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Psychooncology – the state of its development in 2006

Tomer Levin, MD
David W. Kissane, MD

Department of Psychiatry & Behavioral
Sciences, Memorial Sloan-Kettering Cancer
Center, New York, NY, USA

USA

ABSTRACT – Background and Objectives: Psychooncology research and practice has grown exponentially in recent years. We review the evidence-based accomplishments of psychooncology in key areas that inform clinical practice.

Methods: We reviewed the following computerized databases: PubMed, Embase, Cochrane, Ovid Medline and Psychinfo for studies on predetermined areas of interest representing the continuum of current psychooncology, focusing on meta-analyses and controlled studies.

Results: Cancer related psychological distress occurs in one third of patients. Psychological factors are of importance in cancer prevention such as the relationship of smoking to depression. The association between personality styles and cancer vulnerability is not strong, but social support is a well-established prognostic factor. Existential distress may manifest as demoralization; meaning and dignity-based therapies have been designed to assuage existential angst in the cancer setting. Psychotherapy is efficacious in ameliorating cancer related distress, anxiety and depression, with newer models focusing on meaning and adaptive coping. Although there is not a strong evidence-base for the impact of psychooncology on survival, psychological factors clearly impact on adherence to cancer treatment. Most survivors do well overall, but concerns relate to the long term impact of specific treatments or special populations including children. Neurocognitive effects of chemotherapy have recently been associated with carriers of Alzheimer precursor genes. Doctor-patient communication is of increasing clinical interest alongside concern that physician burnout is increasing.

Conclusions: Evidence-based research informs psychooncology's clinical practice and service provision in 2006.

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Introduction

During the early part of the 20th century, treatment of cancer developed through the use of surgery, radiation therapy, and nitrogen mustards, while concepts of psychosomatics and grief studies emerged within psychiatry. In 1950, Arthur Sutherland was the first consultation-liaison psychiatrist to work at a dedicated cancer hospital, Memorial Sloan-Kettering Cancer Center, in New York. In Europe, Dr. Feigenberg (1970) began at the Karolinska Hospital in Stockholm, Steven Greer (1971) at the Faith Courtauld Unit of the Royal Marsden Hospital in London and Frits Van Dam (1977) established the EORTC Quality of Life Study Group. In the USA, Jimmie Holland (1977) expanded development at Memorial Sloan-Kettering, while Avery Weisman (1978) launched end-of-life studies with Project Omega in Boston. The background for much of this was a world-wide debate about truth telling in cancer care. Advocacy by consumers argued for increased psychosocial services, complimented by psychology's strong research tradition and the need for mainstream alternatives to a host of un-proven therapies. Existential and spiritual challenges also highlighted significant unmet needs in those who approached their dying. Psychosocial services needed to respond accordingly.

What progress was made across this last half century that empowered psychooncology to emerge in the 21st century as a distinct subspecialty? In this paper, we review the evidence-based accomplishments of psychooncology, drawing especially from meta-analyses and systematic reviews. Our goal is to inform about the state of the art of practice for this specialty within psychosomatics and psychotherapy today, covering the continuum of care from prevention

through treatment to survivorship or death and bereavement.

Method

Our methodology involved searching PubMed, Embase, Cochrane, Ovid Medline and Psychinfo for studies in predetermined areas of major interest: epidemiology, cancer prevention, etiological influences, psychiatric and existential disorders, psychotherapy, survivorship and influences on survival, neurocognitive effects of cancer treatments, communication skill training and physician well-being.

Results

Epidemiology – the clinical need for psychooncology

Major depressive disorder is estimated to occur in 10-25% of patients with cancer. Some consider the criteria over inclusive and prefer to focus on “depressive symptoms”, a concept highly suitable for screening. Depressive symptoms range from 7-21% in one systematic review¹ to as high as 58% in another². Most epidemiological studies are limited by a cross sectional design and confounded by heterogenous populations, selection biases and other methodological difficulties (varied type and stage of malignancies, inpatient versus outpatient, population size and different assessment instruments). However, when physical symptoms such as fatigue and loss of appetite (potentially due to illness or treatment³ are substituted with alternative cognitive symptoms, prevalence rates remain

similar⁴. Use of a single question, “Are you depressed?” had a sensitivity and specificity of 1.00 in a palliative care cohort⁵.

