

## Impact The Predictors Of Thyroid Hormone Abnormalities And Function On Patients Who Visiting Primary Health Care Center In Makah City, Saudi Arabia In 2023

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### ABSTRACT:

#### **Background:**

*The interrelationship between male sexual desire and erectile dysfunction (ED) has been scanty investigated. Infertility is defined as the failure to establish a clinical pregnancy after 12 months of regular, unprotected sexual intercourse, or due to an impairment of a person's capacity to reproduce, either as an individual or with his/her partner . It is estimated to affect between 8% and 12% of reproductive-aged couples worldwide . Males are found to be solely responsible for 20–30% of infertility cases but contribute to 50% of cases overall . Multiple causes of male infertility have been identified; these include endocrine disorders (usually due to hypogonadism), sperm transportation disorders, primary testicular defects, an<sup>1</sup>d idiopathic causes. Thyroid hormones they are considered as essential regulators of male reproductive functions and play vital roles in male gonadal developments. Thyroid disorder is common in our society as well as erectile dysfunction has a major negative impact on psychological health and quality of life. Several studies have shown that there is a strong association between thyroid abnormalities and erectile dysfunction. **Aim of this study:** To assess impact the predictors of thyroid hormone abnormalities and function on patients who visiting Primary Health Care Center in Makah City, Saudi Arabia in 2023. **Methods:** This is a cross-sectional study among the male patients underwent thyroid hormonal test. Study participants have been recruited from PHC in Makah at Saudi Arabia , data were collected via an online validated questionnaire. Our total participants were (40) . **Results:** most of them were (27.5%)in the 30-40 years. Body Mass Index most of participated overweight were (40.0%), follow by obese class I were(22.5 %). Marital status the majority of participated Married were (92.5%) Educational level in study the most of participant's educated were (92.5%) exercise habits in study the most of participant's people were not exercise were (57.5%) prostatic disease, the most of participant answered No prostatic disease were(77.5 %) the Use IPDE-5 the*

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majority (97.5%) answered 'NO' while (2.5%) answered 'Yes' **Conclusion:** Both hypothyroidism and hyperthyroidism seem to cause ejaculation and erectile dysfunction. Hence, Guidelines recommend against the systematic screening for thyroid disorders in the men in sub-fertile couples, but only in men with ejaculation and erectile dysfunction and/or altered semen parameters.

**Keywords:** Impact, predictors, thyroid hormone, abnormalities, function, Makah City, Saudi Arabia .

## INTRODUCTION:

Thyroid gland is a vital organ in the human body and the burden of thyroid diseases in the general population is massive. Thyroid hormonal abnormalities or dysthyroidism is a state in which the thyroid produces a huge or very low amount of thyroid hormone. Hyperthyroidism affects around 2% of female, but considerably less in men. (1)

Sexual dysfunctions (SD), which has traditionally included disorders of interest or desire, arousal, and inhibited orgasm, are a complex process and highly prevalent disorders for female and male in worldwide. It was suggested that the prevalence of new female sexual difficulty is 36% at 12-month follow-up.(2) The incidence of Erectile dysfunction, a common type of male sexual dysfunctions, was observed in 31.7% of eligible men at a 5-year follow-up.(3) Epidemiologic researches have shown that endocrine disease, age, cardiovascular disease, urinary tract infections, chronic health problems, and general health play a key role in the development of female and male sexual dysfunctions.(4) However, the exact role of the endocrine disease is still not completely unclear. Recent studies have shown that hypothyroidism was associated with sexual health in both women and men.(5) In the other hand, In a historical perspective, deficiency of iodine has been both an extensive and the most important reason for hypothyroidism worldwide, often visible as a goiter. (6)

In mammals, altered thyroid status is known to adversely affect many organs and tissues. Nevertheless, for many years, the impact of thyroid disorders on male reproduction remained controversial. Early studies in the 1950's demonstrated that testes were essentially independent of thyroid hormone effects (7).

