—Review—

The Potential Role of Peer Support Interventions in Treating Depressive Symptoms in Cancer Patients

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Depressive symptoms are prevalent in cancer patients and are one of the most distressing symptoms in this population. Although mental health professionals such as psychiatrists and psychologists are now engaged in cancer care, the management of depressive symptoms in cancer patients needs further improvement. Peer support interventions (PSIs) in cancer care have attracted substantial attention and have several advantages over support by medical professionals, potentially improving depressive symptoms in cancer patients. However, there may be some potential risks. Several strategies using PSIs have been developed to improve depressive symptoms and have been evaluated in randomized controlled trials. The strategies include education on stress management skills, promoting emotional support, counseling on specific topics that are difficult to discuss with others, helping patients navigate the use of resources, and promoting health-related behaviors to decrease depressive symptoms. In this paper, we present recent findings on PSIs in cancer, focusing on randomized controlled trials.
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Key words: cancer, peer, peer support, depressive symptoms

Introduction

Although there has been rapid progress in cancer treatment in recent years, cancer continues to be a life-threatening illness. It is not uncommon for cancer patients to experience heavy emotional burdens. Depressive symptoms are prevalent in cancer patients and include biological, medical, psychosocial, and spiritual aspects[1]. They are associated with decreased quality of life (QOL), decreased adherence to treatment, prolonged hospitalization, increased severity of physical symptoms, decreased life expectancy, and elevated suicide risk; thus, depressive symptoms are clinically important[1]. Although mental health professionals such as psychiatrists and psychologists are now engaged in cancer care, not all patients with depressive symptoms receive treatment by these medical professionals. Human resources providing adequate professional care for depression in clinical settings are insufficient[2].

Peer support interventions (PSIs) have attracted substantial attention in recent years. They have the potential to improve the mental health of patients, filling a need that cannot be met by medical professionals alone in increasingly complex cancer care.

PSIs are defined as interventions in which individuals who have the same disease or condition get together, exchange information, share experiences, and encourage

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and help one another to overcome difficulties[3,4]. They have been found to improve patients' knowledge, attitudes, beliefs, and perceptions regarding illness, and social health connections in patients with various medical conditions[5]. PSIs are considered to have several advantages over support by medical professionals. Unlike support by medical professionals, PSIs involve a unique process that aims to improve many outcomes. The nonhierarchical relationships of PSIs may promote reciprocal support and a sense of community[6]. From the viewpoint of social comparison theory, the interaction between people who have the same illness is beneficial in general because comparison helps to establish a sense of normality[7].

PSIs have emerged across the cancer care continuum as an important strategy for addressing many barriers in cancer prevention, early detection, treatment, and survivorship[8]. While there are many types of PSIs in cancer care, many of their effects remain unclear. Physicians may also have several concerns about the potential risks of PSIs, such as the provision of misinformation, encouraging unconventional therapies, the negative effects of associating with the seriously ill, the cultivation of false hope, and "doctor bashing"[9–11]. The aim of this article is to present the findings of a narrative review on the effects of PSI on depressive symptoms in cancer patients, focusing on randomized control trials (RCTs).

Classification of Peer Support Interventions

PSIs can be categorized according to their format (e.g., group intervention, dyadic intervention, or hybrid intervention), their modality, and the role of peers in the intervention. In a study by Ramchand et al., the role of peers in intervention was categorized into five types: peer counselor, peer educator, peer support, peer facilitator, and peer case manager in chronic disease[5]. One intervention program can include multiple roles of peers. First, a peer counselor provides counseling to individuals to meet their needs and to provide knowledge, guidance, and specific tools to help achieve health and wellness. Second, a peer educator delivers formal education or training on a certain topic, utilizing a curriculum and approach that follow a protocol, without involving a therapeutic relationship. Third, peer support provides support to individuals that is informal and unstructured. Fourth, a peer facilitator mediates group interactions such as group discussion and group-based activities that help individuals in setting and reaching goals together by creating or strengthening relationships among them. Fifth, a peer case manager helps individuals in accessing or coordinating health and social services, such as by managing their activities within the intervention or referring them to specific resources.

