Psychological Responses and Coping Strategies Among Patients With Malignant Melanoma

A Systematic Review of the Literature

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Objective: To conduct a systematic review of the literature to identify the prevalence of, and demonstrated risk factors for, psychological distress among individuals affected by, or at high risk of developing, melanoma. For a substantial subset of patients, the diagnosis and/or treatment of cutaneous malignant melanoma may cause significant psychological distress.

Data Sources: Using the MEDLINE, PsycINFO, and CINAHL databases, published studies (1988 to March 2008) of individuals affected by melanoma were included if they examined the demographic, clinical, psychological, and/or social correlates of emotional distress.

Study Selection: Searches were restricted to publications in English and were supplemented by citation lists in retrieved articles and contact with researchers.

Data Extraction: A total of 356 articles were critically appraised by 2 reviewers to assess eligibility and clinical evidence level. A total of 44 studies met the inclusion criteria.

Data Synthesis: Approximately 30% of patients with melanoma reported clinically relevant levels of psychological distress, as measured by a range of validated scales, with symptoms of anxiety more prevalent than depression. A number of empirically demonstrated risk factors for distress were identified, including female sex, younger age, lower education, visibility of affected body site, lack of social support, and negative appraisal of melanoma.

Conclusions: Routine psychological screening of patients with melanoma is widely recommended as standard practice; however, standard screening measures may have limited sensitivity and specificity as demonstrated by the wide range of results reported in this review. Development of a brief screening tool that incorporates empirically supported risk factors is recommended to improve the timely identification and support of those patients most susceptible to adverse psychological outcomes.

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Despite continued progress in the medical management of many malignant diseases, the diagnosis of cancer, including melanoma, remains a difficult event in the lives of many patients and their families. Clinical impressions and research findings suggest that a diagnosis of melanoma has the potential to change all aspects of an individual's daily living from self-identity, body image, and perceived well-being, to family roles and relationships, career opportunities, friendships, and finances. The distress evoked by such changes may have wide-ranging implications. Psychological distress has been associated with patient delay in seeking medical advice for melanoma, decreased adherence to treatment regimes, increased rates of melanoma recurrence and mortality, lower quality of life (QOL), increased medical costs, and reduced engagement in posttreatment skin cancer screening and preventive behaviors.

Thus, understanding the prevalence and correlates of psychological distress and developing interventions to reduce distress remain critical research and clinical endeavors.

According to the Surveillance, Epidemiology, and End Results (SEER) data from 1995 to 2001, 83% of melanoma cases...
in the United States are diagnosed while the cancer is still confined to the primary site, yielding good prognoses. This, coupled with the often healthy outward appearance of patients with early-stage melanoma, may contribute to the prevailing belief that such patients have little or nothing to worry about.8-10 Despite a good prognosis, however, patients with early-stage melanoma deal with both the immediate stress of being diagnosed with a possibly life-threatening disease as well as the threat of recurrence or systemic spread, which is greatest during the first 2 years after diagnosis but may occur within 10 years of diagnosis. Several studies have also found evidence to suggest that some patients with melanoma experience an underlying fear of disfigurement caused by cancer surgery, and that the visibility of treatment-related scarring may form a constant reminder of the individual’s cancer experience, irrespective of the body site affected.8,9,11 Disfiguration of bodily appearance may threaten patients’ self-esteem and self-confidence, particularly in younger adult age groups, among whom melanoma is the most common malignant disease.9 Thus, seemingly high-functioning patients with early-stage melanoma may be overlooked by family, friends, and health care professionals in terms of social and psychological support, potentially exacerbating feelings of anxiety and/or depression.10

Synthesizing previous research findings, the aims of the present review were 4-fold: (1) to systematically review the body of literature on the prevalence of psychological distress among individuals affected by melanoma; (2) to compare these findings with the limited number of studies assessing psychological distress among individuals at increased risk of developing melanoma due to strong family history; (3) to identify the demographic, clinical, psychological, and/or social predictors of distress in these populations; and (4) to examine the various coping strategies commonly adopted by patients with melanoma. The findings of the review were then used to develop a series of evidence-based clinical recommendations for the supportive care of patients with malignant melanoma. Ways in which the empirical literature may be used to inform the development of a brief, tailored screening tool for the identification of patients with melanoma who are most susceptible to adverse psychological outcomes, as well as the cost-effective design and implementation of appropriate psychological interventions in this setting, are also discussed.

### METHODS

Three strategies were used to conduct the literature search. First, the electronic databases MEDLINE, MEDLINE In-Process, PsyclINFO, and CINAHL were searched from January 1988 to March 2008 using the keyword “melanoma” in combination with each of the following terms: depression, anxiety, adjustment, psychological adjustment, distress, psychological distress, worry, cope, and coping. We agreed on the inclusion and exclusion criteria before commencement of the review (Table 1). Studies were considered eligible for inclusion in the review if they were published in a peer-reviewed journal or were otherwise in the public domain in a peer-acceptable format. Multiple articles that seemed to describe overlapping patient populations were grouped together and, where necessary, only the data from the largest study population or the most recent article in these groups were reviewed. Second, the resulting list of publications was then screened for nonresearch articles, duplicates, and irrelevant references such as single case reports, letters, commentaries, or conference abstracts. Third, the reference lists of all publications identified were examined for relevant articles not captured by the initial literature search.

