Tianjin Daxue Xuebao (Ziran Kexue yu Gongcheng Jishu Ban)/
Journal of Tianjin University Science and Technology
ISSN (Online):0493-2137
E-Publication: Online Open Access
Vol: 58 Issue: 10:2025
DOI: 10.5281/zenodo.17421425

EFFECT OF A DESIGNED NURSING INSTRUCTIONS ON FATIGUE AND FUNCTIONAL STATUS LEVELS AMONG PATIENTS RECEIVING RADIOACTIVE IODINE THERAPY

SHADIA ZAGHLOL ABDELGHFFAR
Assistant Lecturer, Medical Surgical Nursing, Faculty of Nursing, Cairo University, Egypt.

LABIBA ABDEL-KADER MOHAMED
Professor, Medical Surgical Nursing, Faculty of Nursing, Cairo University, Egypt.

HANAN AHMED AL SEBAEE
Professor, Medical Surgical Nursing, Faculty of Nursing, Cairo University, Egypt.

SHERINE MOHAMED MAHDY
Consultant and Head, Nuclear Medicine, Faculty of Medicine, Cairo University, Egypt.

HUDA FATHY ELSAYED
Assistant Professor, Nuclear Medicine, Faculty of Medicine, Cairo University, Egypt.

Abstract

Background: Thyroid disorders are medical condition that affects the function of the thyroid gland; however, many cases life-threatening conditions. Thyroid disorders are very common globally with had 20 million people under treatment. Radioactive iodine can kill thyroid cells and helps to get rid of any remaining thyroid tissues. **Aim:** The aim of this study is to evaluate the effect of designed nursing instructions on fatigue and functional status levels among patients receiving radioactive iodine therapy. **Design**: Quasi-experimental pretest–posttest non-equivalent control group design was utilized in the current study. **Setting:** The current study was conducted in the Nuclear Medicine Department of Nasser Institute for Research and Treatment Hospital in Cairo, Egypt. **Sample**: A 60 adult a convenient sample over a period of six consecutive months of adult male and female patients diagnosed with hyperthyroidism and receiving radioactive iodine therapy was recruited in the study. **Tools:** Three tools were utilized to collect data; Personal and Medical Related Data Form (PMRD), Piper Fatigue Scale (PFS) and Functional Assessment of Cancer Therapy Version four (FACT - G). **Results:** The study revealed that 83.3% of the study group and 93.3% of the control group are females. A statistically significant difference in fatigue level and functional status level among the study group and control group after two weeks post intervention (X^2= 11.27 P=0.001), X^2= 20.57 P=0.000 respectively. **Conclusion**: The application of the designed nursing instructions decreases fatigue level and improves functional status level among patients receiving radioactive iodine therapy. **Recommendation:** The application of nursing instructions for patients receiving radioactive iodine therapy is recommended to decrease fatigue level and improve functional status level.

Keywords: Thyroid Disorder, Fatigue, Functional Status, Radioactive Iodine Therapy, Nursing Instruction.

INTRODUCTION

Thyroid disorders are one of the most common pathologies and a public health problem worldwide. The prevalence rate of thyroid disease is about 200 to 800 million people in the world. Thyroid disorders mainly produce hypothyroidism or hyperthyroidism. There

Tianjin Daxue Xuebao (Ziran Kexue yu Gongcheng Jishu Ban)/
Journal of Tianjin University Science and Technology
ISSN (Online):0493-2137
E-Publication: Online Open Access
Vol: 58 Issue: 10:2025
DOI: 10.5281/zenodo.17421425

are many forms of thyroid disorders as Graves' disease, multinodular toxic goiter and non-toxic goiter all lead to increase in the activity of thyroid gland (Mishra et al., 2021). Multinodular goiter is one of the most common endocrine diseases worldwide, affecting 500-600 million people; it is more prevalent in the areas where iodine is lacking in the diet such as in South-East Asia, Latin America and Central Africa (Vanderpump,2019).

The treatment of thyroid disorders includes three methods of treatment, surgery, hormonal therapy and the use of radioactive iodine. Radioactive iodine is utilized to analyze and treat thyroid illnesses, such as goiter or to crush thyroid cancer cells; it presents in many forms such as in liquid or capsule forms. It destroys thyroid cells and helps to get rid of any remaining thyroid tissue (Ito, Onoda & Okamoto, 2020). Radioactive iodine treatment is a common, well accepted form of treatment that has been used all over the world for more than 40 years; after receiving this therapy the patient's body become source of radiation for few days which reflecting danger to other people who deal with patients, so the patient should receive adequate instructions about the radioactive iodine treatment (Mathew, Rawla & Fortes, 2022).