Peer-Based Strategies for Alleviating Depressive Symptoms in Cancer Patients

Several strategies use PSIs to improve depressive symptoms. Their benefits have been evaluated in a few RCTs. **Table 1** indicate the characteristics of the studies of face-to-face peer support interventions as below.

1. Education on Stress Management Skills by Trained Peers

Education on stress management skills is one of the strategies that peers use to intervene depressive symptoms in cancer patients. Previously, a translational peer-delivered stress management program was developed by Nápoles et al.[12,13]. It focused on cognitive-behavioral coping, skills training, coaching, and modeling for the active management of stress and difficult emotions. The program involved weekly 90-min modules that used visual tools, hands-on exercises, and homework within the scope of teaching and reinforcing stress management concepts and skills. Peer educators participated in three consecutive 8-h training sessions. The benefit of this program in rural Latina breast cancer survivors was evaluated in an RCT, and the results suggested that the program improved stress management skills and anxiety, but not depressive symptoms[13].

2. Promoting Emotional Support

Another strategy to improve depressive symptoms is to have trained peers provide emotional support. In an RCT, Lee et al. evaluated the effectiveness of a program that involved peer supporters for breast cancer survivors[14]. Disease-free survivors of breast cancer who had completed primary cancer therapy at least 1 year before the program underwent training to become dyadic support partners. Each cancer patient and her support partner met in person and/or over the telephone. The program was found to improve patients' self-efficacy in self-management of breast cancer; however, it did not improve anxiety, depressive symptoms, or mental adjustment to cancer.

In another RCT, Weber et al. evaluated the benefit of a dyadic peer support program for prostate cancer[15]. Long-term survivors of prostate cancer underwent training to become dyadic support partners. The intervention focused on providing a supportive environment for men that facilitated discussion of problems that usually arise after radical prostatectomy (e.g., emotional issues). How-

Table 1 Characteristics of the studies of peer support interventions included in the review (face to face intervention)

author	year	type of cancer	Intervention	training of peers	control	n	measurement of depressive symptoms	findings of depressive symptoms	other outcome	other findings
Nápoles[13]	2020	breast cancer surviovors	Education on stress management skills 10-weeks 90 minutes stress management program based on cognitive-behavioral were provided by trained peers.	Peers participated in a 3-day training program	usual care	Intervention: n=76 control: n=77	PHQ-8	not improved	QOL anxiety relaxation awareness of tension assertiveness coping	improvement in anxiety and stress management scale
Lee[14]	2013	newly diagnosed breast cancer	Promoting emotional support Programe based on self efficacy theory waa provided by trained peer support partners, supervised by skilled nurses once a week during the 6-week period after surgery	The training program involved 3 workshops by several experts	usual care	Intervention: n=64 control: n=65	HADS	not improved	Self-efficacy for self-management Anxiety and depression Mental adjustment	improvement in self-efficacy
Weber[15]	2004	men who had recently undergone a radical prostatectomy for prostate cancer	Promoting emotional support Dyad was formed to be paired with a support partner. Each dyad met 8 times during an 8-week period.	2-h training session where skills required in the intervention and possible topics of dyadic discussion were talked about.	usual care	Intervention: n=37 control: n=35	GDS	improved	Self-efficacy Social support Incontinence and erectile dysfunction	improvement in self-efficacy
Schover[20]	2006	breast cancer of which progonosis are at least 1year (stages 0-IIIA)	Counseling focused on specific topics that are difficult to discuss with others a peer counseling program to improve sexual function was provided by trained peers. Sessions typically lasted 60 to 90 minutes and took place in the participant's home or in a convenient community setting that afforded privacy.	Training over 3 months included lectures, readings, role playing, research ethics, and discussion with a chaplain about spirituality in counseling.	usual care	Intervention: n=29 control: n=31	BSI	improved	Spiritual Well-Being, Female Sexual Function, Menopause Symptom the relationships, concerns about fertility, pregnancy, and health of off spring, knowledge	improved in knowledge of reproductive issues and menopause symptoms

