

Unseen Battles: Pre-Treatment Anxiety Among Patients with Thyroid Carcinoma

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ABSTRACT

Background: When diagnosed with cancer, patients often experience significant psychological stress and fear of death. Thyroid carcinoma, although more treatable, carries similar stigma, leading to acute mental stress for those affected. Patients scheduled for therapy frequently endure considerable pre-treatment anxiety about prognosis and treatment outcomes. This study aims to assess anxiety disorders in thyroid carcinoma patients before they undergo radioiodine therapy.

Materials and Methods: This observational study was conducted at the Institute of Nuclear Medicine and Allied Sciences-INMAS, Mitford between January 2024 and June 2025 on 150 patients referred for radioiodine therapy (M= 56, F= 94).

Participants received doses of 100 mCi, 150 mCi, or 200 mCi based on clinical indications. Anxiety levels were evaluated using the Generalized Anxiety Disorder-7 (GAD-7) scale, with data analyzed using SPSS and significance determined via Chi-square test.

Results: The 64 patients receiving radioiodine therapy indicated varying levels of anxiety: 76.6% at 100 mCi showed minimal anxiety, while 17.2% had mild anxiety, 4.7% moderate, and 1.6% severe. For those at 150 mCi, 74.2% had minimal anxiety, 14.5% mild, 8.1% moderate, and 3.2% marked anxiety. Among 24 patients receiving 200 mCi, 62.5% exhibited minimal anxiety, 16.7% mild, 8.3% moderate, and 12.5% severe. Chi-square test results were insignificant ($P > 0.05$).

Conclusion: Pre-treatment anxiety is common in thyroid carcinoma patients, regardless of gender. It underscores the necessity of regular psychological evaluations and psychosocial support prior to radioiodine therapy, suggesting that addressing mental health alongside physical treatment can enhance patient outcomes and quality of life.

Keywords: Thyroid carcinoma, Radioiodine therapy, pre-treatment anxiety, Generalized Anxiety Disorder-7

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INTRODUCTION

Mental health is a crucial aspect of the overall well-being of every individual. When a person faces a critical life situation, psychological distress is often one of the earliest consequences. A diagnosis of cancer can have a profound emotional and psychological impact on patients, frequently leading to anxiety, fear, and

uncertainty about the future (1, 2). Thyroid cancer is not an exception to this phenomenon. Patients diagnosed with thyroid carcinoma often experience significant psychological stress from the moment of diagnosis and throughout the course of treatment. Following the diagnosis, patients must undergo multiple stages of management, including surgery and subsequent radioiodine therapy. The anticipation of radioiodine therapy, along with concerns about treatment outcomes, isolation requirements, and potential side effects, may further increase anxiety levels among patients (3). Considering these factors, the present study was designed to assess the pre-treatment anxiety status of patients diagnosed with thyroid carcinoma before undergoing radioiodine therapy. An attempt was made to find any correlation between the level of anxiety and dosage of radioiodine therapy, gender of patients, and marital status.

PATIENTS AND METHODS

This observational study was conducted between January 2024 and June 2025 at the Institute of Nuclear Medicine and Allied Sciences (INMAS), Mitford, Dhaka, Bangladesh. A total of 150 patients, who were referred for radioiodine therapy, were included in the study. Among them, 56 were male and 94 were female. Patients received radioiodine therapy doses of either 100 mCi, 150 mCi, or 200 mCi, depending on their clinical condition. The anxiety levels of all participants were assessed using the Generalized Anxiety Disorder-7 (GAD-7) scale. The data was analyzed using the Statistical Package for Social Sciences (SPSS) version 22.

RESULT

The mean age of the patients was 41.39 ± 10.92 years, ranging from 23 to 67 years. Among the 150 patients

included in this study, 56 were male and 94 were female.

Therapeutic level of Radioiodine (¹³¹I) and level of Anxiety

Among the participants, 64 (42.7%) patients received 100 mCi radioiodine therapy. Among them, 49 (76.6%) patients showed minimal anxiety, 11 (17.2%) showed mild anxiety, 3 (4.7%) showed moderate anxiety, and 1 (1.6%) showed severe anxiety according to the GAD-7 scale.

Approximately 62 (41.3%) patients received 150 mCi

radioiodine therapy. Among these patients, 45 (74.2%) showed minimal anxiety, 9 (14.5%) showed mild anxiety, 5 (8.1%) showed moderate anxiety, and 2 (3.2%) showed severe anxiety.

A total of 24 patients received 200 mCi radioiodine therapy. Among them, 15 (62.5%) showed minimal anxiety, 4 (16.7%) showed mild anxiety, 2 (8.3%) showed moderate anxiety, and 3 (12.5%) showed severe anxiety. Statistical analysis showed no significant association between radioiodine dose and anxiety level (p > 0.05).