Undesirable effects of radioactive iodine include burning sensation or tenderness in the areas near the neck, nausea, swelling or tenderness of the salivary glands, temporary changes in taste, dry mouth, dry eyes, fatigue and impaired functional status. These symptoms affect the physical, psychological and social activities of those patients leading to extreme exhaustion, reduced productivity and frequent hospitalizations (Gkatzia, Papadopoulos, Kostagiolas, Karianos & Saranti, 2021). One of the most often-mentioned complaints among patients with thyroid disorders is fatigue which may significantly reduce functional status during disease process and after treatment, hence, it affects social relationships, and daily activities (Niva et al., 2021).

The lack of adequate instruction can result in increased readmission rate and impaired the patient outcome, these instructions include self-care activities, follow-up appointments, nutritional needs and safety precaution (Nishio et al., 2021). Nurses should give patients adequate instructions after receiving radioactive as they have to use personal transportation, use own bathroom and linens, arrange to sleep alone in a separate room, use disposable dishes and utensils for meals, wear the gloves when handle anything that has come into contact with body fluids, set up a separate garbage or bag for trash, plan to be off work or school for at least seven days (American Thyroid Association, 2023; Cliff, Rome, Kesselheim, & Rome, 2023).

Nursing instructions can effectively reduce risks of complications, improve self-management efficacy, and alleviate fatigue and improve the patients functional status (Ji et al., 2022); Based on former research study, patient who received the nursing instructions related to radioactive iodine is expected to be able to take medications as directed, continue to perform daily activities, and have the means to follow the plan for outpatient care (Gomes, 2022), therefore, the aim of the current study was to evaluate the effect of a designed nursing instructions on patients' fatigue and functional status levels among patients receiving radioactive iodine therapy.

Tianjin Daxue Xuebao (Ziran Kexue yu Gongcheng Jishu Ban)/
Journal of Tianjin University Science and Technology
ISSN (Online):0493-2137
E-Publication: Online Open Access
Vol: 58 Issue: 10:2025
DOI: 10.5281/zenodo.17421425

Significance of the study

Despite the high number of patients receiving radioactive iodine therapy, unfortunately, there is no reliable statistics at national level regarding the number of patients receiving radioactive iodine. The researcher hope that this study will provide a guide to help the patients to be insightful enough to assume independent role in the care at home through improving patients' knowledge which may contribute to limit radiation hazards for patients, family members, caregivers, and the public as well as decreasing readmission rate. Furthermore, this study might provide evidence-based data to help the health care providers, especially the nurses, to integrate nursing instructions in the care of such patients.

Aim of the Study

The aim of the study was to evaluate the effect of a designed nursing instructions on fatigue and functional status levels among patients receiving radioactive iodine therapy.

Research Hypotheses

To fulfill the aim of the study, the following hypotheses were postulated to be tested:

H_1: The post total mean fatigue level scores of the patients receiving radioactive iodine therapy who will go through the designed nursing instructions will be different from the post total mean fatigue level scores of the patients who will receive only the routine nursing instructions.

H_2: The post total mean functional status scores of the patients receiving radioactive iodine therapy who will go through the designed nursing instructions will be different from the post total mean functional status scores of the patients who will receive only the routine nursing instructions.

Research Design

Quasi-experimental pretest–posttest non-equivalent control group design was utilized in the current study. A quasi-experimental design is an empirical study used to estimate the causal impact (fatigue, and functional status levels) of an intervention (nursing instructions) on its target population (patients who receive radioactive iodine therapy) without randomization (Madadizadeh, 2022).

Setting

The current study was conducted in the Nuclear Medicine Department at Nasser Institute for Research and Treatment Hospital in Cairo, Egypt that affiliated to ministry of health.

Sample

A convenient sample of 60 adult male and female patients post total or subtotal thyroidectomy and receiving radioactive iodine therapy over a period of six consecutive months. The subjects recruited in the study were divided randomly into study and control

Tianjin Daxue Xuebao (Ziran Kexue yu Gongcheng Jishu Ban)/
Journal of Tianjin University Science and Technology
ISSN (Online):0493-2137
E-Publication: Online Open Access
Vol: 58 Issue: 10:2025
DOI: 10.5281/zenodo.17421425

group (30/each) based on the following inclusion criteria: conscious and able to communicate. Pregnant and lactating mother were excluded from the study.

Study tools

The researcher used four tools to fulfill the aim of the study which include:

Tool I: Personal and Medical related Data Form: It was developed by the researcher and includes two parts; part one is related to personal data as age, gender, level of education and marital status …. etc. Part two is geared toward medical data as diagnosis, date of receiving radioactive iodine, expected and actual date of hospital discharge ……. etc.

Tool II: The Piper Fatigue Scale (PFS). It was used to evaluate fatigue level among patients after receiving radioactive iodine. It was developed by Piper et al., (1998) and adapted by Ali, Elsawi, Hashem and Mohammed (2018). The adopted PFS consists of 14 questions; 13 questions out of them had numerical scale and the 14th question was visual analogue scale scored from (0-10).

