

Review Article

Systematic review of peer-support programs for people with cancer

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Abstract

Objective: To identify models of peer support for cancer patients and systematically review evidence of their effectiveness in improving psychosocial adjustment.

Methods: CINAHL (Cumulative Index to Nursing and Allied Health Literature), MEDLINE and PsychINFO databases were used to identify relevant literature published from 1980 to April 2007. Data on characteristics of the peer-support program, sample size, design, measures, and findings were extracted and papers were also rated with respect to research quality (categories ‘poor’, ‘fair’ or ‘good’).

Results: Forty-three research papers that included data from at least 1 group were reviewed in detail, including 26 descriptive papers, 8 non-randomized comparative papers, and 10 papers reporting eight randomized controlled trials (RCTs). Five models of peer support were identified: one-on-one face-to-face, one-on-one telephone, group face-to-face, group telephone, and group Internet.

Conclusion: Papers indicated a high level of satisfaction with peer-support programs; however, evidence for psychosocial benefit was mixed.

Practice implications: One-on-one face-to-face and group Internet peer-support programs should be given priority when considering ways to offer peer support. Nevertheless, the other models discussed in this review should not be dismissed until further research is conducted with a wide range of cancer populations.

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Keywords: Peer support; Cancer; Systematic literature review

1. Introduction

A cancer diagnosis is a major stressor that can lead to physical, emotional and social crises [1–3]. As a result, many cancer patients experience a range of psychosocial difficulties following diagnosis, including depression, anxiety, loneliness, uncertainty and loss of control, decreased self-esteem, disruptions to relationships, and fears about cancer recurrence [4–8].

Social support has been identified as an important contributor to general well-being that buffers the impact of stressful experiences, including those related to physical illness [9–11]. It is a multidimensional construct that includes the provision of emotional, informational or instrumental support

[10,11]. In the cancer setting, it can be offered in a variety of forms, including psychotherapeutic programs such as supportive expressive group therapy [12–14], educational programs such as the Living With Cancer Education Program [15] and peer-support programs such as Reach to Recovery [16,17] and Man to Man [18]. While each of these interventions provides support to cancer patients, they differ in some respects. In psychotherapeutic programs a trained therapist conducts therapy with patients (e.g., learning how to express and manage emotions), while in educational programs a health professional provides expert knowledge on cancer. While these approaches have gained support in the literature [8,19–22], the focus of this review is on peer support. Peer-support programs may adopt certain aspects of psychotherapeutic programs (e.g., discussing emotions) and educational programs (e.g., providing cancer information), but they differ in that no therapy is conducted and the focus is not on providing education to the patient.

Peer support refers to support offered to people with cancer by people who have also experienced cancer [23]. Sharing

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experiences is the essence of peer support and enables a peer to offer experiential empathy, something generally beyond the scope of health professionals [24]. Dennis [25] described emotional, informational and appraisal support as core attributes of peer support, with the mutual identification, shared experiences and sense of belonging developed through peer support thought to impact psychological outcomes positively. Two different theoretical models have been suggested to describe the mechanisms by which peer support may increase well-being. The direct effect model proposes that peer support directly affects health outcomes by decreasing feelings of isolation, encouraging health behaviours, promoting positive psychological states and providing information. The alternative model is guided by Lazarus and Folkman's theory [26] and suggests that peer support buffers the impact of stress on health by reframing threat appraisals and improving coping responses and behaviours.

Peer-support programs have been found to improve satisfaction with medical care; personal relationships and social support [27], increase a sense of belonging [28,29] and improve mood [4,25]. However, several studies have also found adverse outcomes, including failed social attempts, reinforcement of poor behaviours and diminished feelings of self-efficacy [25,30]. Two recent reviews assessing the effectiveness of peer-support programs have concluded that participants benefit from these programs; however, both comment upon a paucity of well-designed studies [8,20].

There are a number of different models for the delivery of peer support, including one-on-one, group, telephone and Internet services. Macvean et al. (2007) examined the literature describing one-to-one support programs for individuals with cancer; however, as the focus of that review was volunteer-based programs it included both peer and non-peer-support programs [31]. To date there has been no systematic review comparing the effectiveness of different peer-support models. The current systematic literature review aims to identify the different models of peer support described in the literature for people with cancer, and examine the research assessing their effectiveness.

2. Methods

2.1. Search protocol

An extensive search of the published literature was undertaken using electronic databases CINAHL (Cumulative Index to Nursing and Allied Health Literature), MEDLINE and PsychINFO, for the period 1980 to April 2007 with the search terms: cancer or neoplas\$ or oncology\$ and peer or peer support or peer and support or support group\$ or support program\$ or group psychosocial support or self-help or visitor\$ or survivor support. Reference lists were searched and key researchers contacted to identify additional publications.

2.2. Paper inclusion and exclusion criteria

The inclusion criteria were: (1) written in English; (2) described a specific program where peers provided direct

support to people with cancer; (3) peer had been diagnosed and/or treated for cancer; and (4) primary purpose of the program was to provide support to cancer patients. Papers meeting any of the following exclusion criteria were eliminated: (1) not a specific peer-support program; (2) focused on children or adolescents; (3) educational or therapeutic course run by professionals (including supportive expressive therapy); (4) not primarily focused on peer support, i.e., peer support was one of many components of the program; (5) the peer support was for someone other than the person with cancer (e.g., carer or friend); (6) the paper did not describe the program in sufficient detail; (7) how the peer provided support could not be determined; (8) could not determine if the person giving support had experienced cancer; (9) editorial or letter about a program; and (10) first-person account of an experience.

2.3. Paper selection

A three-phase selection process was adopted. Author B examined the titles, then abstracts, for their applicability according to the inclusion and exclusion criteria. All papers that appeared eligible were obtained and distributed between authors A and B, who independently examined each according to the selection criteria. The researchers discussed papers considered 'borderline' for inclusion until consensus was reached. If two papers presented the same dataset with no new information supplied, only the earlier paper was retained.

2.4. Paper classification and data extraction

Selected papers were classified independently by authors A and B into one of the following pre-determined categories: non-research theoretical or service usage (papers describing a proposed model or specific program and papers that contained no data apart from service usage data); one group descriptive (describing a program with data collection, one group only and no experimental design); non-randomized comparative studies; and randomized controlled trials (RCT).

Data were extracted from eligible papers about the peer-support program (e.g., mode of delivery, peer or professionally supervised, program members, cancer type, the nature of peer support, and specific information about the peers and support recipients) as well as details of the research (e.g., sample size, control or comparison group, type of data collected, measures, and findings).

2.5. Assigning program description review rating and research quality ratings

Criteria for assessing paper quality were developed with reference to the CONSORT (Consolidated Standards of Reporting Trials) Statement checklist [32], the Program Evaluation Standards [33] and the data collection checklist for the Cochrane Effective Practice and Organisation of Care

Review Group [34]. We adopted this approach as many of the selected papers reported on community-developed programs and only a small proportion of the papers were RCTs.

The criteria were tested on 50% of the papers to determine their suitability. The criteria checklist assessed the amount of information provided about the program, support recipients, peers and research methodology (see Appendix A for checklist). Papers were awarded one point for every item satisfied; points were summed to give two sub-scores: a program description rating and a research quality rating. Higher ratings indicated more comprehensive descriptions and more rigorous methodologies. We acknowledge that other design issues (e.g., recruitment bias, blinding of assessment, protection against contamination) are important criteria in assessing internal validity and quality of a study and could have been included in our checklist. However, as few papers presented information about these issues, we opted for more general design elements such as inclusion of a control group, randomization, and timing of assessments in relation to the intervention.

2.5.1. Program description rating

Program description ratings included three sections. The first section (12 points) focused on the program, including delivery mode, type of support, duration and frequency of support, contact documentation, and peer training. The second section (eight points) focused on the peer description, including demographics, disease status (survivor or current patient) and the peer recruitment process. The third section (10 points) focused on the support recipient description, including their demographics and diagnosis. For models where support recipients and peers were the same people (i.e., support groups), points were awarded in both the second and third sections for each element included when describing group members. Each paper received a rating up to 30 points and quality was classified as: good (21–30 points), fair (11–20 points) and poor (10 points and lower).