Table 1 Characteristics of the studies of peer support interventions included in the review (face to face intervention) (continued)

author	year	type of cancer	Intervention	training of peers	control	n	measurement of depressive symptoms	findings of depressive symptoms	other outcome	other findings
Giese-Davis[21]	2016	breast cancer (stages 0-IV) which were diagnosed within the prior 3 months;	Navigating the use of resources Peer navigators met weekly by telephone and e-mail, provided support, made connections to community resources, and recognized trauma symptoms	Training program was 7 all-day sessions for 3 to 6 women, with 7 navigators. The clinical supervisor was on-call for concerns, and provided monthly supervision.	usual care	Intervention: n=52 control: n=52	CESD	not improved	QOL, Cancer-related trauma symptoms Cancer self-efficacy Marital interaction Breast cancer resources.	improved in nbreast-cancer–specific well-being and maintained marital adjustment In traumatic stressor, well-being, trauma and depression symptoms, and self-efficacy were improved
Galvao[24]	2017	localized prostate cancer	Promoting health-related behaviors to decrease depressive symptoms The intervention included self-management materials and monthly telephone-based group peer support for 6 months.	Peers were experienced in community support and received 12 hours of training program	usual care	Intervention: n=232 control: n=231	BSI	not improved	physical activity prostate Symptom	improved in resistance exercise and more men achieved sufficient physical activity levels and QoL
Yun[25]	2017	mixed type of cancer cancer survivors who completed primary cancer treatment	Promoting health-related behaviors to decrease depressive symptoms 1) a 1-h health education workshop (physical activity, dietary habits, and distress management) 2) a 3-h leadership workshop 3) individual coaching by telephone for a 24-week period.	Peers had been trained by the program, which is 3-month program consisting of health behavior management (8 h), leadership (16 h), and actual health coaching practice (24 h).	usual care and given a health education booklet	Intervention: n=134 control: n=72	HADS	not improved	physical activity, diet, and post-traumatic growth QOL, satisfaction with life, anxiety, distress in response to a specific traumatic event social support, number of highly effective health behavior	improvement in anxiety and QOL

Abbreviation: BSI; the Brief Symptom Inventory, CESD: Center for Epidemiologic Studies Depression Scale, GDS; Geriatric Depression Scale, HADS; the Hospital Anxiety and Depression Scale, PHQ-8; Patient Health Questionnaire-8, POMS: the Profile of Mood States

ever, the researchers found no significant difference in social support between the intervention group and the control group. While a significant difference was found in depressive symptoms between the two groups at 4 weeks, there was no significant difference at 8 weeks. Mens et al. also conducted an RCT, finding that an intervention consisting of peer support in a face-to-face group format improved depressive symptoms in women who had early- and late-stage breast cancer. The peer intervention was also found to improve the participants' sense of purpose in life, which mediated the improvement in depressive symptoms[16].

3. Counseling Focused on Specific Topics That Are Difficult to Discuss with Others

Another peer counseling strategy focuses on specific topics that are difficult to discuss with others. For example, sexual dysfunction is one of the most difficult issues for cancer patients to discuss with others and can be a source of depressive symptoms. Several studies have evaluated sexuality, which relates to marital satisfaction, sexual function, intimacy with the spouse, masculine self-esteem, sexual needs, and sexual self-confidence[1,17–19].

In one RCT, Schover et al. evaluated a peer counseling program to improve sexual function in breast cancer survivors. Over 3 months, peer counselors received training that included lectures, reading, role-playing, research ethics, and discussion on spirituality in counseling with a chaplain. Intervention consisted of three sessions in which participants used a detailed workbook. Each session lasted 60-90 min, and was conducted at the participant's home, in a counseling room, or a convenient community setting. The program was found to improve knowledge of reproductive issues, emotional distress including depressive symptoms, menopause symptoms, and hot flashes[20].