Scoring system: Each question has Likert scale ranged from 0-10. Where zero means no fatigue, 1 - 3 means mild fatigue, 4 - 6 means moderate fatigue, 7 - 9 means extreme fatigue and 10 means worst fatigue. The total score ranged from 0-140. Whereas (0- < 14) means no fatigue, (14- <56) mild fatigue, (56- <98) moderate fatigue, (98- <126) indicating extreme fatigue and (126-140) indicating worst fatigue. Reliability was demonstrated with high internal consistency (alpha = 0.98) and strong test-retest agreement (intraclass correlation coefficient = 0.98) (Strohschein et al., 2003).

Tool III: Functional Assessment of Cancer Therapy General (FACT - G) Version Four. It was developed by (Yanez, Pearman, Lis, Beaumont & Cella (2013). used to evaluate the functional status before and after receiving and implementing the designed nursing instructions to patients receiving radioactive iodine. The FACT – G version Four consists of 27 MCQ questions. It includes four subscales: Physical Well-Being (PWB), Social/Family Well-Being (SWB), Emotional Well-Being (EWB), and Functional Well-being (FWB). Each subscale consists of seven questions except Emotional Well-Being includes six questions.

Scoring system: Each question has 5-point Likert scale ranging from (0-4). The total scores ranged from (0- 100). The total FACT scores are divided into four categories as follows: 0–25 = minimal severity, 26–50= mild severity, 51–75 = moderate severity and 76–100 = extreme severity. Validity and reliability were done. The alpha coefficient (internal consistency) for the (FACT-G) total score was high (α = .90), with subscale alpha coefficients ranging from 0.63 to 0.86 (Hahn, Segawa, Kaer, Cella & Smith, 2015).

Ethical Consideration

An initial written approval was obtained from the Research Ethics Committee of the Faculty of Nursing, Cairo University. Also, official permission was obtained from the hospital director and the director of Nuclear Medicine Department of Nasser Institute to conduct the study. Each participant was informed about the nature and purpose of the study. Also, all of them were informed that participation in the study was completely

Tianjin Daxue Xuebao (Ziran Kexue yu Gongcheng Jishu Ban)/
Journal of Tianjin University Science and Technology
ISSN (Online):0493-2137
E-Publication: Online Open Access
Vol: 58 Issue: 10:2025
DOI: 10.5281/zenodo.17421425

voluntary, and they have the right to withdraw from the study at any point without any penalty. Anonymity and confidentiality were considered through coding the data. The data will not be reused in any other research studies without the patient's permission. Patients who choose to participate were asked to sign the informed consent form. Final approval was issued from the Research Ethical Committee after completion of data collection (three tools of data collections).

Procedure

The study was conducted through three phases: preparatory, implementation, and evaluation.

The preparatory phase: The researcher reviewed the literature and prepared the data collection tools, then a list of patients who were scheduled to receive radioactive iodine therapy was received on daily basis from the head nurse of the Nuclear Medicine Department at Nasser Institute for Research and Treatment Hospital. After that, patients who fulfill the criteria for possible inclusion were met. At that time the nature and the purpose of the study as well as all other ethical considerations mentioned previously were explained to each patient individually. Eligible participants who agreed to participate in the study were asked to sign the written informed consent form.

Patients must register on a waiting list in the nuclear medicine department; the waiting time usually ranges from one to two months. The researcher collected data from participants of the control group firstly (participants who were receive the routine hospital care) and who scheduled on any (Sunday, Tuesday, and Wednesday) each week, then collect data from the study group (participants who were receive the designed nursing instructions and the routine hospital care) who scheduled on Saturday and Monday each week, this sequence was carried out to prevent contamination between the two groups. During this phase, the researcher also prepared an Arabic instructional booklet covering the following content: overview of the hyperthyroidism, signs and symptoms, complications, management, and teaching tips before and after receiving radioactive iodine therapy to be handed for the study group participants.

Implementation phase:

During this phase, the researcher conducted three periodic meetings for each participant individually. The first meeting was on the day of registration for radioactive iodine therapy. Each eligible participant who accepted to participate in the study and signed the informed consent form was interviewed individually to obtain the baseline data through collecting personal and medical data using tool I, the fatigue level using tool II and functional status using tool III. Regarding the control group, the researcher conducted one meeting on the day of registration for radioactive iodine therapy to collect baseline data. The duration of the meeting was from 30 to 45 minutes.

