

# Effect of Perioperative Instructions on Postoperative Discomforts and Satisfaction Level among Patients Undergoing Thyroidectomy

Yasmin F. M. Abd Elazeem<sup>1</sup>, Nesrine E. M. Abdel-Karim<sup>2</sup>, Eman F. A. M. Aly<sup>3</sup>

<sup>1</sup>Medical-Surgical Nursing Department, Faculty of Nursing, Alexandria University, Egypt.  
e-mail: yasminflower\_2008@yahoo.com

<sup>2</sup>Medical-Surgical Nursing Department, Faculty of Nursing, Alexandria University, Egypt.  
e-mail: drnesrinezzat@gmail.com

<sup>3</sup>Medical-Surgical Nursing Department, Faculty of Nursing, Beni-Suef University, Egypt.  
e-mail: emanamr238@yahoo.com

Received November 3, 2019, accepted December 5, 2019

doi: 10.47104/ebnrojs3.v2i1.109

## ABSTRACT

**Context:** Thyroidectomy is a type of surgery directed to remove all or part of the thyroid gland. Documented complications after thyroidectomy are rare, but their consequences can often be life-threatening. Patients who receive perioperative instructions about what to expect after the operation often have better coping with postoperative discomforts, minimizes post-surgical complications and reduces the duration of hospitalization. It also improves patient safety and reduces the anxiety induced by the intervention. In addition to this, it elevates the patient's satisfaction level. So, perioperative instructions are essential.

**Aim:** The present study aims to determine the effect of perioperative instructions on postoperative discomforts and satisfaction levels among patients undergoing thyroidectomy. The study hypothesized that postoperative patients who receive the perioperative instructions exhibit fewer discomforts and more satisfaction than those who do not.

**Methods:** The study utilize a quasi-experimental (study/control group) design. It was conducted at the Head and Neck Surgical Department of Alexandria Main University Hospital. A convenience sample included 70 adult patients were selected from the setting mentioned above who were enrolled either study or control groups 35 patients for each. Three tools were used for data collection. A structured interview questionnaire aimed to assess the socio-demographic characteristics and clinical data of the study subjects. Discomfort assessment scale to rate the patient's level of discomfort against six common postoperative problems. Perioperative instructions patients' satisfaction questionnaire developed to determine the patients' satisfaction level regarding perioperative instructions.

**Results:** There were statistically significant differences among the study and control groups in the first, second, and third weeks regarding total discomfort score level, where  $t=3.606$ ,  $p<0.001$ ;  $t=3.049$ ,  $p<0.001$ ;  $t=21.213$ ,  $p<0.001$  respectively. The studied patients had higher level of satisfaction compared to those in the control group with statistically significant differences regarding overall scores of satisfaction, and with preoperative instruction, postoperative instruction, and psychological preparation, where  $t=48.382$ ,  $p<0.001$ ;  $t=6.023$ ,  $p<0.001$ ;  $t=27.997$ ,  $p<0.001$ ;  $t=32.939$ ,  $p<0.001$  respectively.

**Conclusion:** The study hypotheses were accepted as postoperative patients who receive perioperative instructions exhibit less discomfort and a more satisfying level than those who do not. The perioperative instructions should be applied to the care of patients undergoing thyroidectomy to decrease patients' discomfort and increase their satisfaction level.

**Keywords:** Thyroidectomy, Discomfort, Satisfaction, Perioperative Instructions, Postoperative.

## 1. Introduction

Thyroidectomy is a surgical procedure to remove all or part of the thyroid gland. It is known to have a low incidence of both morbidity and mortality. It is indicated for those with thyroid cancer, thyrotoxicosis, Graves' disease, and goiter. Thyroidectomy could be partial or subtotal or complete depending on the reason for surgery. Complications are rare, but their consequences can often be life-threatening (Genovese, Noureldine, Gleeson, Tufano, & Kandil, 2013; Liu, Masterson, Fish, Jani, & Chatterjee, 2015; Oertli & Udelsman, 2012).

Thyroidectomy complications can occur in the postoperative phase, as bleeding, wound infection, airway obstruction due to compressing hematoma,

tracheomalacia, recurrent laryngeal nerve injury, and secondary hypoparathyroidism as well as thyroid storm; an uncommon complication. They could affect patients regarding eating and drinking, breathing, communication, sleep as well as their body image. So, when preparing patients bodily and psychologically for operation, post-surgical results could be better (Lewis et al., 2016; Memon, Junejo & Balouch, 2012).

Preparing and instructing patients prior surgery, often have a better coping with postoperative discomforts and less hospital stay. This could improve patients' satisfaction and safety, as well as reduces the anxiety induced by the surgery (Abd-Alkareem, 2013). Pre and postoperative instructions and preparations are basic nurses' roles. The perioperative instructions focused on pre and postoperative teachings and psychological preparations of patients. Psychological preparations are through answering patient's

<sup>2</sup>Corresponding author: Nesrine Ezzat Abdel-Karim

questions could alleviate fears related to the surgery, and body image. Preoperative instructions should include neck exercise, wound care as well as deep breathing and coughing exercises. Postoperative instructions comprised; appropriate neck positioning, splinting the incision, non-pharmacological pain management, and diet therapy to overcome eating and drinking problems. The patient should also be informed about the importance of adequate sleeping, signs, and symptoms of infection and hypocalcemia (Hashem, Mohammed, Ahmed, Azer, & Abd-Elmohsen 2018; Walker, 2013).

Carty *et al.*, study in 2012 concluded that accurate perioperative instructions related to the essential findings and consequences of thyroidectomy is critical to individualized risk stratification as well as to the clinical issues of thyroid care. These are often jointly managed in the postoperative setting. Moreover, A study by Jang, Chang, Kim, Moon, and Son, (2014) found that perioperative instructions about early neck exercises are safe and effective to reduce postoperative neck discomfort, wound adhesion, or hypertrophy of scar and to improve the range of motion in patients undergoing thyroid surgery.

## 2. Significance of the study

In recent years, the incidence of thyroid disorders, including thyroid malignancy, has increased rapidly; subsequently, the incidence of thyroidectomy surgeries increased. An Egyptian study by Mohamed, and Ahmed in (2016) found that a common high incidence postoperative subtotal and total thyroidectomy complications were bleeding, hypocalcemia, laryngeal nerve palsy, and hypoparathyroidism. No adequate studies to size the problem in Egypt. Postoperative thyroidectomy discomforts were observed from our clinical practice. So, this study highlights the efficacy of the perioperative instructions on decreasing discomforts and increasing patients' satisfaction among those undergoing thyroidectomy.

## 3. Aim of the study

The study aimed to determine the effect of perioperative instructions on postoperative discomforts and satisfaction levels among patients undergoing thyroidectomy.

### 3.1. Research hypotheses

- Postoperative patients who receive perioperative instructions exhibit fewer discomforts than those who do not.
- Postoperative patients who receive perioperative instructions exhibit more satisfaction level than those who do not.

### 3.2. Operational definitions

*Patient satisfaction* in this study refers to his/her gratification with preoperative, postoperative instruction, and patient psychological preparation.

*Discomforts* in this study, it refers to a painful feeling regarding eating and drinking, personal hygiene, breathing, communication, sleep, and body image distresses.