Anxiety syndromes, defined by instruments like the Hospital Anxiety and Depression Scales (HADS), are found in 15-28%⁶. When measured with a semi-structured interview, anxiety syndromes range as follows: generalized anxiety disorder 1.7-2.3%, adjustment disorder with anxious mood 3.9-4.2%, phobic disorder 6.9% and panic disorder 1.3%⁷. A pragmatic approach assesses distress using a visual analog scale or thermometer. Distress, measured as a cutoff of greater or equal to 4, correlated with a HADS score of greater than 15 and identified 19% of patients as of concern in a multi-site trial⁸. Thus distress is a non-stigmatizing way of assessing psychosocial burden in cancer.

In the largest prevalence study of distress (n = 4,496), Zabora used the Brief Symptom Inventory and found that 35.1% reached clinical caseness⁹. Distress was significantly higher in lung (43.4%) and brain cancer (42.7%), while lower levels were seen in gynecological (29.6%), prostate (30.5%) and colon (31.6%) cancers. Pancreatic cancer had the highest rates of depression (56.3%) and anxiety (56.7%). Distress did not vary by gender as depression does, but African Americans were more distressed than whites. Marriage, higher income and older age were protective factors. Vulnerable populations include those with lower income, fewer social supports, younger patients and the very elderly – octogenarians and nonagenarians.

Stage of cancer is not as important a predictor of psychosocial morbidity as one might intuitively predict. For example in a cross sectional study of 503 early and late

stage breast cancer patients, psychosocial distress (DSM IV diagnoses, major and minor depression and anxiety disorders) was statistically equivalent in both groups¹⁰. In another study of “watch and wait” in treating, early stage Chronic Lymphatic Leukemia (CLL) versus advanced CLL, quality of life was not statistically different¹¹.

Cancer Prevention

Tobacco use is a paradigm par excellence illustrating the interaction of psychological with environmental factors in promoting cancer. Glassman and colleagues noted that 60% presenting to a smoking cessation program had a past history of major depression; this group failed to quit smoking at twice the rate of the never-depressed¹²; quitters with past depression were seven times more likely to develop an exacerbation of their depression¹³.

Smoking is associated strongly with other psychiatric disorders - while 23% of the US population smokes, rates in people with psychiatric and substance use disorder are 2-4 fold higher. Rates for mental disorders are shown in Table I¹⁴. The association between schizophrenia and nicotine dependence has been replicated worldwide [OR 5.9; 95% Confidence Interval (CI), 4.9-5.7]¹⁵; nicotine use may be related to deficits in central nicotinic functioning. Nicotine improves, p50 gating and smooth-pursuit eye movement deficits, while enhancing attentional processes^{16,17}. Furthermore, evidence from twin studies supports a genetic vulnerability to nicotine dependence and depression - proposed candidates include the cytochrome p450 system that metabolizes nicotine and dopaminergic genes¹⁶. One dissenting meta-analysis did

not find a lifetime history of depression to be an independent risk factor for smoking cessation¹⁸, highlighting the limitations of current data.

From the clinical viewpoint, effective treatments are available for smoking cessa-

tion. In meta-analyses, some antidepressants improve the rate of cessation, reinforcing the similarity between the syndromes of nicotine withdrawal and depression¹⁶. For instance, bupropion (19 trials, OR 2.1 [95%CI 1.8-2.4]) and nortriptyline (4 trials,

Table I
Comorbidity of nicotine smoking and mental illness.

