

Biopsychosocial Needs among Patients Receiving Radioactive Iodine Therapy for Thyroid Disorders: Suggested Guidelines

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Abstract

Background: The most common treatment for Graves' disease and toxic multi-nodular goiter in adults is radioactive iodine therapy. **Aim:** The aim of this study was to assess the knowledge, biopsychosocial needs and develop radioactive iodine guidelines among patients receiving radioactive iodine therapy for thyroid disorders. **Design:** A descriptive exploratory design was utilized to conduct this study. **Setting:** The study was conducted at the outpatient clinics in Nuclear Medicine Center for receiving radioactive iodine therapy affiliated to Ain Shams University Hospitals. **Subjects:** Convenient sample of all available (65) adult thyroid disorders patients from both sexes. Patients who were admitted in the Outpatient Clinics at Nuclear Medicine Center for receiving radioactive iodine therapy were included in this study. **Tools:** Three tools were used for data collection I. Patients' Structured Interview Questionnaire. II. Assessment of patients' knowledge regarding radioactive iodine therapy. III. Biopsychosocial assessment needs. IV. Develop guidelines for patients receiving radioactive iodine therapy for thyroid disorders. **Results:** 80% of the patients with thyroid disorders were females with a mean age of 42.9 ± 10.8 years. 66.2% of the thyroid patients' had lack of knowledge and need to know about RAI treatment and its precautions. Regarding activities of daily living (ADL) about 58.5% of thyroid patients had difficulty in doing heavy house works, and 50.8% of them had difficulty in presenting care for their children. Regarding the psychological needs 81.5% of them reported having depressed mood and not feeling any happiness and experiencing the feeling of anxiety, as well 56.9% had loss of autonomy during this period. **Conclusion:** The studied subjects had poor knowledge about treatment and its implications; also the majority of them were in need for support in the physical and psychological needs (feeling of depression & anxiety). Additionally, they had a high level of concerns regarding the effect of disease and its treatment on their social and personal role. **Recommendation:** Equip the nuclear unit with simple, illustrated guidelines booklet covering instructions about provide patients with the needed knowledge and improving their quality of life while receiving RAI therapy.

Keywords: Biopsychosocial needs, thyroid disorders, patients, guidelines and RAI therapy

Introduction

The thyroid gland has two lobes, one on each side of the trachea, and is positioned in the lower section of the anterior neck. A narrow tissue bridge called the isthmus connects the lobes in front of the trachea. The thyroid gland is responsible for regulating the body's metabolic rate, as well as growth and development. Thyroid hormone is produced in just the enough amounts by a healthy person to suit their demands. Levels fluctuate depending on the environment and level of exercise (Linton, 2016).

Thyroid hormone output is controlled by thyroid-stimulating hormone (TSH), which is produced by the anterior pituitary and regulated by thyrotropin-releasing hormone

(TRH) is a hormone generated by the hypothalamus. Overactive thyroid glands, known as hyperthyroidism, and an underactive thyroid gland, known as hypothyroidism, are the two most prevalent thyroid gland diseases (O'Brien & Dirksen, 2018).

Iodine deficiency is also a prevalent cause of goiter. In this case, a lack of iodine causes low levels of circulating thyroid hormones, which causes an increase in TSH release; the increased TSH induces overproduction of thyroglobulin and thyroid gland hypertrophy. Iodine is required for the thyroid gland to produce hormones. In fact, the thyroid is the body's primary user of iodine, and thyroid dysfunction is the most common symptom of iodine shortage. Iodine is absorbed into the bloodstream through the gastrointestinal tract

after being consumed in the food. Iodide ions are transformed to iodine molecules, which react with tyrosine (an amino acid) to generate thyroid hormones, and Iodine-131 has been used to image the thyroid gland for decades (**Smeltzer & Bare, 2020**).

Thyroid cancer is detected at a younger age than most other adult cancers, with 80 percent of newly diagnosed thyroid cancer patients being under the age of 65. The likelihood of being diagnosed with thyroid cancer has increased in recent years and continues to do so. Thyroid cancer is now being diagnosed more frequently in North America and Europe. The majority of these newly identified cases are papillary thyroid carcinoma (PTC). Thyroid cancer is substantially less common than other types of cancer (**Topiwala, 2021**).

The first patient with hyperthyroidism was treated in the United States by Hertz and Roberts on March 31, 1941, marking the beginning of radio iodine's usage as a treatment for humans. Since then, radio iodine has progressed to the point that this is currently used to treat the majority of people with differentiated thyroid diseases. Radio iodine therapy (RIT) is a safe therapy process that has been used for decades and has remained virtually unchanged (**William, 2021**).

Surgery, radioactive iodine-131 (RAI) treatment, and thyroid hormone suppression therapy are one of the standard care procedures recommended by the American Thyroid Association. The use of post-thyroidectomy adjuvant RAI in this routine regimen is associated with significant reductions in loco-regional recurrences, distant metastases, and disease-related death. Patients receiving RAI, however, require special protection (i.e., being housed in radiation isolation wards) due to the large radioactive iodine doses given; as a result, many patients fear radiation exposure, as well as loneliness and pessimism during isolation, which negatively affects their treatment adherence (**Ferri, 2016**).