## 4. Subjects and Methods

### 4.1. Research design

A Quasi-experimental (study/control group) design was utilized in this study. Druckman, Greene, Kuklinski, and Lupia, (2011) stated that a true experiment is a type of experimental design and is used to establish cause and effect relationships. Three criteria must be met in order for an experiment to be determined as a true experiment: At least one experimental and control group, researcher-manipulated variable and random assignment. A quasi-experimental design has lacked either randomization or control or both.

### 4.2. Research setting

It was conducted at the Head and Neck Surgical Department of Alexandria Main University. It consists of the male department (16 beds in 3 rooms) and the female department (19 beds in 3 rooms), in addition to the recovery unit (5 beds in one room).

### 4.3. Subjects

Seventy adult patients undergoing thyroidectomy from both genders were conveniently recruited from the setting mentioned above. They were sequentially recruited equally into two groups: study and control groups (35 patients each). Thirty-five patients were assigned to receive the perioperative instructions (study group), and the rest were received conventional care (control group). Patients of both groups were matched as regards age, gender, and level of education.

### 4.4. Tools of the study

In order to fulfill the objective of the study, three tools were used for data collection:

#### 4.4.1. Structured Interview Questionnaire

The researchers develop this tool after reviewing the related literature (Ross *et al.*, 2016; Ayandipo, Adigun, & Afuwape, 2016). This tool aimed to assess the socio-demographic characteristics and clinical data of the study subjects. It consisted of two parts. The first part is concerned with the assessment of gender, age, marital status, educational level, and occupation. Clinical data comprised: type of surgery.

#### 4.4.2. Discomfort Assessment Scale

This part is adapted from (Karwowski & Marras, 1998). The graphic analog scale was used to rate the patient's level of discomfort against six common discomforts related to surgery, namely, eating and drinking, personal hygiene, breathing, voice change, sleep, and body image. Each item was scored on a three points-Likert scale ranging from 1 (no discomfort), 2 (minimal discomfort), and 3 (moderate discomfort).

### Scoring system

The total discomfort score ranged from 6 to 18. Lower scores indicated a lesser degree of discomfort. The discomfort was classified into no, minimal, and moderate as follows:

- <10 = No discomfort,
- 10-14 = Minimal discomfort,
- $\geq 14$  = Moderate discomfort,

### 4.4.3. Perioperative Instructions Patients' Satisfaction Questionnaire

This part was developed by researchers based on a literature review (Farooq, Nouraei, Kaddour, & Saharay, 2017; Lou et al., 2017; Hashem et al., 2018; Furtado, 2011). This questionnaire consisted of 12 statements. It was used to determine the patients' satisfaction level regarding perioperative instructions provided in 3 areas regarding preoperative instruction (4 statements), postoperative instruction (5 statements), and patient psychological preparation (3 statements). Each item was scored on a three points-Likert-scale ranging from 1 (not satisfied), 2 (moderate satisfied), and 3 (satisfied).

#### Scoring system

The satisfaction score ranged from 12 to 36. Higher scores indicate greater degree of satisfaction. Patients' satisfaction was classified into not satisfied; moderate satisfied and satisfied as follows:

- < 20 = Not satisfied
- 20-28 = Moderate satisfied
- $\geq 28$  = Satisfied

### 4.5. Procedures

This study was conducted using the following steps:

The permission to carry out the study was obtained from the responsible authorities of the hospital after explanations of the purpose of the study.

The researchers developed the tool of the study after the review of the recent literature. To test the content validity of the tool, a jury of 7 experts; 5 professors of the Medical-Surgical Nursing and 2 Head and Neck surgeons. Necessary modifications were then done. Reliability of the developed tool (tool II and III) was estimated by correlation coefficient (0.70).

Patient permission to contribute to the study was obtained after an explanation of the aim of the study. A pilot study was carried out on ten patients for testing the feasibility of the research process and the applicability of the tool. The necessary modification was done. The subjects of the pilot study were excluded from the total subjects.

The study was implemented through four phases:

**Assessment phase:** assessment of patients' problems facing those who were undergoing thyroidectomies using a thorough review of the literature (Singh Ospina et al., 2018; Desoky, Mohamed, Ahmed, & Ghanem, 2009; Abd-El Mohsen & Ahmed, 2018; El-Khateeb, Ali, Makhoulouf, & Rizk, 2015; Mishra et al., 2013; Atasayar & GulerDemir, 2019; Hariadha, Sulaiman, Gillani, & Baig, 2013; Dealey, 2012; Dissanayake et al., 2017).

**Planning phase:** a perioperative instruction booklet was developed by the researchers in the Arabic language. It includes the following:

Preoperative patient's instructions were given by researchers concerning preoperative preparation, neck exercise, wound dressing, deep breathing, and coughing exercises.

Postoperative patient's instructions were given by researchers concerning postoperative non-pharmacological pain relief, methods to maintain an open airway, methods to overcome voice changes, and methods to maintain patient safety and body image.

Psychological preparation included: the use of therapeutic communication technique in answering all patient questions regarding operation. Encourage patient to use diversion activities as listening to music, anything to make him laugh (humor) and guided imagery in order to reduce patient anxiety and providing patient with written information regarding pre- and post- operative care.

**Implementation phase:** The Control group comprised of 35 patients who received hospital routine care. Study group: comprised 35 patients who received perioperative instructions given by researchers as well as hospital routine care. The perioperative instructions provided only to the study group in 4 sessions as follows:

The first session included the preoperative preparations as every patient of the study group was interviewed individually and received preoperative instructions about general operative preparation as fasting for 6-8 hours prior to surgery, skincare, and bowel elimination. It also included the importance of deep breathing and coughing exercises, neck exercise, steps of self-wound care after discharge, and reporting any signs and symptoms of infection. Patients demonstrate them in front of the researchers for assurance of adequate performance.

The second session included postoperative activities. The patients were instructed regarding; the importance of neck support and high fowler position after surgery, non-pharmacological pain relief, methods to maintain open airway, and methods to overcome voice changes.

The third session consisted of instructions related to the recommended diet, importance of smoking cessation and methods to maintain patient safety and body image. The fourth session consisted of instructions regarding possible postoperative complications that could occur as wound bleeding, hypocalcemia, thyroid crisis, dyspnea, and infection. The importance of postoperative follow up was emphasized.

**Evaluation phase:** Evaluation was done once for patients in both groups postoperatively during hospitalization (the patients discharged after 2-3 days). After discharge, the evaluation was done weekly for one month through a phone call. The comparison was made between two groups in order to determine the effect of perioperative instructions on discomfort and patients' satisfaction level among patients undergoing thyroidectomy.

The collection of data was carried out through a period of eight months from the beginning of August 2018 until the end of March 2019.

Ethical considerations: Written informed consent was obtained from patients after an explanation of the aim of the study. Privacy and confidentiality are assured to the study subjects. Patients were informed that their participation is voluntary, and they have the right to be withdrawn from the study with full respect.

#### 4.6. Data analysis

Data were fed to the computer and analyzed using IBM SPSS software package version 20.0. (Armonk, NY: IBM Corp). Qualitative data were designated by number and percent. Quantifiable data were designated by the mean and standard deviation. The significance of the gotten results was judged at the 5% level. Chi-square test used for categorical variables, to compare between different groups. Fisher's Exact or Monte Carlo correction: Correction for chi-square when more than 20% of the cells have expected count less than 5. The given graphs were constructed using Microsoft Excel software.

