BMJ Open

CARING FUTURES: a study protocol for transdisciplinary qualitative research on technology-mediated care practices and theory development for ethics of care

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ABSTRACT

Introduction The world's population is ageing. As older persons live longer and increase in number, society faces a greater disease burden and, in public welfare, a corresponding resource deficit. New technology is one solution to this deficit but there is scarce knowledge about ethical aspects of such innovations in care practices. In CARING FUTURES, we address this scarcity by interrogating how new technology in care can become ethically sound and, correspondingly, how ethics of care can become more technology aware. Our concern is to protect quality care for the future.

Methods and analysis CARING FUTURES advances transdisciplinarity through knowledge exchange around technology-mediated care and ethics of care, involving key stakeholders. We rely on established and innovative methods to generate experience-near and practice-near knowledge. Through this empirical research, we seek to expand understanding of technology-mediated care and to enrich ethics of care theory.

Ethics and dissemination Empirical studies have been approved or await approval by national ethics committees. CARING FUTURES is designed to create societal impact through *Knowledge Transfer Events* targeting stakeholders in health, care and welfare, and *Educational Packages* for students of care—providing knowledge-exchange forums for future academics and practitioners of care. The project's societal impact is also ensured in that participating researchers are also practitioners and/or educators of care personnel for the future. Project findings will be disseminated through scientific publications and conference presentations. Through communication in both traditional and digital media platforms, we engage in dialogues between researchers, user groups, policy makers and the wider public.

Strengths and limitations of this study

► CARING FUTURES executes user-driven, needs-based, multistrand research, addressing what is at stake at micro, meso and macro levels across user groups and institutional sectors in healthcare and welfare.

► CARING FUTURES initiates a collaborative practice approach, meaning ongoing partnership between stakeholders and end-users, including professional practitioners, educators, clients/patients and researchers.

► The project relies on both established and innovative qualitative methods to generate experience-near and practice-near knowledge of care ethical tensions.

► CARING FUTURES is scientifically ambitious, as evidenced by the bold choice of a transdisciplinary methodology, supporting investigations of unchartered entanglements between care policies, care practices, as well as care in lived experiences, narratives, imaginaries and relationships.

► The project's 4-year running period may limit the potential for wide-ranging impacts, and a long-term research strategy is therefore needed to sustain a lasting knowledge exchange with research, education, practice and policy fields.

INTRODUCTION
Caring Futures

Future demands for care will likely outstretch the welfare state's capacity for care through its human and economic resources. In response to this anticipated resource deficit, suppliers and policy makers are increasingly promoting technology as a cost and labour-saving 'technomagic' solution for society's needs.[1] However, awareness and knowledge about the care ethical implications of new implementations in current technology-mediated care practices is scarce.[2–6] CARING FUTURES is a research project emerging from this knowledge deficit, as a knowledge-generating intervention to protect quality care for the future. We do so, first, by cross-sectoral empirical research to identify care ethical tensions between the current calls for increased use of

new technologies in healthcare and welfare services and long-standing, deep-rooted relational and professional traditional care cultures. Second, we revisit ethics of care to redevelop state-of-the-art theory at a crucial time of reinvention in public welfare.[7–10] Our ambition in this 4-year project (2020–2024) is to contribute to ethically sustained caring futures.

Background and status of knowledge
Arguably, technology innovations may be more powerfully shaped by the supply-side logics of manufacturers than by the demand-side logics of users and care systems.[11] Studies indicate that care ethical tensions can result from introducing new technology into professional practice. For example, Wastell and White[12] showed how embedded digital systems in social work invite more risky forms of practice, challenging professional autonomy. Further, and contrary to the intention, they found that digitalisation was said to *reduce* efficiency, thus inducing a range of unsafe practices. Introducing new technologies might also affect professionals' motivation and self-understanding to change their caring practices.[13] As a relational practice, caring implies a capacity for ethical conduct,[14] where the ability to put oneself in another person's place is central. For professionals, care ethical capacity thus requires 'use of self' and the ability and possibility to reflect on experiences at work.[15–17] Moreover, ethical conduct demands sensitivity to unequal power distributions in caring relationships.[18 19] Correspondingly, care ethics emphasise how decisions in practice must be founded in ethical reflection in concrete caring relationships and contexts rather than in instrumental or principle-based reasoning.

