


Peer support opportunities across the cancer care continuum: a systematic scoping review of recent peer-reviewed literature

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Abstract

Objective Evidence suggests peer support (PS) is as an effective strategy for enhancing prevention and control of chronic and infectious diseases, including cancer. This systematic scoping review examines the range and variety of interventions on the use of PS across the cancer care continuum.

Method We used a broad definition of PS to capture a wide-range of interventions and characterize the current status of the field. Literature searches were conducted using PubMed, SCOPUS, and CINAHL to identify relevant articles published from January 2011 to June 2016. We screened the title and abstracts of 2087 articles, followed by full-text screening of 420 articles, resulting in a final sample of 242 articles of which the most recent 100 articles were reviewed (published June 2014 to May 2016).

Results A number of the recent intervention studies focused on breast cancer (32%, breast cancer only) or multiple cancer sites (23%). Although the interventions spanned all phases of the cancer care continuum, only 2% targeted end-of-life care. Seventy-six percent focused on clinical outcomes (e.g., screening, treatment adherence) and 72% on reducing health disparities. Interventions were primarily phone-based (44%) or delivered in a clinic setting (44%). Only a few studies (22%) described the impact of providing PS on peer supporters.

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Conclusion PS appears to be a widely used approach to address needs across the cancer care continuum, with many opportunities to expand its reach.

Keywords Cancer · Community health workers · Navigator · Oncology · Peer support · Social support

Introduction

Cancer is a leading cause of global mortality, accounting for over 8.7 million deaths in 2015 [1]. Over the last decade, substantial progress has been made in regard to prevention, diagnostic, and treatment options for the majority of cancer types [2, 3]. However, the burden of cancer-related mortality is still rising, particularly in lower-middle income countries where 85% of the world's population resides [4]. This is due in part to changing demographics, exposure to environmental carcinogens and cancer-causing infectious diseases, and the adoption of lifestyle behaviors that increase cancer risk (e.g., physical inactivity, unsafe reproductive patterns, unhealthy eating, as well as alcohol and tobacco use) [1, 4]. Given the breadth of specific cancers and diversity in associated risk factors, effective approaches for cancer control and prevention must be both adaptable and comprehensive.

Despite advances across the cancer care continuum, challenges persist. Studies show that patients have barriers accessing care including screenings and treatment services [5, 6]. Patients in rural areas lacking or with small health centers may require travel to receive quality care [7]. Initiating and sustaining a healthy lifestyle becomes a challenge for some during treatment and survivorship [8–10]. Once a person is diagnosed, there are barriers to follow-up. In addition to financial barriers, Palmer et al. notes the need for psychosocial care to reduce fear of recurrence to improve follow-up among African American breast cancer survivors [11]. Research indicates the need for communication to help patients understand the complexities of cancer information to assist with decision-making for screening and treatment and during survivorship [12]. Lack of social support, depression, and distress were also indicated in studies as relevant for cancer-related outcomes [13–15].

Peer support (PS) is an effective disease prevention and management strategy to enhance linkages to care and attend to the dynamic and evolving conditions of real world environments and circumstances that influence health behavior [16–23]. As used here, PS is defined by the functions and principles that comprise it and not restricted to specific nomenclature commonly used in the reviewed literature (e.g., “community health workers,” “lay health advisors,” and “peer navigators” among others) [24]. By providing individuals assistance for daily management, addressing complex emotional and social issues, linking individuals to resources in clinic and community settings (e.g., navigation of health care systems),

and providing ongoing care, peer supporters have effectively addressed diverse health needs and served in a variety of capacities and settings [25–27]. In other words, PS is a strategy for providing help and support to others and is often delivered by non-professionals (i.e., peers).

Across the cancer care continuum, PS has emerged as an important strategy to address many barriers to cancer prevention [28], early detection [29, 30], treatment [22, 31], and survivorship [22, 31]. Peer supporters often work with patients and/or health care providers to address system-level barriers, such as fragmented care, financial constraints, other practical challenges (e.g., transportation, employment concerns, child care), and communication difficulties [25, 32]. PS programs in cancer have been shown to increase patient satisfaction; improve psychological adjustment, such as increased hope and decreased emotional distress; and increase skills and knowledge to cope with cancer, such as decision-making [22, 31, 33]. Despite growing evidence on the effectiveness of PS programs [34], research is needed about how PS is being applied across the cancer care continuum, how PS is being delivered and for whom, and where opportunities exist for extending the reach and scope of PS.

