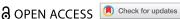Taylor & Francis
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ARTICLE

Enablers for and barriers to using My Kanta – A focus group study of older adults' perceptions of the National Electronic Health Record in Finland

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ABSTRACT

To explicate how experiences with patient-accessible electronic health records correspond to the expectations of the users, we present qualitative results of older adults' experiences with the Finnish national patient-accessible health record My Kanta and similar services. 24 persons, 17 women and 7 men aged 55–73, took part in the study. We interviewed six focus groups of 3–5 participants with previous experience of My Kanta, in two cities in Finland. We used a convenience sample and video- and audio-recording as well as note taking. The interviews were transcribed verbatim. The inductive analysis was based on content analysis. We identified major uses, enablers, barriers, and outcomes of My Kanta. In addition to earlier reported barriers and enablers, the findings show that launch-time lack of useful content and features in systems still under development can cause frustration and hinder their effective use at the time and in the long run. Concerns and barriers relating to use were socio-techno-informational and tightly associated with the contents of the system. Improved security, usability and additional information and functions might increase use. Furthermore, coherent and timely information from health-care providers should be available in the e-health services.

Introduction

The implementation and use of electronic health records (EHRs) have rapidly increased in the past decades. [1] EHRs have been described as "one of the most important Information and Communication technology (ICT) based solutions for the healthcare sector," [2(p194)] as they offer a new means for both communication and management of patient health information.[2] Especially, patients with an increased need for health-care services, such as people over 50 years of age, could benefit from using patient portals connected to the EHRs of health-care providers.[1]

Finland can be seen as a forerunner in digital health care. The history of telehealth development with strategical and national guidance is summarized by Kouri et al.[3] The National Health Archive Kanta provides digital services for the social and health-care sector, as well as for all Finnish citizens. For the citizens, the services – including browsing their own medical records and prescriptions – are accessible online through the My Kanta portal.[4] The My Kanta service is a patient-accessible electronic health record (PAEHR)[5] that grants patients access to their medical health data from either EHRs or other health-IT systems.[6] User authentication is based on Finnish online bank identifiers, mobile identification, and certificate card for identification.[6,7] Citizens can review their medical records, including test results and treatments, and check and renew prescriptions. With access to log data

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they can follow, which of the health providers have accessed their data. Previously, parents could view the records of their children under 10 years old,[7] but in 2020, this age limit changed to 18 years old.[8] Patients can also give consent to or refuse disclosure of their personal data and file a living will and organ donation testament in My Kanta. All authorized Finnish health-care service providers can use Kanta,[7] but there are also comparable services, operated independently by, for example, private occupational health-care service providers, and municipal and regional actors. Health records are included in Kanta only with an explicit consent from the patient. Since October 2018, some personal wellness information can be recorded in My Kanta, as well. This opportunity is, however, currently limited to users of a service called Virtual Hospital Health Village.[9]

My Kanta is among the most valued online brands in Finland.[10] Nine years after its launch, adults' use of the service is still increasing and approaching the 50% line. Cumulatively, 2.8 million persons (51% of the Finnish population and 63% of at least 18-year-old adults) had accessed their PAEHR by 31 December 2018.[5]

This article reports findings from a focus group interview study of older adults' experiences of using the My Kanta portal and other electronic health services. We define older adults as being aged 55–70 years old, a group that is still active in their life, either working or recently retired and not considering themselves yet as seniors. Statistics show that the age group 51–65 years is the most active at using the My Kanta portal.[5] The objective of the study is to understand how the experiences of electronic health services, especially PAEHRs, correspond to the expectations of the users. So far, the perceptions of both the Kanta services and other Finnish electronic health record systems have mainly been studied among either health-care professionals or pharmacists.[11–13] Finnish consumers' views on My Kanta have been studied through a survey in 2015, but with a focus on ePrescriptions.[14–17] Extensive national surveys on the use of electronic services, conducted by the National Institute for Health and Welfare, also contain questions concerning My Kanta.[18] Kanta has also conducted annual open user surveys focusing on the usability of the main website kanta.fi, however not the My Kanta service.[19] User statistics based on unique personal identification codes have been gathered, as well.[5] However, to the best of our knowledge, there are no earlier qualitative studies on older adults' experiences of the My Kanta portal or other similar services in Finland. Comparable studies based on focus groups have been carried out elsewhere, however, mainly on experiences of more limited portals.[20–24]

Aim and research questions

This study aims at increased understanding of older adults' views on the Finnish national PAEHR My Kanta and comparable electronic health services. The two research questions of this study are:

1) How does a group of older adults (aged 55 to 70 years old) use the My Kanta portal and other patient-accessible electronic health services?

