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Abstract

Persons living with dementia (PLWD) have high emergency department (ED) utilization. Little is known about using telemedicine with PLWD and caregivers as an alternative to ED visits for minor acute health problems. This qualitative interview-based study elicited caregivers' perspectives about the acceptability of telemedicine for acute complaints. We performed telephone interviews with 28 caregivers of PLWD from two academic EDs, one in the Northeast and another in the South. Using a combined deductive-inductive approach, we coded interview transcripts and elucidated common themes by consensus. All caregivers reported they would need to participate in the telemedicine visit to help overcome communication and digital literacy challenges. People from racial/ethnic minority groups reported lower comfort with the virtual format. In both sites, participants expressed uncertainty about illness severity that could preclude using telemedicine for acute complaints. Overall, respondents deemed acute care telemedicine acceptable, but caregivers describe specific roles as crucial intermediaries to facilitate virtual care.

Keywords

dementia, caregiving, technology, geriatrics

What this paper adds

- Caregivers of persons living with dementia anticipated having to help overcome communication challenges with care teams in telemedicine visits for acute minor medical issues.
- Caregivers from racial and ethnic minority groups reported lower personal comfort with telemedicine.
- Caregivers' uncertainty about the severity of an acute medical problem may preclude telemedicine use.

Applications of study findings

- Telemedicine systems must consider how to accommodate persons living with dementia who have hearing and visual impairments.
- Technological access barriers and desires for rapport with the care team impact comfort of caregivers from racial and ethnic minority groups with telemedicine for persons living with dementia.
- Telemedicine could play an important role in triaging acute medical complaints in persons living with dementia for home-based/outpatient care versus emergency department/hospital-level referral.

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Introduction

The emergency department (ED) is an important site of care for persons living with dementia (PLWD): over half of PLWD have at least one emergency department (ED) visit annually (Hunt et al., 2018). Compared to those without dementia, PLWD visit the ED more often and are up to twice as likely to make 30-day ED revisits (Kent et al., 2019; LaMantia et al., 2016). However, ED care focuses on stabilizing acute medical conditions and is not designed for PLWD, who often have multiple chronic conditions and complex social and caregiving environments (Dresden et al., 2022). Furthermore, approximately one-third of ED visits by PLWD may be avoidable if alternative care settings are used and optimized (Feng et al., 2013). ED visits by PLWD will only increase as the population with dementia is projected to double to 13.8 million by 2050 (Hebert et al., 2013).

Given the growing volume of ED visits by PLWD, there is a need to explore alternative care settings that can help reduce potentially avoidable ED visits for acute medical problems. Telemedicine offers an alternative to ED care for minor acute complaints. Telemedicine refers to the provision of remote medical services via telecommunication technologies, such as telephone or video calls, text messaging, and online platforms. By overcoming needs for in-person visits, telemedicine has been used to improve convenience and efficiency for patients, increase healthcare access in underserved areas, and slow the spread of infections. In the United States, telemedicine expanded dramatically during the COVID-19 pandemic and includes services ranging from routine primary care and specialist consultations to urgent and emergency care (Centers for Disease Control and Prevention, 2023).

Telemedicine use is increasing among PLWD. Prior studies have described PLWD and caregiver satisfaction receiving routine ambulatory care through telemedicine, similar results in cognitive assessments performed by telemedicine versus in-person, and successful delivery of telerehabilitation to PLWD. These studies have highlighted challenges that PLWD face when using telemedicine, including hearing and vision impairments and navigating technology, while also demonstrating an important role for caregivers and healthcare staff in supporting PLWD in using telecommunications platforms (Yi et al., 2021). However, little is known about optimizing telemedicine for PLWD for acute urgent or emergency care, which is distinct from routine care in its focus on triage. Telemedicine addressing acute medical problems can be used to determine needs for in-person higher-level care. For example, one study demonstrated that intensive telemedicine can decrease ED utilization by nearly one-quarter for older adults both with and without dementia in senior living communities (Gillespie et al., 2016, 2019; Shah et al., 2016). Another knowledge gap is about caregivers' perspectives on using telemedicine

with PLWD for acute care. Caregivers are closely involved in helping PLWD navigate healthcare through activities such as communicating with medical professionals, following therapeutic plans, and coordinating logistics of accessing care and follow-up appointments (Alzheimer's Association, 2022). As such, their perspectives can inform the development of practical care interventions that are tailored to the acute care needs of PLWD.

This qualitative study sought to understand caregivers' perspectives about telemedicine as an alternative to ED visits for minor acute complaints for PLWD. We specifically aimed to investigate caregivers' opinions about the acceptability of this mode of care for PLWD as well as how telemedicine ought to interface with the patient-caregiver dyad. By understanding patient/caregiver experiences, health systems can better design and implement acute care telemedicine programs for PLWD.

