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ORIGINAL RESEARCH

# Community Health Care Workers' Experiences on Enacting Policy on Technology with Citizens with Mild Cognitive Impairment and Dementia

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**Purpose:** Assistive technologies and digitalization of services are promoted through health policy as key means to manage community care obligations efficiently, and to enable older community care recipients with mild cognitive impairment (MCI) and dementia (D) to remain at home for longer. The overall aim of this paper is to explore how community health care workers enacted current policy on technology with home-dwelling citizens with MCI/D.

**Participants and Methods:** Twenty-four community health care workers participated in one of five focus group discussions that explored their experiences and current practices with technologies for citizens with MCI/D. Five researchers took part in the focus groups, while six researchers collaboratively conducted an inductive, thematic analysis according to Braun & Clarke.

**Results:** Two main themes with sub-themes were identified: 1) Current and future potentials of technology; i) frequently used technology, ii) cost-effectiveness and iii) "be there" for social contact and 2) Barriers to implement technologies; i) unsystematic approaches and contested responsibility, ii) knowledge and training and iii) technology in relation to user-friendliness and citizen capacities.

**Conclusion:** This study revealed the complexity of implementing policy aims regarding technology provision for citizens with MCI/D. By use of Lipsky's theory on street-level bureaucracy, we shed light on how community health care workers were situated between policies and the everyday lives of citizens with MCI/D, and how their perceived lack of knowledge and practical experiences influenced their exercise of professional discretion in enacting policy on technology in community health care services. Overall, addressing systematic technology approaches was not part of routine care, which may contribute to inequities in provision of technologies to enhance occupational possibilities and meaningful activities in everyday lives of citizens with MCI/D.

**Trial registration:** NSD project number 47996.

**Keywords:** older adults, community health care services, discretion, street-level bureaucracy

## Introduction

Assistive technology (AT) is increasingly promoted as a means to enable independent living in older adults, as well as reduce public health care costs. For example, the European Union (EU) strategy for long-term care identified technologies as a key enabler for aging in place policies and the sustainability of welfare states.<sup>1,2</sup> Seeing AT as a means of enabling older adults to age in place and has thus garnered particular interest in the UK at a time of reduction in government funding for adult social care departments.<sup>3</sup>

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The concept of AT has been defined as

[...] a product, equipment or device, usually electronic or mechanical in nature, which helps people with disabilities to maintain their independence or improve their quality of life.<sup>4</sup>

Including assisting with daily living tasks, reducing risk of harm, and enhancing communication. In the context of dementia care, focus has been on AT designed to reduce risk of harm and improve safety. AT to support older peoples' needs for assistance have been categorized into four domains; for safety and security, for coping with independent living, health technologies for assessment and treatment at home, and to support well-being related to health conditions.<sup>5</sup>

As part of the Assisted Living Project (2015–2019), which was an interdisciplinary project on responsible innovations for dignified lives at home for persons with mild cognitive impairment or dementia, one of the work tasks was to investigate how health care workers enacted AT to clients with MCI/D. A systematic literature review from 2018 demonstrated that AT has the potential to support people with MCI/D, and a wide range of technologies (GPS, wayfinding by RFID (radio-frequency-identification), monitoring systems and night-time security system, multifunctional technology with reminders, verbal instruction and easy to use telephone, as well as touch screen tablets and camera for recollection of events) have been evaluated in homes with people with MCI/D and their family carers.<sup>6</sup> A major finding was the importance of including these user groups in research in order to learn about the required design features to enhance usability and acceptability. Surprisingly, very few studies reported the consequences of AT use regarding quality of life, occupational performance, or human dignity.<sup>6</sup>

The first author did a new literature search January 2020 utilizing the same search strategy as in 2016.<sup>6</sup> Interestingly, the search revealed more published references over the last three years (2017–2020) compared to the last decade (2007–2017) included in the 2016 search, and resulted in 404 and 369 references, respectively. Fifteen papers were eligible for review and the technologies reported were to some extent the same as reported in 2018, however, more multifunctional technologies were tried out, and newer devices like VR (virtual reality) and videoconferencing through socially assistive robots (SAR).