2) How do these types of services correspond to the expectations of the users and how could the services be improved?

Earlier research on the use of electronic health information

Electronic access to health records seems to interest patients. Prior research shows that nearly 70% of Italian patients were interested in obtaining direct access to their electronic health records,[2] whereas 82% of Americans whose health provider had a portal, had used it.[25] The use might not be regular, however, and it might interest a limited group. Users of the national Swedish PAEHR *Journalen* mostly logged into the portal about once a month, and its use was more common among persons with chronic conditions.[26] Despite being national, PAEHRs are not always well known to all citizens, either. In a 2015 study, the Kanta services were familiar to only little more than 60% of the respondents.[14,16] More recent user statistics based on unique personal identification codes show that by the end of 2018, 63% of adult Finns had at some point accessed the service that was launched already in 2010. Merely during the year 2018, 49% of Finns had logged in.[5]

Using online medical records is *a priori* supposed to have a positive impact. Observed outcomes according to earlier research include patients' increased involvement in their care, empowerment and improved communication between patients and professionals,[20,26–28] but also needs for additional information.[26,29]

Several studies have focused on reasons for using EHRs. Common ones are to read information in the record and to renew prescriptions.[1,14–18,23,25–27,30] Identified facilitators of use include perceived value of use[27] and usability (including user-friendliness, ease of use, and clarity).[11,14,16,28,31]

Earlier studies have also identified factors that might hinder the use of (PA)EHRs.[5] For example, in the Netherlands, only 40% of the older users of a patient portal found it useful.[1] Barriers include both social and individual factors like sociodemographic background,[32] health literacy,[33–36] skills in and attitudes toward technology,[22,23,34] and users' health status.[26] Other barriers relate to systems. These include lack of access, usability, timeliness, or issues related to the available contents.[18,20,21,25–27,31,36] Several studies have, furthermore, looked at EHR related security concerns,[18,21,22,24,31] but there are also studies concerning worries about how to manage and control access to patients' own health records.[20]

Method

We chose focus groups as a method to obtain in-depth insights into PAEHR use. The method has been used to study technology use and eHealth with older adults. Focus groups have been observed to enable productive discussions that lead to diverse views.[37] Participants might also express their views more spontaneously, and feel safer, supported and empowered.[38] Focus groups have been found useful both for exploratory research,[20] and for following up survey results in more detail.[24]

We interviewed altogether 24 persons in six focus groups with 3–5 participants each. Five interviews were conducted by two researchers and the sixth by one. The interviews lasted between 47 and 91 minutes and were conducted in May and June 2018 in two different cities in Finland, three in each. We used a convenience sample, and recruited potential participants in person through local universities, associations known to have larger proportions of older adults as members, a local Lions Club, as well as by using snowball sampling. Inclusion criteria were: being within or close to the age of 55–70 years and having previous experience of the My Kanta portal. Following several previous studies,[39] we decided that in this study, the lower age limit for older adults is 55 years. It should be noted, however, that there is no consensus in the literature on this matter, the lower age limit varying between 50 and 65 years. Participants gave informed consent prior to the interviews. We documented the interviews by video- and audio-recording and note taking. Two of the attending interviewers transcribed the discussions verbatim. The interview guide, developed based on an extensive systematic literature review,[29] contained sections on uses, enablers, barriers and outcomes of using the My Kanta and/or other similar EHR services. Furthermore, we requested the participants to provide ideas of a good EHR service. The aim was to provide general themes for the discussion but not to steer it in detail. In the end, we asked the attendants to fill out a short questionnaire with background information (gender, age, education level, working/retired, types of health-care providers used, and number of years using My Kanta). All data that were retained for analysis were anonymized in reporting.