Methods

Study Design

We conducted qualitative semi-structured interviews with caregivers of PLWD who visited the ED. We follow the Consolidated Criteria for Reporting Qualitative Research (COREQ) in presenting our methods and results; a Table detailing individual checklist items is provided as a Supplement (Tong et al., 2007). The study's methodological orientation was phenomenology, which seeks to describe the nature and meaning of participants' experiences (Bernard, 2011). We chose this orientation as we aimed to elicit caregiver opinions about telemedicine as related to their recent experiences of and reflections about an ED visit for a PLWD's acute medical complaint.

Setting and Selection of Participants

The study occurred in the EDs of two public academic hospitals with annual ED visit volume >80,000. The first is in the U.S. Northeast, with a majority white population with health insurance. The second is a safety net hospital in the U.S. South with a majority Black and Hispanic population with limited or no health insurance. Both health systems have robust telemedicine programs. Site 1 initially pioneered video-based telemedicine capabilities in 1968 and developed virtual specialist consultation for external hospitals in 1999. Over the 2010s, its telehealth infrastructure was developed to include video and telephone visits for routine outpatient care as well as inpatient video visits with specialists (Massachusetts General Hospital, 2023). With the onset of COVID-19, telemedicine volume increased from representing 0.3%–29.6% of all visits (Zachrisson et al., 2021). The rapid pandemic-related growth of telemedicine in Site 1 predated this study by approximately 6 months. Site 2 pertains to a health system that developed telemedicine services in March 2020 for routine outpatient care and for triage of acute medical

complaints to outpatient versus ED-based care. In the first year, which preceded the pandemic, the health system conducted over 500,000 video and telephone visits. Over the first year of the pandemic, which predated this study by about one year, approximately 17% of the health system's unique patients were served through telehealth (Rogg et al., 2021).

Recruitment procedures differed in each site due to local research regulations and changes in allowable research practices during the COVID-19 pandemic (see Appendix A for full details). To identify caregivers of patients with an established dementia diagnosis and ED visit during the study period, the first site used online advertisements and chart review coupled with in-person invitations during the ED visit, while the second site used chart review and telephone invitations after the ED visit.

Data Collection and Analysis

We developed an interview guide asking about experiences of a recent ED visit and assessing for prior exposure to video telemedicine visits (henceforth "telemedicine"), perceived level of comfort with telemedicine for an acute complaint, and ideal format of caregiver involvement in a telemedicine visit. These topics were based on literature review and priorities of the research team members with experience in telemedicine and caring for PLWD (emergency physicians, internal medicine physicians, and geriatrics/palliative care physicians). We chose a semi-structured interviewing format and developed probes to elicit participants' reflections on a recent ED visit as well as meanings attributed to it. We developed the interview guide such that we could ask participants to draw from these experiences and reflections when answering questions about telemedicine. We piloted the interview guide with one caregiver and modified questions for clarity (Appendix B).

Interviews were conducted by telephone following an ED visit. In the first site, all interviews were performed in English by a female research assistant (IS). In the second site, interviews were performed in English or Spanish by a bilingual male or female medical student (APR and NH). Interviewers were trained by a female senior clinical researcher and emergency physician with qualitative expertise and a PhD in Anthropology (AC). When approaching participants, interviewers introduced themselves based on their professional roles, conveyed their interest in the study topic, and informed participants that they were not involved in the ED clinical care of the PLWD. Prior to study commencement, there was no established relationship between participants and research team members. Interviewers performed interviews at their workplace, while interviewees participated from their homes or another location of their choosing.

Data were collected from September 2021 to November 2022 in Site 1 and from October to November 2022 in Site 2. The differing time periods of data collection by site were due to changing research regulations due to the COVID-19 pandemic as well as study staff availability. In total, six interviews were

conducted from September to December 2021 (Site 1) and all remaining twenty-two interviews were conducted from October to November 2022 (Sites 1 and 2). Further details are provided in Appendix A. All interviews occurred during the COVID-19 pandemic and within the period considered a public health emergency in the United States.

Interviews were audio-recorded and professionally transcribed. Field notes were not taken nor were transcripts returned to participants. We analyzed transcripts using a combined deductive-inductive approach. In the deductive phase, we read all transcripts in three successive rounds. This allowed us to appreciate participants' broader experiences while developing a "topical orientation," or selecting specific aspects of participants' experiences to investigate (Van Manen, 1990). We then defined these topical areas of interest as codes: (1) ideal format of caregiver involvement in a virtual visit and (2) acceptability of virtual visit. Each transcript was coded independently by two researchers (AC, TO, VR, and MK). In the inductive phase, we iteratively reviewed coded data to derive common themes by consensus in a larger research team consisting of research assistants, medical students, emergency physicians, a geriatrician, an internist physician, and an anthropologist (AC, NH, APR, TO, VR, EH, SL, and MK). The coding tree and excerpts of coded text are included as Appendix C. Responses to questions about experiences of the recent ED visit will be reported elsewhere. All study team members participated in consensus discussions to interpret the themes and discuss reflexivity, or how the researchers' identities and values might impact the research process and findings. Reflexivity discussions focused on researchers' prior delivery and receipt of telehealth services, interactions with caregivers, and personal caregiving roles for older adults. We then re-reviewed interview transcripts to ensure that the coding scheme did not limit the exploration of participants' experiences and that themes reflected participants' experiences rather than our own.