Table 1: Relationship between the radioiodine therapy dose and the anxiety level of the patients

Status	Dose			Total	P-Value
	100 mCi	150 mCi	200mCi		
Minimal anxiety	49 (76.6%)	46 (74.2%)	15(62.5%)	110 (73.3%)	> 0.5
Mild anxiety	11(17.2%)	9 (14.5%)	4(16.7%)	24 (16%)	
Moderate anxiety	3 (4.7%)	5 (8.1%)	2 (8.3%)	10 (6.7%)	
Severe anxiety	1 (1.6%)	2 (3.2%)	3 (12.5%)	6 (4%)	
Total	64 (100%)	62(100%)	24 (100%)	150 (100%)	

The distribution of anxiety levels among different radioiodine dose groups is presented in the table.

Gender of the patients and level of Anxiety

The relationship between anxiety and their gender showed that among patients with minimal anxiety disorder, 64 (62.2%) were female and 46 (82.1%) were male. In cases of mild anxiety disorder, females accounted for 19 (20.2%) patients, while males

comprised 5 (8.9%). Moderate anxiety disorder was observed in 7 (7.4%) female patients and 3 (5.4%) male patients. Similarly, severe anxiety disorder was found in 4 (4.3%) female patients and 2 (3.6%) male patients. While anxiety among female patients were slightly higher, the association between anxiety level and gender was found statistically insignificant in Chi-square test (P > 0.5).

Table 2 : Gender based anxiety levels of thyroid carcinoma patients

Status	Gender		Total	P -value
	Female	Male		
Minimal Anxiety	64 (68.2 %)	46 (82.1%)	110 (73.3%)	P >0.5
Mild Anxiety	19 (20.2%)	5(8.9%)	24(16%)	
Moderate Anxiety	7(7.4%)	3(5.4%)	10(6.7%)	
Severe Anxiety	4(4.3%)	2(3.6%)	6(4.0)	
Total	94 (100%)	56(100%)	150(100%)	

The above table showed there is no significant difference between the gender of the patient and anxiety level.

Marital status and level of anxiety

The study further demonstrated that married patients tended to experience lower levels of anxiety compared to

unmarried patients. Of the total study population, 110 (73.3%) were married and 40 (26.7%) were unmarried. Among unmarried patients, 94 (85.5%) exhibited minimal anxiety, whereas only 16 (14.5%) of married patients fell into this category. Mild anxiety was observed in 9 (37.5%) unmarried patients and 15 (62.5%) married patients.

According to Tagay et al., patients with thyroid cancer frequently experience anxiety and depressive symptoms due to the uncertainty of the disease and treatment outcomes (13). Similarly, Dagan et al. reported that hospitalization and isolation during radioiodine therapy may contribute to emotional stress in some patients. However, the majority of patients adapt well to treatment when appropriate counseling and support are provided (14).

The study also evaluated the relationship between anxiety levels and sociodemographic factors, particularly gender and marital status, among patients undergoing treatment. Although females demonstrated slightly higher proportions of anxiety across all categories, the association between gender and anxiety level was not found statistically significant ($P > 0.5$). This finding suggests that, despite a higher observed frequency in females, this may only be due to chance, and gender alone may not be a strong independent predictor of anxiety. Previous studies have reported similar trends, where females tend to exhibit higher psychological distress due to biological, hormonal, and psychosocial factors. However, statistical significance is not consistently observed across all populations (15).

In contrast, marital status showed a more noticeable relationship with anxiety levels. Unmarried patients were more likely to have minimal anxiety, whereas married patients exhibited higher proportions of mild, moderate, and severe anxiety. This may be explained by the increased psychosocial responsibilities among married individuals, including concerns about family, children, and financial stability. A cancer diagnosis often amplifies these concerns, contributing to greater emotional distress (16). This particular finding requires further study and evaluation to determine the extent of the correlation.

Although marriage is generally considered a source of emotional and social support, the present findings suggest a counter-intuitive increase in anxiety among married patients. This may have been influenced by sociocultural factors, particularly in developing countries, where family dependency and role expectations are significant. Married individuals may experience additional pressure related to treatment outcomes and their ability to maintain family roles, thereby increasing anxiety levels (17-19).

Overall, anxiety appears to be a multifactorial condition influenced by complex interactions between demographic and psychosocial factors rather than a single variable. These findings emphasize the importance of incorporating routine psychological assessment and support services into patient care, particularly for those with higher perceived social burdens. Further large-scale studies with multivariate analysis are recommended to clarify these associations.

A limitation of the present study is that the number of patients receiving the higher dose (200 mCi) was relatively small compared to other groups, which may influence the statistical comparison. Future studies with larger sample sizes and evaluation of additional psychosocial factors may provide a better understanding of anxiety among patients undergoing radioiodine therapy.

CONCLUSION

In Bangladesh, limited awareness and social misconceptions about radioactive therapy, along with inadequate psychological counseling services, lead to increased anxiety among patients awaiting nuclear medicine procedures. The study found that thyroid carcinoma patients experience significant pre-treatment anxiety before radioiodine treatment. Implementing early psychological screening and integrating counseling into standard care could greatly enhance the emotional well-being and treatment experience of these patients.

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