Despite various types of AT are tried out with user groups, and despite AT having potentials to support older people at home, current research reports a slow integration of technology in community health care services due to several reasons.<sup>5,7–13</sup> Nilsen et al (2016) found there was

resistance towards implementation of technologies in all groups of employees and at all organizational levels in community health care services. This resistance was linked to ways that implementation of technologies might influence the stability and predictability of tasks for community health care workers, their roles, and group identity, as well as basic values in their care practices.<sup>9</sup> This is in accordance with Batt-Rawden et al (2017), who found that the technology adoption phase was characterized by chaos and instability since many care workers found it difficult to operate the technology equally, and since technologies challenged patient security and created feelings of work dissatisfaction and disempowerment in staff.<sup>7</sup>

The Norwegian Technology Program in Community Health Care – NVP 2013–2016 initiated different small-scale technology trials in 34 municipalities, in order to kick-start implementation of welfare technologies; ie, as electronic medicine dispensers, electronic door locks, GPS locator technologies, digital monitoring during the night, and alarm systems in institutions.<sup>10</sup> The program demonstrated economic gains regarding saved time and avoided costs, as well as increased quality of services for the recipient, next-of-kin, and employees.<sup>12,13</sup> Subsequently, results of projects linked to this program were drawn upon to provide the basis for a national strategy for large-scale integration of AT in community health care services.

## Enacting Policies for the Promotion for Assistive Technology Use in Community Health Care Services

Enacting policies refers to how health care workers understand their role and comply with and change their practices in mediating an official policy. AT among citizens with MCI/D and their caregivers can contribute not only to independence, safety and security but also to occupational possibilities.<sup>14</sup> The construct of occupational possibilities refers to ways and types of doing that come to be viewed as ideal and possible within a specific historical context, and that come to be promoted and made available within that context, and thus may create meaning to everyday living.<sup>14</sup>

In Norway, integration of AT into community health care services is an expressed national aim, framed as a necessary and desired means to address the needs of an aging population. All municipalities are legally required to offer health care services to citizens currently staying in

the municipality. In this paper, the concept of community health care workers refers to health professionals and applied services that usually are included in the community health care services in Norway; nursing, home help (eg, cleaning and shopping), physiotherapy, and occupational therapy. According to Norwegian Statistics, 189,520 people received community health care services in 2017, with the majority of recipients being older adults above 65 years of age.<sup>15</sup> Additionally, a significant proportion of these older adults have mild cognitive impairment (MCI) or dementia (D). For example, one Norwegian study found that the prevalence of MCI/D within recipients of home care services counted 27.8% and 41.5%, respectively.<sup>16</sup>

Today, Norwegian policy encourages use of AT in community health care services, under the argument of optimizing service efficiency, flexibility, and quality, as well as anticipating being cost-effective and making older citizens more self-sufficient.<sup>5,10,13,17</sup> The Norwegian guidelines for dementia, a national strategy for optimal dementia care published in 2017, recommends that all municipalities assess whether or not access to AT may enhance everyday living at home for people with dementia, as well as relieve the burden of care for next-of-kin.<sup>18</sup> However, assessment of user needs in care recipients with MCI/D is a complex matter, and may explain studies addressing the slow technology uptake in community health care services.<sup>8</sup> Within their role, community services are responsible for assessing user needs and then planning, carrying out, evaluating, and adjusting the services to be in line with the law and regulations. The law on health personnel states that they

shall perform the work in compliance with requirements for professional justifiability and caring support, which can be expected from the personnel's qualifications, the nature of the work and the current context. (Chapter 2, §4)<sup>19</sup>

As such, health professionals (nurses, occupational therapists and physiotherapists) are expected to act in accordance with policies and evidence-based guidelines, but also to exercise professional discretion based on their expertise and consideration of the user and contextual particularities in line with what Lipsky called street-level-bureaucrats.<sup>20</sup> The theory of street-level-bureaucracy provides a means of looking at the complexity of policy implementation, recognizing the role of public workers in implementing policies within citizens' everyday lives aligned with laws and regulations. This theory acknowledges that "authorized use of discretion" by front-line workers is necessary to adapt policy to individual needs and circumstances.<sup>21</sup> As such, Lipsky contends that street-level

workers "do" public policy in the sense that they are mediating current policy to different citizens and using professional discretion for adopting services to a certain citizen in a certain situation.<sup>20</sup> In other words, street-level bureaucrats, such as community health care workers, are responsible for putting public policy into action.<sup>21</sup> Thus, given local decision-making authority, implementations of technology and supporting services are organized differently in each municipality or city district, in line with what are experienced as the most pressing tasks and issues.<sup>22</sup>