In order to determine thematic saturation, or the point at which no new themes emerge with additional interviews, we used an established method of (1) identifying unique themes in a "base" of first six interviews, (2) examining each consecutive interview for new/unique themes not identified in the base of six interviews, and (3) determining saturation when additional interviews revealed no new themes (Guest et al., 2020). Thematic saturation occurred after six interviews in the first site and after eight interviews in the second site. Of note, the goal of the study was not to compare responses from Site 1 and Site 2, but rather to explore responses from a diverse group of participants. However, we did examine frequency of themes across sites as part of our analytic process. Additionally, given that data collection occurred over two time periods within the pandemic and that telemedicine was more widespread nationally by the second data collection period, we examined data for variation in themes by the first versus second period of data collection. We used Microsoft Excel to facilitate analysis.

Ethics Approval

The Institutional Review Boards of Partners Healthcare (2021P000069) and Baylor College of Medicine (H-51927) approved this research. De-identified data will be provided upon reasonable request.

Results

Twenty-eight caregivers participated in interviews, with ten in the first site and eighteen in the second site. Due to the recruitment methods including online advertisement, a response rate cannot be provided. As detailed in [Appendix A](#), in Site 1, 6 subjects recruited online and 4 of 21 subjects recruited in person participated in the interview. In Site 2, 18 of 22 subjects reached by telephone completed the interview. Interview duration ranged from 15 to 37 minutes (average 25 minutes).

All caregivers were family members of the PLWD and performed caregiving unpaid except for one, who was a patient advocate. In the first site, the majority of caregivers were white (90%) and all were non-Hispanic and English-speaking. In the second site, most caregivers were Black (39%), mixed race (22%), or Asian (17%) and half were Hispanic and Spanish-speaking. Sample demographics are further outlined in [Table 1](#). Eleven interviewees (39%) reported that the PLWD had previously participated in a

telemedicine visit ($n = 5$, 50% in Site 1; $n = 6$, 33% in Site 2). Below, we describe key themes that emerged regarding the caregiver's role in facilitating a telemedicine visit and acceptability of telemedicine visits. [Table 2](#) provides illustrative quotations. Themes did not vary based on interview participation during first versus second period of data collection. One theme, regarding concerns about rapport, emerged in Site 2 and not in Site 1, as described further below.

Engaging the Healthcare Team Together

Overall, caregivers expressed the ideal format of a telemedicine visit with a PLWD as sitting together to speak to the healthcare practitioner. They voiced this preference due to challenges with (1) technology, (2) communication, and (3) keeping PLWD engaged. These themes were consistent across sites, though as noted below, caregivers in Site 1 had a higher personal comfort level with telemedicine than those in Site 2.

Technological Skills and Access. Caregivers felt that the PLWD did not have the technological skills to participate in a telemedicine video visit without assistance. Only two caregivers, both from Site 1, reported the PLWD could use a device or telephone to independently connect to and participate in a video visit. Several participants mentioned that PLWD did not know how to use a telephone or computer.

Table 1. Demographics of Care Partners of PLWD.

	Site 1 (Northeast)	Site 2 (South)	Sites 1 and 2
Gender			
Woman	80% (8)	89% (16)	86% (24)
Man	20% (2)	11% (2)	14% (4)
Race			
White	90% (9)	22% (4)	46% (13)
Black	0% (0)	39% (7)	25% (7)
Asian	0% (0)	17% (3)	11% (3)
Mixed	10% (1)	22% (4)	18% (5)
Ethnicity			
Hispanic	0% (0)	50% (9)	32% (9)
Non-Hispanic	100% (10)	50% (9)	68% (19)
Language of interview			
English	100% (10)	50% (9)	68% (19)
Spanish	0% (0)	50% (9)	32% (9)
Age range (mean)	61 to 81 (69)	29 to 65 (48)	29 to 81 (56)
Relationship to PLWD			
Spouse	40% (4)	11% (2)	21% (6)
Child	50% (5)	66% (12)	61% (17)
Grandchild	0% (0)	11% (2)	7% (2)
Daughter/son-in-law	0% (0)	6% (1)	4% (1)
Niece/nephew	0% (0)	6% (1)	4% (1)
Patient advocate	10% (1)	0% (0)	4% (1)
Sole caregiver	60% (6)	50% (9)	54% (15)
Employed	60% (6)	78% (14)	71% (20)
Caring for community-dwelling PLWD	90% (9)	94% (17)	93% (26)

Participants felt PLWD could not use or learn digital technologies on account of their age:

“It is difficult to adapt to something new, when you are older. Maybe younger people see it differently.”

