

Review

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Benefits of psychosocial oncology care: Improved quality of life and medical cost offset

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Abstract

The burden of cancer in the worldwide context continues to grow, with an increasing number of new cases and deaths each year. A significant proportion of cancer patients at all stages of the disease trajectory will suffer social, emotional and psychological distress as a result of cancer diagnosis and treatment. Psychosocial interventions have proven efficacious for helping patients and families confront the many issues that arise during this difficult time. This paper reviews the literature detailing the extent of distress in patients, the staffing needed to treat such levels of distress, and the efficacy of psychosocial treatments for cancer patients. This is followed by a summary of the literature on medical cost offset in mental health, other medical populations, and in cancer patients, which supports the notion that psychosocial interventions are not only effective, but also economical. Conclusions support taking a whole-person approach, as advocated by a growing number of health care professionals, which would not only help to treat the emotional and social aspects of living with cancer, but also provide considerable long-term cost savings to overburdened health-care systems.

Introduction

The worldwide burden of cancer is significant, and growing. In the year 2000, worldwide, there were well over ten million people newly diagnosed with cancer (excluding melanoma). Additionally, over six million people died from the disease in that year alone [1]. Although most psychosocial oncology research stems from developed countries, there is clearly a need to consider the impact of psychosocial care on patients in less developed countries, as the argument will be forwarded in this paper that psychosocial care not only improves quality of life, but can decrease the overall burden of cost to the health care system. This is clearly an important goal in health care management in both developed and developing countries.

We will first consider the psychosocial impact of a cancer diagnosis and subsequent treatment, followed by consideration of what appropriate treatment of this level of patient burden might mean in terms of professional staffing needs. This will be followed by a review of the literature detailing the efficacy of psychosocial treatments for cancer patients, and a summary of the literature on medical cost offset, supporting the notion that psychosocial interventions are not only effective, but also economical.

Distress levels

Many studies have looked at distress levels and Quality of Life (QL) in cancer patients. Quality of life encompasses a broad spectrum of issues in cancer care, including physical, social, cognitive, spiritual, emotional and role func-

tioning as well as psychological symptomatology, pain and other common physical symptoms. Emotional distress refers to problems such as anxiety, depression and fears around the cancer experience. It is well documented that emotional distress is very common in cancer patients. Research has repeatedly revealed a high prevalence of psychiatric illness in a variety of populations of cancer patients, which has been reviewed in several publications [2–5]. In one of the earliest and most widely-cited studies by Derogatis and colleagues, the point prevalence of DSM-III diagnoses were assessed, and over one third of a randomly selected sample of cancer patients from three cancer programs met diagnostic criteria for Adjustment Disorder with Depressed or Anxious Mood, and an additional 7% were diagnosed with a current Major Depressive Disorder [6]. Overall, 47% of the patients were diagnosed with a DSM-III Axis I disorder [6]. Reported rates of depression in patients with cancer ranged widely from 1% to 53%, depending on the population of patients and the diagnostic criteria used [7]. Reviews conclude that the most commonly reported point prevalence rates of major depression are in the 20 to 25% range, increasing with higher levels of physical disability, advanced illness, and pain [2]. Adjustment disorder is also very common [3], with an average point prevalence across studies of about 25 to 30% [2]. A recent large-scale study targeting all patients visiting a large Canadian tertiary cancer centre assessed over 3,000 cancer patients, and found that 37% met criteria for significant distress on the Brief Symptom Inventory [8].

Several studies have honed in on the effects of specific disease and patient characteristics. A study of 386 patients from 12 American cancer centers found that the prevalence of psychological distress did not vary significantly across the disease continuum, with the exception of the terminal phase, which was characterized by more QL problems [9]. Overall, significant levels of distress were identified in 35% of the patients. Another study of 508 Turkish cancer patients found no association between QL and disease duration, but did find that those diagnosed at a later disease stage had lower QL than those with earlier stage diagnoses [10]. A large study of 4496 patients found an overall prevalence rate of significant distress of 35.1%, with the greatest distress in lung cancer patients (43.4%), followed by brain, Hodgkin's disease, pancreas, lymphoma, liver, head and neck, breast, leukemia, melanoma, colon, prostate and finally gynecological (29.6%) cancers [11]. These results suggested a pattern of higher distress in diseases with a poorer prognosis and greater patient burden. This was confirmed in a study of newly diagnosed head and neck patients which found more advanced stages were related to higher distress levels [12]. In another study, younger women with breast cancer (those who were pre-menopausal) reported lower QL than older

women following cancer treatment [13]. These studies have identified groups of patients at higher risk for distress, namely, those with later stage disease, poorer prognosis, greater disease burden, and perhaps, younger age.

The question often follows as to how the preceding numbers might translate into staffing needs for psychosocial oncology programs. In general, psychiatrists will play a role in the treatment of major depression, which responds well to medication, while psychologists are well trained to treat adjustment disorders. General distress can be treated by any of the professional groups often involved in psychosocial care, namely social workers, advanced oncology nurses, psychologists and psychiatrists, depending on the specific nature of the distress. Some problems are specific to treatment from social workers, including financial/insurance, disability, employment and other practical concerns. American studies have documented significant out of pocket expenses in patients undergoing therapy: one study reported a range of expenses associated with chemotherapy, up to \$3,130 [14]. Another reported the average out of pocket expenses associated with breast cancer at \$360/month [15]. Over 60% patients with health insurance reported paying for some aspect of their medical care [16].