The study followed applicable principles of the WMA Declaration of Helsinki.[40] The Finnish National Board on Research Integrity TENK requests an ethical review statement if participation does not include informed consent; the research intervenes in the physical integrity of the participants; the research focuses on participants under the age of 15, and consent from a parent or carer has not been obtained or they have not been informed and given the possibility to prevent the participation of the child; participants are exposed to exceptionally strong stimuli; the participants or their close ones are at risk of being caused mental harm; or the research could threaten the safety of the participants, researchers, or their close ones.[41] As none of these criteria apply to our study, an ethical approval by an external committee was not required.

Analysis

The analysis was inductive and based on content analysis, common approaches for analyzing focus group data.[20,21,38] The transcripts were read through several times, and themes, sub-categories and topics were identified. Topics were grouped together and eventually interpreted as belonging to one of the four guiding themes of study, that is, uses, enablers, barriers, and outcomes.

Results

Participants

Of the 24 interviewees, 17 (71%) were female and seven (29%) male. The ages of the participants ranged from 55 to 73 years with a mean age of 60.6 years. According to the survey, most of the participants had started using My Kanta only recently (see Table 1).

Table 1. Frequencies of background variables of interviewees (*n*= 24).

Gender	
Female	17 (70.8%)
Male	
Total	7 (29.2%)
	24 (100%)
Ages	
55–59 yeas	12 (50%)
60–64 years	
65 + years	7 (29.2%)
Total	5 (20.8%)
	24 (100%)
Education level	
High school and/or vocational degree	2 (8.3%)
Bachelor's degree	5 (20.8%)
Master's degree	8 (33.3%)
Doctoral/licentiate degree	9 (37.5%)
Total	24 (100%)
Type of health care used	
Occupational health care	17 (70.8%)
Public health care	
Other private health care	45 (16.7%)
Both public and other private health care	2 (8.3%)
Total	1 (4.2%)
	24 (100%)
Working status	
In working life	18 (75%)
Not in working life	
Total	6 (25%)
	24 (100%)
Number of years since first login to My Kanta	
Less than 1 year	5 (20.8%)
1–2 years	
2–5 years	8 (33.3%)
More than 5 years	8 (33.3%)
Total	3 (12.5%)
	24 (100%)

Uses of My Kanta

We divided the uses of the My Kanta service into two main sub-categories: *managing contents* and *orientating oneself* (see Table 2). Of the currently available features in My Kanta, participants in all groups mentioned that they used ePrescription. In all groups, at least some members had also filed an organ donation testament. Consulting the personal medical record was used for orientation (getting prepared) both ahead of appointments and after, especially for reading test results and what the physician had written about the appointment.

Table 2. The subcategories and representative quotes for the theme uses.

Theme	Subcategories and examples of topics that came up in the focus group discussions	Representative quotes
Uses	A. Managing contents (1) Check and renew prescriptions (2) File an organ donation testament B. Orientating oneself (1) Prepare for and review appointments or test results	1., 2., 3. "The organ donation testament and then really these epicrises from the doctor's appointments and the prescriptions and … " (3C) 1., 3. "[…] lab results, diagnoses, prescriptions and how long they are valid, which I think is a good thing […]" (2C)

Enablers of use

According to the analysis, the principal enablers for using PAEHRs were *perceived value* and *opportunities for improvement*. The identified sub-categories for perceived value were accessibility, feeling of control, and greater benefits (Table 3). The most common topics were nationwide availability and perceived ease, simplicity and intuitiveness of the use of the system. In addition, the portal was seen as helpful by providing access to the information in one place and in reducing the need to call the health-care provider by phone. Another commonly discussed benefit was the possibility to check laboratory results and monitor values over time. Furthermore, the possibility to see who has accessed the records and when was also seen as useful. A couple of groups discussed if My Kanta could help to keep track of the compatibility of medications. A third theme, discussed in some groups, related to the possibility to use the contents for research purposes.

Respondents provided several suggestions on improving My Kanta. These included additional and more complete information, reminders, usability improvements, personal interaction, and removal of unnecessary information. Participants hoped for more specific and easily findable information about their vaccinations in a virtual vaccination card or a separate section. In addition, all groups discussed the utility of reminders for vaccinations and prescriptions that needed to be renewed. Useful but currently missing information included blood group, allergies, and hemoglobin level. Half of the groups proposed access or links to additional information such as care instructions.

