Overview of psychosocial issues in the adult cancer survivor

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INTRODUCTION By 2026, over 20 million cancer survivors will be alive in the United States alone [1]. As more research is completed with large cohorts that permit subgroup analyses and with longitudinal follow-up [2], there is an increasing recognition that psychological issues are primary concerns for cancer survivors post-treatment, although the magnitude of difference between survivors and healthy controls is not clear [3-6]. For example, cohort studies show that compared with subjects with no histories of cancer, cancer survivors report higher rates of anxiety consistently; while some show higher rates of depression, this has not been consistently demonstrated [7-9].

Other psychological concerns, such as fear of recurrence, are specific to cancer survivors, and population norms are not relevant [5]. A population-based health registry cohort study from Sweden demonstrates convincingly that mental health diagnoses and psychiatric medications prescribed for cancer survivors are elevated compared with the general population from a year before cancer diagnosis until 10 years after diagnosis for all diseases except nonmelanoma skin cancers, although rates do decline after treatment [10].

It is important to address these psychosocial issues not only to maintain quality of life, but also because these symptoms may impair health screening behaviors that are critical for survivors [11,12]. In addition, survivors who have clinical depression have a twofold risk of all-cause mortality [13]. Unfortunately, data suggest that we are not meeting these needs in cancer survivors as well as we should. For example, in a survey of hematopoietic cell transplantation survivors, 50 percent of those who reported feeling distressed said they had not received any treatment for their emotional needs [14].

This section reviews psychosocial issues in cancer survivors, which increasingly are recognized as extending beyond anxiety and depression. Although the term "cancer survivor" may refer to anyone alive after a cancer diagnosis, in this section, we address psychosocial issues in disease-free survivors who have completed treatment.

Other aspects of general survivorship care are discussed elsewhere in the program. (See "Overview of cancer survivorship care for primary care and oncology providers" and "Assuring quality of care for cancer survivors: The survivorship care plan" and "Overview of cancer survivorship in adolescent and young adults" and "The roles of diet, physical activity, and body weight in cancer survivors" and "Cognitive function after cancer and cancer treatment".)

ANXIETY Approximately 18 to 25 percent of long-term cancer survivors report anxiety [9,15-18]. Patients may present with a complex mixture of physical and psychological symptoms, making recognition of anxiety symptoms requiring treatment quite challenging. Such symptoms may be expressed as:

●Tension
●Restlessness
●Jitteriness
●Autonomic hyperactivity
●Hypervigilance to symptoms and events
●Insomnia
●Distractibility
●Shortness of breath
Emotional numbness
Apprehension
Worry

Although many of these symptoms might be viewed as normal reactions to the cancer diagnosis and treatment, symptoms that are of sufficient severity that they interfere with quality of life or the ability to perform routine activities of daily living warrant further evaluation and treatment. (See “Management of psychiatric disorders in patients with cancer”, section on ‘Anxiety’.)

Risk factors — Several studies have identified risk factors for anxiety among survivors. In one study, factors associated with a greater risk of anxiety included [15,19]:

- Younger age (odds ratio [OR] 2.7)
- Living alone (OR 1.8)
- A diagnosis of lung cancer (OR 2.3) or melanoma (OR 2.1)

Other reported factors associated with anxiety include:

- Avoidance (of feelings and thoughts related to cancer) [20]
- A previous history of mental health treatment [15]
- Female rather than male cancer survivors [17,21]
- Advanced disease and presence of physical symptoms [16,22,23]
- Shorter time since diagnosis [24]
- Higher number of comorbid conditions [24,25]
- Social isolation [26,27]

In addition, one study found that survivors who reported anxiety six months post-treatment were at higher risk of anxiety later on (ie, at 12 months) [17]. In a two-year prospective study of women with breast cancer, investigators found four trajectory types for anxiety: high stable, high decrease, mild decrease, and low decrease [28]. The first word of the description is where the women started at the assessment four weeks after surgery, and the second descriptor is where they ended up after two years. Implications of these different trajectories for predicting survivorship outcomes are unknown.

