

Health Belief Model among Patients with Thyroid Carcinoma

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Abstract

Background: Thyroid Carcinoma (TC) is the most common endocrine carcinoma accounts for 90% of all endocrine malignancies, awareness of health belief can help patients with TC to prevent most of complication. **Aim of this study:** Was to assess health belief model among patients' with thyroid carcinoma. **Research design:** A descriptive research design was utilized in this study. **Setting:** The study was conducted at Damanhour Oncology Center in El-Beheira Governorate. **Sample:** A convenient sample included 120 patients. **Tools:** Two tools were used in this study. **Tool I):** An interview questionnaire to assess; A) Socio-demographic characteristics. B) Patients' knowledge regarding thyroid carcinoma. C) Reported practices regarding thyroid carcinoma. **Tool II):** Health belief scale of studied patients regarding thyroid carcinoma. **Results:** 38.3% of studied patients aged from 40 to less than 50 years old with mean \pm SD 43.00 \pm 8.98, while 55% of them were female and 35.8% of them had secondary education. In addition, 47.5% of studied patients had total poor knowledge regarding thyroid carcinoma. As regard patients' practices, 54.2% of studied patients had satisfactory total practices regarding thyroid carcinoma. 45.8% of them had unsatisfactory total practices, while 19.2% of studied patients had high total health belief, and 35% of them had low total health belief regarding thyroid carcinoma. **Conclusion:** There were highly statistically significant relation between studied patients' total practices level and their total health belief regarding thyroid carcinoma. **Recommendations:** Health educational program should be developed and implemented for patients with thyroid carcinoma to enhance their health belief.

Keywords: Health Belief Model, Thyroid Carcinoma.

Introduction

Cancer is a generic term for a large group of diseases that affect on any part of the body. Also, it defines as a rapid creation of abnormal cells grows beyond their usual boundaries, then invaded adjoining parts of the body and spread to other organs metastasis. Cancer is the second leading cause of death globally accounting for an estimated in 2020, 18.1 million new cases of carcinoma and 10 million deaths occur globally (Moon et al., 2022).

The majority causes of cancer are unknown, but 90–95% of cases are due to many risk factors as genetic alterations or family history. The remaining 5–10% is due to environmental factors refers to any cause that is not inherited, such as factors that enhance non functional mutation of cells as nuclear wars, exposure to radiation, unhealthy lifestyle, economic status, behavioral factors as tobacco use, unhealthy diet and obesity, infections, the cancer may developed form one of those factors (World Health Organization, 2020).

Thyroid Carcinoma (TC) is the most common endocrine carcinoma accounts about 90% of all endocrine malignancies. The incidence of TC is about 1-3 cases in every 100,000 population globally in 2018 estimated from American Society of Clinical Oncology as 3.2 million people have thyroid carcinoma in the world, it resulted in 31,900 deaths. Thyroid Carcinoma is developed from the tissues in thyroid gland which grow abnormally and have the potential to spread to other parts of the body, occurs when cells of thyroid gland undergo genetic changes or dysfunctional mutations (**Tuttle et al., 2019**).

Thyroid carcinoma usually develops slowly without many obvious symptoms. Common symptoms are painless lump in the neck, trouble swallowing, difficulty breathing, changes to the voice as hoarseness, and swollen lymph glands in the neck. Although a painless lump in the neck is a typical sign of thyroid carcinoma turn out to be benign in 90% of adults that founding euthyroid of thyroid function, but symptoms of hyperthyroidism or hypothyroidism associated with a large tumor or metastasis (**Ajani et al., 2022**).

The Health Belief Model (HBM) is a theoretical model that can be used to guide patients for health promotion and disease prevention programs. It is used to explain and predict individual health behaviors. Key elements of the HBM focus on individual beliefs about their health conditions and the factors that influence health behaviors as an individual's perceived threat to sickness or disease perceived susceptibility, belief of consequence perceived severity, potential positive benefits of action perceived benefits, perceived barriers to action, exposure to factors that prompt cues to action, and confidence in ability to succeed self-efficacy (**Kurnia et al., 2021**).

Community health nurse provide health education about thyroid carcinoma treatment that can help patients emotionally and physically to adjust and improve how patients feel and families perspective. CHN conduct ongoing assessments of patients to alleviate stressors, maintain effective coping techniques to decrease symptoms distress and side effects of treatment, provide extensive teaching for patients and their families after discharge regarding medications and follow up (**Ferlay et al., 2022**).