Furthermore, most of the groups discussed the need for more complete dental health information, as not all dental health providers add their information to My Kanta despite a specific section for this. Some also requested other specific types of information, such as cancer screening (e.g. mammogram) results, whereas others discussed the usefulness of adding information from the time before the Kanta archive was deployed, into the system.

Concerning usability, a perceived lack of interoperability between different EHRs was discussed in most groups similarly to the possibility to access My Kanta using a mobile application. Some groups discussed whether an application already existed and others were skeptical whether an app would be used or too difficult. Some also expressed concerns about the consequences of a possible phone theft. One interviewee considered an application advantageous especially for younger people. The participants also called for a standardization of the amount of information available in the epicrises. Several groups discussed navigational issues, as well. Some wished for easier navigation between sections, others for clearer section titles but also that updates would not lead to large changes in appearances or functions. One interviewee also touched upon the possibility to search the system without specifying dates and another one the possibility to use the system to pass information from a health-care provider to an insurance company and back.

The interviewees also commented on personalized features. Most groups called for personal health record (PHR)-related functions, such as the possibility to add information to the system, and interactivity in the form of a chat or messaging. One group also discussed the possibility of rating service providers. Some wanted a possibility to personalize the appearance of the site and broader language choices than Finnish or Swedish, whereas one group discussed tailored recommendations based on test results. A couple of groups suggested providing specific information for people of certain ages such as a reminder function for booking a checkup at a certain age or health-promoting

Table 3. The subcategories and representative quotes for the enablers.

Themes	Subcategories and examples of topics that came up in the focus group discussions	Representative quotes
Perceived value (enablers)	A. Accessibility (1) Available nationwide (2) Easy to use (3) All information in one place (4) More convenient than phone calls B. Feeling of control (5) Possibility to check test results, monitor condition (6) Possibility to check who has seen information and when (7) Possibility to check prescribed medications C. Greater benefits (8) Data for research purposes	1., 3. "[…] in one place, like the entire health-related documentation. That is extremely valuable if something happens and it is needed, or if you move from one city to another and there is a national service so at the same time the information is there and can be used." (1D) 2. "Using it [My Kanta] is easy." (4D) 3. "[…] you don't always have the strength to keep track on like all those printed paper prescriptions, so this is really tremendously convenient." (5B) 4. "[…] it is really useful like rather than to hang on the phone half a day […]" (4A) 5. "[…] some bar chart there, like it would be based on the appointments so that you could see if [the values] rise or drop" (2B) 6. "[…] for example he/she has somewhere checked this [information] produced by some other service provider." (3C) 7. "[…] older adults who cannot manage the situations so then you can at least see from there that what all [medications] do they have" (4B) 8. […] a huge data package that has now been created so you can in research later make use of it […]" (4D)
Opportunities for improvement (enablers)	A. Complete or additional information (1) Specific information about vaccinations (2) Care instructions or links to additional information (3) More complete information (dental health and cancer screening results) (4) Information about blood group, allergies, and hemoglobin level B. Reminder functions (5) Reminders for vaccination and prescription renewals C. Usability (6) Better interoperability between EHRs (7) My Kanta as mobile app (8) Fewer variations in amount of information in the epicrises (9) Contact to insurance company (10) Easy/clear navigation with clear names of sections· D. Personal interaction (11) Own input, feedback, chat service, and ratings (12) Personalized appearance or information, e.g. AI-based (13) Information for certain age groups (14) Graphs for monitoring E. Removal of information (15) Possibility to remove (obsolete) information	1. "[…] this vaccination thing so that is actually better if it is electronic because if you don't have the card with you when you go and take a shot, then … " (3D) 2. "What I was trying to find there when I was going to undergo a small surgery was that there would have been, like, care instructions." (1B) 3. "This municipal [dental health information] is not available in My Kanta […] I have checked." (6E) 3. "- but are they in My Kanta these mammograms?" (5B) "- no, that's what they aren't […]" (5A) 4. "The blood group should be there. Allergies. Medication allergies that is." (2B) 5. "[…] this kind of personal health record and there you can find everything, that which vaccinations you have had and which years and what should be renewed, so that would be brilliant." (1A) 6. "[…] this transferal of information is quite hopeless within the health sector because there are these different programs that don't talk to each other […]" (5C) 7. "Because many times a [cell] phone is the most convenient." (1C) 8. "[…] it depends very much on the doctor how much they write […]". (5C) 9. "[…] it would be good that it [My Kanta] would communicate with the insurance people." (4C) 10. "[…] you, for example, look at the diagnoses, that you go to that section. If you want to have the next diagnosis you have to return to the diagnosis main menu […] so I don't think that works." (2C) 11. "[…] a section where you could, like, yourself add some information like when you for example have taken a vaccination sometimes you can add the date, that you could gather kind of your own archive there." (1A) 12. "[…] personalization of the browser […]. The appearance is quite boring. And the fonts are small" (3D) 13. "[…] if you are like fifty, that then it would send you something like 'hello have you checked your health', that kind of reminder" (1C) 14." -[…] a bar graph, some kind of table if you for example aim at lowering a value that like … " (2B) "-You can compare" (2A) 15. "Is it significant that a 15-year-old has had an abortion or the like anymore when she is 40, that could this file be like cleaned?" (3B)

