

# Towards digital counselling in primary care management of symptomatic knee osteoarthritis: a qualitative descriptive study in Finnish primary care

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## Abstract

Digital counselling may improve patients' health outcomes, when eHealth solutions are accessible and tailored to the patients' needs, which is especially important for people with chronic and long-term conditions such as knee osteoarthritis. This study aims to identify patients' eHealth needs to improve the quality of digital counselling in a primary care management of symptomatic knee osteoarthritis. A qualitative study was used to collect patients' eHealth needs through semi-structured interviews in a single outpatient clinic in Finland between August 2020 and November 2020. The data was analyzed using both deductive and inductive content analysis approaches. The study was reported in accordance with the Consolidated Criteria for Reporting Qualitative research checklist to improve the transparency of the study.

Analysis of the data revealed five main categories to be considered when implementing digital counselling in patients with symptomatic knee osteoarthritis: background factors (functional impairments, health literacy, digital literacy, cost-related access barriers), resources (digital methods and materials), sufficiency (knee osteoarthritis-related knowledge and skills), implementation (simplicity, trust, patient-centeredness), and benefits (self-care capabilities, confidence).

According to our findings, both health and digital literacy seems to be important contributors to the adoption of digital counselling in a primary care management of symptomatic knee osteoarthritis. New eHealth solutions should not replace the first visit in the outpatient clinic. Instead, the use of eHealth solutions should be based on the first visit, during which a trusting relationship between patients and healthcare providers is established. In future, the level of health and digital literacy in patients with symptomatic knee osteoarthritis should be taken account.

**Keywords:** telemedicine, health services, counseling, primary health care

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## Introduction

Knee osteoarthritis (KOA) is a degenerative joint disease that worsens over time [1]. While there is a remarkable international variation in the prevalence and incidence of KOA, the burden of KOA is increasing worldwide [2,3]. Primary care management of symptomatic KOA aims to manage pain and increase mobility [4], whereas inadequate motivation, lack of knowledge and confidence, and ineffective communication have hampered patients' self-care capabilities [5]. According to Jansson et al. [5], patients have diverse needs depending on diagnosis, (long-term) prognosis, management, and prevention of KOA at different stages of the disease. A discrepancy between patients' needs and quality of counselling provided by healthcare providers (HCPs) may contribute to poor patient engagement and thus less optimal health outcomes [6].

Patient counselling refers to the continuum of providing information, advice and assistance to the patients or their representatives about self-care and other health-related issues. Good patient counselling can be characterized as a patient-centered and goal-oriented process based on an interactive and two-way dialogue between patients and HCPs [7]. Contrary to patient information or advice-giving, good patient counselling also takes into account the patients' needs and its amount can vary widely depending on the type and complexity of advice being given. In addition, it promotes patients' ability to take a more active role in their own care. In order to achieve these objectives, appropriate resources with diverse methods should be used in a confidential atmosphere [7,8].

In the previous literature, patients aged below 40 years have been more dissatisfied with counselling than older ones [7] whereas females have had higher health information needs than males [8]. In

addition, 30% of patients with osteoarthritis (OA) have been unaware of the type of arthritis they have [9] whereas poor health literacy, lack of access, and lack of support have been the main barriers hindering self-efficacy in chronic conditions [10]. Health literacy is defined as the *"ability of an individual to obtain and translate knowledge and information in order to maintain and improve health in a way that is appropriate to the individual and system contexts"* [11]. Perceived gaps in health literacy have been related to knowledge of medicine (e.g., medications, treatment), health (e.g., healthy behaviours, healthy lifestyle), and healthcare systems (e.g., available services), ability to use of information in various formats (e.g., access to health information), and ability to maintain health (e.g., self-regulation) [5, 6]. Optimisation of health information (e.g., clear communication, variety of sources, content needs) could decrease information overload and improve treatment adherence [10] whereas patient-centered counselling has correlated with recovery in knee and shoulder arthroscopy patients [8]. However, patients' needs in primary care management of symptomatic KOA is unknown territory because the previous literature has mainly focused on surgical management in secondary care setting [5].

In the previous literature, the low health literacy has been an important contributor to digital literacy [12]. The American Library Association defines digital literacy as *"the ability to use information and communication technologies to find, evaluate, create, and communicate information, requiring both cognitive and technical skills"*. Digital counselling refers to the adoption of eHealth solutions (e.g., information and communication technologies, wearables) in the conventional methods (e.g., verbal, written). Digital counselling may improve patient-provider communication and health outcomes, when eHealth solutions are accessible, regardless

of place or time, and tailored to the patients' health needs [13,14].