2.5.2. Research quality ratings

Research quality ratings focused on methodology, data analysis, and results of the study (e.g., randomized assignment, clear description of measures, pre-intervention measures, post-intervention measures, description of differences or similarities of each group). A maximum of 13 points could be obtained and papers were classified as: good (10–13 points), fair (5–9 points) and poor (0–4 points).

2.5.3. Author agreement in classifications and quality ratings

Authors A and B independently classified each eligible paper into one of the four categories with 100% agreement achieved. Seventeen papers were randomly selected for double coding of program description quality and research quality. A mean agreement of 96% (range = 90–100%) and 92% (range = 69–100%) was achieved, respectively.

3. Results

3.1. Overview—paper selection and classification

A total of 2945 unique published papers were identified. An additional seven papers were recommended by key researchers in the field, producing a final count of 2952 papers reviewed at the title phase. Four hundred and thirty papers clearly irrelevant (for example, they focused on children or reported a cancer treatment trial) were eliminated. Abstracts for the remaining 2522 papers were examined and papers not meeting the inclusion criteria were eliminated ($n = 2350$). The remaining 172 papers were read independently by authors A and B; 60 papers met the criteria, including 15 non-research theoretical, 26 descriptive, 9 non-randomized comparative, and 10 papers reporting on 8 RCTs. As two non-randomized comparative papers described the same dataset with no new information provided, only one was retained. The 44 research papers are reviewed in detail.

Table 1 describes the programs reported in the papers reviewed. Five models of peer support were identified: one-on-one face-to-face, one-on-one telephone, group face-to-face, group telephone and group Internet. Tables 2–4 summarize the salient research information of each eligible descriptive, non-randomized comparative and RCT paper, respectively.

3.2. Papers with one group descriptive data

3.2.1. One-on-one face-to-face

Four papers presented data describing one-on-one, face-to-face peer-support programs; each paper described a breast cancer-specific program [4,35–37]. Data were mainly qualitative and suggested that participants' sense of isolation decreased and that sharing experiences with peers gave a new perspective and increased confidence.

3.2.2. One-on-one telephone

The two papers describing these sort of programs were cancer-specific [30,38]. Giese-Davis et al. [30] evaluated a 6-month peer counseling intervention for women with breast cancer and reported improvements for patients on trauma symptoms, emotional well-being, cancer self-efficacy and desire for information. One paper [38] focused on a peer-training program for an orthopedic oncology peer-support program. Results suggested that training improved empathy, listening and voice expression skills.

3.2.3. Group face-to-face

Nine papers presented data relating to face-to-face support groups [18,39–46]. The majority described groups for specific cancers; while some programs were peer-facilitated, others were professionally facilitated. Overall, the quantitative and qualitative results indicated that participants were satisfied with their experiences in face-to-face support groups. Benefits included feeling happier and more relaxed, receiving practical and emotional support, and experiencing a sense of comfort and camaraderie.

Table 1
Program details of papers reviewed

Model of peer support	Author, year	Program start, location and organizers	Participants	Peer training/supervision	Support location and duration	Documented contact	Program rating (out of 30) ^a
One group descriptive studies							
One-on-one, face-to-face	Cameron et al., 1997 [36]	1972, Canada, not-for-profit	Women with breast cancer	Neither indicated	Home, hospital, public area, individualised duration	Not indicated	8
	Carlsson et al., 2005 [35]	Year not indicated, Sweden, not-for-profit	Women with breast cancer	Yes—training/supervision not indicated	Not indicated	Not indicated	12
	Dunn et al., 1999 [4]	Year not indicated, Australia, not-for-profit	Women with breast cancer	Yes—training/supervision not indicated	Hospital/treatment centre, 3 weeks	Not indicated	13
	Sutton et al., 2006 [37]	Year not indicated, USA, university and hospital	Women with breast cancer	Neither indicated	Mutually agreed place (usually person with cancer's home), two times per week; 8 weeks	Yes	26
One-on-one, telephone	Giese-Davis et al., 2006 [30]	Year not indicated, USA, university and hospital	Women with breast cancer	Yes—training/Yes	Location not indicated, One to four times per week; 3–6 months	Yes	28
	Smith et al., 1998 [38]	Year, country and organization not indicated	Cancer survivors who received orthopaedic rehabilitation	Yes—training/supervision not indicated	Location not indicated, individualised duration	Yes	12
Group, face-to-face	Cope et al., 1995 [39]	Year and country not indicated, hospital	Women with breast cancer	Neither indicated	Location not indicated, 1 h per week	Not indicated	17
	Coreil et al., 1999 [18]	1990, USA, not-for-profit	Men with prostate cancer	Yes—training/supervision not indicated	Neither indicated	Not indicated	19
	Maisak et al., 1981 [40]	1976, USA, not-for-profit	People undergoing or completed lengthy cancer therapy	Yes—training/supervision not indicated	Location not described, monthly	Not indicated	20
	Matsunaga et al., 2004 [41]	1993, USA, Community group	Men with prostate cancer	Neither indicated	Public area, monthly	Not indicated	18
	Oliviere et al., 1996 [42]	Year not indicated, UK, workplace	Women with breast cancer	Training not indicated/Yes	Workplace, 1 h per month; ongoing	Not indicated	17
	Plant et al., 1987 [43]	Year not indicated, England, hospital	People with cancer	Neither indicated	Hospital, 1 h per month	Not indicated	13
	Smith et al., 2002 [44]	1994, USA, not-for-profit	Men with prostate cancer	Neither indicated	Neither indicated	Not indicated	13
	Yaskowich et al., 2003 [45]	Year not indicated, Canada, not-for-profit	Women with breast cancer ≤ 45 years, women with breast cancer ≥ 45 years, patients with brain tumours, people with any cancer diagnosis	Neither indicated	Location not indicated, monthly	Not indicated	15
	Zeigler et al., 2004 [46]	1999, USA, hospital	Women with breast cancer	Neither indicated	Location not indicated, 2 h meetings fortnightly	Not indicated	21