FEAR OF RECURRENCE The fear of recurrence (FOR) can be a dominant and highly prevalent symptom after cancer, for both patients and family caregivers [5]. It is thought to comprise emotional and cognitive aspects, each of which may be associated with different predictors [29,30]. Increased FOR occurs commonly in the days or weeks prior to regular surveillance visits, when survivors may experience more intrusive thoughts about cancer, irritability, and anxiety [31]. In a longitudinal study of FOR in breast cancer survivors, FOR increased before a mammogram, decreased after receiving negative results, and then increased again one month after the mammogram [32]. While no demographics predict the emotional aspects of FOR, race appears to predict the cognitive aspects of FOR, such that nonwhite survivors perceive that they have a lower likelihood of recurrence and less reported fear than is perceived by white survivors [29]. Of importance, it is not clear that FOR is distinct in its qualities from general tendencies to worry about health after cancer or how it is distinct from or related to post-traumatic stress symptoms, which also may include intrusive thoughts [29].

Almost 80 percent of respondents to a national survey of cancer survivors reported some level of FOR as a concern [5]. For early-stage breast cancer survivors, 29 percent had moderate to severe FOR [33]. In a large study of mixed cancer diagnoses, 67 percent had moderate FOR, and 18 percent had high levels of FOR [34]. In a sample of head and neck cancer survivors, 35 percent reported FOR [35]. A systematic review of testicular cancer survivors found about one-third had FOR [36]. While some degree of FOR may be considered normal, symptoms can be sufficiently severe to impede clinical care or quality of life. Examples of this include [37]:
Avoidance of health professionals and office visits
Hypervigilance to changes in sensations or the onset of new symptoms
Increased healthcare utilization, including higher numbers of outpatient and emergency room visits

**Risk factors** — Studies have identified potential risk factors associated with higher levels of FOR. These include:

- A later stage at diagnosis [38]
- Younger age (ie, age <60 years) [33,39-41]
- Prior diagnosis of recurrence [39]
- Being less educated [39]
- Lower levels of social support [33,40,41]
- Higher numbers of clinician visits (ie, >5 times in a year) [39]
- Self-identification as a cancer patient [39]
- For women, having children regardless of their ages [42]
- Female [41,43]
- Prior mental health issues including other anxiety disorders [44]

Additional risk factors include being diagnosed with skin, colon, or a hematologic cancer; pain; more physical symptoms; depression; and lower levels of social support [34].

**POST-TRAUMATIC STRESS** Post-traumatic stress (PTS) is underdiagnosed in cancer survivors. In part, this reflects the tendency of many with PTS symptoms to use avoidant coping, which serves to reduce anxiety and evidence of symptoms, as well as the recognition that symptoms may not reach the level of a post-traumatic stress disorder (PTSD). While PTS symptoms often do not rise to the level of a disorder in survivors, they may still disrupt quality of life and functioning. (See "Posttraumatic stress disorder in adults: Epidemiology, pathophysiology, clinical manifestations, course, assessment, and diagnosis").

The incidence of PTS and PTSD has not been well characterized. However, some data are available in specific populations:

- In one study of non-Hodgkin lymphoma survivors, 37 percent reported increasing or persisting symptoms of PTS with point-prevalence of 8 percent for PTSD [45].
- In a separate study of long-term breast cancer survivors, PTSD was diagnosed in 12 percent [46]. The prevalence of PTS symptoms was not reported.
- In another study of head and neck cancer survivors who were on average six years after their treatment, almost 12 percent met criteria for PTSD while 33 percent reported PTS symptoms [47].
- A meta-analysis found a rate of 5 to 7.3 percent for PTSD depending on the measure used [48]. When comparing cancer survivors with controls, cancer survivors have an increased risk of developing PTSD, with a general population rate of 2.4 percent (odds ratio 1.66) [49].

**Risk factors** — The risk factors for PTS symptoms may vary by population. Among adult survivors of childhood cancers in the United States, the presence of PTS symptoms was associated with [50]:

- Less education
- Single status
- Annual income below $20,000
Unemployment

Intensity of cancer treatment

Other studies have consistently shown that in adults, an increased risk of PTS is associated with [45,51]:

- Lower economic resources
- Poorer social support
- Nonwhite race
- Less education
- A more recent diagnosis
- More perceived negative impacts of cancer
- Younger age at diagnosis

**CANCER-RELATED DISTRESS** Cancer-related distress differs from anxiety because it is based on the consequences of living with heightened awareness of the uncertainties in life and does not generalize to anxiety in all aspects of life. It is more common in survivors than other psychological issues and comprises multiple components, including [52,53]:

- Fear of recurrence (see 'Fear of recurrence' above)
- Hypervigilance about new or persistent symptoms
- Concerns about family and finances
- Stress from managing health needs
- Changes in self perceptions and body image
- Increased awareness of vulnerability

This distress may not meet the diagnostic criteria for anxiety or depressive disorders. In addition, it often includes somatic symptoms at rates above those in the general population, such as difficulty with concentration, fatigue, and sleep.