To the best of our knowledge, there is a lack of research on how community healthcare workers evaluate the benefit of technology to care receivers with MCI/D and experience daily work with technology with people with MCI/D. Thus, the overall aim of this paper was to explore how current policy on technology with home dwelling citizens with MCI/D was understood and managed at the level of service provision by community health care workers. We sought to highlight potential facilitators and barriers experienced in the enactment of policy, as a means to inform on-going efforts to optimize the use of technology to support home-dwelling clients with MCI/D. With respect to the knowledge gap we are addressing, our study contributes to understanding the enactment of technology in community-based health services for persons with MCI/D, as recommended by the current policy in Norway.

## Participants and Methods

We chose a qualitative design in order to have access to in-depth knowledge from community health care workers.<sup>23</sup> Five focus group discussions were conducted with 24 community health care workers. As semi-structured discussions focus groups enable exploration of a width of opinions and create opportunities for participants to adjust their opinions to others' reflections and statements in the group.<sup>23</sup>

We used an identical interview guide ([Appendix 1](#)) for the five separate focus groups. Different researchers (two men and four women) carried out the interviews in pairs: one moderator and one co-moderator, who took notes during the interview. The researchers were two Ph.D. students and four experienced researchers in nursing, sociology, and occupational therapy, respectively, all holding a Ph.D. degree. All the moderators and co-moderators met in advance to discuss and clarify how to use the interview guide. All interviews were voice recorded and transcribed verbatim.

To access the community health care workers, the project manager contacted the health administration office in the municipality and asked for approval of the project.

The leader of the health administration office provided names of contact persons (head nurses), who in turn contributed to the recruitment of community health care workers in each municipality by asking members of the staff in person to volunteer for the focus group discussions. The face-to-face focus group discussions took place at their workplaces, at the end of a day shift. The participants did not know the interviewers. Overall, 24 community health care workers (11 nurses, two home trainers, four physiotherapists, two occupational therapists, four home helps, and one care worker) were recruited.

The focus group discussions were conducted between June and September 2016 and had a pre-set time limit of 90 minutes. The discussions were conducted in Norwegian, and a professional translator translated all quotations into English.

## Analysis

An inductive thematic analysis was undertaken to identify key themes guided by Braun and Clarke's (2009) phases for analysis to understand the data, identify patterns, and reflect the main lines of meanings.<sup>24</sup> Analysis involved five researchers (authors 1, 2, 3, 4, and 6) with varying professional backgrounds. First step was to become familiar with the data: All five authors separately read and re-read the transcripts and wrote a short summary of each transcript. Anonymous summaries were shared among the five researchers before meeting face-to-face to discuss understandings and to compare them for essential meanings. Second, all five researchers manually and separately noted initial codes on the transcripts. They met to compare codes and constructed a mutual coding tree. Third, we searched for themes: Two of the transcripts were chosen for a more in-depth analysis, done separately by all five authors. We identified central quotations, which we inserted into a common matrix, with the headlines: quote, our understanding, theme, and subtheme/candidate theme deriving from the data (see Table 1). The last three transcriptions were read closely and coded by authors 1, 2, and 6. Forth, the themes were reviewed separately by the five researchers before the research group met and discussed the themes. We used yellow stickers to highlight themes emerging from each focus group discussion. Thereafter, we compared findings across all groups. One important step was to explore similarities and differences between the groups' answers on the same topic. The fifth step was to define and name themes: The researchers involved in coding had a back-and-forth process that

included mutual reflections and further discussions of findings, resulting in the final form reported in this paper. The sixth and last step was to produce the report. The first author initiated writing the thematic findings, with all other authors involved in on-going commentary on the evolving writing.<sup>24</sup>

## Results

This study showed wide variations in how different community health care workers talked about their experiences and practices related to enacting policies on technologies for supporting citizens with MCI/D. We present two main themes with subthemes (Table 2).

### Current Use and Future Potential of Technology

#### Frequently Used Technology

All 24 participants expressed being familiar with frequently used AT like the social alarm, stove timer, and automatic calendar. Some participants also expressed potentials regarding newer AT for citizens in community health care, particularly in relation to aims of independent living, enhancing coping, and optimizing everyday living and quality of life in citizens and enhancing efficiencies in health care services.

