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Running head: CANCER, DEPRESSION, AND ANXIETY

Depression and Anxiety in Cancer Patients Seeking Psychosocial Therapy

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Abstract

The prevalence of mental disorders (particularly depression and anxiety) in a sample of Canadian cancer patients who were referred to a psychosocial oncology program was investigated. Thirty-one cancer patients filled out both the Beck Depression Inventory-II (BDI-II) and the Beck Anxiety Inventory (BAI) before seeing their psychosocial counselor who evaluated the patient according to Diagnostic and Statistical Manual of Mental Disorders — 4th Ed. diagnostic criteria. The prevalence of depression and anxiety disorders in cancer patients was found to be 13% and 6.45%, respectively. Total BDI-II and BAI scores remained constant over time and both instruments were found to be reliable measures of symptom severity. A number of demographic and cancer-related variables significantly correlated with BDI-II and BAI scores. Neither the BDI-II nor the BAI appeared to be particularly good at predicting DSM-IV diagnosis.

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Depression and Anxiety in Cancer Patients Seeking Psychosocial Therapy

The interrelationship between cancer and depression is a complex phenomenon that has been extensively researched over the past few decades. Perhaps one of the more perplexing aspects of this research is that even the most recent studies report wide-ranging prevalence rates for depression in cancer patients. Some researchers have reported rates as low as 2% and others as high as 60%; however, the majority of the most recent research report rates somewhere in between this range (i.e., 15% — 45%). What is responsible for these highly varied results? While no single answer seems apparent, there are a few core concerns which have been expressed throughout the literature. The first concern revolves around the fact that different researchers use different criteria for diagnosing mood and anxiety disorders. As time passes, generally accepted, credible criteria change, making it harder to compare the results of past and present research. The second concern is that there are a vast number of screening instruments and methodologies used. Certain measures are not suitable for use with medically ill patients. This gives rise to the confounding effects of somatic complaints and symptomatology of organic medical disorders with somatic symptoms of mental disorders. Finally, there are a number of demographic correlates that seem to account for much of the variability in prevalence rates of mood and anxiety disorders in cancer patients. Controlling for these effects in statistical analysis may help researchers determine just how important demographic factors are in accounting for prevalence rates in cancer patients. As well, very few studies have done follow-ups as a check on any aspect of their original findings or determined the pattern or the importance of variables over time.

Prevalence of Mental Disorders and the Criteria Problem

Massie and Holland (1984) note three myths about depression and cancer patients commonly believed by many health practitioners. Myth #1: All cancer patients are depressed from the beginning to the end of their illness. Myth #2: Patients with cancer should (and deserve to) be depressed given the gravity of the diagnosis. Myth #3: It is impossible to treat depression in cancer patients because treatment is ineffective. While research has all but dismissed such myths, there is still uncertainty about why depression is so prevalent in cancer patients and how it can best be detected and predicted.

One of the initial focuses of psycho-oncology was to discern whether cancer could be caused by depression. The most common line of reasoning and investigation was that people whose immune systems were suppressed or highly stressed for extended periods of time seemed to be more susceptible to illnesses, including cancer. As Spiegel (1996) noted, however, there is little evidence that psychiatric illness increases the likelihood of developing cancer, although there is some suggestion that it may influence the course of the illness. Moreover, psychiatric illness undoubtedly affects patient adjustment to serious medical disease impacting how the patient responds to treatment. Thus, the theoretical orientation shifted from "what factors of depression predispose one to cancer illness?" to "what factors associated with cancer predispose one to psychopathology?"

Studies examining the prevalence of depression in medical inpatients suggest about one third (i.e., 33%) of patients suffer from major depressive disorder (MDD) and a further 11% to 26% of patients can be diagnosed with some other form of affective disorder. Rodin and Voshart (1986) caution that the greater frequency of depression in medical inpatients versus outpatients

may be related to the greater severity of illness in medical inpatients.

Massie and Holland (1984, 1990) studied the prevalence of psychiatric disorders in a random sample of cancer patients in three hospitals. They found that 47% of these patients met Diagnostic and Statistical Manual of Mental Disorders — 3rd Ed. (DSM-III, American Psychiatric Association, 1980) criteria for a psychiatric disorder. Of this group, 68% (or 32% overall) had symptoms of anxiety and depression, 13% (6% overall) had major depressive disorder, 8% (4% overall) had central nervous system (CNS) complications, 7% (3% overall) had personality disorders, and 4% (2% overall) had anxiety disorders. Massie and Holland note that what is most interesting is that 53% of all the patients coped remarkably well with their situations. Of the research done on depression in cancer patients, very little has focused on this majority group. It is useful to note that:

> [w]hen individuals receive a diagnosis of cancer the normal reaction may vary from a minimal to a major disruption of emotional state and activities. Initial symptoms are shock and disbelief followed by sadness, crying, feelings of hopelessness and helplessness, and a disruption of appetite and sleep. (Massie & Holland, 1984, p. 26)

These symptoms all overlap with those required for diagnoses of depression and/or adjustment disorder making differential diagnosis difficult. Moreover, it appears that it is "normal" to experience a ranging degree of distress which may or may not be indicative of underlying psychopathology. The problem then becomes whether these symptoms are clinically significant and numerous enough to warrant a diagnosis of a full-blown mental disorder and what criteria to

use in this event.

Diagnostic Criteria

Psycho-oncological research has been complicated by a variety of methodological differences used from study to study. Sellick and Crooks (1999) reminded researchers that "the prevalence of depression will be reported differently depending on which diagnostic system is used" (p. 318), a sentiment backed by many other researchers (e.g., Kathol, Noyes, Williams, Mutgi, Carroll, & Perry, 1990; Lynch, 1995; Wulsin, Vaillant, & Wells, 1999). Because of the diverse diagnostic criteria, sample populations, screening tools and testing instruments, and other methodological differences found throughout the research, meaningful comparisons between studies are difficult, if not impossible, to make.

In previous research, a wide range of diagnostic criteria have been used. These include the DSM-III (American Psychiatric Association [APA], 1980) (e.g., Baile, Gibertini, Scott, & James, 1992; Ginsburg, Quirt, Ginsburg, & MacKillop, 1995; Kathol, Mutgi, Williams, Clamon, Noyes Jr., 1990; Massie & Holland, 1984; Razavi, Delvaux, Farvacques, & Robaye, 1990; Steer et al., 1986), the Diagnostic and Statistical Manual of Mental Disorders — Third Edition — Revised (DSM-III-R, APA, 1987) (e.g., De Walden-Galuszko, 1996; Grassi & Rosti, 1996; Kathol, Mutgi, et al., 1990), Research and Diagnostic Criteria (RDC, Spitzer, Endicott, & Robins, 1978) (e.g., Chochinov, Wilson, Enns, & Lander, 1994; Middelboe, Ovesen, Mortensen, & Bech, 1994), the Endicott Criteria (Chochinov et al., 1994), World Health Organization (WHO) criteria (e.g., De Walden-Galuszko, 1996), and some have used assessment instruments themselves as sufficient for diagnosing (or at least assuming) psychopathology (e.g., (Baštecky, Tondlová, Vesclá, Brizeková, & Boleloucký, 1996; Berard, Boermeester, & Viljoen, 1998; Goldberg et al., 1992;

Kugaya, Akechi, Okamura, Mikami, & Uchitomi, 1999; Middelboe et al., 1994; Sist, Florio, Miner, Lema, & Zevon, 1998). Even the most recent studies do not use the Diagnostic and Statistical Manual of Mental Disorders — Fourth Edition (DSM-IV, APA, 1994) criteria for diagnosing psychopathology, which may reflect several issues. First, there appears to be a lack of assessment instruments suitable for use with cancer patients which also correspond to DSM-IV diagnostic criteria. That is, when DSM-III-R was revised to create DSM-IV, many of the instruments based on the previous criteria may not have been formally standardized to this criteria. Second, there appears to be a heavy reliance on the use of instruments to diagnose psychopathology rather than formal diagnostic criteria. That is to say, many researchers seem to take it for granted that since a person displays "N" number of criteria for disorder "X" that person must actually suffer from that disorder. Factors like psychosocial functioning and other context-dependent variables seem to be neglected. Furthermore, they seem to ignore the fact that most instruments are not intended to be diagnostic (Lynch, 1995). Rather, these instruments are screening tools helpful in detecting signs and symptoms. Cut-off scores, while useful as references which can "flag" potential "cases," are not meant to replace clinical interviews and the judicious application of DSM criteria. Finally, the shortage of DSM-IV usage may also reflect the fact that it can take up to three years (from the time at which the study is received by the publisher) to get one's study published which can make the diagnostic criteria and instruments used seem quite dated (e.g., De Walden-Galuszko, 1996).

Complications Arising from Multiple Instruments

Many studies use lengthy inventories and/or diagnostic instruments and tend to use large numbers of them. Such instruments include the Hospital Anxiety and Depression Scale (HADS)

(Ginsburg et al., 1995; Razavi et al., 1990), the Diagnostic Interview Schedule (DIS) (Ginsburg et al., 1995), the Beck Depression Inventory (BDI) (Berard et al., 1998; Kathol, Mutgi, et al., 1990; Sist et al., 1998; Steer, Beck, Riskind, & Brown, 1986), the Profile of Mood States (POMS) (Kugaya et al., 1999; Pruitt, Waligora-Serafin, McMahon, & Davenport, 1992; Rodin & Voshart, 1986), the Beck Anxiety Inventory (BAI) (Beck, Epstein, Brown, & Steer, 1988; Beck & Steer, 1991; Chochinov, Wilson, Enns, & Lander, 1998; Steer, Ranieri, et al., 1993), the Omega Screening Instrument (OSI) (Pruitt et al., 1992), Millon Clinical Multiaxial Inventory (MCMI) (Baile et al., 1992), Rotterdam Symptom Checklist (Goldberg, Scott, Davidson, Murray, Stallard, George, & Maguire, 1992), Schedule for Affective Disorders and Schizophrenia (SADS) (Chochinov et al., 1994), Mental Adjustment to Cancer Scale (MAC) (Grassi & Rosti, 1996; Kugaya et al., 1999), Illness Behavior Questionnaire (IBQ) (Grassi & Rosti, 1996), Hamilton Depression Scale (HDS), Hamilton Anxiety Scale (HAS), Melancholia Scale (MES) (Middelboe et al., 1994), the Symptom Checklist - 90 (SCL-90) (Baštecky et al., 1996; Beck, Grassi & Rosti, 1996; Steer, Ranieri, Beck, & Clark, 1993) and some studies have used a free-form style of clinical interview which, although lacking structure, may be closest to everyday clinical practice.

Kathol, Mutgi, et al. (1990) investigated the relationship between scores of the BDI and Hamilton Rating Scale for Depression to the presence (or absence) of MDD in cancer patients. The participants were cancer patients who were required to complete the BDI and rated on the Hamilton Rating Scale for Depression. As well, all were given a structured interview based on DSM-III, DSM-III-R, and the Research Diagnostic Criteria (RDC). All three diagnostic tools exclude the diagnosis of MDD if the symptoms are the direct result of organic causes.

The results showed that about 19% of the participants reported symptoms of depression.