Cancer-related distress has been reported in 36 percent after breast cancer [54], 43 percent after hematopoietic cell transplantation [55,56], and at elevated rates among survivors of many different diagnoses, including colorectal cancer survivors [8,57-59]. In poorer-prognosis diseases, the prevalence of distress can range from 35 percent for head and neck and liver cancers to 43 percent for lung cancer [60].

**Risk factors** — There is no consensus on what common risk factors predispose survivors to cancer-related distress. In part, this is because investigators measure different potential risk factors in varying populations at different points after treatment. Reported associations have been noted between cancer-related distress and the following:

- Persistent physical health problems (odds ratio 5.8) [61-63]
- Lingering physical signs, which also can negatively impact body image [62,64,65]
- Low levels of kindness and compassion towards oneself, with an increased tendency toward being self-critical [62,63]
- Nonwhite race [66,67]
- Lower access to support, whether it be educational, financial, or social [68]
- Financial concerns [69]
- Unmarried survivors and married survivors with low support [70]
- Multiple primary cancers [71]
**DEPRESSION** Depression is less of an issue in cancer survivors compared with anxiety, but its presence is detrimental to quality of life and is associated with a twofold increased risk for all-cause mortality in cancer survivors [13]. Larger studies and meta-analyses indicate that the prevalence of clinical depression is similar between cancer survivors and healthy controls (approximately 12 to 14 percent versus 10 percent, respectively) [9,15,17,72]. The presence of depressive symptoms appears to be influenced by culture, race, and ethnicity. As an example, in a study of Latina breast cancer survivors, 53 percent had elevated depressive symptoms [73]. Time does seem to moderate depressive symptoms, with those in the first two years after diagnosis being most vulnerable when compared with those 2 to 10 years or 10 years or longer after diagnosis [9]. By two years after diagnosis, depression rates in survivors generally match those seen in controls. (See "Management of psychiatric disorders in patients with cancer", section on ‘Depression’.)

**Risk factors** — Multiple factors are associated with an increased incidence of depression. These include:

- Earlier time from a cancer diagnosis, particularly within the first two years following the end of treatment [20]
- A prior history of depression (odds ratio [OR] 6.9) [15,17], including a prior history of mental health treatment
- A sedentary lifestyle (OR 3.5) [15,17,74]
- Active smoking history (OR 2.5) [15,17]
- Cognitive avoidance as a coping strategy (OR 1.8) [17,75]
- Less education [76]
- For women, a poor body image [77], especially if diagnosed at a younger age (ie, <45 years) [78]
- Greater perceived financial stress (OR 2.8) [79]
- Unemployment [80]
- A history of multiple primary cancers [81]
- Higher number of physical symptoms or lower perceived health status [19,82]
- Lower income (OR 1.50) [82,83]
- Difficulties in activities of daily living in age over 65 (OR 5.28) [83]
- Racial minority when age over 65 (OR 1.51) [83]
- Two or more comorbidities in age over 65 [83,84]
- Lack of receipt of a survivorship care plan [85]
- Rumination and fear of recurrence [86]
- Female, single [82]

Similar trajectories as elucidated in anxiety [19] have also been found for depression where there is a group with consistently high depressive symptoms, another group that starts with high symptoms but then decreases over time, and then another group with consistently low depressive symptoms [87].