Group, telephone	Curran et al., 1998 [47]	1997, Canada, university and not-for-profit	Women with breast cancer	Neither indicated	Educational institutions, hospitals, medical clinics, biweekly; 2 months	Not indicated	17
	Reed, 2004 [48]	1996, UK, not-for-profit	Women with breast cancer	Neither indicated	Home, 1 h per week; 8 weeks	Not indicated	12
	Solberg et al., 2003 [49]	Year not indicated, Canada, university	Women with breast cancer	Neither indicated	Health-care, educational and community centres, duration not indicated	Not indicated	14
Group, Internet	Gustafson et al., 1993 [50]	Year not indicated, USA, University	Women with breast cancer	Neither indicated	Home, ongoing, available 24 h	Not indicated	18
	Hoybye et al., 2005 [54]	1999, Scandinavia, organization not indicated	Women with breast cancer	Neither indicated	Location not indicated, available 24 h; ongoing	Not indicated	19
	Klemm et al., 1998 [52]	1996, country and organization not indicated	People with colorectal cancer	Neither indicated	Location not indicated, ongoing	Not indicated	10
	Lieberman et al., 2003 [56]	Year not indicated, USA, university	Women with breast cancer	Training not indicated/Yes	Home, 1 per week; 16 weeks	Not indicated	20
	Sharf, 1997 [51]	Year not indicated, Canada, University	Women with breast cancer	Neither indicated	Location not indicated, ongoing, available 24 h	Not indicated	8
	Shaw et al., 2000 [5]	Year not indicated, USA, university	Women with breast cancer	Neither indicated	Home, available 24 h; ongoing	Not indicated	17
	Weinberg et al., 1995 [53] Weinberg et al., 1996 [55]	1993, USA, University 1993, USA, University	Women with breast cancer Women with breast cancer	Neither indicated Neither indicated	Home, available 24 h; 1 year Home, available 24 h; 1 year	Not indicated Yes	19 21
Non randomized comparative studies							
One-on-one, face-to-face	Ashbury et al., 1998 [27]	1972, Canada, not-for-profit	Women with breast cancer	Neither indicated	Not indicated	Not indicated	11
	Geiger et al., 2000 [57]	1994, USA, community group	Women with breast cancer	Yes—training/supervision not indicated	Location not indicated, minimum weekly contact; minimum 1 year	Yes	14
	Rankin et al., 2004 [58]	Year not indicated, Australia, organization not indicated	Women with breast cancer	Yes—training/supervision not indicated	Neither indicated	Not indicated	12
	Rogers et al., 1985 [17]	1952, USA, not-for-profit	Women with breast cancer	Yes—training/supervision not indicated	Hospital, 10–60 min	Not indicated	13
Group, face-to-face	McGovern et al., 2002 [59]	Year not indicated, Ireland, university and hospital	Men with prostate cancer	Neither indicated	Hospital, 1.5 h per month; ongoing	Not indicated	18
Group, Internet	Klemm et al., 1999 [62]	Year, country and organization not indicated	Women with breast cancer, men with prostate cancer, men and women with cancer	Neither indicated	Home, ongoing	Not indicated	7
	McTavish et al., 2003 [60]	Year not indicated, USA, university	Women with breast cancer	Neither indicated	Home, available 24 h; ongoing	Not indicated	15
	Sullivan, 2003 [61]	Year not indicated, USA, organization not indicated	Women with ovarian cancer, men with prostate cancer	Neither indicated	Location not indicated, ongoing	Not indicated	9
Randomized controlled studies							
One-on-one, face-to-face	Weber et al., 2004 [63]	Year, country and organization not indicated	Men with prostate cancer who had radical prostatectomies	Yes/supervision not indicated	Public area, eight meetings over 8 weeks	Yes	21
One-on-one, telephone	Houts et al., 1986 [64]	1982, USA, Hospital	Women treated for gynaecological cancer	Neither indicated	Location not indicated, three contacts over 10 weeks	Yes	16

Table 1 (Continued)

Model of peer support	Author, year	Program start, location and organizers	Participants	Peer training/supervision	Support location and duration	Documented contact	Program rating (out of 30) ^a
	Rudy et al., 2001 [65]	Year, country and organization not indicated	People with melanoma undergoing immunotherapy	Yes—training/supervision not indicated	Location not described, two required contacts plus additional if needed, 4–6 weeks	Yes	18
Group, face-to-face	Helgeson et al., 1999 [67]	Year not indicated, USA, organization not indicated	Women with breast cancer	Yes—training/supervision not indicated	Location not indicated, 1 h per week; 8 weeks plus 3 monthly meetings	Not indicated	20
	Helgeson et al., 2000 [70]	Year not indicated, USA, organization not indicated	Women with breast cancer	Yes—training/supervision not indicated	Location not indicated, 1 h per week; 8 weeks	Not indicated	18
	Helgeson et al., 2001 [66]	Year not indicated, USA, organization not indicated	Women with breast cancer	Neither indicated	Location not indicated, 1 h per week; 8 weeks	Not indicated	20
	Jacobs et al., 1983 [68]	Year not indicated, USA, organization not indicated	People with Hodgkin's disease	Neither indicated	Location, not indicated, 1.5 h per week; 8 weeks	Not indicated	20
	Vos et al., 2004 [69]	Year not indicated, Netherlands, organization not indicated	Women with breast cancer	Neither indicated	Location not indicated, 2.5 h per week; 12-weeks then 1 meeting at 1 month post and 2 months post	Not indicated	20
Group, Internet	Gustafson et al., 2001 [72]	Year not indicated, USA, University	Women with breast cancer	Neither indicated	Home, 6 months, available 24 h	Not indicated	18
	Winzelberg et al., 2003 [71]	Year not indicated, USA, organization not indicated	Women with breast cancer	Neither indicated	Home, available 24 h; 12 weeks	Not indicated	19

^a See text for description of program rating scoring.

Table 2
Research papers: papers with one group descriptive data

Models of peer support	Paper reviewed	Design	Qualitative/ quantitative	Unit of analysis	Measures	Number and timing of data points and timing of intervention	Data reported	Key findings	Research rating (out of 13) ^a	Cochrane criteria ^b
One-on-one, face-to-face	Cameron et al., 1997 [36]	Descriptive—perceived objectives and benefits of the program	Quantitative	Fourteen women with breast cancer. 23 peers	Interviews	One data point: a few months to several years after program participation	Experiences and benefits of program participation	Benefits included: provision of information, support, understanding, empathy, hope, encouragement and reassurance and volunteers who are non-judgemental, non-threatening, and non-medical. Preference for contact between diagnosis and treatment	5	No
	Carlsson et al., 2005 [35]	Descriptive—experiences peer support	Qualitative	Eight women with breast cancer	Interviews	One data point after one to five contacts with peers (within 4 years post-diagnosis)	Themes about experiences of peer support	1. Shared experiences give new perspectives on having cancer. 2. Feelings of isolation are part of the identity of the illness. 3. Relations with others enable self-help. Important for programs to offer volunteers training prior to providing peer support	5	No
	Dunn et al., 1999 [4]	Descriptive—perceived benefits of the program	Quantitative and qualitative	Two hundred and twenty-three women with breast cancer	Quant: Own scale. Qual: focus groups	One data point after service participation (within 4 months of surgery)	Perceptions of the helpful and unhelpful aspects of the program	Program perceived to be very helpful and women reported feeling less anxious after visit. Bond of common experience contributed to decrease in social isolation, increase in optimism about the future and reassurance about personal reactions and femininity. Support should be provided early in post-operative period. Some reported having an increase in fears about the future	7	No
	Sutton et al., 2006 [37]	Descriptive—experiences of the program	Qualitative	Thirty -three women with newly diagnosed breast cancer. 33 peers	Content analyses of log of contacts and meaningful observations journal. Own scale	Baseline and post-intervention, logs of contact completed after each contact	Interpersonal relationship between dyads, themes discussed, changes in perceived support from others, health issues, changes of priorities and faith	Most contact by phone rather than in person. While both survivor and newly diagnosed women expected mutual support, newly diagnosed woman received more support than did the survivors. However, most survivors were happy with providing this level of support. Survivors provided informational and emotional support.	7	No

Table 2 (Continued)

Models of peer support	Paper reviewed	Design	Qualitative/quantitative	Unit of analysis	Measures	Number and timing of data points and timing of intervention	Data reported	Key findings	Research rating (out of 13) ^a	Cochrane criteria ^b
One-on-one, telephone	Giese-Davis et al., 2006 [30]	Descriptive—impact of program on emotional regulation	Quantitative	Twenty-nine women with breast cancer. 25 peers	CES-D, PCL-C, FACT-B, CBI, Medical Interaction Scale, CARES, BCRQ, CECS, WAI, SESES-C	Three data points: baseline, 6 and 12 months post-program commencement	Depression, cancer-related trauma symptoms, quality of life, cancer self-efficacy, suppression of affect, doctor-patient relationship, problems encountered by cancer patients, breast cancer resources, adjustment, self-efficacy, description of contact and feelings during the contact	Women with breast cancer: significant improvement in trauma symptoms, emotional well-being, cancer self-efficacy, and desire for information on breast cancer resources. Peers: maintained baseline levels in outcome measures, increased dissatisfaction with their interactions with their medical team and increased emotional suppression	9	No
	Smith et al., 1998 [38]	Descriptive—experiences of the program	Qualitative	People with cancer and peers (N unclear)	Attending behaviours scale, empathy behaviour Scale, own items for program evaluation	Peers assessed before and after training. Peers and people with cancer completed a form after each contact. People with cancer completed an evaluation after each contact (no baseline for people with cancer)	People with cancer and peers experience with the program. Satisfaction as reported by people with cancer	Peers found training helpful and satisfactory. The evaluations completed by newly diagnosed patients indicated that the program was: 1. a positive experience; 2. associated with an increased sense of confidence to succeed in their rehabilitation	4	No
Group, face-to-face	Cope et al., 1995 [39]	Descriptive—perceived functions of the program	Qualitative	Fifteen women with breast cancer. 1 facilitator	Observation of 10 group meetings. 2 interviews	Data collection continued until repetition of data occurred without any new themes	Perceptions of women with breast cancer about the functions of a breast cancer support group	Three main functions of the breast cancer support group: 1. exchange information; 2. share the illness experience; 3. provide strength	4	No
	Coreil et al., 1999 [18]	Descriptive—characteristics of group and members	Quantitative	Thirty-eight support groups: 399 men with prostate cancer. 6 women attending the group. 41 facilitators	Research devised self report questionnaire	One data point at unknown time after service participation	Characteristics of support groups, facilitator profile, member profile	Typical format of groups included education plus sharing personal experiences between members. Facilitators and participants tended to be retired and from well-educated background, attending the group after being treated for prostate cancer. High levels of participant satisfaction were reported. Vast majority of facilitators were peers; they reported needing training and support	5	No
	Masiak et al., 1981 [40]	Descriptive—perceived benefits of the program	Quantitative and qualitative	Quant: 139 people with cancer and family/friends. Qual: 5 people with cancer and family/friends	Quant: Own scale. Qual: Interviews	Quant: 1 data point at unknown time after service participation Qual: 1 data point at unknown time after service participation	Experiences and benefits of program participation	Benefits: improved ability to cope with cancer, increased cancer knowledge, and improved family relationships and friendships	5	No