Erectile dysfunction (ED) can be defined as the inability to reach or maintain a firm enough erection for satisfactory sexual intercourse. This is a very common sexual problem among aging male subjects. The Massachusetts Male Aging Study reported that fifty-two percent of their community-based survey of men aged between 40 and 70 years old suffered from some degree of Erectile dysfunction.(8) Erectile dysfunction has been demonstrated to have a negative impact on intimate relationships, quality of life and self-respect. Although the causes of Erectile dysfunction is really complex and known to be the result of interplay between poor erectile nerve function, cognitive decline, illness-related stress and dropping interpersonal interaction, both the pathology of Erectile dysfunction and abnormal thyroid function have been showed as having common underlying endocrine abnormalities. (9)

The underlying causatives for such declining pattern in male fertility parameters, the endocrine regulations of male reproduction have been set forth as one of the major research interests. Male subfertility or infertility involves multivariate causatives with innumerable environmental and lifestyle factors leading to endogenous modulations (10-11). They may disrupt the physiological hormonal milieu, among which one of the most important is the

thyroid hormone profile that carries out versatile functions(12,13) and also essentially determines normal male reproductive functions. The altered levels in thyroid hormones have deleterious impacts upon semen quality and male fertility (14,15).

Till today, only small numbers of studies have investigated the relation between thyroid gland abnormalities and erectile dysfunction, and all were either hospital-based studies or characterized by small case numbers. (16)

### **Literature review:**

Another study has found that nuclear receptors of the thyroid hormone which located in the penis provide the biological standard for the immediate action of thyroid hormones on this organ and recommended that doctors should be encourage their male patients who had thyroid disorder to investigate their sexual health status by using the international index of erectile function score and semen analysis if indicated. (17,18)

Another study report because the testes are rich in polyunsaturated fatty acids and poor in antioxidant defense, they are more vulnerable to peroxidation injury than other tissues (19,20). Normal thyroid function seems important, at least in some parameters, for maintenance of semen quality via genomic or non-genomic mechanisms, either locally acting on Sertoli cells, Leyding cells, or germ cells, or by affecting crosstalk between the HPT axis and the HPG axis.(21)

Bjoro, et al. (2000) found study in Norway discovered that 0.9% of all Norwegian men above the age of 20 years old in Nord-Tru`ndelag had been detected and diagnosed with hyperthyroidism. Graves' disease reports for seventy percent of hyperthyroidism cases, with the age of onset most frequently arising during young adulthood. It is a hereditarily linked autoimmune disorder in which the body makes antibodies to its own tissues, which in turn cause the thyroid to produce a huge amount of the thyroid hormone. (22) The other thirty percent of hyperthyroidism cases result from other reasons like nodular goiter, acute thyroiditis, and iodine exposure from some medications or imaging contrast and postpartum thyroiditis. Despite of autoimmune, inflammatory or metabolic sources, the effects of hyperthyroidism have been known to be related to sexual dysfunction and impotence among male gender. (23)

Romano's et al. (2017) reported that the results in humans they showed that the addition of T4 (0.002 µg/mL) to sperm preparation rapidly (after 20') and significantly improved sperm motility, while also increasing the number of spermatozoa recovered by the "swim-up" technique. The authors hypothesized that T4 acts directly on calcium channels, increasing calcium intake and cyclic adenosine monophosphate (cAMP) synthesis and leading to protein kinase an activation, which, in turn, causes vigorous flagella movements resulting in so-called "hyper activation". Also the pathophysiological mechanism underlying testicular dysfunction resulting from thyroid disorders has not as yet been elucidated (24).

Carosa et al. (2010) reported the prevalence of hypothyroidism was 6.18% in Libya and 47.34% in Saudi Arabia according to a study on the thyroid diseases in the Arab world. The primary scenario and consequences of severe hypothyroidism was often described as cretinism, which includes deficiency of mental and physical growth, development, and has a negative effect on most organ systems. Infertility was common and sexual dysfunction. (25) Study by Lotti et al(2018) note mean sperm count was lower in hyper and hypothyroid subjects in comparison to controls. Fast and total progressive motility was significantly

decreased and non-motile sperm was significantly higher in the hyper- and hypothyroid groups. Sperm morphology did not differ between the groups, although the normal percentage was slightly higher in the thyroid group.(16) They concluded that THs do play a role in male reproduction.(26). Study by Ajmani et al.(2016) patients with thyroid dysfunction had mild disease, i.e., all were subclinical (27)