This review is concerned with the psychological responses of patients with melanoma, and the term “melanoma-specific distress” will be used hereinafter to denote emotional distress specific to some aspect of an individual’s melanoma diagnosis.

### Table 1. Literature Search Exclusion Criteria and Number of Published Studies Excluded According to Each Criterion

<table>
<thead>
<tr>
<th>Exclusion Criteria</th>
<th>Studies Meeting Exclusion Criteria, No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other primary cancer site (e.g., breast cancer, lymphoma, retinoblastoma, endobronchial metastases), or no differentiation</td>
<td>12</td>
</tr>
<tr>
<td>between a mix of cancers</td>
<td></td>
</tr>
<tr>
<td>Other primary condition (e.g., cardiovascular disease, diabetes mellitus, asthma, osteoporosis, endometriosis, pigmented lesion)</td>
<td>19</td>
</tr>
<tr>
<td>Assessment of measures, diagnostic tools, or theoretical models</td>
<td>12</td>
</tr>
<tr>
<td>Epidemiological (or survival) study</td>
<td>71</td>
</tr>
<tr>
<td>Medical treatment trial (drug, radiation, or surgery)</td>
<td>66</td>
</tr>
<tr>
<td>Molecular genetics or biological study</td>
<td>28</td>
</tr>
<tr>
<td>Case study</td>
<td>16</td>
</tr>
<tr>
<td>Review</td>
<td>20</td>
</tr>
<tr>
<td>Editorial comments, letters, discussions, or conference abstracts</td>
<td>7</td>
</tr>
<tr>
<td>Clinical guidelines or recommendations</td>
<td>6</td>
</tr>
<tr>
<td>No assessment of psychological factors</td>
<td>29</td>
</tr>
<tr>
<td>Sample population &lt;18 y</td>
<td>1</td>
</tr>
<tr>
<td>Animal study</td>
<td>6</td>
</tr>
<tr>
<td>Other (e.g., dissertation thesis)</td>
<td>20</td>
</tr>
<tr>
<td>Total number of studies excluded</td>
<td>313</td>
</tr>
<tr>
<td>Studies remaining</td>
<td>43</td>
</tr>
<tr>
<td>Additional studies identified via publication reference lists</td>
<td>1</td>
</tr>
<tr>
<td>Total number of studies included in systematic review</td>
<td>44</td>
</tr>
</tbody>
</table>

aAlthough “human” was included as an original search limit, some animal studies circumvented this because reference was made to the human implications of the study.
and/or treatment. This form of distress is typically assessed via administration of the Impact of Events Scale (IES), a validated 15-item measure of intrusion and avoidance responses in relation to a specific stressor, in this case melanoma. Where reference is not made to melanoma-specific distress, the emotional responses described should be considered generalized. A wide range of scales have been used to measure psychological distress, and in some instances clinical cutoff scores are provided for these scales (eg, the Hospital Anxiety and Depression Scale [HADS], Brief Symptom Inventory, Beck Depression Inventory). These cutoff scores allow clinicians and researchers to identify patients recently experiencing psychological symptoms of a severity that may warrant clinical intervention; for example, a potential diagnosis of clinical depression. Despite differences between scales in terms of item wording and response format, clinical cutoff scores are typically considered comparable across scales.

RESULTS

The initial search yielded 569 articles. After deletion of duplicates (n=213), the exclusion of 313 articles according to our predefined criteria (Table 1), and the inclusion of 1 article identified by citation within the reference list of a selected publication, 44 articles were identified for review. These articles were examined and their results tabulated. In accordance with the National Health and Medical Research Council (NHMRC) of Australia evidence rating system,13 most relevant articles provided level IVa evidence; that is, evidence obtained from descriptive studies of patient behaviors, knowledge, and/or attitudes. The remaining articles provided level III evidence; that is, evidence obtained from well-designed controlled trials without randomization, well-designed cohort or case-control studies, or multiple time series with or without an intervention.

PREVALENCE OF PSYCHOLOGICAL DISTRESS AMONG PATIENTS WITH MALIGNANT MELANOMA

Although a small number of studies document general emotional well-being and resilience among persons diagnosed as having melanoma,10,14-17 a much larger number of studies have identified a considerable proportion of patients who experience elevated levels of psychological distress around the time of melanoma diagnosis and treatment. These studies indicate that, on average, approximately 30% of all patients with melanoma report levels of psychological distress indicative of the need for clinical intervention, as measured by a range of validated scales.1,18,19 In comparison with other cancers, the proportion of patients with melanoma who report clinically relevant levels of distress is equivalent to that identified in patients with breast and colon cancer and demonstrably higher than the prevalence of distress found among patients with gynecological and prostate cancer.1