Based on this research, it would be expected that approximately 20% of cancer patients will need to see a psychiatrist for major depression/anxiety at some point during their cancer experience, and will also likely benefit from seeing another professional for supportive counselling, perhaps advanced practice nursing, although this could be provided by psychology or social work as well. An additional 15% will need the services of a psychologist for treating distress, and some 25% will also require the services of social workers to deal with financial and practical issues.

Several large psycho-oncology programs have responded to the growing awareness of high distress levels in many cancer patients by establishing routine psychosocial screening programs. One of the best known distress screening programs that has worked to integrate screening and psychosocial clinical practice has been undertaken at Johns Hopkins, by Zabora and colleagues [11,17–19]. In this model, all new patients are targeted around the time of initial diagnosis and treatment and screened for distress and common problems upon entry to the system. The purpose is to identify those patients who experience significant distress early in the treatment trajectory in order to treat them proactively, and hopefully avoid future psychosocial problems. The information is acted upon by personally contacting patients over certain cut-off levels of distress, and those who indicate certain social problems. The information is also quickly charted so that other

health professionals are aware of the patients' distress levels. Groups at Memorial Sloan Kettering Cancer Centre [20], Leeds (UK) [21], Australia [22,22], and Canada [23] have also undertaken similar distress screening programs, often using computerized technology.

Psychological and QL benefits of psychosocial care

There has been a growing proliferation of studies of different types of interventions designed to help people cope with cancer; from the time of initial biopsy, through diagnosis, treatment, adjustment post-treatment, metastatic disease or recurrence, through palliation and death. Outcomes generally assessed include: psychological functioning, primarily anxiety and depression, and overall quality of life. These interventions have been thoroughly reviewed several times over the past decade, and the curious reader would best be directed to one or more of these reviews for details [24–38]. Although most reviews have concluded that psychosocial interventions are often efficacious in decreasing distress and improving QL, a more recent and thorough review using rigorous methodological criteria concluded that no strong recommendations and relatively few tentative recommendations could be made about the effectiveness of psychosocial interventions for cancer patients [39]. The authors went on to make several concrete methodological suggestions for how future psychosocial oncology trials could be improved.

Interventions themselves usually assume one of four common forms: psychoeducation, cognitive-behavioral training (group or individual), group supportive therapy, or individual supportive therapy. As well, they are usually targeted to one of three points on the illness trajectory: diagnosis/pre-treatment, immediately post-treatment or during extended treatment (such as radiotherapy or chemotherapy), and disseminated disease or death [38]. Certain modalities of treatment have been shown to be more efficacious at one or more of these time periods. For example, psychoeducation may be most effective during the diagnosis/pre-treatment time period, when patient information needs are high. However, for later stage adjustment with more advanced disease, group support may be more effective [36], while cognitive-behavior techniques such as relaxation, stress management and cognitive coping may be most useful during extended treatments [32,40]. In fact, relaxation and imagery have been shown to be useful in controlling nausea and vomiting associated with chemotherapy treatment in several early studies, particularly by Burish and colleagues [27], and can also help patients decrease pain medication use [41]. Cunningham has identified a hierarchy of different types of therapy, based on increasingly active participation by the recipient. These five types are: providing information, emotional support, behavioral training in coping

skills, psychotherapy, and finally spiritual/existential therapy [26]. All of these five levels of therapy are supported by research demonstrating their efficacy, although the bulk of the research is in the area of supportive and cognitive-behavioral interventions.

Breast cancer patients have historically been the most common patient group studied (e.g. [42–44]), although there is now ample research in other populations and mixed groups demonstrating therapeutic efficacy to confidently generalize outcomes beyond breast cancer. Some authors have repeatedly suggested that the evidence of the efficacy of psychosocial therapy is strong enough that it should be considered on the same footing as adjunctive medical therapies such as chemotherapy [37], particularly using brief, professionally led support groups with cognitive-behavioral training in active coping strategies. Cunningham suggests a model wherein every cancer patient receives at least minimal group adjunctive therapy as a routine part of cancer treatment. Some have suggested that the evidence is so compelling that there is no need to further test this proposition [28]. In their meta-analysis of 45 randomized controlled trials in the area (14 in breast cancer, the remainder with other cancers or mixed groups), Meyer and Mark (1995)[28] found effect sizes on measures of emotional adjustment, functional adjustment, treatment and disease related symptoms, and global quality of life in the same range as psychotherapy in general, on par with other psychological interventions that are known to work. In percentage terms, the differential success rates for participants in intervention versus control conditions were 56% versus 44% for measures of emotional adjustment, and similar for the other outcomes. These effects are considered to be clinically significant for patients.