Hence, the purpose of this scoping systematic review of recent literature is to characterize PS usage from primary prevention to end-of-life care among adult populations or families of adults affected by cancer (e.g., family caregivers). Our specific research questions are (as reflected in peer-reviewed literature) as follows:

1. What are the areas in which PS is used in cancer prevention, early detection, and care?
2. To what extent and/or how is PS used to address disparities in cancer care?
3. Who are the peer supporters? (E.g., What relation do they have to participants? How are they employed?)
4. What are the characteristics of PS programs?
5. What outcomes are examined by PS programs?

Methods

Scoping systematic reviews are commonly used to convey the breadth and depth of a topic of study, summarize evidence, and identify gaps in existing literature [35]. There are a num-

ber of differences between scoping reviews and systematic reviews. First, while systematic reviews are often used to answer a specific question according to a fixed set of a priori factors, scoping reviews use broader approaches (i.e., incorporating a range of evidence) and have broader research questions [36]. Second, scoping reviews are designed to provide an overview of existing literature and often incorporate a range of study designs and articles without an assessment of quality [36]. Finally, scoping reviews are typically more iterative than systematic reviews. Search terms can be redefined and steps may be repeated to make sure that the literature is covered in a comprehensive way [37]. Although many scoping reviews are systematic, in some cases, researchers do not place strict limitations at the outset regarding search terms, identification of relevant studies, or study selection [37].

In line with other reviews of this type [38, 39], our key steps for completing this review included the following: (1) identifying our research questions, (2) determining the search strategy, (3) pilot testing and refining our search strategy, (4) using eligibility criteria to select studies through title, abstract, and full-text review, (5) extracting data from selected articles to answer the research questions, and (6) summarizing the contributions and gaps based on the extracted data and recent literature. We created a written protocol to guide steps for completing the review. All members of the scoping review team had graduate level training, and a sub-group of four members (NB, VC, KE, SK) comprised the leadership team for the review.

Search strategy

A comprehensive and systematic literature search was conducted in MEDLINE/PubMed, Scopus, and CINAHL to identify relevant articles published over the previous 5 years (January 1, 2011 through June 2, 2016). The literature search included Medical Subject Headings (MeSH), CINAHL Headings, and related text and keyword searches, focusing on terms to describe PS roles used in the cancer care continuum. The research team and a cancer information librarian developed the search strategy; the librarian conducted the searches. Details of the search strategy are reported in the [supplemental materials](#). A total of 3789 articles were identified, of which 2087 were non-duplicates.

Inclusion and exclusion criteria

Studies considered for our review had to include the provision of PS during one or more aspects of the cancer care continuum (prevention through end-of-life) for adults over the age of 18. Since our overarching goal was to characterize the application of PS in cancer, we included articles where the qualifications of peer supporters were, and were not, well defined. There was

no minimum requirement on the number of interactions between a peer supporter and peer recipient. We included support groups led by a professional if they clearly stated that PS was a program objective, PS groups were led by peers, or some hybrid of the two. We excluded studies where support was provided solely by researchers or health care professionals with post-baccalaureate training serving in an employment capacity, such as nurses, social workers, physicians, dietitians, physical therapists, and mental health professionals (e.g., programs in which Cognitive Behavior Therapy was provided by psychologists or social workers were excluded). We also excluded (1) articles if we could not locate a copy to review, (2) articles in which no English version was available, (3) dissertations, and (4) conference proceedings. Since the goal of this review was to characterize the current field of PS, we included all studies regardless of study design the cancer care continuum (prevention through end-of-life) for adults over the age of 18.