Significance of the study:

In Egypt based upon results of National Cancer Registry Program (NCRP) 2022, showed that; 43,800 cases of all cancer cases had thyroid carcinoma, about 2.3% per 100,000 populations. Estimated deaths with thyroid carcinoma were 2,230 of all cases about 0.4% that's considered a significance problem for research. Thyroid carcinoma caused many complications due to carcinoma and side effects of treatment included primary hypothyroidism that's observed in 56.7% of patients during treatment (**National Cancer Registry Program, 2022**).

Aim of the study:

The study aimed to assess health belief model among patients with thyroid carcinoma.

Research questions:

1. What is the studied patients' knowledge regarding thyroid carcinoma?
2. What are the patients reported practices regarding thyroid carcinoma?
3. What are the patients beliefs regarding thyroid carcinoma?
4. Is there a relation between patients' beliefs and their practice regarding thyroid carcinoma?

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Subjects and method:

Research design:

A descriptive research design was used for carrying out this study.

Setting:

The study was conducted at the endocrine outpatient clinic, at Damanhour Oncology Center in El-Beheira Governorate.

Sampling:

A convenient sample was used in this study included 120 patients attended to a previously mentioned setting. The sample was taken through six month period (field study), and selected according to the following criteria:

- Adult patients aged >30years old.
- Agreed to participate in the study.

Tools for Data Collection:

Two tools were used for data collection.

Tool (1): A structured interviewing questionnaire included three parts:

First part: Socio-demographic characteristics of studied patients included (age, sex, educational level, marital status, occupation, exposure to radiation, family monthly income and place of residence).

Second part: Patients' knowledge regarding thyroid carcinoma included the following:

A) Patients' knowledge level regarding thyroid carcinoma which included (meaning of thyroid carcinoma, symptoms of thyroid carcinoma, types of thyroid carcinoma, first signs of thyroid carcinoma, causes of thyroid carcinoma, risk factors of thyroid carcinoma, methods prevention of thyroid carcinoma, diagnosis of thyroid carcinoma, treatments ways of thyroid carcinoma, types of complementary therapy, benefits of complementary therapy).

B) Patients' knowledge level regarding complication of treatment ways included (complication of surgical treatment, complication of iodine radiotherapy, complication of hormonal therapy, complication of chemotherapy and complication of external radiation).

C) Patients' knowledge level regarding effect of thyroid carcinoma on different body systems included 6 main systems as (cardiovascular system, renal system, digestive system, psychological health, neurological system, and musculoskeletal system), and source of patients' information.

Scoring system for studied patients' total knowledge:

The scoring system of the studied patient's knowledge was calculated for each item and consists of 22 items as follows: (2) score for correct and complete answer and (1) score for correct and incomplete answer, while; (0) was for don't know. The total score of knowledge ranged from (0–44) mark. The total knowledge score was considered good when score of total knowledge $\geq 75\%$ (≥ 33 mark), and considered average if it equal $50 < 75\%$ ($22 < 33$ mark), while considered poor when the total knowledge score $< 50\%$ (< 22 mark).

Third part: Patients' reported practices regarding thyroid carcinoma disease and precautions toward types of treatment.

A) Patients' reported practices regarding thyroid carcinoma which included 3 main items divided into (nutrition, Physical activity, interpersonal relationships and managing psychological changes).

B) Patients' reported practices regarding treatment and precautions for each type of treatment which included 6 main items divided into (surgical treatment, chemotherapy,

external radiotherapy, regarding radioactive iodine therapy, hormonal therapy).

Scoring system of the studied patient's reported practices:

Each item of the studied patient's reported practices had three levels of answer: patients choose always done, sometimes done and never done, these were respectively 2, 1, and 0. The scores were converted into a present score. The total practices scores ranged (0-100) marks, the total practices scores were considered satisfactory if the score of the total practices ≥ 60 (≥ 60 mark) and considered unsatisfactory if the score of the total practices < 60 (< 60 mark).

Tool (2): Health belief model scale: was adopted from **Siddiqui et al., (2017)**, and translated into Arabic language to assess beliefs of studied patients regarding thyroid carcinoma. It consisted of six subscales for health belief as the following: (perceived susceptibility, perceived severity, perceived benefits, perceived barriers, perceived health motivation to prevent complications from thyroid carcinoma treatment and self-efficiency).