The greatest benefit that guideline could provide to the patients is improved health outcomes. Guidelines that encourage proven-beneficial interventions while discouraging ineffective ones have the potential to reduce morbidity and mortality while improving

quality of life, at least in some cases. Guidelines can help improve care uniformity; research from all around the world demonstrate that the frequency with which procedures are performed varies considerably among doctors, specialties, and geographical locations, even after case mix is taken into account. Depending on their doctor, hospital, or region, patients with identical clinical conditions receive varied management. There is a solution in the form of guideline (**William, 2021**).

Thyroid disorders like other chronic diseases severely affect health and quality of life of the affected patients and cause several physical, psychological and social needs. It affects patients' life and causes a wide range of sensory, visual, speech, cognitive, fatigue, and chronic pain, which have negative effects on all the different aspects of quality of life of the patients. Moreover, this disease may accompany some psychiatric diseases related to mood, behavior and personality, Also be seen with depression, stress and anxiety due to the course of the disease or the side effects of the treatment (**Yalachkov et al., 2019**).

In modern medicine, health education guideline has become an important part of the therapeutic process. Psychological nursing, for example, has been utilized to intervene in the lives of patients with mental health issues, resulting in improved treatment adherence. As a result, a specialized shared-care strategy incorporating psychological and behavioral interventions would be a viable option for enhancing treatment adherence among those patients (**Castro, 2017**).

Biopsychosocial assessment and management of health needs for patients with thyroid disorders undergoing RAI therapy should be done routinely and should allow to patients to express thoughts, feelings and concerns, as well as assess patients' needs and requirements. Patients' health needs include: physical needs such as: incidents of nausea and / or vomiting and over the subsequent days, for signs of tenderness or swelling of the thyroid area, management degree of dysphagia or shortness of breath. Patients should be physically able to attend to own cares. Any assistance required will need to comply with maintaining minimal physical contact by staff. Plenty of fluids and acceptable

meals must be checked each duty. Psychological needs such as: stress management, dealing with emotional instability and improving self-esteem. Social needs such as: patients' social activities, work and social support (**Dewit & Kumagai, 2014**).

Thyroid cancer is responsible for 90% of all endocrine cancers. Each year, about 44.280 new cases of thyroid cancer are detected, according to American Cancer Society (**ACS, 2021**). Men account for 12.150 of the new cases, while women account for 32.130. Thyroid cancer kills about 1.150 women and 1.050 men per year.

Significance of the study

According to WHO statistics (2010), Egypt has 1,522,348 patients with thyroid diseases; previous Egyptian studies indicate that the percentage of thyroid diseases has increased to (1.4 percent); and the Statistics and Medical Records Department at Ain Shams University Hospitals revealed that the number of inpatients for radioactive iodine therapy has increased from 77 patients in 2006 to 228 patients in 2010 to 378 patients in 2020, implying that radioactive iodine be used more frequently. This group of patients needs specific attention, preparations, and health teaching guideline, all of which must be established on a thorough understanding of their needs.

Based on many years of experience in clinical training, patients with thyroid disorders who planned to get or had received radioactive iodine complained of a lack of knowledge about the therapy, such as the action, patients' preparations, side effects and/or complications, and follow-up. They were all concerned about the illness's unpredictable nature and the resulting disruption to their lives. Younger patients are worried about marriage and having children, as well as the financial strain they will put on their family.

Aim of the study

The aim of this study was to assess the knowledge, biopsychosocial needs and develop radioactive iodine guidelines among patients receiving radioactive iodine therapy for thyroid disorders.

Research questions:

1. What are the biopsychosocial needs among patients receiving radioactive iodine therapy for thyroid disorders?
2. What is the patients' knowledge about RAI therapy?
3. What are the suggested guidelines for patients receiving radioactive iodine therapy for thyroid disorders?

Operational definition:

Biopsychosocial Needs: refer to physical, psychological, spiritual and social needs for patients' receiving radioactive iodine therapy for thyroid disorders.

Subjects and Methods

Research design: A descriptive exploratory design was utilized to conduct this study.

Setting: The study was conducted at the outpatient clinics in Nuclear Medicine Center for receiving radioactive iodine therapy affiliated to Ain Shams University Hospitals. The building is located in front of Arab Elmohamedy garden; the center contains internal department and outpatients clinics. Clinic located in the second floor and contains two rooms each one had 8 beds.

Subjects: A Convenient sample of all available (65) adult thyroid disorders patients from both sexes. Patients who were admitted in the Outpatient Clinics at Nuclear Medicine Center for receiving radioactive iodine therapy were included in this study.

Tools of data collection:

Tool I: Patients' Structured Interview Questionnaire:

The tool was developed by the researcher in an Arabic language based on review of relevant recent related literatures (**Walker, Schirst & Pender, 1995; Barone & Castro, 2017; Hammoodi & Khudur, 2019**). It includes the following two parts:

Part 1: patients' demographic characteristics:

This part will be used to assess patients' characteristics regarding age, gender, marital

status, level of education, history of smoking and finally previous treatment for the thyroid disorder.

Part 2: Patient`s medical data:

It was consisting of medical and surgical treatment, patients' diagnosis, previous cancer, and chronic disease (diabetes mellitus, hypertension, and cardiovascular disease), smoking and family history.

Tool II: Assessment of patients' knowledge regarding radioactive iodine therapy:

The researcher developed this tool after reading the related literature (**Herbert-Ashton & Clarkson, 2019**). It was used to assess thyroid patients' level of knowledge regarding radioactive iodine therapy and its preparations. The questionnaire was divided into three sections, the first of which contained "12 questions." The second section contains (4) questions about the period of hospitalization after receiving RAI therapy, while the third section contains (32) questions about the period after patients' discharge, home isolation, precautions and radioactive iodine therapy side effects. The total questions of the Knowledge assessment are (48) question.