Mental Disorder	% Rate of Smoking
Schizophrenia	45 – 88
Bipolar Disorder	51 – 70
Depression	40 – 60
Panic Disorder	19 – 52
Obsessive Compulsive Disorder	7 – 22
Post Traumatic Stress Disorder	53 – 66
Substance Abuse	75

OR 2.8 [95% CI 1.7-4.6]) are effective in doubling cessation rates. SSRI's (5 trials) and venlafaxine (1 trial) are not effective long-term¹⁹. Individual behavioral counseling is effective for smoking cessation in controlled trials (OR 1.6, [95% CI 0.6-1.6]) - brief interventions are as effective as more intensive (OR 0.98 [95% CI 0.6-1.6])²⁰. Nicotine replacement therapy, even when given-over-the-counter (i.e. without the advice of a physician or counselor) is pharmacologically efficacious compared to placebo (OR 2.5 [95% CI 1.8-3.6]) and equally efficacious compared to prescription nicotine replacement therapy (OR 1.4 [95% CI 0.6-3.3])²¹.

Patients who fail to successfully quit using standard interventions of proven efficacy warrant further evaluation for a comorbid psychiatric diagnosis such as major depression or substance abuse.

Another area of cancer prevention that has expanded dramatically within psy-

chooncology recently is genetic counseling. A meta-analysis in women at increased risk for hereditary breast cancer (12 studies) showed that genetic counseling is effective in decreasing generalized anxiety ($r = -0.17$, $p < 0.01$) and improving the accuracy of perceived risk ($r = 0.56$, $p < 0.01$) with a trend towards improvement of psychological distress ($r = -0.17$, $p = 0.056$)²². Another meta-analysis of genetic counseling for familial cancer (21 studies) found an improvement in knowledge; prospective studies showed increased accuracy of risk perception, and short-term reduction in cancer worry and generalized anxiety. Lack of standardization of genetic counseling is a methodological concern²³.

Attention to socioeconomic and cultural beliefs may aid in cancer prevention among minorities who have poorer cancer outcomes. African Americans present with later stage breast cancer than their white counterparts²⁴. They also have biological

features of more aggressive disease, such as more frequent alterations of p53 (OR 4.00, 95% CI 1.77-9.01) as well as higher histological and nuclear grades, and negative estrogen and progesterone receptor status (over-expression of HER-2/neu or *c-met* does not show racial differences)²⁴. Racial disparities exist also for other cancers such as prostate²⁵ and colorectal cancer²⁶.

Although race is a predictor of advanced breast cancer with an OR 3.0 (95% CI 1.9-4.7), this decreases to 1.8 (95% CI 1.1-3.2) with the entry of demographic and socioeconomic factors into the regression analyses, and decreases further to 1.2 (95% CI 0.6-2.5) with the entry of beliefs²⁷. Soler-Vila and colleagues found in a study of white and African-American patients that perceived cancer incurability (leading to reduced treatment) was associated with a higher mortality (HR 1.67, 95% CI 1.11-2.51)^{28,29}, as was perceived emotional support at diagnosis (HR 1.30, 95% CI 1.09-1.79)²⁹. Cultural beliefs affect outcomes significantly. In contrast, modest survival differences are seen when blacks and whites receive comparable treatment for similar stage cancer (corrected HR 1.07, 95% CI, 1.02-1.13), with the exceptions of breast, uterus and bladder. These data emphasize the importance of timely and efficacious treatment, regardless of race³⁰.

Cancer screening is also reduced in minority populations where belief systems, education and poorer support are often cited as potential barriers to screening^{25, 26,31,32,33}. Ultimately, a convergence of biological, socio-economic, cognitive and cultural factors must occur to optimize cancer prevention in minority populations.

Etiology – personality, psychiatric disorder, life events and social support

The “tyranny of positive thinking” highlights the pressure on patients to maintain optimism, almost without exception³⁴. One systematic review of coping styles (fighting spirit, helplessness/hopelessness, denial, avoidance) failed to find an association between these ways of coping and survival, suggesting that patients should not be pressured into adopting a particular coping style to improve their prognosis³⁵. In a meta-analysis of the relationship between psychosocial factors and onset of breast cancer, small effect sizes emerged for denial/repression coping ($g = 0.38$), separation/loss experiences ($g = 0.29$), stressful life events ($g = 0.25$) and conflict avoidant personality style ($g = 0.19$). Serious methodological problems limit interpretation. Inference does not imply causation; changing personality factors in the hope of changing biological outcomes remains unsupported³⁶.