-Daughter of PLWD, ID 204, Site 2

Caregivers offered that they could help a PLWD use a device and connect, except four participants, all who identified as from racial or ethnic minority groups from Site 2. These participants reported limited internet and device access and low confidence about managing technological aspects of a visit.

Facilitating communication. Caregivers felt they would need to act as intermediaries to facilitate communication. They wanted to ensure the accuracy of information relayed to the healthcare team. Participants expressed concern that PLWD might not relay a full history, might not understand or know how to answer questions, or might confabulate without healthcare providers realizing it:

“He is likely to downplay how he is feeling.”

-Granddaughter of PLWD, ID 201, Site 2

Some participants qualified that out of respect, they would encourage PLWD to answer questions on their own before stepping in to speak for the patient:

“I never want my daddy to feel left out. So that’s why I always try to do things together.”

-Daughter of PLWD, ID 103, Site 2

Caregivers also highlighted their roles in facilitating communication for PLWD with vision or hearing impairment:

“She would need someone there with her to answer the questions for her, because her hearing is not great, her vision is not great, and she’s not always cognizant of what’s going on, especially when she’s not feeling well.”

-Son of PLWD, ID 13, Site 1

Interviewees did not suggest specific modifications or equipment (e.g., headphones) to address hearing impairment, but rather expressed they could repeat questions or explanations from healthcare practitioners in such a way that the PLWD might understand. Caregivers noted that for PLWD with severe hearing impairment, the virtual visit would essentially be between the caregiver and the healthcare provider.

Keeping PLWD Engaged. Participants expressed concern that the PLWD would not stay engaged in the visit without their

caregiver reminding them to look at the screen or continue listening and answering questions. These participants felt video visits could confuse PLWD or that they needed specific instructions to interact via a device:

“He doesn’t really talk that much while on a Zoom. Like I said, he’s confused by it and doesn’t know how to react to what is happening.”

-Spouse of PLWD, ID 7, Site 1

“You have to remind her to look at the phone or look at the TV, look at the iPad. She looks off or is wandering off with her eyes, so we have to constantly remind her.”

-Niece of PLWD, ID 101, Site 2

Acceptability

Three important findings emerged about the acceptability of telemedicine, with some variation by sites as detailed below.

Rapport During In-Person Visits. In Site 2, six participants felt that it would be easier to establish rapport with a healthcare provider during an in-person visit. These participants identified as from racial/ethnic minority groups and had no previous telemedicine use. One stated:

“I personally believe there is more trust, there is a little better communication [in person].”

-Daughter of PLWD, ID 206, Site 2

These participants highlighted non-verbal cues in communication, such as facial expressions and feeling a sense of caring from the provider. Such concerns did not arise among participants in Site 1.

Convenience. Participants expressed enthusiasm for the potential of telemedicine to eliminate long travel times to EDs and reduce burdens of mobilizing and transferring their relatives between wheelchairs, automobiles, the home, and hospital. This theme arose in both sites. One participant described:

“[The hospital] is like 45 minutes away from us...And I don’t want my grandfather to sit around the car too long. He has to be in a wheelchair, and even then I don’t want him to sit in a wheelchair for too long.”

-Granddaughter of PLWD, ID 208, Site 2

Maintaining a PLWD’s daily routine and avoiding ambulance transfer were other perceived benefits.

Perceived Illness Severity. Participants across sites felt that uncertainty about illness severity could preclude use of telemedicine for acute complaints. For example, one

Table 2. Illustrative Quotations.