Scoring system, the questionnaire consisted of closed ended and MCQs questions, the answer of closed ended questions was either Yes or No and the MCQs answer was matched as Correct or Incorrect. If the patient answer was Yes or Correct; it scored by (1) and if the answer was No or Incorrect; it scored by zero.

The total level of knowledge was: Less than 60% (0 – 26) is considered low, 60% to 75% (27 – 34) is considered average and more than 75% (35 – 48) is considered high.

Tool III: Patients' biopsychosocial needs assessment:

This tool was developed by the researcher in an Arabic language based on review of relevant recent related literatures (**Hammoodi & Khudur, 2019**). It was used to assess physical, psychological and social needs for patients receiving radioactive iodine therapy. It included three sections as the following:

Section (1): Assess Patients' physical needs:

It consisted of (22 items) divided into mobility (6 items), Activities of Daily Living "ADL" (6 items), discomfort-bowel-bladder functions (6 items) and role/personal activities (4 items).

Scoring system: Each item scored as likert scale, including always, sometimes and never, scored 2, 1 and 0 respectively, maximum score was 44 score and minimum was 0, high score means high needs.

Section (2): Assess Patients' psychological needs:

It consisted of (29 items) divided into sub-items as feeling of depression (2 items), feeling of anxiety (5 items), attitude toward disease (8 items), autonomy (9 items) and spiritual issues (5 items).

Section (3): Assess Patients' social needs:

It consisted of (14 items) divided into three domains as self-system interpersonal system and feeling toward others domain. It asks questions if the patient needs assistance in maintaining relationships with others, as well as the ability to speak with them about the disease and how they are reacting to it, as well as their support for the patient (**Linn et al., 1969**).

Scoring system:

Each item scored as is divided into three categories: "Yes," "As much as now," and "No.": Yes = (0) if the patient has a need for this item, As much as now = (1) if the patient has a need sometimes, and No = (2) if the patient has no need at all.

Tool IV: Develop guidelines for patients receiving radioactive iodine therapy for thyroid disorders:

It was developed by the researcher based on patients assessment needs after reviewing current national and international literature (**Mohamed, 2016**) to improve life style of patients receiving radioactive iodine.

Developed guidelines was written in Arabic simple language and it included knowledge about: thyroid gland, function, thyroid disorder, patient physical, social and

emotional problems and how to deal with them, definition of radioactive iodine therapy, indications, side effects and contraindications of radioactive iodine therapy, preparation for therapy, instructions for patient daily living activities, signs and symptoms of complications, follow-up appointments.

Procedures:

Preparatory phase:

During this phase the researcher was obtained official permission from the director of the Nuclear Medicine Unit at Ain Shams University Hospitals in Egypt to collect the necessary data. Collecting the review materials and preparing the tools for data collection through reviewing the related literatures using books, articles, periodicals and magazines. The guidelines for patients receiving radioactive iodine therapy for thyroid disorders were prepared in simple Arabic language with simple photo illustrations (this was revised by 5 health professionals).

Informed consent was obtained from each participant fulfilling the study criteria after they were informed about the purpose and methods of the study and that they were free to withdraw from study any time without penalties.

A **pilot study** was carried out on 6 patients receiving radioactive iodine therapy for thyroid disorders at the study setting. Those patients were included in the study subjects. The data collection covered a period of 6 months from the beginning of August 2020 to the end of January 2021.

Implementation phase:

Before conducting the study, personal communication was done with nurses, physicians and radiologists to explain the purpose of the study and gain their best possible cooperation and an exploratory visit was done in the Nuclear Unit in order to estimate the number of patients receiving RAI therapy and the suitable time for collecting data, also asking about preparing a suitable place for interviewing the patients.

Before admission for RAI dose, a structured interview was conducted in the waiting room; it was done individually for patients eligible

for the study and their family companion to explain the aim of the study, ensure confidentiality, and get informed consent from patients.

Then following the demographic data and past thyroid management, which were obtained directly from the patients or their relatives, followed by the completion of a knowledge assessment questionnaire and the biopsychosocial needs assessment tool. The informed patients are told to fill out the questionnaires, but most of them prefer that the researcher asks them all the questions and they answer them, and they're looking for answers to other questions or concerns they have regarding RAI therapy.

The estimated time spent with each patient for data collection was 20-30 minutes; approximately 2 to 3 patients were interviewed daily, over the course of one week, because RAI therapy was only administered on Sunday of each week, and the only time to meet the patients was between 10.00 am and 11.30 am.

The guidelines for patients receiving radioactive iodine therapy for thyroid disorders was developed by the researcher based on patients assessment needs and written in Arabic simple language.

Ethical considerations:

The research was approved by the ethics committee in faculty of nursing, in Shams University, a written consent was obtained from patients participating in the work after explaining the nature and purpose of the study.

Patients were assured data confidentiality, and the researchers initially introduced themselves to the study subjects and patients were informed that their participation is voluntary and they can withdraw at any time from the work.

Statistical analysis:

Data entry and statistical analysis were done using SPSS ver.23 statistical software packages. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, mean and standard deviations for the quantitative variables. The level of significance was set at ($p = .05$) to detect any indication of differences

found in the data available.