Although the virtual hospital initiative in Finland has already started to develop digital care pathways for citizens, HCPs, and patients in digital health conditions [15], there is a complete lack of targeted and tailored solutions covering the whole KOA pathway from admission to discharge and beyond, which is especially important for people with chronic and long-term conditions such as KOA [16,17]. In addition, there is a lack of knowledge on how to create value for patients themselves [13] whereas improvements in early diagnostics and clinical decision-making have improved performance (e.g., outcomes) and accountability (e.g., costs) in primary and secondary care management of symptomatic OA [18,19].

This qualitative descriptive study is part of a Co-innovation project that co-designs [5, 18, 19] and evaluates [16,17,20] the effects of new eHealth solutions, together with customers, companies, and academia. The aim of the present study is to identify patients' eHealth needs to improve the quality of counselling in a primary care management of symptomatic KOA. The research questions are: *What kind of experiences with counselling and perceptions of digital counselling do patients have during primary care management of symptomatic KOA?*

## Material and methods

This study was a qualitative descriptive study [21]. According to an interpretive paradigm, the findings were identified through the researcher's values and interpretation in a particular context and moment.

## Participants

Semi-structured interviews were conducted in a single outpatient clinic in Finland between August 2020 and November 2020. Patients were selected through purposive sampling. During the visit, individuals that have experiences and knowledge of the phenomenon of interest were asked by physiotherapists if they wanted to participate in an interview. All  $\geq 45$ -year-old-patients who had gone to an outpatient clinic because of unilateral or bilateral OA of the knee (ICD-10-CM diagnosis codes M17.0–1) and/or symptomatic radiological knee (Kellgren & Lawrence grades 1–2) without trauma or infection were enrolled. Conventional counselling consists of verbal instructions, physiotherapy techniques, paper-based home exercise programs, and assistive devices (e.g., mobility, walking, and stretching aids). If needed, home exercise programs can be supplemented with electronic instructions.

## Data collection

Individual interviews were conducted in a private room at the outpatient clinic by the study nurse (RL). The patients were clearly informed that the study nurse was not in a care relationship with the patient. Before the interview, the study nurse introduced her name, occupation, and affiliations and explained the aim of the study. Volunteer patients who agreed to participate signed an informed-consent document prior the audio-recorded interview. Patient withdrawal was possible for any reason at any point.

Interview guide comprised five questions related to patient-related background factors. In addition, the duration of symptoms as well as the frequently used health information sources were explored. In Finland, health information can be sought from local (e.g., Omaolo) and national health information (e.g., My Kanta Pages) services. The Omaolo service

includes symptom checkers, service assessments, electronic health as well as periodic and well-being check-ups, personal treatment and service entities, and well-being coaching programmes (<https://www.omaolo.fi/>). My Kanta Pages services includes electronic prescriptions, health records, and laboratory tests and X-ray examinations (<https://www.kanta.fi/en/my-kanta-pages>).

The themes of the interviews were identified, based on the previous literature [5,7,8,22,23] and confirmed by experts as follows: The sufficiency of counselling; the implementation of counselling; the benefits of counselling; and the resources of counselling. The interviews lasted from 8 to 36 minutes (mean 15 minutes; 2 hours 26 minutes in total). Confidential, pseudonymised data was transcribed immediately by a medical transcription company. Pseudonymised transcripts were stored on the university's password-protected server.

### Data analysis

NVivo qualitative data analysis Software (QRR International Pty Ltd., Version 1.5) was used to analyse pseudonymised transcripts. The data was analyzed using both deductive and inductive content analysis approaches [24]; first, an unconstrained categorization matrix was developed according to a hypothetical model of the quality of counselling [7]. Thereafter, all the data were reviewed for content and coded according to the main categories (Table 1). Generic- and sub-categories were created following the principles of inductive content analysis [24]. The initial coding was conducted by the corresponding author (Ph.D.) and reviewed by the second Ph.D-qualified author (MK). Each generic- and sub-category was named using content-characteristic words [24]. This study was reported in accordance with the Consolidated Criteria for Reporting Qualitative research checklist for qualitative studies [25].