#### Cost-Effectiveness

Some participants raised visions and expectations of more cost effective, "digitalized care", by remote health service monitoring of citizens taking a pill or exercising a training program, and expressed enthusiasm about working in such a manner:

I watched a program from Sweden about a nurse who used Skype to keep in touch with quite a few users. To tell them to take their medicine or measure their blood sugar level [...]. Just one nurse looking after many users. It was wonderful to see. One nurse can do all this, instead of sending 20 nurses to 20 places. (Nurse FG2)

[...] You can get very big screens and have exercise programs at home for many [citizens] at the same time. Then, training programs could actually be offered to them every day. Borough physios don't usually have time to visit patients in their homes more than once a week. [...] – how does that help if you want to exercise to become stronger? (Physio FG2)

A few implied that the underlying governmental rationale for promoting AT might be for economic reasons, rather than actually serving to better meet the needs of aging citizens. The cost-effectiveness of AT was often framed as a smart solution to the goal of improving services:

**Table 1** Examples of Analysis Process

Quotation	Our Understanding	Main Themes	Subthemes
I watched a program from Sweden about a nurse who used Skype to keep in touch with quite a few users. To tell them to take their medicine or measure their blood sugar level, this and this and that. Just one nurse looking after many users. It was wonderful to see. One nurse can do all this, instead of sending 20 nurses to 20 places. Wonderful to see.	Enthusiastic about new telehealth technology that offers new ways of caring and which may be more cost-effective	Current and future potentials of technology	Cost-effectiveness
[...] you also notice things when you are there [in the client's home]. Very short of breath today, or the fridge is empty. [...] And when talking, are things going better or worse? Is someone lonely? You usually have to know someone to know whether they are lonely. Maybe [technology is suitable] for those who provide the service, but not so much for those who receive it. Because I think they will want human contact or to get activated a little. [...] So – technology, a robot? What can you do with someone with high degree of dementia? That I do not know.	Social contact vs technology	Current and future potentials of technology	"To be there" for social contact
It is very erratic. Someone can suddenly say in a report – "oh, he needs this and that, can we order it"? Then someone does something about it. But there are no procedures for doing this for all [citizens].	Routines for assessing user needs for technology is erratic.	Barriers to implement technologies	Unsystematic approaches and contested responsibilities

It sounds so wonderful; there is a lot in the newspapers about them [older adults] getting help, that they can live at home and won't have to move to a nursing home. But it's not true. Even if it was, you must fight for it [to get access to AT]. I don't get the impression that more money will be saved. [...] the complete opposite, you will be rationalized out. I have a strange feeling about this. (Nurse FG5)

It is good that technology can save time, but the time saved will not benefit the users. I get a bad feeling about this, that technology is just to save money. (Home help FG1)

### "to Be There" for Social Contact

Although there were examples of workers who trusted that AT had the potential to provide opportunities to guide

citizens at home from a distance, other participants were concerned that AT would constitute threats, like loss of social contact and the care workers' opportunity to have a close relation with the care recipient:

[...] you also notice things when you are there [in the client's home]. Very short of breath today, or the fridge is empty. [...] And when talking, are things going better or worse? Is someone lonely? You usually have to know someone to know whether they are lonely.

Maybe [AT is suitable] for those who provide the service, but not so much for those who receive it. Because I think they will want human contact or to get activated a little. [...] So – technology, - a robot? What can you do with someone with high degree of dementia? That I don't know. (Nurse FG5)

One expressed that her citizens rejected aids and AT because they were afraid of losing contact with the health care workers (FG4). Another anticipated that AT might create passivity and loneliness, especially in citizens with MCI/D, and that providing AT was "a way of robbing them of human contact" (Nurse FG5).

### Barriers to Implement Technologies

Although the participants reported on a variety of knowledge and potentials on implementing technology different barriers were revealed related to; unsystematic approaches and

**Table 2** Overview Over Themes and Sub-Themes

Main Themes	Subthemes
Current and future potentials of technology	Frequently used technology Cost-effectiveness "To be there" for social contact
Barriers to implement technologies	Unsystematic approaches and contested responsibility Limited knowledge and training Technology in relation to user-friendliness and citizens' capacities

contested responsibility, knowledge and training, and technology in relation to user-friendliness and citizens capacities.