In contrast, a deficiency of social support is a well-established risk factor for mortality³⁷ and psychooncology research extends these findings. In a retrospective study of 32,268 women greater than 65, unmarried women were more likely to be diagnosed with a later stage cancer (OR 1.17; 95% CI 1.12-1.23) and those with stage I or II were less likely to receive definitive treatment (OR 1.24; 95% CI 1.17-1.31). Even after controlling for stage and treatment, unmarried women were at increased risk of dying from breast cancer (HR 1.25; 95% CI 1.14-1.37)³⁸.

Social support and stressful life events independently affect a patient's emotional state – the most vulnerable to psychological distress are those with minimal social

support and highly stressful negative events (death of a family member, serious illness or recent divorce / separation)³⁹. Furthermore, the prospective 8-year American Changing Life Study, (n = 3,617) provides evidence that cumulative life events/chronic stress are related to socioeconomic status and mortality. Low income and education levels are strongly predictive of health status and health decline over time⁴⁰.

In one meta-analysis, stressful life events did not, however, show an overall association with breast cancer risk, with the exception of death of a spouse generating a moderate effect (OR 1.37; 95%CI 1.10, 1.71)⁴¹. Two large cohort studies using cancer incidence and population registry data did not find an association between widowhood or divorce and risk of breast cancer^{42,43}, while a third did⁴⁴. In a comprehensive review, Butow emphasizes the methodological difficulties that qualify data interpretation, stating that “the evidence for an association between life event stress and breast cancer is inconsistent and far from convincing”⁴⁵. Thus, the myth of stress causing cancer has largely been debunked by current research.

The nature of existential and psychiatric disorders in psychooncology

Self-awareness, freedom and responsibility in making choices in one's life, ultimate aloneness and our human need for relatedness, the meaning of life and the inevitable reality of death are explored and confronted commonly in psychooncology. The common sources of existential distress are summarized in Table II, with suitable models of counseling for specific challenges⁴⁶. Of these, demoralization has been

the subject of much recent research. When a patient moves beyond disheartenment at adversity to what Engel described as ‘giving up’, the loss of meaning and purpose with related helplessness and subjective incompetence can accentuate a desire to hasten death⁴⁷. Demoralization with loss of meaning is prominent in the medically ill, whether in palliative care⁴⁸, post cardiac transplantation⁴⁹, in endocrine disorders⁵⁰, motor neurone disease⁵¹ or cancer⁵², with frequencies ranging from 14 to 38% in these studies. In examining its validity as a distinct mental state, Kissane's group showed that although found to be comorbid with anhedonic depression in one third of cases, another 14% of patients can experience pathological demoralization as a distinct mental state without depression⁴⁷.

Treatment of demoralization includes active symptom management of pain and related physical symptoms, examination of role, preservation of dignity and self-worth, acceptance of change and the restoration of meaning. Interpersonal psychotherapy, dignity-conserving therapy and meaning-centered psychotherapies are applied techniques to restore morale in the seriously ill^{53,54,55}. Efficacy studies are proceeding.

Efficacy of psychotherapy in cancer care

From the meta-analyses of psychoeducational and psychotherapeutic interventions in cancer care, irrefutable evidence emerges for the efficacy of psychotherapy in ameliorating distress, anxiety and depression^{56, 57,58}. Sheard and Maguire selected methodologically sound trials for the treatment of anxiety (n = 1,023 patients) and depression (n = 1,101) to reveal effect sizes of 0.42 (95% CI 0.08 – 0.74) and 0.36 (95% CI 0.06

Table II
Existential challenges and related psychiatric disorders ⁽⁴⁶⁾.