The prevalence of anxiety and depression in patients with melanoma is often reported in the literature concurrently because these internalizing states share similar features of negative affect, emotional distress, and significant interference in daily life. However, anxiety and depression may be differentiated by the presence of particular symptoms that are unique to each disorder. Anxiety is characterized by symptoms of excessive, pervasive, and uncontrollable worry, whereas depression is typified by symptoms of low mood and diminished interest or pleasure in most activities.20 Giberti et al10 reported that approximately 1 in 5 patients newly diagnosed as having nonmetastatic melanoma have some form of treatable depression, whereas Sigurdardottir et al10 reported that approximately 1 in 4 patients with melanoma beginning chemotherapy report clinically relevant levels of anxiety. Anxiety seems to be more prevalent than depression, with studies reporting the percentage of participants within the clinical range on the HADS to be around 23% and 11% for anxiety and depression, respectively.17,21-24

There is, however, substantial variability between studies in regard to the prevalence of reported anxiety and depression. Among patients with nonmetastatic melanoma, the proportion of participants scoring within the clinical range for anxiety on the HADS has been reported to range from 18% to 44%.10,14,25 Similarly, the pervasiveness of clinically relevant depressive symptoms among patients with early-stage melanoma is reported to be 6% to 28%;24,25 Only 3 studies10,17,24 have reported the prevalence of clinically relevant levels of anxiety and depression in patients with metastatic disease or more aggressive tumors (thickness >0.8 mm). These studies also report wide variation, with the prevalence of anxiety ranging from 13% to 28%, and the prevalence of depression ranging from 4% to 19%.10,17,24 Wide variation in the prevalence of clinically relevant distress among patients with melanoma may reflect important differences between study samples in terms of time since diagnosis and/or treatment, involvement in clinical trials, and/or cultural attitudes or beliefs. Limitations such as retrospective study design, lack of control or comparison groups, failure to adjust for disease severity, reliance on single assessments of psychosocial status, and small sample sizes also impede the generalization of findings.

POSTTRAUMATIC STRESS AS A FRAMEWORK FOR UNDERSTANDING PSYCHOLOGICAL DISTRESS IN THIS SETTING

Other researchers have assessed the psychological impact of melanoma from a posttraumatic stress (PTS) response framework. From this perspective, 2 key symptom clusters are considered critical to understanding psychological responses to melanoma diagnosis and/or treatment. These are (1) intrusion, defined as disturbing, persistent, and unwanted images, thoughts, and feelings, often accompanied by autonomic arousal, hypervigilance, and marked anxiety; and (2) avoidance, marked by ignoring the implications of threat, forgetting important problems, and experiencing emotional numbing.27 Advocates of this perspective argue that the assessment of PTS provides valuable clinical information concerning psychological adjustment in patients with cancer, survivors, and their immediate family.28 Kelly et al21 were one of the first groups to examine PTS responses in a cross-sectional study of 95 patients with stage I to stage IV melanoma. Using the IES to quan-
ify levels of intrusive and avoidant symptoms related to melanoma diagnosis, this study identified patients with stage III disease (ie, nodal metastasis) as having significantly greater stress symptoms compared with patients with stage I disease, with a trend in the same direction compared with patients with stage II or stage IV disease (ie, distant metastasis). A similar result was also found when participants with nonmetastatic melanoma were classified according to tumor thickness, suggesting an association between PTS and prognostic indication. These findings were not replicated using the HADS, leading the authors of that study to suggest, similarly to Brandberg et al, that IES symptoms may be more sensitive indicators of the differing psychological concerns emerging across the spectrum of melanoma progression.

As noted, anxiety symptoms also seem to be more frequently reported by individuals affected by melanoma compared to those with depressive symptoms. Furthermore, Baughan et al found that 54% of patients with melanoma attending a routine follow-up appointment at a pigmented lesion clinic reported some degree of anxiety prior to their consultation, with 17% of these patients also reporting physical symptoms of anxiety such as diarrhea, nausea, and sleeplessness. These data lend additional support for the specific assessment of PTS, as linked to the spectrum of anxiety disorders, in analyses of the psychological impact of melanoma, and highlight the need for melanoma-related concerns to be examined as significant dimensions of psychological morbidity.

**PSYCHOLOGICAL DISTRESS AMONG INDIVIDUALS WITH A STRONG FAMILY HISTORY OF MELANOMA**

To our knowledge, since 1988, only 2 studies have specifically investigated psychological distress among families with an inherited pattern of melanoma (ie, multiple melanoma cases in the family and a family-specific mutation in the CDKN2A gene). Recently, Kasparian et al examined psychological outcomes in this context and found that among individuals unaffected by melanoma but at high risk of developing the disease due to family history, only 1% of participants exhibited clinically relevant levels of melanoma-specific distress. Surprisingly, this study found no evidence of clinically relevant melanoma-specific distress among high-risk individuals with a previous diagnosis of melanoma. Similarly low levels of depressive symptoms were reported by those with, and those without, a personal history of melanoma, whereas levels of anxiety were comparable with population norms, with 5% of previously affected participants and 15% of unaffected participants reporting anxiety potentially warranting clinical intervention. Thus, overall the level of reported distress in this familial melanoma cohort was relatively low, even after notification of the presence of a family-specific mutation in the CDKN2A gene which, in Australia, confers an estimated lifetime melanoma risk of 91%.