Matsunaga et al., 2004 [41]	Descriptive—perceived benefits of the program	Qualitative	Twenty-four men with prostate cancer	Interviews with people with cancer	One retrospective interview per participant. Timing of data points and intervention unknown	Views of people with cancer on perceived benefits and aspects that contributed to the group's success	Benefits: comfort, camaraderie, practical information, enhanced coping, and opportunity to talk. Successes attributed to leadership and group members	4	No
Oliviere et al., 1996 [42]	Descriptive—perceived benefits of the program	Qualitative	Nine women with breast cancer	Interviews	One retrospective interview per participant	Experiences of the program	Women attended the group for support connected to the workplace. They were satisfied with the group and appreciated that work issues could be discussed	5	No
Plant et al., 1987 [43]	Descriptive—experiences of the program	Quantitative	Sixty people with cancer and family/friends	Own scale	One retrospective questionnaire at least 3 months after first attendance	Experiences of the support group reported by people with cancer and family/friends	Participants received at least some (if not all) the information they wanted through the program. Most felt happier, more relaxed and able to cope after attending	6	No
Smith et al., 2002 [44]	Descriptive—service usage and experiences of the program	Quantitative and qualitative	Quant: 112 men with prostate who had participated in the Man to Man program, 44 urologists. Qual: 4 men with prostate cancer who had not participated in support groups	Quant: Interviews Qual: Focus groups	One data point at unknown time in relation to intervention	Quant: patients: experiences of the program Quant: urologists: awareness of the program Qual: reasons why these men do not seek support through support groups	Men with cancer valued the treatment information, physician presentations, and social aspects of the program. Majority of clinicians were aware of the program but most did not know the services it offered. The focus group indicated that some men do not attend the program as they prefer other sources of social support	5	No
Yaskowich et al., 2003 [45]	Descriptive—experiences of the program	Qualitative	Twenty-three people with cancer	Interviews	One data point at unknown time after intervention	Experiences of the program	The support group allowed people with cancer to talk safely, demystify the unknown, make decisions, have hope, and find a space to work through emotions	4	No
Zeigler et al., 2004 [46]	Descriptive—experiences of the program	Quantitative and qualitative	Ten women with breast cancer. 2 group facilitators	Common Journey Initial interview form. Common Journey end of year form. Common Journey group voices form. Facilitator voices form	Four data points: first meeting of the group, last meeting of the group, and 6 and 12 months post-participation	Cancer-related questions, open-ended questions to reflect four adaptive modes of the Roy Adaptation Model of Nursing - responses coded as 'adaptive' or 'ineffective'	Majority of participants provided adaptive responses (i.e., group goals achieved) at the initial and end of year interview. Combination of information and emotional support was effective in meeting the women's needs. No statistical tests to determine change in responses, however frequency scores suggested consistency between initial and end of year responses	6	No

Table 2 (Continued)

Models of peer support	Paper reviewed	Design	Qualitative/quantitative	Unit of analysis	Measures	Number and timing of data points and timing of intervention	Data reported	Key findings	Research rating (out of 13) ^a	Cochrane criteria ^b
Group, Telephone	Curran et al., 1998 [47]	Descriptive- satisfaction with program	Quantitative	Seventeen women with breast cancer	Own scale	One data point at unknown time after service participation	Experience and satisfaction with the program and teleconferencing technology	Participants expressed positive opinions about the group. Majority agreed that the group addressed the need for social support and information on breast cancer. Many indicated that the program helped them feel less isolated and it made them 'feel good'. Many indicated strong interest in attending future teleconferencing sessions and agreed that the sessions should continue. Disadvantages included: sessions were too short, reluctance to speak due to unfamiliarity with the equipment, lack of face-to-face interaction and lack of follow-up support	5	No
	Reed, 2004 [48]	Descriptive –experiences of the program	Unclear	Women with breast cancer (N unclear)	Not indicated	One data point at unknown time in relation to intervention	Benefits and difficulties of program participation	Vast majority of participants felt the main benefit was talking to others in a similar situation. Some women reported feeling more assertive and confident talking to health care professionals. Difficulties in the group included: the death of a group member, not being able to see other participants, discussing disease progression and hearing distress of other members	3	No
	Solberg et al., 2003 [49]	Descriptive- experiences of the program	Qualitative	Eleven women with breast cancer	Interviews	One data point at unknown time in relation to intervention	Perceptions of how participants received support through the program	Four phases were identified: 1. Getting connected to the network at different sites and geographical locations –sometimes problematic. 2. Finding a voice (how the women asked questions or responded). 3. Connecting with others (comparing with others, receiving empathy). 4. Becoming empowered (taking more control and making lifestyle changes)	5	No

Group, Internet	Gustafson et al., 1993 [50]	Descriptive—evaluation of the program	Quantitative and qualitative	Thirty women with breast cancer	Quant: Own scale Qual: telephone interviews	Two data points: 6 months post-program development and 1 year following	Experience and satisfaction with the program, value of program, service usage and topics discussed during groups	Program was rated as extremely valuable in providing members with information, support, understanding and empathy, and reducing fear, sense of helplessness and indifference. Support group was the service most often used. Compared with the possibility of having a nurse or cancer survivor to talk to, most participants preferred program due to anonymity, availability of system at any time, and comprehensiveness	6	No
	Hoybye et al., 2005 [54]	Descriptive—effect on perceived social isolation	Qualitative	Fifteen women with breast cancer	Face-to-face and on-line interviews. Content analysis of messages posted	Interviews conducted four months after program involvement Participant observation occurred over 8-month period	Program experiences, personal breast cancer stories, themes discussed on mailing list	Participation in the internet support group empowered women through: 1. knowledge, 2. tears and laughter from sharing experiences, 3. entering a new social world, 4. social intimacy	7	No
	Klemm et al., 1998 [52]	Descriptive—service usage and themes raised in groups	Qualitative	Ninety-seven people with colorectal cancer	Content analysis of messages posted	Two data points: 4-day period and 6 months later over a 5-day period	General themes discussed by support group members	Eight main themes identified: 1. information seeking/giving on various topics, 2. personal opinions, 3. encouragement/support, 4. sharing personal experiences, 5. expression of thanks for caring, help given, support, sharing, sending messages, explanations, listening, opinions, and informed responses, 6. humour, 7. prayer, 8. miscellaneous (e.g., problems related to posting messages)	5	No
	Lieberman et al., 2003 [56]	Descriptive—perceived benefits of the program	Quantitative and qualitative	Thirty-two women with breast cancer	CES-D, PTGI, PAIN scale, CECS, WAI, Mini-MAC. Telephone interviews	Three data points: baseline (pre-intervention); 16-weeks later (program completion); 1 month following program completion	Depression, positive changes, pain, suppression of affect, regression of negative affect, cancer-related coping, satisfaction with program	Participants demonstrated a significant reduction in depression and reaction to pain, and an increase in their experience of positive changes. However, the participants demonstrated an increase in emotional suppression. Post-interview results indicated that two-thirds of patients found the group to be beneficial	9	No