Nature of existential challenge	Features of successful adaptation	Form of existential distress when problematic	Common symptoms experienced	Related psychiatric disorders	Suitable models of therapy
1. Loss	Sad at reality of loss yet resigned to the occurrence of illness	Complicated grief	Intense tearfulness, grief & waves of emotionality, progressing into symptoms of depression	Depressive disorders	Supportive psychotherapy, or Interpersonal or psychosocial therapy, with use of psychotropics
2. Death	Courageous awareness of & acceptance of dying; Saying goodbye	Death anxiety	Fear of the process of dying or the state of being dead; panic at somatic symptoms; distress at uncertainty	Anxiety disorders, panic disorder, agoraphobia, generalized anxiety disorder, acute stress disorder, adjustment disorder with anxious mood	Psychoeducational, Cognitive-behavioral therapy, Existential psychotherapy, Psychodynamic therapy
3. Meaning	Sense of fulfillment	Demoralization	Pointlessness, hopelessness, futility, loss of role, desire to die	Demoralization syndrome, depressive disorders	Interpersonal psychotherapy, Narrative and dignity conserving therapies, Meaning-centered therapies, Existential therapy
4. Freedom	Acceptance of frailty & reduced independence	Loss of control	Angst at loss of control; obsessional mastery; indecisive, non-adherent to treatments; fear of dependency	Phobic disorders, obsessive-compulsive disorders, substance abuse disorders	Supportive psychotherapy, Interpersonal psychotherapy, Psychodynamic therapy ⁵
5. Dignity	Sense of worth despite disfigurement or handicap	Worthlessness	Shame, horror, body image concerns, fear of being a burden	Adjustment disorders	Narrative and dignity conserving therapies, Supportive psychotherapy
6. Aloneness	Supported by family & friends	Profound loneliness	Isolated & alienated	Dysfunctional family, relationship problems	Interpersonal psychotherapy, Family focused therapy, Supportive group therapy
7. Mystery	Reverence for things unknowable & sacred	Spiritual doubt and despair	Guilt, loss of faith, loss of connection with the transcendent	Adjustment, anxiety and depressive disorders	Meaning-centered therapy, Life narrative therapies

– 0.66) respectively⁵⁸. Psychoeducational models of intervention generate large effects, but change in knowledge as an outcome measure may be easier to achieve than relief of depression. Group therapy was generally more effective than individual therapy (see Table III). In particular, effect size increases with the experience of therapist and length of therapy, the benefit from > 8 hours being pronounced over < 4 hours⁵⁸.

In general, an eclectic approach to counseling is used in clinical practice, combin-

ing elements of supportive-expressive^{59,60}, grief⁶¹ and existential therapies^{62,63} with psychodynamic, cognitive-behavioral therapy (CBT)⁶⁴ and interpersonal psychotherapy (IPT)⁵⁵. Fear of recurrence, coping with uncertainty and behavioral approaches to needle phobias and traumatic symptomatology respond well to CBT, while coping with loss and change, role transitions, the meaning of life and interpersonal issues are well suited to IPT. Recent models for cancer and palliative care include family focused grief therapy⁶⁵ and models that focus on adaptive coping and resilience⁶⁶.

Table III

Efficacy of psychotherapy from meta-analyses of 19 studies treating anxiety and 20 studies treating depressive disorders in cancer patients [after (Sheard & Maguire 1999)]

Nature of therapy	Anxiety (n = 1,023) Effect size d	Depression (n = 1,101) Effect size d
Individual psychotherapy	0.27	0.30
Group therapy	0.69	0.54
Psycho-education	1.59	0.94
Relaxation therapy	0.21	0.03

Impact of psycho-oncology on cancer survival

Supportive-expressive group therapy (SEGT) for women with metastatic breast cancer generated an average survival advantage of 18 months⁶⁷. Since then, two randomized controlled trials of cognitive^{68,69} and one of SEGT⁷⁰ have failed to improve survival in breast cancer. Psychosocial interventions for mixed types of cancer (lymphoma, melanoma, gastrointestinal, lung and leukemia) have found beneficial^{71,72,73,74} and non-beneficial^{75,76} effects on survival, leaving the outcome of

these first ten studies balanced five each way⁷⁷.