Article selection

The online software program Covidence [40] was used to complete article screening. Pairs of research team members independently screened all titles and abstracts for inclusion. Titles and abstracts that lacked adequate information to determine inclusion or exclusion underwent a full-text review. A total of 1667 articles were excluded during the initial abstract screening phase. At the full-text review stage, each member of the research team independently reviewed each of the 420 remaining full-text articles for inclusion or exclusion based on the eligibility criteria. An additional 180 articles were excluded during the full-text review phase, leaving 242 articles. During the data extraction phase, four additional articles were excluded for eligibility reasons, leaving 238 articles that met all eligibility criteria for inclusion in this study. Consistent with our goal to scope the existing literature to demonstrate the state of PS in cancer and disseminate in-depth and broad results, the study team then selected the 100 most recent articles for data extraction and summarization. This constituted then a broad sample with no apparent bias of the current literature on PS we sought to characterize, representing publication dates over a 2-year period, from June 2014 through May 2016. In addition, narrowing our time frame to the 100 most recent articles facilitated expeditious review of a broad range of literature in an in-depth manner—key goals of scoping reviews [37]. The disposition of articles is shown in Fig. 1. A list of all included studies is in the supplemental materials.

Categorization and synthesis

Data were collected in the REDCap database [41] using a form that included information about the article citation, study

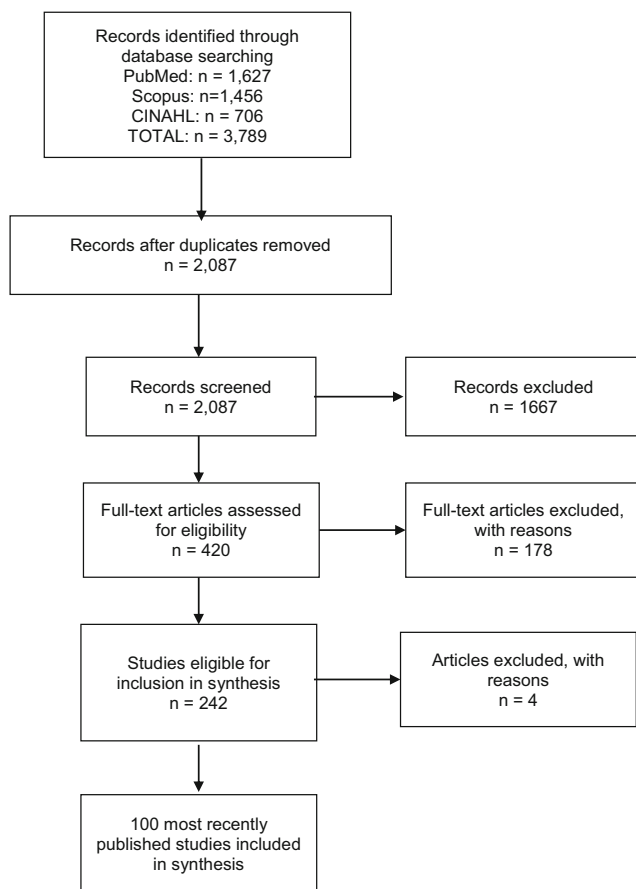


Fig. 1 Prisma flow diagram

characteristics (e.g., length of program, location, funding, program design), study design and setting, characteristics of study participants, types of cancers and outcomes in selected studies, and characteristics of PS programs. Eleven team members extracted information from the 100 articles. We assessed reliability on 10 articles that were dual-coded by two different reviewers (10% of the 100 identified articles) [42]. Our overall interrater reliability was 86.8%. Members of the leadership team worked in pairs to resolve conflicts through discussion and consensus and to determine article eligibility, where necessary.

Data availability The authors have control of all primary data and would allow the journal to review the data if requested. For data not shown in Tables 1–4, please see the online [supplementary tables](#).

Results

Location and participant characteristics

As noted in Table 1, the majority of the PS programs were conducted in the USA (80%) and in urban settings (26%). Most often, programs included individuals from multiple racial/