**SEXUAL DYSFUNCTION** Sexual health is a multidimensional construct that goes beyond intercourse to include intimacy, body image, desire, arousal, orgasm, and satisfaction. A diagnosis of cancer and its subsequent treatment often have an impact on some aspect of sexual health in a significant proportion of cancer survivors. As an example, in the 2010 LIVESTRONG survey of over 3000 cancer survivors (63 and 37 percent were female and male survivors, respectively), 66 percent of survivors reported sexual functioning impairment as a physical concern, and 30 percent had sought care for this [88]. Sexual problems can increase with time, so it is critical to intervene as early as possible so that issues do not become entrenched [89].
Changes in sexual function are multifactorial and complicated by issues beyond cancer and its treatment [90,91], making the evaluation a challenge. For example, it is often difficult to isolate the etiology of symptoms as specifically related to cancer versus from patient-specific factors (eg, older age), medical comorbidities (eg, hypertension, diabetes, or medications), and premorbid sexual function (eg, a reduced frequency of sexual activity prior to the diagnosis and treatment of cancer). While the hormone deficiencies that may result from cancer treatment play a large role in the incidence of sexual concerns following treatment, they are not necessarily the only factors that predict the incidence or severity of sexual dysfunction. (See "Overview of male sexual dysfunction" and "Overview of sexual dysfunction in women: Epidemiology, risk factors, and evaluation").

Risk factors — There are multiple risk factors for sexual dysfunction in cancer survivors. Relevant risks that may be applicable for both men and women include [92-102]:

- Direct treatment to the genital organs (eg, surgery or radiation therapy that impacts the testes, penis, ovaries, vagina)
- Treatment with chemotherapy, although men appear to be less vulnerable than women since many men recover their hormonal milieu after treatment
- Permanent ostomy
- Older age
- Lack of a partner
- Poorer body image, which appears to differ by race and gender, with nonwhite survivors having a higher incidence of sexual dysfunction
- Graft-versus-host disease in hematopoietic cell transplantation survivors [103]

Guidance for addressing sexual issues in cancer survivors is available from the National Comprehensive Cancer Network [104] and from the American Society of Clinical Oncology [105,106]. These are addressed in detail elsewhere. (See "Overview of sexual dysfunction in male cancer survivors").

FERTILITY AND REPRODUCTION While male and female cancer survivors may become infertile after treatment with radiation therapy to the pelvis and/or with higher doses of chemotherapy, particularly with alkylating agents, they may continue to desire to become parents of their own biologic children. The psychosocial impacts of infertility are especially distressing and enduring in those without children. This was shown in one study that evaluated 10-year survivors of hematopoietic cell transplantation (HCT), which reported that survivors without children before their HCT had a greater than threefold higher risk of elevated concerns about infertility than their counterparts who had kids prior to transplant (odds ratio 3.4, 95% CI 1.93-11.30) [107].

The assessment of fertility potential in cancer survivors is challenging, particularly within the first two years of completing treatment, because gonadal function may be transiently impaired. Furthermore, even if restored after treatment, survivors may have fewer years of fertility than those not treated for cancer. The presence of functioning gonads does not reliably predict that fertility will continue. A broader overview of this topic is discussed in detail separately. (See "Overview of infertility and pregnancy outcome in cancer survivors").

Numerous options exist for having children, including use of surrogates if eggs or sperm were not stored prior to treatment. Adoption can be equally as expensive as other assisted reproduction options and difficult after a history of cancer. Thus, the importance and options for reproduction need to be carefully and individually examined for each survivor who wishes to have children.

SOCIAL ISSUES Cancer and its treatment can have a broad reach into the lives of cancer survivors and their caregivers and their social network (eg, friends, community, church). Specific issues that have been evaluated are discussed below.

Resuming employment — Returning to work can be difficult for many survivors as they are recovering from the physical and psychosocial issues related to cancer and its treatment [108]. This may be important because work provides not just financial benefits, but also meaning and social support [109,110]. Data suggest that most survivors are able to return to work; in one study of breast cancer survivors, 80 percent were able to resume employment [111]. In another
study of patients treated with hematopoietic cell transplantation (HCT), 36 and 60 percent returned to full-time work at one and five years, respectively [112]. Despite these findings, it has been suggested that women struggle more than men to return to work, and up to 50 percent of women are not likely to return to work [113,114].