Many reviews have focussed on the efficacy of group interventions, [26,30,32,33,36,45,46], and it seems to be more the trend to offer group, rather than individual, therapy. Group therapies have repeatedly been shown to be as effective, if not more effective, than individual treatment. Given the reduced cost of group therapies, and the greater number of patients who can be treated using this modality, it is not surprising that many researchers identify group therapy as the preferred route for treating distress in cancer patients. Several specific group therapy interventions have been standardized and proven efficacious using randomized controlled trials, for example, supportive expressive therapy for metastatic [47] and early stage [48] breast cancer, mindfulness-meditation based stress reduction for patients with many different types of cancer [49,50], and standardized group psychoeducation for patients with any kind of cancer diagnoses [51–53].

To summarize, interventions to treat distress and improve quality of life in cancer patients are widely available, highly effective, and standardized. Given the bulk of literature available detailing the efficacy of various types of interventions for patients at all points of the illness trajectory, it would seem ill considered *not* to provide these services to cancer patients.

Intervention Guidelines

Several agencies, both American and International, have developed guidelines for psychosocial care, based upon the intervention literature reviewed above. For example the National Comprehensive Cancer Network (NCCN) guidelines for the treatment of nausea and vomiting include self-hypnosis, progressive muscle relaxation, biofeedback, guided imagery, and systematic desensitization http://www.nccn.org/physician_gls/index.html. The Canadian Association of Psychosocial Oncology has published a book of Standards which details principles of practice, professional issues, and organization and structure of psychosocial oncology programs [54]. These have been endorsed by the Canadian Association of Provincial Cancer Agencies, the Canadian Cancer Society, the Canadian Strategy for Cancer Control, and the Canadian Council on Health Services Accreditation. NCCN (http://www.nccn.org/physician_gls/index.html) and the American Society of Clinical Oncology (ASCO) also have guidelines regarding the treatment of physical symptoms such as pain and fatigue http://www.asco.org/ac/1.1003_12-002130.00.asp. Effective management of a wide variety of these types of physical symptoms contributes greatly to improving QL and ultimately decreasing psychosocial distress.

Unfortunately, the state of the science in terms of identifying psychosocial problems and developing practice guidelines has outpaced the capacity of the health care system to deliver services as optimally recommended. Psychosocial oncology departments continue to be understaffed and underfunded, while primary care staff are also overburdened and often overlook psychosocial issues. The result is that the proportion of patients who receive optimal psychosocial care is far from uniform. The health care system faces significant delivery challenges in the future and may have to consider alternative psychosocial delivery models, such as larger group psychoeducation and computerized distress screening, as mentioned briefly above.

Medical cost offset of psychosocial care

General Mental Distress

There has been a long history of documentation of the fiscal benefits of psychological interventions for both mental health and physical health problems. Several different metrics, or costing concepts, have been applied to this en-

deavor, including cost-benefit, cost-effectiveness, and cost-utility analyses (see [55] for a review). Here we limit the focus to medical cost offset, which refers to the reduction of usual costs to the overall health care system as a direct result of psychological intervention.

There is no question that mental health problems in general cost the medical system a great deal. A 1993 report estimated the cost of depression alone in the USA at \$44 billion per year [56]. Several seminal studies over the last 20 years have reported that patients with significant mood disturbance have increased rates of utilization of primary care medical services [57–60]. The same pattern of increased health care utilization has also been reported for conditions of milder depression and dysthymia [61,62]. Ninety-five percent of people who are suffering from a mental disorder seek treatment from a family physician [63]. These consumers are normally multi-users of care [64], which can comprise as much as 70 percent of physicians' case loads and raise costs up to 250% [65]. While 10–20% of patients presenting in a primary care setting have a diagnosable psychiatric disorder, upwards of 80% have evidence of significant psychological distress [66]. The physical discomfort resulting from psychological distress (such as headaches, sleep disturbance, and gastrointestinal symptoms) is one of the more common reasons people seek medical care. A 20-year study by Kaiser Permanente, a large Health Maintenance Organization (HMO) in the USA, found that 60% of all medical visits were by the "worried well" with no diagnosable disorder [67]. A 1983 study of 20,000 participants indicated that patients' untreated mental illness resulted in increased medical utilization of 61%, versus an overall increase of only 9% for those without untreated mental illness over the same time period [65].

Not surprisingly, much of the research in the area of cost offset has been conducted by Health Maintenance Organizations and Managed Care Companies in the USA. These studies of many different populations have consistently found significant medical cost offset associated with treatment of psychological problems. For example, the Group Health Association found that patients in Kansas City receiving mental health interventions decreased their non-psychiatric usage by 30.7%. Their lab and x-ray costs also decreased by 29.8% [65]. A Utah company saved \$5.78 for every dollar spent on mental health care with its weekly claims dropping 64% and with medical and surgical costs decreasing by 48.9% [63]. A Kaiser Permanente study indicated that patients who participated in psychotherapeutic interventions decreased their average length of hospital stay by 77.9%, had a 66.7% decrease in hospitalization frequency, a 47.1% decrease in physician office visits, a 45.3% decrease in emergency room visits, and a 4% decrease in the number of prescriptions received [66]. In a

sample of 8100 participants, patients receiving psychotherapy for acute conditions decreased their medical utilization rate by 7.2 percent while patients with similar conditions who were not recipients of psychotherapy increased their utilization by 9.5% [65]. Patients suffering from primarily mood or anxiety disorders randomly assigned to 8 sessions of interpersonal psychotherapy used significantly fewer resources than a matched control group, with the extra cost of the psychotherapy sessions recouped within six months [68]. A Hawaiian study of high utilizers of care (approximately 80% of medical costs are generally accounted for by 20% of high-utilizing patients) randomly assigned patients to a special focussed mental health treatment that emphasized rapid alleviation of distress, or usual care. Over an 18-month period, the difference in medical costs between the two groups was 44%, with costs of the intervention offset within six months [69]. Other studies demonstrate that psychological interventions can decrease costs from 18–31% [63], and, tellingly, a meta-analysis of 58 early controlled studies of brief psychotherapy found decreases in healthcare utilization of 10–33% in 85% of the studies [70].

