



# The impact and implications of virtual supportive cancer care during the COVID-19 pandemic: integrating patient and clinician perspectives

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Received: 8 June 2022 / Accepted: 3 October 2022

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## Abstract

**Purpose** Many cancer centers made rapid shifts in supportive care delivery modalities at the onset of the COVID-19 pandemic. Improving virtual supportive cancer care requires deeply understanding both patient's and clinician's experiences. We aimed to integrate the perspectives of clinicians and patients to describe the transition to virtual supportive cancer care during COVID-19.

**Methods** In clinical-academic partnership between a multi-site cancer care center in the Northeastern USA and a school of nursing, we conducted a study using dimensional analysis method. Theoretical sampling drove recruitment of patients and clinicians who engaged in virtual supportive cancer care from March 15, 2020 to December 15, 2020. In this sub-analysis, we coded the dimensional analysis data from semi-structured interviews using a descriptive approach with inductive conventional content analysis.

**Results** We interviewed 17 clinicians, 18 patients, and 3 care partners about their experiences. We integrate patient and clinician perspectives in four in vivo categories: "When COVID hit," "Not an IT expert," "Those little moments," and "The mothership."

**Conclusion** The findings uncover shared patient and clinician fears of missing or sub-optimal care at the onset of COVID-19, technological and relational challenges to engaging in care, and the mixed impacts of virtual care on access, convenience, and efficiency. This analysis suggests concrete action items to improve virtual supportive care for patients and clinicians. The findings corroborate the importance of convenience, access, and efficiency as care quality indicators and suggest potential to emphasize the clinician-patient relationship as an additional indicator of care quality.

**Keywords** COVID-19 · Telehealth · Supportive care · Cancer · Qualitative

The nature of health and home environments shifted drastically with social distancing measures implemented in March of 2020 to reduce the spread of COVID-19 in the USA. Prior to the global COVID-19 pandemic, use of virtual or telehealth care—video calls, telephone calls, electronic

messaging, and remote monitoring technologies—had increased incrementally but had yet to reach widespread adoption. COVID-19 pushed some healthcare services onto virtual platforms, as health systems sought to maintain continuity of care. Cancer centers shifted a significant portion of in-person visits to telemedicine in an effort to reduce in-person interactions [1] and minimize exposure risk for cancer patients, their families, and healthcare teams [2, 3]. Individuals' experiences of the shift from in-person to virtual care in the context of the COVID-19 pandemic is an area of emerging but still limited scholarship [4].

People living with and after cancer are distinctly affected by COVID-19. The COVID-19 pandemic exacerbated uncertainty, amplifying anxiety, fear, and social isolation of persons living with and after cancer [5–8]. Early phases of the pandemic in the USA threatened disruption in cancer care,

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including postponed or canceled routine screenings and cancer treatments [9–11]. Visitor restrictions and separation from loved ones have contributed to isolation and psychological distress of cancer patients and their care partners [12–14]. Supportive care—the provisions of services that meet peoples’ “physical, emotional, social, psychological, informational, spiritual and practical needs” [15, p. 15]—has potential to mitigate these circumstances exacerbated by COVID-19. Many clinicians, researchers, and administrators find that delivering supportive care services via telehealth technologies may be suitable during public health crises. Nonetheless, there is concern that these technologies may impede the development of therapeutic relationships necessary for effective supportive care [6, 13, 16, 17]. Thus, supportive care services may both be “conducive to telehealth” [13, p. 290] and limit the capacity of technology to convey the “human-ness” required for effective interactions [16, p. 1404]. Conceptualizing the nature of virtual supportive care within the unique context of a global pandemic may elucidate new ways to support persons and families living with and after cancer.

Moving from acute pandemic crisis to long-term response within and beyond cancer care will require understanding the experiences of all of those engaged in care. Prior telehealth inquiry is limited by its emphasis on the medical perspective, and notes discrepancies between telehealth providers’ and recipients’ evaluations of telehealth use and access [18]. Conducting inquiry that elicits and integrates multiple perspectives—of clinicians and patients engaged in cancer care—is necessary to fully appreciate the complexity of virtual care interactions. As Sansom-Daly and Bradford argue, “to build on telehealth’s potential beyond COVID-19, rigorous research will be needed to capture and evaluate these critical user experiences and relational components beyond satisfaction studies” [16, p. 1405]. Many investigators conducting COVID-19-related research have focused on the impact on the screening, diagnosis, and treatment of cancer [9–11, 19]. Comparatively less attention appears directed at understanding the pandemic’s implications for supportive care.