Scoring system for studied patient's health belief:

The health belief scale uses as Likert scale point to rate the items from strongly disagree (1) to strongly agree (5). The probable range of scores for each scale is 5 to 25 with a possible total score ranges from 26 to 130. For the six subscale higher scores indicating extremely healthy beliefs, but for the subscale concerning barriers higher scores indicate more negative health beliefs.

Validity of the tool:

The validity of the tool was done by five experts of Community Health Nursing, Faculty of Nursing, Benha University staff

who reviewed the tool for clarity, relevance, comprehensiveness, applicability and easiness for implementation and suggestion were considered.

Reliability of the tool

The reliability of the tool: was applied by the researchers for testing the internal consistency of the tools by administration of the same tools to the same subjects under similar condition on one or more occasion. Answers from repeated testing were compared (test-re-test reliability), the reliability was done by Cronbach's alpha coefficient test which consisted of relatively homogenous items as indicated by the moderate to high reliability of each tool. The internal consistency of the knowledge was 0.752, while practices were 0.744 and health belief was 0.763.

Ethical consideration:

All ethical consideration was assured, and oral consent approval had been obtained from each patient before conducting the interview and gives them brief orientation and simple explanation for the purpose and objectives of study. The researcher reassured the patients that all information gathered would be treated confidentially and used only for research purposes. Patients had the right to withdraw from the study at any time without giving any reasons.

Pilot study:

The pilot study was carried out on 12 patients who represented 10% of total sample of patients. The pilot study was done to assess the applicability, clarity and time needed to fill each sheet, completing the sheet consumed about 20-25 minute. No modification was made, so the pilot study sample was included to the total sample.

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Field work:

The actual field of work was carried out within six months from (the end of October 2021 to the end of March 2022). The investigator visited the endocrine oncology out-patients clinics at Damanhour oncology center from 9 AM to 1 PM o'clock, two days per week (Sunday and Thursday) to collect data and assess their knowledge, practice, and their health beliefs. The average time needed for fulfill and complete the tool about 20-25 minute, the average number interviewed patients was between (2 – 4) patients/day depending on responses of the interviewers.

Statistical analysis:

All data collected were organized, tabulated and analyzed by using the Statistical Package for Social Science (SPSS) version 21, which was used frequencies, percentages, mean and standard deviation as well as test statistical significance and associations by using Chi- square test (χ^2) and linear correlation coefficient (r), and matrix correlation to detect the relation between the variables (P value). The observation of analysis and degree of significance was identified.

Significance levels were considered as follows:

Highly significant (HS)	$P \leq 0.001^{**}$
Statistically Significant (S)	$P \leq 0.05$
Not significant (NS)	$P > 0.05$

Results:

Table (1): Shows that, 38.3% of studied patients aged from 40 to less than 50 years old,

and 55% of them were female and 85% of them were married, also; 35.8% of them had secondary education, and 50% of them weren't working. While; 55% of them were living from rural areas.

Figure (1): Shows that; 47.5% of studied patients' had total poor knowledge regarding thyroid carcinoma. While; 42.5% of them had average total knowledge and only 10% of them had good total knowledge regarding thyroid carcinoma.

Figure (2): Reveals that; 54.2% of studied patients had satisfactory total practices regarding thyroid carcinoma. While; 45.8% of them had unsatisfactory total practices.

Figure (3): Reveals that; 19.2% studied patients had high total health belief, while 45.8% of them had moderate total health belief. And 35% of them had low total health belief regarding thyroid carcinoma.

Table (2): Illustrates that there was highly statistically significant relation between patients' total practices level and total health belief regarding thyroid carcinoma ($P < 0.001^{**}$).

Table (3): Reveals that; there was statistically relation between patients' total knowledge level and total practice ($p < 0.05^*$). While; there was no relation between total knowledge and total health belief ($p > 0.05^*$). And there was statistically significant relation between total practice level and total health belief ($p < 0.05^*$).

Table (1): Frequency distribution of studied patients regarding their socio-demographic characteristics (n=120).