To date, and to our knowledge, the only other published study to shed light on the psychological experiences of individuals with a strong family history of melanoma was that conducted by Riedijk et al. This study examined psychological distress among high-risk indi-

**REFERENCES 8, 10, 11, 15, 17, 22, 40, 43, 44.**

**DEMOGRAPHIC, CLINICAL, AND PSYCHOSOCIAL PREDICTORS OF DISTRESS**

Over the past 20 years, very few studies have used multivariate analysis to elucidate the factors contributing to higher levels of psychological distress in the population of patients with melanoma. In total, only 5 of the 44 articles included for review provided explanatory analysis of the variance in distress. As shown in Table 2, this limited literature has identified a variety of measurable, and in some cases relatively stable, variables that may be predictive of psychological distress in individuals affected by melanoma.

**Demographic Factors**

Several studies have found that women, those younger in age, and those who are unmarried, with fewer children, or with lower levels of education are more likely to report symptoms of psychological distress. Furthermore, 2 studies have identified an association between unemployment and increased psychological distress.

**Clinical Factors**

Patients diagnosed as having advanced disease, a deterioration of physical condition, or with tumors located on visible parts of the body, such as the face or hands, have been found to report higher levels of psychological distress. In several studies, stage of cancer at diagnosis and time since diagnosis were not found to be significant predictors of general distress.

This finding is surprising given the substantial differences in treatment and prognosis between early- and late-stage melanoma; however, it does support the importance of subjective appraisal in psychological adjustment to disease. For example, compared with those who experience low levels of distress, individuals who report high distress levels have also been found to report significantly worse evaluations of current and future personal health, higher ratings of pain intensity, decreased energy ratings, and greater interference from physical and emotional problems on social activities.

**Psychological and Social Factors**

In terms of psychosocial predictors of distress, Hamama-Raz and Solomon and Hamama-Raz et al.
reported that a lower appraisal of melanoma as threatening and a confident appraisal of one’s subjective ability to cope with the situation were predictive of reduced psychological distress. Religious beliefs were also predictive of lowered levels of anxiety and depression, as was the use of more active coping styles. A recent study of high-risk individuals by Kasprian et al found that believing that melanoma has important implications for one’s family and a tendency to monitor or search for risk-relevant information were predictive of

<table>
<thead>
<tr>
<th>Source</th>
<th>Country</th>
<th>Participants</th>
<th>Disease Stage</th>
<th>Time Since Diagnosis, Mean, mo</th>
<th>Measures of Psychological Distress and Descriptive Results</th>
<th>Predictors of Psychological Distress and/or Coping (Based on Multivariate Analysis)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baider et al, 1999; Baider et al, 1997</td>
<td>Israel</td>
<td>IVA 100</td>
<td>I, II</td>
<td>21</td>
<td>Low levels of psychological distress (BSI, POMS) detected. No significant differences between patients with stage I disease vs those with stage II disease. Women reported greater distress compared with men (IES, POMS). Spirituality (SBI-54) was negatively correlated with anxiety (BSI), depression (BSI, POMS), total mood disturbance (POMS), anger, and confusion (POMS). Spirituality (SBI-54) was positively correlated with active-cognitive coping style (OWH-CI).</td>
<td>After controlling for sex, age, education, and staging, spirituality accounted for 8% of the variance in total mood disturbance. After controlling for sex, age, education, and staging, spirituality accounted for 20% of the variance in active-cognitive coping style.</td>
</tr>
<tr>
<td>Bergenmar et al, 2004</td>
<td>Sweden</td>
<td>IVA 437</td>
<td>I, II</td>
<td>Within 3 mo of surgery</td>
<td>Percentage reporting clinically relevant distress levels: 21% (anxiety, HADS-A); 6% (depression, HADS-D). Presence of clinically relevant anxiety associated with younger age, ulceration, greater mitotic index, higher Clarke level. Presence of clinically relevant depression associated with younger age, greater tumor thickness.</td>
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<tr>
<td>Brandberg et al, 1992</td>
<td>Sweden</td>
<td>IVA 273</td>
<td>DNS (unaffected)</td>
<td>Stage I: 3 mo after surgery Stage IV: 2 mo</td>
<td>No differences in anxiety (HADS-A) according to disease stage; 19% of total sample reported clinically relevant anxiety levels. Low levels of depression (HADS-D) in all groups; 8% of total sample reported clinically relevant depression levels. Clinical cases of depression greatest in patients with stage IV disease (19%), followed by those with stage I disease (6%), then those with DNS (3%).</td>
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</tr>
<tr>
<td>Brandberg et al, 1995</td>
<td>Sweden</td>
<td>III 144</td>
<td>NR</td>
<td>3 mo after wide excision</td>
<td>At 13-mo follow-up, 24% of women and 13% of men reported clinically relevant levels of anxiety (HADS-A); 15% of women and 4% of men reported clinically relevant levels of depression (HADS-D). Greater anxiety was associated with female sex. Ability to minimize the impact of cancer associated with fewer concerns about the disease, increased tiredness, greater use of distraction, and lower level of active coping. Anger associated with male sex, lower level of tiredness, greater perceived independence, and greater concerns about the disease.</td>
<td></td>
</tr>
<tr>
<td>Brown et al, 2000; Brown et al, 2000</td>
<td>Australia</td>
<td>III 110</td>
<td>IV</td>
<td>6</td>
<td>Cognitive appraisal of threat (SQ subscale) did not change over the last year of life. Increased use of a more active or problem-focused coping style (COPE) over time. Minimizing the impact of cancer on daily living (PAC) became increasingly difficult, and concerns regarding family were more important than concerns for one’s own disease or independence (SQ subscale). Changes in psychological adjustment (PAC) were associated with changes in physical well-being over time (N=44).</td>
<td>Ability to minimize the impact of cancer associated with fewer concerns about the disease, increased tiredness, greater use of distraction, and lower level of active coping. Anger associated with male sex, lower level of tiredness, greater perceived independence, and greater concerns about the disease.</td>
</tr>
</tbody>
</table>
melanoma-specific distress. Of particular concern is the potential for a downward spiraling link between psychological symptoms and QOL. Lehto et al, for example, reported the presence of psychological and depressive symptoms as key predictors of poor QOL. Furthermore, a substantial decrease in an individual's physical QOL has been shown to be another important correlate of psychological distress.

