Psychological distress (depression and anxiety) in people with head and neck cancers

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ABSTRACT

Objective: To assess symptoms of depression and anxiety in patients with head and neck cancers (HNCs) before and after radiotherapy.

Design, participants and setting: Prospective observational study of 102 outpatients with HNCs at a tertiary cancer centre in Melbourne between 1 May 2008 and 30 May 2009. Eligibility criteria were a first-time diagnosis of HNC, age over 17 years, and agreement to undergo cancer treatment involving radiotherapy with curative intent. Data were collected before commencement of radiotherapy and again 3 weeks after completing treatment.

Main outcome measures: Symptoms of depression and anxiety as assessed by the Hospital Anxiety and Depression Scale (HADS); physical and psychosocial aspects of quality of life as assessed by the Functional Assessment of Cancer Therapy–Head and Neck (FACT-H&N).

Results: Seventy-five participants completed pretreatment and posttreatment questionnaires. Mean depression scores increased significantly from before to after treatment, while anxiety scores decreased significantly over the same period. The prevalence of mild to severe depression was 15% before treatment and 31% after treatment. The prevalence of mild to severe symptoms of anxiety was 30% before treatment, reducing to 17% after treatment. Posttreatment depression was predicted by pretreatment depression and receiving chemotherapy. Posttreatment anxiety was predicted by pretreatment anxiety and male sex.

Conclusions: These findings suggest that rates of depression in patients with HNCs increase after cancer treatment, with a third of patients experiencing clinically significant symptoms of depression after radiotherapy.

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Head and neck cancers (HNCs) are the 10th most prevalent cancer type in the world.[1] Treatments for patients with HNCs are some of the most debilitating and disfiguring among all cancer treatments, and patients often go on to live with chronic functional impairment. For these reasons, HNCs have been described as more emotionally traumatic than any other form of cancer.[2] However, limited research has been undertaken to assess the rates of psychological distress and unmet psychosocial needs among patients with HNCs. Psychological distress can be described as a combination of symptoms, including anxiety, mood, cognitive, and behavioural impairments.[3]

Preliminary studies have shown that patients diagnosed with HNCs display elevated levels of psychological distress. Furthermore, some research shows that 40%–66% of patients with HNCs meet the criteria for a psychiatric diagnosis.[4,5] This is problematic because undetected and untreated psychological needs are associated with reductions in quality of life, increased risk of suicide, increased length of hospital stay, more complications with treatment and increased non-compliance with treatment.[6,7] With respect to treatment, several studies suggest that these patients may have a reduced quality of life and increased symptoms of depression both during and after radiotherapy or chemotherapy or both.[8-11] In addition, significant psychological distress may continue for up to 12 months after treatment.[12-14] A number of patient characteristics have been found to be associated with psychological distress in patients with HNCs. For example, sex, living alone, and currently smoking are risk factors for depression and anxiety in patients with HNCs.[15,16]

There has been very limited research examining the nature and severity of psychosocial distress and outcomes in the population of patients with these cancers, with few published studies focusing solely on Australian patients with HNCs. Recognition of anxiety and depressive disorders in cancer patients is important because there are effective psychotherapeutic and pharmacologic treatments that can improve patients' quality of life.[17-19]

The aim of this study was to follow the psychological trajectory of an Australian population of patients with HNCs before and after radiotherapy. More specifically, we aimed to: identify the rates of cases of mild to severe depression and anxiety; identify trends in mean symptom burden due to depression and anxiety before and after radiotherapy; and explore what psychosocial factors predict depression and anxiety after radiotherapy.

We hypothesised that patients with HNCs would score higher on measures of depression and anxiety and lower on measures of quality of life after the completion of their medical treatment, compared with pretreatment measures. We also expected that psychosocial factors would predict posttreatment depression and anxiety. Based on past research, factors such as age, sex, living alone, alcohol use and other treatments for cancer (such as surgery or chemotherapy) would predict depression and anxiety after treatment.

METHODS

This was a prospective observational study of consecutive outpatients with HNCs attending the Peter MacCallum Cancer Centre (Melbourne, Australia) between 1 May 2008 and 30 May 2009. Eligibility criteria were a first-time diagnosis of HNC, age over 17 years, and agreement to undergo cancer treatment involving radiotherapy with curative intent. Exclusion criteria included inability to give informed consent (including active psychosis, intellectual disability or dementia), being treated for another cancer, or minimal understanding of English. Clinic oncologists assessed patient eligibility. Each patient gave written consent to participate.

Measures were administered at two time points — at pretreatment (before radiotherapy) and after treatment (about 3 weeks after completing radiotherapy). The measures administered or otherwise obtained are listed below.

Demographic questionnaire: This asked participants to record their sex, age, marital status, employment, education, past and present substance use, and mental health.

Cancer information: Information such as diagnosis, tumour histology, and treatment were obtained from reviewing patients' medical records.