The second meeting was held after two weeks from the first meeting during receiving the radioactive iodine; the researcher implemented the designed nursing instructions to study group through giving the nursing instructions regarding pre - receiving radioactive iodine

Tianjin Daxue Xuebao (Ziran Kexue yu Gongcheng Jishu Ban)/
Journal of Tianjin University Science and Technology
ISSN (Online):0493-2137
E-Publication: Online Open Access
Vol: 58 Issue: 10:2025
DOI: 10.5281/zenodo.17421425

therapy as adherence to low iodine in diet and fasting for two hours before receiving the radioactive …... etc. The duration of the meeting lasted from 30 to 45 minutes.

The third meeting was held after two weeks from the second meeting, during this meeting the researcher provided the designed nursing instructions related to intra and post receiving radioactive iodine therapy during the isolation period which lasted for two to four weeks regarding follow-up dietary instructions, medication regimen, hygienic care precautions, instructions about home environment and follow up of medical care …etc. Duration of this meeting took from 45 to 60 minutes.

Evaluation Phase: Based on the hospital protocol and policy after radioactive iodine therapy and as reported by Herbert et al., (2020), the first post-assessment was carried out by the researcher from 10 to 14 days after receiving radioactive iodine therapy for the participants in both groups using tool II and tool III. Then the second post assessment was conducted after two months for participants in both groups as reported by Mayson, Chan and Haugen, (2021) using tool number II and tool number III.

Statistical Analysis

The collected data was scored, tabulated and analyzed by personal computer using statistical package for the social science (SPSS) program version 20. Descriptive as well as inferential statistics were utilized to analyze data pertinent the study. Descriptive statistics including frequency, distribution, means, and standard deviation were utilized; t- test and chi square test was used to compare between results of study and control group. The level of significance was adopted at $p<0.05$.

RESULTS

The findings of the current study are presented in two main sections as follows.

Section I: Demographic and Medical Background Data of the Studied Sample

Table 1: Frequency and Percentage Distribution of Demographic data among Study and Control Groups Patients (n= 60).

Variables	Study Group		Control Group			
	N	%	N	%	F-test	P-value
Age						
- 18 to < 40	16	53.3	15	50	2.205	0.116
- 40 to < 60	12	40.0	9	30		
- 60 to 65	2	6.7	6	20		
Mean ± SD	35.8±12.4		42.5±16.4			
Gender						
- Male	5	16.7	2	6.7		
- Female	25	83.3	28	93.3	0.17	0.68
Marital status						
- Married	25	83.3	17	56.7		
- Single	1	3.3	5	16.7		
- Divorced	3	10.0	8	26.7		
- Widow	1	3.3	0	0.0	1.5	0.21

Tianjin Daxue Xuebao (Ziran Kexue yu Gongcheng Jishu Ban)/
Journal of Tianjin University Science and Technology
ISSN (Online):0493-2137
E-Publication: Online Open Access
Vol: 58 Issue: 10:2025
DOI: 10.5281/zenodo.17421425

Education						
- Can't read and write	6	20.0	6	20.0		
- Can read and write	8	26.7	7	23.3		
- -Basic Education	9	30.0	8	26.7		
- Secondary	4	13.3	3	10.0		
- University	3	10.0	6	20.0	1.2	0.86
Occupation						
- Worker	1	3.3	0	0.0		
- Employee	2	6.7	0	0.0		
- Housewife	20	66.7	15	53.3		
- Without Work	7	23.3	15	47.7	6.6	0.08

** Significant at p≤ 0.05* *** Highly Significant at p≤ 0.0*

Table (1) shows that there are no statistically significant differences among the two groups regarding all the demographic characteristics.

Table 2: Frequency and Percentage Distribution of Housing Conditions among Study and Control Groups (n= 60)

Housing conditions	Study group		Control group		Chi square
	N	%	N	%	p-value
- Rural	13	43.3	9	30	
- Urban	17	56.7	21	70	0.42 (0.51)
Type of living					
- Apartment	26	86.7	20	66.7	
- Room	4	13.3	10	33.3	0.78 (0.37)
- Living With					
- Live alone	2	6.7	1	3.3	
- 1-3 members	10	33.3	10	33.3	
- 4-6 members	17	56.7	12	40	
- 7-9 members	1	3.3	7	23.3	0.86 (0.35)
Have Private Room					
- Yes	14	46.7	10	33.3	
- No	16	53.3	20	66.7	0.44 (0.5)
House Ventilation					
- Well ventilated	9	30	12	40	
- Poorly ventilated	21	70	18	60	0.23 (0.63)
- Bathroom					
- Private	4	13.3	4	13.3	
- Shared with family	12	40	12	40	
- Shared with several families	14	46.6	14	46.6	0.1(0.99)

** Significant at p≤ 0.05* *** Highly Significant at p≤ 0.0*

Table (2) clarifies that there are no statistically significant differences between the two groups regarding all social data / housing conditions.