Limitations of the Study:

There is only one day to provide radioactive iodine therapy for the first time, the number of patients was minimal. Furthermore, the appropriate and permitted time to sit with patients was only prior to the administration of RAI, which lasted only one hour or one hour and half.

Since the list of patients receiving RAI therapy for the first time is mixed between therapeutic (1st time & follow-up doses) and diagnostic patients, there is no accurate census of the actual number of patients who receive RAI therapy for the first time, so the researcher was taking the list and filtering it by directly asking the patients.

Results

Table 1 showed that 53.8% of patients were between the ages of 40 and 60 years, with a mean age of 42.9 ± 10.8 years. In regards to marital status 69.2% were married and 49.2% of the patients were illiterates, with 55.4 % being housewives. In regard of residence, 56.9% of patients lived in urban areas, while 93.8 % was nonsmokers.

Fig. 1 illustrated that females were dominant among the studied subjects and constituted 80 % of the patients.

Fig. 2 showed that before receiving RAI therapy, 37% of patients received only medical treatment, whereas 63% received both medical and surgical treatment.

Table 2 illustrated that 86.2% of patients had no medical history for hypertension, diabetes mellitus, hepatic disease, kidney disease and heart disease also 86.2% had no risk factors for hypertension, diabetes mellitus, Unhealthy diet & Tobacco use and 96.9% of the patients had no family history for cancer, heart disease, thyroid disorders and kidney disease.

Table 3 showed that 73.8 % of subjects had an average level of knowledge regarding pre-admission preparations also 38.5 % of subjects had an average level of knowledge about patients' knowledge during hospitalizations. While 70.8% had a low level of knowledge about the post-discharge period

and patients' isolation at home.

Fig. 3 revealed that 66.2 % of the studied patients had low level of total knowledge regarding RAI therapy and its precautions.

Table 4 showed that 78.5 % of patients reported a change in taste and 73.8 % had dry mouth, while 49.2 % had headache and drowsiness, 38.5 % had inflammation of the salivary glands, and 27.7% experienced dryness of the eye. The less common side effects reported were 15.4% neck pain ,12.3% colic ,9.2% had Change in the urine color and gaining of weight, hair fall.

Table 5 revealed that 60.0% of the patients had difficulty walking and standing, 58.5% of them cannot really enter the toilet independently, 67.7% of the patients had difficulty climbing stairs, and 69.2% of the patients had difficulty using personal transportation. In relation to shopping 61.5% of patients not able to do it alone. Regarding to ADL, the lowest mentioned problems were eating 6.2%, self-hygiene 20%, dressing 21.5%, food preparation 27.7%, and lighthouse work 26.2%. While 58.5 % of patients found it difficult to do heavy housework. In regarding personal activities, it was revealed that 73.8 % of the patients had difficulty with daily activities, while 52.3% of the patients had difficulty in managing work/study. 50.8% of them couldn't provide care for their family, and finally 40.0% of them experienced difficulty in relaxing.

Table 6 reported that 73.8% of subjects had generalized pain, 75.4% of subjects experienced loss of appetite and taste change as well as 60.0% of them had swallowing problems while nearly almost 81.5% of them complained from fatigue all the time. For the sleeping problems; 50.8% of cases had disturbed sleeping, and 81.5% most of them hadn't diarrhea or constipation and the same percent 76.6% of the studied subject, didn't complain from incontinence. 78.5% of studied subject didn't report any sexual dysfunction.

Fig. 4 revealed that 81.5% of the studied subjects reported being in a depressed mood, not feeling happy, and feeling anxiety. Regarding spiritual aspects, 75.4 % of them had difficulty maintaining it, while 56.9% of

the studied subjects had difficulty feeling autonomy, and 49.2 % had fears and a negative attitude toward the disease.

Table 7 stated that the most commonly expressed social needs were feeling of loneliness 53.8% and difficulty talking about

the disease with others 49.2%, and also difficulty making contact with others such as family and neighbors 38.5%. Others are overly concerned about the disease; according to 30.8 %.The other social issues are less reported by the subjects.

Table (1): Frequency and percentage distribution of the studied patients with thyroid disorders regarding to their demographic characteristics (N= 65)

Items	No.	%
Age:		
18 Y to < 40 Y	25	38.4
40 Y to < 60 Y	35	53.8
60 Y to 65 Y	5	7.8
Mean ± SD	42.9 ± 10.8	
Marital Status:		
Single	6	9.2
Married	45	69.2
Divorced	8	12.4
Widow	6	9.2
Educational Level:		
High education	13	20.0
Secondary education	5	7.7
Basic education	10	15.4
Read and write	5	7.7
Illiterate	32	49.2
Occupation:		
House wife	36	55.4
Employee	29	44.6
Residence:		
Urban	37	56.9
Rural	28	43.1
History of Smoking:		
Yes	4	6.2
No	61	93.8

Fig. (1): Percentage distribution of the studied patients with thyroid disorders regarding to their gender (N= 65)