COPING STRATEGIES AND RESPONSES

The ways in which patients cope with melanoma may have a profound influence on their immediate and long-term psychological, social, and physical health. In a key article describing 10 strategies to promote psychological adjustment to melanoma, Kneier defined coping as the attitudes, beliefs, and behaviors that have an adaptive pur-
pose when one is faced with a threatening situation. Viewed from this perspective, coping may be conceptualized as a primary mediator of the impact of stressful events on outcomes. The aims of coping, according to Kneier, are to safeguard and protect the emotional state of the individual and to allow for psychological adjustment to aversive conditions. Kneier posited that facing the reality of one’s illness, maintaining hope and optimism, expressing one’s emotions, seeking support from others, adopting a participatory (as opposed to avoidant or passive) stance, and maintaining self-esteem are among the most useful strategies an individual affected by melanoma can implement to cope with the varied aspects of their diagnosis and/or treatment.

**STYLES OF COPING**

Three general theoretical coping styles, among those that have been identified in the psycho-oncology literature, are (1) active-behavioral coping, which refers to overt behavior; (2) cognitive-emotional or passive) stance, and maintaining self-esteem are among the most useful strategies an individual affected by melanoma can implement to cope with the varied aspects of their diagnosis and/or treatment.

<table>
<thead>
<tr>
<th>Source</th>
<th>Country</th>
<th>NHMRC Evidence Rating, Level</th>
<th>Participants</th>
<th>Disease Stage</th>
<th>Time Since Diagnosis, Mean, mo</th>
<th>Measures of Psychological Distress and Descriptive Results</th>
<th>Predictors of Psychological Distress and/or Coping (Based on Multivariate Analysis)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kasprian et al. 2008</td>
<td>Australia</td>
<td>IVa</td>
<td>121</td>
<td>Strong family history of melanoma and family-specific CDKN2A mutation; 31% melanoma-affected, 69% unaffected</td>
<td>Overall, remarkably low levels of distress were identified. No affected patients and only 1% of unaffected patients reported clinically relevant levels of melanoma-specific distress (IES). 5% of affected patients and 15% of unaffected patients reported clinically relevant levels of anxiety (HADS-A). No affected patients and only 1% of unaffected patients reported clinically relevant levels of depression (HADS-D).</td>
<td>Variables associated with melanoma-specific distress; personal history of melanoma, greater concern about implications of melanoma for family, information-seeking coping style (MBSS). Variables associated with anxiety; greater perceived family implications of melanoma risk, greater perceived importance of sun exposure as a cause of melanoma, absence of children. Information-seeking coping style moderated the relationship between endorsement of a genetic model of melanoma and anxiety.</td>
<td></td>
</tr>
<tr>
<td>Kelly et al. 1995</td>
<td>Australia</td>
<td>IVa</td>
<td>95</td>
<td>I-IV</td>
<td>Stage I: 15.9 Stage II: 15.9 Stage III: 42.1 Stage IV: 70.2</td>
<td>Patients with stage III disease reported greater levels of intrusion (IES-I) and avoidance (IES-A) compared with those with stage I disease. No differences in depression (HADS-D) or anxiety (HADS-A) according to disease stage.</td>
<td>No differences between patients with melanoma vs those with breast cancer in level of reported psychological or physical symptoms (RSCL). The most frequently used coping style was seeking social support (WOC). Patients with melanoma (particularly those undergoing surgery only) reported receiving less social support (SFSS) vs those with breast cancer.</td>
</tr>
<tr>
<td>Lehto et al. 2005</td>
<td>Finland</td>
<td>IVa</td>
<td>72</td>
<td>I-III</td>
<td>3.5</td>
<td>Female patients reported depression (DEPS) more often than males. No difference between patients with melanoma vs those with breast cancer in level of reported psychological or physical symptoms (RSCL). The most frequently used coping style was seeking social support (WOC). Patients with melanoma (particularly those undergoing surgery only) reported receiving less social support (SFSS) vs those with breast cancer.</td>
<td>Variables associated with psychological symptoms: use of behavioral escape-avoidance coping and lower social support. Variables associated with depressive symptoms: use of behavioral escape-avoidance or cognitive escape-avoidance coping styles, chronic strain, and greater number of negative life events.</td>
</tr>
<tr>
<td>Lichtenthal 2005</td>
<td>United States</td>
<td>IVa</td>
<td>48</td>
<td>DNS (unaffected) 0-III</td>
<td>9</td>
<td>Concern about body appearance (MBA) was positively correlated with perceived stress (PSS) and fatigue (FSI).</td>
<td>No differences between patients with melanoma vs those with breast cancer in level of reported psychological or physical symptoms (RSCL). The most frequently used coping style was seeking social support (WOC). Patients with melanoma (particularly those undergoing surgery only) reported receiving less social support (SFSS) vs those with breast cancer.</td>