Table 1 Study location and sample participant characteristics

Variable	Number of studies (%)
Location	
International	16 (16.0)
USA	80 (80.0)
Both international and USA	2 (2.0)
Not reported or unclear	2 (2.0)
Type of location	
Rural or frontier	4 (4.0)
Urban	26 (26.0)
Sub-urban	2 (2.0)
Other	1 (1.0)
Multiple types of locations	4 (4.0)
Not applicable (outside of USA or unclear)	20 (20.0)
Not reported or unclear	43 (43.0)
Race/ethnicity (only among US articles)	
White	2 (2.0)
Black or African American	14 (14.0)
Asian	5 (5.0)
Pacific Islander or Hawaiian Native	0 (0)
American Indian or Alaska Native	1 (1.0)
Latino/Hispanic	19 (19.0)
Other	2 (2.0)
Multiple races ^a	28 (28.0)
Not applicable (outside of USA)	20 (20.0)
Not reported or unclear	9 (9.0)
Gender	
Female	50 (50.0)
Male	7 (7.0)
Both	39 (39.0)
Not reported	4 (4.0)
Age	
Focused on young adults (18–24)	0 (0)
Focused on adults, generally	74 (74.0)
Focused on older adults (65+)	2 (2.0)
Not reported or unclear	24 (24.0)

^aOf articles that included multiple races ($n = 28$), most included three races ($n = 12$, 12% of all studies) or four races ($n = 10$, 10% of all studies)

ethnic backgrounds, with a smaller percentage focused only on Black or African American populations (14%) or Latino/Hispanic populations (19%). In addition, most programs focused only on females (50%) or both males and females (39%), with few focusing only on men (7%). Few PS programs (2%) focused specifically on older adults (age 65 or older) and none focused only on younger adults (age 18–24).

PS program characteristics

Setting As shown in Table 2, many PS programs included multiple settings for intervention delivery (23%), with the

Table 2 Program characteristics

Variable	Number of studies (%)
Program setting for intervention delivery	
Clinic	40 (40.0)
Community	14 (14.0)
Faith-based location	3 (3.0)
Home	6 (6.0)
School	0 (0)
University	0 (0)
Worksite	0 (0)
Other ^a	3 (3.0)
Multiple ^b	23 (23.0)
Not reported or unclear	1 (1.0)
Not applicable (technology or phone-call based)	10 (10.0)
Modality for intervention delivery	
In-person	60 (60.0)
Technology	2 (2.0)
Phone-call	8 (8.0)
Multiple	29 (29.0)
Not reported or unclear	1 (1.0)
Cancer care continuum	
Prevention	6 (6.0)
Screening	37 (37.0)
Diagnosis (decision-making)	4 (4.0)
Treatment	13 (13.0)
Survivorship	9 (9.0)
Palliative care	0 (0)
End-of-life care ^c	0 (0)
Multiple continuum foci ^d	28 (28.0)
Not reported or unclear	3 (3.0)
Cancer type	
Breast	32 (32.0)
Prostate	6 (6.0)
Lung ^e	2 (2.0)
Colorectal	16 (16.0)
Brain	1 (1.0)
Gynecological	11 (11.0)
Liver	0 (0)
Skin	1 (1.0)
Other ^f	3 (3.0)
Multiple ^g	23 (23.0)
Not reported or unclear	5 (5.0)
Disparities discussed in stated purpose or hypotheses of program	
No	34 (34.0)
Yes	66 (66.0)
Type of disparity	
Race/ethnicity	31 (31.0)
Gender	0 (0)
Age	0 (0)
Geographic location	1 (1.0)
Socioeconomic status	2 (2.0)
Other	1 (1.0)
Multiple ^h	31 (31.0)
Not applicable (disparity not discussed)	34 (34.0)
Peer training content/curriculum described in article	
No	56 (56.0)
Yes	44 (44.0)
Navigation included in program	
No	45 (45.0)
Yes	55 (55.0)
Person responsible for initial contact	
Peer supporter	65 (65.0)
Recipient	2 (2.0)
Both	1 (1.0)
Not reported or unclear	32 (32.0)
Formal certification requirement for peer supporters	

Table 2 (continued)

Variable	Number of studies (%)
No	91 (91.0)
Yes	9 (9.0)
Use of theory ⁱ	
No	27 (27.0)
Yes	29 (29.0)
Not reported or unclear	44 (43.0)
Peer supporters discussed as part of health care team	
No	74 (74.0)
Yes	26 (26.0)
Spirituality discussed	
No	95 (95.0)
Yes	5 (5.0)
Family involved	
No	82 (82.0)
Yes, required inclusion	4 (4.0)
Yes, invited inclusion	14 (14.0)
Impacts on peer supporter discussed	
No	96 (96.0)
Yes	4 (4.0)