Table 4. The subcategories and representative quotes for the barriers.

Themes	Subcategories and examples of topics that came up in the focus group discussions	Representative quotes
Challenges with access (barriers)	A. Technical challenges (1) Hassle with bank access codes (2) Interruptions in access B. Legal challenges (3) Low age limit for parental access to children's records	1., 3. "[…] [the child] cannot log in there him/herself as underage, either … " (3C) 1., 2. "[…] I was going to open something in a new window, and then it throws me out from everything just so oh-oh, nothing! Then another bank access code had to be used […]." (5D) 3. "[…] up to 14 years I think you should be able to see the information about your children." (5A)
Concerns (barriers)	A. Security issues (1) Security and privacy concerns B. Insecurity about contents (2) Medical terminology or Latin (3) How to file the living will (4) Fear of seeing negative or frightening information prematurely C. Insecurity about system (5) Confusion when using differing EHRs (6) Lack of knowledge about who maintains Kanta (7 Feeling that system is mainly for professionals (8) Concern about information after death D. Frustration with professionals' actions (9) Errors in information (10) Feeling that doctors do not check information beforehand (11) Delay in input/transferral of information after appointments (12) Suspicion that information is withheld E. Fear of losing traditional information (13) Alternatives for non-users	1. "[…] is it easy to break into, that is one of the small fears, but I don't know if it is, personally I don't see it as a very serious problem that well some disgusting net criminal will take a look at my information […]" (2C) 2. "[…] this medical terminology, so even if you read it and can take part of it you don't understand it." (5A) 3. " But this living will, it felt a bit too complicated to start thinking about because I think it was an open text field and then you have to think it through quite thoroughly before you start expressing yourself" (6B) 4. "[…] if they [the bioanalytics] see there that what an awful value, that do they immediately inform the physician before it is added to My Kanta so that he/she can be in touch with the patient […]" (4B) 5. "So now you see, three overlapping [systems]. A senior citizen is now a bit … " (1C) 6. "[…] who is responsible like for the maintenance of this database?" (4D) 7. "[…] it could be that it better serves health-care, health-care professionals." (1D) 8. "What happens to this information after a person has died, then?" (4D) 9. "They had added the wrong patient's [medication] into my [record], so it was a human error by the physician then." (5B) 10. "[…] they haven't checked at all, so there is no contact then between these results that disappear into My Kanta and, and the doctor." (6C) 11. "I think there should be faster like transferal between different things […]" (6A) 12. "[…] you [should not] think that it says really everything that is circulated let's say within health care, that you can access that information" (6E) 13. "[…] they have to come in paper format too, because everybody does not necessarily use these in that way then." (1A)

information targeted at people based on their age. Further, visualizations were considered potentially helpful for monitoring health-related measurement data. Finally, one interviewee suggested a function to remove obsolete or insignificant information from the record.