4. Navigating the Use of Resources

Another type of peer support program involves peer navigators, where a peer plays the role of both facilitator and case manager. The peer navigator provides emotional support by active listening and helps patients locate community resources. Peer navigators are instructed to avoid giving medical advice, avoid communicating judgments on treatment protocols, and avoid imposing personal agendas. They learn about treatments and side effects from oncologists and/or oncology nurses who are available to answer medical questions. This program was evaluated in an RCT by Giese-Davis et al., and the results showed that while breast cancer-specific well-being and marital interaction improved after the program, there was no significant effect on depressive symptoms[21].

5. Promoting Health-Related Behaviors to Decrease Depressive Symptoms

Promoting health-related behaviors via PSIs is another approach to improving depressive symptoms. By promoting health-related behaviors, such as physical exercise and dietary habits, depressive symptoms in cancer patients may be alleviated[22,23].

Galvao et al. conducted an RCT to evaluate the effectiveness of a peer-led multimodal intervention targeting men with localized prostate cancer in order to increase their participation in exercise[24]. The intervention consisted of self-management materials and monthly group peer support meetings via teleconference led by two peer support volunteers over 6 months. Medical questions were addressed by a specialist nurse counselor who was available during the meetings. The results suggested that the intervention led to a short-term increase in exercise participation, but that it did not have any effect on overall improvements in depressive symptoms.

In another RCT, Yun et al. evaluated a health program consisting of physical activity, changes in dietary habits, and distress management in survivors of different types of cancer, and focused on the potential benefits of leadership and coaching[25]. While the intervention had no significant effect in promoting physical exercise or changing dietary habits in the participants, anxiety decreased and QOL increased. There was no significant effect on depressive symptoms[25].

Non-Face-to-Face Modalities

Peer support programs can be categorized by modality: one-on-one or group formats and face-to-face, via telephone, or via the internet[26]. Many PSIs are delivered using multiple modalities[8]. **Table 2** indicate the characteristics of the studies of non-face-to-face peer support interventions as below.

1. Telephone Interventions

Crane-Okada et al. conducted RCT to evaluate the effect of counseling by trained peers via telephone after breast surgery[27]. The results indicated that the intervention had no significant effect on depression or anxiety, but it had a significant effect on coping in older adults, which was mediated by seeking instrumental support.

In another RCT, Gotay et al. evaluted the effect of counseling by trained peers via telephone for managing severe distress due to a first breast cancer recurrence[28]. They found no significant difference in depressive symptoms. However, about 90% of the participants reported

Table 2 Characteristics of the studies of peer support interventions included in the review (non face to face intervention)

author	year	type of cancer	Intervention	training of peers	control	n	measurement of depressive symptoms	findings of depressive symptoms	other outcome	other findings
Crane-Okada[27]	2012	Women with newly diagnosed, scheduled for surgery for clinical stage 0–III breast cancer	Telephone counseling Psychosocial support was provided by telephone. After five scheduled weekly contacts, participants were allowed to continue or resume peer counselor contact at any time until study completion at 12 months.	All peer counselors completed 20 hours of professionally led training. Content included breast cancer diagnosis, treatment, and related symptoms	usual care	Intervention: n=103 control: n=33	HADS	not improved	Social support coping strategies in stressful life situations fear of recurrence and resource use	improved coping
Gotay[28]	2007	patients with stage I, II, or IIIa breast cancer, who experienced first recurrence after definitive surgical treatment	Telephone counseling Patients received four to eight counseling information sessions delivered by telephone at weekly intervals over a 1-month period, with one to two calls per week	All peer counselers were trained by the protocol included procedures for how to handle serious psychosocial disturbances that were detected during a telephone session.	usual care	Intervention: n=152 control: n=153	CES-D	not improved	Socialsupport, Emotional well-being, Optimism/pessimism, Surprisingness of the recurrence, Sense of coherence, Support services.	high rate of satisfaction in intervention group
Schover[29]	2011	patients at least 1 year postdiagnosis of breast cancer	Telephone counseling the workbook plus 30 minutes of telephone counseling on work book to be initiated by the participant.	All peer counselrers joined A 5-day training conference including didactic material and experiential learning in supervised role plays, and received detailed treatment manuals for the peer counsel- ing sessions and the telephone counseling condition.	the workbook plus 3 in-person sessions with a trained peer counselor	telephone counseled: n=146 peer counseled: n=151	BSI-18	improved	Spiritual Well Being relationship emotional distress female sexual function menopausal symptoms Childbearing distress	improved knowledge and sexual function decreased in distress, hot flashes in both telephone counseling and peer counseling Peer counseling had little incremental benefit over the telephone counseling
Salzer[33]	2010	women with stage I or II breast cancer	Web-based peer support group Unmoderated, unstructured Internet peer-to-peer support groups	Not reported	Internet-based education	Intervention: n=51 control: n=27	POMS	tend to worsenig	QOL, hope, self-efficacy, available support	high levels of satisfaction, despite no differences between groups on outcomes

