

Review Article



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What are the digitally enabled psychosocial interventions delivered by trained practitioners being offered to adults with life-shortening illnesses and palliative care needs and their informal and professional caregivers? A scoping review

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Abstract

Objectives. Computer-mediated and telephone communication connecting professionals and patients (eHealth) is well established. Yet there is little information about psychosocial interventions delivered by trained practitioners for a palliative care population. The aim is to describe digitally enabled psychosocial interventions offered to adults with life-shortening or terminal illnesses and carers/families receiving palliative care, and how these are delivered and evaluated.

Methods. Using Joanna Briggs Institute scoping review methodology, 4 databases (MEDLINE, CINAHL, PsycINFO, and Academic Search Ultimate) were searched (January 2011–April 2021). Inclusion criteria: (a) any design reporting and (b) psychosocial interventions delivered digitally by palliative care health and social care practitioners to (c) adults with life-shortening illnesses.

Results. Included papers (n=16) were from Europe ((n=8), Asia (n=2), and the USA (n=6). Research designs encompassed pre- and post-studies, randomized control trials, feasibility, and pilot studies. Tools evaluated psychological, somatic, functional, and psychosocial outcomes. Underpinning approaches included cognitive behavioral therapy, Erikson's life review, coping skills training, psychoeducation, problem-solving therapy, counseling, emotional support and advice, and art therapy. Delivery tools used were telephones, text messages and emails, websites, videos, workbooks, and compact discs. Practitioners included counselors, psychotherapists, psychologists, art therapists, social workers, registered nurses, and trainees. Patients had Alzheimer's disease and related dementias, advanced cancers, chronic obstructive pulmonary disease, and heart failure.

Significance of results. COVID-19 has accelerated the usages of digitally enabled psychosocial interventions. Evidence indicates a growing interest in hybrid, novel, synchronous, and asynchronous digital psychosocial interventions for adults with life-shortening illnesses and their caregivers receiving palliative care.

Introduction

The uses of information and communication technology, digital devices, and the internet are now established ways of delivering health care. The term eHealth is used to describe these and encompasses “mHealth” (using mobile phones) and “telehealth” (using telephone or video software) offering digital health interventions that connect patients and health-care providers located in different physical locations (“connected health technology”) (World Health Organization (WHO) 2018). The potential for technology to dispense services to individuals and groups located in diverse locations has seen increased investment in eHealth by governments, bringing innovation and change to health-care systems (WHO 2019). The recent global pandemic of coronavirus (COVID-19) has accelerated advances in eHealth, as drastic measures to restrict viral transmission have meant computer technology becoming more important for communication to reduce in-person contact (Anthony Jnr 2020). Virtual care will be a key feature of health care going forward in a post-COVID world (Dolan et al. 2021).

The uses of eHealth to change, monitor, and maintain patients' behaviors and to educate and inform health-care providers, families, and communities have been a focus of research. For people living with life-shortening illnesses, eHealth can allow easier access

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to health-care professionals, reducing costs of travel and time and supporting patients and carers to cope with difficult and burdensome health conditions (Allsop et al. 2018; Bonsignore et al. 2018). Increasingly, digital health interventions are being used to support the psychological, social, and spiritual well-being of this population, for example, web-based psychosocial interventions for caregivers (DuBenske et al. 2014) and eHealth mindfulness-based programs (Matis et al. 2020).

Favorable or similar quality-of-life outcomes for a palliative care population have been found in studies comparing virtual with in-person care (Dolan et al. 2021). Nevertheless, there is limited knowledge of the effectiveness of eHealth for palliative care (Capurro et al. 2014) and eHealth depends on user engagement, requiring additional strategies such as prompts to support this (Alkhaldi et al. 2016). Importantly, there are concerns that enthusiasm for eHealth is overshadowing the need for evidence of its feasibility and effectiveness (Hancock et al. 2019).

While recent systematic reviews describe the range of eHealth in palliative care, little is known about its application for psychosocial interventions. The breadth of applications of technology (education, decision aid, promotion of advance care planning, physical symptom relief, improving quality of life, and improving communication skills), the settings in which these are used (clinic and home), and the modes of interaction involved have been reviewed (Osther et al. 2016). Another review highlights as beneficial the time-saving features of video consultations, the inclusion of relatives in patients' treatment, and the uptake of video consultations by a wide age range of service users (Jess et al. 2019). In their review, the provision of clinical assessments and communication with health-care professionals about symptom management by video is considered a strength (Jess et al. 2019). Yet, another review by Finucane recognizes a lack of evaluation in research studies of digital health interventions. They highlight the positive impacts of eHealth such as communication, exchanges of information, and decision-making and education (Finucane et al. 2021). Mentioned within these and other recent reviews are the users' experiences of eHealth, and there is some evidence across the world of eHealth's acceptability by patients with a range of physical and mental health needs (Eze et al. 2020).

It is widely acknowledged that psychosocial interventions are integral to good palliative care (Warth et al. 2019; Wood et al. 2019). These are provided by the multi-professional team (social workers, allied health professionals, psychologists, chaplains, and volunteers) working alongside doctors and nurses to support patients and their families at the end of life. However, there is a lack of information in current reviews of eHealth about psychosocial interventions for a palliative population delivered by trained practitioners. The recent COVID-19 pandemic has accelerated the development and use of these interventions with computer-mediated communication supplementing and enabling standard interventions. The aim of this scoping review is to bring clarity and fill this knowledge gap by describing digital means of delivering psychosocial interventions (specifically where these involve a patient-practitioner relationship), their methods and therapeutic purposes, the personnel involved in delivering interventions, their outcomes, and ways these are evaluated for a palliative care population.