General Medical Illness

Health care seeking in patients with identified medical illness is a complex behavior that is influenced by psychosocial factors such as individual attitudes, perceptions, cultural norms and levels of psychosocial distress. Health seeking behavior as measured by health care utilization was correlated with levels of depression in patients with inflammatory bowel disease [71] and chronic pain [72]. An important psychological component has been identified in the management of many medical conditions, including heart disease, arthritis, diabetes and asthma.

Although many of the studies cited in the above section included populations who had chronic or acute diseases, they were focussed more generally on overall caseloads (in the case of managed care companies), or patients who were identified by high levels of distress or psychological morbidity. Studies aimed at reducing costs using psychosocial interventions have also targeted patients presenting primarily with physical illness. A comprehensive meta-analysis of 91 medical cost offset studies in medical populations published between 1967 and 1997 concluded that 90% of the studies reported some degree of decreased medical utilization following psychological intervention [73]. The estimated savings were \$1,759 USD per person over all of these studies. The most effective interventions used behavioral medicine techniques (such as psychoeducation and coping skills) in surgical inpatient samples, such as patients undergoing heart surgery, hysterectomy, or hip fracture surgery. However, cost offset was also seen in outpatients, high medical utilizers, and mental health

patients. Average savings resulting from psychological interventions were estimated at 20%.

A specific self-management program for arthritis sufferers found that participants reported a 19% reduction in pain, and a 43% decrease in physician visits. This translates to possible savings of \$33.1 million USD, if only one percent of all arthritis sufferers participated in the program [74]. One six-month randomized, controlled trial of 952 patients with heart disease, lung disease, stroke, or arthritis using the same Self-Management Program found that treatment subjects, when compared with control subjects, demonstrated improvements at 6 months in weekly minutes of exercise, frequency of cognitive symptom management, communication with physicians, self-reported health, health distress, fatigue, disability, and social/role activities limitations. They also had fewer hospitalizations and days in the hospital [75]. Similarly, in a chronic pain population health care utilization dropped significantly following participation in a multidisciplinary pain program, particularly in older patients [76]. Another chronic pain program found a decrease in clinic visits of 36% following the intervention, representing savings of \$320 per patient over the costs of the program [77]. A compelling study of people with heart disease randomized patients into one of three conditions: usual care, aerobic exercise 3 × /week, or stress management. After 2–5 years, the incidence of further heart attacks, bypass surgery or angioplasty was 30% in usual care, 21% in exercise, and only 10% in the stress management group. This represented a 7:1 return on the cost of the stress management program in terms of costs saved [78]. A meta-analysis of randomized control trials of the addition of psychosocial treatment for coronary artery disease rehabilitation found reduced risk of mortality and recurrence of 70–84% over the first two years in patients randomized to psychosocial treatments, particularly behavioral management [79]. The cumulative evidence of these and other studies paint an irrefutable picture of the fiscal benefits and reduced burden to the health care system resultant from the routine provision of comprehensive psychosocial care for medical patients.

Cancer

Very little research has been conducted to investigate the effects of psychosocial interventions on health care utilization specifically in cancer care. However, one recent Canadian paper reported a prospective, randomized study in which early stage breast cancer patients were randomly assigned to either a treatment or control condition [80]. The treatment group participated in 6 weekly cognitive-behavioral psychosocial meetings while the control group received usual care and the self-study materials from the intervention. All women were assessed on psychiatric symptoms, mood, depression and coping strategies at

four time periods: pre-intervention, post-intervention, 1-year follow-up and 2-year follow-up. Alberta Health Care billing records were obtained covering a 2-year follow-up period to determine the amount billed per person over the course of the study in this universal one-payer system. Women who participated in the treatment group had less depression, less overall mood disturbance, better overall quality of life and fewer psychiatric symptoms beginning immediately post-intervention and at 2-years post-intervention compared to the control group. They also billed an average of \$221 less than the women in the control condition, a 23.5% reduction in billing costs. The total amount saved in the treatment group of 28 women compared to the control group was \$6199 over the course of the study. Billing over the two years was positively correlated with distress levels immediately post-intervention. The number of visits to the cancer centre were equivalent over the follow-up period.