Table 2 (Continued)

Models of peer support	Paper reviewed	Design	Qualitative/quantitative	Unit of analysis	Measures	Number and timing of data points and timing of intervention	Data reported	Key findings	Research rating (out of 13) ^a	Cochrane criteria ^b
	Sharf, 1997 [51]	Descriptive—experiences of the program	Qualitative	Not indicated	Participant observation	Participant observation occurred over 10-month period (program ongoing)	Topics discussed, function of the program for its members, quality of conversations	Three major dimensions in the messages: 1. exchange of information, 2. social support, 3. personal empowerment. Perceived differences between Internet and face-to-face peer support: availability of the list at all times, diversity of people who use the internet increases experience/expertise of members, lack of visual and tactile communication can encourage more uninhibited release of feelings	4	No
	Shaw et al., 2000 [5]	Descriptive—experiences of the program	Qualitative	Twelve women with breast cancer	Semi-structured interviews	One data point: during program participation (length of time participated in program ranged from few months to few years)	Experiences of program; benefits and difficulties of program participation	Three main themes identified: 1. Advantageous: anonymity, equalized participation, support without feeling self-conscious, asynchronous nature, obtain support at any time. 2. Motivation for seeking support: lack of understanding from family members, stressed personal relationships, providing support to others. 3. Benefits: sense of universality, reduces uncertainty, anxiety, depression and stress, sense of altruism, sense of reward from helping others, social comparison	6	No
	Weinberg et al., 1995; 1996 [53,55]	Descriptive—experiences of the program and program feasibility	Quantitative and qualitative	Six women with breast cancer	Content analysis of messages posted. Own scale	Posting monitored over 3-month period. Scale completed at program conclusion	Extent of use, themes discussed and participants' perceptions of helpfulness, universality, group cohesion, instillation of hope, altruism, and catharsis of the group	Most participants quickly learned how to use the program. On average, each participant connected to the bulletin board twice per week and in total 158 connections were made. The group was primarily used to discuss medical and personal concerns. Participants perceived hope, group cohesion and universality as primary therapeutic factors. These three factors were also most related to the perceived helpfulness of the group	7 (1995), 6 (1996)	No

^a See text for description of research ratings.^b Criteria for determining papers suitability for inclusion in Cochrane review [32].

Table 3
Research papers: non-randomized comparative studies

Models of peer support	Paper reviewed	Design	Qualitative/ quantitative	Unit of analysis	Measures	Number and timing of data points and timing of intervention	Data reported	Key findings	Research rating (out of 13) ^a	Cochrane criteria ^b
One-on-one, face-to-face	Ashbury et al., 1998 [27]	Descriptive—compared program and non-program users	Quantitative	Three hundred and sixty-seven women with breast cancer (175 program users, 192 non-users)	FLIC, FACT, Duke Functional Social Support Questionnaire, own scale	One data point: post-intervention (timing after intervention not indicated)	Various quality of life domains. Program satisfaction	Compared to non-users, program participants had better self-reported health status, social support and better relationship with doctor. Over three-quarters of program participants reported that they were satisfied with the program	8	No
	Geiger et al., 2000 [57]	Descriptive—compared people diagnosed at program sites to those diagnosed at non-program sites	Quantitative	Three hundred and seven women with breast cancer (82 program users, 225 non-users)	Own scale	One data point: post-intervention, 4 months post-diagnosis (timing intervention participation not indicated)	Program satisfaction	Compared to non-users, support group participants reported significantly higher satisfaction with breast cancer care, pre-surgery care, provision of information and emotional support	9	No
	Rankin et al., 2004 [58]	Descriptive—population-based survey comparing service users and non-service users	Quantitative	Five hundred and forty-four women with breast cancer (195 users, 349 non-users)	Own scale	One data point: post-intervention, between 6 and 12 months post-diagnosis (timing after service participation not indicated)	Perceptions of care, sources of support, experiences with program	Vast majority of women who used the service said that they would definitely recommend it to other women. Program provided useful support. Meeting women with similar experiences reported to be most beneficial aspect of program	9	No
	Rogers et al., 1985 [17]	Descriptive—compared program users and people receiving other forms of support	Quantitative	Six hundred and fifty-two women with breast cancer (476 users, 176 non-users)	Interviews, CES-D depression scale, Delighted-terrible well-being scale	One data point: post-intervention, between 6 and 16 months post-surgery (timing after service participation not indicated)	Evaluation of the program (e.g., helpful/unhelpful) Effect on emotional and physical well-being	Patients' evaluations of the program were positive and visits perceived as helpful. No significant differences between groups on emotional or physical well-being	7 (for both papers)	No
Group, face-to-face	McGovern et al., 2002 [59]	Controlled trial—compared outcomes in people in peer-support program with control group	Quantitative	Fifty-one men with prostate cancer (14 in program, 37 in control group)	Mini-MAC, Health survey	One data point: post-intervention (timing after intervention not indicated)	Coping style and quality of life	Compared to controls, support group participants were more likely to endorse an 'anxious preoccupied' coping style. No difference between groups in health-related quality of life	7	No
Group, Internet	Klemm et al., 1999 [62]	Descriptive—compared Internet postings by gender	Qualitative	One hundred and seventeen postings from prostate Internet support group; 126 posting from breast Internet support group, 92 posting from a non-cancer specific internet support group	Internet postings	Consecutive posting collected for each group over 6-week period	Themes discussed by support group members	The most frequent theme for males was information seeking and information giving. The most frequent theme for females was personal experience	5	No

Table 3 (Continued)

Models of peer support	Paper reviewed	Design	Qualitative/quantitative	Unit of analysis	Measures	Number and timing of data points and timing of intervention	Data reported	Key findings	Research rating (out of 13) ^a	Cochrane criteria ^b
	McFavish et al., 2003 [60]	Descriptive—compared Internet postings by cultural background	Qualitative	One hundred and thirteen women breast cancer (86 Caucasian women, 27 women of colour)	Internet postings	Postings selected randomly over a 26-week period	Themes discussed by support group members	Women of colour used the discussion group less than Caucasian women. Women of colour tended to focus on breast cancer and treatment issues while Caucasian women focused on daily life issues	7	No
	Sullivan, 2003 [61]	Descriptive—compared Internet postings by gender	Qualitative	One hundred and seventy women with ovarian cancer; 213 men with prostate cancer	Internet postings	Not clearly indicated	Themes discussed by support group members	Males focused on information sharing and avoiding disclosure; in contrast, females focused on emotional expression and discussion of experiences	4	No

^a See text for description of research ratings.

^b Criteria for determining papers suitability for inclusion in Cochrane review [32].

3.2.4. Group telephone

Three descriptive papers described telephone support groups for women with breast cancer [47–49]. One paper indicated that a professional facilitated the group; the other papers did not describe the facilitator. All papers reported benefits from participation that included feeling less isolated, receiving empathy, empowerment, and increased assertiveness when communicating with health professionals. Disadvantages included a lack of follow-up support and not being able to see other members.

3.2.5. Group Internet

Eight papers described Internet support groups [5,50–56]. All programs were breast cancer-specific, except one which was colorectal cancer-specific [52]. Seven papers described a bulletin board format where participants posted messages to other group members at any time [5,50–55]. One paper described a chat-room format [56] where participants and a facilitator met online at a predetermined time to discuss cancer-related issues. Overall, the results indicated that group Internet peer support provided encouragement, empowerment, information and a sense of cohesion.