Review question

What are the digitally enabled psychosocial interventions delivered by trained practitioners being undertaken with adults with life-shortening or terminal illnesses and their carers/families

receiving palliative care, and how are they being delivered and evaluated?

Methods

This scoping review was conducted in accordance with the Joanna Briggs Institute methodology for scoping reviews (Peters et al. 2020). Scoping reviews are usually deliberately designed to map the breadth of knowledge in a topic when its literature is heterogenous or its key concepts are unclear. In this way, the distinctive features of the area of interest are described and made available for further exploration. Unlike other types of systematically conducted reviews, there is no intention to aggregate, analyze, or synthesize the literature. The checklist set out in the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (Tricco et al. 2018) supported the reporting of this review.

Concepts determining the review's inclusion and exclusion criteria

1. *Psychosocial intervention*: This refers any non-pharmacological intervention involving an interpersonal relationship between a service user (patient or family caregiver) and one or more trained health-care practitioners. This definition is based on Treanor et al.'s (2019) review, which encompassed interventions that were "psychological, psycho-therapeutic, psycho-educational, or psychosocial," or included a psychological or social component. The present review includes arts therapies (Collette et al. 2020; Kievisiene et al. 2020; McConnell and Porter 2017) and social prescription interventions (Fancourt and Finn 2019).
2. *People living with life-shortening, life-limiting, and palliative care needs*: These are patients with non-curative, progressive, and advanced physical conditions that require the input from palliative care services, either in community settings or in specialist settings. It also includes their relatives and informal caregivers.
3. *eHealth*: This term encompasses "mHealth" (using mobile phones) and "telehealth" (using telephone or video software) offering digital health interventions connecting those located in different physical locations ("connected health technology").

See Table 1 for inclusion and exclusion criteria.

Search strategy

Four databases were searched: MEDLINE, CINAHL, PsycINFO, and Academic Search Ultimate (see the Supplementary Appendix for an example of one search full strategy). Search terms were built around the concepts of "Psychosocial intervention," "People living with life-shortening, life-limiting, and palliative care needs," and "eHealth," drawing from published search strings from relevant Cochrane reviews (Parahoo et al. 2013; Poort et al. 2017; Semple et al. 2013; Treanor et al. 2019) and sensitive and specific palliative care search filters (Rietjens et al. 2019; Zwakman et al. 2018). A sensitive search strategy was developed with the support of a specialist librarian by using database-indexed terms and adjacent words, (within keywords, titles, and abstracts of papers) as free text and search words for "palliative care", "eHealth", and "psychosocial." The strategy was adjusted for each database and tested on 5 papers to ensure it was effective. Date restriction for retrievals was between January 2011 and April 2021, with no language restrictions (and an updated search was undertaken in November 2022). To capture

Table 1. Review inclusion and exclusion criteria

Inclusion criteria	Exclusion
<ul style="list-style-type: none"> • Adult (18+ years) patients with life-shortening conditions or family caregivers receiving palliative care services • Health-care practitioners delivering adult palliative care services • Experience of digitally enabled psychosocial intervention for the palliative care population • Reports of primary research studies of any design reporting interventions mediated or provided by health- and social care practitioners (voluntary/paid) and where a majority of participants have advanced illnesses or are caregivers for patients with advanced life-shortening illnesses • Primary research studies published in peer-reviewed journals published between January 2011 and April 2021 	<ul style="list-style-type: none"> • Patients with no diagnosed life-shortening conditions or terminal illnesses • Patients not receiving palliative care services • Experience of digitally enabled psychosocial interventions is not connected to a palliative diagnosis • Unpublished studies and gray literature • Studies reporting peer-led or self-help interventions (such as self-administered psychoeducational games) • No evidence of an interpersonal relationship between service user and health-care practitioner, for example, self-administered games or apps that did not include or facilitate such a relationship

the contemporary nature of the phenomenon, a 10-year time frame was considered appropriate for studies reporting research into telehealth. Quality assessment of the studies was not undertaken since it is not recommended for a scoping review, where the aim is to map evidence and not provide specific answers to defined clinical issues (Peters et al. 2020).

Data extraction and management

Retrieved citations and papers were imported into Covidence, a web-based systematic review platform accessible to the review team. The reviewers M.W. and A.M. screened titles and abstracts independently and discrepancies were resolved through discussion with C.W. Discerning digital health interventions that met our criteria required careful reading given our inclusion criteria and the breadth of eHealth categories. Full texts were read by M.W. to confirm eligibility, and a sample was checked by C.W. Nonrelevant papers were removed at each stage. Data extraction of the included studies was undertaken by M.W. and C.W. using the template shown in [Box 1](#). Following data extraction, data were summarized across studies, and a content analysis approach was used to identify and code broad thematic areas across the included studies.

Box 1. Data extraction tool

1. Citation details; peer reviewed Y/N?
2. Study methodology and description
3. Digital intervention description, characteristics, delivery, and context
4. Participant characteristics
5. Study evaluations and outcomes
6. Reviewer's further thoughts/comments

Results

The number of citations retrieved, screened, and included is outlined in [Figure 1](#).