These results were particularly significant because the participants in this program were not experiencing significantly elevated levels of distress prior to their participation. Experience would suggest that if highly distressed patients were targeted (those who tend to be the highest utilizers of care), savings would likely be maximized. Indeed, when a median split was conducted on the billing data and the upper half of the treatment group was compared to the upper half of the control group, the average amount billed was \$1079 in the treatment group, compared to \$1546 in the control condition, a mean difference of \$467 per person, more than twice that of the average savings. The cost of providing this intervention was minimal, with 9 direct hours of patient contact per group (up to 10 patients), plus indirect time of approximately 30 minutes per patient. The cost for this time varies amongst professional groups, but using a value of \$100/hour results in a per patient cost of \$150 for the entire program (1.5 hrs/patient). Given that participants in the treatment group billed, on average, \$221 dollars less than the control patients, this represents over \$70 in cost saving per patient (\$317 savings per patient on average for the top half of utilizers). This saving would be magnified if the intervention were provided, for example, by oncology social workers or psychologists instead of psychiatrists, and perhaps if the groups were targeted to more severely distressed women.

One other Canadian study investigated 913 cancer patients who had been treated for cancer within the past two years, two-thirds of whom were women [81]. Sixty-four percent of the women had breast cancer, and 40% of the men had prostate cancer. In those who reported mild, moderate or severe fatigue, the authors found increased health care utilization in terms of more visits to general practitioners, community or public health nurses, phar-

macists, hospital emergency departments and walk-in clinics. Although no monetary cost was calculated in this study, clearly the untreated symptom of fatigue, which has psychosocial components, cost the system significantly in terms of increased healthcare utilization.

An intriguing recently published study randomly assigned men with prostate cancer to an experimental intervention group based on expressive emotional disclosure, or a treatment as usual control group [82]. The men in the treatment group underwent a task of written emotional disclosure about their cancer experience, following the Pennebaker paradigm which has shown beneficial psychological and physical health effects in healthy volunteers [83,84]. Health care utilization was measured by questionnaire and assessed medical contacts as well as use of medicines and health-related behaviors. The men in the treatment group showed improvements in the domains of physical symptoms, particularly pain, and had decreased health care utilization. Health care contacts decreased from 10 to 4.4 in the treatment group, while remaining stable at about 8 for the control group over a 6-month follow-up post-intervention [82]. No cost estimates associated with these changes were calculated.

Despite these few promising studies, there is clearly a dearth of research investigating medical cost offset in cancer populations. With the growing dominance of the managed health care model in the USA, the increasingly tight funding of health care in Canada, and the recent push for privatization in many other countries, it is clearly necessary for psychosocial oncologists to begin to evaluate their interventions not only in terms of efficacy of symptom reduction, but in economic terms as well. It is likely that the results seen in other medical populations will generalize to cancer, but the research to conclusively demonstrate this likelihood needs to be conducted.

Specific paradigms for studying medical cost offset in cancer research should evaluate not only health care utilization such as visits to medical professionals, but also assess the actual monetary costs of such professional services, including all costs to the overall system. Rather than relying on self-reported utilization, records from insurance companies and other payers should be accessed. For example, there may be costs offset from other social services, in addition to medical costs. A patient with untreated distress may be unable to work and thus drawing workers' compensation or long-term disability insurance. In a one-payer system such as Canada or many European countries where the capital for these costs comes from the same pool of taxpayer funds as medical service, these additional societal costs could also conceivably be attenuated by timely treatment of cancer-related symptoms and distress. Other paradigms of cost-benefit and cost-utility analysis

that take into account QL states and both direct and indirect societal costs [55] are also useful models to apply to the psychosocial treatment of cancer patients.

Conclusions

The research summarized in this paper clearly demonstrates that psychosocial and emotional distress is a significant problem for one-third to one-half of all cancer patients, and that psychosocial interventions are helpful in alleviating distress levels in patients, and may even benefit medical outcomes. Research in mental illness and within other medical populations clearly shows large savings in medical billing through the treatment of emotional problems, including anxiety and depression, resulting in fewer visits to GPs and specialists alike. Although there is very little research in psychosocial oncology to date, studies seem to support the general findings in other groups of fewer visits to primary care physicians after receiving efficacious psychosocial treatment. Clearly, the time has arrived to promote a compassionate model for treating patients' physical and emotional needs as a vital part of our health care systems.

Authors Contributions

LC researched and wrote the body of the review and revisions. BB conceptualized the issues and framework, and both designed the review. Both authors read and approved the final manuscript.