### Unsystematic Approaches and Contested Responsibility

Many participants indicated that assessing needs for technological assistance was not done in a systemic way as part of their routine practice. The participants highlighted several issues that bounded if and how they moved forward in addressing AT with citizens with MCI/D. Overall, the procedures for technology assessment and implementation seemed unsystematic and fragmented, and responsibilities were contested. Several participants seemed to find it challenging to identify needs for technology for their citizens. A few participants stated that procurement of AT was not yet an integrated procedure for all citizens:

It is very erratic. Someone can suddenly say in a report – “Oh, he needs this and that, can we order it?” Then someone does something about it. But there are no procedures for doing this for all [citizens]. (Nurse FG3)

If you go to the same user every day, you become a bit blind. It’s always been that way [in that home]. So, you don’t think about trying other things. But, it’s a lot about how you handle it, who has a right to it [implement AT], who is going to pay, and there are many who don’t have money or who would prioritize using money on it. (Nurse FG3)

A few expressed hesitations about taking on the responsibility for addressing technology in their practice. Further, they seemed unsure whether the “application office”, the occupational therapist, or next-of-kin should introduce technology to the person with MCI/D.

Often, they [next-of-kin] know what the family members are entitled to, or what they might get [from NAV]. (Nurse FG3)

The participants could refer the older person to the “application office” or an occupational therapist for a need assessment. Then a home visit could be arranged to assess user needs and initiate provision of technical aids. After such referrals, the home-based services divert the responsibility to someone else, and are no longer in charge of procurement of AT. Since the participants painted a picture of being erratic and uncertain about addressing AT and responsibilities this can be understood as unsystematic and a fragmented responsibility for both need assessment and provision of technologies as part of routine care.

### Limited Knowledge and Training

Although many had heard about other AT than social alarm and stove timers, they indicated that they knew too little about potential possibilities.

There is an ocean of opportunity, and I know about 0.0% of that ocean. (Nurse FG2)

Yes, I know you can get those floor mats, but none of ours have them. Also, lights that turn themselves on. We’re not good at using them. Mostly, no, not so much of it. (Nurse, FG3)

This lack of knowledge of more diverse AT could sometimes lead participants to doubt the utility and relevance of particular AT. For example, in one municipality the dementia team had recruited two citizens to an ongoing research project on GPS. The focus group participants knew about the project but knew nothing about how a GPS worked since the community health care services and the dementia team were two different units and never shared this knowledge.

Several of the participants said they could not recall any specific training in the use of AT; they all felt more or less self-taught. However, they also reported having had frequent access to information and training courses on AT run by the technology education center in the municipality. Still, many participants expressed what we understood as feelings connected to a lack of competence and uncertainties regarding assessing user needs and requirements. A few participants expressed worries about having to learn more than needed to do a good job:

So - how much do I, professionally, need to get involved in? [There are many] things I don’t need to use or know anything about. It can end up being a lot, knowing everything about all the equipment. (Physio FG2)

In addition to pointing to limits of current approaches to education, participants forwarded ideas regarding how training could better support them. One participant perceived technology training as burdensome and preferred to start by using the technology by herself and to learn step-by-step. When and if facing an issue, she wanted to have the opportunity to ask a “super-user” colleague. Another stated that workplace-adjusted training courses are essential and wanted more of this, as well as training in operating the citizens’ aids.

### Technology in Relation to User-Friendliness and Citizens’ Capacities

As mentioned earlier, participants in our study knew and used AT like the social alarm, stove timer, and digital

calendar for citizens with MCI/D. However, they pointed to ways that such technology was not user friendly for citizens with MCI/D, referencing both design features and citizens' competencies. For example, the stove timer, whose purpose is to prevent fire, was reported to cause many troubles. Usually, the stove timer is pre-set to shut off after 30 minutes. Since boiling potatoes normally take 40 minutes, the citizen would need to re-set the stove to get ten more minutes of power. This re-setting represented a cognitive challenge, since all the buttons on the stove must point at 0 (zero) simultaneously to re-set the timer. Another reported issue was citizens putting a plastic water-boiler pot on the stove. Such events happened from time to time and had caused fire department visits. One participant claimed that a stove timer would not prevent improper use of the stove, and that anything may catch fire after exposed to high temperatures or after a certain length of time. Even simple AT like the social alarm represented a problem for some.