### 5. Results

Table 1 illustrates the comparison of biosocial-demographic characteristics of studied patients. The majority (60% and 51.4%) was females in both study and control groups, respectively. The highest percentages (48.6% and 45.7%) of patients were in the age group of 30- <40 years in both the study group and control groups, respectively. Married patients represented the highest percentage (57.1% and 51.4%) in both study and control groups, respectively.

More than a third of the study group received preparatory education (37.1%), while in the control group, an equal percentage of patients (25.7%) had primary and secondary education. The highest percentages of patients had manual occupation (40.0% and 31.4%) in both study and control groups, respectively. The table revealed that a large percentage (45.7% and 40%) of patients in both study and control groups respectively had a partial thyroidectomy, and 34.3% and 42.9% of the study and control group had a total thyroidectomy. No statistically significant differences were found regarding biosocial-demographic characteristic between study and control groups

Figure 1 represents the comparison between patients' discomfort in both study and control groups related to eating and drinking. The Figures depicted that in both study and a control group, the discomfort was high in the first week and was decreasing gradually. It was observed that patients in the study group showed a minimal level of discomfort during eating and drinking presented as 60%, 82.9% during the first and second weeks. Moderate discomfort was found in 57.1% and 88.6% of patients in the control group during the first and second weeks, respectively. In the third week, statistically significant differences were found between groups  $t = 87.559$  ( $^{MC}p < 0.001$ ). No discomfort was found in all patients of both groups in the fourth week.

Figure 2 illustrates the comparison between patients' discomfort in both study and control groups related to personal hygiene. The highest percentages of patients in the study group had minimal discomfort (48.6%, 85.7%) during the first and second weeks, respectively. While all patients had no discomfort in third and fourth weeks compared to the majority (62.9%) of patients in control group had moderate discomfort in the first week and minimal level in second and third weeks (57.1%, 85.7%) respectively and declined to no discomfort in the fourth week. Statistically significant differences between the studied groups were found in second and third weeks where  $\chi^2 = 7.000$  ( $p = 0.008$ ),  $\chi^2 = 87.113$  ( $^{MC}p < 0.001$ ) respectively.

Figure 3 elucidates the comparison between study and control groups discomfort related to breathing discomfort. The majority (71.4%, 85.7%) of patients in the study group had minimal discomfort during the first and second weeks, respectively. All patients had no discomfort during the third and fourth weeks. In the control group, a large group (54.3%) of patients had moderate discomfort in the first week, while in the second week, 65.7% had minimal discomfort, while 88.6% and all patients had no discomfort in the third and fourth weeks. There was a statistically significant difference between both groups in the first week, where  $\chi^2 = 4.769$ ,  $p = 0.029$ .

Figure 4 clarifies the comparison between study and control groups discomfort related to communication (voice change). The majority of the study group patients had minimum discomfort during the first week; the minority (14.3%, 5.7%, 5.7%) of the study group patients had moderate discomfort during first, second, and third weeks, respectively, while none of them had discomfort in the fourth week. The highest percentages (54.3%) of patients in the control group had moderate discomfort in the first week, while 60% and 71.4% of the control group patients had minimal discomfort during the second and third weeks while none of them had discomfort in the fourth week, with a statistical significant difference between the two groups in relation to communication where  $\chi^2 = 12.428$ ,  $p < 0.001$ ;  $\chi^2 = 11.667$ ,  $p < 0.001$ ;  $\chi^2 = 6.437$   $p < 0.01$  at the first, second and third weeks respectively.

Figure 5 illustrates the comparison between study and control groups discomfort related to sleep. In the first week, the highest percentages (62.9% and 51.4%) of patients in both study and control groups had minimal discomfort level, respectively, while none of them had discomfort in the second, third, fourth weeks. Statistically significant difference was found between both groups in the first week  $\chi^2 = 18.446$ ,  $p < 0.001$ .

Figure 6 demonstrates the comparison between study and control groups discomfort related to body image. The highest percentages (51.4% and 80%) of the patients in study group had minimal and moderate discomfort in the first and second weeks respectively compared to the highest percentages (45.7% and 74.3%) of the patients in control group had moderate discomfort in the first and second weeks, respectively. All patients in both groups had no discomfort during the third and fourth weeks. No statistical significance was found among the study and control groups

in the first and second weeks, where  $\chi^2 = 0.615$ ,  $^{MC}p = 0.782$ ,  $\chi^2 = 2.478$   $^{MC}p = 0.335$ , respectively.

Table 2 reveals the discomfort level total scores, statistically significant differences were found between the study and control groups in the first, second, and third weeks where  $t=3.606$ ,  $p<0.001$ ;  $t=3.049$ ,  $p<0.001$ ;  $t=21.213$ ,  $p<0.001$  respectively.

Table 3 demonstrates the comparison between study and control groups according to the overall score of satisfaction level. The study group had the highest

satisfaction total scores ( $13.91 \pm 0.89$ ,  $13.06 \pm 1.08$ ,  $17.80 \pm 0.63$ ) regarding preoperative instruction, postoperative instruction psychological preparation, respectively compared to those of control group ( $5.60 \pm 0.50$ ,  $10.91 \pm 1.80$ ,  $12.03 \pm 1.04$ ) with a statistical significant differences between both groups regarding preoperative instruction, postoperative instruction, psychological preparation, and the overall score where  $t=48.382$ ,  $p<0.001$ ;  $t=6.023$ ,  $p<0.001$ ;  $t=27.997$ ,  $p<0.001$ ;  $t=32.939$ ,  $p<0.001$ .

**Table (1): Comparison of biosocial-demographic characteristics of the studied patients in both study and control groups.**

Biosocial-demographic characteristics	Study (n = 35)		Control (n = 35)		$\chi^2$	P
	No.	%	No.	%		
<b>Gender</b>						
Male	14	40.0	17	48.6	0.521	0.470
Female	21	60.0	18	51.4		
<b>Age (years)</b>						
20 +	2	5.7	5	14.3	1.546	$^{MC}p=$ 0.727
30 +	17	48.6	16	45.7		
40 +	14	40.0	12	34.3		
50 –60	2	5.7	2	5.7		
<b>Marital status</b>						
Single	7	20.0	7	20.0	4.373	$^{MC}p=$ 0.217
Married	20	57.1	18	51.4		
Widow	5	14.3	10	28.6		
Divorced	3	8.6	0	0.0		
<b>Level of education</b>						
Illiterate	4	11.4	8	22.9	4.013	$^{MC}p=$ 0.422
Primary education	6	17.1	9	25.7		
Preparatory education	13	37.1	8	22.9		
Secondary education	9	25.7	9	25.7		
University	3	8.6	1	2.9		
<b>Occupation</b>						
Manual	14	40.0	11	31.4	1.570	0.666
Professional	8	22.9	8	22.9		
Not employment	5	14.3	9	25.7		
Housewife	8	22.9	7	20.0		
<b>Type of surgeries</b>						
Subtotal thyroidectomy	7	20.0	6	17.1	0.544	0.762
Total thyroidectomy	12	34.3	15	42.9		
Partial thyroidectomy	16	45.7	14	40.0		

$\chi^2$ : Chi-square test,  $^{MC}$ : Monte Carlo;  $p$ : p-value for comparing between the studied groups.