Risk factors for an inability to resume employment — Numerous risk factors have been identified that reduce the likelihood of returning to work, including:

- Prior diagnosis of breast, gastrointestinal, or a female reproductive cancer [113]
- Older age [115]
- Lower income status [115,116]
- Lack of health insurance [110,117]
- Cognitive deficits [118]
- Lower educational attainment [119]
- Physical limitations [120]

Other barriers include psychological issues (depression, anxiety), fatigue, physical limitations (difficulties with range of motion that might make lifting difficult), and for women, menopausal symptoms [117,119,121-124]. Additional issues appear to be related to one's perception of cancer, such as the belief that cancer treatment would make it difficult to work, side effects like constipation, and perceiving more negative consequences of one's cancer [125]. Self-employed survivors also have a more difficult time returning to work [126].

Caregivers — Much of the research on the cancer experience for caregivers has focused on the first year postdiagnosis, and few data are available to describe the experience for caregivers over time [127-129]. A study of 99 HCT caregivers 3 to 26 years after treatment found that younger caregivers with more educational attainment reported lower quality of life [130]. Younger age was also related to more health and financial burden in colorectal caregivers [131]. The available data suggest that caregivers experience cancer-related distress, and that distress, anxiety, and depression are more often reported by female caregivers than males [132]. As discussed above, the caregivers of the head and neck survivors had similar prevalence of post-traumatic stress symptoms (33 percent) and post-traumatic stress disorder (25 percent) as the survivors [47]. (See 'Fear of recurrence' above.)

For successful caregiving, caregivers not only need to support the patient, but the caregiver also needs to feel some support from the patient [133,134]. Caregiving can also take a toll on the caregiver's health [135], and they can have their own unmet needs [136]. A study using the Medical Expenditure Panel Survey found that spouses of cancer survivors were less likely to receive treatment for depression compared with noncancer controls, and rural caregivers were especially at risk [137].

Communication and reciprocity, where both partners share their thoughts and feelings about the cancer experience, has been used as a tool to decrease distress and/or depression in patients and their caregivers [138]. However, in a longitudinal study of 64 couples where one partner was diagnosed with colorectal cancer, there was no association with either patient or partner disclosure and depressive symptoms [139].

Children — Children of parents who are cancer survivors undergo their own adjustments through the cancer process. There are an estimated 2.85 million minor-aged children with a parent who is a cancer survivor [140]. In a review of the psychosocial issues these children face, adolescent daughters were found to be the most negatively impacted [141], which might be related to feelings of uncertainty and isolation, both of which are common among this age group [142]. One study showed that among adolescent daughters of breast cancer survivors, those exhibiting greater anxiety had mothers who demonstrated greater anxiety in their relationship [143]. Unfortunately, most studies have employed a cross-sectional design, so little is known about how these children fare over the course of their lives.

OTHER PSYCHOSOCIAL ISSUES

Survivor guilt — Survivor guilt is described as the sense of having done something wrong or owing a debt that can never be fully paid as a result of having survived cancer, when others who are equally worthy have died. It is a complex
psychological condition that encompasses feelings of blame, grief, and loss. In one survey, more than 60 percent reported that they had problems with grief or identity [5]. In another study, breast cancer survivors who blamed themselves for their diagnosis also reported more mood disturbance [144]. However, this is not a consistent finding. For example, head and neck cancer survivors who blamed themselves for their cancer were more likely to make positive health changes in diet, physical activity, and smoking cessation [145], suggesting a positive pathway for taking responsibility that motivates behavior change. Similarly, survivors may use their guilt to motivate positive, giving-back participation in advocacy activities and post-traumatic growth. Survivor guilt has not been extensively studied but is an area of needed research within cancer survivorship.

**Post-traumatic growth** — Positive outcomes of the cancer experience can occur concurrently with negative ones, such as post-traumatic growth (PTG) or benefit-finding. This is defined as positive psychological changes that come about as a result of the cancer diagnosis and subsequent treatment journey. It is more likely to be reported by women, older adults, and those with better social support [8,146,147]. Spirituality has also been related to PTG [147,148]. While few would say they are "glad" they have cancer, as many as 83 percent can identify benefits that came from their journey such as making positive changes in their lives and having a greater appreciation of life [149]. PTG also can have positive impacts on interpersonal relationships and increased awareness of personal strength or resilience [8,150,151].

**ASSESSMENT** Although patients who have survived a life-threatening illness often experience anxiety [152], many patients may not directly express these symptoms to care providers or articulate their experiences. As a result, it is important that clinicians listen for key words that can signal underlying distress.

