996/fjhw.109778

[35] Kyytsönen M, Vehko T, Jormanainen V, Aalto AM, Mölläri K. Terveydenhuollon etäasioinnin trendit vuosien 2013-2020 Avohilmon aineistossa. Tutkimuksesta tiiviisti 13/2021. Helsinki: THL; 2021. Available from: https://urn.fi/URN:ISBN:978-952-343-639-8

[36] Eronen A, Hiilamo H, Ilmarinen K, Jokela M, Karjalainen P, et al. Sosiaalibarometri 2020. Helsinki: SOSTE Suomen sosiaali ja terveys ry.; 2020. Available from: https://www.soste.fi/wp-content/uploads/2020/07/SOSTE-Sosiaalibarometri-2020.pdf

[37] Reponen J, Keränen N, Ruotanen R, Tuovinen T, Haverinen J, Kangas M. Tieto- ja viestintäteknologian käyttö terveydenhuollossa vuonna 2020: Tilanne ja kehityksen suunta. Raportti 11/2021. Helsinki: THL; 2021. Available from: https://urn.fi/URN:ISBN:978-952-343-771-5

[38] Jormanainen V, Heponiemi T, Henrikson M, et al. Covid19-epidemian vaikutukset hyvinvointiin, palvelujärjestelmään ja kansantalouteen: Asiantuntija-arvio, syksy 2020. Raportti 14/2020. Helsinki: THL; 2020. Available from: https://urn.fi/URN:ISBN:978-952-343-578-0

[39] Ahrendt D, Jorge C, Clerici E, Hurley J, Leoncikas T, Mascherini M et al. Living, working and COVID-19. COVID-19 series. In: Eurofound. Luxembourg: Publications Office of the European Union; 2020. Available from: https://www.eurofound.europa.eu/publications/report/2020/living-working-and-covid-19

[40] TENK. Finnish National Board on Research Integrity TENK [Internet]. Helsinki: TENK; 2021 [cited 15 October 2022]. Available from: https://www.tenk.fi/en.