Hospital Anxiety and Depression Scale (HADS):[20] This is a well validated and reliable self-report measure designed to detect the presence and severity of anxiety and depression.[21,22] The questionnaire items exclude somatic symptoms and therefore avoid symptom overlap between somatic illnesses and mood disorders. Respondents are asked to rate their symptoms over the past week before the day the questionnaire is administered. Higher scores on the two subscales (depression and anxiety) indicate more severe symptoms of depression and anxiety. Scores greater than 7 indicate mild to severe symptoms of depression and can be used as a threshold for identifying probable cases of depression. Normative data for the HADS is available in a non-clinical sample, and show a mean score of 6.14 for the anxiety subscale and 3.68 for the depression subscale.[23] A large study of 3035 oncology patients showed mean subscale scores of 6.76 for anxiety and 4.3 for depression.[24]

Functional Assessment of Cancer Therapy–Head and Neck (FACT-H&N):[25] This is a 39-item scale developed to measure quality of life in patients undergoing cancer treatment for HNCs. It measures four general domains of quality of life, including physical wellbeing, functional wellbeing, social/family wellbeing and emotional wellbeing. An additional subscale assesses symptoms specific to HNCs. Respondents are asked to report their quality of life over the past week before the day the questionnaire is administered. Higher subscale scores denote higher quality of life. It is a valid and reliable measure.[25]

Ethics approval for the study was obtained from the Peter MacCallum Cancer Centre Ethics Committee.

Statistical analysis

SPSS, version 16.0 (SPSS Inc, Chicago, Ill, USA) and Stata, version 11 (StataCorp, College Station, Tex, USA) were used to analyse data. Repeated measures analyses were used to evaluate whether participants' depression and anxiety scores changed significantly over time, between baseline and follow-up. Several dependent continuous variables were not normally distributed. Square root transformation produced distributions that were not significantly different from normal, so these were used in regression analyses to identify predictors of outcomes.

RESULTS

Referring oncologists identified and referred 173 eligible participants from clinic attendees. Of these 71 declined and 102 agreed to participate and completed baseline questionnaires (pretreatment). Seventy-five patients (74% of recruited participants) completed posttreatment questionnaires. Participants who dropped out of the study tended to be younger, but otherwise there were no significant differences in baseline depression and anxiety scores or sex.

Participants comprised 86 men and 16 women. Their average age was 62.5 years (range, 37–85 years). The average duration of radiotherapy with or without chemotherapy was 6 weeks. The average time between pretreatment and posttreatment questionnaires was 12.8 weeks (range, 8–22 weeks), and the average time between completing treatment and administration of posttreatment questionnaires was 3.2 weeks (range, 2–8 weeks).

Seven participants (6.8%) reported a current psychiatric condition at pretreatment (one, anxiety; one, bipolar disorder; five, depression). Other pretreatment demographic characteristics of the study sample are presented in Box 1.

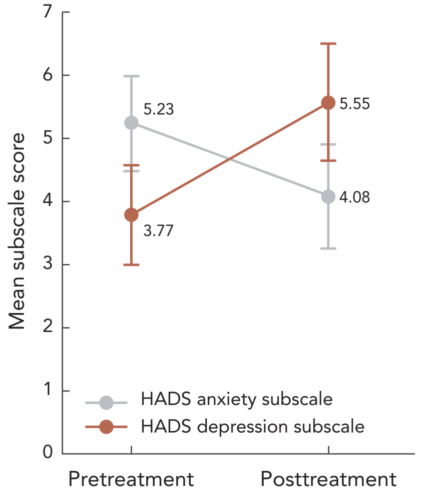
The percentages of participants reporting mild to severe symptoms of depression on the HADS were 15% on the depression subscale and 30% on the anxiety subscale. After treatment, clinical cut-off scores were exceeded by 31% of participants on the depression scale and 17% on the anxiety scale. In terms of changes between scores before and after treatment, 26% of participants reported more symptoms on both measures of depression and anxiety, 22% reported fewer symptoms for both depression and anxiety, and 31% of participants reported more symptoms of depression and fewer symptoms of anxiety after treatment.

As shown in Box 2, with regard to changes in mean depression and anxiety before and after treatment, participants scored significantly higher on the depression subscale after treatment ($t[74] = -4.24$; $P < 0.001$) and significantly lower on the

1 Pretreatment demographic characteristics of the 102 participants who completed pretreatment questionnaires

Characteristic	Number
Cancer histology type	
Squamous cell carcinoma	82 (80.4%)
Other	20 (19.6%)
Cancer treatment	
Radiation therapy only	13 (12.7%)
Chemotherapy and radiation therapy	30 (29.4%)
Surgery and radiation therapy	35 (34.3%)
Surgery, chemotherapy and radiation	24 (23.5%)
Marital status	
Married	66 (64.7%)
De facto	7 (6.9%)
Never married	10 (9.8%)
Divorced	11 (10.8%)
Widowed	8 (7.8%)
Living situation	
Alone	25 (24.5%)
Not alone	77 (75.5%)
Education	
Primary	9 (8.8%)
Secondary	44 (43.1%)
Apprenticeship	19 (18.6%)
Undergraduate	9 (8.8%)
Postgraduate	18 (17.6%)
Employment status	
Full-time	30 (29.4%)
Part-time	6 (5.9%)
Casual	4 (3.9%)
Unemployed	7 (6.9%)
Retired	46 (45.1%)
Pension/sickness benefits	7 (6.9%)
Income (annual household)	
Nil–$4159	2 (2%)
$4160–$15 599	21 (20.6%)
$15 600–$36 399	23 (22.5%)
$35 400–$78 000	28 (27.5%)
$78 001 or more	20 (19.6%)
Current smoker	
No	90 (88.2%)
Yes	10 (9.8%)
Did not respond	2 (2.0%)

2 Hospital Anxiety and Depression Scale (HADS) subscales scores before and after treatment



anxiety subscale after treatment ($t[73] = 3.50$; $P < 0.001$).