Research challenges
CARING FUTURES addresses four major challenges related to technology mediation of care and the role of ethics in caring practices, which also reflect gaps in the research literature concerning:
1. *A scarcity of knowledge of how digital standardisation in human services/social welfare services affect care practices, professional autonomy and ethical conduct.*
2. *A scarcity of knowledge on the relationship between professionals' self-understanding and their ideals in low-tech and high-tech care practices, and how these relate to their motivation for taking new technology into use and their ethics of care.*
3. *A demand for new knowledge of policy and practice, enrolling technology suppliers, management and end-users of new care-technological solutions (patients, clients and professionals).*
4. *A need to uncover tensions between care and ethics of care in technology-mediated care interventions.*

CARING FUTURES will address these challenges by investigating policy, practices, experiences, relationships, narratives, imaginaries and concepts—moving from complex entanglements in different empirical fields towards transdisciplinary theory building for ethics of care. This is in line with Greenhalgh and Papoutsi's[20] recent call for a paradigm shift in care services research that can allow for studying 'dynamically changing inter-relationships and tensions' that can lead to 'rich theorising' and 'generative learning'.

AIM AND MAIN RESEARCH QUESTIONS
The project aims to develop a novel care ethics paradigm for technology-mediated care practices. The project is guided by two main research questions, which tie together the project's different objectives and methodologies with a view towards transdisciplinary knowledge creation:
1. What are the current care ethical tensions and dilemmas within existing technology-mediated care practices, across different care sectors?
2. How can care ethics be developed theoretically to sustain quality of care in the public health, care and welfare services?

METHODS AND ANALYSES
Overall design
Through four empirical Work Packages (WPs) we will expand knowledge of current technology-mediated care with a view towards enriching ethics of care theory (WP5) (see Figure 1). To address and transcend the existing knowledge-split between these practice and theory fields, in WP5, we draw on a psychosocial approach to welfare[21] to interpret micro, meso and macro level implications of findings within and across the empirical strands.

WP1–4 rely on both established and innovative qualitative methods to generate experience-near and practice-near knowledge.

WP descriptions
In the following, the five WPs are described with regard to objectives (defined for each WP to operationalise the overall aim), research questions, work tasks and societal impact through Knowledge Transfer Events (KTEs) and Educational Packages.

WP1: digital assessment template technology in child welfare services—a comparative study
The objective of WP1 is to highlight care ethical dilemmas and quality of care in digitalised technology-mediated child welfare practices.

Research question: How do digital tools in child welfare services affect relational care practices and ethical conduct?

Work tasks
The WP will be carried out as one research project, one KTE and one educational package.
1. Investigate digitalised work practices in two municipal child welfare agencies in Norway Data collection through institutional ethnography.[22 23] Fieldwork will be conducted, gathering observational, material and interview data on digital child welfare practices.
2. All data, including a sample of digital texts from assessment templates, are subject to ethnomethodological discourse analysis.

3. Due to sparsity of research on digitalised child welfare in Norway, findings undergo comparative analysis with research from the UK.
4. Educational Package: A PhD course on digitalisation in child welfare in collaboration with the PhD Research school PROFRES.

WP2: becoming a healthcare professional in technology-mediated care

The objective of WP2 is to expand knowledge of how healthcare professionals' self-understanding and ideals in high and low technology-mediated care influence their motivation for taking new technology into use and their care ethics.

Research questions: How does the self-understanding of professionals in high and low technology-mediated care influence their motivation for taking new technology into use, and how does it influence their care ethics?

Work tasks

This WP will be carried out as two post-doctoral projects, one researcher project, one KTE and one Educational Package.

1. Post-doctoral project 1 is based on life-history interviews[24] with healthcare professionals in high-tech (n=6) and low-tech care practices (n=6). Life-history interviews generate rich narratives from a sample small enough to allow for extensive in-depth psychosocial interpretation.
2. Post-doctoral project 2 will conduct a literature review and an interview study (n=10) with doctors in general practice (GPs) to gain a deeper understanding of their experiences and understanding of technology-mediated medical practice in the clinic.
3. The researcher project conducts six focus groups (n=35) to explore healthcare professionals' ideals in high-tech and low-tech care sectors, and their attitudes to technology-mediated care.
4. WP2 will host a KTE in 2022 to outline, develop and quality assure the content of the Educational Package for midwifery education involving dialogue with key user groups, such as midwifery professionals in primary or specialist healthcare services, midwifery trade union representatives, midwifery students and teachers, reflective practice experts and patient representatives.
5. An Educational Package will be developed for and implemented in the newly established midwifery programme at the University of Stavanger: Following Hansen's[25] Sophos model, documentary film footage will be used as stimulus material for midwives' reflection groups. Film footage and data from the reflection groups are used to develop a Sophos model to support group reflective practice in technology-mediated midwifery care.