One third of those patients met the criteria for MDD. Patients with MDD were significantly younger than those displaying only a few symptoms, but not the complete syndrome. There were no gender differences, with men and women showing about equal rates of MDD. A BDI score of 10 or less predicted with 93% certainty that patients would not have a diagnosis of MDD. Total BDI scores greater than 25 and total Hamilton Rating Scale for Depression scores greater than 19 were associated with higher proportions of patients receiving a clinical diagnosis of MDD. The experimenters concluded that "exclusion of somatic symptoms may improve the ability to identify patients with major depression by deleting 'noise' from the data collected" (Kathol, Mutgi, et al., 1990, p. 1023) although their study does not readily support this conclusion.

The authors offered a warning to researchers. Both the BDI and the Hamilton Rating Scale for Depression could not discriminate between patients diagnosed with MDD and those exhibiting a only few symptoms until relatively high scores were obtained. Therefore, such tools are useful for screening, but not for diagnosis. While percentages like 33% seem to be large, that 33% is a portion of a smaller group (19%) of the total sample. "The reader is directed to consider that while roughly one-third of the patients met the criteria of MDD, that group is actually 33% of 19%, or 6.27%" (Sellick & Crooks, 1999, p. 318). This percentage does not appear significantly different from the 2-3% rate for men or 5-9% rate for women in the general population reported in DSM-IV (APA, 1994). Thus, prevalence rates of clinical depression like 33% appear spuriously high and somewhat misleading.

Several authors (e.g., Massie & Holland, 1984, 1990; Schneider, 1980) have noted that patients in advanced stages of illness (particularly cancer) are most likely to suffer from a psychological disorder (specifically, depression). On the other hand, a number of more recent

studies have presented evidence to the contrary. For example, Razavi et al. (1990) carried out a study with a twofold purpose: 1) standardize the HADS for use in French and 2) develop diagnostic thresholds based on DSM-III and Endicott criteria. Participants were selected in two ways. The first group was referred from oncologists, all of which were accepted except those with an organic-based mental disorder. The second group was randomly selected from the total number of outpatients visiting the hospital. Sociodemographic, medical, and psychological data were collected for all participants. Performance status was rated on the Karnofsky Performance Scale (KPS), where a low KPS score indicates a high level of physical disability. Psychological status was measured through the HADS. The Endicott criteria were used for diagnosing depression. The Endicott criteria are a set of substitution rules in which some somatic symptoms can be replaced by more cognitive-affective items (see Endicott, 1984 or Kathol, Noyes, et al., 1990 for a review of these criteria). Finally, DSM-III criteria were used for diagnosing adjustment disorder.

The results showed no significant difference between referred and non-referred participants in terms of performance (as measured by the KPS). However, for the referred group 18.4% of the group received no psychiatric diagnosis, 45.9% received a diagnosis of adjustment disorder, 25.5% received a diagnosis of MDD, and 10.2% had organic disorders. This was significantly different from the non-referred group in which 35.9% received no diagnosis, 51.6% received a diagnosis of adjustment disorder, 7.8% had MDD, and 4.7% had organic disorders. The distribution of these disorders did not vary as a result of the stage of cancer development. The mean HADS score for the referred group was significantly higher than that of the non-referred group, indicating more severe psychopathology in the former over the latter. In screening for MDD, a cut-off score of 19 on the HADS gave 70% sensitivity and 75% specificity; for

adjustment disorder, a cut-off score of 13 gave 75% sensitivity and specificity. The authors concluded that the HADS was a "sensitive and specific tool for screening for psychiatric disorders in an oncology in-patient population" (Razavi et al., 1990, p. 79).

Several problems were evident in this study. First, different diagnostic sources were used to derive the diagnostic criteria for MDD (i.e., Endicott) and adjustment disorder (i.e., DSM-III). Both groups should have been subject to the same criteria. Because the "adjustment disorders category of DSM-III is one of the few whose definition does not include a clear and specific profile of signs and symptoms" (Razavi et al., 1990, p. 82), they used different criteria for each disorder. Endicott criteria require substitution of somatic symptoms for those more cognitive in nature. This changing of DSM criteria makes accurate and meaningful comparisons of prevalence rates more troublesome. Second, the authors note that the prevalence of a disorder in the general population can affect the specificity and sensitivity of cut-off scores. Essentially, this refers to base-rate problems in which one finds that it is more difficult to accurately detect and predict events that are relatively rare (low base-rate) compared to events that occur more frequently (high base-rate). The authors note that the prevalence of adjustment disorders and MDD, in the general population, is 32% and 6%, respectively. It is unknown how such a disparity in prevalence rates affected the results of this study. Related to this point, a final warning is given by the Razavi et al. (1990) in that these cut-offs "cannot be used to estimate the 'true' prevalence of cases . . . because their calculation depends on the relative sizes of the diseased and non-diseased groups chosen for the study" (p. 82). Because adjustment disorders became better defined in later editions of DSM and the prevalence rates of adjustment disorders are higher than those of depression in cancer patients, focus seems to have shifted to this arena in the past decade.

Chochinov et al. (1994) tried to clarify some of the ambiguity concerning the relative importance of the type of diagnostic criteria used in a hospital setting. Researchers used semistructured interviews taken from the Schedule for Affective Disorders and Schizophrenia (SADS). Diagnostic criteria were those suggested by either Research Diagnostic Criteria (RDC) or Endicott Criteria. As well, the researchers evaluated the effects of different severity thresholds for operationally defining individual symptoms as either present or absent for the purposes of diagnosing MDD.

Results showed that while both RDC and Endicott Criteria yielded roughly the same prevalence rate, the prevalence rate of MDD varied markedly depending on which diagnostic threshold was used, with the use of "low thresholds virtually doubling the observed prevalence rate" (Chochinov et al., 1994, p. 539) of high thresholds. These results are important in helping researchers understand some of the discrepancies across studies of the prevalence rate of MDD in cancer patients. This study showed that high threshold criteria are more likely to result in higher false negative rates because fewer cancer patients are likely to be diagnosed with MDD. Therefore, it is quite possible that some people who are actually depressed may not receive the treatment they need. However, it has the advantage of being very selective and the most ill patients will receive treatment. One's research sample is more likely to be "pure" in that all (or nearly all) participants will meet diagnostic criteria. Conversely, low threshold criteria may result in higher false positive rates. That is, people who are not actually depressed are more likely to receive the diagnosis of MDD, which can actually add to a patient's distress (Razavi et al., 1990). A more positive view is to consider that most everyone who presents with any type of mood disturbance, even with mild symptoms, will receive treatment or at least a clinical screening

interview. "Although the findings of this study do not resolve this issue, they do attest to the subtlety on which such diagnostic considerations can rest" (Chochinov, 1994, p. 540). This brings rise to the importance of clinical judgement and the clinical assessment interview to determine whether someone is undergoing the normal grief process or is clinically depressed.

Berard et al. (1998) assessed the prevalence of depressive disorders in cancer out-patients living in South Africa. A large sample (456) of patients completed the HADS. Of those patients, about half also completed the BDI. Of those completing both instruments, 100 underwent a psychiatric interview using DSM-IV criterion for depressive disorders. For this subsample of 100 outpatients, preference was given to those who scored highly on the HADS and BDI.

The results showed that using a HADS cut-off score of 8 and a BDI total score of 16 as a cut-off yielded sensitivity and specificity greater than 90%. The prevalence rate of depression for those assessed by only the HADS and for those assessed using both the HADS and BDI was 14%. There was only an overlap of 8%, indicating that each tool was assessing something slightly different and that prevalence rates will change based on the instruments and diagnostic criteria used.

This study was the only one found utilizing DSM-IV diagnostic criteria. Also, to its credit, the study had a large sample size. While they did do some analyses looking for differences in age, gender, earning status, marital status, and cancer stage, they used a number of simple t-tests rather than multiple regression or similar statistical method which could, for example, eliminate redundant factors. Therefore, the significant difference in depression scores stratified by earning status may be more of a statistical artifact capitalizing on Type I error rate rather than a true, meaningful finding.

It is evident that past research has been less directly comparable due to the fact that researchers tend to use different screening instruments whose scores are not scaled together. Furthermore, due to dissatisfaction with diagnostic criteria, researchers use different criteria according to their needs. While this may be a good private or institutional practice, it makes research results more ambiguous as it leaves the reader wondering "what would the results have been had they used the same diagnostic criteria (diagnostic source) for all disorders?" Screening instruments are helpful in identifying "cases," however, different cut-offs will yield different prevalence rates. Ultimately, diagnoses should be decided through clinical interviews. Furthermore, the cut-offs suggested for one population might not be suitable for another and any number of extraneous factors such as physical symptoms or demographic variables need to be considered.

Complications: Somatic Symptoms

Some of the indicators of (and diagnostic criteria for) MDD in patients are the presence of physical (somatic) symptoms like severe lack of (or increase in) appetite, weight loss (or gain), and fatigue (American Psychiatric Association, 1994; Kugaya et al., 1999; Massie & Holland, 1984, 1990; Maxmen & Ward, 1994; Middelboe et al., 1994; Sellick & Crooks, 1999; Steer et al., 1986). However, these symptoms may be of little diagnostic value in cancer patients due to the fact that these symptoms commonly result from the cancer itself or its treatment independent of depression (Kathol, Noyes, et al., 1990; Sellick & Crooks, 1999; Spiegel, 1996). Therefore, the diagnosis of MDD must rest primarily on psychological (i.e, emotional and cognitive) symptoms such as the presence of dysphoric mood, crying, feelings of hopelessness and/or helplessness, lowered self-esteem, and feelings of worthlessness and/or guilt.

Diagnosing clinical depression in patients with cancer (or other serious physiological illnesses) can be difficult for two reasons. First, depression may be part of the natural adaptation to a life-threatening illness. This relates to the problem of setting the correct diagnostic threshold. The question becomes: "At what point do sadness, fatigue, and other associated mood and affective reactions meet the criteria for depression?" This is important because different operational definitions can lead to different prevalence rates of depression (Sellick & Crooks, 1999; Zimmerman, Coryell, & Black, 1990). Second, a diagnosis of depression can be complicated by the lack of specificity of somatic symptoms (e.g., fatigue, insomnia/hypersomnia, weight loss/gain, psychomotor agitation) which relate to a diagnosis of MDD. Whitlock and Siskind (1979) noted the possible physiological relationship between depression and cancer. Specifically, they claimed that depression may be the first sign of an undetected cerebral metastasis or a symptom of a hidden non-metastatic (or newly metastatic) cancer. This represents a confounding factor which can lead to high false positive rates if one is unaware of or ignores these factors. Conversely, a high false negative rate may occur if these factors are omitted completely. For example, Chochinov et al. (1994) noted that, in the case of cancer patients, the prevalence of depression has ranged from 5% to 40% depending on the diagnostic criteria used and the importance relegated to somatic symptomatology. As well, Lynch (1995) reminds readers that it is unclear how severe a medical illness must be before somatic criteria are modified.

Rodin and Voshart (1986) listed several noteworthy limitations in using self-report measures in studies of depression in cancer populations. First, the cutoff points tended to be arbitrary, which could lead to either high false-positive or false-negative diagnosis rates. Second, some participants were either unable or unwilling to admit to depressive symptoms during the

acute phase of depression. Third, as noted earlier, there was a confound between depressive symptoms and those associated with cancer in and of itself. Fourth, depressive symptoms tended to be transient. That is, they were not usually present when a participant is retested a week or more later. Finally, there are high false-negative rates when diagnosis is based primarily on somatic complaints (Spiegel, 1996). As noted by Massie and Holland (1984, 1990) and Sellick and Crooks (1999), many such complaints may arise due to complications of cancer independent of the presence of any psychopathology in the individual.