A few don't quite understand the social alarm [...] for example, they press the button if they need the loo. That's all wrong. The social alarm is for when you fall or are very, very unwell. You should then really call an ambulance and only press the button if you can't manage it. Some, however, think the button calls the district nurse. Especially, those with dementia. (Home help FG 4)

Overall, according to the participants, poor user interface for older adults with MCI/D is the major issue regarding operating technology. Also, TV remote controls with many tiny buttons were frequently mentioned as not user-friendly. Being unable to operate the TV controls prevented one from watching the news and other programs for entertainment and joy. The participants agreed that new technology was often difficult for older adults to operate, especially for people with MCI/D, due to too many tiny buttons, or requiring too many steps. Design of the device, use of color contrasts, avoiding reflection from screens, and quality of sound/speech were reported to be important features. One explained:

Imagine being home alone all day and wanting to watch TV or listen to the radio – and you cannot cope with the remotes! Of course, you would become depressed! (Nurse FG 5)

Further, the participants stated that AT might not work due to unstable internet connections and/or lack of battery

charging. For example, one assisted living facility installed tablets by all residents as a means of communicating messages, informing them about the day's menu, and booking appointments at the hairdresser and pedicurist. Although quite a few benefitted from the information, Facebook, YouTube, etc., most of the residents struggled to include their tablet in their everyday lives, which led to extra work for the care worker, especially regarding the updates.

The residents can't do it themselves. I, therefore, must update all the tablets myself. Or they will stop working. It's so stupid – I understand that it's necessary, but ... It's a huge amount of extra work! (Care worker FG2)

Misfits arising from how citizens' cognitive impairments could limit the correct use and benefit of AT, were expressed as reducing value. Non-use or wrong use led to uncertainty, hesitation, and the citizen feeling incompetent, and more work and stress for the employee. For example, one participant explained that a citizen had been in hospital for a while, and after returning home she had forgotten all about her online banking.

I have spent three days trying to help her to log in. It's going really badly! (Care worker FG2)

Another participant had tried to install a simple TV remote control for a citizen with dementia. However, the citizen's established habit of unplugging all the sockets, TV included, prevented her from any benefits of new AT. The participants' expressed frustrations regarding the limits of AT and its lack of fit with citizens' capacities also point to the complexities of putting the plan for the integration of technologies into the homes of people with MCI/D into action with the contexts of citizens' lives.

Some also expressed the limits of age and cognitive capacity of the citizens, appearing to take up potentially negative assumptions related to desires and capacity of citizens to use AT based on age and/or cognitive capacity. These examples might reveal a more or less taken-for-granted assumption about older adults, often with a hidden devaluation of the person masked as admiration:

[...] one has an iPad [...] He uses it to read papers and such things (laughter). (Nurse FG3)

She is quite cool, the woman who has this blog [...] she is 92 or something (yes) and she got help from her grandchildren to become a blogger (laughter). (Nurse FG1)

Yes, she is 92, and blogs [...] She is talking about life when being 92, just like younger bloggers. On the national day she had one [drink] in each leg. And when she returned from respite care, there was a bunch of laundry on the floor, which she crawled over and had a glass of red wine (instead). (OT FG1)

## Discussion

This study aimed to explore how current policy on technology with home-dwelling citizens with MCI/D was understood and managed at the level of service provision by community health care workers. The findings point to how the experiences of the community health care workers highlight the complexities involved in attempting to enhance everyday living for people with MCI/D by using AT. The health care workers' practice demonstrated that they were bounded within current and future potentials of technology and barriers to implementing AT successfully for the citizens. Drawing upon Lipsky's (1980/2005) theory of street-level bureaucrats, these findings can be interpreted in relation to the positioning of community health care workers as mediators of governmental policy within citizens' everyday lives.<sup>20</sup>

In this perspective, the daily decisions of the community health care workers have consequences for how the policy is mediated; that is, whether it is taken up, adapted, challenged, or resisted within service provision.<sup>25</sup> The care recipients are dependent upon and must trust in the professional workers. Thus, professionals must be worthy of that trust, and in return they will be rewarded with status and authority.<sup>26</sup> Related to our findings, the community care workers appeared to mediate the policy of integrating technologies into community health services in different ways. In some cases, they aligned with the policy message that AT could be of great benefit to citizens, speaking to the possible potentials of remote training programs and medical counseling via Skype. However, the actual implementation of this policy message was bounded by some concerns, such as the suspicion that AT was promoted primarily for economic gain and was an inadequate substitution for traditional care and social contact by "being there." Some participants attempted to transform the policy into their current contexts of care and to individualize technologies to each user, for example, the nurse who tried to implement a simple remote TV-control. As shown in other studies, a diversity of approaches towards AT was expressed, resulting in variations in how the policy for

enhanced technology was mediated within everyday practice.<sup>7,9,27</sup> Overall, this resulted in an unsystematic and fragmented implementation of policy, which can be related to constraining forces that bind possibilities for enacting the policy directives in everyday practice. Also, the community health care workers perceived they had inadequate knowledge about AT, leading them to be hesitant in providing it to citizens. This might imply a lack of repertoire and might influence their professional discretionary work. Additionally, some community health care workers seemed to distance themselves from responsibility to enact policy on AT, which also shaped their professional discretion.