^a Example: mail

^b The most common combination was two settings ($n = 18$). Of these types of setting combinations, the most common combination was clinic-based and community-based ($n = 9$, 9% of all studies)

^c Note, one article discussed treatment, survivorship, palliative care, and end-of-life care. Another article focused on every point of the continuum

^d The most common combination was screening and diagnosis ($n = 11$, 11% of all studies)

^e Note, five articles in total discussed lung cancer. However, one of these articles discussed lung cancer and esophageal and two of these articles discussed lung cancer and multiple other types of cancer

^f Example: esophageal cancer

^g The most common type of combination was breast and gynecological ($n = 9$, 9% of all studies)

^h Most studies focused on two disparities ($n = 23$), while seven articles of articles focused on three disparities and one article focused on five disparities. The most common type of disparity combination was race/ethnicity and SES ($n = 17$, 17% of all studies)

ⁱ Variable refers to whether theories, models, or frameworks were seriously and substantively applied in the article (e.g., using constructs in program development, design, or evaluation)

most common combination being clinic and community-based (9% of all studies). In addition, many used only a community setting (14%) or included a community setting alongside other settings (30%, data not shown in table). Few programs were delivered in only a faith-based location (3%) or included a faith-based component (6%, data not shown in table).

Modality The majority of programs were delivered using multiple types of modalities (29%). Of those that used only one modality, the most common was in-person (60% of all studies). Few programs were delivered using only technology (i.e., online support groups, apps) (2%) or phone calls (8%). A

substantial proportion (33%), however, used a phone component in addition to another modality (data not shown in table).

Cancer care continuum Twenty-eight percent (28%) of PS programs focused on multiple points along the cancer care continuum. The most commonly addressed was screening, of which 37% focused only on screening and more than half (58%) included a screening component (data not shown in table). Points on the continuum that received less attention were treatment (13%) and survivorship (9%). None focused only on palliative care or end-of-life care; however, two studies included palliative care or end-of-life care along with other cancer care continuum *foci* (data not shown in table).

Type of cancers Many programs (23%) focused on multiples cancer types. Of these, the most common combination was breast and gynecological (9% of all studies). With regard to specific types of cancer, programs most frequently targeted breast cancer only (32%) or colorectal cancer only (16%). Few programs focused only on lung cancer (2%), however 5% of programs focused on lung cancer plus another cancer type (data not shown in table). One percent (1%) of programs focused only on skin cancer and 4% of programs focused on skin cancer plus another cancer type (data not shown in table).

Disparities Over half of programs (66%) identified a specific disparity to address (e.g., race/ethnicity, gender, age, geographic location, socioeconomic status, etc.). Of these, most addressed disparities involving race/ethnicity (31% of all studies) or multiple disparities, of which the most common combination was race/ethnicity and socioeconomic status (17% of all studies).

Training Forty-four percent of articles described the content or curriculum of peer supporters' training.

Impacts on peer supporters Few programs focused on impacts of the PS program on peer supporters (4%). Of those that did, impacts described included a sense of connection (2% of all programs), understanding of cancer (2% of all programs), giving back (1% of all programs), and self-growth (1% of all programs) (data not shown in table).

Other programmatic characteristics Over half of studies (55%) described their intervention as a navigation program. In addition, 9% included a formal requirement for certified peer supporters, 26% noted that peer supporters were part of the health care team, and 18% of programs included a family member (data not shown in table).

Study characteristics

Length of PS contact It was difficult to differentiate the length of the overall study and the length of contact between peer

supporters and recipients. Approximately half (47%) did not provide enough detail to ascertain how long peer supporters were in contact with recipients (Table 3). For the studies in which data were available (53%), most peer supporters were in contact with recipients for less than 1 month (20% of all studies); the remainder of studies reported contact between 1 and 6 months (16% of all studies) or greater than 6 months (17% of all studies).

