

## Determining the adaptation of patients to follow-up, medicine, and diet after total thyroidectomy

Determining the adaptation of patients after total thyroidectomy

Samet Sayılan<sup>1</sup>, Aylin Aydın Sayılan<sup>2</sup>, Zeynep Temiz<sup>3</sup>, Serpil Aközcan<sup>4</sup>  
<sup>1</sup>Internal Medicine Specialist, Kırklareli Government Hospital, Kırklareli,  
<sup>2</sup>Kırklareli University Faculty of Health, Kırklareli,  
<sup>3</sup>Artvin Çoruh University Faculty of Health, Artvin,  
<sup>4</sup>Kırklareli University School of Health, Kırklareli, Turkey

This project supported by Kırklareli University Scientific Research Project Unit ID:116.

This study was presented as a oral presentation at the  
2<sup>nd</sup> International Congress of Nursing of Turkish National Surgery and Operating Room 2-5 November 2017, Antalya, Turkey.

### Abstract

**Aim:** Thyroid nodules are a common condition. For this reason, surgeons have lots of operation in this area. There are basic rules that patients should follow after this surgery. In this study, it is aimed to determine the adaptation of patients to follow-up, medicine, and diet after a total thyroidectomy. **Material and Method:** This cross-sectional study was conducted on 108 patients in the Endocrinology and Internal Medicine Clinics at Dr. Sadi Konuk Education and Research Hospital and the Department of Endocrinology. The data were collected using the Patient Assessment Form, the Beliefs About Medication Compliance Scale (BMCS) and the Beliefs about Dietary Compliance Scale (BDCS). **Results:** The mean age of the patients in the study sample (n=108) 47.03 ± 10.55 years. The details about the subjects were as follows: 50% of them were women, 88.9% were married, 35.2% were graduated from primary school, 36.1% were self-employed, 41.7% were informed about thyroid disease, 34.3% were examined by a physician once in three months, 41.7% thought this frequency of inspections is adequate, 70.4% stated that they will accept to have surgery again if they need any surgery, 41.7% of them used levothyroxine (0.5-1 tb). When the mean scores of the patients in the Beliefs About Medication Compliance Scale (BMCS) and the Beliefs about Dietary Compliance Scale (BDCS) were examined, the highest mean scores were found in the perception of benefit subscale for both scales, 21.14 ± 2.87 and 23.38 ± 3.34, respectively. **Discussion:** It was thought that the perception of benefit and adaptation are positively correlated, it was also thought that informing after the intervention improves the adaptation.

### Keywords

Thyroidectomy; Follow-up; Medication; Diet; Adaptation

DOI: 10.4328/ACAM.6041 Received: 07.10.2018 Accepted: 12.11.2018 Published Online: 18.11.2018 Printed: 01.09.2019 Ann Clin Anal Med 2019;10(5): 572-5  
Corresponding Author: Aylin Aydın Sayılan, Kırklareli University School of Health, Merkez, Kırklareli, Turkey.  
T.: +90 2882145547 (2530) GSM: +905079404527 F.: +90 2882147086 E-Mail: aylinay\_85@msn.com, aylin.sayilan@klu.edu.tr  
ORCID ID: <https://orcid.org/0000-0003-0576-8732>

## Introduction

Nowadays, thyroid disease is one of the most common endocrine problems. Thyroidectomy which means the entirely or partially removal of the thyroid gland, is one of the surgical operations most commonly performed by surgeons [1].

The selected method for thyroid diseases requiring surgical treatment should ensure that both the elimination of the disease and minimizing the complications that may develop after the surgical intervention [2].

After total thyroidectomy, patients should use lifelong medication; they should be followed up and controlled; their thyroid hormone levels should be maintained at an adequate level and they should comply with their diet [3].

Since patients take hormones after surgery, the level of hormones in the blood should be monitored and if necessary, the dose of the drug should be adjusted. For this reason, it has been emphasized that patients should continue their follow-ups and treatment meticulously under a doctor's control; the doctor should be the same doctor if it is possible [4].