Routine screening of cancer-related distress, including clinical anxiety or depression and post-traumatic stress, should be carried out as part of the standard follow-up of survivors at least annually [153]. Multiple screening tools are available for anxiety, depression, and cancer-related distress, including fear of recurrence [154]. These include:

- Distress Thermometer [155]
- Hospital Anxiety and Depression Scale (HADS) [156,157]
- Patient Health Questionnaire-9 (PHQ-9) [158]
- Generalized Anxiety Disorder Screener (GAD-7) [159,160]
- Brief Symptom Inventory (BSI) [161]
- Impact of Cancer (IOC) [162]
- Cancer Worry Scale (CWS) [163-165]
- Cancer and Treatment Distress [52,53]
- Fear of Cancer Recurrence Inventory - Short Form [166]

There are no data to support an optimal screening approach, particularly in clinical practice, and a 2010 meta-analysis of these and other short screening tools suggested that many have similar accuracy [154]. However, these tools should not substitute for clinical assessment as their sensitivity and specificity have not been well examined in cancer survivors. Good history taking, clinical evaluation, along with physical examination and appropriate disease testing if mental status changes are acute are very important in the assessment of survivors [167]. This is particularly important for sensitive topics such as sexual function [168].

**INTERVENTIONS FOR PSYCHOSOCIAL ISSUES** Although interventions have been developed to assist cancer survivors with many of the psychosocial issues they face, most have been tested during the early diagnostic or treatment phase rather than in cancer survivors who have moved past therapy [20]. Those tested with survivors post-treatment either focus on physical activity or often have small sample sizes. Rarely has efficacy been established in multicenter, randomized control trials (RCTs) or replication studies. What follows are commonly used interventions with a summary of the evidence that suggests they might be of benefit.

**Psychoeducation** — Interventions for psychosocial issues may be as simple as providing information about what to expect during recovery and survivorship [169]. Many survivors' symptoms are in the mild to moderate range for
depression, anxiety, post-traumatic stress (PTS), or cognitive dysfunction. As a result, psychoeducational interventions that normalize experience, provide adaptive coping strategies, relieve worry, and include the opportunity for emotional expression may be sufficient to manage symptoms for a majority of survivors.

Psychoeducational and mindfulness-based treatments have also been utilized to address the sexual side effects of cancer [170,171]. In a study of 411 breast cancer survivors who were randomized to a six-week psychoeducational program or a control group that received a pamphlet, those in the intervention group reported better relationship adjustment and increased satisfaction with sex [172]. Female sexual dysfunction and menopausal symptoms of breast or gynecologic survivors improved with an online program, though mood and quality of life were unimproved [173]. However, despite clear evidence of success in improving sexuality outcomes for survivors, many barriers remain on the part of both patients and health care providers in accessing sexuality resources.

Helping people find the benefits in their cancer experience could be enough to promote their psychosocial health [174]. As examples:

- One group developed a workbook to reduce distress in breast cancer survivors, which was tested in 49 women with stage 0 to II breast cancer as part of a randomized trial [175]. Those randomized to the workbook reported less distress and depressive symptoms as well as reduced cognitive avoidance compared with those assigned to an information booklet. However, there was no change in body image scores. In a study of prostate cancer survivors and their partners, a telephone-based intervention was effective in reducing depression in both parties [176].

- Another group evaluated the impact of 16 phone-counseling sessions over the phone in over 300 early-stage breast cancer survivors who were randomly assigned to receive a resource directory for breast cancer with or without the counseling sessions, which took place over one year [177]. There were no differences between the groups on the endpoints of distress and depression, and both groups improved over time. However, those receiving the telephone counseling sessions had significant impacts, specifically in the areas of sexual dysfunction and personal growth. Among patients in whom a clinical referral was deemed necessary, the intervention group demonstrated a 50 percent reduction in distress and depression. By contrast, there were no changes among those assigned to the control group.

- An online study tested a six-week gratitude intervention with 67 early-stage breast cancer survivors who were on average four years post-surgery [178]. Once a week, participants were asked to write a letter for 10 minutes expressing their gratitude to someone in their life. Those who were randomized to the gratitude intervention reported reductions in fear of recurrence (FOR) compared with the control condition. This brief intervention had a medium sized effect of Cohen's d = 0.45.

