What Are Thyroidectomy Patients Really Concerned About?

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Abstract

Objective. To better appreciate perioperative concerns affecting patients considering thyroidectomy and to understand how they may vary according to patient characteristics.

Study Design. Cross-sectional analysis.

Setting. Tertiary referral center.

Subjects and Methods. The authors recruited patients scheduled for thyroid surgery at the McGill University Thyroid Cancer Center. A total of 148 patients completed the 18-item Western Surgical Concern Inventory–Thyroid (WSCI-T) questionnaire. Psychometrics of the WSCI-T were assessed through a principal component analysis with varimax rotation and reliability analyses. Independent-samples t tests and 2-tailed Pearson correlations were ran, identifying areas of elevated concerns and their relationship to gender, age, and surgical procedure (total vs hemithyroidectomy).

Results. The principal component analysis revealed the presence of 3 domains of presurgical concerns on the WSCI-T: Surgery-Related Concerns, Psychosocial Concerns, and Daily-Living Concerns. Reliability coefficients for the WSCI-T Total and subscales were satisfactory. Responses on the WSCI-T indicated on average a moderate overall level of concerns before thyroidectomy. Surgery-Related Concerns was the highest domain of concerns, followed by Daily-Living and Psychosocial Concerns, respectively. Patients were mainly worried about the nodule being cancerous, experiencing a change in voice, and surgical complications. Areas of minor concern included being judged or treated differently, becoming depressed, and feeling embarrassed. Women had higher overall levels of concern than men did. Although there were no significant differences in overall levels of concern according to age and surgical procedure, differences were noted at a subscale and item level.

Conclusion. This study establishes a mean that will permit adequate physician counseling and a better management of patients’ perioperative worries.

Keywords

thyroid cancer, thyroidectomy, thyroid surgery, preoperative concerns, presurgical concerns, Western Surgical Concern Inventory–Thyroid (WSCI-T), quality of life

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It is estimated that up to 50% of head and neck cancer patients suffer from clinical levels of anxiety and/or depression, with higher rates than in the general cancer population.1 Levels of anxiety and depression may be especially elevated due to a combination of advanced disease upon diagnosis; poor prognosis; disfigurement; functional impairments in vital areas such as speech, swallowing, and breathing; and an etiology involving alcohol use/dependency.1,3

In contrast to head and neck cancers, the vast majority of thyroid malignancies have a very good prognosis and a low level of physical morbidity.4,5 According to the Canadian Cancer Society (2010), the incidence of thyroid cancer is increasing the most among all cancers, in both men (6.8%) and women (9.5%).6 Yet it is upholding the highest 5-year survival rate (98%).7 This may in part be due to earlier detection as well as surgical and adjuvant treatment advances.8 However, despite its favorable prognosis, a newly diagnosed thyroid cancer can still be profoundly anxiety provoking and affect quality of life.4,5,9 The perioperative period can generate especially high levels of

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anxiety, and assessing patients’ concerns during this period is important for several reasons.

Perioperative distress can affect patients’ recovery following surgery, including levels of depression and postoperative pain. As depressive symptoms are known to affect quality of life, it becomes important from a preventive point of view to address patients’ concerns early on.

In addition, effective physician-patient communication has been associated with improvement of patients’ emotional well-being, functional and physiologic status, and pain control. Such communication requires that the physician be emotionally attuned to patients and understand their specific areas of concern.

Finally, psychoeducational interventions have proven to be beneficial in reducing anxiety, increasing patients’ satisfaction with their appearance, and promoting better well-being. Thus, identifying patients at risk of experiencing perioperative distress can help prevent unnecessary suffering and enhance quality of life by deployment of psychosocial interventions targeted toward specific areas of concern.

There has been a lack of studies identifying perioperative concerns in patients awaiting thyroidectomy. Thus, our study aims to better circumscribe these areas of concern and understand how they vary according to patient characteristics. This may allow physicians to tailor their counseling approach accordingly, with the goal of enhancing patients’ well-being.

**Methods**

**Design**

Following McGill University ethics approval, patients from 2 university teaching hospitals (McGill University Health Centre Royal Victoria Hospital site and SMBD Jewish General Hospital) who were requiring thyroidectomy were invited to complete the Western Surgical Concern Inventory–Thyroid (WSCI-T) questionnaire at the time of consent for surgery.