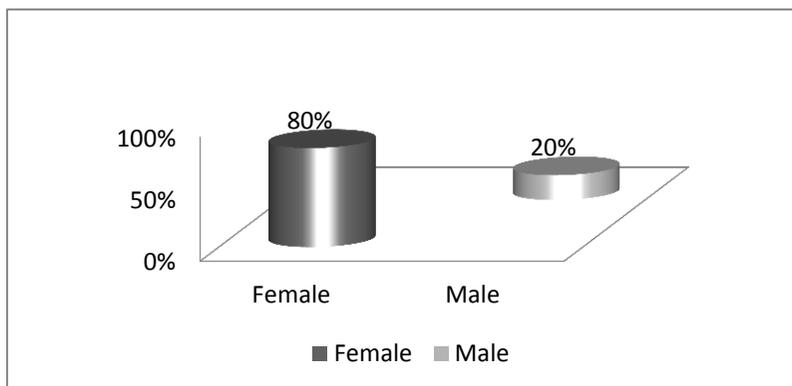
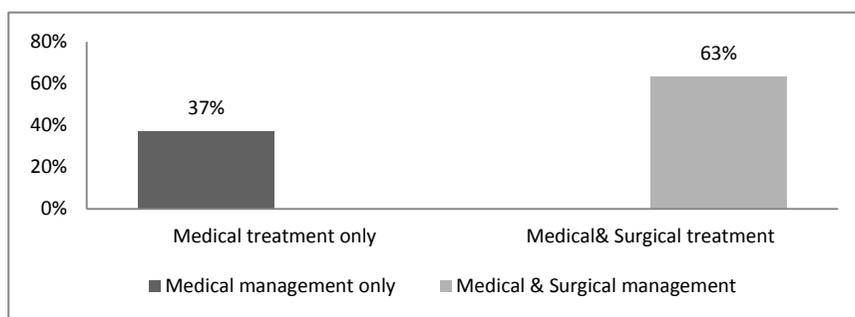
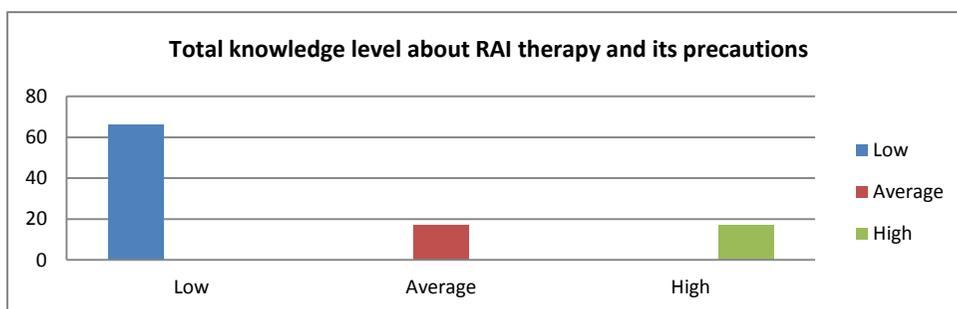


Table (2): Distribution of the studied patients regarding their medical data (N=65).

Items	Yes	
	No	%
Medical history:		
No history	56	86.2
Hypertension	4	6.1
Heart disease	3	4.6
Diabetes	2	3.1
Kidney disease	0	0.0
Hepatic disease	0	0.0
Risk factors for thyroid disease		
No risk factors for thyroid disease	56	86.2
Hypertension	4	6.1
Diabetes	2	3.1
Unhealthy diet	0	0.0
Tobacco use	0	0.0
Family history:		
No family history	63	96.9
Cancer	0	0.0
Heart disease	0	0.0
Thyroid disorders	2	3.1
Kidney disease	0	0.0

Fig. (2): Percentage distribution of the studied patients with thyroid disorders regarding to their previous thyroid management (N= 65)**Table (3):** Frequency & percentage distribution of knowledge level of the study subjects (N=65)

Period	Low		Average		High	
	No.	%	No.	%	No.	%
I. Pre- admission preparations.	11	16.9	48	73.8	6	9.2
II. During hospitalization.	24	36.9	25	38.5	16	24.6
III. Post-discharge period (home).	46	70.8	14	21.5	5	7.7

Fig. (3): Percentage distribution of the studied patients with thyroid disorders regarding to their total knowledge level about RAI therapy and its precautions (N= 65)**Table (4):** Frequency & percentage of the Radioactive Iodine Therapy' side effects among the study group (n=65)

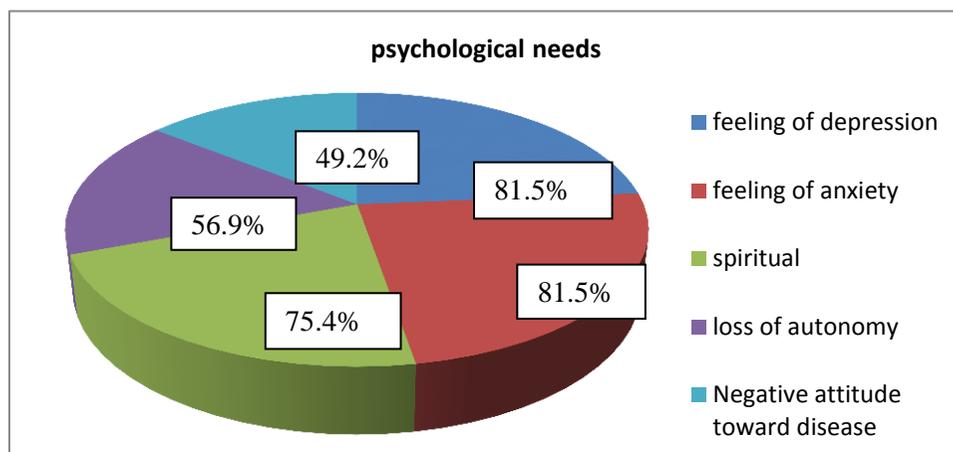
Side effects	Yes		No	
	No	%	No	%
Headache & drowsiness	32	49.2%	33	50.8%
Neck & salivary gland problems:				
Neck pain	10	15.4%	55	84.6%
Taste change	51	78.5%	14	21.5%
Inflammation of the salivary glands	15	38.5%	50	61.5%
Dry mouth	48	73.8%	17	26.2%
Gastrointestinal effects:				
Colic	8	12.3%	57	87.7%
Urinary problems:				
Change in the urine color	6	9.2%	59	90.8%
S&S of hypothyroidism:				
Gaining of wt., hair fall, etc...	6	9.2%	59	90.8%
Dryness of eye	18	27.7%	47	72.3%