The purpose of the Virtual Supportive Cancer Care Research (ViSuCaRe) Study was to develop a situation-specific theory to explain the nature of virtual supportive cancer care during a global pandemic. In this sub-analysis, we integrate the perspectives of clinicians and patients to describe the transition to virtual supportive cancer care during COVID-19.

## Methods

The ViSuCaRe Study was a multi-method study conducted in partnership between a multi-site cancer center and a school of nursing in the Northeastern USA [20]. The data

engagement team involved in data collection, management, and analysis included undergraduate and graduate students in nursing and pre-medical studies.

Symbolic interactionism guided the conception and design of the ViSuCaRe Study [21]; we used the interactionist method dimensional analysis [22] to develop a situation-specific theory. In this sub-analysis, we coded the dimensional analysis data using a descriptive approach with inductive conventional content analysis [23].

## Recruitment and sampling

Patients and clinicians over the age of 18 were eligible to participate if they engaged in virtual supportive cancer care at one of the partner cancer center sites from March 15, 2020 to December 15, 2020. As defined by our clinical-academic partnership team, virtual supportive care included any synchronous communication via phone, tablet, or computer with clinicians and staff in the roles of chaplain, clinic nurse, clinical pharmacy specialist, clinical service associate, dietitian, financial counselor, infusion nurse, medical assistant, nurse navigator, nurse practitioner, patient services associate, physical therapist, physician, physician assistant, psychiatrist, radiation oncology nurse, social worker, speech therapist, therapist, or virtual support group facilitator. We aimed to recruit a maximally heterogeneous group of participants from different clinical and staff roles, cancer types, and locations across the nine cancer center sites. Theoretical sampling guided recruitment with selection of participants whose perspectives provided new texture for the developing situation-specific theory [24]. The partnership with the cancer center facilitated distribution of flyers and announcements about the study to clinicians. To recruit patients, we posted paper copies of flyers at clinics and infusion centers, sent electronic research recruitment messages through the electronic medical record, and mailed postcards to the addresses of eligible patients.

Interested patients and clinicians could fill out a survey and opt-in to be contacted for a 30–60-min semi-structured interview. People interested in participating in an interview could also contact the research team directly via contact information on posted flyers. We welcomed patients to have their self-identified care partners join them in interviews as well. Additionally care partners could participate in interviews independently, providing perspectival triangulation of the patient experience [25].

## Data collection and management

Interviews took place virtually from August 2020 to December 2020. All authors and members of the data engagement team conducted interviews with clinicians and patients. Concurrent analysis meetings helped to identify new interview

probes to triangulate patient and clinician experiences throughout data collection. All interviews were transcribed verbatim using an artificial intelligence transcription service and data engagement team members aligned each transcript with the audio recordings. Transcripts and recordings were stored in a password protected institutional document storage and sharing service.

## Ethical considerations

The Institutional Review Board at The University of Pennsylvania determined the study protocol exempt from review. For the ViSuCaRe Study, we developed the Qualitative Research Distress Protocol to help interviewers navigate any instances of perceived or expressed participant distress [26]. At the beginning of each interview, the interviewer and participant looked over and discussed the informed consent document together. Participants gave verbal consent. Participants did not receive compensation for their participation in the study.

## Data analysis

In this sub-analysis, we used inductive conventional qualitative content analysis informed by dimensional analysis. Our analysis stayed close to participants' words, with the aim of producing rich description of manifest content in participants' own language [23]. After completing a gestalt read of the transcripts, we iteratively developed and refined inductive codes through frequent dialogic engagement sessions to reach structural corroboration and coherence [23, 27, 28]. We used constant comparative technique throughout analysis to compare codes to one another and to the whole data set, helping us to integrate the perspectives of patients and clinicians throughout the analysis [29]. The categories resulting from this content analysis represent this integration.

## Rigor

We met frequently with our data engagement team and clinical-academic partners to assess confirmability and clinical resonance of the findings [30]. Perspectival triangulation of patient and clinician interviews enhanced credibility [30, 31]. We collected detailed participant demographic data to support assessment of transferability [32].