3.2.6. Rating of the program description quality for one-group descriptive papers

The program description quality ratings for these papers ranged from 8 to 28, with a mean of 15.9 out of 30 (see Table 1). The research quality ratings for these papers were fair (refer to Table 2), ranging from 3–9 (mean = 5.5). No paper was eligible for Cochrane review.

3.3. Non-randomized comparative studies

3.3.1. One-on-one face-to-face programs

Four comparative papers [17,27,57,58] examined one-on-one face-to-face peer-support programs. None used a pre–post-test design. Reach to Recovery was evaluated in two studies [17,27] which indicated that users reported better social support and better relationships with their doctors than non-users. Participants reported that the program was helpful, with shared experiences being the crucial aspect. However, Rogers et al. [17] found no significant differences between users and non-users on the psychological factors measured. Geiger et al. [57] found that peer-support users were more positive about their experience with medical staff and were less likely to want a second opinion compared to non-users. Rankin et al. [58] found that women perceived peer support as acceptable, with participation related to provision of information about the program.

3.3.2. Group face-to-face

One comparative study [59] explored the effectiveness of face-to-face group support programs for men with prostate cancer. This paper did not include a pre-intervention measure. No significant differences in health-related quality of life were found between users and non-users of the support group;

Table 4
Research papers: randomized controlled trials

Model of peer support	Paper reviewed	Design	Qualitative/ quantitative	Unit of analysis	Measures	Number and timing of data points and timing of intervention	Data reported	Key findings	Research rating (out of 13) ^a	Cochrane criteria ^b
One-on-one, face-to-face	Weber et al., 2004 [63]	RCT—compared peer support and usual care control	Quantitative	Thirty men who had recently undergone a radical prostatectomy (Program $n = 15$, control $n = 15$)	Modified Inventory of Socially Supported Behaviours, SICPA, GDS, UCLA Prostate Cancer Index, The Charlson Index	Three data points: Baseline, 4 weeks later and 8 weeks later (program completion)	Social support, self-efficacy, depressive symptomatology, urinary and sexual function/bother	Peer-support participants reported significantly more social support providers than control participants. The majority of participants found the program worthwhile	13	Yes
One-on-one, telephone	Houts et al., 1986 [64]	RCT—compared 2 conditions: (A) control—professional support and (B) A plus peer support	Quantitative	Thirty-two women beginning gynaecological treatment (A:N = 18, B:N = 14)	POMS, own scale (assessed coping behaviours)	Three data points: Baseline, 6 weeks and 12 weeks post-intervention	Emotional distress and coping behaviours	Condition B participants were more likely to report that they had changed their relationships with family members than condition A participants. This was in the opposite direction to what was hypothesised. No significant difference in emotional distress between participants in condition A and B at 6 or 12 weeks.	12	Yes
	Rudy et al., 2001 [65]	RCT—compared peer-support program with wait listed control group	Quantitative and qualitative	Fifty-nine people with melanoma (Program $n = 29$, wait list $n = 30$) 29 peers	Social Support Survey, evaluation surveys completed by people with cancer and peers	One data point: 1 week post-intervention	Social Support Program satisfaction	Peer-support participants reported significantly more social support providers than control participants. The majority of participants found the program worthwhile and benefited from informational and emotional support	10	Yes
Group, face-to-face	Helgeson et al., 1999; 2000; 2001 [67,70,66]	RCT—compared 4 conditions: A) education, B) peer discussion, C) A and B, D) control	Quantitative	Two hundred and fifty-eight women with breast cancer (A:N = 66, B:N = 60, C:N = 66 and D:N = 66)	SF-36	Six data points: Baseline, 2 weeks, 6 months, 12 months, 2 years and 3 years post-intervention	Health-related quality of life	When data from 5 waves of measurement were averaged, there were no significant differences between peer discussion group and control on QOL measures	11 (for all 3 papers)	Yes
	Jacobs et al., 1983 [68]	2 RCT studies: 1. compared education group (A) with control group (B) 2. compared peer-support group (C) with control group (D)	Quantitative	Eighty-one people with Hodgkin's disease (A:N = 21, B:N = 26, C:N = 16 and D:N = 18)	CPBS	Two data points: baseline and 8 weeks later (program completion)	Psychological and social functioning	No differences between condition C participants and control counterparts on psychological or social functioning	11	Yes

Table 4 (Continued)

Model of peer support	Paper reviewed	Design	Qualitative/quantitative	Unit of analysis	Measures	Number and timing of data points and timing of intervention	Data reported	Key findings	Research rating (out of 13) ^a	Cochrane criteria ^b
	Vos et al., 2004 [69]	RCT—compared 3 conditions: (A) psychotherapy group, (B) social support group and C) wait list control group	Quantitative	Sixty-nine women with breast cancer (A:N = 15, B:N = 19, C:N = 35)	Utrecht Coping List, Health and Disease Inventories, Social Network Questionnaire, POMS, EORTC QLQ-30 and Sickness Impact Profile	Two data points: baseline and 12 weeks later (program completion)	Psychosocial adjustment, social support, coping, psychosexual functioning and social adjustment	No significant between group differences on measures of psychosocial adjustment. Significantly higher levels of social support perceived by women in condition B compared to other conditions. Women in condition B used more palliative coping	11	Yes
Group, Internet	Gustafson et al., 2001 [72]	RCT—compared people in peer-support program with control group	Quantitative	Two hundred and forty-six women with breast cancer (Program <i>n</i> = 121, control <i>n</i> = 125)	Social support scale, unmet information need scale, information competence scale, perception of involvement in health care scale, comfort with clinician scale, FACT-B	Three data points: baseline, 2 and 5 months post-intervention	Social and informational support, participation in health care, comfort and confidence in clinician, quality of life	Peer-support participants scored higher on social and informational support at post-intervention, and higher participation in health care at 2 months. No main effects were found for quality of life	13	Yes
	Winzelberg et al., 2003 [71]	RCT—compared peer-support program with wait listed control	Quantitative	Seventy-two women with breast cancer (Program <i>n</i> = 36, wait list control <i>n</i> = 36)	CES-D, PCL-C, STAI, PSS, CBI, Mini-MAC, own scale (assessed perceptions of group experiences)	Two data points: baseline and 12 weeks later (program completion)	Depression, post-traumatic stress, state anxiety, global perceived stress, coping behaviour, adjustment to cancer and program satisfaction	Significant between group differences. Improvement on depression, perceived stress and post-traumatic stress for peer-support participants compared to control group. Participants perceived a number of benefits and satisfaction from their participation in the program	13	Yes

^a See text for description of research ratings.^b Criteria for determining papers suitability for inclusion in Cochrane review [32].

however, users were more anxiously preoccupied than non-users.

3.3.3. Group Internet

Three comparative papers investigated group Internet peer-support programs. One was breast cancer-specific [60], one had an ovarian cancer specific and a prostate cancer-specific group [61], and the third had specific breast and prostate cancer groups as well as a mixed cancer group [62]. In general, the papers suggested that interactions within Internet-based support groups might differ depending on gender, diagnosis, and cultural background.

3.3.4. Ratings of program description and research quality for comparative papers

The average program description quality rating for the nine comparative papers was 12.7 out of 30 (range: 7–18). The score is lower than the previous category (refer to Table 5), largely because papers provided insufficient detail regarding the intervention. The research quality ratings of these papers were fair (see Table 3), ranging from 4 to 9 out of 13 (mean = 6.7). Although all papers used a comparison group, none involved a pre-post-design or randomization; therefore none were eligible for Cochrane review.

3.4. Randomized controlled trials

3.4.1. Overview

The 10 papers reporting on 8 RCTs are summarized in Table 4. Follow-up time points ranged from 1 week to 2 years post-intervention. We categorized follow-up as: immediate (within 4 weeks of completing the intervention); medium term (more than 1-month post-intervention completion and less than 2 years); and long term (at least 2 years post-intervention completion).