Items	No.	%
Age:		
<30 years old	13	10.8
30<40 years old	37	30.8
40<50 years old	46	38.3
>50 years old	24	20.0
Min –max	22-60	
Mean ±SD	43.00±8.98	
Gender:		
Male	54	45.0
Female	66	55.0
Educational level:		
Can't read or write	19	15.8
Basic education	39	32.5
Secondary education	43	35.8
University education	19	15.8
Marital status:		
Single	6	5.0
Married	102	85.0
Divorced	3	2.5
Widow	9	7.5
Occupation:		
Working	59	49.2
Not working	61	50.8
Exposure to radiation		
Exposed to radiation	18	15.0
Not exposed to radiation	102	85.0
Family monthly income		
Sufficient and save	96	80.0
Sufficient	14	11.7
Not sufficient	10	8.3
Place of residence		
Rural area	66	55.0
Urban area	54	45.0

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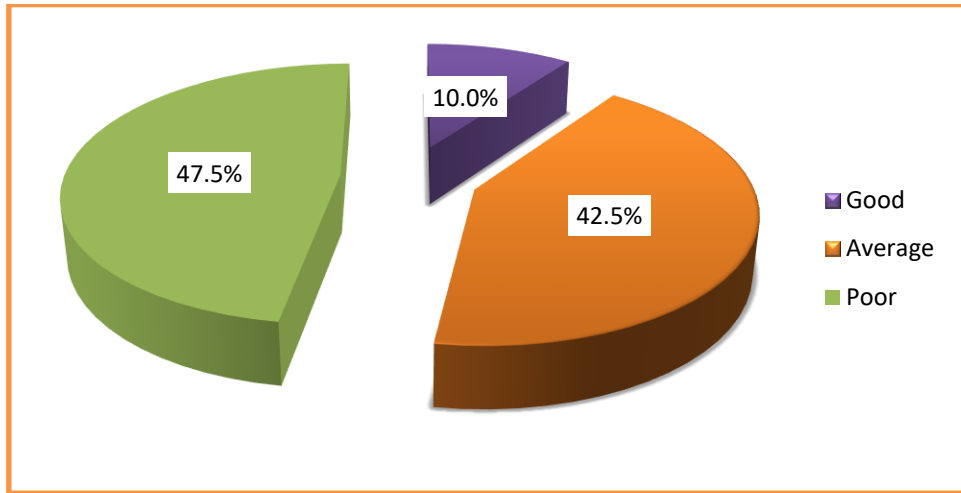


Figure (1): Percentage distribution of studied patients' regarding their total knowledge level about thyroid carcinoma (n=120).

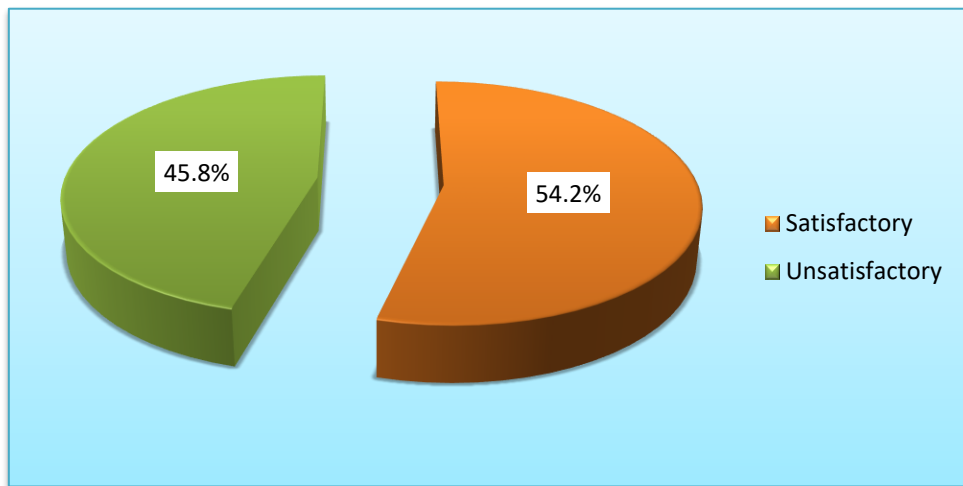


Figure (2): Percentage distribution of studied patients' total practices level regarding thyroid carcinoma (n=120).