**Table 1.** Coding tree.

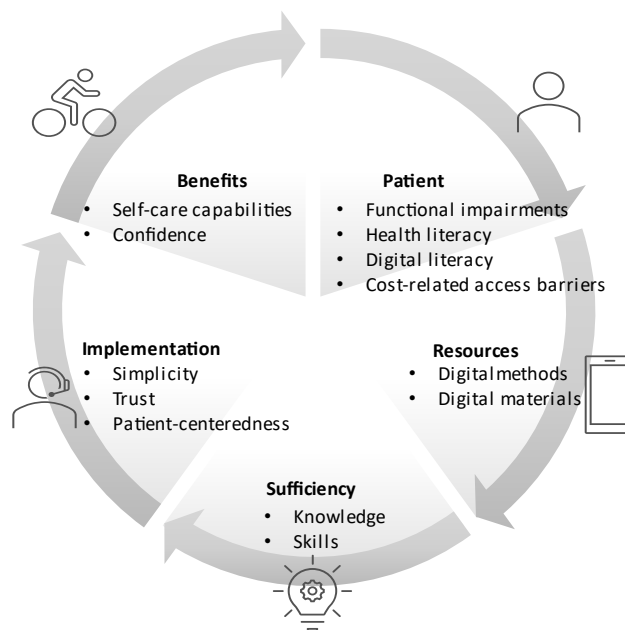
Main category	Generic category	Sub-category	
Resources	Digital methods	Verbal counselling Printed materials	
	Digital materials	Electronic instructions Videos	
Sufficiency	Knowledge	Disease-related information Pain management Polypharmacy Social security benefits Preventative contents	
		Skills	Exercises
		Simplicity	Clear instructions Targeted instructions Movement restrictions
Implementation	Trust	Trusting relationship Timeliness Face-to-face interaction	
		Patient-centredness Self-care capabilities	Patients' needs Self-care skills Self-confidence Motivation
Benefits	Confidence	Digital care pathway Continuity of care	

### Ethical issues

The Institutional Review Board approved the study (Decision No: OUKA/4172/07.01.04.02/2020). A written informed consent was signed by the patients (Declaration of Helsinki, 2013). A cover letter explained the aim of the study and emphasised the voluntary and confidential nature of the participation. The study nurse who collected the data did not have any direct connection to the patients involved in this research. The pseudonymised interview data was available to two researchers (MJ, MK). The keycode list is available only for the study nurse (RL). The audio-recorded interviews were destroyed immediately after transcription. Pseudonymised transcripts will be destroyed in ten years.

### Results

Ten KOA patients participated in the study. One patient withdrew from the study due to the restrictions related to COVID-19. All patients were women aged from 45 to 83 years (mean 64.2, SD 12.8). Five of them were retired. Six patients had had knee symptoms for less than a year (range from 5 months to 10 years, mean 36.8 months, SD 43.0). Seven patients had previously used local (e.g., Omaolo) and national health information (e.g., My Kanta Pages, ePrescription) services. Health information was mainly obtained from the Internet (Google). eHealth needs were formed into five main categories deductively: patient-related background factors, resources, sufficiency, implementation, and benefits of digital counselling (Fig. 1).



**Figure 1.** Patients' eHealth needs in a primary care management of symptomatic knee osteoarthritis with patient-related background factors.

### **Patient-related background factors**

Patient-related background factors were formed into four main categories inductively: functional impairments (e.g., pain, stiffness, and mobility), health literacy, digital literacy, and cost-related access barriers. The level of health literacy regarding medicine (e.g., medications, treatment), health (e.g., healthy behaviours, healthy lifestyle), and healthcare systems (e.g., available services) was low. In addition, the level of digital literacy was inadequate. Patients obtained digital health information from a variety of complementary sources, but they were unsecured with digital health information. They wanted to know where to seek and find accurate information. One interviewee stated: *“Of course anything can be added to the Internet, but if you do not even know what to look for...”* (ID 0079). In addition, some of them did not know how to perform online tasks or search health information online. Cost-related access barriers were related to health care. In some places, treatment is discontinued due to cost. For instance, one interviewee noted, *“But it (physiotherapy) is so expensive. The person who is on a pension does not have money to go for that. Three times I was there and 180 (€)....”* (ID 0087). In addition, some of them did not have access to smartphones.