Abbreviation: BSI; the Brief Symptom Inventory, CES-D: Center for Epidemiologic Studies Depression Scale, HADS; the Hospital Anxiety and Depression Scale

that they were satisfied with the intervention. About 20% of the participants wanted more sessions. These findings suggest that the participants perceived some benefit other than improvement in depressive symptoms.

Schover et al. compared the telephone-based format of the abovementioned peer counseling program with a face-to-face format to improve sexual function in breast cancer survivors. In the telephone-based format, the program was found to improve knowledge of reproductive issues[29]. However, in the same format, depressive symptoms worsened, while in the face-to-face format, depressive symptoms improved[29].

2. Web-Based Peer Support Group

The use of the Internet has been proposed as a way to disseminate information at low cost and to implement various intervention programs[30]. In addition, websites that enable individuals to remain anonymous might be preferred by cancer patients[31]. An online support group enables patients to discuss their personal information anonymously and to receive information, advice, and emotional support. However, a meta-analysis demonstrated that participants in online support groups, including a group that followed a program with both a professional group leader and a peer group leader, showed no significant improvement in depressive symptoms, anxiety, or QOL compared with control groups[32]. In an RCT, Salzer et al. evaluated the effects of an Internet peer support group that was unmoderated and unstructured. The participants in this group tended to deteriorate over time in terms of depressive symptoms and well-being[33]. There were no differences in the secondary outcomes of perceived social support, self-efficacy, or hope between this group and the control group. However, women in the Internet peer support group actively participated in the program and reported that they were highly satisfied with the program, suggesting that they perceived the intervention as beneficial. A meta-analysis suggested that non-face-to-face peer support interventions, such as those conducted via telephone or online, are less effective than face-to-face peer support interventions[34].

Concluding Remarks

In this paper, we reviewed the evidence of PSIs in treating depressive symptoms. As described above, several strategies use PSIs, but only a few have shown benefits in improving depressive symptoms to date. Interestingly, several RCTs have demonstrated the benefit of protective factors in the treatment of depressive symptoms, such as self-management skills[12,13], self efficacy[14], knowledge[20], and well-being[21]. In one meta-analysis, the effect of a peer-led dyadic intervention for cancer patients[34,35] demonstrated moderate improvement in self-efficacy and a small improvement in coping, which are both protective factors for depressive symptoms. Peer support may indirectly reduce or prevent depressive symptoms by increasing self-efficacy and coping, or may be able to prevent clinical distress such as depression and adjustment disorder in cancer patients.

In some situations, however, non-face-to-face PSIs, such as over the phone or via the Internet, can worsen depressive symptoms. In particular, PSIs without training for peers do not seem advisable. A few studies have demonstrated the usefulness of peer training programs[36], but they can be harmful if adequate training is not provided. In addition, peers themselves are cancer survivors, so peer training can have a considerable impact on them as well. It is essential to develop an appropriate training program for peers that includes support for themselves as well.

Several RCTs have reported higher satisfaction in individuals participating in PSIs even without any significant difference in outcomes measured, such as depression and anxiety[28,33]. There may be other benefits to PSIs that have not been assessed in previous studies. Further research is warranted to elucidate the effect of PSIs in cancer patients.

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