Theme	Illustrative Quotations
Engaging the healthcare team together	
Technological skills and access	<p>“A lot of the older folks haven’t really experienced this type of technology.” (Daughter of PLWD, female, age 60s, English-speaking; ID 4, Site 1)</p> <p>“He is already very old, so he is not familiar with phones.” (Wife of PLWD, Spanish-speaking, ID 104, Site 2)</p>
Facilitating communication	<p>“She doesn’t know how to answer, because sometimes, due to dementia, people exaggerate. With my experience with her, I know when she is and isn’t telling the truth.” (Daughter of PLWD, Spanish-speaking, ID 206, Site 2)</p> <p>“Mom is hard of hearing and her dementia is so that she can hear what’s being said, but her brain can’t necessarily break it down into the true meaning.” (Daughter of PLWD, English-speaking, ID 11, Site 1)</p> <p>“In some things mom does know how to express herself and I can ask her...I would only speak alone [to the doctor separately from my mother] depending on whether the topic warrants it.” (Son of PLWD, Spanish-speaking, ID 105, Site 2)</p>
Staying engaged	<p>“Once she understood, ‘okay, this is like a little movie. This is a phone. That’s my doctor,’ it was immaterial to her. She wasn’t being inconvenienced at all.” (Daughter of PLWD, English-speaking, ID 11, Site 1)</p> <p>“She don’t even know what to look at, you know? That’s how far gone she is.” (Husband of PLWD, English-speaking, ID 107, Site 2)</p>
Acceptability of virtual visit	
Rapport during in-person visits	<p>“For them it is better to look at the person in front of them who is talking to them; sometimes even if nothing remains in their memory, they are still listening.” (Spouse of PLWD, Spanish-speaking, ID 104, Site 2)</p>
Travel and convenience	<p>“I mean, we have to drive in. We have to pay for parking. We have to put her in a wheelchair, etc., etc. I do it all the time but have no hesitation whatsoever to use telemedicine.” (Daughter of PLWD, English-speaking, ID 8, Site 1)</p>
Perceived illness severity	<p>“For the most part, the virtual visits were very accessible, made it a lot easier to meet his provider. The only reason why I stopped them is because when his health declined, I just felt like we needed [to be in person].” (Granddaughter of PLWD, English-speaking, ID 208, Site 2)</p>

caregiver usually managed minor medical issues without visiting the ED. When seeking care for the PLWD, it was for serious problems she felt could not be addressed by telemedicine:

“I wouldn’t bring him in unless it was something serious. If it was just something that I consider minor, I wouldn’t even call the physician.”

-Spouse of PLWD, ID 14, Site 1

Another participant preferred an in-person exam for acute complaints. A third caregiver felt that the PLWD’s frailty made it difficult to manage even seemingly minor complaints virtually. Similarly, participants felt unsure about whether behavioral disturbances could be managed remotely.

Discussion

Our qualitative study highlights a crucial role for caregivers in facilitating telemedicine with PLWD with acute medical complaints. Themes were consistent across sites, though participants from racial/ethnic minority groups in Site 2 expressed hesitance about their technological skills and rapport over telemedicine. These findings have implications

for caregiver burden, the spectrum of home-based telecare, and equitable telemedicine access.

Telemedicine may add to caregivers’ burden in some ways and reduce it in others. One ethical critique suggests that telemedicine may prompt caregivers of PLWD to assume uncompensated roles in providing technological support and facilitating care (Hayden et al., 2020). Our study participants anticipated that they would need to keep PLWD engaged in and attentive to the televisit—an additional responsibility and one unique to caregivers of persons with cognitive impairment. Simultaneously, however, our participants noted how telemedicine could eliminate travel, promote patient comfort, and reduce costs and logistical hurdles associated with ED visits, echoing previous studies about improved patient-centeredness of telecare for PLWD (Angelopoulou et al., 2022). One survey-based study similarly found that PLWD and caregivers chose telemedicine over in-person visits to preserve daily routine, disruption of which can lead to agitation and disorientation (Moo et al., 2020). In these ways, our findings echo studies of telemedicine in routine care.

Our study also provides findings unique to acute care, and specifically regarding factors that may influence the level of resources needed to evaluate an acute medical condition in a PLWD (Kennedy, 2021). A variety of home-based telehealth

options exist, ranging from virtual urgent visits to paramedic-supported mobile integrated health (Gregg et al., 2019) to hospital-level care at home (Ouchi et al., 2021). As depicted in Figure 1, our participants highlight how PLWD and caregiver factors shape perceived telemedicine acceptability for acute care. Studies suggest that behavioral symptoms can be successfully addressed through telemedicine, improving caregiver wellbeing (Nkodo et al., 2022). However, concerns about illness severity may prompt seeking higher intensity care. PLWD and caregivers may not know if a specific acute complaint can be addressed through telemedicine. In such situations, telemedicine could be used for triage purposes, that is, as a means to initially assess patients and refer to the ED as needed.

Our findings also have important implications for health equity. Recent scholarship has highlighted how social factors impact digital literacy and telehealth access (Lyles et al., 2022; Samuels-Kalow et al., 2021; Wardlow et al., 2023). Older adults may have visual/hearing impairments and lack of technological experience that make it difficult to connect online, use equipment, and converse without in-person communication cues (Lam et al., 2020; Yi et al., 2021). A recent national survey found that even with social supports, approximately one-third of older adults in the United States were not ready to engage in video-based telemedicine visits (Lam et al., 2020). People from racial and ethnic minority groups and those with low socioeconomic status may have limited access to devices and broadband internet as well as low digital literacy (Lyles et al., 2022; Nouri et al., 2020). Our participants highlighted these issues, and in fact anticipated they would have to personally compensate for technological and communication challenges. Of note, some of our participants held ageist perspectives that advancing age precluded learning digital technology, though they also highlighted the roles of cognitive capacity and sensory impairments. Inclusive strategies include providing patients with hearing impairment with speakers and headsets (Yi et al., 2021) or employing in-home technicians and paramedics to