Wang et al(2020) report the patients had overt disease, this possibly explaining the difference between their study results. (28) Batese , et al.(2020). According to the U.S. National Health and Nutrition Examination Survey III, the prevalence of hypothyroidism was 4.6% (0.3% of overt and 4.3% of subclinical). Hypothyroidism was found to affect more women than men (ratio: 5–8: 1).(29)

### **Rationale**

The thyroid hormone is one of the most vital Hermon that play a critical role in the normal growth, differentiation, metabolism, and physiological functioning of the human body. Thyroid hormone dysfunction is one of the most common problems in clinical practice and has become more prevalent throughout the world in recent decades, also relevant information regarding the impact of Impact of thyroid hormone abnormalities on male sexual function is Unsatisfactory and weak, the researcher is willing to shed light also highlight the importance of thyroid hormone effect in male sexual function. Study recommended that health policy makers must arrange more effective health education sessions to increase knowledge of the population and about the various aspects of thyroid hormone and the importance of compliance with its treatment.

### **Aim of the Study:**

To assess impact the predictors of thyroid hormone abnormalities and function on patients who visiting Primary Health Care Center in Makah City, Saudi Arabia in 2023

### **Objectives:**

- To assess impact the predictors of thyroid hormone abnormalities and function on patients who visiting Primary Health Care Center in Makah City, Saudi Arabia in 2023

### **Subjects and methods:**

#### **Study design:**

This is a cross-sectional study that has be conducted in united clinics and PHC in Makah City, Kingdom of Saudi, between the period of January 2023 and November 2021, a structured and self-administered validated online questionnaire was distributed among patients underwent thyroid function test.

#### **Study setting / study area:**

Study participants will be recruited in united clinics and PHC in Makah City, Saudi Arabia,. They are distinguished by their environment and the large number of residents in them, also its locations, which is characterized good environment and the large number of residents in them.

#### **Study population:**

The researcher selected participants has be recruited united clinics and PHC in Makah City, Saudi Arabia, between the period of January 2023 and November 2023, patients underwent thyroid function test after taking two permissions from the patients and the clinics

**Inclusion Criteria :**

- Age  $\geq$  18 years old.
- Male gender.
- All male patients with underwent thyroid function test were included in this study.
- A study participant has be recruited Saudi and Non-Saudi. and other minor cities
- patient Chronic prostatic diseases, use of IPDE-5, urological visits and LUTS

**Exclusion criteria:**

- Any patient below 18 years old.
- Female gender.

**Study Sample size :**

From the previous literature review of Impact of thyroid hormone abnormalities on male sexual function , it is estimated that about 47.34% in Saudi Arabia according to a study on the thyroid diseases in the Arab world and data analysis and a "p-value" less than 0.05 is considered statistically significant in the final models, we calculated a sample size of 40 individuals. To account for a 10% loss from invalid cases (non-response, dropout, ineligible, or incomplete cases), the sample size required is ( 40).

**Sampling Technique**

- All laboratory results that include thyroid function tests and prolactin will be included in our study from laboratory database at both centers.
- All patients will be evaluated and assessed for sexual function from time of the test till the current time longitudinally.

**Study field :** Study has been conducted take place between the period of January 2023and November 2023.

**Data collection methods:**

A structured and self-administered validated online questionnaire was distributed among patients underwent thyroid function test after taking two permissions from the patients and the clinics with no personal data disclosing the identity of any of the patients was revealed in this study and data were collected using Microsoft Excel and analyzed by using "The Statistical Package for the Social Sciences" (SPSS) version 27. The questionnaire was divided into three sections: the first one was about the demographic data of the patients. The second one was about the general health of the patients including the thyroid status. The last section was about the sexual health by IIEF score

**A Pilot study**

Was carried out at the questions were first pre-tested and were revised and finalized after it was pilot tested. Before completing the survey, participants were required to indicate their

consent using a forced response question followed by the survey questionnaires. This study has been conducted and all suggestions taken into consideration.