Tianjin Daxue Xuebao (Ziran Kexue yu Gongcheng Jishu Ban)/
Journal of Tianjin University Science and Technology
ISSN (Online):0493-2137
E-Publication: Online Open Access
Vol: 58 Issue: 10:2025
DOI: 10.5281/zenodo.17421425

Table 3: Frequency and Percentage Distribution of Medical Background Data among the Study and Control Groups (n= 60).

Variable	Study Group N	%	Control Group N	%	X^2	p-value
Duration of thyroid disease					*32.7*	0.00*
- 0-3 years	14	46.7	1	3.3		
- More than 3-6 years	3	10.0	19	63.3		
- More than 6-9 years	2	6.7	8	26.7		
- More than 9 years	11	36.7	2	6.7		
Treatment						
- None	10	33.3	13	43.3		
- Thyroxine dose	20	66.7	17	56.7	*2.8*	0.57
Comorbidities						
- Yes	28	93.3	30	100		
- No	2	6.7	0	0.0		
Comorbidities						
- Diabetes Mellitus	22	73.3	10	33.3		
- Hypertension	6	26.7	20	66.7		
Family history						
- Yes	2	6.7	6	26.7		
- No	28	93.3	24	73.3	*1.7*	0.18

** Significant at p≤ 0.05* *** Highly Significant at p≤ 0.01*

Table (3) clarifies that 46.7% of study group complaint from thyroid disease for less than three years while, 63.3% of control group complains from thyroid disease for less than six years. There are no statistically significant differences among the two groups regarding medical background data except for the duration of thyroid disease (X^2= 32.7, P= 0.00).

Section II: Results related to fatigue and functional status levels

Table 4: Frequency and Percentage Distribution of Fatigue Level of Both Groups at Three Times of Assessment (n= 60).

Fatigue level	Pre intervention				2 Weeks Post Intervention				Two Months Post Intervention			
	Study		Control		Study		Control		Study		Control	
	N	%	N	%	N	%	N	%	N	%	N	%
No	0	0.0	0	0.0	15	50	0	0.0	7	23.4	0	0.0
Mild	0	0.0	0	0.0	11	36.6	0	0.0	18	60	0	0.0
Moderate	0	0.0	5	16.6	4	13.4	4	13.4	5	16.6	0	0.0
Extreme	18	60	2	6.6	0	0.0	12	40	0	0.0	22	73.4
Worst	12	40	23	76.8	0	0.0	14	46.6	0	0.0	8	26.6
X2(p-value)		3.46(0.06)				11.27(0.001*)				10.70(0.001*)		

** Significant at p-value<0.05*

Table (4) reveals that there is no a statistically significant difference in fatigue level among the study group and control group pre intervention (X^2= 3.46 P=0.063). while there is a statistically significant difference in fatigue level among the study group and control group

Tianjin Daxue Xuebao (Ziran Kexue yu Gongcheng Jishu Ban)/
Journal of Tianjin University Science and Technology
ISSN (Online):0493-2137
E-Publication: Online Open Access
Vol: 58 Issue: 10:2025
DOI: 10.5281/zenodo.17421425

after two weeks (X^2= 11.27, P=0.001) and two months post intervention (X^2= 10.70, P=0.001).

Table 5: Frequency Percentage Distribution of Functional Status Level of Both Groups at Three Times of Assessment (n= 60).

Functional status level	Pre intervention				2 Weeks Post Intervention				Two Months Post Intervention			
	Study		Control		Study		Control		Study		Control	
	N	%	N	%	N	%	N	%	N	%	No.	%
Minimal Decrease	0	0	0	0	28	93.3	0	0	22	73.3	0	0
Mild decrease	0	0	0	0	2	6.7	0	0	8	26.7	0	0
Moderate decrease	0	0	7	23.3	0	0	4	13.3	0	0	0	0
Extreme decrease	30	100	23	76.7	0	0	26	86.7	0	0	30	100
X2 (p-value)	0.92(0.336)				20.57 (0.000*)				12.74 (0.000*)			

**Significant at p-value<0.05*

Table (5) shows that 100% of the study group and 76.7% of the control group before implementing the nursing instructions have extreme decrease in functional status level while, two months after intervention, there was 73.3 % of the study group have minimal decrease functional status level and 100% of control group expressed extreme decrease functional status level. There is not a statistically significant difference in functional status level among the study group and control group pre intervention. However, there is a statistically significant difference in functional status level among the study group and control group after two weeks and two months post intervention (X^2= 20.57, P=0.000; X^2= 12.74, P=0.000 respectively.

DISCUSSION

It covers presentation and interpretation of the study findings in two main sections as the following: section I for personal and medical data, while section II for hypothesis testing.