</tr>
<tr>
<td>Reimer et al. 2003</td>
<td>Germany</td>
<td>IVa</td>
<td>93</td>
<td>36% of patients with CM reported potentially clinically relevant levels of distress (SCL-90-R), compared with 16% of healthy controls. Global QOL (SF-36) among patients with CM assessed as poor over the long term. 1 In 3 long-term survivors of CM may require psychosocial counseling, particularly for issues relating to anxiety and/or dissatisfaction with support.</td>
<td>No differences between patients with melanoma vs those with breast cancer in level of reported psychological or physical symptoms (RSCL). The most frequently used coping style was seeking social support (WOC). Patients with melanoma (particularly those undergoing surgery only) reported receiving less social support (SFSS) vs those with breast cancer.</td>
<td>No differences between patients with melanoma vs those with breast cancer in level of reported psychological or physical symptoms (RSCL). The most frequently used coping style was seeking social support (WOC). Patients with melanoma (particularly those undergoing surgery only) reported receiving less social support (SFSS) vs those with breast cancer.</td>
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(continued)
behavioral attempts to deal directly with cancer and its effects, such as relying on others for support; (2) active-cognitive coping, which includes one’s attitudes, beliefs, and thoughts about cancer; and (3) avoidance coping, which refers to attempts to actively avoid the problem or indirectly reduce emotional tension through the use of distraction. Overall, studies suggest that patients who use active (problem-focused) coping strategies demonstrate better adjustment to melanoma than those who use passive or avoidant coping styles.9,10,15,18,40 By and large, patients who have used active-behavioral methods of coping have reported higher levels of self-esteem and vigor, fewer physical symptoms, and less anger and fatigue.9,45 In contrast, positive correlations have been demonstrated between avoidance coping methods and anxiety, depression, confusion, and total mood disturbance in patients with early-stage melanoma.9

SOCIAL SUPPORT

In numerous studies of patients with cancer, social support (eg, sharing thoughts, emotions, and concerns with others) has been associated with enhanced QOL and better disease outcome.47,48 and is generally thought to play a critical role in the psychological adjustment of patients, including those with melanoma.2,49 Söllner et
 ROLE OF SPIRITUAL AND RELIGIOUS BELIEFS

Seeking to explore the extent to which personal spiritual and/or religious belief systems might be associated with levels of distress and ways of coping with malignant melanoma, Holland et al.10 found that while scores on the Systems of Belief Inventory (SBI)10 did not correlate with distress, greater reliance on spiritual or religious beliefs was associated with active-cognitive coping. This association between religious beliefs and active-cognitive coping style was also reported by Baider et al.,15 as well as significant negative correlations between spirituality and anxiety, depression, anger, and confusion. Fawzy et al.9 defined this coping style as an individual’s acceptance of his or her illness and the patient’s attempt to view its effects in a positive, meaningful manner.9

COPEING WITH ADVANCED, INCURABLE MELANOMA

In a longitudinal study on coping with metastatic melanoma during the last year of life, Brown et al.14 found that as terminally ill patients moved closer to death, the use of active coping strategies increased, even though the patients also experienced increasing levels of tiredness and deterioration in mood and daily functioning ability.14 These patients were found to increasingly use strategies such as information seeking, meditation, and social support. Issues of enhanced self-care and family support are promi-
A number of empirically demonstrated risk factors reaching implications for these patients and their families. The treatment of melanoma includes: female sex, younger age, absence of a spouse or partner, lower education, and economic adversity. There is some evidence to suggest that patients with greater physical deterioration or tumors on visible parts of the body experience greater distress. Demographic factors associated with adverse psychological outcomes in patients with melanoma include: female sex, younger age, absence of a spouse or partner, lower education, and economic adversity. Screening for symptoms of psychological distress in patients with melanoma should be routinely implemented in clinical practice. Referring patients who have risk factors to specialized psychological services minimizes the likelihood of their developing significant distress. Conducting a systematic search of the literature on psychosocial and physical demands. This suggests that patients’ coping styles vary over the course of their illness, possibly in response to changing psychosocial and physical demands. A summary of the reviewed literature and a series of evidence-based clinical recommendations for the supportive care of patients with malignant melanoma are presented in Table 3.