Table (5): Frequency and percentage distribution of the studied patients with thyroid disorders regarding to their physical needs (N= 65)

Patients' physical needs	Always		Sometimes		Never	
	No.	%	No.	%	No.	%
Mobility						
Difficulty in walking	39	60.0	11	17.0	15	23.0
Difficulty in standing	39	60.0	11	17.0	15	23.0
Difficulty in entering the toilet	38	58.5	8	12.5	19	29.0
Difficulty in climbing stairs	44	67.7	9	14.0	12	18.3
Difficulty in using means of transportation	45	69.2	8	12.5	12	18.3
Difficulty in shopping	40	61.5	10	15.5	15	23.0
Activities of Daily Living						
Difficulty in self-hygiene	13	20.0	2	3.0	50	77.0
Difficulty in dressing	14	21.5	16	24.7	35	53.8
Difficulty in eating	4	6.2	6	9.2	55	84.6
Difficulty in preparing food	18	27.7	15	23.0	32	49.3
Difficulty in light house works	17	26.2	15	23.0	33	50.8
Difficulty in heavy house works	38	58.5	4	6.2	23	35.3
Role/Personal activities						
Difficulty in daily activities	48	73.8	12	18.3	15	23.0
Difficulty in work / study	34	52.3	15	23.0	16	24.6
Difficulties in caring of children	33	50.8	17	26.2	15	23.0
Difficulty in relaxing	26	40.0	14	21.5	25	38.5

Table (6): Frequency and percentage distribution of the studied patients with thyroid disorders regarding to their (discomforts-bowel-bladder functions) physical needs (N= 65)

Patients' physical needs	Always		Sometimes		Never	
	No.	%	No.	%	No.	%
Discomforts						
Generalized pain	48	73.8	6	9.2	11	17.0
Sleeping problems	33	50.8	17	26.2	15	23.0
Weakness & fatigue	53	81.5	11	17.0	1	1.5
Sexual dysfunction	8	12.3	6	9.2	51	78.5
Others						
Loss of appetite & change in taste	49	75.4	6	9.2	10	15.4
Mouth& swallowing problems	39	60.0	6	9.2	20	30.8
Bowel-bladder functions						
Incontinence	4	6.4	11	17.0	50	76.6
Constipation & diarrhea	11	17.0	1	1.5	53	81.5

Fig.(4): Percentage distribution of the studied patients with thyroid disorders regarding to their psychological needs (N= 65)**Table (7):** Frequency and percentage distribution of the studied patients with thyroid disorders regarding to their social needs (N= 65)

Patients' Social needs	Always		Sometimes		Never	
	No.	%	No.	%	No.	%
Feeling Loneliness	35	53.8	10	15.4	20	30.8
Feeling difficult to talk about the disease with others	32	49.2	11	17.0	22	33.8
Feeling difficult to contact with the family, friends, neighbors or colleague	25	38.4	11	17.0	29	44.6
Others being over-concerned	20	30.8	5	7.7	40	61.5
Feeling difficulties in talking about the disease with life companion	12	18.5	8	12.3	45	69.2
Feeling difference of opinion about the lines of treatment	12	18.5	8	12.3	45	69.2
Others dramatizing the situation	12	18.5	8	12.3	45	69.2
Feeling being forsaken by others	12	18.5	8	12.3	45	69.2
Difficulties in finding a confident someone to talk to	11	16.9	8	12.3	46	70.8
Receiving too little practical help from life companion or family	11	16.9	8	12.3	46	70.8
Relations with life companion	10	15.4	9	13.8	46	70.8
Difficult to contact with the children	9	13.8	16	24.7	40	61.5
Finding others not receptive to talking about the disease	9	13.8	16	24.7	40	61.5
Feeling others denying the severity of the situation	9	13.8	16	24.7	40	61.5

Discussion

The great majority (90 %) of all thyroid cancers is differentiated thyroid cancer (DTC), which includes papillary and follicular cancer. The standard treatment for DTC is postoperative supplemental radio iodine (^{131}I) therapy. The goal of this therapy is to destroy residual thyroid cells in order to eliminate conflict with cancer cells for thyroglobulin secretion or ^{131}I uptake, as well as to treat potential cancer micro metastases. Only adjuvant ^{131}I therapy allows for the detection of functioning micro metastases, which are detectable during a total body scan after therapy (Pacini et al., 2019).