Patients stay in the hospital for about one to three days after thyroid surgery and discharged if there are no complications. After about 1 week, the pathology report can be obtained by examining the entire thyroid tissue removed during the operation. If non-existence of malignancy is proved with this report, the patient starts a lifelong hormone therapy [3,5]. Patients who have hypocalcemia after the surgery also have to take calcium supplement [6].

Patients who undergo thyroidectomy are usually called to the outpatient clinic for control examination after 1 month. Follow-up and treatment of patients are organized in the outpatient clinic. Thyroid hormone and calcium levels of operated patients should be measured periodically. It has emphasized that thyroid ultrasonography should be performed at certain intervals (once a half year or once a year) after the surgery [4]. Another important point is that thyroid hormones and drugs are adjusted after the surgery by the endocrinologist and the doctor [7].

In conclusion, the compliance of the patient with follow-up, medications, and diets after thyroidectomy is of great importance. Healthcare professionals have important roles in increasing the quality of life of the patient by identifying the imperfections in this subject.

This study has been thought to be important in order to bring better quality of life to the patients who undergo thyroidectomy by assessing their levels of information about the operation, their hesitation about undergoing an operation when physician suggests them surgery, outpatient follow-up after the intervention, their levels of compliance with both the diet and the medication.

## Material and Method

Informed consent forms were obtained from all patients participating in this cross-sectional study. The ethics committee approval was obtained from the Non-Interventional Clinical Research Ethics Committee of Sadi Konuk Training and Research Hospital of the Health Sciences University (Decision no: 2016/03, Protocol code: 2016-54).

The patients (n: 108) who had undergone a total thyroid removal operation between May 1, 2016 and November 11, 2016 were included in the study.

The data were collected by face-to-face interview method using the Patient Identification Form which was created by the researcher, the Turkish versions of the Beliefs about Medication Compliance Scale (BMCS), Beliefs about Dietary Compliance Scale (BDCS) which were evaluated for validity and reliability by Oğuz et al. in 2005.

This form consists of 20 questions and includes the following items about the patients: their sociodemographic characteristics, their hesitations about doctor's surgery suggestion, their compliance levels with the polyclinic follow-up and treatment after the intervention, their status of having knowledge about the disease, their status of having knowledge about the operation, their status of informing by health professionals, their knowledge levels about the volume of removed thyroid tissue, their frequency of outpatient clinic controls, their opinions about the adequate frequency for hospital applications, their post-operative fears, their decisions for the possible conditions such as the recurrence of the disease and undergoing an operation again, their opinions about the possibility of second surgery and their recent drug dose.

## Statistical Analysis

The data were analyzed by the Statistical Package for Social Sciences (SPSS) for Windows 17 (SPSS, Chicago, IL). For descriptive statistics, numbers, percentage, mean and standard deviation were used. Student's t-test, ANOVA, Kruskal-Wallis Variance analysis was used in the analysis. The results were evaluated at a 95% confidence interval and a significance level of  $p < 0.05$ .

## Results

The sample of the study consisted of 108 patients. It was determined that 88.9% of the patients were married, 35.2% of them were primary school graduates, 36.1% of them were self-employed, 41.7% of the patients were informed about thyroid disease, 34.3% of the patients had a control examination every three months, 41.7% of them thought that the frequency of control examinations was sufficient. It was seen that if there had been any surgical necessity, 70.4% of them would have been willing to be reoperated, 41.7% of patients were found to use levothyroxine (0.5-1 tb). The mean BMCS and BDCS scores of the patients are shown in Table 1.

When the mean BDCS and BMCS scores of the patients were evaluated, the highest mean scores were found in the Perceived Benefit Subscale for both scales as  $21.14 \pm 2.87$  and  $23.38 \pm 3.34$ , respectively (Table 1).

The results related to the comparison of the mean BDCS and BMCS scores according to some variables of the patients are shown in Table 2.