Middelboe et al. (1994) examined the presence of depressive symptoms in cancer patients. Each participant was assessed by a trained interviewer before beginning chemotherapy, and again at three and six months after chemotherapy had begun. The researchers used the Hamilton Depression Scale (HDS), Hamilton Anxiety Scale (HAS), and Melancholia Scale (MES) as observer rating instruments. The results showed that the HDS items corresponding to somatic complaints (e.g., middle insomnia, psychic anxiety, fatigue, loss of energy) showed the highest correlations to participants' diagnosis of depression. All 11 MES items showed significant correlations with overall depression ratings. As well, HAS somatic items showed highest correlations with overall depression ratings. Middelboe et al. (1994) concluded that each scale revealed a symptomatic picture of MDD in cancer patients that is identical to patients who suffer from MDD alone. These authors objected to the idea that cancer patients should be depressed and that depression is natural given the severity of their disease.

The main concern and limitation found in this study was that each of these scales were highly intercorrelated $\underline{r} = .88$). This indicates that at least one of these scales in the study was redundant with the others, failing to contribute new information (variability) and, consequently,

added very little to one's knowledge about the importance of its factors in assessing depression. Therefore, the clinical use of these scales seems limited.

Sist et al. (1998) explored the relationship between depression and pain reports in patients with cancer pain and chronic nonmalignant pain. Each patient was administered the BDI, McGill Pain Questionnaire (MPQ), and a numerically-anchored visual analogue scale (NAVAS) consisting of an 11-point scaled anchored by the descriptors "no pain" (rating of 0) and "worst pain possible" (rating of 10). To avoid high false-positive rates with the BDI, they used only the cognitive-affective subscale score which reflects symptoms such as sadness, pessimism, sense of failure, and suicidal ideation rather than the total score or the somatic subscale (which reflects somatic and vegetative symptoms like fatiguability, somatic preoccupation, and loss of appetite). A cut-off score of 10 was considered diagnostic of depression.

Roughly 25% of the patients in the sample were found to be depressed. However, there was no significant difference in the incidence of depression among cancer pain and chronic nonmalignant pain patients. Furthermore, the severity of depressive symptoms did not significantly differ between cancer pain and chronic nonmalignant pain patients. While there was no interaction between pain type and depression status, there was a main effect for type of pain in that chronic nonmalignant pain patients reported higher levels of pain than did cancer patients. Within both groups, greater pain was correlated with higher depression scores. Sist et al. (1998) concluded that the presence of pain, rather than the nature of the underlying medical condition, is the factor most closely associated with the intensity of depressive symptoms.

The Sist et al. (1998) study had a large sample size. While it did control for somatic symptoms by using only the cognitive-affective subscale, it did have some limitations. They used a

cut-off score rather than a clinical interview to diagnose depression. Recent literature has consistently stated the need to use a structured or semi-structured clinical interview using clearly defined diagnostic criteria as the "gold standard" by which participants are diagnosed. The BDI, like many psychometric instruments, was designed for screening purposes. Because no other standard for diagnosis was used, it is impossible to judge whether eliminating the somatic symptoms was an improvement over using the total BDI score (i.e., sensitivity and specificity). As well, the authors failed to control for demographic factors like gender, age, marital status, and education, all of which are known to affect prevalence rates of depression and anxiety.

Studies examining the effects of physical symptoms on diagnosing patients all agree that somatic factors influence results, but do not agree on which physical symptoms need to be controlled for in analyses and/or diagnoses. Lynch (1995) notes that simply eliminating items dealing with somatic complaints may help, but eliminating them all usually makes the instruments in question less valid and reliable than when these items are left intact. Substitution systems like Endicott's (1983) are one solution. Another solution is to use several instruments in which some have a number of somatic items and others have more cognitive/affective items.

Instruments like the BDI-II and BAI may help discriminate between symptoms arising due to cancer versus those arising from the presence of depression because the former focuses on cognitive/emotional factors while the latter focuses primarily on physical symptoms. Therefore, one might expect cancer patients to score highly on the BDI-II due to psychological distress and highly on the BAI due to physical symptomatology whereas, depressed non-cancer patients might have high BDI-II scores, but relatively low BAI scores due to a lack of similar physical symptomatology. Regression analysis is ideally suited to controlling for the effects of

physiological (and even demographic) variables and assessing the ability of cognitive/affective variables for screening for psychopathology.

Controlling for Demographic Variables

Massie and Holland (1990) claim that, based on studies and extensive clinical observation, it is possible to predict which cancer patients are at highest risk for depression. The predictive factors include a history of affective disorder or alcoholism, advanced stages of cancer, poorly controlled pain, and treatment with medications or concurrent illnesses that produce depressive symptoms (Massie & Holland, 1990). There are problems with this assertion. First, a history of affective disorder or alcoholism is considered a risk factor for anyone in the general population and is not specific to cancer patients per se. Second, depression that results from medication is a special case, as classified in DSM-IV titled "Substance-Induced Mood Disorder" and gives rise to specific treatment considerations which may differ greatly from those considered for someone suffering from MDD or other affective disorders. Third, concurrent illnesses, including cancer itself, may produce depressive symptoms (see Massie & Holland, 1984; Schneider, 1980). Again, such cases give rise to a special diagnosis of depression, "Mood Disorder Due to a General Medical Condition." Fourth, although these are all risk factors, very little research has been done controlling for the effects of these factors. From a statistical standpoint, perhaps each factor is a good predictor because they correlate highly with one another. Consequently, it may be that each adds very little to the predictive validity of any overall equation using all these variables (i.e., highly redundant variables). Alternatively, one could control for the effects of such factors in trying to discriminate between depressed and non-depressed patients by accounting for this variability before analyzing the discriminative ability of various measures.

Baile et al. (1992) explored the relationship between depression and tumor stage in patients having cancer in the head and neck. Each participant was interviewed by a clinical social worker before seeing the head and neck surgeon. The interview took 45 minutes and the information was incorporated into each patient's treatment plan. The assessment procedure included administering the Millon Clinical Multiaxial Inventory (which used DSM-III criteria), the Michigan Alcoholism Screening Test (MAST), a computerized alcohol use interview and the Short Test of Mental Status, as well as a clinical interview.

The results indicated that, overall, depression scores were equally distributed throughout all stages of cancer development. However, when patients were grouped as either early stage (stages I or II) or late stage (stages III or IV), there was a significant gender interaction revealing that women with early stage cancer and men with late stage cancer were more likely to be depressed. These two subgroups of the sample "were also most likely to be single and have higher stress scores than their same sex counterparts" (Baile et al., 1992, p. 21). This apparent relationship between marriage, a form of social support, and lower rates of psychopathology (or the inverse in this case) is not surprising as previous researchers (e.g., Bukberg, Penman, & Holland, 1984; House, Landis, & Umberson, 1988) have found a similar relationship.

There are a number of limitations to this study.. First, while the homogeneity of the group offers good control and bodes well for internal validity purposes, it compromises external validity because the results may not generalize to cancer patients with different cancer sites. Second, the authors note that, because the patients were waiting to receive their medical diagnoses, there could have been considerable worry and stress and this was not assessed in the study nor was there a follow-up session to determine whether elevated scores were a product of this situation.

As well, the researchers did not assess whether the patients had prior diagnoses of depression or other psychopathology. It is possible that many of the cases of depression assessed in the study were actually recurrent disorders. Finally, the authors also note that marriage is only an indirect measure of social support and that this factor was not thoroughly assessed. Any number of these factors could explain their failure to detect a relationship between cancer stage and depression beyond the interaction of stage and gender (which may have been due to the influence of social support more than anything related to being male or female).

De Walden-Galuszko (1996) investigated the type and frequency of psychological and psychiatric problems connected with terminal stage cancer. The first factor of concern was sociodemographic in nature (e.g., age, gender, education, marital status). The second factor of concern consisted of clinical variables (e.g., tumor location, duration of disease, pain intensity). Psychiatric diagnosis was made by clinical interview using DSM-III-R criteria. Participants were then divided into four groups: 1) Normal Response (NR) — those adjusting adequately to the diagnosis of cancer, 2) Adjustment Disorder, called psychoterminal syndrome (PTS), 3) organic mental disorder (OMS), and 4) prior psychiatric disorders co-existing with cancer.

The results showed that 40% of the participants presented with NR. Sixty percent received a clinical diagnosis; 37% received one due to their cancer illness (18% presented with PTS and 19% with OMS) while the remaining 23% suffered from dementia and prior psychological disorders. There was a significant gender difference in that women were two times more likely to receive a diagnosis of PTS than men. As well, education had a significant effect in that lower education levels (in the formal sense) were associated with better adaptation to cancer illness. There was a significant relationship between pain control and PTS in that those who rated

their pain as severe were most likely to suffer from PTS those with the lowest rating of pain were least likely to suffer from PTS. In terms of cancer site, breast cancer patients were more likely to suffer from PTS than those with other cancer sites. Participants who had the best response (i.e., NR) to cancer illness were least aware of their diagnosis. Finally, the author notes that younger people were more prone to PTS than older patients (consistent with Kathol, Mutgi, et al., 1990).

The major limitation of this study was the failure of the researcher to address the fact that not only were women more likely to suffer from an adjustment disorder, but breast cancer patients were also more likely to suffer from adjustment disorder. It would be interesting to know how much variation the latter accounts for in terms of receiving such a diagnosis. That is, if all of the breast cancer sufferers were extracted from the data, would there still be a significant difference between the prevalence of adjustment disorders found in men and women?

Baštecky et al. (1996) examined the prevalence of psychopathology in breast and gastrointestinal cancer patients. All participants were diagnosed with either breast cancer or gastrointestinal cancer of varying sites. To help standardize their assessment procedure, all participants filled out the SCL-90.

The results indicated a prevalence of psychopathology ranging from 2% to 33%. There was no significant difference in the prevalence of psychopathology between breast cancer and gastrointestinal cancer patients. There was no significant difference in the prevalence of psychopathology based on the stage of cancer (i.e., stages I or II versus stages III or IV). However, they gave no more information leaving one to speculate as to actual numbers, percentages, correlations, and so on, which was a major limitation of this study. As well, the sample size for the gastrointestinal cancer group was rather small ($n = 21$) compared to the breast

cancer group (n = 86), which may have greatly affected the result especially when one considers that some statistical procedures are designed to work with only balanced groups. Again, one cannot determine whether this is an issue because the authors failed to indicate what type of statistical analysis was used to analyze the data. The researchers themselves noted a significant limitation in that their results "are biased by the fact that screening of the psychopathology was performed only once after surgery" (p. 177). This is significant because several studies (e.g., Kugaya et al., 1999; Massie & Holland, 1990; Spiegel, 1996) have shown that the probability of psychopathology and its intensity changes at different stages of illness (although the results of this study would seem to challenge these claims). Finally, because they reported such a wide range of prevalence (2% to 33%), it is impossible to determine whether this is strikingly (if not significantly) different from North American prevalence rates (or those of the rest of Europe).