offer device, connection, and platform support (Jung et al., 2023; Shah et al., 2016; Whitehead et al., n.d.). Integrating language interpretation services into telehealth is an important consideration, as well (Lyles et al., 2022; Nouri et al., 2020; Samuels-Kalow et al., 2022). Interestingly, in our sample, Spanish-speaking caregivers did not describe language barriers, likely due to robust interpretation services available through the local health system.

Our findings suggest several ways to tailor acute care telemedicine interventions for PLWD and caregivers. First, interventions should enable caregivers' active participation. Strategies include developing patient portals for designated proxies and offering telephone and video conferencing options beyond the patient and clinician. Second, providing technological support and training, whether by telephone, online, or through in-home technicians, can facilitate telemedicine access for PLWD, address visual and hearing barriers, and reduce caregiver burden. Third, healthcare institutions should develop algorithms to help determine which acute complaints can be managed remotely, considering local health system resources, potential referral sites, and the ability of an ED and primary care team to engage and integrate efforts. Simultaneously, messaging can be created for PLWD and caregivers about how telemedicine can be used for triage purposes, addressing caregivers' uncertainties about whether illness severity precludes telemedicine use. Fourth, resources should be developed to prepare PLWD and caregivers for telemedicine encounters, including information about accommodations for visual and hearing impairments (e.g., headsets and increasing font size) and tips on how to keep PLWD engaged. Fifth, healthcare professionals should receive training about effective communication with PLWD and caregivers as well as how to dementia severity, complaint complexity, and caregiver engagement into clinical decision-making.

Our study faces several limitations. Our sample drew from a limited geographic distribution. However, a notable strength is the ethnic, racial, and linguistic diversity of the

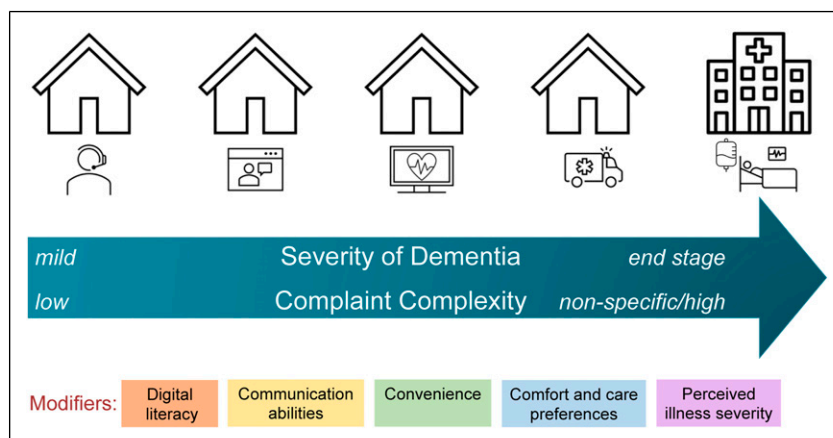


Figure 1. Factors influencing the type of care needed to evaluate an acute medical condition in a person living with dementia.

sample. As we conducted interviews by telephone, rather than in person, individuals comfortable with healthcare-related telephonic communications are likely overrepresented in our research. Our study also focused on a predominantly community-dwelling population of PLWD; telemedicine for PLWD in long-term nursing facilities is an important direction for future research.

In conclusion, caregivers are crucial intermediaries to facilitate virtual care with PLWD. Telemedicine could reduce caregiver burden and promote comfort of PLWD, but acceptability for acute care and equitable access are important considerations.

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Declaration of Conflicting Interests

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IRB Protocol Approval

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Supplemental Material

Supplemental material for this article is available online.