Although there was no statistically insignificant difference between the two groups ( $p > 0.05$ ), the compliance with the medication and the compliance with the diet were found to be higher in the patient groups who were male, widowed, who had doctor's appointment once a year, who feared about the recurrence of the disease and who informed about the disease.

The Beliefs About Medication Compliance Scale (BMCS) has a Likert-type scale and improved by Bennett et al. in Indiana school of Nursing. Cronbach Alfa (0.74; 0.59) consists of 12

Table 1. Distribution of mean BDCS and BMCS scores of the patients (N=108)

Subscales	Number of items	Mean score	Standard deviation
<b>BMCS</b>			
Perceived Benefit	6	21.14	2.87
Perceived Obstacle	6	18.91	2.40
Total	12	40.06	3.53
<b>BDCS</b>			
Perceived Benefit	7	23.38	3.34
Perceived Obstacle	5	14.13	2.54
Total	12	37.50	4.20

Table 2. The comparison of the mean BDCS and BMCS scores according to some variables of the patients (N=108)

Some variables of the patients	Number	%	Mean total BMCS Score	Mean total BDCS Score
<b>Gender</b>				
Female	54	50.0	40.03±3.54	36.83±4.05
Male	54	50.0	40.09±3.56	38.16±4.28
			t=-.081 p=0.935	t=-1.657 p=0.100
<b>Marital status</b>				
Single	6	5.6	38.33±3.77	36.83±3.92
Married	96	88.9	40.09±3.54	37.47±3.97
Widowed	6	5.6	41.33±2.94	38.66±7.78
			KW:2.326 p=0.313	KW:0.101 p=0.951
<b>Frequency of doctor appointments after the operation</b>				
Once a month	19	17.6	39.00±4.09	36.31±5.05
Once a three month	37	34.3	40.43±3.53	37.61±3.61
Once a half year	33	30.6	39.93±3.27	37.75±4.51
Once a year	19	17.6	40.63±3.41	38.05±3.86
			KW:1.900 p=0.593	KW:3.328 p=0.344
<b>Fear of disease recurrence</b>				
Yes	60	55.6	40.08±3.52	37.91±4.25
No	48	44.4	40.04±3.58	36.97±4.12
			t=-.061 p=0.952	t=-1.147 p=0.254
<b>Status of being informed about the disease</b>				
Yes	45	41.7	40.20±3.34	38.16±4.59
No	30	27.8	40.11±3.63	37.34±3.86
Partially	33	30.6	39.87±3.66	37.12±4.33
			F:0.070 p=0.932	F:0.537 p=0.586

items which numbers are 1, 2, 7, 10, 11, 3, 4, 5, 6, 8, 9, 12, while the obstacles measures perception. In total sub-scale, the minimum score is 6 and the highest is 30. It shows that the behavior perceives more benefits. The high score in the obstacles sub-category, more obstacles in the subject while doing a behavior indicates that it detects (if the obstacle detection is high, the obstacle score is high). Item 9 of the scale is reverse coding. The Beliefs about Dietary Compliance Scale (BDCS) is a Likert type and consists of 12 items. Cronbach Alfa (0.83; 0.66). There are two sub-dimensions such as benefit and obstacle. First sub-dimension of the person's benefit (1-5, 11, 12) and the second sub-dimension measures the barriers (6-10). The benefit in the subscale high points that the benefits are perceived more (the perceived benefit causes correct behavior). Item 2 of the scale is reverse coding.

## Discussion

Thyroid nodule is a common medical condition in the society. Thyroid carcinoma is seen in 5-10% of the thyroid nodules depending on age, gender, radiation exposure, family history and other factors [9].

Because of cancer risk, thyroidectomy is among the most frequently performed surgical procedures in endocrine surgery [10]. Total thyroidectomy (TT) is now commonly used in the treatment of benign thyroid diseases as well as thyroid cancer [11]. According to the thyroid cancer data of the Turkish Ministry of Health (2017), the incidence of thyroid cancer was 4.5% and 18.6% in males and females, respectively [12]. Thyroid cancer is mostly observed between the ages of 65-69 in males while it is mostly observed between the ages of 45-40 in females. Thyroid cancer is the second most common cancer in women after breast cancer.