### **Counselling resources**

Counselling resources were formed into two main categories inductively: digital counselling methods and materials. The most commonly used method for the patients was verbal counselling with printed and/or electronic instructions. However, other counselling materials, such as video recordings, were not used, although patients found them useful. For instance, one interviewee stated: *“As I said, it would be good to get an instructional video about home exercises... Maybe getting them would support my own activity level; maybe it could be*

*motivating if someone could review the exercises and tell me what the effect and benefit of them is”* (ID 0086).

### **Sufficiency of counselling**

The sufficiency of counselling was formed into two main categories inductively: KOA-related knowledge and skills. Most patients experienced that the counselling focused mainly on symptoms (e.g., pain, stiffness, movement restrictions), but they needed more information about OA itself as a disease. For instance, one interviewee stated: *“I did not really understand what osteoarthritis is. I guess there is sciatica or something like that”* (ID 0078). Other health information needs were related to pain management (e.g., medication options), polypharmacy, and social security benefits. In addition, the counselling did not cover preventative contents such as diet, mental wellbeing, infection prevention, and (modifiable) risk factors. For instance, one interviewee demonstrated this by stating: *“Maybe we talked more about the weight than the diet”* (ID 0083). Patients experienced that the counselling concerning rehabilitation such as exercises for KOA (e.g., mobility, muscle strength) and assistive devices (e.g., mobility, walking, and stretching aids) were related to their needs. However, the patients wanted more counselling in new exercises (e.g., stretching). For instance, one interviewee noted: *“If I have joint pain, it would be useful to know what kind of exercise is good for this situation, etc.”* (ID 0088).

### **Implementation of counselling**

Implementation of counselling was formed into three main categories inductively: simplicity, trust, and patient-centeredness. According to interviewees, eHealth solutions should be simple to use and include clear, targeted instructions with movement restrictions (what to do, and how to do it). In

addition, the use of eHealth solutions should be based on a trusting relationship between patients and HCPs. According to one interviewee: *"It is one of the most important things that you can trust that the things are going as planned. It will be built between humans for sure"* (ID 0079). To develop a trusting relationship, the timing of digital counselling as a part of the patient's care pathway should be considered. Patients felt that eHealth solutions should not replace the initial face-to-face visit in the outpatient clinic. For instance, one interviewee stated: *"(eHealth solutions) not for this first time for sure"* (ID 0084). The patients were, however, worried about the decreasing patient-centeredness such as targeted information based on patient's relevant, and timeliness needs as well as face-to-face interaction. One interviewee stated: *"I resist looking at the Google system for elderly people. It (counselling) has to be personal"* (ID 0080). According to one patient: *"It (face-to-face counselling) gives you an immediate answer to unsure things or lack of information or something like that.... Machines cannot do that"* (ID 0080).

### **Benefits of counselling**

The benefits of counselling were formed into two main categories inductively: self-care capabilities and confidence. The counselling provided was found to improve patients' everyday life by increasing their knowledge of the disease and its self-care (e.g., pain management, exercises), self-confidence, and motivation to adhere to the self-care. For instance, one interviewee stated: *"But, it was motivating to follow the received instructions. That was the benefit of this"* (ID 0088). In addition, the patients experienced that the counselling increased their confidence in the continuity of care. Patients also had a preliminary vision of a digital care pathway that would increase a feeling of safety.

### **Discussion**

Digital counselling may improve health outcomes, when eHealth solutions are accessible and tailored to the patients' needs. However, eHealth solutions can only be broadly effective if all patients are able to access, use, and understand them. This qualitative study is the first study focusing on patients' eHealth needs in a primary care management of symptomatic KOA: the current knowledge base regarding the quality of counselling seems to be fragmented across secondary and primary care settings. According to our findings, both health and digital literacy seems to be important contributors to the adoption of digital counselling in a primary care management of symptomatic KOA.

Patient-related background factors were related to functional impairments, health literacy (e.g., knowledge of health and healthcare, ability to process and use information in various formats), digital literacy (e.g., lack of smartphone), and cost-related access barriers (e.g., treatment costs). In the previous literature, poor health literacy has been related to adverse health outcomes and limited access to health services [11]. According to Okuhara et al. [26], the end-users should be involved in the generation of health information to increase readers' self-efficacy and thus, the adoption of health-related behaviours. However, it is not enough to design eHealth solutions in a health-literate manner; both health [11] and digital literacy need to be ensured [12]; in the previous literature, the low health literacy has been an important contributor to digital literacy [27-28]. In line with Vollbrecht et al. [28], the level of digital literacy was found to be inadequate. Attitudes toward the adoption of eHealth solutions were conflicting: some patients preferred digital materials (e.g., simple, easy-to-read instructions) to promote self-care, while some others had a limited access to the Internet, or they favoured

other information sources. In addition, some of them had limited capability to perform online tasks or search health information online: the patients' family members were acting on behalf of them, for instance.