### **Data Management and Analysis:**

The paired t-test used for quantitative data analysis and a "p-value" less than 0.05 is considered statistically significant in the final models. Arabic questionnaire has been designed based on valid IIEF score and some variables which are: BMI, age, nationality, marital status, educational level (based on the academic achievement), exercise, chronic prostatic diseases, use of IPDE-5, urological visits and LUTS. All male patients with underwent thyroid function test were included in this study with exclusion criteria of any patient below 18 years old.

### **Measurements:**

- **Outcome measures**
  - IIEF score
  - SHIM score
- **Study variables**
  - Prolactin level
  - TSH, T3, T4 level
- **Covariates**
  - Age
  - Charlson comorbidity index (CCI)
  - HA1C
  - BMI
  - Total testosterone
  - Free testosterone
  - Smoking
  - Exercise

### **Ethical consideration :**

- The ethical approval was obtained from the ethical committees of Makkah City, Saudi Arabia.
- Permission from the regional Research and Ethical Committee has been given to conduct our study.
- All the subjects have participated voluntarily in the study .
- Privacy of information and confidentiality has been maintained .
- Full explanation about the study and its purpose was carried out to obtain their participation.

**Budget:** Self-funded

### **RESULT:**

Table 1. Distribution of Socio-demographic characteristics of the studied participants (Age, Body Mass Index, Nationality, Marital status, number of children, Educational level, Exercise, Prostatic disease, Urology visits, Use IPDE-5 ((n= 40).

	N	%
<b>Age</b>		
<30	4	10.0
30-40	11	27.5
40-50	11	27.5
50-60	10	25.0
>60	4	10.0
Range	19-69	
Mean±SD	44.10±12.01	
<b>Body Mass Index</b>		
Underweight	1	2.5
Normal weight	5	12.5
Overweight	16	40.0
Obese class I	9	22.5
Obese class II	5	12.5
Obese class III	4	10.0
Range	18.40-45.5	
Mean±SD	30.760±6.136	
<b>Nationality</b>		
Non-Saudi	5	12.5
Saudi	35	87.5
<b>Marital status</b>		
Not-married	3	7.5
Married	37	92.5
<b>number of children</b>		
No	8	20.0
1	5	12.5
2	6	15.0
3	3	7.5
4	4	10.0
5 or more	14	35.0
<b>Educational level</b>		
Non-educated	3	7.5
Educated	37	92.5
<b>Exercise</b>		
No exercise	23	57.5
Exercise	17	42.5
<b>Prostatic disease</b>		
No prostatic disease	31	77.5
Prostatic disease	9	22.5
<b>Urology visits</b>		
No	27	67.5
Yes	13	32.5
<b>Use IPDE-5</b>		
No	39	97.5

Yes	1	2.5
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Abbreviations: BMI, body mass index; IPDE-5, inhibitor of phosphodiesterase type 5

\*Educated = academic achievement

The total number of participants was 40 were males. The participants were classified into 5 age groups, most of them were (27.5%) in the 30-40 years followed by 40-50 years were (27.5%) were the range (19-69) and Mean± SD (44.10±12.01). regarding Body Mass Index most of participated overweight were (40.0%), followed by obese class I were (22.5%) while range (18.40-45.5) and Mean± SD (30.760±6.136). Only 12.5% among the participants Non-Saudi while Saudi were (87.5%), regarding Marital status the majority of participated Married were (92.5%). while number of children the most of participated 5 or more were (35.0%) NO were (20.0%) doweled by 2 children were (15.0%). Regarding Educational level in study the most of participant's educated were (92.5%) while Non-educated were (7.5%). Regarding exercise habits in study the most of participant's people were not exercise were (57.5%) while exercise habits were (42.5%) Regarding prostatic disease, the most of participant answered No prostatic disease were (77.5%) while Prostatic disease were (22.5%), regarding Urology visits or not the majority of participant not visits were (67.5%) but answered yes were (32.5%). regarding the Use IPDE-5 the majority (97.5%) answered 'NO' while (2.5%) answered 'Yes'

**Table (2):** Knowledge about distribution summary of variables habits of the Participants suffering from thyroid hormone abnormalities on male sexual function .