Potential survival mechanisms include greater adherence to anti-cancer treatments, improved self-care, altered disease biology or enhanced host resistance. Depression has been associated with shortened survival⁷⁸, possibly through reduced self-care and poorer compliance with anti-cancer treatments. Treatment-induced improvements in adherence⁷⁹ were relevant to survival in Richardson's RCT⁷¹, but not Spiegel's SEGT trial⁸⁰. Attention to treatment adherence in the coming decade has special relevance to underserved minority populations where mortality is increased⁶⁰.

Long-term effects of survivorship

Although a cancer diagnosis can be devastating, the overall 5-year relative survival rate is 64%⁸¹. There are an estimated 10.1 million cancer survivors in the USA representing 3.5% of the population⁸². In addition to recurrence, an additional concern is the vulnerability of survivors to second primary malignancies, which now account for 16% of all new cancers⁸². Hence understanding the long-term psychological sequelae of survivorship is essential.

A systematic review of quality of life (QOL) in long-term breast cancer survivors (10 studies) found a good QOL in all domains⁸³. The longer the survival, the better the QOL. Importantly, depressed patients had a lower QOL and pain, arm problems, sexual issues, hot flashes and vaginal dryness were common. Predictors of better QOL included functional status, not needing chemotherapy, social support and income. Kornblith's 20-year follow-up of breast cancer survivors found that a majority had a satisfactory adjustment - 5% reported significant distress, 15% two or more symptoms of PTSD, 1-6% conditioned nausea triggered by reminders of their treatment, 29% sexual problems, 39% lymphedema and 33% numbness. Sexual effects persist for many years^{84,85}. Survivors of Hodgkin's disease, leukemia and testicular carcinoma show similar levels of sexual problems⁸⁶. Time since diagnosis is not associated with QOL outcomes^{11,85}. Worry about recurrence (the sword of Damocles effect), a second cancer and physical symptoms (fear due to cancer) occur in about one third of long-term survivors⁸⁷. Treatment type may influence later QOL, with evidence that local treatment of breast cancer or lymphoma has better QOL than systemic chemotherapy^{85,88,89}. Mastectomy created

poorer QOL than breast conserving therapy in some⁸⁵ but not other studies⁸⁹. Elderly breast cancer survivors reported that processes of care such as good physician-patient communication were generally more important than treatment specifics in determining QOL⁹⁰.

Can QOL outcomes be predicted by variables early in the treatment? Carver and colleagues followed breast cancer patients prospectively for 5-13 years and found that medical variables played almost no predictive role. Initial optimism, depression, distress and social disruption (not having a partner) predicted later outcomes⁹¹. Recurrence of cancer did not relate significantly to any QOL outcome⁹². That early experiences reverberate in later ones empowers psychooncologists to intervene earlier rather than later.

The Childhood Cancer Survivor Study (n = 9,535), using a sibling control, found that 40% of survivors reported at least one adverse health status domain. Increased risk of adverse health status arises from CNS, bone tumors, sarcoma, lower income, education and female gender⁹³. Furthermore childhood cancer survivors face a 10 fold increase in mortality - 67% of these deaths were associated with recurrence. Females, those diagnosed before age 5 and those with leukemia and lymphoma are most at risk⁹⁴. Adverse outcomes were not associated here with minority status⁹⁵.

Neurocognitive effects of cancer treatments

Anticancer chemotherapy regimens may cause neurocognitive damage as a result of direct neurotoxicity, an immunologic inflammatory response or possibly due to microvascular injury. Studies have shown

the persistence of cognitive change across periods spanning 2 months to 3-10 years, and compared to control rates of cognitive decline of around 10-12%, prevalences vary from 25% to 33%. These states have been colloquially called “chemotherapy brain” or “chemotherapy fog.” Particular vulnerability to damage from chemotherapy has been identified in carriers of the Alzheimer’s susceptibility gene, Apolipoprotein (APOE). Ahles and colleagues have shown evidence of visual memory and spatial ability changes in conjunction with chemotherapy treatments for carriers of the $\epsilon 4$ APOE allele⁹⁶.