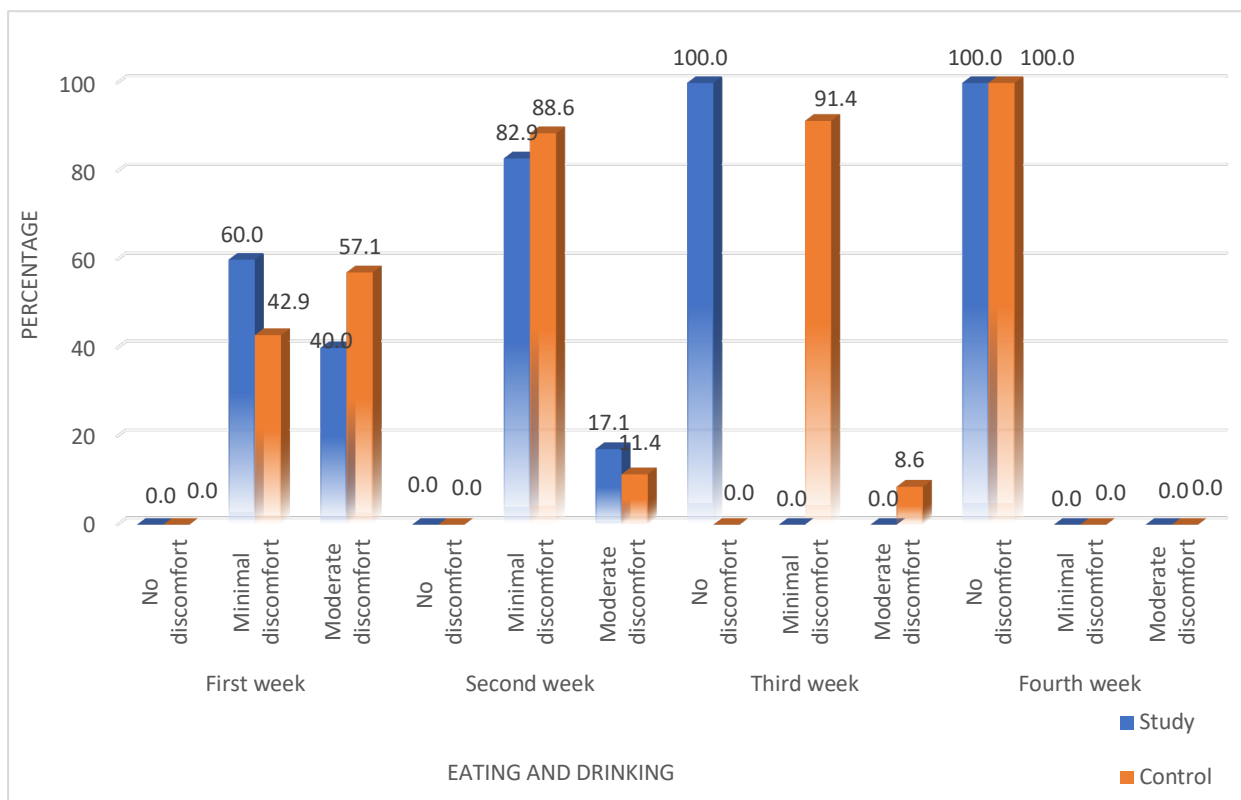


Figure (1): Comparison between patients' discomfort in both study and control groups related to eating and drinking.

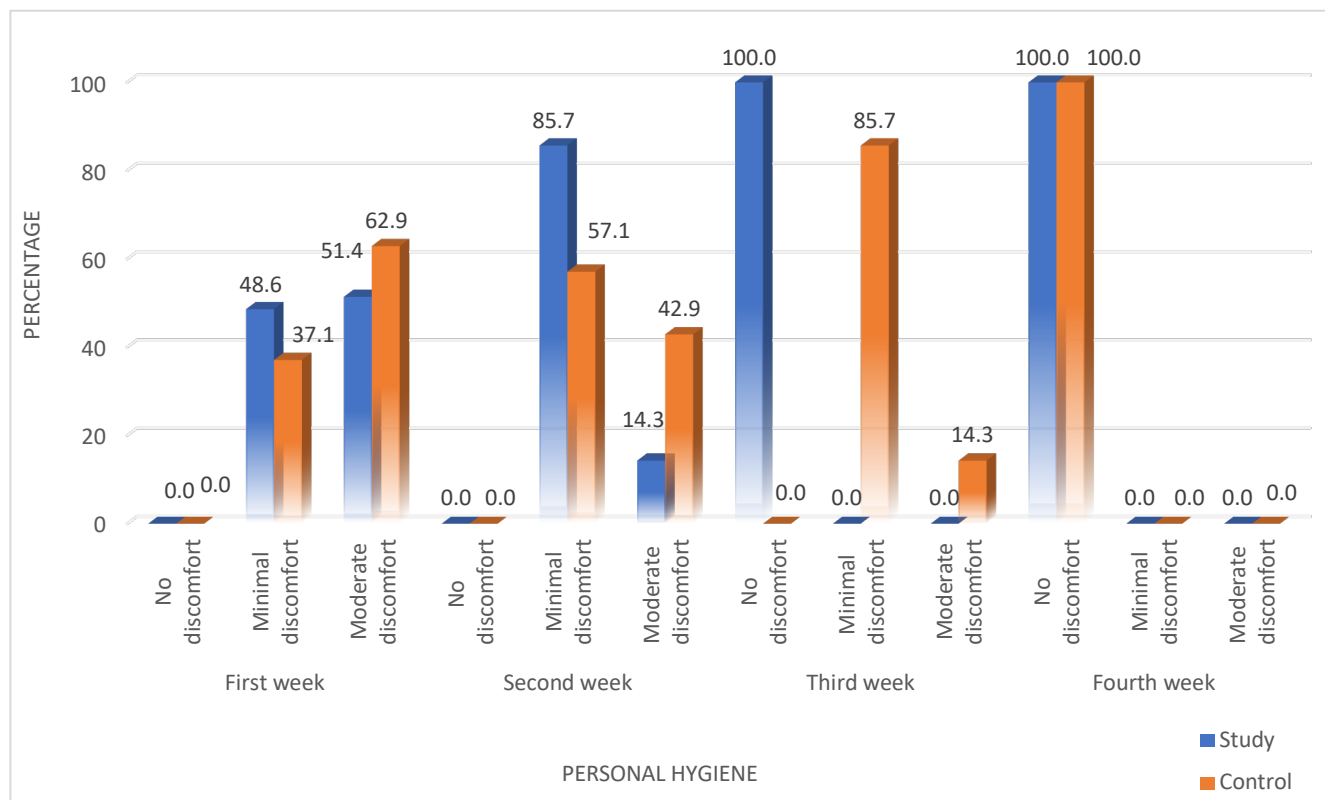


Figure (2): Comparison between patients' discomfort in both study and control groups related to personal hygiene.