The majority of the patients in this study were female with a high proportion of them

were being married, and more than half of them being between the ages of forty and fifty, with a mean age of 42.9 ± 0.8 . The majority of the patients were nonsmokers and half of them were illiterate housewives who lived in urban areas. **American National Institutes of Health (2021)** supported these findings, revealing that papillary carcinoma accounts for the majority of all thyroid malignancies diagnosed in the United States. Women are much more likely than males to develop this type of cancer. It can happen at any age, but is more common in adults between the ages of 30 and 50. In this regard, **American Cancer Society (2008)** reported that each year, approximately 20,700 new cases of thyroid cancer are detected. Women account for 15,800 new cases, while men account for 4,900, and it

is more common in the middle and older age groups who were not as concerned with regular check-ups as illiterate people.

As regards of educational level, half of the study subjects were unable to read and write, and about one third of them had completed preparatory and secondary school. This is in agreement with **Abdoun (2021) study**, which investigated at (Egypt's illiteracy rate) and found that illiteracy rates were higher among women in Egypt than among men, and that women account for 69 % of Egypt's overall illiterate population.

In the current study, the findings showed that more than two-thirds of the patients were married, and more than half of them were housewives. From the researchers' opinion, these findings could be due to Egyptian culture, which encourages early marriage and the idea that women really shouldn't work, especially among the lower socioeconomic levels. This corresponded to the findings of **Abd-el Fattah's (2018) study** about (Impact of nursing educational program on patients' outcome among patients undergoing thyroidectomy at El-Manial university hospital), which revealed that the majority of the subjects were female, married, and housewives, and that the majority of them were aged 30-50 years old.

This study showed that more than half of the subjects lived in urban areas. From the researchers' opinion, these findings could be related to the prevalence of known risk factors or the average regional air pollution exposure among urban residents. This contradicted the finding of **Roskosz et al. (2019)**, who studied "Early evaluation of treatment effectiveness with ^{131}I iodine radiotherapy in patients with differentiated thyroid cancer" and found that the majority of the patients came from rural areas.

In relation to previous thyroid treatment, this study found that nearly two-thirds of study participants had had medical and surgical treatment before receiving RAI therapy. This finding is supported by **Abd-el Mon'm (2013)**, who recommended that every patient receive RAI dose as a complementary line of care in his study about (Hyperthyroidism management by RAI ablation). In the same line, **Kukulaska et al. (2019)** reported that it is important to follow surgical management with medical and RAI

ablation to end any remaining cancer cells, study entitled with (Optimization of ^{131}I ablation in patients with differentiated thyroid carcinoma: comparison of early outcomes of treatment with 100 mCi versus 60 mCi.). In a similar vein, **Chow (2016)**, in his research on (side effects of high-dose radioactive iodine for ablation or treatment of differentiated thyroid carcinoma), reported that radioactive iodine benefits patients with thyroid cancer by treating recurrences and in reducing relapses after operation.

The current study revealed that most of patients were not having family history for thyroid disorders, and this disagree with **Hammoodi & Khudur, (2019)**, who reported that the highest percent of the studied patients in their study were having family history, of hyperthyroidism. The current study revealed that the majority of patients had no medical history for hypertension, diabetes mellitus, hepatic disease, kidney disease and heart disease also the majority of them had no risk factors for hypertension, diabetes mellitus, Unhealthy diet & Tobacco use, and this result agree with **Mohamed, (2016)** who reported that the highest percent of the studied patients in their study were having no medical history and no risk factors for their disease.

The current study showed that about two thirds of the study subjects had low total knowledge level. For the pre-admission preparations, about three fourth of the study subjects had average level of knowledge and also more than one third for the hospitalization period. While the last phase (isolation at home), more than two thirds of study subjects had low level of knowledge. According to the researcher's point of view, these findings matched the nuclear unit's policy, which declared that patients must make an appointment to get RAI therapy and just be informed of the pre-admission preparations. When they arrived at the hospital, the physician gathered all of the patients and gave them instructions about the hospitalization period and what they would do after discharge (isolation at home), so when the researcher interviewed the subjects before giving them the RAI dose and assessed their information about the post-discharge period, only a few of them gave correct answers.

This finding is consistent with **Marshall and Given (2018)** in study entitled"

How satisfied are head and neck cancer (HNC) patients with the information they receive pre-treatment?" Patients were generally satisfied with information when they received it before starting treatment, according to the results of the satisfaction with cancer information profile (SCIP), but key areas for improvement were identified, such as the provision of information about support groups, where to go for financial advice, and the long-term effects of treatment on ability to work, physical functioning, and QoL. This study also underlined the need of providing personalized information and the impact of satisfying patients' information needs prior to treatment on long-term outcomes.

In this regard, in their study "Educational intervention for patients with head and neck cancer in the discharge phase," **Meulen, Leeuw, Gamel, and Hafsteinsdóttir (2020)** recommended that the educational program should be given before starting the treatment because if it was given at the time of discharge, the percent of efficiency was low. In a study entitled "Hyperthyroidism and Other Causes of Thyrotoxicosis: Management Guidelines of the American Thyroid Association and American Association of Clinical Endocrinologists."

To sum up, two thirds of patients had low knowledge level, so it is highly recommended to provide suitable radioactive iodine guidelines before coming to receive RAI therapy to increase the efficiency of it.

According to the current study, about three fourth of the participants reported taste changes and dry mouth as common RAI side effects. Similar findings were observed in a research by **Foad (2021)** concerning (using RAI in thyroid disease diagnosis and treatment), which found that RAI therapy causes neck and salivary gland problems. Due to the mechanism of action of RAI, which concentrated in the thyroid gland, the early side effects are present in the neck area, according to **Chow (2016)** study (side effects of high-dose radioactive iodine for ablation or treatment of differentiated thyroid carcinoma). About 65.2 % of the sample complained of loss of appetite, dry mouth, taste change, and neck pain.