3.4.2. One-on-one face-to-face

Weber et al. examined a one-on-one, face-to-face peer-support program for men with prostate cancer [63]. Thirty men were randomly allocated to usual care (control) or intervention groups. The intervention matched men to a support partner who was a long-term survivor of prostate cancer. Dyads met eight times over an 8-week period to discuss problems encountered after radical prostatectomy; outcome measures were completed at 4 and 8 weeks. Self-efficacy increased from baseline to 8 weeks for the intervention group. Depression scores for the

intervention group were lower at 4 weeks but did not differ between groups at 8 weeks.

3.4.3. One-on-one telephone

Two RCTs explored the effectiveness of one-on-one telephone intervention programs [64,65]. In the trial by Rudy et al. [65], people undergoing treatment for melanoma were randomly allocated to control ($n = 30$) or intervention ($n = 29$) consisting of two to four telephone contacts from peers. Participants were followed up 1 week after treatment completion and the telephone support program had ended. Both groups completed a questionnaire, assessing the availability of social support but only at follow-up. Intervention group patients generally reported about twice as many support providers as control group patients. Psychological outcomes such as depression or adjustment were not measured.

Houts et al. [64] reported findings from a trial that focused on women with gynecological cancer ($n = 32$). In the intervention arm, peer counselors contacted patients three times (prior to hospitalization, and 5 and 10 weeks later) to provide telephone support focusing on coping strategies. Emotional distress was measured with the Profile of Mood States at pre-intervention and immediate post-intervention. There were no significant differences in emotional distress levels between the intervention and control conditions post-intervention. Intervention patients were significantly more likely to report changes in their relationships with family members. The authors were surprised at this result because the intervention emphasized maintaining normal family relationships.

3.4.4. Group face-to-face

Five papers reported the findings of three trials [66–70] exploring the effectiveness of face-to-face group support programs. Two trials focused on breast cancer patients [66,67,69,70] and one focused on patients with Hodgkin's disease [68]. All papers included pre-intervention measures, three reported immediate follow-up measures [68–70], one reported medium-term follow-up [67], and another long-term follow-up [66].

In the trial reported by Helgeson et al. [66,67,70], women with breast cancer were randomly allocated to one of four groups: education, peer discussion, education plus peer discussion or control. The education program aimed to disseminate information in a lecture format. Participants attended eight professionally facilitated weekly meetings,

Table 5
Average quality ratings for each paper classification

	Paper classification		
	Papers with one group descriptive data	Non-randomized comparative studies	RCTs
Number of papers	26	9	10
Descriptive review rating	15.9	12.7	18.7
Research quality rating	5.5	6.7	11.6

followed by three monthly telephone calls from the facilitator. The peer discussion intervention was aimed at providing emotional support. Participants attended eight professionally facilitated weekly meetings, followed by three additional monthly meetings. Analyses failed to demonstrate significant improvements in health-related quality of life in the peer discussion condition compared to the control group. Vos et al. [69] found similar results. In their study, 69 breast cancer patients were randomly allocated to one of three 12-week conditions: group psychotherapy, support group or control. There were no group differences on psychosocial adjustment as measured by three validated instruments. Women who participated in the peer-support condition perceived more social support at the end of the program compared to controls. The sample size used in this study was relatively small so the lack of statistically significant effects may be due to insufficient statistical power to detect anything other than medium to large effects.

The trial reported by Jacobs et al. randomized 34 participants to either a control or an intervention group [68]. The intervention group consisted of eight weekly meetings focused on the provision of emotional support between participants. An oncologist, psychologist and social worker attended the group in non-directive roles. There were no significant differences between intervention and control groups on measures of depression, anxiety, interpersonal problems, anger, and life satisfaction. Although the trial was rated as good quality, it was limited to some degree. First, emotional functioning was only measured at the conclusion of the intervention. Second, the validity and reliability of the measures were not reported. Third, the small sample size means the study would only have sufficient statistical power to detect large effects of peer support.

3.4.5. Group Internet

Two papers reported findings from RCTs exploring Internet support groups [71,72]. Both examined the effectiveness of an Internet peer-support program for people with breast cancer. One paper reported pre-intervention and immediate follow-up measures [71] and the other paper reported pre-intervention, short-term and medium-term follow-up [72].

Winzelberg et al. [71] randomly allocated 72 participants to peer-support or control group. The peer-support program was a professionally facilitated 12-week structured group that allowed participants to log onto the Internet and post-messages to other members at any time. Validated measures assessed depression, post-traumatic stress symptoms, anxiety, perceived stress, self-efficacy, and adjustment. The study found that, post-intervention, groups differed significantly on depression, perceived stress and symptoms of post-traumatic stress, suggesting that an Internet-based support program may be effective in reducing psychological distress among the breast cancer population.

Gustafson et al. [72] examined a 6-month Internet-based support program where breast cancer patients accessed a facilitated bulletin board to post-messages and read personal stories about coping with the cancer experience at any time.

Two hundred and forty-six women were allocated to either the intervention or control groups. Control group participants received a booklet about breast cancer. Validated measures of social support, unmet information needs and quality of life were used at pre-intervention, 2 and 5 months post-intervention. Post-intervention, the intervention group had higher perceived support and greater confidence in involvement in their own health care. No significant differences in quality of life were found. The authors suggest that the breast cancer booklet may have helped control participants to access information comparable to those in the experimental condition.

3.4.6. Ratings of the program description and research quality for RCTs

The average program description quality for the 10 papers was 18.7, with a range of 15–20 out of 30. The average research quality rating was 11.6 with a range of 10–13 out of 13. Three papers scored 100% on all items assessed [63,71,72]. The research quality rating did not include an assessment of the adequacy of the sample size/necessary statistical power to detect differences between control and intervention groups. Table 4 shows that 6 of the 8 RCTs had between 15 and 36 people in the intervention and control groups [63–65,68,69,71]. The statistical power of these studies would only be sufficient to detect moderate to large intervention effects. All papers met the requirement for inclusion on a Cochrane review (see Table 4) although the inclusion of the study by Rudy et al. [58] might be questionable as no pre-intervention data was reported.

3.5. Summary of program description and research quality ratings

Table 5 shows the average program description ratings and research quality ratings for the different study types. For all study types, program descriptions were on average rated ‘fair’, while only the research element of RCTs received on average a ‘good’ rating.

4. Discussion and conclusion

4.1. Discussion

This literature review identified five different models of peer-support delivery: one-on-one face-to-face, one-on-one telephone, group face-to-face, group telephone, and group Internet. The majority of the studies involved women with breast cancer. Most of the research was reported in descriptive studies, with only eight RCTs identified. Regardless of study type, the average program description rating was ‘fair’, indicating that many elements of the design and delivery of the peer-support programs were not reported. It is important that adequate information about these aspects of the peer-support program is provided if researchers and program providers are to gain an understanding of the intervention and assess its value for people of different age, gender, ethnicity and type of cancer.

No study compared the relative effectiveness of different peer-support models. Overall, results from the one group descriptive papers indicate a high level of participant satisfaction and some perceived psychosocial benefits associated with peer support. Of the 26 papers in this group, few reported on the experiences associated with one-on-one face-to-face or telephone-based peer-support programs, suggesting that these models are infrequently investigated in the literature. In general, these studies suggest that regardless of the way peer support is delivered, having contact with other people with cancer assists current cancer patients in practical, social and emotional ways. However, as these studies did not include a control group this suggestion is only tentative. Most of these descriptive papers received 'fair' or 'poor' quality ratings due to the lack of information provided about the peers, the people with cancer and the nature of the program itself.

Of the 10 papers reporting results from 8 RCTs, four found an increase in perceived social support among the intervention group [63,65,69,72] and three found improvements on some psychosocial outcomes either during or post-intervention [56,64,65]. Improved psychosocial functioning was found for a one-on-one face-to-face peer-support model [56] and a group Internet peer-support model [64,65], suggesting that these models might be most effective in providing peer support for people with cancer. Three RCTs examined a group face-to-face peer-support model and found no significant effect of peer support on health-related quality of life or psychological distress. While these findings may suggest that this style of peer support is ineffective, methodological problems, including small sample sizes, lack of long-term follow-up, and limited outcome measures, reduce the strength of any conclusions that can be drawn from these studies. As this model of peer support is common in the community, well-designed studies with adequate statistical power and appropriate outcome measures are needed to determine the effectiveness of these sorts of peer-support programs.