Section I: Personal and medical data

The current study findings presented that the majority of the sample (study and control) were in the age group from 18 to less than 40 yrs. old, the majority of the two groups were female, married and house wife, these results could be explained that the incidence of thyroid cancer in women is increasing with the highest risk in the reproductive years, as well, epidemiological studies have shown that the female prevalence in thyroid cancer is greater during reproductive age. This study finding agreed with study done by Algaid, Mohammad, Mohsen, Sahar and El Samie (2019) as, the majority of their sample in both groups were female, married and house wives Also, a study conducted by Mahrous, Gendy and Abd-Elaziz, (2021) revealed that, more than two-thirds of the patients were married, and more than half of them were housewives.

Tianjin Daxue Xuebao (Ziran Kexue yu Gongcheng Jishu Ban)/
Journal of Tianjin University Science and Technology
ISSN (Online):0493-2137
E-Publication: Online Open Access
Vol: 58 Issue: 10:2025
DOI: 10.5281/zenodo.17421425

As regard level of education, the current study finding showed that about one third of the study and control groups have basic education, this current result came in the same line with the former study who reported that, half of the study subjects were unable to read and write, and about one third of them had completed preparatory and secondary school.

Regarding the place of residence, the current study finding showed that, more than half of the study group came from urban area, From the researchers' opinion, these findings could be related to the prevalence of known thyroid disorders risk factors or the average regional air pollution exposure among urban residents. This finding is consistent with Mahrous et al. (2021) who found that more than half of the study subjects lived in urban areas.

Regarding housing condition, the current study finding showed that, more than half of the study group and more than one third of the control group were four to six members living with the patient. Furthermore, the majority of the study group and two thirds of the control group lived in apartment, less than half of the study group and two thirds of the control group don't have private room and near half among both groups sharing bathroom with several families. This finding could be interpreted in the light of the economic status and social aspect of Egyptian family always living in family home and Egyptian culture and family constructors with early marriage in small homes. These findings in the same line of the study by Mohamed et al. (2019), as more than one third of patients have 4-6persons live in the same home with patients and showed that more than half of patients have subjects live at the same home with patients and 90.0 % of them had poor use of bathroom.

The current study finding revealed that near to three quarters of the study group, and one third of the control group had diabetes mellitus. As well as, more than one fourth of the study group, and more than two thirds of the control group having history of hypertension. This result is consistent with Elmetwaly et al. (2024), who revealed that the majority of patients had medical history for chronic disease as 40% have diabetes, and 30% have hypertension as well as cardiovascular diseases. Regarding treatment, the current study finding clarified that more two thirds of the study group and more than half of the control group were receiving iodine (thyroxin dose), this could be explained and supported by Kukulska et al. (2019), who recommended that every patient should receive iodine intake dose as a complementary line of care and it is important to follow surgical management with medical and RAI ablation to end any remaining cancer cells.

Although familial forms of thyroid cancer exist, the vast majority of thyroid cancers are sporadic. Epidemiological studies indicate that over 90% of differentiated thyroid carcinomas (including papillary and follicular subtypes) arise in individuals with no known family history of thyroid malignancy (Sparano et al., 2022). Therefore, the current study finding cleared that, the highest percent of the study group and more than three quarters of the control group did not have family history, and this finding congruent with Mahrous et al., (2021) who revealed that most of patients were not having family history for thyroid disorders.

Tianjin Daxue Xuebao (Ziran Kexue yu Gongcheng Jishu Ban)/
Journal of Tianjin University Science and Technology
ISSN (Online):0493-2137
E-Publication: Online Open Access
Vol: 58 Issue: 10:2025
DOI: 10.5281/zenodo.17421425

Section (II): Hypotheses testing fatigue level and functional status.

Concerning the first hypothesis, the current study finding showed that the highest percentage of the study group reporting extreme fatigue before receiving the designed nursing instruction, while, after two weeks of implementing nursing instructions the highest percentage reported no and mild level of fatigue and there was a statistically significant decrease in fatigue level in the study group after two months (X2= 10.70 P = 0.001). The extreme fatigue decreased to 0% among study group while the extreme fatigue increased in the control group after two months. This result could suggest that the intervention had a positive impact on improving patient's condition and reducing fatigue.

A congruent study established by Hughes, Reyes-Gastelum, Kovatch, Hamilton, Ward and Haymart, (2020) reported that 38.2% of the participants reported much worse or somewhat worse energy and 50.7% reported moderate to very severe fatigue. Additionally, this current study is consistent with Mahrous et al. (2022), who revealed that about three fourths of the studied group was suffering from fatigue and discomfort and more than half of the patients reported moderate, severe, or very severe levels of fatigue and one third reported somewhat or much worse energy levels at the time of the survey compared to before treatment. Moreover, Liu et al. (2023) in studying the "Effect of Psychological Intervention on Differentiated Thyroid Cancer Patients in the Treatment with Radioactive Iodine" reported that the symptoms of depression, anxiety and fatigue post intervention were significantly improved in the intervention group compared with the control group, and concluded that psychological interventions should be given for a longer period to achieve better results.