Study design and outcomes Since the goal of this review was to characterize the current field of PS, we included all studies regardless of study design. Studies were primarily descriptive or observational (30%), randomized controlled trials (26%), or single group pre-post (19%). Studies reported a variety of outcomes, most frequently recipient engagement in clinical care only (43%) or multiple types of outcomes (40%). Eight percent of studies included mental health outcomes in addition to other outcomes and 35% of studies included other psychosocial outcomes alongside other outcomes (data not shown in table). However, no study focused only on mental health outcomes and very few focused only on other psychosocial outcomes, such as self-efficacy, social support, attitudes, appraisal, or optimism (8%).

Program activities and support

Peer supporters used a variety of tools to engage with recipients, including counseling or motivational interviewing (18% of programs used only counseling or motivational interviewing, while 36% included these alongside other tools, data not shown in table), pamphlets (14% used only pamphlets, while 33% included them alongside other tools, data not shown in table), or a combination of tools (25%), of which the most common combination was pamphlets and counseling (9%) (see Table 4). Similarly, most programs reported offering multiple types of support to recipients (71%), the most common combination of which was informational, emotional, and behavioral support (18% of all studies). In addition, peer supporters were most likely to interact individually with recipients (65%) or use multiple modes, such as individual and group interactions. While many articles (48%) did not report how peer supporters were affiliated with the PS program, 19% did report that peer supporters were volunteers.

Discussion

The results from this review reflect an extensive and varied breadth of literature reporting on the use of PS across the cancer care continuum. Many PS programs addressed breast and colorectal cancer screening and treatment, which may be driven by incidence rates, public attention to these specific cancer types, funding priorities, and availability of evidence-based screening modalities. Results suggest the need to apply

Table 3 Study characteristics

Variable	Number of studies (%)
Length of peer support contact	
Less than 1 month	20 (20.0)
Between 1 month and less than 6 months	16 (16.0)
Greater than 6 months	17 (17.0)
Not reported or unclear	47 (47.0)
Study design	
Randomized controlled trial	26 (26.0)
Cluster-randomized randomized controlled trial	6 (6.0)
Quasi-experimental	9 (9.0)
Other controlled trial ^a	2 (2.0)
Single group pre-post	19 (19.0)
Descriptive or observational	30 (30.0)
Other ^b	4 (4.0)
Not reported	4 (4.0)
Study funding	
Federal	37 (37.0)
Private (state or regional foundation)	4 (4.0)
Private (national foundation)	12 (12.0)
State/local government	4 (4.0)
Pharmaceutical	0 (0)
Other	3 (3.0)
Multiple ^c	27 (27.0)
Not reported	13 (13.0)
Study outcomes	
Recipient engagement in clinical care	43 (43.0)
Behavioral risk	2 (2.0)
Quality of life	0 (0)
Mental health	0 (0)
Other psychosocial outcomes ^d	8 (8.0)
Cancer progression and other clinical outcomes	0 (0)
Other ^e	4 (4.0)
Multiple ^f	40 (40.0)
Not reported	3 (43.0)

^a Examples: “Cluster-randomized at clinic level, randomized at individual level” and “group-randomized trial with nested cohort design”

^b Examples: “Simulation” or “multiple types of study designs”

^c The most common type of funding combination was federal and private ($n = 11$, 11% of all studies)

^d Examples: appraisal, self-efficacy, social support, attitudes, optimism, intentions, knowledge

^e Examples: “cost”, “feasibility or process evaluation outcomes”, “sexual function”, etc.

^f The most common type of combination was recipient engagement in clinical care and psychosocial outcomes ($n = 16$, 16% of all studies)

PS strategies to cancer types other than breast and colorectal cancers. In addition, few programs focused solely on men or