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References

1. Ferlay J, Bray F, Pisani P and Parkin DM **GLOBOCAN 2000: Cancer Incidence, Mortality and Prevalence Worldwide, Version 1.0** Lyon, France: IARC Press 2002.
2. Sellick SM and Crooks DL **Depression and cancer: An appraisal of the literature for prevalence, detection, and practice guideline development for psychological interventions** *Psycho-Oncology* 1999, **8**:315-333
3. Massie MJ and Popkin MK **Depressive Disorders** In *Psycho-oncology* (Edited by: New York: Oxford University Press) Holland J 1998, 518-540
4. Noyes R, Holt CS and Massie MJ **Anxiety Disorders** In *Psycho-oncology* (Edited by: Holland JF) New York: Oxford University Press 1998, 548-563
5. Strain JJ **Adjustment Disorders** In *Psycho-oncology* (Edited by: Holland JF) New York: Oxford University Press 1998, 509-517
6. Derogatis LR, Morrow GR and Fetting J **The prevalence of psychiatric disorders among cancer patients** *JAMA* 1983, **249**:751-757
7. DeFlorio M and Masie MJ **Review of depression in cancer: gender differences** *Depression* 1995, **3**:66-80
8. Carlson LE, Bultz BD, Angen M, Cullum J, Goodey E and Koopmans J **High Levels of Untreated Distress in Cancer Patients** 2003.
9. Zabora JR, Blanchard CG, Smith ED, Roberts CS, Glajchen M and Sharp JW **Prevalence of psychological distress among cancer patients across the disease continuum** *Journal of Psychosocial Oncology* 1997, **15**:73-87
10. Isikhan V, Guner P, Komurcu S, Ozet A, Arpacı F and Ozturk B **The relationship between disease features and quality of life in patients with cancer-I** *Cancer Nurs* 2001, **24**:490-495
11. Zabora J, BrintzenhofeSzoc K, Curbow B, Hooker C and Piantadosi S **The prevalence of psychological distress by cancer site** *Psycho-oncology* 2001, **10**:19-28
12. Kugaya A, Akechi T, Okuyama T, Nakano T, Mikami I and Okamura H **Prevalence, predictive factors, and screening for psychological distress in patients with newly diagnosed head and neck cancer** *Cancer* 2000, **88**:2817-2823
13. Wenzel LB, Fairclough DL, Brady MJ, Cella D, Garrett KM and Kluhsman BC **Age-related differences in the quality of life of breast carcinoma patients after treatment** *Cancer* 1999, **86**:1768-1774
14. Moore K **Out-of-pocket expenditures of outpatients receiving chemotherapy** *Oncol Nurs Forum* 1998, **25**:1615-1622
15. Moore KA **Breast cancer patients' out-of-pocket expenses** *Cancer Nurs* 1999, **22**:389-396
16. Hounshell JF, Tomori CF, Newlin RF, Knox KF, Rundhaugen LF and Tallman MF **Changes in finances, insurance, employment, and lifestyle among persons diagnosed with hairy cell leukemia** *Oncologist* 2001, **6**:435-440
17. Zabora J, BrintzenhofeSzoc K, Jacobsen P, Curbow B, Piantadosi S and Hooker C **A new psychosocial screening instrument for use with cancer patients** *Psychosomatics* 2001, **42**:241-246
18. Zabora JR, Blanchard CG, Smith ED, Roberts CS, Glajchen M and Sharp JW **Prevalence of psychological distress among cancer patients across the disease continuum** *Journal of Psychosocial Oncology* 1997, **15**:73-87
19. Zabora JR, Smith-Wilson R, Fetting JH and Enterline JP **An efficient method for psychosocial screening of cancer patients** *Psychosomatics* 1990, **31**:192-196
20. Roth AJ, Kornblith AB, Batel-Copel L, Peabody E, Scher HI and Holland JC **Rapid screening for psychologic distress in men with prostate carcinoma: a pilot study** *Cancer* 1998, **82**:1904-1908
21. Cull A, Gould A, House A, Smith A, Strong V and Velikova G **Validating automated screening for psychological distress by means of computer touchscreens for use in routine oncology practice** *Br J Cancer* 2001, **85**:1842-1849
22. Allenby A, Matthews J, Beresford J and McLachlan SA **The application of computer touch-screen technology in screening for psychosocial distress in an ambulatory oncology setting** *Eur J Cancer Care (Engl)* 2002, **11**:245-253
23. Carlson LE, Specia M, Hagen N and Taenzler P **Computerized quality-of-life screening in a cancer pain clinic** *J Palliat Care* 2001, **17**:46-52
24. Andersen B **Psychological interventions for cancer patients to enhance the quality of life** *Journal of Consulting and Clinical Psychology* 1992, **60**:552-568
25. Trijsburg RW, van Knippenberg FC and Rijpmans SE **Effects of psychological treatment on cancer patients: a critical review** *Psychosom Med* 1992, **54**:489-517
26. Cunningham AJ **Group psychological therapy for cancer patients. A brief discussion of indications for its use, and the range of interventions available** *Support Care Cancer* 1995, **3**:244-247
27. Fawzy FI, Fawzy NW, Arndt LA and Pasnau RO **Critical review of psychosocial interventions in cancer care** *Archives of General Psychiatry* 1995, **52**:100-113
28. Meyer TJ and Mark MM **Effects of psychosocial interventions with adult cancer patients: A meta-analysis of randomized experiments** *Health Psychology* 1995, **14**:101-108
29. Greer S **Improving quality of life: adjuvant psychological therapy for patients with cancer** *Support Care Cancer* 1995, **3**:248-251
30. Bottomley A **Group cognitive behavioural therapy interventions with cancer patients: a review of the literature** *European Journal of Cancer Care (English Language Edition)* 1996, **5**:143-146
31. Iacovino V and Reesor K **Literature on interventions to address cancer patients' psychosocial needs: What does it tell us?** *Journal of Psychosocial Oncology* 1997, **15**:47-71
32. Bottomley A **Where are we now? Evaluating two decades of group interventions with adult cancer patients** *Journal of Psychiatric & Mental Health Nursing* 1997, **4**:251-265
33. Fobair P **Cancer support groups and group therapies: Part I. Historical and theoretical background and research on effectiveness** *Journal of Psychosocial Oncology* 1997, **15**:63-81