Posttreatment depression was significantly associated with pretreatment depression ($r = 0.55$; $P < 0.001$) and with chemotherapy ($t[73] = -2.09$; $P = 0.04$); all other variables (sex, age, living alone, alcohol use and surgery) were not significantly associated. Posttreatment anxiety was significantly associated with pretreatment anxiety ($r = 0.59$; $P = 0.000$) and with being male ($t[73] = 2.14$; $P = 0.04$); all other variables (age, chemotherapy, living alone, alcohol use and surgery) were not significantly associated.

To determine the combined predictive capacity of pretreatment variables on posttreatment depression and anxiety scores, two regression analyses were performed. Baseline depression was highly skewed and therefore the square root of data was calculated and these results were used in regression analyses. Only variables that showed independent associations with the dependent variables were included in analyses.

Posttreatment depression scores were predicted by pretreatment depression scores and receiving chemotherapy ($F[2,72] = 18.80$; $P = 0.005$), which, together, accounted for 33% of the variance in posttreatment depression. Therefore participants with a higher pretreatment depression score and/or who received chemotherapy were more likely to have higher depression scores after treatment.

Posttreatment anxiety scores were predicted by pretreatment anxiety scores and sex ($F[2,71] = 25.74$; $P < 0.001$), which, together, accounted for 40% of the variance in posttreatment anxiety. Male participants and/or participants with higher pretreatment anxiety scores were more likely to have higher posttreatment anxiety scores.

There was a significant decline in overall quality of life as measured by the FACT-H&N between before and after treatment ($z = -4.212$; $P < 0.001$). The quality of life subscale specifically measuring HNC symptoms and treatment side-effects was significantly negatively correlated with depression scores ($r = -0.53$; $P < 0.001$) and anxiety scores ($r = -0.35$; $P = 0.002$), where higher scores for depression and anxiety were correlated with lower quality of life associated with HNC symptoms and treatment side effects.

DISCUSSION

Few longitudinal studies have investigated depression and anxiety symptoms in an Australian population of patients with HNCs. We found that their anxiety decreased between before and after treatment, but their depression increased, with a third of our participants reporting significant symptoms of depression after radiotherapy. Similarly, quality of life decreased significantly between before and after treatment.

Our results indicate a number of risk factors for depression and anxiety after treatment. Patients were likely to report more symptoms of depression after treatment if their cancer treatment program included chemotherapy. Men were more likely than women to report more symptoms of anxiety after treatment. As would be expected, patients with more depression and anxiety symptoms before treatment continued to report more symptoms of depression and anxiety after treatment. Our results also indicate a correlation between depression and the symptoms and treatment side effects associated with HNCs, where participants with more HNC-related symptoms also reported more symptoms of depression and anxiety.

The pattern of change in depression and anxiety scores over treatment that we observed was similar to that in other studies.[8-11] However, our findings only supported male sex and baseline symptoms as risk factors for distress, while other risk factors identified by previous studies (such as age, living alone, alcohol use)[15] were not supported as risk factors in our study.

Compared with previous studies using the HADS, our participants reported fewer symptoms of anxiety before and after treatment than general population and oncology study samples.[23] However, our sample of patients with HNCs scored higher on the depression subscale after treatment when compared with a general population[23] and a general oncology sample.[24]

This high incidence of symptoms of depression in our group of patients with HNCs points to the importance for ongoing routine surveillance to monitor such patients as they proceed through medical treatments and rehabilitation, and to provide ongoing interventions. Furthermore, interventions aimed at preventing depression would help this group of patients as they proceed through their medical treatment for cancer, particularly for patients at risk of depression (eg, those being treated with radiation as well as chemotherapy) and anxiety (eg, men).

A number of limitations of our study should be kept in mind when interpreting the results. Twenty-six per cent of participants did not complete posttreatment questionnaires, and younger participants were less likely to complete the study. This may lead to selection bias in those who completed posttreatment questionnaires. However, our study does include a larger sample than many previous studies of patients with HNCs.

In conclusion, our findings indicate that patients with HNCs experience significant changes in symptoms of depression and anxiety before and after radiotherapy, and a number of risk factors predict this change. A third of patients with HNCs reported mild to severe symptoms of depression after radiotherapy. Therefore, ongoing monitoring to identify patients at risk is important. Psychosocial interventions need to be developed and evaluated to meet the changing needs of patients as they undergo treatment for HNCs.

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COMPETING INTERESTS

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