Retrieved studies came from Europe, including the UK ($n = 8$), Asia ($n = 2$), and the USA ($n = 6$), reporting small-scale pilot projects to studies embedded in randomized control trials. These heterogenous findings are summarized in [Table 2](#).

Interventions

A range of digitally enabled interventions delivered in real time (synchronously) by telephone and video calls to palliative patients including those with advanced cancers, heart failure, and chronic obstructive pulmonary disease (COPD) were reported. Three interventions used workbooks or information on websites to supplement face-to-face and telephone support asynchronously (Gellis et al. 2012; Leow and Chan 2016; Zhang et al. 2019). Personnel delivering the digitally enabled psychosocial interventions included medics, nurses, social workers, psychologists, an art psychotherapist, a coach, and counselors in training. The most frequent psychosocial approach taken by interventions was cognitive behavior therapy in a manualized format (Blumenthal et al. 2014; Demiris et al. 2012; Köhler et al. 2017; Pot et al. 2015; Watson et al. 2017; Wilz and Soellner 2016), and other approaches included Erikson's psychosocial developmental theory (Zhang et al. 2019) and art therapy (Keenan et al. 2021; Rahman et al. 2020). Six interventions had a psychoeducational purpose offering strategies for managing distress, problem-solving, or gaining coping skills (Blumenthal et al. 2014; Demiris et al. 2011; Gellis et al. 2012; Leow and Chan 2016; Paun and Cothran 2019; Pot et al. 2015). Psychological and emotional support, reduction of physical and mental difficulties, and an increase in the quality of life were the therapeutic aims of other interventions. Personnel delivering these were not limited to one professional group – social workers, nurses, counselors, psychologists, and an art therapist were identified in our review's studies. Who delivered the intervention depended on the context; medical and nursing staff offered psychosocial support within their general palliative care provision, referring to specialists when appropriate. Innovative bespoke/standalone psychosocial interventions were delivered by experienced trained staff or those undertaking training. Digitally enabled psychosocial interventions were provided at several points in the patient's illness trajectory, from acute care of advanced cancer in hospital settings to patients living in their own homes or staying in hospice or residential facilities. [Table 3](#) summarizes the interventions.

Participants

Studies included patients, informal caregivers or family members, and health-care professionals.

The accessibility of psychosocial digital interventions was only occasionally discussed by authors. One study excluded participants with hearing loss (Funderskov et al. 2019), in another at least 33% of participants were hearing impaired (Gellis et al. 2012), and faced with technical difficulties one participant had to exchange their hearing aid for the headset at each session (Paun and Cothran 2019). Homogeneity of the ethnicity of participants was acknowledged as a limitation in several studies. Most recipients of interventions required a telephone as a minimum; most would have needed access to the internet and a computer. Membership of the social media platform Facebook was a requirement in Benson's et al. (2020) study. Only a few service provider agencies gave patients the digital tools to access services.

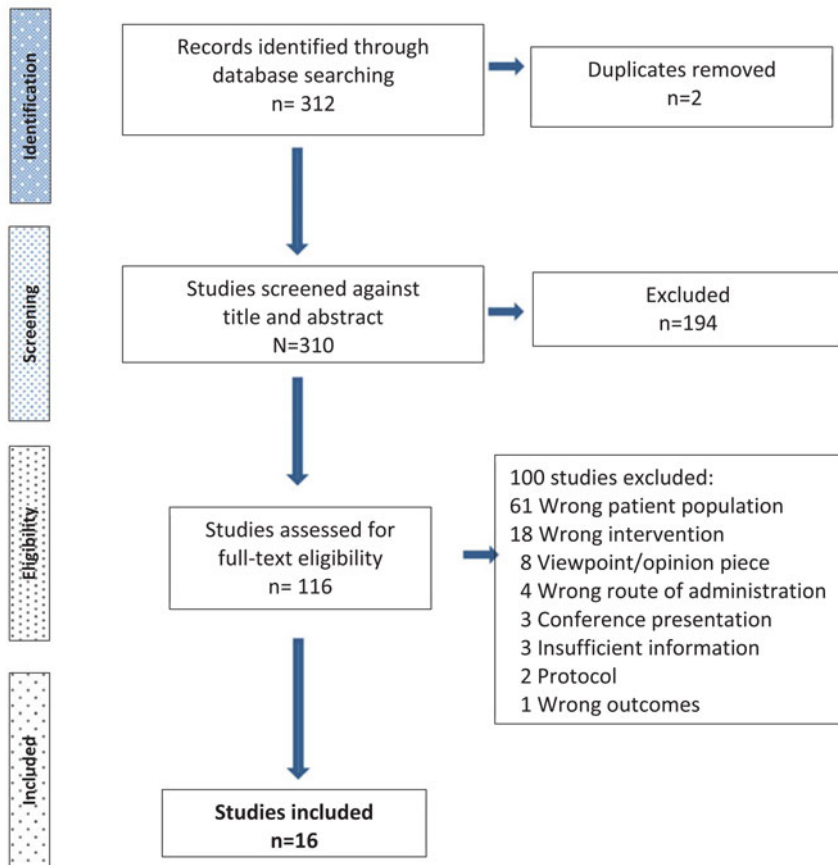


Fig. 1. The Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews flow diagram.