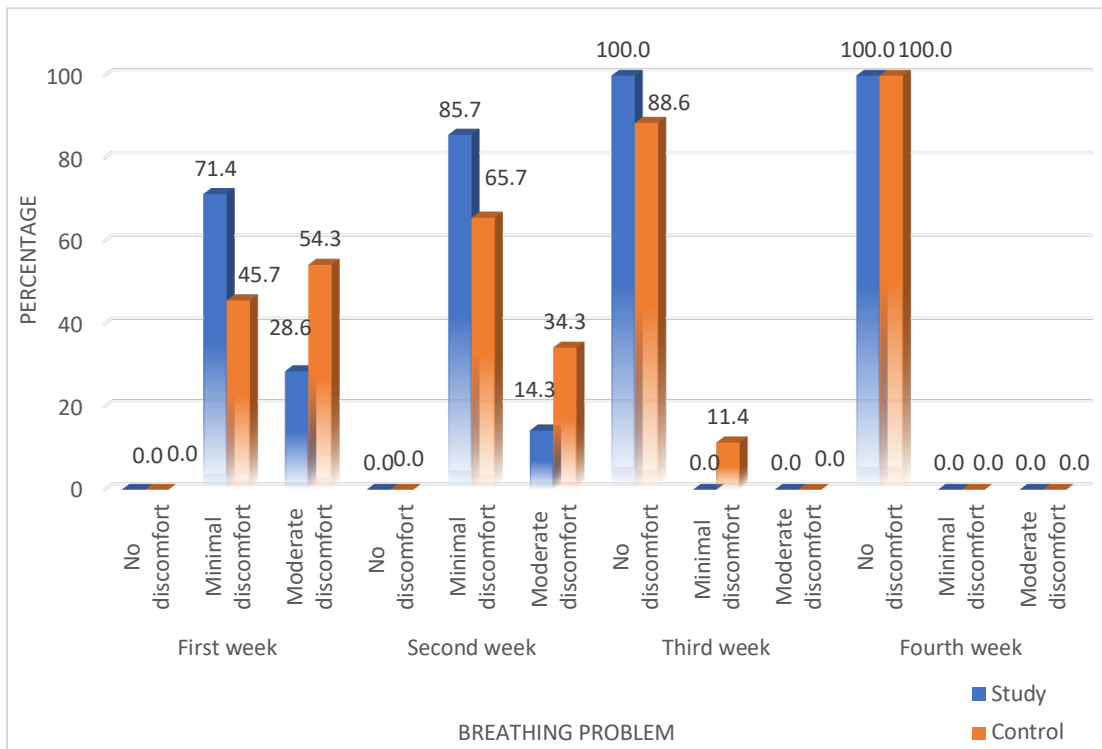


Figure (3): Comparison between study and control groups discomfort related to breathing discomfort.

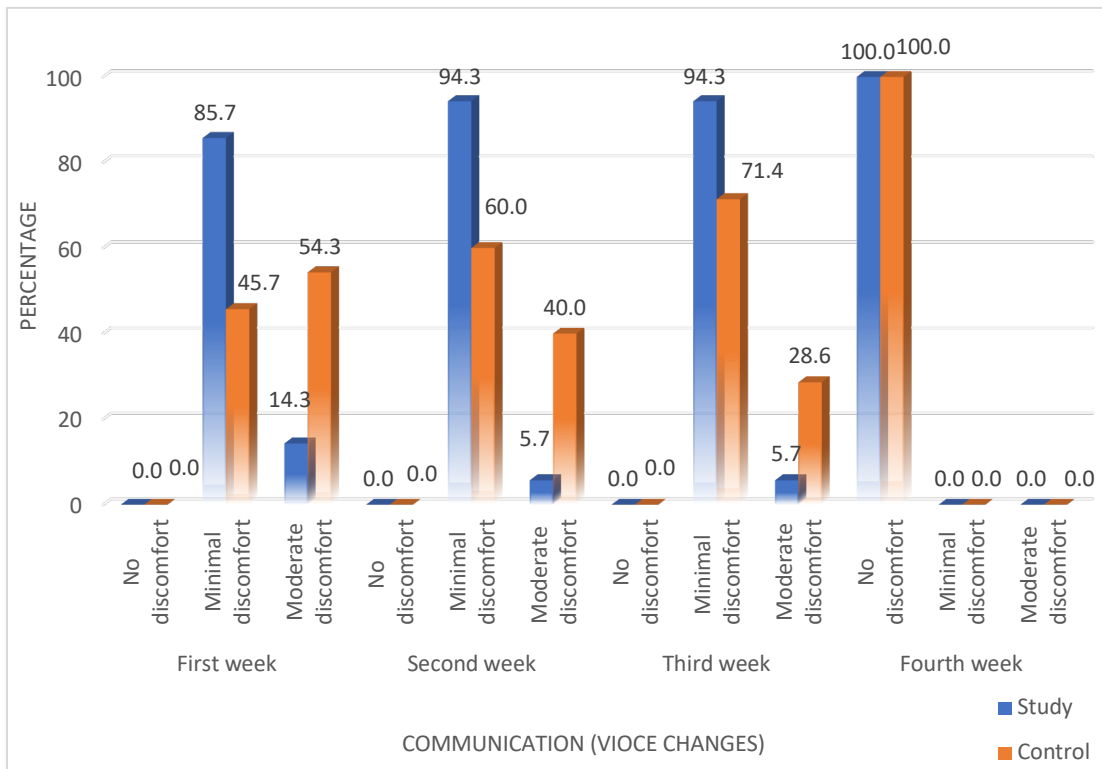


Figure (4): Comparison between study and control groups discomfort related to communication (voice change).