## Findings

### Participants

Participants included 17 clinicians, 18 patients, and 3 care partners (two dyadically interviewed and one individually interviewed) across nine cancer center sites (see Table 1). Clinicians included eight nurse practitioners, three dietitians, three social workers, one registered nurse, and one physician. Most cancer patients (65%) had been diagnosed in the past year.

Clinicians and patients describe their experience transitioning to virtual supportive cancer care during COVID-19 across four categories labeled with *in vivo* phrases from participants' interviews: "When COVID hit," "Not an IT expert," "Those little moments," and "The mothership." Both patients and clinicians reflect on the fears they had regarding missed, postponed, or sub-optimal care at the onset of the pandemic, "When COVID hit." As they adapt to the virtual care milieu, clinicians and patients face technological challenges engaging in care, which lead to frustration and fear represented in "Not an IT expert." As they describe in "Those little moments," clinicians and patients also face relational challenges in the new virtual care setting accessing and engaging in supportive cancer care. Finally, the logistical considerations of accessing the cancer center,

**Table 1** Characteristics of clinician and patient participants

Clinicians					
<i>Years practiced</i>	<i>Age</i>	<i>Race</i>	<i>Gender</i>	<i>Credentials</i>	
1–5 years = 2	20s = 1	White = 17	Female = 17	Nurse practitioner = 8	
6–10 years = 3	30s = 7			Registered dietitian = 3	
11–15 years = 5	40s = 4			Social worker = 3	
16–20 years = 2	50s = 2			Registered nurse = 1	
21+ years = 5	60s = 3			Doctor of medicine = 1	
Patients					
<i>Years with cancer</i>	<i>Age</i>	<i>Race</i>	<i>Gender</i>	<i>Education</i>	
0–1 years = 11	30s = 1	White = 19	Female = 16	Bachelors = 7	
2–3 years = 4	40s = 4	African American = 1	Male = 5	Masters = 10	
4–5 years = 2	50s = 4	Asian = 1		Doctoral = 4	
6–7 years = 1	60s = 9				
7+ years = 3	70s = 3				

“The mothership,” include barriers to care that are exacerbated—as well as those that are relieved—due to the switch to virtual supportive care for patients at the cancer center.

### “When COVID hit”

Patients and clinicians universally describe COVID-19 as having a distinct moment of impact: “when COVID hit.” The natural disaster-like manner of the global pandemic “hit hard” with an onslaught of public health policies, local shut-downs, and shifts in care delivery. For patients, physical and social health concerns are familiar—“when COVID hit, it was like the whole world just got cancer” (Cal, patient)—a continual reminder of fears their health and cancer care are tenuous.

In the aftermath of the initial impact, patients and clinicians feared the effects of COVID-19 on aspects of cancer care. For patients, the acute onset of the pandemic surfaced concerns of care discontinuity. Sam describes:

So when this thing first hit, if you recall it, it happened very quickly, cause it was you know early March. Um, you know, it just, within less than a week, the whole world shut down. And so if the world is shutting down, why isn't the hospital shutting down? So I had, like I told you, I had already had two infusions. I had an appointment for the third and I was, I was unbelievably concerned that it was going to be canceled, canceled, postponed.

Sam's sentiments were common among patients and their clinicians. Continuity of care was a concern for clinicians as care discontinuity related to COVID-19 had the potential to increase the complexity of clinical needs for patients whose conditions worsened due to postponed or missed care. As Rachel, a social worker described, “I'm only one person. What am I going to do with, you know, all of these needs? And, you know, patients coming in diagnosed later because they've had delays in surgery or care? Like, that was a worry for me.” The aftermath of COVID-19 exacerbated both patients' and clinicians' concerns about cancer care.

### “I'm not an IT expert”

The shift to virtual supportive cancer care created additional tasks related to the introduction and use of technology, thereby increasing demands on clinicians and patients. Clinicians discuss how ensuring patients can access and navigate telehealth platforms requires skills beyond their roles and expertise. As oncology social worker Rachel describes, “I'm not an IT expert, so sometimes I'm not sure exactly how to help them.” Patients also feel the burden of navigating

telehealth systems for their supportive cancer care visits, lacking technological expertise. Cal recalls:

You were supposed to be able to just push this, join now button on your screen...When I went to touch that button, it was below the level of the visible part of my screen. So I had to scroll down to bring it up. But now your finger's on the phone, so it won't register that you're touching it. So that was really frustrating because I couldn't get on the visit at all, even though I had done everything ahead of time, the way the instructions told me to, and I had followed all the seven steps exactly...I had to be like an IT expert.