Evaluations and outcomes

Studies evaluated different types of outcomes, encompassing psychological phenomena, social functioning, general health, and users' technical competence and preferences. Five quantitative studies reported statistically significant results for their digital interventions with improved changes in mood, meaning in life and hope (Zhang *et al.* 2019), improved well-being (Wilz and Soellner 2016), quality of life (Blumenthal *et al.* 2014), increased caregivers' problem-solving ability (Demiris *et al.* 2012), and fewer visiting to the emergency department (Gellis *et al.* 2012), although effect sizes were modest or small. Two studies found no effect of the digital intervention. Watson *et al.* found no difference between their intervention delivered remotely and in-person for anxiety and depression (both groups improved) (Watson *et al.* 2017). The support of a coach in Pot *et al.*'s study of a self-help web resource made no difference to outcomes (Pot *et al.* 2015). Perspectives, expectations, and experiences reported by patients, health professionals, and caregivers all differed, as did participants' preferences for visual and audio connection (video) and audio only (telephone). There was a preference for telephone from patients (Guzman *et al.* 2020); caregivers in another study found video more useful than telephone (Leow and Chan 2016); and health-care professionals valued being able to see changes in patients' health during video consultations (Funderskov *et al.* 2019).

Discussion

In this scoping review, primary research is mapped to describe digitally enabled psychosocial interventions delivered by trained

practitioners to adults living with life-shortening and terminal illnesses and their family caregivers. The 16 eligible studies reviewed were qualitative and quantitative and undertaken by researchers in the USA, the UK, Europe, China, and Singapore. Research designs were pre- and post- studies, randomized control trials, feasibility, and pilot studies. Digital interventions encompassed asynchronous multicomponent web-based psychoeducational resources and synchronous contacts with practitioners by telephone and/or video call. While 2 studies mention mobile phones specifically (Wilz and Soellner 2016; Zhang *et al.* 2019), and another describes telephone lines in patients' homes that connected them to the study's monitoring unit (Gellis *et al.* 2012), further details about what type of telephones were used in other studies were absent. Understanding the impact of additional features of mobile phones – their portability, functionality in accessing the internet, and transmission of SMS texts – is likely to benefit the development of eHealth. Specialist practitioners, trainees, and nursing staff delivered interventions that were predominantly based on cognitive behavioral therapy and psychoeducation principles, although counseling, emotional support and advice, and art therapy were also featured. The target recipients of these interventions were patients with Alzheimer's disease and related dementias, advanced cancers, COPD, and heart failure, and family caregivers.

The reported effectiveness of digital tools to deliver, extend, or replace usual emotional support interventions varied between the studies. Better or equivalent outcomes to treatment as usual were noted in 4 out of 7 quantitative studies, supporting the positive findings documented in the qualitative studies. Our review highlights practitioners' adaptations of usual practices for an online

Table 2. Summary of included studies

Author (year), country	Research question/objective	Intervention	Study design	Setting	Population	Data collection	Findings
Keenan et al. (2021), the UK	What are the convergent and divergent views held by professionals and patients toward the implementation of telehealth in palliative care in relation to the principles of self-determination theory?	Psychosocial support on occasions utilized techniques such as art therapy	Qualitative	Patients living in their usual place of residence in the UK	Adult palliative care services (<i>N</i> = 8; professionals, <i>n</i> = 5; patients, <i>n</i> = 3)	Interviews	+ Use of telehealth could satisfy the need for autonomy but may manifest in different ways for patients and professionals. - Greater divergence between patient and professional perceptions of how telehealth satisfies the need for relatedness and competence needs.
Rahman et al. (2020), the UK	How do palliative care patients make sense of their experience of using telehealth to access psychological support?	Telehealth-based art therapy	Longitudinal, qualitative, interpretative phenomenology	Patients living in a rural location > 45 min' drive from local palliative care unit	Patients receiving specialist palliative care (<i>N</i> = 4)	Semi-structured interviews	Four themes: deepening understanding through unburdened and continuous connections; the ever-present paradox of visible and invisible telehealth, insight into the holistic self from barrier to facilitator, and the immediate change from unnecessary distraction to mindful engagement.
Benson et al. (2020), the USA	(1) What types of social support do informal caregivers offer one another in an online support group? (2) How do informal caregivers elicit social support in an online support group? (3) What are the social support preferences of informal caregivers who participated in an online support group?	Online support Secret Facebook Group	Mixed methods study with a concurrent nested design	Online social support group	Informal and family caregivers of hospice cancer patients (<i>N</i> = 90)	Posts and comments made in the Facebook group Exit interviews	Four types of support exchanged between members: emotional, appraisal, companionship, and informational. No evidence of instrumental (i.e., tangible) support provision among members.
Guzman et al. (2020), the USA	Comparison of patients using videoconference counseling program and face-to-face counseling.	Outpatient counseling by video or telephone	Chart review	Supportive Care Center at The University of Texas	Outpatients attending the Supportive Care Center Patients (<i>N</i> = 2072; in-person counseling only group, <i>n</i> = 1620; outreach group in-person and remote counseling, <i>n</i> = 452)	Retrospective chart review	The outreach group had significantly higher median scores on depression and anxiety compared with the outpatient-only counseling group. Outpatient sessions were significantly longer than outreach sessions. Patient preference for telephone (<i>N</i> = 898, 94%); and FaceTime (<i>N</i> = 41, 5%); and videoconferencing (<i>N</i> = 18, 2%)

(Continued)

Table 2. (Continued.)