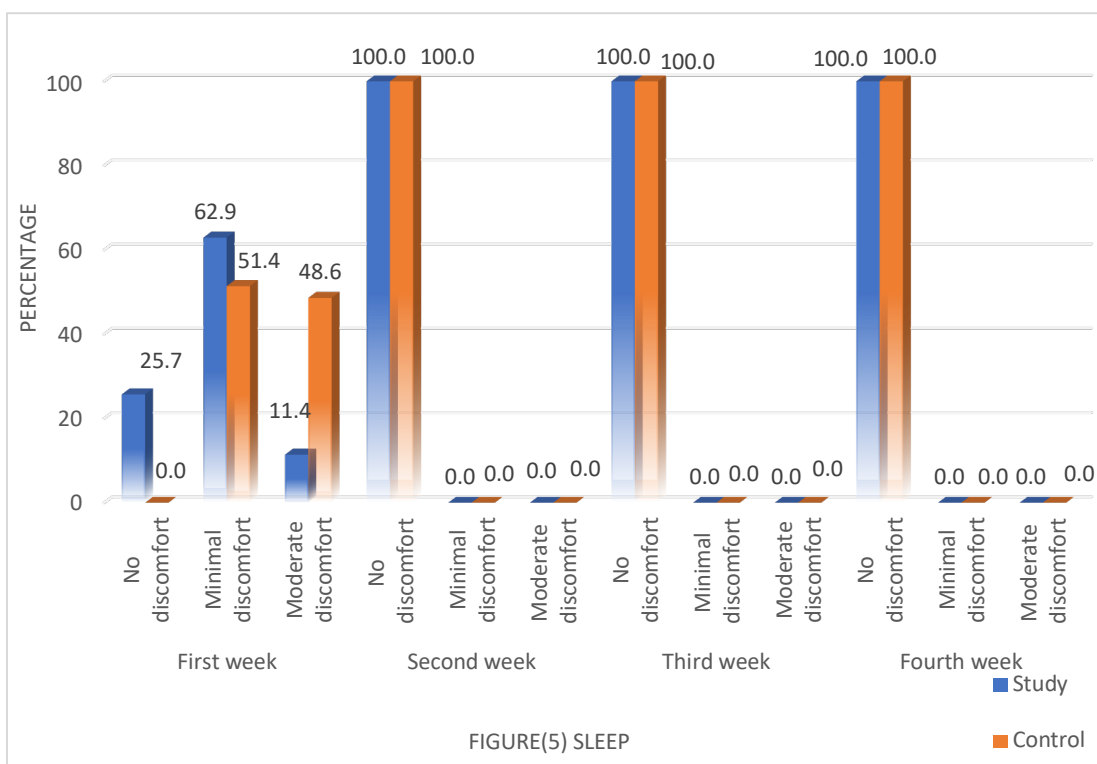


Figure (5): Comparison between study and control groups discomfort related to sleep.

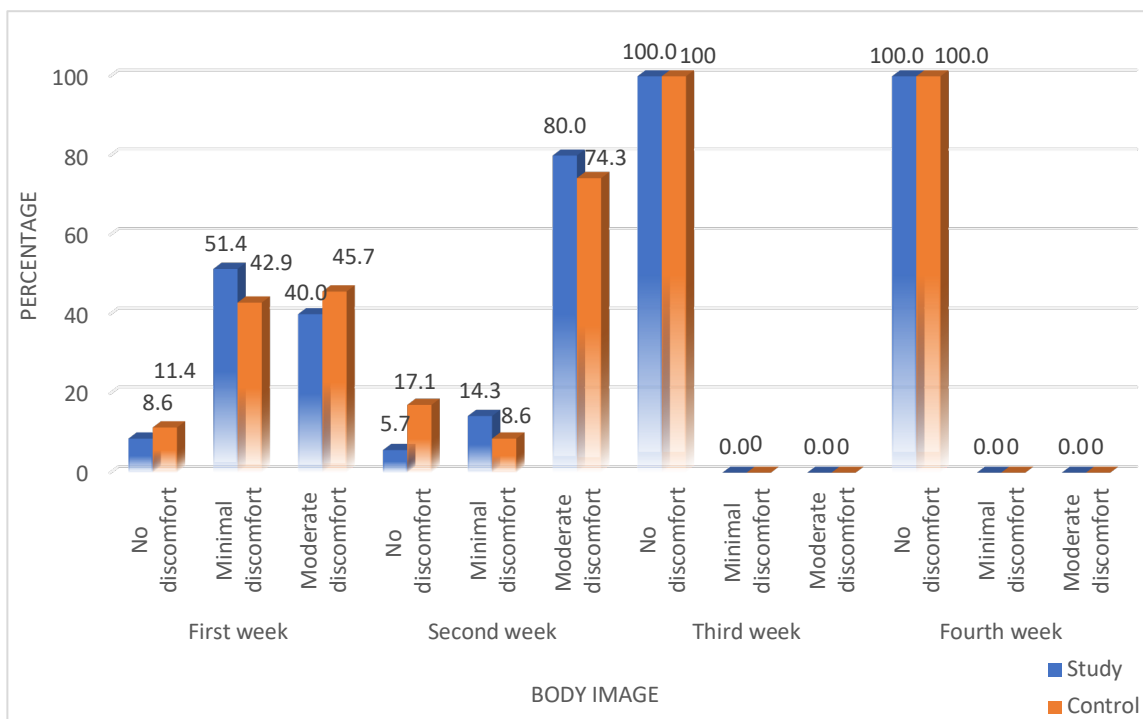


Figure (6): Comparison between study and control groups discomfort related to Body image.



**Table (2): Comparison between study and control groups according to the overall score of Discomfort level.**

Discomfort level	Study (n = 35)	Control (n = 35)	t-test*	p
<b>First week</b>				
Total Score	13.51±2.34	15.11±1.18	3.606	<0.001
<b>Second week</b>				
Total Score	11.77±0.69	12.40±1.01	3.049	<0.001
<b>Third week</b>				
Total Score	7.06±0.24	10.46±0.92	21.213	<0.001
<b>Fourth week</b>				
Total Score	6.0 ± 0.0	6.0 ± 0.0	-	-

\*t: Student t-test; p: p-value for comparing between the studied groups; Statistically significant at  $p \leq 0.05$

**Table (3): Comparison between study and control groups according to the overall score of satisfaction level.**

Satisfaction	Study (n = 35)	Control (n = 35)	t-test*	P
<b>Preoperative instruction</b>				
Total Score	13.91 ± 0.89	5.60 ± 0.50	48.382	<0.001
<b>Postoperative instruction</b>				
Total Score	13.06±1.08	10.91±1.80	6.023	<0.001
<b>Psychological preparation</b>				
Total Score	17.80 ± 0.63	12.03±1.04	27.997	<0.001
<b>Overall score</b>				
Total Score	44.77±2.04	28.54±2.08	32.939	<0.001

t: Student t-test; p: p-value for comparing between the studied groups; Statistically significant at  $p \leq 0.05$

## 6. Discussion

The anatomical position of the thyroid gland increases post-thyroidectomy problems and discomfort. Consequently, this might negatively alter patients' satisfaction with nursing intervention. So, the current study aimed to determine effect of perioperative instructions on postoperative discomfort and satisfaction level among patients undergoing thyroidectomy.

The highest percentage of the studied patients was married females, between 30 - 40 years old and educated at primary, preparatory and secondary levels. The highest percentage of patients had undergone partial and total thyroidectomy.

The current study findings indicated that perioperative instructions significantly had reduced the studied patient's discomfort during eating and drinking compared to the control group patients after the total thyroidectomy. Similarly, *Jang et al. (2014)* in their study titled "Early neck exercises to reduce post-thyroidectomy syndrome after uncomplicated thyroid surgery." reported that neck discomfort and swallowing-related limitations on movement were much less in the stretching exercise group during evaluations made two weeks after a thyroidectomy.

In contrast, *Krekeler et al. (2018)* in their study titled "Patient-reported dysphagia after thyroidectomy: a qualitative study," revealed that almost 80% of patients who had thyroidectomy experience swallowing-related symptoms two weeks postoperatively. From the researchers' point of view, difficulty in swallowing could be due to a tight scar between the skin and the trachea. As the trachea moves upwards and pulls on the scar, so teaching the patient keeping neck mobile through performing neck stretching exercises and massage the wound could help in

reducing neck discomfort during eating and drinking in the study group patients. Besides, the entire studied group received information about the suitable type of foods to be eaten postoperatively.

On the other hand, the control group did not perform neck exercises. This finding could be due to being unaware of the importance of neck exercise, besides neck pain and stiffness after the thyroidectomy surgery. This finding is in line with *Haq et al. (2013)*, who reported that providing patients with evidence-based knowledge would increase patients' compliance towards their therapy and avoid further postoperative problems.