Table 3. Summary of the Evidence and Quality of Evidence-Based Recommendations for Clinical Practice

<table>
<thead>
<tr>
<th>Grade of Recommendation</th>
<th>Quality of Evidence</th>
<th>Evidence Summary</th>
<th>Recommendation</th>
<th>Sources</th>
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<td>1 A</td>
<td>B</td>
<td>Approximately 30% of all patients with melanoma report psychological distress levels indicative of the need for clinical intervention. However, the psychosocial needs of patients with melanoma frequently go undetected and unmet.</td>
<td>Clinicians need to consider the increased risk status associated with particular demographic factors. These factors may influence susceptibility to distress irrespective of patients’ medical status or prognosis. The treatment team also needs to be aware that the psychosocial needs of men and women may vary both in extent and how they are expressed. Successful strategies for meeting psychosocial support needs may therefore differ for men and women.</td>
<td>Bergenmar et al, Bonevski et al, Brandberg et al, Reimer et al, Söllner et al, Trask et al, Zabora et al</td>
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<td>1 B</td>
<td>B</td>
<td>Demographic factors associated with adverse psychological outcomes in patients with melanoma include: female sex, younger age, absence of a spouse or partner, lower education, and economic adversity.</td>
<td>Clinicians need to consider the increased risk status associated with particular demographic factors. These factors may influence susceptibility to distress irrespective of patients’ medical status or prognosis. The treatment team also needs to be aware that the psychosocial needs of men and women may vary both in extent and how they are expressed. Successful strategies for meeting psychosocial support needs may therefore differ for men and women.</td>
<td>Baider et al, Bergenmar et al, Brandberg et al, Hamama-Raz et al, Holland et al, Lehto et al, Missiha et al, Söllner et al, Trask and Griffith, Vurnek et al</td>
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<td>2A B</td>
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<td>The association between clinical factors (eg, disease stage and tumor thickness) and psychological distress is unclear. There is some evidence to suggest that patients with greater physical deterioration or tumors on visible parts of the body experience greater distress.</td>
<td>Access to psychological support should not be limited to patients with poor prognosis. Specialized supportive care should be made available to those experiencing emotional distress and/or tumor-related difficulties.</td>
<td>Baider et al, Brandberg et al, Hamama-Raz et al, Kelly et al, Söllner et al</td>
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<td>1 B</td>
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<td>Patients with melanoma who form positive or meaningful appraisals of their cancer experience, have an active-cognitive coping style, and/or greater social support are more likely to demonstrate healthy psychological adjustment.</td>
<td>It is essential to ascertain the extent of support available to the patient, to recommend additional support as required, and to provide information about where support is available. A range of therapies, including cognitive behavioral therapy, are efficacious in reducing symptoms of psychological distress</td>
<td>Baider et al, Devine et al, Fawzy et al, Hamama-Raz et al, Holland et al, Kaspian et al, Lehto et al, Söllner et al, Trask et al</td>
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a According to the Archives of Dermatology criteria for assessing the quality of the evidence to support recommendations. Criteria for grade of recommendation: (1) strong recommendation: high-quality, patient-oriented evidence; (2A) weak recommendation: limited-quality, patient-oriented evidence; and (2B) weak recommendation: low-quality evidence. Criteria for assessing the quality of the evidence: (A) systematic review/meta-analysis, randomized controlled trials with consistent findings, or all-or-none observational study; (B) systematic review/meta-analysis of lower-quality clinical trials or studies with limitations and inconsistent findings, lower-quality clinical trial, cohort study, or case-control study; and (C) consensus guidelines, usual practice, expert opinion, or case series.

Conducting a systematic search of the literature on psychological morbidity among individuals affected by malignant melanoma, we identified 44 original studies published in English from January 1988 through March 2008. This review demonstrated that not all patients with melanoma exhibit clinically relevant levels of psychological distress or need intensive psychological support. Indeed, many patients with melanoma adjust and cope well. Yet, approximately one-third of individuals experience substantial difficulty adjusting to, or coping with, the diagnosis and/or treatment of malignant melanoma, and the symptoms of psychological distress may have wide-reaching implications for these patients and their families. A number of empirically demonstrated risk factors for psychological distress were identified from the available literature, including demographic factors such as female sex, younger age, absence of a spouse or partner, and lower levels of education; clinical factors such as greater physical deterioration or visibility of affected body
site; and psychosocial factors, such as negative cognitive appraisals of melanoma and lack of social support. In addition, this review found evidence for a positive association between active-cognitive coping styles and healthy emotional adjustment to melanoma. Furthermore, patients who report depressive symptoms also show greater interest in receiving mental health support in addition to standard medical care. The review did, however, reveal a lack of prospective studies in this area of research. It is also clear from this review that most studies assessing psychological responses to malignant melanoma are purely descriptive in nature. Clearly, there is a need for more rigorously designed studies that are adequately equipped to reliably elucidate the factors contributing to psychological morbidity among patients with melanoma.