Kugaya et al. (1999) examined the association between depression and psychosocial factors in cancer patients. Participants were ambulatory head and neck cancer outpatients 18 years old and older. Over a period of 10 randomly selected days physicians asked eligible patients to participate in the study. Participants had sociodemographic data collected from them via structured interviews. As well, these interviews were used to ascertain the participants' utilization of confidants as a source of social support. All participants completed the POMS and the MAC scales. The former was used as a measure of psychological distress while the latter measured coping styles.

Multiple regression analysis, using POMS to measure depressed mood (i.e., dependent variable), revealed that stage of illness (I or II vs. recurrence), marital status (married vs. unmarried), and MAC subscales helplessness/hopelessness and fighting spirit accounted for the

most of the variability (45%). The independent variables stage (local vs. advanced disease), marital status, and helplessness/hopelessness significantly predicted POMS values. However, stage (I or II vs. recurrence), number of confidants, and fighting spirit were not good predictors of POMS values. Based on these results, Kugaya et al. (1999) concluded that their findings "suggest that among highly functional ambulatory head and neck cancer patients, those who are unmarried, have advanced disease, and those with a helpless/hopeless coping style have a tendency to have greater depressed mood" (p. 497).

There are a number of limitations to this study which limit its applicability to other cancer populations. These include the facts that all participants were well educated (10 years or more), and had similar cancer sites (i.e., highly homogeneous sample). Research from the UK, US, and Europe has shown that these factors can influence the probability of being diagnosed with a psychological disorder (e.g., Baštecky et al., 1996; De Walden-Galuszko, 1996; Grassi & Rosti, 1996; Spiegel, 1996). Moreover, all participants were Japanese, which again limits the generalizability of these results to other cancer populations. Because helplessness/hopelessness was a major predictor of whether patients received a diagnosis of depression, an assessment of suicidal ideation would have complemented the study since numerous studies have shown that hopelessness, in and of itself, is the single best predictor of suicidal ideation and suicide attempts (see Beautrais, Joyce, & Mulder, 1999; Breitbart, 1994; Beck, Brown, & Steer, 1989; Beck & Steer, 1988, 1993; Beck, Steer & Ranieri, 1988; Glanz, Haas, & Sweeny, 1995; Johnson, Lall, Bongar, & Nordlund, 1999; Klimes-Dougan, 1998; Maxmen & Ward, 1994). As well, this seems to be somewhat of a tautology or at least a circular argument since hopelessness is part of the diagnosis of depression. The inability of psychosocial factors to account for a major portion of the

variability in this study may have been due to the fact that the "[s]ubjects who declined to participate in the study had poorer PS [performance status]" (Kugaya et al., 1999, p. 498). That is to say, those refusing to participate in the study had poorer adjustment to their situation physically and psychologically. In essence, the participants in this study were largely homogeneous in that they tended to be high functioning and had many social supports (e.g., 80% were married). Researchers like Grassi and Rosti (1996) and Spiegel (1996) have found that the presence of social supports is one of the best buffers against psychopathology in cancer patients.

The literature demonstrates that demographic variables are useful in predicting anxiety and depression or accounting for differences in prevalence rates between certain groups. For the most part, those who have cancer in the later stages, are younger, more educated, and are unmarried (either single, widowed, or divorced) tend to have higher rates of psychopathology. Accounting (and controlling) for these demographic variables in statistical analysis may give researchers a better idea of how and why anxiety and depression rates vary so much from study to study. In clinical practice, knowledge of the effects of demographic variables on prevalence rates may better prepare clinicians (and other service providers) for highly probable cognitions, moods, and behaviors likely to be exhibited by their clients.

Prior Diagnosis

Ginsburg et al. (1995) conducted a study investigating the factors that affect the daily lives of lung cancer patients (i.e., emotional and social concerns). That is, they wanted to assess the psychiatric and psychosocial concerns that they face. Participants were inpatients that satisfied the following criteria: 1) they were diagnosed with lung cancer within the past three months, 2) they were undergoing chemotherapy or radiotherapy, 3) they were ambulatory, and 4) did not need an

interpreter to do the interview. Appropriate candidates were interviewed individually by a single psychologist. Each assessment interview consisted of two parts. The first part was a structured interview following the Diagnostic Interview Schedule (DIS), a diagnostic instrument that follows criteria set out in DSM-III. Because the DIS did not address the realm of adjustment disorders, the less structured section of the assessment interview was designed to compensate for this. This section of the assessment also used DSM-III criteria for diagnosis.

The results showed that about 15% of the participants suffered from some form of mental disorder — 11.5% (six participants) had an adjustment disorder, and 4% (two participants) had depression. The vast majority failed to meet diagnostic criteria for any kind of mental disorder, however, many displayed a variety of symptoms. A significant number of participants had a previous diagnosis at some point, with most having suffered from an affective or anxiety disorder (or both). The majority of those receiving a clinical diagnosis were part of this group which had received a clinical diagnosis at some point in their developmental history.

Although Ginsburg et al. (1995) identified a number of factors affecting and of concern to lung cancer patients there are several limitations to this study. First, the sample size was quite small. Thus, the reporting of percentages in this study can be quite misleading. Second, Ginsburg et al. point out that their sample was quite homogeneous and, consequently, the study is limited in terms of its generalizability to cancer patients as a whole. This is especially important when one considers that several studies have found that certain cancer sites (e.g., pancreatic cancer) are more likely to produce depressive symptoms than others. Third, this study was largely qualitative and failed to try to determine the relative importance of or amount of variability accounted for by each factor. Fourth, all assessment interviews were carried out by the same person. While this is a

good control in that it omits the need to assess interrater reliability, it introduces an element of error in that it could create experimenter bias; the interviewer may have inadvertently biased the unstructured part of the assessment resulting in a disparity in information. For example, the majority of the participants diagnosed with a mental disorder were found to have adjustment disorder (assessed in the semi-structured interview) and only one had depression (assessed by the DIS). Finally, the length of the assessment interview appears to have been excessive due to the number of measures used. This may have produced a rather artificial atmosphere and affected the results. For example, the participants might have felt less at ease knowing they were part of a study or become irritable or deliberate less about their answers to questions. Ginsburg et al. (1995) concluded that, although it is important to know what factors affect cancer patients, "agencies will need mechanisms to identify patients in particular need of help, to determine the nature and extent of the help that these patients and their families should be receiving" (p. 708). Future research should focus on the importance of each factor in terms of risk assessment.

Grassi and Rosti (1996) emphasized the need for repeated assessments of adjustment to illnesses like cancer, to detect the long-term psychological effects of such an illness. Hence, these researchers examined psychosocial morbidity and adjustment for long-term cancer survivors. Grassi and Rosti also wanted to explore the association between psychosocial variables evaluated during the first assessment and follow-up.

In the original study (T#1), participants were inpatients between the ages of 18 and 70 diagnosed within the previous 3 months and attained a score of 80-100 on the Karnofsky Performance Status Scale (i.e., normal activity and independence in daily living without any assistance). In the follow-up (T#2) a preliminary review of the participants' charts was made to

evaluate their health status. Cancer survivors (now outpatients) were contacted and interviewed by the same person that had interviewed them six years earlier. A semi-structured interview was used to assess each participant's mental status (using DSM-III-R criteria). A second semi-structured interview was conducted to rate the occurrence of stressful life events over the time since T#1. Participants also completed the Symptom Checklist 90-Revised (SCL-90-R) and the MAC. As well, each participant completed the External Locus of Control (ELC) scale and the Social Support Interview (SSI).

Psychiatric illness was present in 37% of the participants at T#2 and 47% at T#1 (no significant change). Of the 37% with a current DSM-III-R diagnosis, 74% of them had received a prior diagnosis and the remaining 26% later developed one. The "occurrence of stressful life events during the 6 years following the first assessment differentiated the patients who had a current mental disorder from those without" (Grassi & Rosti, 1996, p. 527). Therefore, it appears as though those most at risk for developing psychopathology were those who had suffered from a disorder at some point earlier in their lives.

There were a number of noteworthy limitations with this study. First, the researchers noted that their sample size was very small. Therefore, one must use caution when trying to generalize the results of this study to the larger population of cancer sufferers. Second, the authors also noted that a number of participants' cancers were in complete remission which also makes generalization to the larger population of cancer patients difficult. Indeed, one may argue that such participants should have been excluded from the study for validity reasons. For example, not all cancer patients continue to get sick later in life when their cancer goes into remission. Some are cancer-free for years or life. Therefore, these people would be more appropriately

termed "former cancer patients" and perhaps best left out of the Grassi and Rosti (1996) study. Third, the inability of the illness-related variables to account for a significant portion of the total variability may have derived either from the fact that no standardized inventory was used to record this information, or that the scales they developed for the study were not sensitive enough. Also, the numerical values used for the illness-related and psychosocial variables were gathered at T#1 rather than T#2. It is unknown why a measurement of these variables at T#2 was not included in the multiple regression analysis.

It appears as though those most at risk for developing psychopathology were those who had suffered from a disorder at some point earlier in their lives. This is a phenomenon found throughout psychology and psychiatry (Maxmen & Ward, 1995) and cancer patients are no exception. Research should focus on whether cancer typically serves to trigger new cases of psychopathology or if the majority of those diagnosed with a mental disorder after receiving a medical diagnosis of cancer are suffering from a relapse to a previous condition.

The Present Study

The literature clearly demonstrates the inconsistent prevalence rates of depression in cancer patients between studies. This appears to result from the varying diagnostic criteria and screening instruments used to assess cancer sufferers. Furthermore, it is clear that various demographic and medical factors influence research results. Indeed, it is uncertain whether these factors are better predictors of depression in cancer patients than any of the screening instruments.

The present study was designed to provide a prevalence rate of depression and anxiety in cancer outpatients seeking psychosocial therapy from a psychosocial oncology program hailing from a geographically large catchment area with a relatively sparse population (i.e., rural setting).

The challenge of the study was that it had to differ enough from previous research to add to the existing knowledge base (i.e., use of logistic regression techniques and repeated administration of instruments), but similar enough to existing literature to make it comparable (i.e., similar psychosocial variables, cancer-related variables, methodology). As well, the study was designed to be ecologically valid and simple enough so that non-cancer therapists and counselors would find the information useful. Thus, it used one set of diagnostic criteria commonly used in most mental health settings and it was these criteria that determined whether participants could be classified as suffering from a mental disorder. The present study not only used DSM-IV diagnostic criteria, but it also used instruments standardized to the DSM-IV. Furthermore, the two instruments were used for the purposes of screening and discrimination, not diagnosis. A number of authors have noted the importance of using screening instruments as they were designed and not as the "gold standard" for diagnosis as cut-off scores often lack reliability (e.g., Pascoe, Edelman, & Kidman, 2000; Rodin & Voshart, 1986; Sellick & Crooks, 1999). Rather, diagnosis was, ultimately, left up to the health service provider in question. This approach reflected everyday clinical practice more closely than relying on a number of tests and inventories which can take many hours to administer, score, and evaluate. Another motive behind the present study was to introduce a methodology that would be useful in research settings as well as in clinical settings. Finally, by controlling (statistically) for the effects of some key demographic and physiological factors, as supported by the literature, this study was able to more clearly demonstrate the value of using instruments like the BAI and BDI-II for use with cancer patients.