It has been stated in the literature that younger male patients (< 40) have larger thyroid tissues [13]. In the study of Arslan et al., it was reported that the mean age was 48 (18-82), 88.5% (n: 447) of the patients were female [10]. In our study, the mean age was 47.03 ± 10.55, 50% of the participants were female while 50% of them were male. This situation is thought to be because of the small number of samples.

After thyroidectomy, the same amount of thyroid hormone produced by the removed thyroid tissue or more is given to the patient as a pill. It should be used lifelong. This hormone cannot be administered as a standard dose, it is administered according to the needs of the patient and according to the results of regular blood tests. Therefore, the patients should be monitored lifelong for dose adjustment; it is important that the patient is informed about this issue.

Alsaffar et al. (2016) reported that informing the patients who underwent total thyroidectomy before the surgery, had a positive effect on the psychology of the patients, the risk of postoperative complication development and self-examination [13]. In a study conducted by Temiz et al. (2016), the patients' training needs after total thyroidectomy were analyzed, it was determined that the patients had high training needs [14].

Waniga et al. in 2016 emphasized that informing patients has increased their satisfaction [15]. Kim et al. (2013) also reported that the knowledge level of the patients who underwent thyroidectomy increased both their compliance and satisfaction. In our study, it was found that the compliance of the informed patients was higher, although this difference was not statistically significant. This finding is consistent with the literature; it was thought that the control over the disease and consequently the harmony increased as a result of informing the patients [16].

In 2010, Oguz et al. analyzed the adaptation of belief and adjustment scales to Turkish language for patients with chronic heart failure; two interviews with the patients were conducted biweekly, the answers were compared; it was stated that as the number of interviews increased, the perceived benefit in both medication and dietary compliance scales increased [17].

In the study of "Factors Affecting Adherence to Treatment in Hypertension" (2009), it was emphasized that non-compliances towards the drug and the diet were observed when the patients were followed up irregularly and when they were not informed [18].

In the study by Ladizesky et al. entitled “The effect of medication and dietary adaptations of patients with heart failure on hospital re-admission and quality of life” (1991), they also found that the patients adopted better to use benefiting behaviors in the compliance with the medication and the compliance with the diet [19]. Yin et al. (2018) stated that the perceived benefit of the diabetic patients facilitated diabetes management, as a result of that the compliance with the treatment was increased. In the study, it was found that the perceived benefit was high on both scales [20]. This situation is consistent with the literature; it was thought that the highness of this perception was related to the compliance. The low number of samples is accepted as the limitation of the study.

### Conclusion

**The highest mean scores for both scales were found in the Perceived Benefit Subscale. Emphasizing the benefit in increasing the compliance and paying enough attention to informing the patients in the informed patient groups are required.**

### Scientific Responsibility Statement

**The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.**

### Animal and human rights statement

**All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. No animal or human studies were carried out by the authors for this article.**

**Funding: None**

### Conflict of interest

**None of the authors received any type of financial support that could be considered potential conflict of interest regarding the manuscript or its submission.**