As regard, the second hypothesis of the current study; it was revealed that all largest percent of the study and control group respectively reporting extreme decrease in functional status before implementing nursing instructions. While, after two weeks as well as after two months of implementing nursing instructions, the majority of the study group reporting minimal decrease in the functional level, in addition to there was a highly statistically significant decrease in functional status level in the study group (X2= 12.74 P = 0.000).

Concerning the functional status level among the control group, the current study finding revealed that, the majority of the control group reporting extreme decrease in functional level in base line assessment as well as after two weeks and two months from receiving routine hospital care. Moreover, the study findings elaborate high statistically significant difference in functional status level between study and control group, this could be due to implementation of the designed nursing intervention and its affectivness as it was implemented based on patients identified needs and priorities, the simplicity of the language, and avoiding purely scientific terms that could have made the patients reluctant to learn. The current study finding is supported with study done by Sparanoa et al. (2022), who declared that more than half of the patients who complained of difficulties in activities of daily living (ADL) and personal role had a problem in performing heavy housework, and more than one fourth of the patients' reported difficulties in food preparation and light

Tianjin Daxue Xuebao (Ziran Kexue yu Gongcheng Jishu Ban)/
Journal of Tianjin University Science and Technology
ISSN (Online):0493-2137
E-Publication: Online Open Access
Vol: 58 Issue: 10:2025
DOI: 10.5281/zenodo.17421425

housework. However, just about one third of the sample had difficulties with daily activities, and half of them really cannot manage their work/study and couldn't care for their families. Also, these results also congruent with Meulen, Leeuw, Gamel and Hafsteinsdóttir (2020) in their study regarding the 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 work activities work and not able to play their familial role.

CONCLUSION AND RECOMMENDATION

To sum up, analyses of the study findings had revealed that the majority of the patients receiving radioactive iodine therapy complained from fatigue and decreased functional status level. Based on all findings of the current study, it can be concluded that an improvement in fatigue level and functional status levels among the studied patients after implementation of a designed nursing instructions compared to pre-program implementation, therefore, those patients are in need for information that might foster enhance their participation in achieving successful outcomes of the treatment plan. So, it was recommended to provide educational intervention for those group of patients to help them to maximize the effectiveness of RAI therapy.

References

1) Aellen, E, Fingeret, A. (2022): Anatomy, Head and Neck, Thyroid, available at, ahttps://pubmed.ncbi.nlm.nih.gov/2926 2169/American Cancer Society, (2024): Radioactive Iodine Therapy for Thyroid Cancer, available at: https :// www. cancer.org/cancer/types/thyroidcancer/treating/radioactiveiodine.htmlRetrieved on 25-11-2023.

2) Algaid, S. A., Mohammad, Z. A. E. L., Mohsen, A. E., Sahar, A., & El Samie, H. A. (2019). Effect of nursing instructions on life style of patients receiving radioactive iodine therapy for thyroid disorders. *Assiut Scientific Nursing Journal*,*7*(17), 33-41.

3) Ali, S. R., Elsawi, K. A. B., Hashem, H. Y., & Mohammed, G. E. (2018). Effect of discharge plan on patients' readiness to discharge after allogeneic stem cells transplantation. *stem cells*, *3*, 5.

4) American Thyroid Association, (2023): What you need to know about the Thyroid. (http://www.thyroid.org/thyroidinformation/ Bare, L, (2021): Medical Surgical Nursing, 5 th ed., Lippincott Company, Philadelphia, pp. 306- 315.

5) Bower, J. E., Lacchetti, C., Alici, Y., Barton, D. L., Bruner, D., Canin, B. E., ... & Mustian, K. (2024). Management of Fatigue in Adult Survivors of Cancer: ASCO–Society for Integrative Oncology Guideline Update. *Journal of Clinical Oncology*, JCO-24.

6) Chen X. (2022). Analysis of the Effect of Nursing Intervention for Thyroid Diseases Based on Family Nursing Methods. *Computational and mathematical methods in medicine*, *2022*, 1766544. https://doi.org/10.1155/2022/1766544 (Retraction published Comput Math Methods Med. 2023 Jun 28; 2023:9783873. doi: 10.1155/2023/9783873).

7) Cheng, M., Cao, C. X., ... & Zuo, C. L. (2021). Expert consensus on diagnosis and treatment for elderly with thyroid diseases in China (2021). *Aging Medicine*, *4*(2), 70-92.