The participants expressed a lack of familiarity with different AT, exemplified in quotations like "There is an ocean of opportunities, and I know about zero percent of the ocean." Enhancing competencies in working with AT seems to be challenging but is nevertheless an important requirement for exercising discretion. Lack of competence is supported by a recent Norwegian survey, which found that only four of ten municipalities plan to increase the technology competences of their community care workers.<sup>9</sup> This survey reported a slow uptake of AT in community health care services, and only three of four municipalities had education and training for health care workers regarding work-related technology and digital competence. Further, six of ten health managers confirmed that care workers asked for such training only to a small degree or not at all.<sup>8</sup> Our study revealed that some participants reported having participated in training courses about AT for people with dementia; however, they claimed that this knowledge was seldom used in their current practices. Pols (2017) argues that end-users (nurses and patients) must establish knowledge and a relation with the technology; otherwise, they often do not know the purpose or the use and function of the technologies.<sup>28</sup> This is an important aspect and reveals that slow adoption can be linked to more than lack of technological maturity or lack of integration of AT into community health care services.<sup>29</sup> It could also be due to a low understanding of the script of the device; that is, understanding the potential of the technology and how it might be configured to a certain user.<sup>30</sup> Lastly, the participants in our study reported frustrations regarding the limits of the AT and its lack of user interface with citizens' capacities, which points to the complexities of implementing a plan for the integration of AT into the homes of people with MCI/D and into action with the contexts of

citizens' lives. Small buttons, lack of contrasting colors, and interfaces that were not user-friendly made some of the devices less useful for citizens with MCI/D. The low user interface of people with MCI/D leads to a larger question of whether such technologies can actually succeed in meeting the needs of citizens with MCI/D. An important question, according to Gibson et al (2015), is why AT is widely promoted despite the absence of a solid evidence base, especially if the services related to the daily use and utility of the technologies are immature, absent, or unstable.<sup>31</sup>

The staff's expressions of uncertainty and poor competence also found in this study may demonstrate slow technology adoption.<sup>32</sup> Rogers' diffusion model of technology adoption explains that people usually adopt technology in accordance with personal attitudes and interests.<sup>33</sup> In other words, personal characteristics decide that some health care workers may be innovators or early adopters of technology, while others are late adopters or even laggards.<sup>34</sup> Dugstad et al (2019) found that implementation of digital technologies into health care services was complex and that one important success criterion was to expect and accept the inherent slowness.<sup>27</sup> Also, McGinn et al (2011) referred to the similarities and differences between stakeholders to explain the interests and slowness of technology adoption and stated that the unique perspective of each user group must be taken into consideration.<sup>26</sup> Our study supports these findings on slow technology adoption as well as the complexity of enacting technology in the work context of the community health care workers.

Within this study, findings suggest the possibility that ageism and ableism can intersect in ways that foster taken-for-granted assumptions in community care services that bind when and how technologies are addressed. Ageist attitudes are those that assume limited capacities on the basis of age,<sup>35</sup> while ableist attitudes convey negative and discriminatory attitudes towards others whose bodily and mental capacities are deemed to be impaired.<sup>36</sup> Such attitudes can shut down the possibility of moving forward with practice approaches, including technology, based on the assumption that older, disabled citizens neither wishes nor are capable of engaging in such approaches. For example, McGrath's (2017) study on older adults with age-related vision loss demonstrated ways in which disabilities were shaped through environments that embedded ageist and ableist assumptions, rather than being a "natural" outcome of impairments. In other words,

disability was socially constructed partly through the integration of ableist and ageist attitudes into practices, systems, and societal structures, such as the design of buses and streets in ways that assume a normative level of vision and mobility.<sup>37</sup>