34. Fawzy FI, Fawzy NW and Canada AL **Psychosocial treatment of cancer: an update** *Current Opinion in Psychiatry* 1998, **11**:601-605
35. Fawzy FI **Psychosocial interventions for patients with cancer: what works and what doesn't** *Eur J Cancer* 1999, **35**:1559-1564
36. Blake-Mortimer J, Gore-Felton C, Kimerling R, Turner-Cobb JM and Spiegel D **Improving the quality and quantity of life among patients with cancer: a review of the effectiveness of group psychotherapy** *Eur J Cancer* 1999, **35**:1581-1586
37. Cunningham AJ **Adjuvant psychological therapy for cancer patients: putting it on the same footing as adjunctive medical therapies** *Psychooncology* 2000, **9**:367-371
38. Schneiderman N, Antoni MH, Saab PG and Ironson G **Health psychology: psychosocial and biobehavioral aspects of chronic disease management** *Annu Rev Psychol* 2001, **52**:555-580
39. Newell SA, Sanson-Fisher RW and Savolainen NJ **Systematic review of psychological therapies for cancer patients: overview and recommendations for future research** *J Natl Cancer Inst* 2002, **94**:558-584
40. Fawzy FI **A short-term psychoeducational intervention for patients newly diagnosed with cancer** *Support Care Cancer* 1995, **3**:235-238
41. Sloman R, Brown P, Aldama E and Chu E **The use of relaxation for the promotion of comfort and pain relief in persons with advanced cancer** *Contemporary Nurse* 1994, **3**:6-12
42. Goodwin PJ, Leszcz M, Koopmans J, Arnold A, Doll R and Chochinov H **Randomized trial of group psychosocial support in metastatic breast cancer: the BEST study. Breast-Expressive Supportive Therapy study** *Cancer Treatment Reviews* 1996, **22**:Suppl-6
43. Leszcz M and Goodwin PJ **The rationale and foundations of group psychotherapy for women with metastatic breast cancer** *International Journal of Group Psychotherapy* 1998, **48**:245-273
44. Richardson MA, Post-White J, Grimm EA, Moye LA, Singletary SE and Justice B **Coping, life attitudes, and immune responses to surgery and group support after breast cancer treatment** *Alternative Therapies in Health and Medicine* 1997, **3**:62-70
45. Dobkin PL and Da Costa D **Group psychotherapy for medical patients** *Psychology, Health & Medicine* 2000, **5**:87-96
46. Cunningham AJ and Edmonds CV **Group psychological therapy for cancer patients: a point of view, and discussion of the hierarchy of options** *Int J Psychiatry Med* 1996, **26**:51-82
47. Classen C, Butler LD, Koopman C, Miller E, DiMiceli S and Giese-Davis J **Supportive-expressive group therapy and distress in patients with metastatic breast cancer: a randomized clinical intervention trial** *Arch Gen Psychiatry* 2001, **58**:494-501
48. Spiegel D, Morrow GR, Classen C, Raubertas R, Stott PB and Mudaliar N **Group psychotherapy for recently diagnosed breast cancer patients: a multicenter feasibility study** *Psychooncology* 1999, **8**:482-493
49. Carlson LE, Ursuliak Z, Goodey E, Angen M and Specia M **The Effects of a Mindfulness Meditation Based Stress Reduction Program on Mood and Symptoms of Stress in Cancer Outpatients: Six Month Follow-Up** *Support Care Cancer* 2001, **9**:112-123
50. Specia M, Carlson LE, Goodey E and Angen M **A randomized, wait-list controlled clinical trial: the effect of a mindfulness meditation-based stress reduction program on mood and symptoms of stress in cancer outpatients** *Psychosom Med* 2000, **62**:613-622
51. Cunningham AJ and Tocco EK **A randomized trial of group psychoeducational therapy for cancer patients** *Patient Care and Counseling* 1989, **14**:101-114
52. Cunningham AJ, Edmonds CV, Jenkins G and Lockwood GA **A randomized comparison of two forms of a brief, group, psychoeducational program for cancer patients: weekly sessions versus a "weekend intensive"** *Int J Psychiatry Med* 1995, **25**:173-189
53. Cunningham AJ, Edmonds VI, Hampson AW, Hanson H, Hovenac M and Jenkins G **A group psychoeducational program to help cancer patients cope with and combat their disease** *Advances* 1991, **7**:41-56
54. Canadian Association of Psychosocial Oncology **Standards: Canadian association of psychosocial oncology** *Canadian Association of Psychosocial Oncology* 1999,
55. Hargreaves WA, Shumway M and Hu TW **Measuring psychotherapy costs and effectiveness** *In Cost-effectiveness of psychotherapy* (Edited by: Miller NE, Magruder KM) New York: Oxford University Press 1999, 85-98
56. Greenberg PE, Stiglin LE, Finkelstein SN and Berndt ER **The economic burden of depression in 1990** *Journal of Clinical Psychiatry* 1993, **54**:405-418
57. Brown G and Harris T **Social origins of depression: A study of psychiatric disorder in women.** New York: The Free Press 1978,
58. Howland RH **Chronic depression** *Hosp Community Psychiatry* 1993, **44**:633-639