The sufficiency of counselling in KOA was related to knowledge and skills. In line with previous literature, some patients were unaware of the diagnosis they have [9]. In addition, some of them were dissatisfied with the type and amount of information received. In line with Chou et al. [6], patients wanted more information about diagnosis, management options (e.g., pharmacological and non-pharmacological options, weight management) and exercise therapy (e.g., mobility, muscle strength). Our results pinpoint cost-related access barriers to health care, whereas digital care pathways could enable more cost-efficient, tailored, and targeted health information delivery in various formats to build patient-centric care. Although eHealth solutions have the potential to improve health outcomes, performance, and accountability [16,17] they can also exacerbate existing health disparities [27,28,29]. For that reason, health technology assessments must include consideration of equity to demonstrate value [30].

Implementation of counselling was related to simplicity, trust, and patient-centeredness. In line with previous literature [5,6], patients wanted clear, easy to understand information. In general, the patients were worried about the decreasing patient-centeredness such as targeted information based on patient relevancy, timeliness needs as well as access to realtime face-to-face interaction. In the literature, the person-centered approaches have found to provide a sense of security and confidence in patients with rheumatoid arthritis [31]. HCPs have highlighted the need for digital patient-related outcome measures to profile patients

beforehand to provide patient-centered and goal-oriented counselling in a timely manner [18]. This is in line with the patients' points of view: patients want to submit preliminary questions prior to their visit [5]. Using the patient profiling approach could improve long-term benefits—and thus, value-based care.

The benefits of counselling in KOA were related to improved self-care capabilities and confidence, which is critical to maintain healthy behaviors [11]. According to the previous literature, eHealth solutions provide opportunities for effective OA self-care post-joint replacement [16,17,32]. According to interviewees, however, eHealth solutions should not replace the first visit in the outpatient clinic. Instead, the use of eHealth solutions should be based on the first visit, during which a trusting relationship is established. This is in line with Eriksson & Nilsson [33], who pinpointed the importance of nurses' pedagogical competencies and the continuity in the patient meeting as preconditions for establishing a trusting relationship. According to Aunan et al., continuity in information flow increases trust and thus, satisfaction [34].

### **Limitations**

Semi-structured interviews were conducted at one outpatient clinic where the majority were women, most of whom had knee symptoms for less than a year and moderate joint space (Kellgren & Lawrence grades 1–2). In the previous literature, under 40 years females with severe joint space narrowing have had higher counselling and health information needs than males [7,8,35]. During the study period, the obtained sample size remained low due to the restrictions of Covid-19. However, data saturation was achieved. Individual interviews were conducted in a private room at the outpatient clinic by the study nurse who had both methodological and clinical expertise. The study nurse did not try to



influence participants' accounts of their experiences to maintain objectivity. The interviews were audio-recorded and transcribed immediately to achieve credibility [20]. In addition, authentic citations were used. The data analysis process involved more than one Ph.D-qualified researcher to ensure objectivity. This study was reported in accordance with the COREQ checklist for qualitative studies.

## Conclusions

According to our findings, both health and digital literacy seems to be important contributors to the adoption of digital counselling in a primary care management of symptomatic KOA. Patients need more easy access information about diagnosis, management options, and exercise therapy to promote patients' ability to take a more active role in their own care. Our results pinpoint cost-related access barriers to health care, whereas digital care pathways could enable more cost-efficient, tailored, and targeted health information delivery in various formats to build patient-centric care. However, the patients were worried about the decreasing patient-centeredness. In addition, new eHealth solutions should not replace the first visit in the outpatient clinic. Instead, the use of eHealth solutions should be based on the first visit, during which a

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trusting relationship between patients and HCP is established. In addition, continuity in information flow should not be forgotten in a decentralized KOA pathway. In future, patients' level of health literacy and digital literacy should be improved in patients with symptomatic KOA. In addition, the need for continuous education related to the HCPs' digital health competencies are warranted to improve the quality of digital counselling.

## Conflicting of interest statement

All authors declare no conflicts of interest.

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