A recent, landmark Institute of Medicine report commissioned by the National Institutes of Health has suggested that some of the most basic psychological and social issues affecting patients with cancer are not being adequately addressed in the clinical setting. In response to this, it is argued that psychosocial care is essential as the standard of care for all patients with cancer. Routine psychological screening of patients with melanoma is widely recommended as standard practice in many countries, including Australia, the United States, and the United Kingdom; however, standard psychological screening measures may have limited sensitivity and specificity as demonstrated by the wide range of results reported herein. The development of a brief screening tool that incorporates empirically supported risk factors as identified by the literature is recommended to improve the timely identification and support of those patients with melanoma who are most susceptible to adverse psychological outcomes. There is also some evidence to support the clinical evaluation of PTS responses among patients with melanoma, and this may be achieved in a timely, reliable, and cost-effective manner via the administration of validated and situation-specific assessment tools, such as the revised IES. Patients identified as vulnerable should be referred to psychosocial health professionals who can gauge the patients’ cognitive appraisals of melanoma, as well as their capacity to cope emotionally with this disease and its treatment. Future studies focusing on the routine assessment of psychological distress responses among patients with melanoma in the clinical setting, and the implications such assessments have on appropriately targeting the provision of psychological services, are needed.

In terms of appropriate and effective psychological interventions, clinical practice guidelines for the management of melanoma consistently recommend that structured psychosocial interventions and psycho-education be made available to all patients. Fawzy, and Fawzy et al have demonstrated that structured interventions offering psycho-educational support can reduce distress and mood disturbances and lead to greater use of active coping strategies among individuals affected by melanoma. In a series of seminal articles evaluating the short- and long-term outcomes of a 6-week structured psycho-educational group intervention, Fawzy et al reported that, despite moderate to high levels of distress at baseline, participants reported significantly lower levels of distress compared with controls at intervention completion. The intervention implemented by Fawzy et al consisted of 4 key components: (1) health education specific to melanoma, its treatment, recurrence reduction, and nutrition; (2) stress management; (3) coping and problem-solving techniques; and (4) psychological support. Six months after intervention, group differences were even more pronounced, with the intervention group, on average, demonstrating lower levels of depression, confusion, fatigue, and total mood disturbance, as well as higher levels of vigor. Beneficial effects of the intervention on immune function were also demonstrated, including an increase in certain types of natural killer (NK) cells and an increase in the tumour-fighting potential of NK cells. At the 5-year follow-up, these researchers were able to show that these psychological and biological changes were, in turn, associated with superior recurrence and survival rates.

As evidence for the clinical effectiveness of such psychological programs continues to grow, studies evaluating the fiscal cost associated with provision of supportive care interventions are also necessary to allow for adequate allocation of limited resources. For example, Bares et al have recently provided evidence for the cost-effectiveness of cognitive behavioral therapy for patients with heterogeneous melanomas compared with standard care. Also, although this review did not yield any studies on the effectiveness of pharmacotherapy with patients with melanoma, numerous studies with other patients with cancer have demonstrated the efficacy of a combination of supportive psychotherapy, cognitive behavioral techniques, and pharmacotherapy in the treatment of anxiety and depression. Published data of this sort are needed for melanoma. Furthermore, as our knowledge of the genetics of melanoma continues to evolve, research efforts aimed at understanding the experiences and needs of individuals with an inherited pattern of melanoma are required.

From his extensive work on the psychological experiences of patients with cancer, Spiegel has argued that all patients who show emotional distress, receive low levels of social support, and/or experience tumor-related difficulties in various aspects of daily life should be offered psychological support, irrespective of whether they meet the criteria for psychiatric disorder. Accurate detection of distress, or identification of those most vulnerable to developing negative psychological symptoms, can enable health professionals to initiate early intervention, tailor assistance to meet individual needs, and effectively target limited health care resources to reduce patient suffering. The clinical care of patients with severe or life-threatening conditions such as melanoma also poses special burdens for clinicians. Recognition and understanding of the emotional issues for health professionals will allow strategies to be developed to address these concerns; a process likely to lead to improved therapeutic relationships and enhanced professional satisfaction.

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Author Contributions: Dr Kasparian had full access to all of the reviewed articles and takes responsibility for the integrity and accuracy of the reported findings. Drs Kasparian and McLoone share first authorship on this article. All authors were involved in the formulation of the research question and the identification of specific inclusion and exclusion criteria for this review. Drs Kasparian and McLoone conducted the literature search, reviewed all articles, tabulated all relevant articles, and assessed each article to determine evidence rating level. Dr Kasparian produced the first draft of the manuscript and incorporated the contributions of Dr McLoone and Dr Butow in subsequent drafts. Study concept and design: Kasparian and Butow. Acquisition of data: Kasparian and McLoone. Analysis and interpretation of data: Kasparian, McLoone, and Butow. Drafting of the manuscript: Kasparian, McLoone, and Butow. Critical revision of the manuscript for important intellectual content: Kasparian, McLoone, and Butow. Obtained funding: Kasparian. Administrative, technical, and material support: McLoone. Study supervision: Kasparian and Butow.

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