The results of this study revealed that around one third of the subjects require needs and assistance with mobility and ADLs, while half require help with personal activities.

Also more than half of the patients who complained of difficulties in activities of daily living (ADL) and personal role had a problem performing heavy housework, and more than one fourth of the patients reported of difficulties in food preparation and light housework. However, just about one third of the sample had difficulties with daily activities, and half of them had been that really cannot manage their work/study and couldn't care for their families.

These results are congruent with **Meulen, Leeuw, Gamel & Hafsteinsdóttir (2020)** in their study regarding "Educational intervention for patients with head and neck cancer in the discharge phase" which showed that patients need information and help concerning physical fitness as they complained from difficulties in carrying out their daily activities, work and not able to play their familial role. Also in this respect, **Richardson (2018)** revealed that most of thyroid patients complained from unsatisfactory level of activity which interferes with their quality of life (QoL) and pushes them to ask for assistance for doing their different daily activities.

Regarding to their (discomforts-bowel-bladder functions) physical needs, this study showed that about three fourth of the studied group was suffering from fatigue, discomfort, and more than half of them complained from swallowing problems and about half of them had sleep disturbance. Almost one fifth of the study subjects complained from sexual dysfunction. The least reported problems were Constipation & diarrhea.

The results of the current study were on the same line with those of **Richardson (2018)** which documented a group of discomforts as generalized pain/fatigue, shortness of breath, mouth/swallowing problems, loss of appetite and change in taste, decreased concentration, sleeping problems, nightly sweating / hot flushes and prickling or numb sensation are considered the main complaints of the patients receiving RAI therapy especially in the out-patients visits and most of them ask for medical help or interference to know how to relieve them.

According to the findings of the current study, the majority of participants experienced feelings of depression and anxiety, with three quarters of them having difficulties related to

spiritual issues. Finally, over half of the participants reported a loss of autonomy and a negative attitude toward their illness. The results of this study revealed that about half of the subjects need assistance to improve psychological problems such as spiritual issues and autonomy, while the majority of subjects and more than one-third of them need assistance to overcome feelings of depression and anxiety, respectively. For social issues, about half of them expressed feelings of loneliness and lack of contact with others such as family and neighbors, the talk about the disease with others. For these issues the expressed social needs were reported by only one third of subjects.

From the researcher's point of view; in spite of most of patients complained from psychological problems, the presented percentage of their asking for assistance or expressing their needs was low. These results may be due to nature of the Egyptian people's culture and traditions which prevent many patients of expressing their needs, feeling ashamed in asking help either physically, psychologically or socially, from their relatives or just to ventilate their fears and anxiety, also they didn't express their need for social support from relatives. So when dealing with such patients, it is recommended to provide a biopsychosocial support for them.

These results were also supported by **Leppert, Majkowicz and Ahmedzai (2021)** in their study entitled "The Adaptation of the Sheffield Profile for Assessment and Referral for Care (SPARC) to the Polish Clinical Setting for Needs Assessment of Advanced Cancer Patients" recommended that assessment of the needs and problems of advanced cancer patients is a very important issue in their care; communication and need for more information items were associated with psychological, social, spiritual, and treatment issues.

The current study's findings about physical, psychological and social needs were in the same line with, **Coolbrandt, et al. (2013)** study about characteristics and effectiveness of complex nursing interventions aimed at reducing symptom burden in adult thyroid cancer patients: A systematic review of randomized controlled trials, who

recommended that providing a complex nursing interventions based on a systematic review of patients' problems, produce clinically meaningful and statistically relevant reductions in symptoms burden.

To sum up, analyses of the study findings had revealed that majority of subjects complained from a lot of needs in many different areas such as physical, psychological, social and spiritual; also patients are lacking knowledge, and therefore are in need for information that might help patients' participation in achieving successful outcomes of the treatment plan. So that patients in this study are in need for radioactive iodine guidelines that help them to maximize the effectiveness of RAI therapy.

Conclusion

Based on the findings of the present study, it can be concluded that: Regarding to the patients' knowledge level about the radioactive iodine therapy, about two thirds of them had lack of knowledge and need to know about RAI treatment and its precautions. Regarding physical needs about one third of subjects need help & assistance in mobility and ADLs while half of them need help in doing personal activities.

Regarding psychological needs the majority of participants experienced feelings of depression and anxiety, with three quarters of them having difficulties related to spiritual issues. While more than half of the subjects reported social concerns were related to the feeling of loneliness.

Recommendations

Based on the findings of the current study, the following recommendations can be suggested:

- Patients should be provided with simple, illustrated guide booklet to provide them with the needed information about the RAI therapy.
- Patient's education is a very important element in improving patient quality of life so; it must be emphasized before administration of radioactive iodine therapy and continued after receiving it.

- Planning sessions of discussion between newly and previously treated patients undergoing RAI therapy to exchange their experiences with them which may help improve the outcomes.
- Multidisciplinary team should be collaborating in management of patients undergoing RAI therapy and helping them to overcome their problems and needs. The nuclear nurses should inform those patients about different resources that can help patients during their disease process.
- Replication of the study on a larger nonprobability representative sample to achieve more generalizable results.
- Conduct instructional guidelines to all patients undergoing radioactive iodine therapy for thyroid to improve their knowledge and quality of life.

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