Hypotheses

Based on the literature, several findings seemed likely. First, the prevalence rate of

depression and anxiety in ambulatory, self-searching cancer patients were expected to be around 33%, overall, although no specific breakdown for prevalence rates between the anxiety and depression groups was expected. Second, it seemed likely that females would have higher prevalence rates of depression and anxiety than males (as well as higher mean total scores on the BDI-II and BAI). Third, it was expected that depression and anxiety scores would change little over time. Fourth, with reference to the demographic variables used in the present study, it was expected that cancer outpatients who were younger, more educated, and in advanced stages of cancer would be more likely to meet criteria for psychopathology. Finally, results were inconsistent throughout the literature concerning the rates of psychopathology with respect to various cancer sites. Therefore, this data was more of a point of interest or exploratory analysis with no specific presuppositions.

Method

This study was conducted in a "psychosocial oncology program" offering individual, family, and group counseling to cancer patients and their families. The core of such a program is accurate assessment which helps define the problem and plan the treatment program to be implemented.

Participants

Participants were outpatient clients of Supportive Care Services of the Northwestern Ontario Regional Cancer Centre (NWORCC) in Thunder Bay, Ontario, Canada. All participants were English-speaking adults, 18 years of age or older. All participants were informed of the nature of the study prior to each interview so as to obtain informed consent. It was stressed that participation was voluntary (from this selection of largely self-referred, not randomly selected, patients), that they could discontinue participation at any time, and that refusing to participate would not affect the quality or delivery of health care services. Consent forms were also signed by each participant with one copy going to the researcher and the other retained by the participant.

During the six-month period in which the present study was conducted, there were 217 referrals made to Supportive Care Services of NWORCC. However, the vast majority (160) were friends and family members of cancer patients and, therefore, ineligible. In total, 57 clients were eligible for participation and 40 (70%) of those expressed interest in participating in this study. However, one died before filling out the Beck Inventories and seeing a counselor; the other eight declined on the day they were to participate. Ten males and 21 females took part in the study ranging from 31 to 81 years of age ($M = 55.71$, $SD = 11.58$), education level ranging from 4 to 16 years of formal education ($M = 12.48$, $SD = 3.03$), and time since diagnosis with cancer

ranging from 6 to 3700 days (M = 772.52 days, SD = 1,145.30).

Materials

Identifying the type of psychopathology is important because the pathology prescribes the treatment that could potentially be used. Instruments used to discriminate between mood and anxiety disorders (e.g., BDI-II and BAI) are important in assessment because they simultaneously offer confirmatory and refuting evidence of particular types of pathology. Instruments like the BDI-II and BAI may help discriminate between symptoms arising from cancer versus those arising from the presence of something more endogenous because the former instrument focuses on cognitive/emotional symptoms while the latter focuses primarily on physical symptoms. Having multiple sources of diagnostic information may lead to more confident and accurate diagnosis.

Beck Depression Inventory-II (BDI-II). The BDI-II is a 21-item inventory that assesses the severity of depression in adults and adolescents. The BDI-II was "developed for the assessment of symptoms corresponding to criteria for diagnosing depressive disorders listed in the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders — Fourth Edition (DSM-IV)" (Beck, Steer, & Brown, 1996, p.1). As with the original BDI, the BDI-II's items were based on the typical descriptive statements often reported by depressed inpatients, but infrequently reported by nondepressed inpatients. Because the signs, symptoms, and attitudes assessed by the BDI-II do not correspond to any individual theory of depression, the BDI-II is relatively free of bias in that respect. Because the BDI-II was developed relatively recently, there is a lack of studies demonstrating its utility in different clinical populations (except those reported in the BDI-II Manual by Beck et al., 1996) . However, Beck et al. (1996) maintain that, since the revisions are somewhat subtle, much of the data on the BDI and BDI-IA apply to

the BDI-II as well.

The BDI appears to be quite useful in helping clinicians distinguish between those phenomena which would, consequently, aid in placing the client in the correct treatment program. Because the objective here was to discriminate clients suffering from depressive disorders from clients suffering from anxiety disorders and those who were sub-threshold for any disorder, the BDI-II (being the most recent version) was thought to be an appropriate instrument.

Beck Anxiety Inventory (BAI). The BAI is a 21-item inventory that assesses the severity of anxiety in adults and adolescents. Helpful in this study is the fact that the "BAI was constructed to measure symptoms of anxiety which are minimally shared with those of depression, such as those symptoms measured by the revised Beck Depression Inventory" (Beck & Steer, 1993). This was done to minimize the overlap between the depression and anxiety inventories and aid in differential diagnosis. Fourteen of the items represent somatic symptomatology and the remaining seven items reflect cognitions associated with anxiety and panic (Steer et al., 1993).

In the development of the BAI, Beck, Epstein, Brown, and Steer (1988) demonstrated that the BAI total score correlated moderately highly with other measures of anxiety (namely, the Hamilton Rating Scale for Anxiety and the Cognition Checklist). As well, it yielded moderate correlations with the BDI, Beck Hopelessness Scale (BHS), and Hamilton Rating Scale for Depression. Unfortunately, the data (although resulting in a large sample size) were collected across a six-year time span. It is unknown what effects this may have had on the data collected. Also, the authors note that the effects of method variance could have influenced their results leading to underestimates of the true correlations between the Hamilton Scales and the BAI. Different measurement methods and overestimates of the correlations between the BAI and the

other Beck Scales may have occurred due to the fact that they are both self-report measures (i.e., mono-method bias). However, Steer, Ranieri, et al. (1993) were able to support the Beck, Epstein et al. (1988) findings in a study that compared the BAI, BDI, and SCL-90. The BAI scores correlated highly with the anxiety subscale scores and only moderately with the depression subscale scores of the SCL-90, whereas the inverse was true of the BDI scores and the SCL-90 scores. Furthermore, they were able to find evidence that the BAI was able to discriminate between outpatients diagnosed with panic disorders from those diagnosed with mood disorders.

In a related vein, Beck and Steer (1991) examined the relationship between the BAI and the Hamilton Anxiety Rating Scale (HARS) with a clinical sample of anxious outpatients. Participants were evaluated on the BAI, and HARS and then interviewed via the DSM III-R version of the SCID. It was found that the BAI and HARS correlated moderately $r = .56$, $p < .05$) with each other. It was also shown (through the use of factor analysis) that the BAI items reflected neurophysiological, subjective, panic, and autonomic self-reported symptoms whereas the HARS items reflected psychic and somatic clinical ratings. Furthermore, a multivariate analysis of variance (MANOVA) revealed that these dimensions could successfully discriminate between three groups of participants diagnosed with either panic disorder with agoraphobia, panic disorder without agoraphobia, and generalized anxiety disorder. A study carried out by Beck, Steer, and Beck (1993) further supported the findings that the BAI (using the symptom factors noted above) could differentiate between clinical subgroups of patients with anxiety disorders.

Anxiety is often a complicating factor and needs to be measured and accounted for in some fashion. The BAI was used in the present study to supplement information concerning diagnoses of anxiety and mood disorders to help discriminate between the groups.

Procedure

Prior to seeing a counselor, each participant was given a short letter explaining the study's broad purpose and the methods to be used (see Appendix A). As well, a separate form was used to obtain informed consent for their voluntary participation (see Appendix B). Every participant was asked to fill out the BDI-II and BAI as part of the assessment procedure. The completed inventories were placed in an envelope and kept until the conclusion of the clinical interview after which they were placed together in a folder and analyzed at a later date. Each interviewer provided feedback by filling out a form which stated whether the participant in question suffered from a DSM-IV diagnosable mood or anxiety disorder (see Appendix C). The interviewer did not have access to the BDI-II and BAI results. This part of the procedure was similar to that employed by Beck, Epstein, et al. (1988) which was thought to have added to the validity of their results.

Each participant was assessed by one of four counselors in a semi-structured clinical assessment interview similar to that outlined by the Structured Clinical Interview for DSM-IV Axis I Disorders — Clinician Version (SCID-I) (First, Spitzer, Gibbon, & Williams, 1997). As well, information concerning each client's gender, age, marital status, and education were collected. The SCID-I was chosen as a template for a variety of reasons. First, several researchers (e.g., Baile et al., 1992; Beck, Epstein et al., 1988; Beck & Steer, 1991; Beck, Steer, & Beck, 1993; Beck, Steer, & Brown, 1996; Spiegel, 1996; Steer, Ranieri, et al., 1993) have used earlier versions of the SCID to assess psychological morbidity and found it to have adequate reliability and validity. For example, Beck et al. (1996) noted that the DSM-III-R version of the SCID was very useful in assessing affective and anxiety disorders when used in combination with the BDI-II.

Second, the SCID-I uses DSM-IV criteria for diagnosis, which is consistent with this study's purpose. Even relatively recent studies (e.g., Baštecky et al., 1996; Chochinov et al., 1994; Kugaya et al., 1999) have failed to use this (DSM-IV) criteria. Thus, assessing clients based on this "new" criteria was thought to be of value in and of itself. Finally, because the SCID-I can (and was designed to) be used in clinical practice it preserves the clinical atmosphere of the setting thereby adding to the ecological validity of this study. Appendixes D to G present the guidelines each interviewer used during the interviews. Of the four interviewers, one was a clinical psychologist and the other three were clinical social workers with at least 10 years experience.

Each participant in the study had his/her medical chart checked to gather information concerning his/her cancer site, stage of cancer, and date of diagnosis. This supplemented information provided by the participants in that it helped fill in missing information (e.g., information that the participant may be unaware or uncertain of) and to verify the accuracy of their reports concerning these facts.

Follow-up. Two months following their initial contact, participants were re-evaluated. The re-evaluation consisted of re-administering the BAI and BDI-II. If the person met DSM-IV diagnostic criteria for a mental disorder initially, it was believed that this disorder should be detectable two months later. Given the position forwarded by Grassi and Rosti (1996), one would expect these measures to change very little from the initial assessment (T#1) to follow-up (T#2). A reduction in scores would indicate the transience of psychological distress associated with the population of concern. It would argue for more rigorous, continuous assessment procedures in cases dealing with medical illness and mental disorders. As well, it would give credence to the notion that there is a normal reaction associated with serious medical illnesses like cancer and that

one must carefully consider whether such cases warrant clinical diagnosis with psychotherapy when close monitoring and a supportive relationship may what is needed.

Seven of the 31 participants did not fill out the BDI-II and BAI at follow-up. One of the participants died during the interim; three became very ill, had to be hospitalized, and were unable to participate further; two of the participants were unable to be contacted for follow-up; one participant provided full BAI information at follow-up, but there was not enough BDI-II information available to be included.

Results

Data Screening

All analyses were carried out using Statistical Package for the Social Sciences (SPSS) version 10.0. Prior to analysis, the distribution of scores on the age, education, gender, time since diagnosis with cancer, cancer site, BDI-II total score (T#1 and T#2), and BAI total score (T#1 and T#2) variables were all examined for the presence of univariate outliers. Both a visual and statistical inspection of the data was performed. As suggested by Tabahnick and Fidell (1996), any standardized values that exceeded three standard deviations above or below the mean were considered univariate outliers. As well, the distribution of scores for each of these variables was assessed visually through box and whiskers plots and through statistical analyses (i.e., skewness divided by SE of skewness). Significantly skewed distributions were transformed using either logarithmic, square root, or inverse score conversions to make the distributions more normal. Of all the above variables, only time since diagnosis was significantly skewed. It was transformed using a logarithmic transformation making the values more normally distributed. Therefore, all analyses which include this variable use the logarithmically transformed version. Table 1 provides means and standard deviations on each of the variables for the sample stratified by gender save for cancer site.