In our study, community workers sometimes expressed that AT was neither relevant nor possible for persons with MCI/D. The comments from the participants seemed to imply that advanced age, combined with cognitive impairment, meant that citizens would have decreased motivation, interest, or capability to use advanced technologies. In turn, these assumptions were employed as a rationale for not moving forward with integrating AT into routine care. This can contribute to reducing the citizens' occupational possibilities for performing meaningful everyday lives. The recent report on older adults' human rights concludes that nobody should be exposed to discriminative conduct due to long-term physical, mental, intellectual, or sensory impairment.<sup>38</sup>

## Methodological Considerations

The five focus group discussions provided rich data on the "reflective-level" and the "experience-level;" in other words, what they think and how they talk about what they do, which can be a strength in this study.<sup>23</sup> However, there are some limitations. First, the lack of consistency in the professional composition of the groups, with two focus groups having multi-professional staff members and three having mono-professional staff members, may have influenced the findings. Second, the lack of consistency in the research team members who served as moderators in the focus groups may also have led to inconsistencies in how the focus groups were carried out, despite the use of a common interview guide.

Alternatively, the fact that the six researchers who did the interviews and the five participating in the analysis had different professional and research backgrounds and pre-understandings might strengthen the analysis process because it shed light on the themes in various ways and enabled rich and interesting discussions.

We asked about the participants' perceptions of technology, being aware that this might represent a range of technologies. This is in line with Gioia et al (2012), who recommend not imposing prior constructs on informants as a preferred way of understanding a term.<sup>39</sup> Therefore, the answers probably provided heterogeneous reflections regarding technologies for citizens with MCI/D.

Our sample is quite small, so we cannot expect saturation, which, according to Malterud et al (2016) is an

expression appearing from Grounded Theory to decide sufficiency of sample size. They instead propose the expression “information power” to decide a purposeful sample size.<sup>40</sup> The advantage of focus groups is that they allow the researchers to ask what the participants think and why they think that way, helping researchers gain insight into values and beliefs.<sup>24</sup> Disadvantages or weaknesses of focus groups may be that some voices are not properly heard, or some might not dare to express their views.

## Clinical Implications

The study found that AT as a support for citizens with MCI/D is very complex and not fully integrated into everyday practices of community health workers; rather, it is still in its initial stages. Nevertheless, our study suggests that citizens with MCI/D have a right, equally with others entitled to community health care services, to have their needs for AT support assessed.<sup>38</sup> The inconsistent and unsystematic approaches in the service provision of AT may create occupational inequities, marginalizing citizens with MCI/D from desired occupations, and thereby represent an ethical challenge. A systematic lack of assessing eventual needs for AT can perpetuate the silencing of this group of people and lead to inequity and discrimination. Therefore, our study suggests that community health workers receive organizational support and training to implement the policy, given the boundaries that surfaced in the study. Moreover, it supports the importance of further development of technologies that fit the needs and capacities of older adults with MCI/D. Despite the policy on addressing and implementing technology, there is still further need for research.

Developing knowledge and competences seem of importance as a contribution to reduce inequities and occupational injustices; however, organization of the services must also be considered. Organizational changes inevitably lead to changes in street-level bureaucrats' roles and tasks. For example, inclusion of AT will require community health care workers to prepare for more extensive collaboration with family caregivers and interdisciplinary teams. This is especially necessary since AT for citizens with MCI/D are seldom stand-alone solutions but usually a part of a safety net around the person.

## Conclusion

This study reveals the complexity of enacting policy aims regarding provision of AT for citizens with MCI/D in

enhancing meaningful everyday lives. This study shed light on how community health care workers were situated between current policies and the everyday lives of citizens with MCI/D, and ways that their perceived lack of knowledge and practical experiences influence their exercise of professional discretion in community health care services. Overall, addressing systematic approaches for procurement of AT was not part of routine care, which may contribute to inequities in implementation of AT to enhance occupational possibilities and meaningful activities in everyday lives of citizens with MCI/D.

## Ethics

The Assisted Living Project (2015–2019) is performed in accordance with the Declaration of Helsinki and approved by The Norwegian Centre for Research Data, NSD 16.03.2016, Application number 47996. The focus group participants received a written invitation to participate in the focus group discussions and were asked to sign an informed consent before the focus group discussions took place. Participation was voluntary. All personal data, except professional titles, were left out.

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## Disclosure

The authors report no conflicts of interest in this work.

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