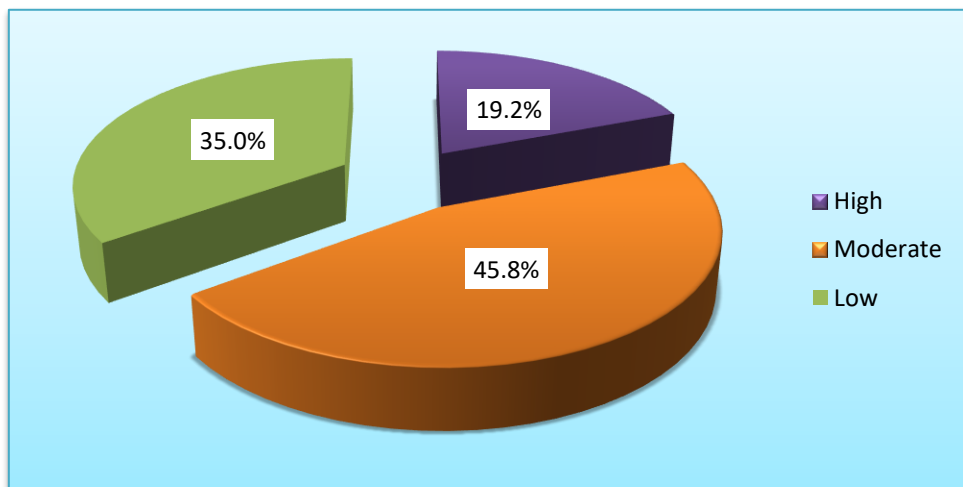


Figure (3): Percentage distribution of studied patients' total health belief regarding thyroid carcinoma (n=120).

Table (2): Statistically relation between total practices level and total health belief among studied patients (n=120)

Items	Total practices				X ²	P-value
	Unsatisfactory (N= 55)		Satisfactory (N=65)			
	No.	%	No.	%		
Total health belief						
Low (n=42)	30	54.6	12	18.5	24.21	0.000**
Moderate (n=55)	23	41.8	32	49.2		
High (n=23).	2	3.6	21	32.3		

Table (3): Correlation matrix between total knowledge, practice and health beliefs among studied patients’ (n=120).

Items		Total knowledge	Total practices	Total health belief
Total knowledge	r	1	.687	.119
	P-value		.034*	.195
	N	120	120	120
Total practices	r	.687	1	.652
	P-value	.034*		.002*
	N	120	120	120
Total health belief	r	.119	.652	1
	P-value	.195	.002*	
	N	120	120	120

Discussion:

Regarding the studied patients’ socio-demographic characteristics, the present study revealed that more than one third of studied patients aged from 40 to less than 50 years old with mean age 43.00±8.98 years. This findings was consistent with **Asban et al. (2019)**, who studied “Gender and racial disparities in survival after surgery among papillary and patients with follicular thyroid cancer ” in United States (n=1131) patients and found that more than half of studied patients were from 40 to less than 50

years. These findings differed with **Husson et al. (2020)**, who studied “Psychological distress and illness perceptions in thyroid cancer survivors” in Netherlands (n = 293) patients and mentioned that two that two thirds of patients (61%) was aged from 50 to less than 60 years old.

Regarding patients’ total knowledge level about thyroid carcinoma, the present study showed that less half of studied patients had total poor knowledge regarding thyroid carcinoma, and more than two fifth of them

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had average total knowledge. This findings agreed with **Pasqual et al. (2022)**, who studied “Trends in the management of localized papillary thyroid carcinoma in the United States” (n= 105,483) patients and reported that nearly half of patients had poor knowledge about papillary thyroid carcinoma. This might be due to poor educational services produced to patients and lack of financial support.

Regarding patients’ total reported practices level regarding thyroid carcinoma, the present study revealed that more than half of studied patients had satisfactory total practices regarding thyroid carcinoma, while nearly half of them had unsatisfactory total practice. This findings agreed with **Díez et al. (2019)**, who studied “Thyroid cancer patients satisfaction at the management outcome an analysis of the results of a nationwide survey” in Spain (n=485) patients and reported that more than half of patients (56.5%) had high degree of practices regarding thyroid cancer and treatment information.