Attempting to operate digital devices and telehealth systems can be a frustrating and onerous process. Indeed, clinicians and patients are not always successful accessing telehealth platforms despite their best efforts. Monica, a registered dietician recalls, “By the time we walked through all of those steps, the patient would say, ‘Just give me a phone call instead or come and see me during my next infusion or come and see me, um, before or after radiation.’”

Beyond accessing telehealth systems, clinicians describe engaging in purely virtual care as burdensome. For example, even the use of familiar technology such as email became taxing for clinicians, as they relied on these technologies to a greater extent and for a wider variety of tasks. As Miranda, an oncology nurse navigator, reflects about collaborating with her colleagues:

It's easier to just stop by someone's office or run up in person to clinic and go over something as opposed to emailing...just the curbside consults that we all did, you know, like, “Oh, I need, I need to figure out how to get this patient into this department. Who do I call? Who's your contact?” Now you have to email someone to find out and wait for them to respond as opposed to just walk by, you know, or yell across the office.

From clinicians' and patients' perspectives, engaging in virtual supportive cancer care requires a considerable level of technological expertise and an adjustment to a new pace of technologically mediated communication. Lacking this expertise—or the resources to secure it—clinicians and patients may enter virtual care interactions with frustration and under sub-optimal circumstances.

### “Those little moments”

The technological challenges virtual supportive care poses can cause patients and clinicians to struggle to foster relational connections. Maria, a care partner with a 12-year relationship with her spouse's clinician, remembers how the clinician's preoccupation with setting up the virtual visit technology resulted in their strained connection during a

difficult conversation: “It was hard to read him...He wasn’t making much eye contact as he was concerned about the screen and stuff...We were terrified, and he was frustrated.” Patients identify elements of care such as eye contact as important for maintaining a relational connection with clinicians. Indeed, patients note how important “those little moments” are where non-verbal gestures create opportunities for closeness and connection. JJ, a patient, describes how virtual supportive care limits the care relationship even in the absence of technological issues:

We still see the blood work results. The doctor goes over them, and she goes over the scan results...But... you still don’t have that, that close contact of, you know, being with someone when they’re doing that. So, uh, you know, you don’t get your hug from her at the end of your visit, that type of thing...You just miss that, you know, those little moments.

In virtual supportive care, patients miss the presence and reassuring physical touch of clinicians.

Like patients, clinicians express wanting—but being unable—to provide comfort and support through physical presence. Nurse practitioner Jane describes her surprise at the extent to which virtual care challenged her ability to comfort patients:

I didn’t realize how much I was touching patients or providing comfort through touch. Um, in those moments of silence or tearfulness, I could grab a tissue, I could rub their back. I could do something. Um, through the computer screen, it feels like there’s nothing I can do.

With the shift to virtual care, patients and clinicians alike feel distressed or uncertain when they cannot connect in the ways that they had naturally prior to COVID-19.

### “The mothership”

Clinicians and patients emphasize how virtual care enhances access to many dimensions of supportive cancer care that may otherwise be inconveniently or inefficiently accessed only through “the mothership.” Patients can more conveniently access supportive care provided through virtual platforms, allowing them to avoid the frustrations of long commutes or waits. Jennifer, a radiation oncology nurse, elaborates on this convenience factor for patients:

I also think the ease of telemed and the being able to meet patients you know from their living room or wherever, and them not having to be pissed off about having to wait in an exam room, not have to deal with the valet line...not having to deal with parking, the anxiety of driving to [city] and this God forsaken

heap of traffic that is like, doom whenever you come or leave.

Kim, a patient, corroborates the conveniences of virtual supportive care and the difference they makes in patients’ lives:

It does make life easier, especially the wait, the travel, the paying for the parking if you’re going to, as I like to call it “the mothership.” Um, you know, that kind of stuff, it makes a big difference.

Patients are able to access their care services without facing logistical inconvenience posed by in-person care.

Patients are also able to engage with additional care services or care partners, sometimes called caregivers or support people, that would otherwise be inaccessible even without logistical challenges. Lee describes how her ability to participate in support groups was contingent on not having to take time off work:

I was excited when it was online because I’m like, okay, good, I don’t have to take, um, I don’t have to take, uh, take time off to, you know, I don’t have to put in sick leave to go to this. Um, cause I want to save up sick leave in case you for other things.