References

- Alzheimer's Association. (2022). *2022 alzheimer's disease facts and figures*. *Alzheimers Dement*, vol. 18. <https://www.alz.org/media/Documents/alzheimers-facts-and-figures.pdf>
- Angelopoulou, E., Papachristou, N., Bougea, A., Stanitsa, E., Kontaxopoulou, D., Fragkiadaki, S., Pavlou, D., Koros, C., Değirmenci, Y., Papatriantafyllou, J., Thireos, E., Politis, A., Tsouros, A., Bamidis, P., Stefanis, L., & Papageorgiou, S. (2022). How telemedicine can improve the quality of care for patients with alzheimer's disease and related dementias? A narrative review. *Medicina (Kaunas)*, *58*(12), 1705. <https://doi.org/10.3390/medicina58121705>
- Bernard, H. R. (2011). *Research methods in Anthropology: Qualitative and quantitative approaches* (Fifth Edition edition). AltaMira Press.
- Centers for Disease Control and Prevention. (2023, March 3). Telehealth and telemedicine: A research Anthology of Law and policy resources. <https://www.cdc.gov/phlp/publications/topic/anthologies/anthologies-telehealth.html>
- Dresden, S. M., Taylor, Z., Serina, P., Kennedy, M., Wescott, A. B., Hogan, T., Shah, M. N., & Hwang, U. (2022). Optimal emergency department care practices for persons living with dementia: A scoping review. *Journal of the American Medical Directors Association*, *23*(8), 1314.e1-. <https://doi.org/10.1016/j.jamda.2022.05.024>
- Feng, Z., Coots, L., Kaganova, Y., & Wiener, J. (2013). Hospital and emergency department use by people with Alzheimer's Disease and related disorders: Final report. In: *US department of health and human services assistant secretary for planning and evaluation office of disability, Aging and Long-Term Care Policy*. <https://aspe.hhs.gov/reports/hospital-emergency-department-use-people-alzheimers-disease-related-disorders-final-report-1>
- Gillespie, S. M., Shah, M. N., Wasserman, E. B., Wood, N. E., Wang, H., Noyes, K., Nelson, D., Dozier, A., & McConnochie, K. M. (2016). Reducing emergency department utilization through engagement in telemedicine by senior living communities. *Telemedicine Journal and e-Health: The Official Journal of the American Telemedicine Association*, *22*(6), 489–496. <https://doi.org/10.1089/tmj.2015.0152>
- Gillespie, S. M., Wasserman, E. B., Wood, N. E., Wang, H., Dozier, A., Nelson, D., McConnochie, K. M., & Shah, M. N. (2019). High-intensity telemedicine reduces emergency department use by older adults with dementia in senior living communities. *Journal of the American Medical Directors Association*, *20*(8), 942–946. <https://doi.org/10.1016/j.jamda.2019.03.024>
- Gregg, A., Tutek, J., Leatherwood, M. D., Crawford, W., Friend, R., Crowther, M., & McKinney, R. (2019). Systematic review of community paramedicine and EMS mobile integrated health care interventions in the United States. *Population Health Management*, *22*(3), 213–222. <https://doi.org/10.1089/pop.2018.0114>
- Guest, G., Namey, E., & Chen, M. (2020). A simple method to assess and report thematic saturation in qualitative research. *PLoS One*, *15*(5). Article e0232076, <https://doi.org/10.1371/journal.pone.0232076>
- Hayden, E. M., Erler, K. S., & Fleming, D. (2020). Telehealth ethics: The role of care Partners. *Telemedicine Journal and e-Health: The Official Journal of the American Telemedicine Association*, *26*(8), 976–977. <https://doi.org/10.1089/tmj.2019.0226>
- Hebert, L. E., Weuve, J., Scherr, P. A., & Evans, D. A. (2013). Alzheimer disease in the United States (2010–2050) estimated