Regarding patients’ total health belief about thyroid carcinoma, the present study revealed that nearly one fifth of studied patients had high total health belief and nearly half of them had moderate total health belief, while more than one third of them had low awareness about health belief. This findings were supported by **Jia et al. (2022)**, who studied “Effect of cognitive behavior therapy based on the health education pathway on psychology of Chinese papillary thyroid carcinoma patients” in china (n=357) patients and reported that one third of patients (32%) of patients had low beliefs about thyroid carcinoma severity or outcomes of disease.

According to statistically relation between total health belief level and total practices of studied patients, the current study illustrated that there were highly statistically significant relation between patients’ total practices and

their total health belief regarding thyroid carcinoma. This findings supported by **Bender et al. (2016)**, who studied “Thyroid cancer survivors’ perceptions of survivorship care follow-up options” in Toronto, Canada (n=202) patients and reported that there were a significant association between patients practices and beliefs of thyroid cancer survivors ($P<0.03$).

Regarding correlation matrix between total knowledge, practices and health belief among studied patients, the current study reveals that there were statistically significant relation between patients’ total knowledge level and total practice, while there were no relation between total knowledge and total health belief and also, there were significant relation between total practice level and total health belief. This findings confirmed with **Lee et al. (2018)**, who studied “Structural equation modeling on health-related quality of life among patients with thyroid cancer” In Jeonju, Korea (n=201) patients and mentioned that there were slightly relation between knowledge level and patients practices ($p<0.101^*$). This might be due to knowledge which plays an important role in changing patient’s behavior leading to changing of practices.

Conclusions:

There were less than half of studied patients had total poor knowledge, while; more than half of them had satisfactory practices regarding thyroid carcinoma, and 19.2% studied patients had high total health belief, 35% of them had low total health belief regarding thyroid carcinoma. There were highly statistically significant relation between studied patients’ total practices level and total health belief regarding thyroid carcinoma, there were no relation between total knowledge and total health belief, while there

were statistically significant relation between total practice level and total health belief.

Recommendations:

- ✚ Health educational program should be developed and implemented for patients with thyroid carcinoma to increase their awareness about practices toward thyroid carcinoma.
- ✚ Illustrated simplified booklet and posters should be available and distributed in all health care centers to improve patients knowledge and practice toward thyroid carcinoma.
- ✚ Further studies need to be focusing on implementing guidelines to improve health belief for patients with thyroid carcinoma.

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نموذج المعتقدات الصحية لدى مرضى سرطان الغدة الدرقية

رانيا فؤاد محمد زامل- ابتسام محمد عبد العال- سماح سعيد صبري- وفاء عطا محمد

سرطان الغدة الدرقية هو أكثر أنواع سرطانات الغدد الصماء شيوعاً بنسبة 90% من جميع أورام الغدد الصماء الخبيثة ، ويمكن أن يساعد الوعي بالمعتقدات الصحية المرضى الذين يعانون من سرطان الغدة الدرقية على منع معظم المضاعفات. لذا هدفت هذه الدراسة الي تقييم نموذج المعتقدات الصحية بين مرضى سرطان الغدة الدرقية. وتم استخدام تصميم بحث وصفي في هذه الدراسة. وقد أجريت الدراسة بمركز الأورام بدمنهور في محافظة البحيرة. على عينة ملائمة تضمنت 120 مريضاً. و أظهرت الدراسة أن 38.3% من المرضى الذين تمت دراستهم تتراوح أعمارهم من 40 إلى أقل من 50 سنة في حين أن 55% منهم من الإناث و 35.8% منهم حصلوا على تعليم ثانوي. بالإضافة إلى ذلك ، فإن 47.5% من المرضى الذين خضعوا للدراسة لديهم معرفة ضعيفة تمامًا فيما يتعلق بسرطان الغدة الدرقية. وفيما يتعلق بممارسات المرضى ، فإن 54.2% من المرضى الخاضعين للدراسة لديهم ممارسات مرضية فيما يتعلق بسرطان الغدة الدرقية. 45.8% منهم لديهم ممارسات إجمالية غير مرضية ، في حين أن 19.2% من المرضى الذين خضعوا للدراسة لديهم معتقدات صحية إجمالية عالية ، و 35% لديهم معتقدات صحية إجمالية منخفضة فيما يتعلق بسرطان الغدة الدرقية. كما اوصت الدراسة بتطوير وتنفيذ برنامج تثقيف صحي لمرضى سرطان الغدة الدرقية لتعزيز معتقداتهم الصحية.