Barriers to use

Barriers to use were categorized as *challenges with access* and *concerns* (Table 4). The technical challenge mentioned by most groups was that the use of personal bank codes for authentication made accessing the information unnecessarily difficult for older parents, who did not want them and children under 15 years, who are not provided codes by the banks. Problems related to access were another annoyance discussed. Respondents had been unable to log in to the system due to interruptions in the service or had been thrown out during a session. Furthermore, the rule that children's medical information was not available to their parents after the child turned 10 years did upset some participants.

Table 5. The subcategories and representative quotes for the theme outcomes.

Theme	Subcategories and examples of topics that came up in the focus group discussions	Representative quotes
Outcomes	A. Behavior change (1) Influence on health behavior (2) Influence on personal health information management B. Information seeking and sharing (3) Seeking additional information in Google and medical sources (4) Discussions or comparisons with friends or family C. Learning (5) Increased interest in and better understanding of test results	1. "Well of course it does [have influence] on health choices [...]. (2A) 2. "[...] when it is gathered in one place it is very good, because I am not that good at keeping my papers in order." (5B) 3. "[...] I have looked there and then tried to interpret it and then I cut and paste into doctor Google or, or to some health site or like try to go deeper into the issue." (5B) 4. " ... well I think I sometimes do tell [son's name] something." (2A) 5. "[...] when you look at some blood values so it shows, for example, all limits. So now I learned a little like that, to mirror them that are they within normal limits or not." (2C)

All groups discussed security and privacy concerns. These included hesitance to give service providers access to all information if it was not necessary. Insecurity about the contents was related, for example, to language. Most groups discussed that the use of medical terminology or Latin phrases could hinder the understanding of the contents. The opportunity to write a living will in the portal in free text, without any instructions or examples, meant that the interviewees did not use it. In most groups, the participants were concerned that worrying information such as alarming test results might appear in the system before the patient had an opportunity to discuss them with a health professional.

The different PAEHRs available for the study participants also caused some confusion. The majority of respondents were still active in working life and had access to the EHRs of their occupational health-care providers. Furthermore, some municipalities have their own systems, meaning that, My Kanta included, most interviewees had access to at least three different EHRs. The contents of the different systems were often mixed up. In a couple of groups, there was also confusion about which institution maintains the Kanta services and concern about what happens to the information after the death of a patient.

Sometimes, frustration was related to the actions of health professionals. Most groups discussed possible errors in the existing information. Some respondents had personal experiences of worrying errors in their prescriptions. A couple of groups expressed concerns that the health professionals do not check My Kanta before an appointment or even in an emergency. Some interviewees, furthermore, requested faster transferral of information from one system to another. Occasionally, the participants suspected that patients are not allowed to access all information about themselves. Some of the interviewees also considered the system to be developed for the professionals and dissatisfied that patients were expected to adapt to their preferences. Some groups also emphasized that everyone – especially older adults – is neither able nor willing to use the My Kanta portal, and the information needs to be available in other forms, as well.

Outcomes of use

According to the analysis, using My Kanta could have different outcomes including behavioral change, seeking and sharing of information, and learning (see Table 5). The most common outcomes were its impact on health behavior and a better management of personal health information. It was, however, primarily the information (e.g., diagnosis) that influenced the behavior, not the use of the system. The respondents also discussed where they find additional information if they, for example, need clarification about the information in My Kanta. Typical external sources were information found through Google or health-related websites. In half of the groups, participants had shared information from the

portal with others, mainly family members or friends, although not on social media. Furthermore, My Kanta had increased interest in and, to some extent, led to a better understanding of test results.

Discussion

This study focused on how the PAEHR My Kanta and similar services are used by and correspond to the expectations of older users. The first research question addressed older adults' use of My Kanta and other patient-accessible eHealth services. The study participants were mainly new users of the My Kanta portal. More than half had used it less than two years. The most commonly used currently available features were ePrescriptions and the organ donation testament. Managing one's prescriptions is a common reason for using the EHRs according to other studies, as well.[14–18,23,25] Also, the consultation of laboratory results and epicrises has been documented in the previous research.[1,18,25–27,30] Similarly to the respondents of Shah et al.[27] and Wass, Vimarlund, and Ros,[28] this was most commonly done after appointments but also to prepare for them. Other potential uses currently unavailable in My Kanta, were requesting or planning appointments and using secure messaging.[1,25] Furthermore, checking for errors in the information has been touched upon in the literature,[26] but the interviewees of the current study did not see this as a major reason for using a PAEHR, even if some had noticed errors in their own records.