Author (year), country	Research question/objective	Intervention	Study design	Setting	Population	Data collection	Findings
Zhang et al. (2019), China	To evaluate the feasibility and effects of the intervention on anxiety, depression, self-transcendence, meaning in life and hope among cancer patients undergoing chemotherapy.	WeChat-based life review program	Non-concurrent controlled quasi-experimental design	Two hospital oncology departments in China	Participants diagnosed with Stage III or IV cancer and undergoing chemotherapy Patients ($N = 86$: experimental group, $n = 44$; control treatment as usual, $n = 42$)	Interviews Standardized measurements of anxiety, depression, self-transcendence, and meaning in life and hope	All experimental participants who completed the program used the WeChat platform. + 39 had no difficulties in operating the platform. + 40 were satisfied with the program. + Statistically significant improvement effects identified on anxiety, depression, and self-transcendence. + Increase in the levels of meaning in life and hope observed in the experimental group after the program.
Paun and Cothran (2019), the USA	To determine the feasibility of delivering the intervention online and to explore caregivers' group experience of using the video-based technology.	Live-streaming group-based video sessions	Feasibility study	US long-term care facility	Family and informal caregivers of people with Alzheimer's disease and related dementias Informal caregiver/family ($N = 5$)	Survey and focus group	Ratings on the post-intervention survey (0–4) ranged from 3.2 for learning new information to 3.6 for help managing loss and grief Higher scores indicated higher agreement. + Technology was navigable aided by introductory practice session. – Technological challenges identified. + Meeting facilitator in-person beforehand. + Ideal group size of 5. + Emotional connection possible online. + Reduced participants' feelings of isolation.
Funderskov et al. (2019), Denmark	Which facilitators and barriers are important when introducing video consultations? How do health-care professionals experience video consultations?	Video consultation for palliative care	Hermeneutic post-phenomenological approach	Patients' homes and at the Department of Oncology, Odense University Hospital, Denmark	Specialist palliative health-care professionals and their patients ($N = 8$)	Autobiographical diaries Participant observations Field notes Semi-structured interviews	Video consultations mediate: + Health-care professionals' co-operation. + Access to care. + Active patient and relative involvement. + Enabled mental/physical changes to be seen over time. + Unstable internet connectivity did not undermine video consultations.

(Continued)

Table 2. (Continued.)

Author (year), country	Research question/objective	Intervention	Study design	Setting	Population	Data collection	Findings
Watson et al. (2017), the UK	To test if intervention has equivalent efficacy to treatment as usual.	Telephone-delivered cognitive behavioral therapy (T-CBT)	Prospective randomized equivalence trial	UK cancer hospital	Patients referred to hospital's Psychological Care Service ($N = 118$; T-CBT, $n = 60$; treatment as usual CBT, $n = 58$)	Patient-reported outcomes were self-assessed by the postal questionnaire	Participants improved regardless of the delivery method for CBT.
Köhle et al. (2017), the Netherlands	To explore user experiences of the intervention "Hold on, for each other".	Web-based self-help intervention plus counselor	Qualitative study	Netherlands	Partners of mainly non-curable cancer patients recruited from an ongoing randomized controlled trial (RCT; $N = 14$)	Interviews	<ul style="list-style-type: none"> - Evaluation of personal support: 4/6 partners were not entirely satisfied with the support provided by their counselor because they had expected personal feedback instead of feedback that mostly targeted their progress in the intervention. + The intervention group showed short-term effects in improving well-being when compared to the control groups. + CBT was effective in decreasing body complaints at posttreatment and in improving perceived health at the 6-month follow-up in comparison with the untreated control groups. + Improvements for CBT in comparison with the relaxation group could be shown for depressive symptoms at the 6-month follow-up. - Seven sessions are not sufficient for the range and severity of caregivers' problems.
Wilz and Soellner (2016), Germany	To determine whether caregivers undertaking the intervention would report a decrease in depressive symptoms and bodily complaints, and better emotional well-being and perceived health at the end of treatment than those undergoing a solely relaxation-based intervention or no treatment (untreated control group).	A short-term CBT program delivered by telephone	Quantitative RCT	Community settings in various locations in Germany	Family caregivers of patients diagnosed with Alzheimer's disease and a global deterioration score of >3 ($N = 191$: intervention, $n = 102$; progressive muscle relaxation, $n = 53$; untreated control $n = 50$)	Survey	<ul style="list-style-type: none"> + Most useful: video ($n = 10$) and telephone ($n = 2$) - Least useful: online forum ($n = 4$) and telephone ($n = 2$) "Six participants did not find any component to be least helpful." The authors point to the economic and cultural factors influencing internet usage, with the higher age and lower income of their study's participants being possible explanations for the minimal use of the online forum.
Leow and Chan (2016), Singapore	To evaluate caregivers' perceptions of a video, telephone follow-up, and an online forum as components of the intervention	Psychoeducational intervention "Caring for the Caregiver Program"	Qualitative interpretive design	Home hospice organizations National Cancer Centre outpatient clinic in Singapore	Family caregivers ($N = 12$)	Interviews	<ul style="list-style-type: none"> + Most useful: video ($n = 10$) and telephone ($n = 2$) - Least useful: online forum ($n = 4$) and telephone ($n = 2$) "Six participants did not find any component to be least helpful." The authors point to the economic and cultural factors influencing internet usage, with the higher age and lower income of their study's participants being possible explanations for the minimal use of the online forum.