WP3: the impact of robots and other caregiving techno-bodies on agency and quality of care

The objective of WP3 is to advance knowledge of how cultural imaginaries and storytelling about care robots and other techno-bodies impact on users' understanding and experience of quality care and care ethical dilemmas.

Research question: How do imaginaries and experiences with care robots and other technological aids impact on user agency and sense of quality care?

Work tasks

This WP will be carried out as one PhD project and three research projects, and KTEs.

1. PhD project: A qualitative study of robots in science fiction literature, and how they relate to Levinasian ethics.
2. Research project 1 will conduct in-depth interviews (n=30) with professionals working with anthropomorphic or zoomorphic care robots in Norway and in Finland, facilitating a comparative analysis of narratives and imaginaries in cultural texts, including professionals' stories of technology-mediated care in two Nordic contexts. Interview participants are enrolled through Norwegian and Finnish health and welfare service providers.
3. Researcher project 2 will use Visual Matrix (VM): An innovative qualitative method[26] designed to facilitate a group's associations and imaginaries on topics that are difficult to put into words.[27] Three VMs will be conducted for 1 hour each with selected technology users (n=10), caregivers (n=10) and providers (n=10) who engage with care robots. Enrolment is through service providers in Norway (see online supplemental material for more details about VM).
4. Researcher project 3 will use in-depth interviews (n=12–15) with patients with Parkinson who have an implanted Duodopa medicine pump and live at home, inviting participants' life-world narratives on living with on-the-body medical technology.[28]
5. KTEs: WP3 will host a series of popular science events in collaboration with key user groups, such as health professionals, technology users, caregivers, technology providers, artists and researchers. The main event is in conjunction with the planned CARING FUTURES art exhibition taking place in 2022.

WP4: management, design and implementation of technology in care.

The objective of WP4 is to safeguard healthcare management's implementation of new technologies by expanding the understanding of care ethical aspects in design and decision-making.

Research question: What is the policy and practice of technology suppliers and management when developing and implementing new care technology?

Work tasks

This WP is carried out as one research project and one KTE.

1. Data will be collected using interviews with managers (n=3) from lower administrative levels in municipal home care services who are involved in implementation of technologies and supplier representatives (n=10). In addition, relevant policy and other documents will be collected.
2. Analysis: Inductive-deductive, thematical analyses, comparing technology policy designs in different institutions/services.
3. Identify care ethical aspects of technology development and implementation.
4. Develop new care ethical guidelines for management's technology implementation.
5. The KTE is a webinar arranged together with Norwegian Smart Care Cluster, a cluster whose vision is to develop Norwegian health industry in sustainable ways and consists of more than 200 technology developers/suppliers and healthcare deliverers. The event will take place in 2023.

WP5: a care ethics paradigm for caring futures

The objective of WP5 is to conceptualise a new care ethics paradigm with implications for policy, education and practice.

WP5 foregrounds the project's two overall research questions: What are the current care ethical tensions and dilemmas within existing technology-mediated care practices, across different care sectors? How can care ethics be developed theoretically to sustain quality of care in the public health, care and welfare services?

Work tasks

1. Synthesising empirical data from the four WPs with the aim of theory development.

Method

A seminar (Project Group (PG) and Scientific Advisory Board (SAB)) to exchange preliminary findings and ideas during the midway symposium (autumn 2022).

A 2-day workshop (PG+SAB) (spring 2024) to present empirical findings and identified care ethical tensions from WPs 1–4. We work together to elaborate key care ethical tensions emerging from each empirical case.

A second 2-day workshop (autumn 2024) (SAB+WPls with selected experts from WP1–4), where the panel works on interpretation of care ethical tensions identified in the first workshop, across the cases and in synthesis.

Patient and public involvement

CARING FUTURES complies with the Norwegian Ministry of Health and Care's task plan for increased user orientation in services by promoting a collaborative practice approach, with user involvement and knowledge exchange at the forefront.[29] Stakeholder contributions consist of higher education institutions and students (future care personnel), care providers (management,

personnel), as well as users at the receiving end of care (clients, patients, next of kin). End-users have participated in the proposal's planning stages, identifying relevant areas for our investigations of care ethical tensions in technology-mediated care practices.