variables habits	N	%
<b>What is the nature of the sport you do?</b>		
I don't practice.	20	50.0
Walk	18	45.0
Weight lifting	2	5.0
<b>How regularly do you exercise over the course of a week?</b>		
No	20	50.0
<3 days	6	15.0
3-4 days	7	17.5
More than 5 days	7	17.5
<b>Duration of exercise per day</b>		
No	20	50.0
Less than 30min.	2	5.0
30-60min.	16	40.0
>one hour	2	5.0
<b>Health problems</b>		
No	10	25.0
Yes	30	75.0
<b>Are you committed to using medications for chronic diseases?</b>		
No	9	22.5
Yes	31	77.5
<b>While doing various activities</b>		



every day	2	5.0
More than half of the days	3	7.5
some days	11	27.5
no never	24	60.0
<b>During the past two weeks, have you felt depressed or depressed?</b>		
every day	2	5.0
More than half of the days	3	7.5
some days	15	37.5
no never	20	50.0
<b>do you suffer from</b>		
nothing	28	70.0
Prostatitis	4	10.0
Prostate enlargement	7	17.5
Varicocele	1	2.5
<b>Risk factor</b>		
problems urinating	10	25.0
suffer from frequent pelvic pain	6	15.0
pelvic or genital surgery or radiotherapy	9	22.5
used testosterone injections	5	12.5
used erection pills	19	47.5
used other treatments to increase sexual ability	10	25.0
<b>Do you smoke</b>		
No	20	50.0
Ex-smoker	7	17.5
Yes	13	32.5
<b>Do you use any of the following smoking methods?</b>		
No	21	52.5
Shisha	1	2.5
Moasel	7	17.5
cigarettes	11	27.5

Regarding participants what is the nature of the sport you do the most of participants I don't practice were(50.0% ) while walk were (45.0%), regarding how regularly do you exercise over the course of a week majority of participants not regularly do you exercise were(50.0%), followed by 3-4 days were (17.5%) and more than 5 days were(17.5%), regarding of duration of exercise per day majority of participants don't practice the exercise were (50.0%), while between 30-60min were (40.0%), regarding health problems majority of participants answer Yes suffering from health problems were were(75.0%), while not suffering from health problems were (25.0%), regarding are you committed to using medications for chronic diseases most of participants answer Yes were(77.5%), but NO were (22.5%). Regarding while doing various activities the majority of participants answer no never were (60.0%), while some days were (27.5%) .

Regarding the past two weeks, have you felt depressed or depressed the majority of participants answer no never suffering from felt depressed or depressed were(50.0%), while some days suffering from felt depressed or depressed were(37.5%), regarding do you suffer

from, the most of participants were not suffering from nothing were(70.0%), while suffering from Prostate enlargement were(17.5%) while prostate enlargement were(17.5%) but suffering from prostatitis (10.0%) while suffering from varicocele were(2.5%), regarding risk factor most of participants used erection pills were(47.5%), but problems urinating were (25.0%) and used other treatments to increase sexual ability were(25.0%) while pelvic or genital surgery or radiotherapy were(22.5%), regarding do you smoked the majority of participants answer not smoking were(50.0%), while Yes smoking were(32.5%), regarding do you use any of the following smoking methods most of participants not used any methods were(52.5%), while cigarettes were (27.5%) while moassel were(17.5%).