- using the 2010 census. *Neurology*, 80(19), 1778–1783. <https://doi.org/10.1212/WNL.0b013e31828726f5>
- Hunt, L. J., Coombs, L. A., & Stephens, C. E. (2018). ducdiw-direview. *Journal of Gerontological Nursing*, 44(3), 23–30. <https://doi.org/10.3928/00989134-20171206-01>
- Jung, O. S., Graetz, I., Dorner, S. C., & Hayden, E. M. (2023). Implementing a COVID-19 virtual observation unit in emergency medicine: Frontline clinician and staff experiences. *CRReview: MCRR*, 80(1), 79–91. <https://doi.org/10.1177/10775587221108750>
- Kennedy, M. (2021). *Telemedicine for older adults with dementia: Unique benefits and challenges/didactic: Telemedicine for older adults: Is it viable?* Show Me! Society for Academic Emergency Medicine.
- Kent, T., Lesser, A., Israni, J., Hwang, U., Carpenter, C., & Ko, K. J. (2019). 30-Day emergency department revisit rates among older adults with documented dementia. *Journal of the American Geriatrics Society*, 67(11), 2254–2259. <https://doi.org/10.1111/jgs.16114>
- Lam, K., Lu, A. D., Shi, Y., & Covinsky, K. E. (2020). Assessing telemedicine unreadiness among older adults in the United States during the COVID-19 pandemic. *JAMA Internal Medicine*, 180(10), 1389–1391. <https://doi.org/10.1001/jamainternmed.2020.2671>
- LaMantia, M. A., Stump, T. E., Messina, F. C., Miller, D. K., & Callahan, C. M. (2016). Emergency department use among older adults with dementia. *Alzheimer Disease and Associated Disorders*, 30(1), 35–40. <https://doi.org/10.1097/WAD.0000000000000118>
- Lyles, C. R., Sharma, A. E., Fields, J. D., Getachew, Y., Sarkar, U., & Zephyrin, L. (2022). Centering health equity in telemedicine. *The Annals of Family Medicine*, 20(4), 362–367. <https://doi.org/10.1370/afm.2823>
- Massachusetts General Hospital. (2023). *Center for telehealth*. Massachusetts General Hospital. <https://www.massgeneral.org/telehealth>
- Moo, L. R., Gately, M. E., Jafri, Z., & Shirk, S. D. (2020). Home-based video telemedicine for dementia management. *Clinical Gerontologist*, 43(2), 193–203. <https://doi.org/10.1080/07317115.2019.1655510>
- Nkodo, J. A., Gana, W., Debacq, C., Aidoud, A., Poupin, P., Camus, V., & Fougère, B. (2022). The role of telemedicine in the management of the behavioral and psychological symptoms of dementia: A systematic review. *JGP*, 30(10), 1135–1150. <https://doi.org/10.1016/j.jagp.2022.01.013>
- Nouri, S., Karliner, R., & Leah, L. (2020). *Addressing equity in telemedicine for chronic disease management during the Covid-19 pandemic*. NEJM Catalyst Innovations in Care Delivery. <https://catalyst.nejm.org/doi/full/10.1056/CAT.20.0123>
- Ouchi, K., Liu, S., Tonellato, D., Keschner, Y. G., Kennedy, M., & Levine, D. M. (2021). Home hospital as a disposition for older adults from the emergency department: Benefits and opportunities. *Journal of the American College of Emergency Physicians Open*, 2(4), Article e12517. <https://doi.org/10.1002/emp2.12517>
- Rogg, J., Ma, Z. B., Pandya, M., Medina, G., Walker, B., & Sharma, K. (2021, October 7). *How to make telemedicine more equitable*. Harvard Business Review. <https://hbr.org/2021/10/how-to-make-telemedicine-more-equitable>
- Samuels-Kalow, M., Jaffe, T., & Zachrisson, K. (2021). Digital disparities: Designing telemedicine systems with a health equity aim. *Emergency Medicine Journal: Engineering Management Journal*, 38(6), 474–476. <https://doi.org/10.1136/emmermed-2020-210896>
- Samuels-Kalow, M. E., Chary, A. N., Ciccolo, G., Apro, A., Danaher, F., Lambert, R., Camargo, C. A., & Zachrisson, K. S. (2022). Barriers and facilitators to pediatric telehealth use in English- and Spanish-speaking families: A qualitative study. *Journal of Telemedicine and Telecare*, . <https://doi.org/10.1177/1357633X211070725>
- Shah, M. N., Wasserman, E. B., Wang, H., Gillespie, S. M., Noyes, K., Wood, N. E., Nelson, D., Dozier, A., & McConnochie, K. M. (2016). High-intensity telemedicine decreases emergency department use by senior living community residents. *Telemedicine Journal and e-Health: The Official Journal of the American Telemedicine Association*, 22(3), 251–258. <https://doi.org/10.1089/tmj.2015.0103>
- Tong, A., Sainsbury, P., & Craig, J. (2007). Consolidated criteria for reporting qualitative research (COREQ): A 32-item checklist for interviews and focus groups. *International JQHJournal of the International Society for Quality in Health Care*, 19(6), 349–357. <https://doi.org/10.1093/intqhc/mzm042>
- Van Manen, M. (1990). *Researching lived experience: Human science for an action sensitive pedagogy*. State University of New York Press.
- Wardlow, L., Leff, B., Biese, K., Roberts, C., Archbald-Pannone, L., Ritchie, C., DeCherrie, L. V., Sikka, N., & Gillespie, S. M. (2023). Development of telehealth principles and guidelines for older adults: A modified delphi approach. *Journal of the American Geriatrics Society*, 71(2), 371–382. <https://doi.org/10.1111/jgs.18123>
- Whitehead, D., Hayden, E., White, B., Yun, B., & Dorner, S. (n.d.). Alternative care pathways: Emergency medicine’s role in home based care. *Society for Academic Emergency Medicine (SAEM) Pulse Newsletter*, 37(1).
- Yi, J. S., Pittman, C. A., Price, C. L., Nieman, C. L., & Oh, E. S. (2021). Telemedicine and dementia care: A systematic review of barriers and facilitators. *Journal of the American Medical Directors Association*, 22(7), 1396–1402. <https://doi.org/10.1016/j.jamda.2021.03.015>
- Zachrisson, K. S., Yan, Z., & Schwamm, L. H. (2021). Changes in virtual and in-person health care utilization in a large health system during the COVID-19 pandemic. *JAMA Network Open*, 4(10), Article e2129973. <https://doi.org/10.1001/jamanetworkopen.2021.29973>