**Measures**

The WSCI-T questionnaire, used to assess patients’ perioperative concerns, is a self-administered questionnaire consisting of 18 items rated on a Likert-type scale ranging from 1 (no concerns) to 9 (major concerns): appearance of a scar, change in voice, malignancy, taking lifelong medication, calcium problems, need for a second operation, surgical complications, general anesthesia, daily living activities, pain and discomfort, resuming work, being a burden to others, feeling embarrassed, depression, social activities, being judged or treated differently, unanswered questions, and waiting time for surgery. Scores on the total scale range from 18 to 162, with higher scores indicating higher levels of concern. The WSCI-T was developed through patient interviews and expert consultation, was pilot tested with 10 patients, and was further validated with 30 thyroid patients awaiting a thyroidectomy.

Sociodemographic and medical data were collected through the questionnaire and through chart review.

**Data Analysis**

Data were analyzed using the Statistical Program for the Social Sciences (SPSS), version 18.0. First, we conducted a principal components analysis with varimax rotation on the 18 items of the WSCI-T to ascertain if there were subscales to the WSCI-T. A sample size of 148 patients allowed sufficient statistical power for conducting the analysis. Second, we ran reliability analyses on the WSCI-T Total and subscales. Third, descriptive analyses, independent-samples t tests (for dichotomous independent variables), and 2-tailed Pearson correlations (for continuous independent variables) were performed, identifying areas of elevated concerns and their relationship to gender, age, and surgical procedure (total vs hemithyroidectomy). We also assessed the relationship of level of concerns with time elapsed between questionnaire completion and surgery, as well as with preoperative suspicion of potential cancer based on fine-needle aspiration (FNA) histology (carcinoma vs suspicious).

**Results**

**Sample**

One hundred forty-eight consecutive patients completed the WSCI-T. The sample was composed of 124 (83.8%) women and 24 (16.2%) men, with a mean age of 49.9 years (SD, 13.6). One hundred nine (73.6%) patients were awaiting total thyroidectomy, and 39 (26.4%) were awaiting hemithyroidectomy. An average of 5.6 weeks (SD, 3.8) elapsed between questionnaire completion and surgery. Based on presurgical FNA histology obtained on 129 patients, 27 (20.9%) tumors were cancerous while 102 (79.1%) were suspicious.

**Principal Components Analysis and Reliability**

Inspection of the eigenvalues and scree plot of the principal components analysis reveal the presence of 3 separate domains of concerns: (1) Surgery-Related Concerns (factor 1), comprising worries about the scar, voice changes, the possibility of the thyroid nodule being cancerous, having calcium problems, the need for a second operation, and pain/discomfort postoperatively; (2) Psychosocial Concerns (factor 2), comprising worries about feeling embarrassed, being judged, becoming depressed, and not being able to participate in social activities; and (3) Daily-Living Concerns (factor 3), comprising worries about having to take lifelong medication, not being able to resume daily activities or work, and being a burden to others (see Figure 1 and Table 1). These 3 subscales predicted 55.8% of the variance on the WSCI-T Total scale. Pearson correlations between the 3 subscales (r = 0.51-0.66) indicate that these subscales measure different domains of concerns.

Reliability coefficients for the WSCI-T Total (Cronbach $\alpha = .91$) and subscales (Cronbach $\alpha = .86, .79$, and .83) were satisfactory.
Areas of Elevated Concerns

Responses on the WSCI-T indicate on average a moderate overall level of concerns (mean, 4.73; SD, 1.43). Using the subscales from the principal component analysis, Surgery-Related Concerns was the highest domain of concerns (mean, 5.42; SD, 1.56, \( t = 5.59, P = .001 \), and \( t = 18.37, P = .001 \)), followed by Daily-Living Concerns (mean, 4.76; SD, 1.88) and Psychosocial Concerns (mean, 2.98; SD, 1.69, \( t = 12.91, P = .001 \)).

At an item level, most elevated areas of concern included the nodule being cancerous (mean, 6.84; SD, 2.27), experiencing a change in voice (mean, 6.36; SD, 2.24), surgical complications (mean, 6.16; SD, 2.15), a second operation (mean, 5.98; SD, 2.63), and experiencing pain (mean, 5.47; SD, 2.0). Areas of minor concern included being judged or treated differently (mean, 2.29; SD, 1.77), depression (mean, 2.65; SD, 2.34), feeling embarrassed (mean, 2.93; SD, 2.10), not being able to participate in social activities postoperatively (mean, 3.05; SD, 2.0), and unanswered questions (mean, 3.32; SD, 2.24; Figure 2).