Prevalence of Mood and Anxiety Disorders in Northwestern Ontario Cancer Patients

Of the 31 participants completing the initial assessment phase of this study, 4 (13%) met criteria for a mood disorder. As well, 2 (6.45%) of the participants met the criteria for an anxiety disorder. This means that 80.55% of all the participants in the study failed to meet diagnostic criteria for a mood or anxiety disorder.

Table 1

Descriptive Statistics for Demographic, Cancer, BDI-II, and BAI Variables by Gender

Variable	M	SD	n
Age (years)			
Males	59.00	11.46	10
Females	54.14	11.58	21
Education (years)			
Males	12.44	3.43	9
Females	12.50	2.93	20
Time Since Diagnosis with Cancer (days)			
Males	310.50	433.68	10
Females	992.52	433.68	21
BDI-II (T#1)			
Males	13.50	9.16	10
Females	16.38	10.30	21
BDI-II (T#2)			
Males	15.22	12.11	9
Females	15.36	10.76	14

table continues

Table 1 (continued)

Variable	M	SD	n
BAI (T#1)			
Males	11.60	7.86	10
Females	21.71	13.80	21
BAI (T#2)			
Males	14.67	6.69	9
Females	19.40	14.68	15

There was a significant difference between male and female BAI (T#1) mean total scores, with $t(29) = 2.15$, $p < .05$.

Psychological Distress: Change Over Time

The next question addressed was whether there was a change over time in terms of depression and anxiety scores. Two paired t-tests were carried out, one for BDI-II and one for BAI total scores. The paired t-test between the BDI-II total scores at T#2 and T#1 was not statistically significant, with $t(22) = -0.41$, $p > .05$. The second paired t-test, between BAI total scores at T#2 and T#1, also was not statistically significant, with $t(23) = -0.22$, $p > .05$. This indicates that both the BDI-II and BAI total scores remained stable after a two-month follow-up.

Correlates of change over time were assessed using difference scores (e.g., BDI-II total score T#2 — BDI-II total score T#1, BAI total score T#2 — BAI total score T#1) correlated

with each of the variables of interest (e.g., age, education, time since cancer diagnosis). These demographic and cancer-related variables have been shown to affect the prevalence of psychopathology in cancer patients (e.g., Berard et al., 1998; De Walden-Galuszko, 1996; Kugaya et al., 1999; Pascoe et al., 2000; Sist et al., 1998). There was a significant correlation between BDI-II and BAI difference scores, with $r(22) = .67$, $p < .05$. This indicates that both the BDI-II and BAI total scores changed together over time. For example, a reduction in BDI-II total scores coincided with a reduction in BAI total scores. There were no other significant correlations associated with BDI-II and BAI change scores. However, there were significant correlations between the demographic variables age and education and BDI-II (T#2) total scores, with $r(21) = -.46$, $p < .05$ and $r(19) = .46$, $p < .05$, respectively. This indicates that younger people had higher total BDI-II scores at T#2 than older people whereas higher education levels were associated with higher T#2 total scores. As well, BDI-II (T#2) total scores were significantly correlated with BAI (T#2) total scores, with $r(21) = .72$, $p < .05$, which indicates that people with high BDI-II total scores at follow-up also tended to have high BAI total scores at that time. There were significant correlations between the demographic variable age and the cancer-related variable time since diagnosis and BAI (T#2) total scores, with $r(22) = -.46$, $p < .05$ and $r(22) = .54$, $p < .05$, respectively. This means that younger people had higher total scores at T#2 than older people; longer time since first being diagnosed with cancer was associated with more anxiety as indicated by higher BAI (T#2) total scores. There was a significant correlation between BAI (T#1) total scores and the cancer variable time since diagnosis ($r(29) = .40$, $p < .05$), and BDI-II (T#1) total scores ($r(29) = .76$, $p < .05$). Hence, higher BAI (T#1) total scores were associated with having been diagnosed with cancer longer and having higher BDI-II (T#1) total scores.

Test-retest reliability was given by correlating T#1 total scores with T#2 total scores for both the BDI-II and BAI. Both the BDI-II and BAI were shown to have reliability coefficients in the moderate to high range, with $r(21) = .50$, $p < .05$ for the BDI-II and $r(22) = .82$, $p < .05$ for the BAI.

Two analysis of variance (ANOVAs) were carried out with cancer site as the independent variable and BDI-II and BAI total scores as dependent variables. No significant differences were found between cancer site and either of these variables.

Assessing Severity of Symptoms

Sequential multiple regression analysis was used to determine how well BDI-II and BAI total scores could be predicted from the other variables and how much of the total variance in these scores could be accounted for. The first sequential multiple regression analysis used BDI-II total score as the dependent variable (DV) and gender, age, education, time since diagnosis, and cancer site as independent variables (IVs). The first step entered the demographic variables and the second step entered the cancer-related variables. Because the time since diagnosis variable data were skewed, the logarithmic transformation was used. The final step of the analysis revealed an overall $R = .42$, $R^2 = .18$, and Adjusted $R^2 = -.22$, with $F(9, 19) = 0.45$, $p > .05$. None of the variables had significant unique effects in accounting for the variance in BDI-II total scores.

The second sequential multiple regression analysis used the same cancer-related and demographic variables in the first and second steps (IVs). However, this time the DV was BAI total score. The final step of the analysis revealed an overall $R = .57$, $R^2 = .33$, and Adjusted $R^2 = .01$, with $F(9, 19) = 1.02$, $p > .05$. Thus, none of the variables had significant unique effects in accounting for the variance in BAI total scores.

Using Severity Measures for Clinical Diagnosis

The use of the BDI-II and BAI as predictors of clinical diagnosis was checked in several ways. Examining the BDI-II and BAI separately (using T#1 total scores) and guided by the cut-off scores suggested in the literature, sensitivity and specificity, chi-square, and kappa were calculated. For the BDI-II, using a cut-off score of 19 (as suggested by Berard et al., 1998; Kathol, Noyes, et al., 1990) yielded sensitivity of 75% and a specificity of 63%, with $\chi^2(1, n = 31) = 2.10$, $p > .05$ and a kappa value of 0.19. However, best sensitivity and specificity (75% and 74%, respectively) were reached at a cut-off score of 21, with $\chi^2(1, n = 31) = 3.84$, $p < .05$ and a kappa value of 0.30. This means that there was 30% agreement between DSM-IV mood disorder diagnosis and BDI-II cut-off score diagnosis after correcting for chance. There were no reports in the literature about what cut-off was best for the BAI. Therefore, the same cut-off score of 19 was used here, as well. This cut-off score yielded a sensitivity of 50% and specificity of 58.60%, with $\chi^2(1, n = 31) = 0.06$, $p > .05$ and a kappa value of 0.02. The best sensitivity and specificity (50% and 69%, respectively) were reached at a cut-off score of 25, with $\chi^2(1, n = 31) = 0.31$, $p > .05$ and a kappa value of 0.07. This means that there was only 7% agreement between DSM-IV anxiety disorder diagnosis and BAI cut-off score diagnosis.

Table 2 presents the means and standard deviations for the depressed and non-depressed groups on the BDI-II and the anxious and non-anxious groups on the BAI as assessed by clinical interview. Using BDI-II and BAI total scores (both at T#1), two independent t-tests were carried out to compare depressed versus non-depressed and anxious versus non-anxious groups on mean BDI-II and BAI total scores, respectively. There was no significant difference between mean scores on the BDI-II between diagnosed depressed and non-depressed participants, $t(29) = -1.50$,

Table 2

Descriptive Statistics for Diagnosed and Non-diagnosed Groups on BDI-II and BAI at T#1

Group	M	SD	n
Depressed	22.25	9.50	4
Non-Depressed	14.44	9.71	27
Anxious	18.41	13.22	2
Non-Anxious	19.00	12.73	29

$p > .05$. As well, there was no significant difference between mean scores on the BAI between diagnosed anxious and non-anxious participants, with $t(29) = -0.61$, $p > .05$.

Finally, three sequential logistic regressions were to be carried out, one for depression, one for anxiety, and one to predict DSM-IV diagnoses of any type. The BDI-II and BAI were entered last in the analyses. This examined whether the BDI-II and/or BAI could add any information after one controls for the "noise" and effects of demographic variables. Unfortunately, the number of participants meeting DSM-IV criteria for mental disorders was too low to allow for any meaningful logistic regression analyses.

Discussion

Hypothesis #1

The results of this study show that the prevalence rates of mood and anxiety disorders in help-seeking cancer outpatients (13% and 6.45%, respectively) are not strikingly different from the rates found in the general population (APA, 1994; Maxmen & Ward, 1995). This means that 80.55% of all the participants in the study failed to meet DSM-IV diagnostic criteria for a mood or anxiety disorder, a result which is not too disparate from some previous research (e.g., Baštecky et al., 1996; Berard et al., 1998; Ginsberg et al., 1995; Sist et al., 1998). However, others have found psychopathology in a majority of their participants (e.g., De Walden-Galuszko, 1996; Razavi et al., 1990). It is worth noting that the majority of studies examining the relationship between cancer and depression have utilized inpatients whereas the present study examined the prevalence of depression in cancer outpatients. This population may be quite different on some unknown dimension (i.e., severity of illness) from medical inpatients precipitating different results from previous studies of cancer and psychopathology. However, these rates seem reasonable and comparable to the generally high rates reported by previous researchers when one considers that these high rates are often an artifact of the way in which researchers report their findings. As explained by Sellick and Crooks (1999), for example, Kathol, Mutgi, et al. (1990) found that 33% of their sample of cancer patients had MDD. However, this group is actually 33% of 19% (or 6.27% overall); the reported rate is actually inflated due to the way the researchers chose to explain their results.

Hypothesis #2

There was no significant difference between the prevalence rates of depression and anxiety

between males and females. However, this is complicated by the fact that so few participants met diagnostic criteria for these disorders. There was a significant difference between male and female BAI (T#1) mean total scores. Beck and Steer (1993) claimed that, on average, women score about three points higher than men on the BAI. However, in the present study, women scored more than ten points higher than men on average. This may be a result of socialization in that females may be more in tune with their bodies and more easily recognize symptoms that deviate from normal. As well, they may be more apt to communicate their problems than males, another result of differential socialization between genders. This relates to the referral pattern at Supportive Care Services. Typically, the women are referred for emotional difficulties whereas the men are usually referred for other (usually medical or logistic) reasons. It is possible that the difference between women and men on the BAI occurred because many highly anxious men might be able to disguise or hide their symptoms whereas the women readily present with their difficulties. It is also possible that men express their anxiety as anger and hostility which makes health care professionals want them taken care of quickly so they are not referred.