The findings of the present study showed that the majority of patients in the study group had a significant minimal discomfort level during breathing compared to moderate discomfort in control group patients during the first week postoperatively with a statistically significant difference between both groups. This result might be referred to the preoperative instructions given by researchers to patients in the study group about breathing and coughing exercises during the preoperative period.

The same finding goes with *Jiang et al. (2014)* in their research "Perioperative nursing and intervention of postoperative complications for thyroidectomy," and concluded that postoperative recovery of dyspnea could be promoted if the patients were given complete preoperative evaluation and preparation, careful postoperative nursing, health teaching, and close observation.

Changes in voice and communication functions are common complications of thyroidectomy. The findings of the current study confirm that communication discomfort was significantly less in the study group patients than in those of the control group during the first, second, and third

weeks after thyroidectomy with a statistically significant difference between both groups at first, second and third weeks. This finding could also be related to the instructions given to them about how to conserve their voice and avoidance of loud voice. In this context, *Yu and Wu (2017)* research "Speech therapy after thyroidectomy" asserted that although the effectiveness of communication therapy for treating dysphonia has been well established in the literature in recent decades, few studies have investigated its use for treating these disorders after thyroidectomy. A possible explanation could be that nurses and other health care professionals might not be fully aware of how thyroidectomy could impair these functions. It might also be due to that issues related to thyroid surgery are rarely discussed in educational courses. This finding reflects the need for continuing education in thyroid disease and treatment to increase nurses' awareness.

Concerning sleep, the present study results report a significant difference between study and control groups in the first week as most of the patients in the study group had minimal sleep discomfort compared to control group patients. Pain can disrupt sleep, and thus sleeping problems could contribute to pain. So, perioperative instructions received by study group patients about non-pharmacological pain relief might help in decreasing pain and lead to a more comfortable sleep. This finding is congruent with *Dogan et al. (2017)* research "Quality of life after thyroid surgery," where they found that sleeping levels had improved in the early postoperative period.

The present study reported that during the first and second weeks postoperatively, the majority of patients in the study group had minimal body image discomfort, while moderate discomfort was found in most of the patients in the control group with a non-statistically significant difference. This result could be attributed to the majority of studied patients were females using headscarves to cover their incision. These findings are supporting the first research hypothesis.

Patient satisfaction in the present study confirms that patients in the study group had a much higher satisfaction level than those in the control group regarding preoperative, postoperative instruction, and psychological preparation. This finding could be related to patients in the study group received perioperative instructions directly and through handouts (the booklet). This instruction was related to postoperative complications and how to deal with them. Also, it might be attributed to decrease discomfort and consequently increase patients' satisfaction.

This finding was congruent with *Yang et al. (2016)* in their research titled "effect of the clinical nursing pathway for endoscopic thyroidectomy in Chinese patients: A meta-analysis," and found that the use of clinical teaching instructions presents in clinical nursing pathway had improved patient satisfaction. This finding was also in contrast with *Ayhan et al. (2016)* in their research "The effectiveness of neck stretching exercises following total thyroidectomy on reducing neck pain and disability." The study found no statistically significant difference in patients' satisfaction in the first and fourth-week post

thyroidectomy. This finding is supporting the second research hypothesis.

## 7. Conclusion

From the findings in the present study, it can be concluded that:

Hypothesis one is accepted as the postoperative level of discomforts were lesser in study group patients regarding eating and drinking, personal hygiene, breathing, communication (voice changes), sleep, and body image compared to control group patients.

Hypothesis two is accepted as study group patients had a higher level of satisfaction postoperatively than patients in the control group with statistically significant differences regarding preoperative instruction, postoperative instruction, psychological preparation, and overall score.

## 8. Recommendations

The following recommendations could be considered Based on the present study findings:

- The perioperative instructions are recommended to be an integral part of the nursing care for patients undergoing thyroidectomy. It should include instructions regarding eating and drinking, personal hygiene, breathing, communication therapy, sleeping, as well as promoting patients' positive body image.
- Replication of this study among different samples (age, gender) in different settings.
- The replication of this study is also recommended for patients undergoing other different types of neck surgeries.

## 9. Acknowledgments

Researchers wish to offer their gratitude and appreciation to all those who have assisted in this research.

## 10. References

- Abd-Alkareem, E. (2013)*. Assessment of knowledge and practice of patients related to their thyroidectomy care. Unpublished Master Thesis Thesis. Alexandria University.
- Abd-El Mohsen, S. A., & Ahmed, N. M. (2018)*. Effect of teaching patients neck stretching exercises on neck pain and disability following thyroidectomy. *Journal of Nursing Education and Practice*, 8(1). <https://doi.org/10.5430/jnep.v8n1p107>
- Atasayar, S., & GulerDemir, S. (2019)*. Determination of the problems experienced by patients post-thyroidectomy. *Clinical Nursing Research*, 28(5), 615-635. <https://doi.org/10.1177/1054773817729074>
- Ayandipo, O. O., Adigun, T. A., & Afuwape, O. O. (2016)*. Airway complications and outcome after thyroidectomy in Ibadan: A 15-year review. *Archives of Medicine*, 8(4), 4-7.
- Ayhan, H., Tastan, S., Iyigün, E., Oztürk, E., Yildiz, R., & Görgülü, S. (2016)*. The effectiveness of neck stretching exercises following total thyroidectomy on reducing neck pain and disability: A randomized controlled