### References

- Zambudio AR, Rodríguez J, Riquelme J, Soria T, Canteras M, Parrilla P. Prospective study of postoperative complications after total thyroidectomy for multinodular goiters by surgeons with experience in endocrine surgery. *Ann Surg.* 2004; 240: 18-25.
- Tanda ML, Wu CW, Dionigi G. Recent developments in the follow-up, prevention and management of complications in thyroid surgery. *Gland Surg.* 2017; 6: 425-7.
- Jin J, Allemang MT, McHenry, C.R. Levothyroxine replacement dosage determination after thyroidectomy. *Am J Surg.* 2013; 205: 360-3.
- Özata M. *Troid hastalıkları el kitabı.* İstanbul: Erko Yayıncılık; 2007. p. 37-42.
- Ahn SS, Kim EK, Kang DR, Lim SK, Kwak JY, Kim MJ. Biopsy of thyroid nodules: comparison of three sets of guidelines. *AJR Am J Roentgenol.* 2010; 194: 31-7.
- Lang BH, Chan DT, Chow, F.C. Visualizing fewer parathyroid glands may be associated with lower hypoparathyroidism following total thyroidectomy. *Langenbecks Arch Surg.* 2016; 401: 231-8. DOI:10.1007/s00423-016-1386-3.
- Del Duca SC, Santaguida MG, Brusca N, Gatto I, Cellini M, Gargano L, et al. Individually-tailored thyroxine requirement in the same patients before and after thyroidectomy: a longitudinal study. *Eur J Endocrinol.* 2015; 173: 351-7. DOI:10.1530/EJE-15-0314.
- Bennett SJ, Milgrom LB, Champion V, Huster GA. Beliefs about medication and dietary compliance in people with heart failure: an instrument development study. *Heart Lung.* 1997; 26: 273-9.
- Süslü N, Hoşal Ş. Management of Thyroid Nodules and Surgical Indications

*Türkiye Klinikleri J Surg Med Science.* 2007; 3: 5-12.

10. Jang JU, Kim SY, Yoon ES, Kim WK, Park SH, Lee BI, et al. Comparison of the Effectiveness of Ablative and Non-Ablative Fractional Laser Treatments for Early Stage Thyroidectomy Scars. *Arch Plast Surg.* 2016; 43: 575-81.

11. Arslan K, Eryılmaz M.A, Eroğlu C, Karahan Ö. Risk of accidental thyroid cancer in cases with benign thyroid disease administered total thyroidectomy. *Genel Tıp Dergisi.* 2010; 20: 19-22.

12. Alsaffar H, Wilson L, Kamdar DP, Sultanov F, Enepekides D, Higgins KM. Informed consent: do information pamphlets improve post-operative risk-recall in patients undergoing total thyroidectomy: prospective randomized control study. *J Otolaryngol Head Neck Surg.* 2016; 45: 14. DOI: 10.1186/s40463-016-0127-5.

13. Temiz Z, Ozturk D, Ugras G.A, Oztekin S.D, Sengul E. Determination of Patient Learning Needs after Thyroidectomy. *Asian Pac J Cancer Prev.* 2016; 17: 1479-85.

14. Waniga HM, Gerke T, Shoemaker A, Bourgoine D, Eamranond P. The Impact of Revised Discharge Instructions on Patient Satisfaction. *J Patient Exp.* 2016; 3: 64-68. DOI:10.1177/2374373516666972.

15. Kim HY, Kim JW, Park JH, Kim JH, Han YS. Personal Factors that Affect the Satisfaction of Female Patients Undergoing Esthetic Suture after Typical Thyroidectomy. *Arch Plast Surg.* 2013; 40: 414-24.

16. Oğuz S, Enç N, Yiğit Z. Adaptation of the compliance and belief scales to Turkish for patients with chronic heart failure. *Türk Kardiyol Dern Arş - Arch Turk Soc Cardiol.* 2010; 38: 480-5.

17. Hacıhasanoğlu R. Treatment Compliance Affecting Factors in Hypertension. *TAF Prev Med Bull.* 2009; 8: 167-72.

18. Ladizesky M, Diáz MC, Zeni S, Romeo HE, Cardinali DP, Mautalen CA. Compensatory parathyroid hypertrophy after hemiparathyroidectomy in rats feeding a low calcium diet. *Calcif Tissue Int.* 1991; 48: 63-7.

19. Yin Z, Perry J, Duan X, He M, Johnson R, Feng Y, Strand M. Cultural adaptation of an evidence-based lifestyle intervention for diabetes prevention in Chinese women at risk for diabetes: results of a randomized trial. *Int Health.* 2018; 10: 391-400. DOI:10.1093/inthealth/ihx072.

### How to cite this article:

Sayılan S, Sayılan AA, Temiz Z, Aközcan S. Determining the adaptation of patients to follow-up, medicine, and diet after total thyroidectomy. *Ann Clin Anal Med* 2019;10(5): 572-5.