8) Cliff, E. R. S., Rome, R. S., Kesselheim, A. S., & Rome, B. N. (2023). National Comprehensive Cancer Network Guideline Recommendations of Cancer Drugs with Accelerated Approval. JAMA network open, 6(11), e2343285. https://doi.org/10.1001/jamanetworkopen.2023.4 3285

Tianjin Daxue Xuebao (Ziran Kexue yu Gongcheng Jishu Ban)/
Journal of Tianjin University Science and Technology
ISSN (Online):0493-2137
E-Publication: Online Open Access
Vol: 58 Issue: 10:2025
DOI: 10.5281/zenodo.17421425

9) Davodabady, F., Naseri-Salahshour, V., Sajadi, M., Mohtarami, A., & Rafiei, F. (2021). Randomized controlled trial of the foot reflexology on pain and anxiety severity during dressing change in burn patients. *Burns*, *47*(1), 215-221.

10) Gomes, A, (2022): Radioactive Iodeine Therapy ,https: // www .uhn. ca / Patients Families / Health_ Information / Health_Topics /Documents/S wallowing_Exercises_for_Patients_with_Head_ and_Neck_Cancer_Receiving_Radiation_Treat ment.pdf.

11) Journal of Nuclear Medicine. (2023): Patient Preparation and Radiation Protection Guidance for Adult Patients Undergoing Radioiodine Treatment for Thyroid Cancer in UK, available to https://www.sciencedirect.com/science/article/pii/S0936655522003144.

12) Kang, Y. E., Yoon, J. H., Park, N. H., Ahn, Y. C., Lee, E. J., & Son, C. G. (2023). Prevalence of cancer-related fatigue based on severity: a systematic review and meta-analysis. *Scientific reports*, *13*(1), 12815.

13) Khamtuikrua, Ch and Suksompong.S,. (2020): Awareness about Radiation Hazards and Knowledge about Radiation Protection among Healthcare Personnel: A Quaternary Care Academic Center–Based Study. National Institute of Health (NIH).

14) Mahrous. M. F, Gendy. F, J, and Abd- Elaziz. M, (2021): Biopsychosocial Needs among Patients Receiving Radioactive Iodine Therapy for Thyroid Disorders: Suggested Guidelines, Egyptian Journal of Health Care, 2021 EJHC Vol. 12 No. 3.

15) Mohamed Elmetwaly, R., Said Ali, A., Nabil Abd Elsalam, S., Eldin Moussa Sherif, D., & Metwaly Elsayed, S. (2024). Nursing Guidelines on Safety Measures Awareness among Patients with Thyroid Disorders undergoing Radioactive Iodine Therapy. *Egyptian Journal of Health Care*, *15*(1), 1619-1633.

16) Mathew. P, Rawla. P & Fortes. K, (2022): Hyperthyroidism (Nursing). National Library of Medicine Stat Pearls Publishing LLC. Available at: https://www.ncbi.nlm.nih.gov/books/NB K568782/ Retrieved on 4-12-2023.

17) Merck Manual Consumer Version. (2021): Overview of the Thyroid Gland. (https://www.merckmanuals.com/home/h ormonal-and-metabolicdisorders/thyroid- gland disorders/overview-of-the-thyroid- gland). Retrieved on 27-12-2023.

18) Ministry of Health. (2022). Endocrine diseases,availableat:https://www.moh.

19) Niva, W. J., Sekar, L., Manikandan, A., MaheshKumar, K., Ganesan, T., Shriraam, V., ... & Padmavathi, R. (2021). Mahamantra chanting as an effective intervention for stress reduction among nursing professionals—A randomized controlled study. *Advances in Integrative Medicine*, *8*(1), 27-32.

20) Reizian, A., El Shatby, A., Abo-Elwafa, W., El-Deeb, H., & Mohamed, B. (2023). Effect of Nursing Interventions on Patients' Health Outcomes Post Thyroidectomy. *Alexandria Scientific Nursing Journal*, *25*(3), 64-75. doi:10.21608/asalexu.2023.318356.

21) Sparano, C., Moog, S., Hadoux, J., Dupuy, C., Al Ghuzlan, A., Breuskin, I., Guerlain, J., Hartl, D., Baudin, E., & Lamartina, L. (2022). Strategies for Radioiodine Treatment: What's New. *Cancers*, *14*(15), 3800. https://doi.org/10.3390/cancers14153800

22) Yanez, B., Pearman, T., Lis, C. G., Beaumont, J. L., & Cella, D. (2013). The FACT- G7: a rapid version of the functional assessment of cancer therapy-general (FACT-G) for monitoring symptoms and concerns in oncology practice and research. *Annals of oncology*, *24*(4), 1073-1078.

23) Xue, G., Yi, H., Xue, P., & Sun, W. (2021). The effects of humanized psychological nursing model in general surgery nursing. *Proceedings of Anticancer Research*, *5*(4), 98-102.