The most common perceived outcome of using My Kanta and other PAEHRs was their impact on either the attendants' health behavior or personal health information management. Noteworthy is, however, that it was mainly not the use of the system itself that influenced behavior, but rather the contents, for example, in the form of a diagnosis. In many cases, however, the use generated a need for seeking more information, often online. Research shows that additional information is often sought on the internet in general,[26,27] or by following provided links.[27] In addition, calling the hospital or asking questions during the following visit has been reported.[26] For some of the interviewees, the use of a PAEHR had led to learning and improved their understanding of their health. According to previous studies,[20,26,28] a typical outcome is to feel more informed and have improved communication in health-care settings.

The second research question concerned how PAEHR services correspond to the expectations of the users and how to improve the services. In the analysis, we divided enabling and facilitating factors to perceived value and opportunities for improvement. Perceived value of use can, for example, include saving on extra calls to doctors or the possibility to see test results online without the need for contacting the care provider.[27] A previous comparable focus group study in the USA found that lack of perceived value could hinder the use of personal health records. The possibility to review and update personal clinical data, the opportunities to communicate with health-care providers, to organize personal health records for sharing them with other providers, and the perceived usability of the obtained information facilitated use.[21] In the present study, availability of the information in My Kanta to all care providers in the entire country was most valued.

My Kanta was mostly perceived easy to use. Ease of use and access have influenced use according to other studies, as well.[1,14,16,31] Previous research has also found that monitoring or following up on one's health condition over time can be a reason for use.[1,18,27] It was quite often mentioned in the current interviews, as well. In addition, the participants valued having all information available in one place. In one group, similarly to previous results,[14,16,27] saving on phone calls was considered positive. A somewhat different proposal for enhancing the value of EHRs was suggested in Papoutsi et al.,[24] where the respondents supported the idea of sharing data from EHRs for research and policy purposes, especially assuming that it would lead to a better understanding of diseases and their causes, and development of better treatments. In the current study, a couple of groups referred to the same possibility, perhaps because several of the interviewees had a doctoral or licentiate degree, and hence a certain interest in research.

Despite being rather content with the PAEHRs, the interviewees also found room for improvement. In the USA, patients asked for at the time unavailable opportunities to review test results, to correct

incorrect information in the service, to coordinate information across different providers, and to make or change appointments.[21] The most discussed opportunity for improvement in the current study was a specific section for vaccination information. In contrast to its Swedish equivalent *Journalen*,[26] My Kanta lacked this feature, and vaccinations were listed as appointments making them difficult to find. Furthermore, the interviewees commonly requested more complete information on specific matters, such as dental health or blood group. Most groups would also have welcomed, similarly to the interviewees in the studies by Dontje and colleagues and Nymberg et al.,[21,23] better interoperability and communication between different EHRs. Some also discussed the possibility to use the My Kanta portal as a PHR to archive personal health information. Only a few months after the interviews, My Kanta Pages Personal Health Record was introduced for recording wellness information although the use of this PHR is still limited during a trial phase.[9] Nymberg et al.,[23] on their hand, mentioned the possibility for online appointment bookings and video consultations, that is, features which were not at all discussed in the current interviews.

Some of the barriers should be taken into consideration when developing the service. Despite being largely content with the ease of use of My Kanta, some interviewees expressed concerns about technical issues relating to logging in, interrupted contact, and usability problems related to, for example, navigation. Login problems have also been documented with other systems.[1,21,25,27,31] The age limit, raised in 2020, [8] but at the time of the interviews lower than in many other countries,[6] was considered problematic. Frustration with access-related technical issues, temporal unavailability of information, or limitations in the available contents have also been reported across studies. Limitations can be an issue especially for those wanting to know more about particular aspects of their health or treatment, for example, test results.[27,36] Timeliness can be a problem when, for example, test results are not available as fast as preferred.[1,26,27] In the current study, interviewees also expressed frustration with delays in the input or transferral of information after appointments, and some suspected that some patient information might be hidden from the patients altogether.