(Continued)

Table 2. (Continued.)

Author (year), country	Research question/objective	Intervention	Study design	Setting	Population	Data collection	Findings
Pot et al. (2015), the Netherlands	To describe the acceptability, in terms of reach, adherence, and user evaluation, of a guided self-help internet intervention for family caregivers, called mastery over dementia (MoD).	MoD	Data were used from a pragmatic RCT on the effectiveness and cost-effectiveness of MoD	Caregivers living in the Netherlands	Family caregivers and the people with dementia ($N = 149$)	Survey Focus group	+/- The one aspect of this intervention that qualifies it for this review is the inclusion of a coach. No statistically significant differences were found in the comprehensibility of the lessons or feedback of the coach leading the authors to state "The jury is still out whether or not to include the support of a coach" (p. 1352).
Blumenthal et al. (2014), the USA	To evaluate the efficacy of a telehealth coping skills training (CST) intervention for improving quality-of-life (QoL) and medical outcomes in chronic obstructive pulmonary disease (COPD) patients by helping them to develop skills for coping more effectively with their disease.	Telephone-based manualized coping skills	RCT	USA	57% of participant patients diagnosed with COPD, classified as high risk (D) on Global Initiative for Chronic Obstructive Lung Disease considered palliative care ($N = 326$: CST, $n = 162$; control $n = 164$)	Battery of QoL instruments, pulmonary function tests, and functional measures	Statistically significant improvements in QoL for the intervention group compared to the control group although the effect sizes were modest.
Demiris et al. (2012), the USA	To compare the effectiveness of a problem-solving therapy (PST) intervention delivered face-to-face with one delivered via video-phone to hospice primary caregivers.	PST delivered by videophone	Randomized noninferiority trial	Home hospice care in the USA	Informal caregivers ($N = 126$: face-to-face, $n = 77$; video group, $n = 49$)	Psychometric instruments were administered at the initial and last visits	Delivery of PST via videophone was not inferior to face-to-face delivery. + The PST intervention in both modalities was associated with improvements in caregiver QoL and problem-solving ability and reduction in anxiety.

(Continued)

Table 2. (Continued.)

Author (year), country	Research question/objective	Intervention	Study design	Setting	Population	Data collection	Findings
Gellis et al. (2012), the USA	Comparison between usual care with psychoeducation control and the tele-HEART intervention.	“tele-HEART program,” a multidimensional telehealth psychoeducation treatment model	Randomized controlled study	US Home Health Care services	65+ years with heart failure or COPD; frequent hospitalizations or emergency room visits; requiring 3+ home visits per week; and willing to learn how to use the telehealth monitoring system Patients (N = 115; treatment group, n = 57; control group, n = 58)	Interviews	<p>Compared with the control group (usual care) the telehealth intervention group:</p> <ul style="list-style-type: none"> + Improved significantly in depression symptom scores. + Reported more interest in daily activities, less sadness, and increased energy. + The intervention group experienced significantly greater general health and social functioning. + Significantly fewer visits to the emergency department. <p>No observed significant differences between the groups with respect to the Satisfaction with Care survey.</p>
Warren et al. (2012), the UK	To examine the complexity of non-face-to-face patient interactions using complex interrelational data and then to mine these data to articulate the component parts of the perceived complexity of this work.	Telephone call with Clinical Nurse Specialist (CNS)	Prospective study Data mined using standard data mining techniques	UK Cancer Hospital	All incoming telephone contact from patient and carer (partner, family member, friend, or health-care professional) with 2 CNSs in secondary breast cancer (N = 229)	Records of calls	<ul style="list-style-type: none"> + The second largest group of calls made was at the palliative stage as care transfers from hospital-based care to community-based care. <p>The authors highlight the complexity of support provided and accessed by telephone.</p>