- Another online study with 304 breast cancer survivors with body image distress issues involved a single session of a writing activity (My Changed Body [MyCB]) that focused on self-compassion. The control arm was an expressive writing control arm. Participants were assessed at one week, one month, and three months. Those in the MyCB arm reported more body appreciation after three months [179].

Cognitive behavioral treatment — Cognitive behavioral treatment (CBT) trains survivors to reframe experience to more positive interpretations, reduce maladaptive thoughts, and provides training in active coping and goal setting along with strategies for decreasing physiologic arousal such as relaxation, imagery, hypnosis, meditation, or yoga. A meta-analysis of RCTs of CBT for breast cancer survivors reported that CBT resulted in reduced rates of depression and anxiety [180]. Another meta-analysis found large effect sizes on anxiety and depression in breast cancer survivors [181]. In a randomized trial of prostate cancer survivors, those randomized to a form of CBT (CB stress management) showed greater improvements in emotional well-being compared with education delivered by a half-day seminar [182]. Similar results, with decreased distress and PTS symptoms, were demonstrated in a separate trial involving patients treated by telephone with hematopoietic cell transplantation (HCT) [183].

CBT may be particularly helpful for reducing fear of cancer recurrence:

- The benefit of a specific CBT intervention, ConquerFear [184], to reduce fear of cancer recurrence was demonstrated in an RCT [185] conducted in 222 survivors of melanoma, colorectal, or breast cancer who were disease free after completing adjuvant treatment two months to five years previously (not including adjuvant hormone therapy) and who had clinically elevated scores on the Fear of Cancer Recurrence Inventory [166]. Individuals were randomly assigned to
the intervention or an active control that included relaxation training. Both interventions were delivered by oncology-experienced and trained therapists in manualized, five 60- to 90-minute individual face-to-face sessions over 10 weeks. ConquerFear participants had greater improvement on the Fear of Cancer Recurrence Inventory total scores (the primary endpoint) immediately post-therapy, with results maintained through six months.

A similar degree of benefit was shown with a CBT intervention that included five face-to-face visits and a website in the smaller SWORD study, in which 88 cancer survivors with high scores for fear of recurrence were randomly assigned to receive blended CBT (including five face-to-face and three online sessions) or care as usual [186]. Participants who received the CBT intervention had significantly less FOR, with a moderate to large effect size, and higher levels of self-rated improvement.

**Multidimensional rehabilitation and return to work programs** — Rehabilitation programs with physical and psychosocial components seem particularly well suited to the multidimensional needs of survivors [187-189]. However, a Cochrane review of 15 rehabilitation RCTs for cancer survivors found six for inclusion in a meta-analysis, but with high levels of bias [190]. In reviewing the evidence, the reviewers concluded that:

- Rehabilitation programs demonstrate better outcomes for physical rather than emotional endpoints.
- Brief interventional programs (ie, <6 months in duration) focused on one aim at a time were more effective.
- Multidisciplinary interventions are better than usual care at improving return to work for cancer survivors.
- The authors recommend a hospital setting due to the multidisciplinary aspects of the interventions, but this setting may not be the most feasible option.

A separate meta-analysis tested the impact of psychological and medically targeted rehabilitation programs on work capacity of cancer survivors and reported that, in general, these programs had no impact on return-to-work rates [187]. However, more multidisciplinary interventions that encompassed physical, psychological, and vocational components resulted in higher return-to-work rates than usual care (odds ratio 1.9). Employers may need to be educated as well about cancer survivors in the workplace [191].

**Physical activity** — Physical activity is safe and improves distress and depression in cancer survivors along with enhancing numerous aspects of physical health, emotional well-being, body image, and overall quality of life. A more extensive review of this topic is covered separately. (See "The roles of diet, physical activity, and body weight in cancer survivors").

**Mind-body interactions** — Activities such as yoga and qi-gong have been the subject of evaluation and consistently show that they can improve quality of life. As an example, a meta-analysis of randomized trials evaluating yoga reported that it can have a positive impact on distress, anxiety, and depression [192,193]. In a separate study with prostate cancer survivors, qi-gong was associated with reductions in the level of fatigue distress [194]. These kinds of interventions have also been found to reduce FOR in a meta-analysis [195].