Table 4 Peer supporter activities, interactions, support, and affiliations

Variable	Number of studies (%)
Tools used by peer supporters	
Pamphlets/print materials	14 (14.0)
Videos	1 (1.0)
Counseling/motivational interviewing	18 (18.0)
Support groups	3 (3.0)
Other ^a	3 (3.0)
Multiple ^b	25 (25.0)
Not reported	36 (36.0)
Types of support provided by peer supporters	
Informational support	22 (22.0)
Emotional support	3 (3.0)
Behavioral support	1 (1.0)
Tangible support	1 (1.0)
Shared activity	0 (0)
Medical appointment support	0 (0)
Other	0 (0)
Multiple ^c	71 (71.0)
Not reported	2 (2.0)
Types of peer supporter interactions	
Individually	65 (65.0)
Group	9 (9.0)
Family	0 (0)
Caregiver	0 (0)
Other ^d	3 (3.0)
Multiple ^e	19 (19.0)
Not reported	6 (6.0)
PS affiliations with program	
Volunteer	19 (19.0)
Program recipient	1 (1.0)
Regular staff	17 (17.0)
Paid part-time staff/stipend	6 (6.0)
Student	1 (1.0)
Other	3 (3.0)
Multiple ^f	5 (5.0)
Not reported	48 (48.0)
PS affiliations with participant	
Family member/partner	0 (0, 0)
Friend or buddy	0 (0, 0)
Fellow program recipient	1 (1.0)
Work (co-workers)	0 (0)
Church	3 (3.0)
No connection	57 (57.0)
Other	4 (4.0)
Multiple ^g	5 (5.0)
Not reported	30 (30.0)

^a Examples include flip charts, interactive multimedia, and slide presentations

^b Most common type of combination of tools was pamphlets and counseling ($n = 9$, 9% of all studies)

^c Most common type of combination of types of support provided was informational, emotional, and behaviors ($n = 18$, 18% of all studies), followed by tangible support and medical appointments ($n = 15$, 15% of all studies)

^d Examples include online interactions

^e Most common type of combination of interactions was individual and group ($n = 9$, 9% of all studies)

^f Most common type of combination of affiliation with program was regular staff and part-time ($n = 2$, 2% of all studies)

^g Most common type of combination of affiliation with participant was family and friend ($n = 1$, 1% of all studies), family and fellow program recipient ($n = 1$, 1% of all studies), fellow program recipient and other ($n = 1$, 20%), work and church ($n = 1$, 1% of all studies), church and other ($n = 1$, 1% of all studies)

the provision of PS at late stages in cancer care (i.e., palliative care and end-of-life). Many interventions in this review sought to address racial or ethnic disparities in cancer outcomes. Given the effectiveness of PS interventions in reaching underserved and minority populations [43], continuing to promote PS to address racial disparities across the cancer continuum is warranted. Despite the important, yet challenging, work of peer supporters, few programs examined the positive or negative impact of providing PS on individuals who fill this role. Attention to the well-being of peer supporters is essential for both program quality and sustainability.

Types of Cancer

While the volume of peer support appears to be driven by cancers that have received public attention (e.g., breast cancer and colorectal cancer) and where screening modalities are available, this review highlights the need to better disseminate peer support methods and practices to other cancer types, especially those cancers that may carry a stigma, such as lung cancer. Indeed, we found only two papers focused on lung cancer, which is the leading cause of cancer death [1]. Strikingly, this finding aligns with a 2008 systematic review of peer support programs for people with cancer, in which the authors found no examples of peer support programs for lung cancer [22].

Gender

Men in the USA are more likely than women to engage in a number of behaviors that increase their cancer risk [26] and die from cancer [44]. However, few PS programs in our review neither focused on men nor the cancers most common among men. Conversely, 50% of studies focused only on women and 32% only on breast cancer—the most common cancer among women. Researchers have argued that gender—which refers to differences that stem from cultural and social origins vs. biological factors—is an important factor to consider when designing health programs [45]. Sensitivity to the influence of gender on behavioral and psychosocial factors across the cancer care continuum could increase the applicability of and engagement in PS programs.

Psychosocial issues

Our review found that only 35 of the 100 PS programs included psychosocial issues as outcomes. Among eight articles that solely focused on psychosocial study outcomes, none of them covered the cancer care continuum periods of treatment, palliative care, or end-of-life care. The psychosocial challenges associated with a cancer diagnosis and treatment are complex and vary by characteristics of an individual, their families, and

environment [46]. Psychosocial issues may include trouble coping with illness, family and social isolation, quality of life concerns, problems with treatment decisions, and end-of-life issues [47]. Research suggests that peer supporters are uniquely positioned to complement formal support provided to patients, given the non-hierarchical, reciprocal relationship between patients and peer supporters [48].