59. Weissman MM, Myers JK and Thompson WD **Depression and its treatment in a US urban community 1975-1976** *Arch Gen Psychiatry* 1981, **39**:417-421
60. Widmer RB and Cadoret RJ **Depression in primary care: Changes in pattern of patient visits and complaints during a developing depression** *Family Practice* 1978, **7**:293-302
61. Katon W, Berg A, Robins A and Risse S **Depression: Patterns of medical utilization and somatization in primary care** *In Illness Behaviour: A Multidisciplinary Model* (Edited by: McHugh S, Vallis TM) New York: Plenum 1986, 335-364
62. Howland RH **General health, health care utilization, and medical comorbidity in dysthymia** *Int J Psychiatry Med* 1993, **23**:211-238
63. Lechnyr R **The cost savings of mental health services** *EAP Digest* 1993, **22**:
64. Borgquist L, Hansson L, Lindelow G and Nettlebladt L **Perceived health and high consumers of care: A study of mental health problems in a Swedish health care district** *Psychological Medicine* 1993, **23**:770
65. Lane JS **Medical cost offset: A review of current research and practices** *Preferred Mental Health Management*, 1998,
66. Sobel DS **The cost-effectiveness of mind-body medicine interventions** *Prog Brain Res* 2000, **122**:393-412
67. Cummings NA and VandenBos GR **The twenty years Kaiser-Permanente experience with psychotherapy and medical utilization: implication for national health policy and national health insurance** *Health Policy Quarterly* 1981, **1**:159-175
68. Guthrie E, Moorey J, Margison F, Barker H, Palmer S and McGrath G **Cost-effectiveness of brief psychodynamic-interpersonal therapy in high utilizers of psychiatric services** *Arch Gen Psychiatry* 1999, **56**:519-526
69. Pallak MS, Cummings NA, Dorken H and Henke CJ **Medical costs, Medicaid, and managed mental health treatment: the Hawaii study** *Manag Care Q* 1994, **2**:64-70
70. Mumford E, Schlesinger HJ, Glass GV, Patrick C and Cuedon T **A new look at evidence about reduced cost of medical utilization following mental health treatment** *Am J Psychiatry* 1984, **141**:1145-1158
71. de Boer AG, Sprangers MA, Bartelsman JF and de Haes HC **Predictors of health care utilization in patients with inflammatory bowel disease: a longitudinal study** *Eur J Gastroenterol Hepatol* 1998, **10**:783-789
72. Jensen MP, Turner JA and Romano JM **Correlates of improvement in multidisciplinary treatment of chronic pain** *J Consult Clin Psychol* 1994, **62**:172-179
73. Chiles JA, Lambert MJ and Hatch AL **The impact of psychological interventions on medical cost offset: A meta-analytic review** *Clinical Psychology: Science and Practice* 1999, **6**:204-220
74. Lorig KR, Mazonson PD and Holman HR **Evidence suggesting that health education for self-management in patients with chronic arthritis has sustained health benefits while reducing health care costs** *Arthritis Rheum* 1993, **36**:439-446
75. Lorig KR, Sobel DS, Stewart AL, Brown BW Jr, Bandura A and Ritter P **Evidence suggesting that a chronic disease self-management program can improve health status while reducing hospitalization: a randomized trial** *Med Care* 1999, **37**:5-14
76. Middelhaug SJ, Levin RB, Kee WG, Barchiesi FD and Roberts JM **Chronic pain: its treatment in geriatric and younger patients** *Arch Phys Med Rehabil* 1988, **69**:1021-1026
77. Caudill M, Schnable R, Zuttermeister P, Benson H and Friedman R **Decreased clinic use by chronic pain patients: response to behavioral medicine intervention** *Clin J Pain* 1991, **7**:305-310
78. Blumenthal JA, Jiang W, Babyak MA, Krantz DS, Frid DJ and Coleman RE **Stress management and exercise training in cardiac patients with myocardial ischemia. Effects on prognosis and evaluation of mechanisms** *Arch Intern Med* 1997, **157**:2213-2223

79. Linden W, Stossel C and Maurice J **Psychosocial interventions for patients with coronary artery disease: a meta-analysis** *Arch Intern Med* 1996, **156**:745-752
80. Simpson JSA, Carlson LE and Trew M **Impact of a Group Psychosocial Intervention on Health Care Utilization by Breast Cancer Patients** *Cancer Practice* 2001, **9**:19-26
81. Ashbury FD, Findlay H, Reynolds B and McKerracher K **A Canadian survey of cancer patients' experiences: Are their needs being met?** *Journal of Pain and Symptom Management* 1998, **16**:298-306
82. Rosenberg HJ, Rosenberg SD, Ernstoff MS, Wolford GL, Amdur RJ and Elshamy MR **Expressive disclosure and health outcomes in a prostate cancer population** *Int J Psychiatry Med* 2002, **32**:37-53
83. Pennebaker JW **Telling stories: the health benefits of narrative** *Lit Med* 2000, **19**:3-18
84. Pennebaker JW **Putting stress into words: health, linguistic, and therapeutic implications** *Behav Res Ther* 1993, **31**:539-548

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