Table 3. Summary of interventions

Study by	Intervention and means of delivery	Therapeutic purpose and theoretical basis of intervention	Personnel delivering the psychosocial intervention	Resources provided/required
Keenan et al. (2021)	Psychosocial support on a one-to-one basis for patients <i>Synchronous</i>	Psychosocial support from a qualified therapist who was part of the palliative care team on occasions utilized techniques such as art therapy Psychosocial support	Art psychotherapist	Laptop computers with Polycom RealPresence® software installed.
Rahman et al. (2020)	Telehealth-based art therapy for patients <i>Synchronous</i>	Share current experiences, explore feelings toward own terminal diagnosis, and consider ways to alleviate or resolve any concerns Art therapy	Art psychotherapist	Internet connection required. Software was installed on laptop computers provided for the duration of the study. Participants were provided with a basic supply of art materials.
Benson et al. (2020)	Online support secret Facebook Group for caregivers of hospice cancer patients <i>Asynchronous</i>	Reduction of caregiver burden through online social support Psychosocial support	Social worker	Participants enrolled to Facebook require the internet and a device to access it.
Guzman et al. (2020)	Outreach video or telephone counseling program for palliative care outpatients <i>Synchronous</i>	Counseling and assessment for onward referral to psychiatrists, psychologists, social workers, and chaplains Psychosocial counseling	Counselor/psychotherapist delivered by Master's Level Licensed Professional Counselors	Participants needed access to the internet, telephone, and computers.
Zhang et al. (2019)	WeChat-based life review program for patients comprising 4 e-life review interviews and 4 life review modules: memory prompts, review extraction, mind space, and E-legacy products <i>Synchronous and asynchronous</i>	To improve self-transcendence, increase meaning in life and hope, and reduce anxiety and depression Erikson's psychosocial development theory and Reed's self-transcendence theory	The first author was the facilitator (Registered Nurse) Clinical psychologist followed up with participants experiencing negative emotions	Participants needed access to the internet, telephone, and computers.
Paun and Cothran (2019)	Online 60-min weekly live-streaming group-based video sessions for caregivers of people living with Alzheimer's disease and related dementias (ADRD) <i>Synchronous</i>	Improve caregivers' knowledge of ADRD and philosophy of care, communication/conflict resolution skills, hands-on care skills, and mental health and address potential chronic grief Psychoeducation	Nurse	All participants received headsets.
Funderskov et al. (2019)	Video conversations between Healthcare practitioners, patients, and family members. Any topic could be discussed about medical adjustments, although 6 video consultations included "pain relief and psychosocial." <i>Synchronous</i>	Video consultation for palliative care using a tablet computer Theoretical basis not given	Community nurses, Specialist Palliative Care team: physiotherapist and nurse head physician	A tablet provided with a sim card and technical support available from a company who delivered these.
Watson et al. (2017)	Telephone-delivered cognitive behavioral therapy (T-CBT) for cancer patients <i>Synchronous</i>	To facilitate coping, increase patients' self-efficacy and problem-solving skills, and reduce anxiety, depression, helplessness, and cancer concerns. Cognitive behavioral approach	Psychologist	Not discussed

(Continued)

Table 3. (Continued.)

Study by	Intervention and means of delivery	Therapeutic purpose and theoretical basis of intervention	Personnel delivering the psychosocial intervention	Resources provided/required
Köhle et al. (2017)	“Hold on, for each other” web-based self-help intervention for <i>partners</i> of cancer patients with built-in choice of personal support from a counselor <i>Asynchronous</i>	Help to positively persevere during difficult times Acceptance commitment therapy and self-compassion	Weekly online feedback messages from a counselor (trained masters psychology student)	Participants needed access to the internet, telephone, and computers.
Wilz and Soellner (2016)	Individualized multicomponent CBT program delivered by telephone to caregivers of people with dementia <i>Synchronous</i>	Decrease caregivers’ depressive symptoms and bodily complaints, promote better emotional well-being and perceived health. Cognitive behavioral approach	Experienced clinical therapists (Master’s degree), with cognitive behavioral psychotherapy certification training	Educational material about dementia and dementia caregiving, and local self-help organizations provided.
Leow and Chan (2016)	“Caring for the Caregiver Program” a 6-week psychoeducational intervention for caregivers of a person with advanced cancer: (1) a 23-min video clip (2) two telephone follow-ups at 3-week intervals (3) an invitation to participate in an online social support forum <i>Synchronous and asynchronous</i>	Support for caregivers Psychoeducation	“Healthcare professional” (p. 476) who had provided care for caregivers in similar situations advised on how to provide physical care	Not mentioned
Pot et al. (2015)	Internet intervention “mastery over dementia” for family caregivers of people with dementia, comprising cognitive behavioral therapeutic techniques, time-management, and psychoeducation <i>Asynchronous</i>	Decrease psychological distress, especially depressive symptoms and symptoms of anxiety Cognitive behavioral approach	Feedback provided by a coach	Mentioned on website but not outlined here
Blumenthal et al. (2014)	Telephone-based manualized coping skills intervention for patients with chronic obstructive pulmonary disease (COPD) <i>Synchronous</i>	Reduce distress and gain skills and strategies for coping with COPD Cognitive behavioral approach	Clinical psychologist	Telephones required.
Demiris et al. (2012)	Problem-solving therapy delivered by videophone to caregivers <i>Synchronous</i>	Improve caregivers’ quality of life, problem-solving ability, and anxiety Cognitive behavioral approach	Registered nurses and social workers with hospice experience following a training and treatment fidelity manual	Beamer videophones were installed for participants assigned to this condition. Participants received a \$50 gift card.
Gellis et al. (2012)	Manualized telehealth counseling tailored to patients’ medical and psychological needs. Daily availability of telehealth nurse by phone (home visits if urgent). Daily review of patient physiological data by telehealth nurse using HomMED communication device. <i>Hybrid/blended approach</i> <i>Synchronous and asynchronous</i>	Improve quality and provision of geriatric home health services care for frail homebound older adults. Psychoeducation	Nurses trained in psychoeducation and problem-solving strategies	HomMED telehealth device connected to the internet provided.
Warren et al. (2012)	Patient initiated a telephone call to a Clinical Nurse Specialist (CNS) for symptom management, treatment advice, psychological support, and social issues. <i>Synchronous</i>	CNS support for metastatic breast cancer patients and carers Theoretical basis not given	CNS	Availability of CNS time 1.6 Whole Time Equivalent (WTE) across 2 hospital sites

environment, indicating that it is possible to use technology to deliver this. The convenience of video consultations for medical and nursing purposes noted in other reviews is also important for patients needing psychosocial interventions (Mateo-Ortega *et al.* 2018).