Relationship with Gender, Age, and Surgical Procedure

Women (mean, 4.85; SD, 1.43) experienced significantly higher levels of presurgical concerns than men did (mean, 4.12; SD, 1.31, \( t = -2.32, P = .02 \), representing a 0.50 standard deviation difference. Women had a higher degree of concerns (mean, 5.55; SD, 1.54) on the WSCI-T Surgery-Related Concerns subscale than men did (mean, 4.73; SD, 1.51, \( t = -2.40, P = .018 \), but they had a similar
degree of Daily-Living Concerns ($t[146] = -1.54, P = .13$), and Psychosocial Concerns ($t[146] = -1.56, P = .12$).

More specifically, they experienced the following significantly elevated concerns: appearance of a scar ($t[146] = -2.69, P = 0.008$; F mean, 5.33 [SD, 2.33], M mean, 3.92 [SD, 2.48]), change in voice ($t[146] = -2.28, P = .024$; F mean, 6.54 [SD, 2.19], M mean, 5.42 [SD, 2.28]), general anesthesia ($t[146] = -2.05, P = .04$; F mean, 5.27 [SD, 2.41], M mean, 4.17 [SD, 2.48]), experiencing pain and discomfort ($t[146] = -2.17, P = .03$; F mean, 5.62 [SD, 1.97], M mean, 4.67 [SD, 2.01]), and depression ($t[146] = -2.37, P = .02$; F mean, 3.85 [SD, 2.38], M mean, 2.63 [SD, 1.88]), fear of complications (trend; $t[146] = -1.76, P = .08$; F mean, 6.30 [SD, 2.15], M mean, 5.46 [SD, 2.08]), and changes in daily activities (trend; $t[146] = -1.70, P = .09$; F mean, 5.0 [SD, 2.06], M mean, 4.21 [SD, 2.26]; Figure 3).

There were no relationships between overall level of presurgical concern and age ($r = -0.135, P = .10$) and with surgical procedure ($t[146] = 0.74, P = .46$). However, certain differences appeared on subscales and on an item level.

There was a significantly inverted correlation between age and the WSCI-T Daily-Living Concerns subscale ($r = 0.36, P < .01$), but there was no relationship between age and Surgery-Related Concerns ($r = 0.06, P = .44$) or Psychosocial Concerns ($r = -0.11, P = .18$). On an item level, the younger the patient, the more concerned he or she was about taking lifelong medication ($r = -0.32, P < .01$), resuming work ($r = -0.23, P < .01$), being judged or treated differently ($r = -0.18, P < .05$), and the appearance of a scar ($r = -0.16, P < .05$).

There were no differences in level of surgical concerns according to surgery type (hemithyroidectomy vs total thyroidectomy) on the WSCI-T subscales ($t[146] = 0.69, P = .49$; $t[146] = 0.02, P = .99$; and $t[146] = 1.22, P = .23$, respectively). However, on an item level, compared with patients awaiting hemithyroidectomy, those awaiting total thyroidectomy were more concerned about waiting time for surgery ($t[146] = 2.04, P = .04$; T mean, 4.72 [SD, 2.81]; H mean, 3.68 [SD, 2.57]), calcium problems (trend; $t[146] = 1.93, P = .06$; T mean, 5.63 [SD, 2.18]; H mean, 4.85 [SD, 2.17]), and not being able to participate in social activities postoperatively (trend; $t[146] = 1.70, P = .09$; T mean, 3.22 [SD, 2.09]; H mean, 2.59 [SD, 1.67]).

There were no significant differences in level of surgical concerns between recruiting hospital sites ($F[2, 145] = 0.31, P = .73$); neither was there a relationship with time elapsed between questionnaire completion and surgery ($r = 0.095, P = .29$) or with FNA histology, $t(127) = -0.36, P = .72$.

**Discussion**

Most patients awaiting elective surgery experience preoperative anxiety. 22,23 Self-assessment by means of a questionnaire is considered a sensitive and accurate method of measuring anxiety. 22,23 In this study, we used a self-administered questionnaire, the WSCI-T, 20 to ascertain levels of preoperative concerns in a thyroid cancer population awaiting thyroidectomy.

There were 3 prominent findings in this study. First, we identified areas of major concern in patients awaiting thyroidectomy. Second, we were able to distinguish that concerns vary according to patient characteristics. Third, preoperative concerns were divided into 3 distinct dimensions based on a principal components analysis: (1) Surgery-Related Concerns, (2) Psychosocial Concerns, and (3) Daily-Living Concerns. Reliability coefficients for the WSCI-T Total and subscales were satisfactory, further supporting the scale’s usefulness in measuring presurgical concerns.