Hypothesis #3

Both the BDI-II and BAI were shown to be reliable measures of psychological distress, yielding moderate to high test-retest reliability coefficients. Although there was almost an eight-point difference in BDI-II total scores between depressed and non-depressed participants, this was not found to be statistically significant. However, this may be due to the small sample size and may represent a real, clinical difference between these groups. The levels of distress appear to be quite stable since there were no significant differences in depressive and anxious symptoms, as measured by the BDI-II and BAI, from initial assessment to follow-up two months later. This

lends credence to the viewpoint that mood and anxiety disturbances are not transient, fluctuating greatly from day to day. While it is possible that certain aspects of mood and anxiety do change daily, the overall syndrome or general presentation does not change greatly. Thus, it would seem that those who seem relatively symptom free (as indicated by low total scores on the Beck Inventories) remain that way. Likewise, those who report many symptoms, regardless of whether they meet diagnostic criteria for a mental disorder, report similar levels of disturbance at later dates.

Changes over time in depressive and anxious symptoms were associated with each other. That is, on average, BDI-II total scores that increased or decreased from time one to time two were associated with similar changes in BAI total scores. This is not surprising since numerous studies have noted the moderate correlation between the BDI-II and BAI (e.g., Beck, Epstein et al., 1988; Beck, Steer et al., 1993; Beck & Steer, 1993) and numerous other sources note the high co-occurrence of depressive and anxious symptoms and syndromes.

Hypothesis #4

Younger participants in the present study scored higher total scores on the BDI-II as did people with higher educations. This finding is supported in past research (e.g., De Walden-Galuszko, 1996; Kathol, Mutgi, et al., 1990). The reasons for these findings are not clear. However, borrowing from personality theory offers some insight. Consider the negative correlation of age with BDI-II total scores. It may be that younger people may feel they have not accomplished many of their goals and the diagnosis of cancer represents a serious obstacle which may prevent them from achieving them. However, older cancer patients may feel more satisfied with their accomplishments to date allowing them to accept the possibility of a more immediate

death. Older people are more likely to be what Maslow (1970) would call "self-actualized;" Adler (1946) would say they have high "social interest;" Erikson (1974) would say they have reached the stage of "ego-integrity." Similar to the results of the BDI-II data, it appears that younger participants scored higher on the BAI than older people and the same explanation may apply here as well. The positive correlation between education and BDI-II total scores may be an indirect indicator of general intellect and ability to reason abstractly. In this case, perhaps more educated people are more able to appreciate the genuine threat and complications to life that a cancer diagnosis represents thereby causing them more distress. The significant positive correlation between BAI total scores and time since diagnosis with cancer may be explained in several ways. It may be that these people have more advanced stages of cancer which gives rise to more medical complications and somatic complaints. This would elevate BAI total scores since two thirds of the items deal with physiological problems. It might also be the case that people who have had cancer longer may undergo more intensive cancer treatments which are known to increase the severity of certain symptoms of anxiety, like fatigue and nausea, which would also inflate BAI total scores. Finally, females were more likely to have higher BAI total scores than males. The possible reasons for this finding correspond to those mentioned above concerning the significant difference between mean total scores for males and females.

Hypothesis #5

Total scores on the BDI-II and BAI were equally distributed between patients with different cancer sites. This is consistent with the findings of Baštecky et al. (1996) who found no significant difference in depression scores between breast cancer and gastrointestinal cancer patients. However, it is worth noting that other researchers like De Walden-Galuszko (1996)

found that breast cancer patients had higher rates of psychopathology than those with other cancer sites.

Assessing Severity of Symptoms

Regression analysis revealed that neither demographic nor cancer-related variables were good predictors of total BDI-II and BAI scores at T#1. The reasons for this are unclear. One possible reason may be that the IVs were all highly intercorrelated which would weaken the analysis. However, upon inspection, none of the demographic and cancer-related variables were significantly correlated with each other. Another possibility is that scores on the BDI-II and BAI were evenly distributed across all the demographic and cancer-related variables. While this is the case for BDI-II and BAI scores on the cancer site variable, it is not true for the variables age, education, and time since diagnosis with cancer. The most likely problem could be that there were relatively few cases relative to the number of variables, which is a matter of statistical power. Ideally, one would like to have about 90 participants for this study given the number of IVs used. Only one third of this suggested sample size was obtained for the present study which undoubtably was problematic, although none of the other major assumptions for multiple regression analysis were violated.

Using total scores from BDI-II as predictors of clinical diagnosis (not just psychological distress) was done through the use of cut-off scores. A cut-off score of 21 yielded sensitivity and specificity of 74% and 75%, respectively. A score of 21 is considered to be in the moderate range is distress and is well above the average score in normal populations (Beck, Steer, & Brown, 1996). Despite the small sample size, the sensitivity and specificity reported here is not all that different from the rates reported by Kathol, Mutgi, et al. (1990) when using a similar cut-off

score. Although, no cut-off was suggested for use of the BAI with cancer patients, a similar cut-off score seemed reasonable. However, a cut-off score of 25 yielded sensitivity and specificity of 50% and 69%, respectively. Due to the infrequency of diagnosis in this study and small sample size, these percentages may be quite different from previous research.

It is worth restating that neither the BDI-II nor the BAI were designed to assign clinical diagnosis. Rather, they are meant to screen clients, identify likely cases, and assess severity. Therefore, cut-off scores are useful, but far from foolproof. In fact, Beck himself notes that these instruments are more likely to reflect the degree of depression or anxiety, not their diagnosis. Furthermore, Beck, Steer, and Brown (1996) state that the "establishment of a diagnosis . . . require an examination by a clinician" (p. 12). More consistent with the original intent and design of the Beck Inventories, one sees that they are useful in detecting overall distress that may become clinically diagnosable, but the exact nature of this distress (i.e., specific diagnosis) is best left to the clinical interview.

Strengths and Limitations

One of the major strengths of this study is that it used the more recent, DSM-IV, diagnostic criteria. A number of the present study's findings are consistent with previous research (which have used more dated criteria). This is helpful for present day clinicians and researchers alike because it takes away some of the hypothesizing and guess-work about whether past research holds true today. Also, DSM-IV was the "gold standard" criteria for assigning diagnosis rather than using only cut-off scores. This allowed for more thorough analysis of the utility of the Beck Inventories and eliminated some speculation as to the agreement between psychometric and clinical diagnosis. While this is now becoming more popular in psycho-oncology, it is a recent

trend which has been slowly becoming more popular. The present study added a repeated-measures element which allowed for reliability analysis of the BDI-II and BAI. Furthermore, it showed that psychological distress (as measured by these instruments) is a stable phenomenon detectable two months after initial assessment. This repeated-measures aspect is one which has been missing from the vast majority of previous psycho-oncology studies. As well, this study was ecologically valid in that it did not use an artificial, experimental setting nor did it use many different screening and diagnostic instruments, which can be quite time-consuming and cumbersome not to mention the added stress it can promote to the participants. In fact, the methodology used here is applicable to any setting, not just those specializing in cancer treatment and supportive care services. It used highly recognized instruments and a semi-structured clinical interview style which can easily be followed and replicated. Therefore, clinicians practicing in rural areas can find these findings useful and apply them to their own practice. As well, the present study adds to the collective knowledge of depression and anxiety prevalence rates in cancer outpatients in general, and cancer outpatients Northwestern Ontario, Canada in particular. Because much of this catchment area is rural and covers a large and somewhat isolated geographic area, it presents another facet of psycho-oncology research to consider apart from large number of urban studies which dominate this arena.

The biggest limitations of this study seem to be related to issues of statistical power. As noted earlier, ideally, for a study using the IVs and DV described here, one would like to have about 90 participants. Unfortunately, only about a third of that number were able to be recruited for this study. Related to this, and on a more positive note, the majority of psycho-oncology research has been conducted in urban areas with population bases 4-20 times larger than the one

used here and data collected over a period of years (two to six times longer than the present study); still, most studies only typically get sample sizes two or three times larger than the one in the present study. The qualifications of the interviewers should be more uniform. While traditional psycho-oncological research has used psychologists, psychiatrists, social workers, and psychiatric nurses (to name a few) as interviewers, it would perhaps be more empirically sound to use only those professions which are allowed to communicate diagnosis. Similar to Ginsburg et al. (1995), there were no provisions made to assess interrater reliability. Another limitation is that the present study used a free-form, semi-structured clinical interview rather than a completely structured interview like the SCID-I (First et al., 1997). Despite the fact that the SCID-I was the model upon which the clinical interviews were based, each interviewer was free to use his/her own personal style and follow up any area of questioning. The only requirement was that they made sure they covered the DSM-IV criteria for mood and anxiety disorders. Although the methodology used in the present study is similar to the majority of previous psycho-oncological studies, a number of recent researchers in this area have called for the use of more tightly structured diagnostic interviews using the most recent and appropriate criteria as the gold standard for assigning diagnosis (e.g., Lynch, 1995; Montgomery, Lydon, & Lloyd, 1999; Skarstein, Aass, Fossa, Skovlund, & Dahl, 2000). Finally, there was a selection bias in this sample of cancer outpatients in that they were self-seeking clients of a psychosocial oncology program. It seems reasonable to speculate that this may have resulted in attracting participants whose scores on the BDI-II and BAI and even their presentation during interview would be spuriously high or exaggerated compared to cancer patients not seeking psychosocial therapy. Thus, the relatively low prevalence rates found in these help-seekers might be indicative of a low prevalence rate of mood and anxiety

disorders in cancer patients in general.

Directions for Future Research

Future research may wish to investigate how cancer patients suffering from depression and anxiety differ from non-medically ill persons suffering from these disorders. It may be that cancer patients present different profiles on psychometric tests than non-medically ill clients. For example, it has been found that the BAI contains four reliable subscales (neurophysiological, subjective, panic, autonomic) and that anxious and non-anxious groups differ in terms of average scores on these subscales (Beck, Epstein, et al., 1988; Beck & Steer, 1990; Beck, Steer, & Beck, 1993: Steer, Ranieri, et al., 1993). It may be that cancer patients yield different profiles on these subscales from other anxious persons regardless of whether the mean BAI total scores differ between these groups. As well, measures of positive affectivity (i.e., one's typical level of pleasurable engagement with the environment) and negative affectivity (i.e., tendency to be stressed, worried, and self-critical) should be included in future studies. Clark, Steer, and Beck (1994) found that, after controlling for the effects of negative affectivity, physiological variables tended to be specific to anxiety and cognitive symptoms were specific to depression.

The possible relationship between self-actualization and psychological distress merits attention in future research. This could be accomplish by adding (study-specific or pre-existing) self-efficacy or social adjustment and development measures to existing research initiatives. As well, the apparent link between higher education (as a general indicator of intellect) and increased depression and anxiety scores warrants attention. More specifically, it might be interesting to investigate whether people with more years of education are more informed about the nature of cancer and its treatment (self-motivated research), contributing to higher psychological distress

or if they are more able appreciate the potential consequences of having cancer. The former may result from training learned in academia (i.e., research skills, asking intelligent questions) whereas the latter might support the notion of increased abstract or inferential reasoning abilities. Finally, the commonly reported gender differences in psychopathology in cancer patients may be more of a "socialization and self-care practice" issue. That is, if men and women are truly taught different ways of assessing and coping with adversity, then it would follow that their answers would differ on self-report instruments (and possibly clinical interviews) even if they experience similar problems. Thus, clinicians and researchers would need training in gender-sensitive assessment strategies. This is analogous to multicultural counseling and therapy initiatives. For example, Hispanic men are rarely ever "depressed," but are more often "bored" (Ivey, Ivey, & Simek-Morgan, 1997). This is a cultural distinction which is important if one wishes to work with Hispanics. Likewise, it is important to know differences in socialization processes between men and women and the potential assessment issues associated with them.