The relationship between health-care practitioners and service users was central to our review's definition of "psychosocial intervention." Different relational aspects of digitally enabled interventions were reported in the included studies, suggesting this as an enabling factor for getting started (Paun and Cothran 2019) or following up on any distress (Zhang *et al.* 2019). In (Watson *et al.* 2017) cognitive behavioral therapy study, the psychologist delivering interventions was expected to build collaborative therapeutic relationships; their patients' mental health improved irrespective of the method of delivery (telephone or in-person), suggesting the relational value of the intervention. Nevertheless, the inclusion of self-guided psychoeducational activities for participants reported in some of our review's studies favors the self-management approach that is in ascendance more generally in health care (Budhwani *et al.* 2019; Escrivá Bouley *et al.* 2018).

Other reviews have explored eHealth for caregivers. Wasilewski and colleagues concluded that web-based interventions are best targeted to caregivers' needs at specific stages (Wasilewski *et al.* 2017), while Slev *et al.* (2017) were unable to find any effects of eHealth for informal caregivers. These studies in our review indicate that the development and effectiveness of eHealth for caregivers is an area for further research.

Interventions in our review which integrated in-person and remote synchronous and asynchronous methods (Gellis *et al.* 2012; Leow and Chan 2016; Zhang *et al.* 2019) offer a model for health-care delivery post-COVID which is likely to be a hybrid of in-person, telephone, and online. However, patients' preference and convenience may be the guide for how psychological interventions are delivered (Watson *et al.* 2017).

For people unable to travel to health appointments, telephone and video consultations are helpful, as studies reported in this review show. Widberg *et al.*'s systematic review of patients' experiences of eHealth also makes this point; when patients and their families are involved virtually, they feel more included in care and symptom management (Widberg *et al.* 2020). For frail older people with limited or no social and financial resources to transport them to health-care appointments, the provision of telehealth resources can be a lifeline, as seen in other populations (Suntai 2021).

Our review included research reporting the benefits of digital group interventions, reiterating findings from a systematic review of home-based support groups by videoconferencing, that these interventions were feasible even for those with limited digital literacy (Banbury *et al.* 2018).

Strengths and limitations of this review

Identification of relevant studies was done against clear criteria and in a robust manner, but nevertheless determining inclusion and exclusion was challenging due to the range of terms and definitions used within the literature. We acknowledge the ambiguity created by studies that aggregated results from participants with advanced and earlier stage illnesses. Papers where the majority of participants had advanced illnesses but where palliative care was not mentioned did meet our inclusion criteria (Blumenthal *et al.* 2014; Watson *et al.* 2017). This reflects known fuzziness in practice where patients transitioning from curative to palliative care services overlap (Petrova *et al.* 2021). Our search terms focused on the interpersonal aspects of telehealth for a palliative care population (see the search strategy available in the Supplementary material); given

the complexity of these phenomena, we cannot be sure to have identified or included all relevant studies.

Recommendations for research

Equity of access to appropriate psychosocial support is an ethical imperative for patients and this review has highlighted areas where further research could benefit palliative care services and the development of digitally enabled psychosocial provision for this sector. eHealth has the potential to reach more people by delivering targeted and cost-effective care. To do this, research studies must include those communities where communication and cultural barriers to psychosocial support in palliative care currently exist. These are people who are deaf and hard of hearing, have cognitive impairments or dementia, are people of color, or are from marginalized groups; individuals from these communities were under-represented in our review's studies. The provision of digital resources by services to enable patients and family members to access interventions was evident in a minority of studies. This raises the issue of how those disadvantaged by low socioeconomic status (Demakakos *et al.* 2008) are at risk of digital exclusion from getting the care they need. Some steps are already being taken to research this area; more is needed (Watts *et al.* 2020).

Manualized interventions based on cognitive behavioral therapy were most evident in the research studies; however, research into affective, spiritual, and cultural approaches to psychosocial support would benefit the field. Examples of these were seen in our review (Zhang *et al.* 2019) with its focus on psychospiritual well-being, the provision of art therapy packs (Rahman *et al.* 2020), and participants' sharing gifs, emojis, and photos (Benson *et al.* 2020).

Our review identified personnel involved in digital interventions ranging from trained psychotherapy specialists and coaches to nurses offering psychosocial support and advice within their general remit. Identifying what type of practitioner is effective for the delivery of psychosocial interventions will be important for organizations establishing their staffing skill mix. Finally, further studies on when digital interventions are best offered on the care pathway to meet individuals' palliative care support needs could help build effective hybrid multicomponent models of care.

Conclusion

All papers included in this review report digital health interventions prior to the COVID-19 pandemic, highlighting activities of early adopters of technology. Since then the pandemic has expanded this field of development in end-of-life and palliative care (Cherniwchan 2022).

The findings of this review offer evidence that synchronous and asynchronous technologies, in conjunction with an interpersonal relationship between practitioner and patient/carer can be used to provide standard and novel psychosocial interventions to adults and families living with life-shortening illnesses. Emotional and psychological support at key points of the palliative patient's illness trajectory can be delivered in-person, or remotely by telephone or video call. Websites can be used to disseminate information and educational activities that support psychosocial care, and social media platforms can enhance peer support for caregivers. The disruption to in-person palliative care services caused by the COVID-19 pandemic has prompted all health-care providers to consider telehealth. Lessons learned from studies cited in this review include issues of accessibility, digital exclusion, and how to build hybrid models of digitally enabled psychosocial interventions in palliative care.

Supplementary material. The supplementary material for this article can be found at <https://doi.org/10.1017/S1478951523000172>.

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