As indicated above, both RCTs exploring group Internet programs were associated with improved psychosocial outcomes. It is not possible to determine whether these psychosocial benefits are related to the group Internet format *per se* or to some other factor. Both programs were asynchronous in format, i.e., people logged on to read and post-messages at any time as opposed to a chat-room format (i.e., real-time discussions). Perhaps such flexibility is beneficial, enabling people to access support when needed, rather than waiting until scheduled meeting times like face-to-face programs. These programs also went for a longer time-period (from 12 weeks to 6 months) than other peer-support programs tested in the RCTs. An extended period of time may be required for people to develop relationships and build sufficient rapport to enable them to gain psychosocial benefits from peer support. This suggestion is supported by findings from a recent review of professionally facilitated support groups for cancer patients, which also concluded that groups lasting longer than 6 months were more efficacious [22].

It has been suggested that peer support can impact positively on psychological adaptation to a cancer diagnosis and treatment, either directly (by decreasing feelings of isolation, encouraging health behaviours and promoting positive psychological states [21]), or by helping patients to reframe appraisals of their situations and improve coping responses. One of the findings of this review is that few studies were designed to test elements of these models simultaneously. Rather, many studies drew on both models and assessed coping, quality of life, health-related quality of life and negative mood states, resulting in a wide range of outcome measures being used in this research. In general, the RCTs did not find significant effects from participation in peer-support programs on quality of life and coping. This may be a result of the methodological problems noted above; however, it might also suggest that these outcome measures are not appropriate for assessing the effectiveness of peer support. The studies that assessed more immediate outcomes such as availability of social support reported a difference in this outcome measure between intervention and control groups. Few studies evaluated the success of peer support in terms of reduced isolation, increased sense of hope and shared experiences: the outcomes qualitative research has shown that patients involved in peer-support programs most commonly value and experience [73]. Gottlieb and Wachala [22] noted a similar discrepancy in the outcome measures used to assess the effect of support groups. They suggest that research in this area needs to evaluate support groups in terms of outcomes that match the aims of the intervention and the experiences of the participants and then determine whether these outcomes are related to change in clinically relevant endpoints or outcomes relating to quality of life or psychological adjustment. Our review leads us to believe that this conclusion is true for the peer-support literature in general.

Finally, in trials reviewed in this paper, people were primarily recruited through hospitals and specialists, and eligibility was based primarily on demographic and disease-based status; no RCTs screened for patients' psychosocial adjustment or motivation to seek support prior to their program participation. Recruiting people with low levels of psychological distress or who are not open to receiving support may limit the potential psychosocial improvements and impact on treatment effect sizes. It has been argued that when psychosocial interventions are delivered to those most in need, the positive impact of the intervention is more evident [74]. Further research addressing these recruitment considerations is warranted.

Throughout this systematic review of the literature strict procedures were adhered to. Confidence in quality ratings is reflected by high inter-rater reliabilities. As is the case with most literature reviews, however, it is possible that some relevant papers were not identified. We did our best to minimize this possibility by spending considerable time planning search terms and liaising with others in the field. Every possible effort was made to locate all papers that were identified through the library, Internet and by contacting authors directly.

4.2. Conclusion

One important finding from this review is that very little research has specifically explored the effectiveness of peer-support programs in improving psychological outcomes for people affected by cancer other than those with breast cancer, and it may not be appropriate to generalize these findings to other cancer populations. It is possible that peer-support interventions are less likely to impact the adjustment and quality of life of breast cancer patients as there is, relatively, an abundance of support (peer and professional) available for this particular cohort. Perhaps new and innovative peer-support programs would be beneficial for other groups of cancer patients, particularly those for whom there may not be a great deal of support available, for instance people with lung or bowel cancer. Few research studies have explored the impact of peer-support programs on volunteers providing support. Given the potential vulnerability of peers who have a history of cancer themselves, it is important to monitor the positive and negative effects on their psychosocial status [30].

Some of the methodological limitations of studies reviewed here, such as small sample sizes, lack of clear measures assessing outcomes relevant to the aims of the intervention and lack of long-term follow-up measurements, compromise confidence in the findings. RCTs with sufficient statistical power to determine small to moderate effect sizes are particularly lacking in this area. We acknowledge that psychosocial interventions such as peer-support programs are often generated in the community or by organisations that might lack the financial and/or academic ability to conduct an RCT. However, given the limited level I evidence for the efficacy of peer-support programs, further research is needed to determine whether peer support actually assists cancer patients in adjusting to their diagnosis. As a population-based approach

for these trials may not be appropriate, selecting participants with unmet support needs and comparing different models of peer support may provide useful information. In addition, it is essential that future studies consider the effect size they expect from the intervention and conduct formal power calculation to ensure sufficient statistical power to detect this effect.

4.3. Practice implications

Currently, only tentative recommendations can be made regarding models of peer support that might be recommended for cancer patients. This review suggests that one-on-one face-to-face and group Internet peer-support programs should be given priority when considering ways to offer peer support. Nevertheless, the other models discussed in this review (one-on-one telephone and group face-to-face) should not be dismissed until further research is conducted amongst a wide range of cancer populations.

Disclosure statement

I confirm that all patient/personal identifiers have been removed or disguised so the patient/person(s) described are not identifiable and cannot be identified through the details of the story.

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Appendix A. Quality rating checklist

Program description rating:

1. Type of support.....	<input type="checkbox"/>
2. Mode of support (f2f, phone, web).....	<input type="checkbox"/>
3. Duration/frequency of support	<input type="checkbox"/>
4. Manual used	<input type="checkbox"/>
5. Manual described	<input type="checkbox"/>
6. Clear description of how peer support is delivered	<input type="checkbox"/>
7. Contact documented	<input type="checkbox"/>
8. Documentation described	<input type="checkbox"/>
9. Peers are trained	<input type="checkbox"/>
10. Description of training	<input type="checkbox"/>
11. Peers are supervised.....	<input type="checkbox"/>
12. Description of supervision	<input type="checkbox"/>
Subtotal (max 12)	

Circle one: Poor (0-4) Fair (5-8) Good (9-12)

Peer description rating (in program and/or study):

- 1. Peer recruitment
- 2. Number of peers
- 3. Who are the peers (eg cancer survivors or current patients)
- 4. Age
- 5. Sex
- 6. Marital status
- 7. Education
- 8. Employment

Subtotal (max 8)

Circle one: Poor (0–2) Fair (3–5) Good (6–8)

Patient description rating (in program and/or study):

- 1. Patient recruitment
- 2. Number of patients
- 3. Type of cancer
- 4. Cancer stage
- 5. Cancer treatment
- 6. Age
- 7. Sex
- 8. Marital status
- 9. Education
- 10. Employment

Subtotal (max 10)

Circle one: Poor (0–3) Fair (4–7) Good (8–10)

Score for program description (max 12)

Score for volunteer description (max 8)

Score for patient description (max 10)

Total (max 30)

Circle one: Poor (0–10) Fair (11–20) Good (21–30)

Research (evaluation) quality rating:

- 1. Aims
- 2. Assignment is randomized
If yes to 2, must be yes to 3
- 3. Comparison/control group used
If no to 3, must be no to 10 and 12
- 4. Response rates
- 5. Clear description of measures (scales, interview schedules)
- 6. Clear indication of when data is collected in relation to intervention
- 7. Clear indication of when data is collected in relation to entry
- 8. Clear pre intervention measure
If no to 8, must be no to 9 and 10
- 9. Description of scores pre intervention
- 10. Pre intervention differences/similarities of each group
- 11. Description of scores post intervention
- 12. Post intervention differences/similarities of each group
- 13. Clear number of participants in analysis

Subtotal (max 13)

Circle one: Poor (0–4) Fair (5–9) Good (10–13)

Score for descriptions (max 30)

Score for research quality (max 13)

Total (max 43)

Circle one: Poor (0–14) Fair (15–29) Good (30–43)

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