Clinical Implications

Despite the small sample size, this study, conducted in a largely rural catchment area, produced many results comparable to those carried out in larger urban areas. Using DSM-IV criteria, cancer patients of Northwestern Ontario have prevalence rates of depression and anxiety comparable to the general population. Additionally, there appears to have been a high level of distress reported throughout these cancer patients, regardless of whether they met diagnostic criteria for a mental disorder. It is important to note that while this distress was subthreshold for meeting a DSM-IV diagnosis, it was significant enough that these people availed themselves of counseling and therapy services. Perhaps this calls for researchers and clinicians to be less

concerned with meeting criteria and more concerned with making services available to those who seek them. Such action may ultimately end up being an early intervention effort which may prevent what must surely be a highly stressful and confusing experience from overwhelming cancer patients and exacerbating symptoms of depression and anxiety into full-blown syndromes.

Management of depression in cancer patients is most effective when a consistent emotional support is provided within the context of a trusting relationship (Massie & Holland, 1990). Intensive psychotherapy should only be considered when the normal symptoms associated with grief escalate to the point that they severely impair daily functioning or cause the patient and/or others significant distress. Massie and Holland maintain that the intervention most often used is short-term supportive psychotherapy based on a crisis intervention model. With the above sentiments in mind, it is readily apparent how vital it is that clients be quickly and accurately assessed so they can receive the appropriate treatment for their individual case. As a clinical aid, such information as was investigated here offers a "heads-up" to clinicians who may not be fully aware of what factors may significantly influence their clients' mental health. Although not useful for diagnosis, the BDI-II and BAI are good measures of the degree of disturbance, which may still indicate that an intervention is needed. The high levels of distress detected by the BDI-II and BAI have both positive and negative connotations. On the plus side, one sees a group of moderately to highly distressed people seeking help before their problems overwhelm them. It may be that the services offered here provide the supportive environment suggested by Massie and Holland. The down side is that one could argue that cancer patients are underdiagnosed with mood and anxiety disorders. They may indeed be suffering from a complete syndrome, but clinicians and therapists are too willing to attribute many of the symptoms to the effects of cancer or its treatment. There

is a responsibility for researchers and clinicians to develop a system that allows them to know the difference between those displaying only a few symptoms and those presenting with a complete syndrome. It is imperative that this system be reliable.

Summary of Findings

The prevalence of depression and anxiety in a small sample of mental-health referred cancer outpatients in Northwestern Ontario, Canada is 13% and 6.45%, respectively. It was found that total BDI-II and BAI scores remained constant over time. As well, both these instruments were found to be reliable measures of symptom severity. There were a number of demographic and cancer-related variables that significantly correlated with the BDI-II and BAI. For example, younger people had higher total BDI-II and BAI scores at T#2 than older people whereas higher education levels were associated with higher T#2 total scores. As well, people diagnosed with cancer for a longer period of time had higher BDI-II and BAI scores than those having been diagnosed with cancer relatively recently. Neither the BDI-II nor the BAI adequately predicted specific diagnoses, although they were useful for indicating psychological distress as indicated by any DSM-IV diagnosis.

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Appendix A

Letter of Introduction

Dear Participant:

My name is Sheldon Nicholl. I am a graduate student in clinical psychology at Lakehead University. For my thesis, Dr. Sellick and I will be conducting a study on the mood of clients in the Department of Supportive Care. With more information on clients' moods, we are hoping to improve the delivery of supportive care.

For this study, I will be asking all new clients in the Supportive Care Department to participate. If you agree to participate, you will be asked to sign a consent form and fill out two questionnaires related to your mood. These questionnaires will take about 15 minutes to complete. When you see the counselor, he/she will ask you several questions designed to assess your emotional well-being. The information the counselor collects based on these questions will be given to me. Then, after a period of two months, you will be asked to fill out the same two questionnaires about your mood. This will be the extent of your participation.

Your participation is voluntary. If you agree to take part in this study and then change your mind, you may stop filling out the questionnaires at any time, and this will not affect your care. If you decide not to take part in this study, it will not affect the quality of treatment you receive. All information will be kept strictly confidential, and you will not be identified by name in any aspect of the final report. Your name will not be recorded on the questionnaires. Instead, the questionnaires will be coded by number. This is necessary for the accurate tracking of information throughout the study. Because of the need to be as specific and accurate as possible, I will also be checking your medical records to ensure that my information on you is as complete as possible. Giving consent to participate in this project will also give consent to view your medical records.

It is my intention that the information that you provide will help other Supportive Care clients in the future and may or may not directly benefit your care. If you have any questions or concerns, please feel free to contact Dr. Scott Sellick at (807) 343-1680 or toll free at 1-877-696-7223 or Sheldon Nicholl at (807) 345-5648.

Sincerely,

Sheldon Nicholl, BA(Hons.) Psychology,
MA Clinical Psychology candidate

Appendix B

Consent to Participate in the Psychosocial Assessment Study

I, (please print name)_____, have read and understood the letter of introduction describing the study conducted by Sheldon Nicholl and Dr. Sellick. The time and effort required by this study has been explained to me. I understand that I will fill be required to fill out two questionnaires at two periods of time: before I see a counselor and two months later. I understand that the first time I see the counselor he/she will ask me several questions designed to assess my emotional well-being. I also understand that giving consent to this study also gives consent to review my medical records to ensure the accuracy of the information collected.

I understand that my responses to these inventories and the interview will be kept strictly confidential and will be sealed in a locked cabinet for a period of seven years. Participation is voluntary, and if I prefer not to take part in this study or would like to stop the interview at any time, my treatment at the Cancer Centre will not be affected in any way.

If I consent to participate, I am to sign this document below. A copy of the signed consent form will be given to me. If I have any questions or concerns, I am aware that I may contact Dr. Scott Sellick, Director, Supportive Care Services, Northwestern Ontario Regional Cancer Centre at (807) 343-1680 or toll free at 1-877-696-7223 or Sheldon Nicholl at (807) 345-5648.

Participant's Signature:_____Date: _____

Researcher's Signature:_____Date:_____

Appendix C

Client Evaluation Cover Sheet

Client's Name:_____

Assessor's Name:_____

Diagnosis: Yes No

If "yes," please specify:_____

If "no," please specify the most appropriate diagnostic category:_____

Comments:

Note: Please ensure that the corresponding diagnostic checklist is attached to this sheet. If the client does not meet the criteria for any particular DSM-IV disorder, please attach the sheet in which the client met the most criteria.

Appendix D

Criteria for Panic Attack (Prerequisite for Panic Disorder)

A discrete period of intense fear of discomfort, in which 4 (or more) of the following symptoms developed abruptly and reached a peak within 10 minutes:

1. Palpitations, pounding heart, or accelerated heart rate.
2. Sweating
3. Trembling or shaking
4. Sensations of shortness of breath or smothering.
5. Feeling of choking.
6. Chest pain or discomfort.
7. Nausea or abdominal distress.
8. Feeling dizzy, unsteady, lightheaded, or faint.
9. Derealization (feelings of unreality) or depersonalization (being detatched from oneself).
10. Fear of losing control or going crazy.
11. Fear of dying.
12. Numbness or tingling sensations.
13. Chills or hot flushes.

Appendix E

Criteria for Generalized Anxiety Disorder (GAD)

1. Excessive anxiety and worry, occurring more days than not for at least 6 months, about a number of events or activities.

2. The person finds it difficult to control the worry.

3. The anxiety and worry are associated with 3 (or more) of the following 6 symptoms (with at least some symptoms present for more days than not for the past 6 months).

1. Restlessness or feeling keyed up or on edge.
2. Being easily fatigued.
3. Difficulty concentrating of mind going blank.
4. Irritability.
5. Muscle tension.
6. Sleep disturbance (difficulty falling or staying asleep, or restless unsatisfying sleep).

D. The focus of the anxiety and worry is not confined to features of an Axis I disorder e.g., anxiety or worry about having a Panic Attack (as in Panic Disorder), being embarrassed in public (as in Social Phobia), being contaminated (as in Obsessive-Compulsive Disorder), being away from home or close relatives (as in Separation Anxiety Disorder), gaining weight (as in Anorexia Nervosa), having multiple physical complaints (as in Somatization Disorder), or having a serious illness (as in Hypochondriasis), and the anxiety and worry do not occur exclusively during Posttraumatic Stress Disorder.

E. The anxiety, worry, or physical symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

F. The disturbance is **not** due to the direct physiological effects of a substance or general medical condition and does not occur exclusively during a Mood Disorder, a Psychotic Disorder, or a Pervasive Developmental Disorder.

Appendix F

Criteria for Manic Episode

A distinct period of abnormally and persistently elevated, expansive, or irritable mood, lasting at least 1 week (or any duration if hospitalization is/was necessary).

A. During the period of mood disturbance, three (or more) of the following symptoms have persisted (4 if mood is only irritable) and have been present to a significant degree:

1. Inflated self-esteem or grandiosity.
2. Decreased need for sleep.
3. More talkative than usual or pressure to keep talking.
4. Flight of ideas or subjective experience that thoughts are racing.
5. Distractibility.
6. Excessive involvement in pleasurable activities that have a high potential for painful consequences.

B. The symptoms do not meet criteria for a Mixed Episode (see below).

C. The mood disturbance is sufficiently severe to cause marked impairment in occupational functioning or in usual social activities or relationships with others, or to necessitate hospitalization to prevent harm to self or others, or there are psychotic features.

D. The symptoms are **not** due to the direct physiological effects of a substance or a general medical condition.

Criteria for Mixed Episode

A. The criteria are met both for a Manic Episode and for a Major Depressive Episode (except for duration) nearly every day for at a least 1-week.

B. The mood disturbance is sufficiently severe to cause marked impairment in occupational functioning or in usual social activities or relationships with others, or to necessitate hospitalization to prevent harm to self or others, or there are psychotic features.

C. The symptoms are **not** due to the direct physiological effects of a substance or a general medical condition.

Appendix G

Criteria for Major Depressive Disorder

A. Five or more of the following symptoms have been present during the same 2-week period and represent a change from previous functioning. At least one of the symptoms is either #1, depressed mood, or #2, loss of interest or pleasure.

1. *Depressed mood most of the day, nearly every day, as indicated by subjective report or observation by others.
2. *Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day, as indicated by subjective report or observation made by others.
3. Significant weight loss/gain when not dieting (approximately 5%) or a decrease/increase in appetite nearly every day.
4. Insomnia or hypersomnia nearly every day.
5. Psychomotor agitation or retardation nearly every day (observable by others, not just subjective report).
6. Fatigue or loss of energy nearly every day.
7. Feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day.
8. Diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or observation by others).
9. Recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide.

* Indicates that one of these 2 must be present to meet criteria for major depressive disorder regardless of how many others are present.

B. The client does not meet the criteria for a Manic or Mixed Episode (see page #2).

C. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

D. The symptoms are **not** due to the direct physiological effects of a substance or a general medical condition.

E. The symptoms are **not** better accounted for by Bereavement. However, they do meet criteria if bereavement lasts longer than 2 months **and** the person is characterized by marked functional impairment, morbid preoccupation with worthlessness, suicidal ideation.