The virtual nature of care reduces patients’ concerns about using up personal time off of work needed for cancer treatment or its sequelae. Consequently, patients are able to access supportive care services that they otherwise would not have been able to. Clinicians describe how virtual care can be inclusive of care partners who do not live locally. Jennifer, a radiation oncology nurse, emphasizes the value of having care partners involved in virtual supportive care visits:

To be able to include family members in care that might not have always been there at that initial meeting is cool, because then you don’t get 600 phone calls from, you know, [care partner]...who wants to know what was said at the appointment and keeps calling the office because she doesn’t know what is going on.

The possibilities of virtual care enhance patients’ and care partners’ access to integrated supportive care.

Finally, virtual supportive cancer care enables clinicians to navigate patients’ care more efficiently at “the mothership.” Meg, an oncology dietician and patient navigator, can connect with patients more predictably and consistently:

I’m not running around the building. I’m not waiting for providers who are running behind schedule to talk to the patient...Before I was missing patients because I, you know, I have to see this patient at nine o’clock when they’re done with this provider, but the provider goes until nine-thirty and I’m waiting and I missed my other patient I was supposed to see next, cause they’re

gone, they leave the building. Um, so this way I'm actually able to, most days I'm able to get through my entire patient list.

Efficiency in clinician workflow also creates flexible options for patients, who can opt to see supportive care clinicians virtually rather than on days they already have several other in-person appointments. Palliative care nurse practitioner Derby highlights this advantage of virtual care: "On a typical day, [patients] might have to come in and park, get their labs drawn, see their oncologist, then see our team, then go to infusion... Whereas now with telemedicine... it allows flexibility for our patients." Patients and clinicians express ways virtual supportive cancer care enhances the convenience, accessibility, and efficiency of supportive cancer care.

## Discussion

In this sub-analysis of the ViSuCaRe Study, we identified four categories describing the transition to virtual supportive cancer care during COVID-19, from the integrated perspectives of clinicians and people living with and after cancer. At the onset of the COVID-19 pandemic, patients and clinicians feared missing and postponing care. Even after the initial sudden transition to virtual care, clinicians and patients alike face challenges related to technology, relational aspects of care, and issues of access, convenience, and efficiency. Clinicians and patients also describe the elements of care that are made more accessible, convenient, and efficient through the virtual setting of supportive cancer care.

COVID-19 drastically altered modes of accessing and delivering supportive cancer care. Immediate changes in cancer care delivery models likely have long-term ripple effects, as telehealth care expands and discussions continue about its role in cancer care post-pandemic [1, 33]. The findings suggest practical action steps that can inform care quality improvement interventions (see Table 2).

The findings of this analysis corroborate the importance of care quality indicators convenience, access, and efficiency

before and in the landscape of healthcare indelibly marked by COVID-19. This analysis also reveals the clinician-patient relationship as an overlooked contributor to quality care that clinicians and patients both express as critical. As the clinician-patient relationship is not well understood as a quality indicator, it requires deeper theoretical exploration of how it impacts quality cancer care. Additionally, future inquiry can further explore how to understand classic quality issues in healthcare systems permanently altered by COVID-19.

The Quadruple Aim [34] added healthcare team wellbeing to Institute for Healthcare Improvement existing aims of reducing costs, improving population health, and patient experience, to emphasize the impact of improved clinician experience on healthcare quality. This analysis corroborates the interrelatedness of clinician concerns and experiences providing care and quality care outcomes for patients. Our methodological approach enabled eliciting clinicians' perspectives independently and interpreting those perspectives in relation to patient's experiences through an integrated analysis. Researchers aiming to explore other areas of healthcare quality in a holistic patient-centered way can adopt a similar integrated approach to analysis. Dyadic approaches to data collection may also offer methodological advantages to explore these areas.