ETHICS AND DISSEMINATION

Ethics

Three key studies in the project, processing personal data, have already obtained approvals from Norwegian Centre for Research Data (NSD) (Nos. 426984, 982327, 556960) with three more in process due to new recruitment of academic staff in the project. One research project will need approval from Regional Ethical Committees (REK). This application is currently under assessment.

All part projects adhere to guidelines from the National Committee for Research Ethics in Social Sciences and the Humanities (NESH). Participants will be fully informed and consented. Recorded data will be anonymised, with secure data storage according to new EU GDPR legislation/NESH guidelines.
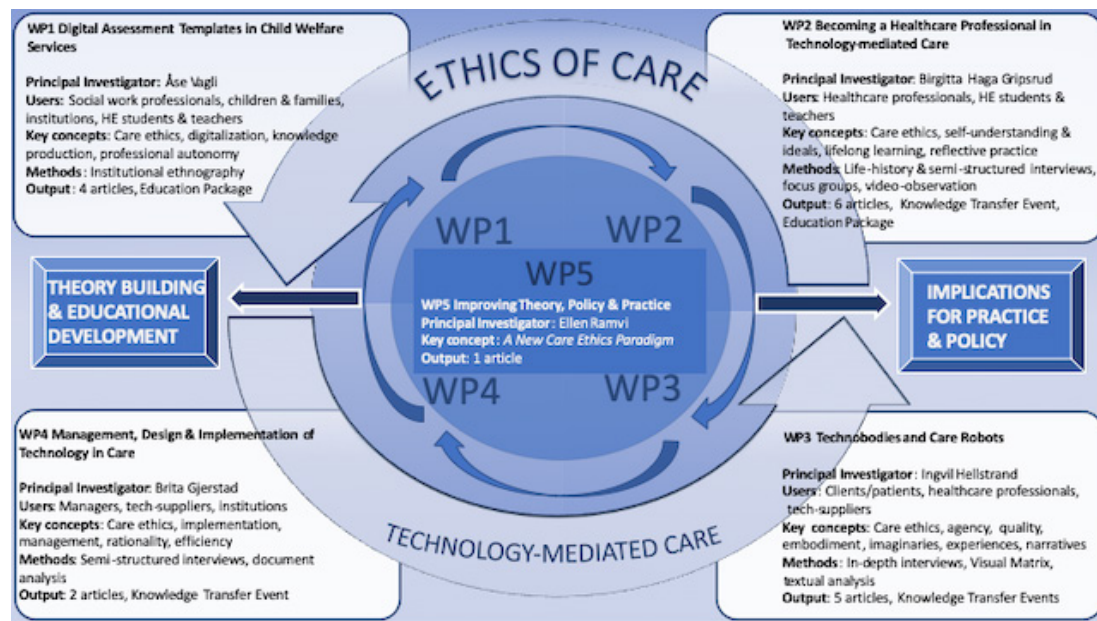
Beyond the required formal ethical approvals and procedures, our experience and practice-near research ethics invite care ethical and reflexive awareness of how we as researchers engage with research participants and data. This involves ongoing reflection on how we are affected by our research experiences, and in turn how we ourselves affect the research object in our intersubjective engagements with participants, our colleagues and the empirical material (see, eg. Gripsrud).[30]

Dissemination

To expand experience-near knowledge of technology mediation in care practices, we will invite a broad range of participations. These include care receivers, professionals and institutions that use, and are in the process of implementing, care technologies. Through our communication strategy and media engagement, we aim to create dynamic dialogue between researchers, user groups, policy makers and the general public. This is in line with Horizon Europe's Responsible Research and Innovation (RRI), which encourages bringing together societal actors (eg, citizens, researchers, organisations) during research and innovation processes to better align process and outcomes with society's values, needs and expectations.

CARING FUTURES' results will be presented at national and international academic conferences and seminars, and finally published in scientific articles and a PhD thesis.

In addition to the described KTEs, we will arrange a transdisciplinary midway symposium, featuring a CARING FUTURES Art Exhibition. The exhibition provides a transdisciplinary intervention into the project, simultaneously generating empirical material and disseminating knowledge about care ethics and technology-mediated care practices. Concretely, CARING FUTURES communicates

Figure 1 Overview of the CARING FUTURES research project.

via a web page and on social media (Facebook, Twitter, Instagram) using the #CaringFutures hashtag. We communicate the project through academic social media platforms such as LinkedIn, ResearchGate and Academia. We will also launch a podcast series directed at users in the professional and research communities.

A final international conference will be organised in Stavanger, Norway, inviting a broad audience within and beyond academia.

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