Palliative care and end-of-life care

A striking feature of the review was that only two PS programs addressed palliative or end-of-life care. Indeed, to our knowledge, there are few examples of peer support programs designed to provide palliative or end-of-life care for cancer patients, although some examples exist for other conditions [49], such as end-of-life care for dialysis patients [50]. The distress surrounding pain and symptom management and death and dying are significant issues that impact both cancer patients and their families [51]. Hence, the potential contribution of PS for those with advanced cancer and their families or friends would seem to be substantial, especially given observations of the central contribution of emotional support from PS even when it is not an emphasized part of protocols [25, 52]. Opportunities for PS in palliative and end-of-life care could include (a) attention to end-of-life issues that otherwise may be avoided until loss is imminent, (b) support for family members coming to terms with loved ones' worsening health, and (c) PS for establishing relationships with palliative care providers soon after diagnosis that continue throughout the course of disease.

Addressing disparities

The majority (66%) of PS programs reviewed focused on at least one historically marginalized population experiencing a disproportionate burden of cancer mortality—most often disparities by race or ethnicity. For these populations, the provision of cancer care can often be inaccessible, overwhelming, unaccepting, or untrustworthy [53, 54]. Moreover, the use of PS to address factors that influence disparities is likely based on the idea of increasing patient agency [55] and decreasing social distance within these populations [56]. Approaches to increasing these populations' agency include patient activation within the clinical environment and patient self-efficacy to manage one's health. PS may also help address perceived and objective *social distance* between patients and their care team by decreasing providers' implicit bias that has been shaped by our nation's history of structural racism [56]. Future work should continue to examine how patients of color are impacted by PS interventions, and further examine the use of PS programs to address other types of disparities, including those concerning age, gender, and geographic location.

Impact on peer supporter

Only four articles [57–60] reported how peer supporters were impacted by their involvement in a PS program. Methodological issues such as insufficient sample size of peer supporters or a general lack of focus on the impact of participation on those in the PS role could explain this gap. A focus on the impact of PS provision is warranted given the potential for both positive and negative impacts [61]. Offering PS may provide psychosocial benefits for those in the peer supporter role. Conversely, the psychological and emotional burden of guiding others who are struggling through illness might be tremendous, potentially worsening or contributing to health problems among peer supporters [62]. For peer supporters going through or recovering from their own health issues, the demands of their position may worsen or create new health problems [62]. Of the four studies that did examine the impact on peer supporters, self-growth and giving back were the most common impacts reported [57–60]. Findings from non-cancer-related PS programs have shown improvements in confidence, self-esteem, and mental health among peer supporters [63]. Future work should examine the clinical, psychological, and emotional impact of PS programs on people providing PS across the cancer continuum and identifying approaches to improve self-care.

Study limitations

Although meta-analysis typically errs on the side of exclusion in order to increase precision in statistical analysis, our scoping systematic review errs on the side of inclusion in order to capture the breadth of recent articles. One limitation of a scoping review, however, is our inability to determine the effectiveness of PS interventions across the cancer care continuum. Instead, this review details the implementation and content of such interventions. Additionally, although we single-coded the majority of included papers, the high percent-agreement from our reliability sample provides confidence in our overall conclusions. Moreover, given that we limited our review to the most recently published 100 studies, our findings are influenced by the speed of review and publishing (which differs by journal) as well as publication bias, the tendency for publication of studies with positive results. However, many published systematic reviews include fewer than 100 papers and limiting our sample allowed us to answer our research questions with comprehensive, in-depth findings. Finally, we did not assess quality of studies. Scoping reviews do not typically assess quality of studies [35, 37] since they are not designed to weigh evidence or assess quality of evidence [36].

Clinical implications

Individuals and their families face numerous challenges at each phase of the cancer care continuum. In addition to social workers and mental health professionals, peer supporters may be an alternative resource for cancer patients and their families who experience social or mental health distress. More broadly, they may promote engagement in all phases of the continuum, help patients understand and adhere to treatment and management plans, and also assist families and facilitate the support they provide. In the literature on PS in cancer care, it appears that peer supporters are underutilized in a number of important areas, including interventions targeting lung cancer, involving men, and focusing on palliative care and end-of-life issues. Future research should examine expanding the provision of PS across the cancer continuum, particularly as it relates to the gaps identified in this review, and assess and address the impact of providing PS.

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Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

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