The demographic characteristics of the ViSuCaRe Study sample may limit the transferability of some findings. We recruited participants from a single large academic health system. Though the system includes multiple sites—urban, suburban, and community—across two US states, our findings may not generalize to other cancer centers. The demographic heterogeneity of the sample was further limited, with the majority of patients and clinicians self-identifying as White and all of the clinicians self-identifying as female. Our sample was also limited to those who could participate including those with technological literacy, time, and resources to participate in 30–60-min virtual interviews without compensation. This likely reflects other known disparities in telehealth access related to digital health literacy [35–39]. Indeed, metrics from the health system

**Table 2** Action items to improve telehealth for patients and clinicians

"When COVID hit"	<ul style="list-style-type: none"> <li>■ Adapt screening materials, tools, and processes to be responsive to virtual care and increased care partner burden.</li> </ul>
"Not an IT expert"	<ul style="list-style-type: none"> <li>■ Align regulations and policy concerning modality for encounters with the clinical and technological concerns of clinicians, persons, and families.</li> <li>■ Adapt technology to support clinicians' informal curbside consults and collaboration during virtual and hybrid appointments.</li> </ul>
"Those little moments"	<ul style="list-style-type: none"> <li>■ Organizational decisions should prioritize support for the clinician-patient relationship.</li> </ul>
"The mothership"	<ul style="list-style-type: none"> <li>■ Health systems should take inventory of and assess telehealth-related workflow changes for sustainability and appropriateness.</li> <li>■ Continue to offer telehealth as an option for supportive care individual and group visits not requiring physical assessment and lab data.</li> </ul>

where this study was conducted indicate that residents of Philadelphia, men, older adults, African Americans, and Medicare or Managed Medicare patients were less likely to use telehealth technologies, opting instead for telephone calls. Future inquiry must address access and equity issues in virtual supportive cancer care delivery on the four levels of barriers to telehealth as identified by Dixit and colleagues: patient, health system, telehealth system, policy [36].

Some patients who participated were not on active treatment, reported anticipating a complete remission, and had experienced lower symptom burden. Thus, the findings likely do not adequately reflect the experiences of patients who are on active treatment, have poorer prognoses, and experience high symptom burden. Additionally, clinicians managing cancer-directed treatment and care team members such as medical assistants or schedulers may not have considered themselves eligible to participate in the study despite targeted recruitment materials. A deeper understanding of perceptions and experiences of supportive care among clinicians and patients is critical to inform recruitment strategies for future inquiry.

COVID-19 has permanently altered healthcare delivery, posing the question of what this will mean for the future of supportive cancer care. Our findings offer real-time action steps for practice and a generative direction for future research to enhance and expand quality care that is accessible, convenient, efficient, and relationally attuned.

**Acknowledgements** Our sincere gratitude to the patients and clinicians who participated in the interviews. This work would not have been possible without the vital contributions of each member of our clinical-academic partnership team (Rachel Benenson, MSW, LCSW; Elise Canale, MSN, RN; Bobby Goodacre, MBA; Mary Pat Lynch, DNP, MSN, RN, AOCN; David Miller, MBA; Heather Sheaffer, DSW, MSW; Lindsey Zinck, MSN, RN, OCN), our data engagement team (Cat Clason, MSN, RN, Emily Locondro, Lindsey Krott, Delia Trimble, Lindsey Zinck, MSN, RN, OCN, Amanda Watson), and the consulting researchers (Jie Deng Ph.D., RN, OCN, FAAN, G.J. Melendez-Torres, DPhil, MPhil). We especially thank Sarah Kagan, Ph.D., RN, FAAN for study and team conception and thoughtful critique in developing this manuscript.

**Author contribution** Jane Evered, PhD, RN—conceptualization, methodology, validation, formal analysis, investigation, data curation, writing—original draft, writing—review and editing, supervision, project administration. Lucy Andersen, BSN, RN—validation, formal analysis, investigation, writing—review and editing. Anessa Foxwell, BA, MS, MSN—validation, formal analysis, investigation, writing—review and editing. Christin Iroegbu, MS, RN—validation, formal analysis, investigation, writing—review and editing. Clare Whitney, PhD, MBE, RN—conceptualization, methodology, validation, formal analysis, investigation, data curation, writing—original draft, writing—review and editing, supervision, project administration.

**Funding** The ViSuCaRe Study was funded by the Cancer Service Line, Penn Medicine, University of Pennsylvania. While working on this study, Dr. Evered was supported by the University of Wisconsin-Madison Department of Family Medicine and Community Health Primary Care Research Fellowship, funded by grant T32HP10010

from the Health Resources and Services Administration. Ms. Foxwell is supported by the National Institute of Nursing Research Ruth L. Kirschstein National Research Service Award training program Individualized Care for at Risk Older Adults (T32NR009356) as predoctoral fellow.

## Declarations

**Competing interests** The authors declare no competing interests.

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