Communication skill training – improving care by all

Clinician-patient communication skills’ training promotes person-centered care by all the members of the oncology treatment team. Cancer patients generally recall only about 25% of the data that oncologists consider important⁹⁷. Poor information provision increases rates of depression⁹⁸. Communication skills programs sustain behavior change^{99,100}, and consolidation sessions, creating a cumulative total of 40 teaching hours, maintain skills 2 years post training¹⁰¹. Use of open instead of leading questions, improved responses to emotional cues, greater empathy, use of summaries and fewer interruptions result from this training^{99,100}. For patients, improved decision-making, adherence to treatments and overall psychosocial adjustment result from such skill development¹⁰².

Burnout and compassion fatigue in health professionals

Burnout has developed from common usage into a well-defined psychological con-

cept of emotional exhaustion, depersonalization or cynicism towards patients and a sense of reduced personal accomplishment. Measured on the Maslach Burnout Inventory¹⁰³, Ramirez described a 28% prevalence of burnout amongst cancer physicians¹⁰⁴. The rate may be slightly better for palliative care physicians¹⁰⁵, but overall this rate is similar to the rate of burnout among American physicians in general^{106,107}.

Another important outcome to consider is the psychiatric morbidity amongst physicians (often measured using the 12-item General Health Questionnaire). A large UK sample reported a 27% prevalence of psychiatric morbidity in gastroenterologists, radiologists, radiation oncologists, medical and surgical oncologists compared to 18% in the general population¹⁰⁸. Independent risk factors are age less than 55 and being single¹⁰⁸.

The Physician Work Life Study provided evidence that women may be 1.6 times more likely to report burnout than males¹⁰⁹. Furthermore, for every 5 hours worked above 40 hours per week, the odds of burnout increased 12-15% for female physicians, but not for males. Interestingly, support from a spouse for career provided a buffer for female physicians (under 45 years of age) against burnout. George Vaillant’s classic thirty-year follow-up of physicians found that early childhood instability may also pose a vulnerability for later psychiatric morbidity in physicians¹¹⁰. Roles play an important function in burnout, with higher levels in physicians compared to allied health professionals and hospital support staff¹¹¹.

Unfortunately, there is evidence that the mental health of physicians has worsened over time. In 2002, compared to 1994, psychiatric morbidity had increased from 27% to 32% and burnout from 32% to 41%, with

worse results in physicians working in oncology compared to radiology or gastroenterology¹¹². Worsening burnout may be related to an overburdened health system, with the analogy of physician burnout being similar to an afflicted canary in a mine-shaft¹¹³. As recognition of this vulnerability, the Joint Commission on Accreditation of Healthcare Organizations in the USA has mandated a distinct process that deals with physician well-being, separate from disciplinary processes¹¹⁴. Burnout can be addressed either prophylactically or remedially. The only meta-analysis of burnout interventions to date found a moderate effect size for cognitive behavioral interventions, but no effect for organization focused interventions¹¹⁵.

Conclusion

This overview has focused on the evidence-base that currently informs psychooncology practice from meta-analyses and randomized controlled studies¹¹⁶. In parallel with the explosion of research, psychooncology has been boosted by the elevation of Psychosomatic Medicine to a board certified specialty in Australia, Europe and the United States, strengthening fellowship training programs and attracting bright, young psychiatrists to the field. As psychooncology evolves, it will yield research in fields such as cancer prevention, health disparities, doctor-patient communication, models of care delivery and palliative care (to name but a few). Psychotherapies will be tailored to specific cancer scenarios and informed by research findings. A firm evidence-base will provide increasingly compelling reasons for third party reimbursement of psychooncology services.

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Address for correspondence:

David W. Kissane, MD

Chairman, Dept of Psychiatry & Behavioral Sciences, Memorial Sloan-Kettering Cancer Center, 1275 York Avenue, New York, NY 10021, USA

E-mail: kissaned@mskcc.org

Telephone: 1.646.888.0019

Facsimile: 1.212.888.2356

USA