**Intimacy-enhancing treatment** — Intimate relationships can be negatively impacted by cancer and its treatments, and couples-based interventions can enhance relationships and sexual function. In a study of early-stage prostate cancer, 71 couples were randomly assigned to five sessions of intimacy-enhancing treatment (IET) or usual care [196]. IET consists of communication training and encourages couples to share their thoughts and feelings about cancer to promote emotional intimacy. Those with lower marital satisfaction, higher distress, lower intimacy, and poorer communication at baseline reported improved functioning after treatment. A pilot study among HCT survivors to test the feasibility of a sexual health intervention, consisting of an assessment, education and empowerment, and a description of potential treatments, found reductions in sexual problems and fewer patients reporting a lack of sexual activity [197]. These interventions can be as short as one-half of a day and still result in improvements in sexual health [198]. While there are interventions that show promise in improving sexual function in cancer survivors, research is needed to consolidate implications of the wide variability in the intervention content, delivery, and dose [199].

**Novel methods for outreach** — Phone, videoconference, and internet methods are particularly suitable to provide support for cancer survivors because they can provide access to those with distance barriers to care. Phone methods have been most widely used and are found to be helpful in delivering psychosocial services [177,183,200-205]. The potential
for online programs, mobile applications, social media, and texting to meet survivorship needs is under evaluation and shows promise [173,206-217].

SUMMARY AND RECOMMENDATIONS

● As more research is completed, there is an increasing recognition that psychological issues are primary concerns for cancer survivors post-treatment. (See 'Introduction' above.)

● Approximately 18 to 20 percent of long-term cancer survivors report anxiety, which may present with a complex mixture of physical and psychological symptoms. This can make the recognition of anxiety symptoms by clinicians quite challenging. (See 'Anxiety' above.)

● Increased fear of recurrence (FOR) occurs commonly in the days or weeks prior to regular surveillance visits, when survivors may experience more intrusive thoughts about cancer, irritability, and anxiety. While no demographics predict the emotional aspects of FOR, race appears to predict the cognitive aspects of FOR, such that nonwhite survivors perceive that they have a lower likelihood of recurrence and less reported fear than is perceived by white survivors. (See 'Fear of recurrence' above.)

● Post-traumatic stress (PTS) is underdiagnosed in cancer survivors. In part, this reflects the tendency of many with PTS symptoms to use avoidant coping, which serves to reduce anxiety and evidence of symptoms, as well as the recognition that symptoms may not reach the level of a post-traumatic stress disorder. While PTS symptoms often do not rise to the level of a disorder in survivors, they may still disrupt quality of life and functioning. (See 'Post-traumatic stress' above.)

● Cancer-related distress differs from anxiety because it is based on the consequences of living with heightened awareness of the uncertainties in life and does not generalize to anxiety in all aspects of life. It is more common in survivors than other psychological issues. (See 'Cancer-related distress' above.)

● Depression is less of an issue in cancer survivors compared with anxiety, but its presence is detrimental to quality of life and is associated with a twofold increased risk for all-cause mortality in cancer survivors. (See 'Depression' above.)

● Sexual health is a multidimensional construct that goes beyond intercourse to include intimacy, body image, desire, arousal, orgasm, and satisfaction. A diagnosis of cancer and its subsequent treatment often have an impact on some aspect of sexual health in a significant proportion of cancer survivors. (See 'Sexual dysfunction' above.)

● While male and female cancer survivors may become infertile after cancer treatment, they may continue to desire to become parents of their own biologic children. It should be recognized that the psychosocial impacts of infertility can be significant, particularly for those survivors without children. (See 'Fertility and reproduction' above.)

● Cancer and its treatment can have a broad reach into the lives of cancer survivors and their caregivers and their social network (eg, friends, community, church). These include issues related to employment and issues specific to their families. (See 'Social issues' above.)

● Routine screening of cancer-related distress, including clinical anxiety or depression and PTS, should be carried out as part of the standard follow-up of survivors at least annually. (See 'Assessment' above.)

● There is a growing body of literature on interventions for patients who experience psychosocial issues related to cancer and its treatment. Recognition of symptoms and prompt referral for therapy are essential. (See 'Interventions for psychosocial issues' above.)

REFERENCES