To our knowledge, there are no literature reports regarding perioperative concerns of patients awaiting thyroidectomy. However, data on the nature of preoperative anxiety have been previously collected. Investigators have mainly reported fear of postoperative pain,24,25 as well as anesthetic-related concerns25,26 as important factors contributing to preoperative distress. In our study, patients were mainly worried about the following surgery-related concerns: the possibility of the nodules being cancerous, experiencing a change in voice, having surgical complications, having to undergo a second operation, and experiencing pain following surgery.

The second goal of our study was to identify patients at risk of higher levels of preoperative concern. Other studies concluded that anxiety did not correlate with type of surgical procedure or age. 10,27 However, other investigators reported a significant impact of age28,29 and gender27-30 on preoperative anxiety, whereby surgery-related anxiety was more often reported by both women and younger patients. Similarly, in our study, women had a higher overall level of concern than men did. Thus, gender may be considered an independent factor affecting levels of preoperative concerns in adults scheduled for thyroidectomy. However, research on gender differences has shown that men characteristically tend to cope by focusing on solutions whereas women are more eager to cope by expressing their emotions. This questions whether gender itself predisposes to a given level of concerns or whether gender differences are merely an artifact of different communication and coping styles. On the other hand, we did not find a strong relationship between overall level of presurgical concern and age or surgical procedure. Nevertheless, certain differences appeared on a subscale and item level. The younger the patients, the more they were concerned about resuming their lives and about

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**Figure 3.** Gender differences in presurgical concerns among thyroid cancer patients.
taking lifelong medication, resuming work, being judged or treated differently, and the appearance of a scar. This anxiety is likely influenced by past experience as well as the patient’s personality and coping style. Compared with patients awaiting hemithyroidectomy, those awaiting total thyroidectomy were more concerned about waiting time for surgery. This may be explained by the fact that patients scheduled for total thyroidectomy are more likely to have been given a confirmed diagnosis of cancer and hence may be more concerned about health-related implications of waiting too long before the surgery.

Finally, based on our results, we were able to determine that surgery-related concerns were the highest, followed by daily-living and psychosocial concerns.

While this study is a significant contribution to the literature, several limitations are noteworthy. First, baseline anxiety traits of patients were not obtained prior to diagnosis; however, this goal is almost impossible to realize as one cannot predict who will be diagnosed and operated for thyroid cancer. Second, no data were collected with regard to patients’ previous experience with surgery and anesthesia. Thus, observed concerns may merely be a reflection of surgery in general and not specifically related to thyroidectomy. Third, the recruiting centers may have had differing counseling methods. However, there were no significant differences in level of surgical concerns between hospital sites.

In conclusion, estimating the severity of concerns is essential for preoperative assessment of patients awaiting thyroidectomy. Such an assessment can be easily provided using the WSCI-T. Moreover, individual characteristics of patients, including gender, age, and type of surgery, may serve as the basis for anticipation of increased levels of certain specific types of concern. Thus, based on such factors, physicians and surgeons can better recognize the disease-specific surgery-related concerns of patients that have been proven to affect the quality and outcome of treatment as well as recovery.19-22

This knowledge allows physicians and surgeons to target their counseling approach toward areas of greatest anxiety, with the goal of enhancing patients’ well-being and alleviating unnecessary distress. The WSCI-T can prompt improved preoperative communication and provide the opportunity for greater patient education, more informed decision making, and improved patient outcomes. Future studies are, however, needed to investigate whether the WSCI-T could be useful in clinical settings to help surgeons identify and address relevant areas of surgical concerns in their patients. Until then, the WSCI-T can enhance the physician-patient relationship by offering an opportunity for personalized care.

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Author Contributions

Lara Abdul-Sater, corresponding author, design, data collection, article drafting and revision, final approval; Melissa Henry, data analysis and interpretation, article revision, final approval; Agnieszka Majdan, data interpretation, article revision, final approval; Tamara Mijovic, design, article revision, final approval; Jason H. Franklin, concept and design, article revision, final approval; Michael G. Brandt, concept and design, article revision, final approval; Martin J. Black, patient recruitment for data acquisition, article revision, final approval; Michael P. Hie, patient recruitment for data acquisition, article revision, final approval; Richard J. Payne, design, patient recruitment for data acquisition, article revision, final approval.

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