- trial. *Worldviews on Evidence-Based Nursing*, 13(3), 224-231. <https://doi.org/10.1111/wvn.12136>
- Carty, S. E., Doherty, G. M., Inabnet III, W. B., Pasieka, J. L., Randolph, G. W., & Shaha, A. R. (2012).** American thyroid association statement on the essential elements of interdisciplinary communication of perioperative information for patients undergoing thyroid cancer surgery. *Thyroid*, 22(4), 395-399. <https://doi.org/10.1089/thy.2011.0423>
- Dealey, C. (2012).** *The Care of Wounds: A guide for nurses*. 4<sup>th</sup> ed., John Wiley and Sons. Pp.185-186.
- Desoky, A. A., Mohamed, M. A., Ahmed, M. T., & Ghanem, H. M. (2009).** Assessment of nurses' performance for patients undergoing thyroidectomy at Assiut university hospital. *Al- Azhar Assiut Medical Journal*, 7(2), 18.
- Dissanayake, D. M. C. D., Fernando, R., Munasinge, B. N. L., Thilakarathne, S. B., Pinto, D. P., & Urugoda, U. A. (2017).** Pre and post-operative assessment of voice changes in patients undergoing total thyroidectomy. *Ceylon Medical Journal*, 62 (2), 115-116. <https://doi.org/10.4038/cmj.v62i2.8481>
- Dogan, S., Sahbaz, N. A., Aksakal, N., Tutal, F., Torun, B. C., Yildirim, N. K., & Erbil, Y. (2017).** Quality of life after thyroid surgery. *Journal of endocrinological investigation*, 40(10), 1085-1090. <https://doi.org/10.1007/s40618-017-0635-9>
- Druckman, James N., Greene, Donald P., Kuklinski, James H., & Lupia, Arthur, (2011).** *Cambridge handbook of experimental political science*. eds. Cambridge: Cambridge University Press. ISBN 978-0521174558.
- El-Khateeb, A. I., Ali, H. A., Makhlouf, G. A., & Rizk, M. A. (2015).** Total extracapsular thyroidectomy versus subtotal thyroidectomy in nonmalignant goiter. *The Egyptian Journal of Surgery*, 34(3), 166.
- Farooq, M. S., Nouraei, R., Kaddour, H., & Saharay, M. (2017).** Patterns, timing, and consequences of post-thyroidectomy hemorrhage. *The Annals of the Royal College of Surgeons of England*, 99(1), 60-62. <https://doi.org/10.1308/rcsann.2016.0270>
- Furtado, L. (2011).** Thyroidectomy: postoperative care and common complications. *Nursing Standard*, 25(34), 43-52. <https://doi.org/10.7748/ns2011.04.25.34.43.c8470>
- Genovese, B. M., Noureldine, S. I., Gleeson, E. M., Tufano, R. P., & Kandil, E. (2013).** What is the best definitive treatment for Graves' disease? A systematic review of the existing literature. *Annals of surgical oncology*, 20(2), 660-667. <https://doi.org/10.1245/s10434-012-2606-x>
- Hag, N., Hassali, M. A., Shafie, A. A., Saleem, F., Farooqui, M., Haseeb, A., & Aljadhey, H. (2013).** A cross-sectional assessment of knowledge, attitude, and practice among Hepatitis-B patients in Quetta, Pakistan. *BMC Public Health*, 13(1), 448-457. <https://doi.org/10.1186/1471-2458-12-692>
- Hariadha, E., Sulaiman, S. A. S., Gillani, S. W., & Baig, M. A. I. (2013).** A preliminary study on post-surgical complications after thyroidectomy in Pulau Pinang, Malaysia. *International Journal of Pharmacy & Life Sciences*, 4(6), 2717-21.
- Hashem, E. M., Mohammed, Z. A. E. L., Ahmed, M. T., Azer, S. Z., & Abd-Elmohsen, S. A. (2018).** Effect of designed nursing guidelines on minimizing postoperative complications for patients undergoing thyroidectomy. *Assiut Scientific Nursing Journal*, 6(13), 29-38. <https://doi.org/10.21608/asnj.2018.58902>
- Jang, J. Y., Chang, Y. S., Kim, E. H., Moon, J. H., & Son, Y. I. (2014).** Early neck exercises to reduce post-thyroidectomy syndrome after uncomplicated thyroid surgery: A prospective randomized study. *Journal of Korean Thyroid Association*, 7(1), 70-76.
- Jiang, X., Gao, B., Zou, J., Yu, F., Wang, C., Tang, Y., & Luo, D. (2014).** Perioperative nursing and intervention of postoperative complications for thyroidectomy. *Acta Medica Mediterranea*, 30, 355.
- Karwowski, W. & Marras, S. (2006).** *Occupational ergonomics handbook*. Eds. Talor & Francis. New York Washington. Pp. 1239-45. [https://iums.ac.ir/uploads/ebooksFundamentalsandAssesmentT\\_95706.pdf](https://iums.ac.ir/uploads/ebooksFundamentalsandAssesmentT_95706.pdf)
- Kirkpatrick, L., & Feeney, B. (2013).** *A simple guide to IBM SPSS: for version 20.0*. Nelson education. Wadsworth, Cengage Learning, Belmont, Calif
- Krekeler, B. N., Wendt, E., Macdonald, C., Orne, J., Francis, D. O., Sippel, R., & Connor, N. P. (2018).** Patient-reported dysphagia after thyroidectomy: A qualitative study. *Journal of the American Medical Association otolaryngology, head and neck surgery*, 144(4), 342-348. <https://doi.org/10.1001/jamaoto.2017.3378>
- Lewis, S.L., Bucher, L., Heitkemper, M.M., Harding, M.M., Kwong, J., & Roberts, D. (2016).** Problems related to regulatory and reproductive. In S. L. Lewis, L. Bucher, M. M. Heitkemper, M. M. Harding, J. Kwong, D. Roberts. Eds. *Medical-Surgical Nursing - E-Book: Assessment and Management of Clinical Problems*, Single Volume. 10<sup>th</sup> ed. Elsevier Health Sciences. Pp. 1102-1293.
- Lou, I., Chennell, T. B., Schaefer, S. C., Chen, H., Sippel, R. S., Balentine, C., & Moalem, J. (2017).** Optimizing outpatient pain management after thyroid and parathyroid surgery: A two-institution experience. *Annals of surgical oncology*, 24(7), 1951-1957. <https://doi.org/10.1245/s10434-017-5781-y>
- Liu, Z. W., Masterson, L., Fish, B., Jani, P., & Chatterjee, K. (2015).** Thyroid surgery for Graves' disease and Graves' ophthalmopathy. *Cochrane Database of Systematic Reviews*, (11), 1-13. <https://doi.org/10.1002/14651858.CD010576.pub2>
- Memon, A. A., Junejo, A., & Balouch, T. A. (2012).** Postoperative complications of thyroidectomy: An experience at tertiary care hospital. *Medical Channel*, 18(4), 4-11.

**Mishra, A., Sabaretnam, M., Chand, G., Agarwal, G., Agarwal, A., Verma, A. K., & Mishra, S. K. (2013).** Quality of life (QoL) in patients with benign thyroid goiters (pre- and post-thyroidectomy): A prospective study. *World journal of surgery*, 37(10), 2322-2329. <https://doi.org/10.1007/s00268-013-2133-3>.

**Mohamed, W.B., & Ahmed, A. E. (2016).** Morbidity and mortality after total thyroidectomy for nonmalignant thyroid disorder: 10 years' experience. *Egypt J Surg*, 35(4), 380-383.

**Oertli, D., & Udelsman, R. (2012).** *Surgery of the Thyroid and Parathyroid Glands*. 2<sup>nd</sup> ed. Springer Berlin Heidelberg. 65-95.

**Ross, D. S., Burch, H. B., Cooper, D. S., Greenlee, M. C., Laurberg, P., Maia, A. L., & Walter, M. A. (2016).** 2016 American Thyroid Association guidelines for diagnosis and management of hyperthyroidism and other causes of thyrotoxicosis. *Thyroid*, 26(10), 1343-1421. <https://doi.org/10.1089/thy.2016.0229>

**Singh Ospina, N., Castaneda-Guarderas, A., Hamidi, O., Ponce, O. J., Zhen, W., Prokop, L., & Brito, J. P. (2018).** Weight changes after thyroid surgery for patients with benign thyroid nodules and thyroid cancer: population-based study and systematic review and Meta-Analysis. *Thyroid*, 28(5), 639-649. <https://doi.org/10.1089/thy.2017.0216>.

**Yang, Y., Hu, X., Zhang, Q., Cao, H., Li, J., Wang, J., & Xin, S. (2016).** Effect of the clinical nursing pathway for endoscopic thyroidectomy in Chinese patients: A meta-analysis. *International journal of nursing practice*, 22(3), 224-231. <https://doi.org/10.1111/ijn.12357>

**Yu, W. H. V., & Wu, C. W. (2017).** Speech therapy after thyroidectomy. *Gland Surgery*, 6(5), 501-509. <https://doi.org/10.21037/gS.2017.06.06>