Security and privacy issues were the most commonly mentioned concerns. These included the risk that the portal is hacked or that the information is accessed by someone who does not need to see it. Earlier literature shows comparable concerns relating to security and risk of intrusions,[21,22,24] identity theft, unauthorized access by people outside the health service, and worries about sharing of incorrect information.[24,31] Other identified barriers to the use of e-health systems include concerns about decreased human contact with the health-care provider for those who prefer to talk in person[18,22,23] and that it would be impossible to register with the portal without help.[22] For the My Kanta portal, a registration is not needed, as all Finns are included as users without a separate registration. Nevertheless, also our participants discussed access because many lack bank access codes or a mobile certificate needed for entering the system. Another earlier identified potential barrier, [22] partially seconded by the present findings, is that because some patients think that the existing systems worked fine, in order to be used, a new portal and its contents needed to be very simple to understand, interpret, and use. Problems caused by the use of medical terminology and Latin words were expressed by several groups in the current study, which is similar to the situation elsewhere.[1,20,21] There was some concern about seeing worrying information before having the opportunity to discuss it with a doctor. In Germany, it was anticipated that seeing too much information about yourself could cause anxiety.[20] Nevertheless, Swedish studies have shown that only one-fourth or fewer had felt worried about something they had seen in their PAEHR.[26,28]

This focus group study is not without limitations. The results are based on the views of a small and largely homogenous group of older adults with varying experience of the studied PAEHR. The participants were mainly female, highly educated, half of them were under 60 years old, and 75% were still in working life with access to occupational health care. The results can hence not be generalized and compared to older Finns in general. Hence, a larger study, conducted as a survey using similar items on a representative sample of older adult users of current PAEHRs and other eHealth services, was considered needed to see if the findings are generalizable on

a population level. Accordingly, a self-administered questionnaire developed based on the focus group study was mailed by post to a sample of 1,000 Finns aged 55–70 years in the summer of 2019.

Conclusions

The results of the current study are largely in line with those of previous studies on different populations and the use of and expectations toward PAEHRs. Some earlier less discussed issues do deserve additional consideration, however. PAEHRs are often incomplete and under development when taken into use. The consequent lack of content and features that users expect can cause frustration and hinder effective use both at the time and in the long run. Addressing actual and potential security and usability concerns, and providing additional information and functions that patients need to understand and benefit from the contents of the PAEHR, can be expected to increase the use of and satisfaction with the service. The same applies to the coherence and timeliness of information from different health-care providers in the eHealth services.

Implications

The interviews revealed a number of enablers for and barriers to use, including suggestions for improvement that can guide maintenance and improvement of existing and development of new systems. The many concerns expressed by the interviewees should be taken into consideration in not only systems development but also when health-care professionals meet older patients in person and write the contents of the PAEHRs. Instead of being merely technical, social or sociotechnical, the concerns and barriers relating to the use of My Kanta were socio-techno-informational in a sense that they were tightly associated with the contents of the EHR.

Drawing from our results, the My Kanta portal and similar PAEHRs could be improved by adding features that users find needed and useful, such as separate sections for specific information like blood group or links to additional information including care instructions. Especially for older adults, navigation should be made easy and possibilities to, for example, enlarge the text be offered. More interactivity in the form of patients' possibilities to add their personal information or to contact health care through secure messaging, as well as reminders sent from the system could be added, as well. To attract younger users, a mobile application could be helpful. Enhanced interoperability in order to diminish delays in exchange of information between systems is suggested, as well. In addition, health professionals' provision of contents that are timely, thorough, understandable, and free from errors is emphasized. The interviewees obviously felt that PAEHRs are products developed based on service providers' instead of end users' needs and desires. Even health professionals are currently under-utilized in the development of health information systems.[42] We propose that considering also lay users' views to a broader extent could lead to increased use of and satisfaction with PAEHRs. Most practical could be to do this prior to introducing new components to already existing systems.

Disclosure of interest

The authors report no conflict of interest.

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