**Table (3): Distribution of Thyroid dysfunction VS sexual dysfunction the studied participated .**

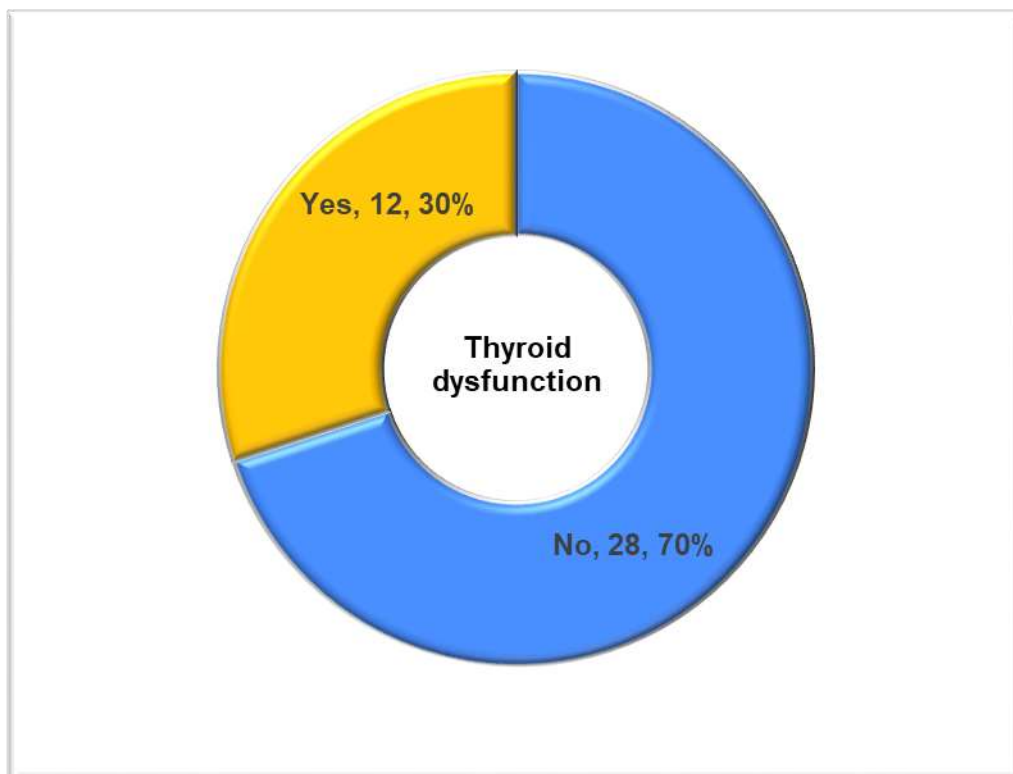
	N	%
<b>Thyroid dysfunction</b>		
No	28	70.0
Yes	12	30.0
<b>If the answer to the previous question is (yes), what is the type of disorder?</b>		
Thyroid laziness	7	58.3
Thyroid gland activity	5	41.7
<b>Was there a difference in sexual activity?</b>		
No	7	58.3
Yes	5	41.7

Abbreviations: IIEFS, international index of erectile function score.

Regarding the Thyroid dysfunction the majority of participants answer no suffering from thyroid dysfunction were (70.0%), while Yes suffering from thyroid dysfunction were(30.0%),

Regarding the If the answer to the previous question is (yes), what is the type of disorder majority of participants thyroid laziness were (58.3%) followed by thyroid gland activity were(41.7%), regarding the was there a difference in sexual activity the majority of participants were (58.3%), while not suffering from difference in sexual activity were(41.7%).

**Figure 1 . Distribution of Thyroid dysfunction VS sexual dysfunction the studied participated**



Variables of Erectile Function	N	%
<b>How often were you able to get an erection during sexual activity?</b>		
Almost never or never	2	5.0
A few times	7	17.5
Sometimes	6	15.0
Most times	11	27.5
Almost always	14	35.0
<b>When you had erections with sexual stimulation, how often were your erections hard enough for penetration?</b>		
Almost never or never	3	7.5
A few times	4	10.0
Sometimes	7	17.5
Most times	10	25.0
Almost always	16	40.0
<b>When you attempted intercourse, how often were you able to penetrate your partner?</b>		
Almost never or never	2	5.0
A few times	5	12.5
Sometimes	7	17.5
Most times	6	15.0
Almost always	17	42.5

No sexual activity	3	7.5
<b>During sexual intercourse, how often were you able to maintain your erection after you had penetrated your partner?</b>		
Almost never or never	2	5.0
A few times	5	12.5
Sometimes	7	17.5
Most times	6	15.0
Almost always	17	42.5
No sexual activity	3	7.5
<b>During sexual intercourse, how difficult was it to maintain your erection to completion of intercourse?</b>		
Not difficult	17	42.5
Slightly difficult	14	35.0
Difficult	5	12.5
Very difficult	1	2.5
Extremely difficult	1	2.5
No sexual activity	2	5.0
<b>How do you rate your confidence that you can get and keep your erection?</b>		
Very low	2	5.0
Low	8	20.0
Moderate	13	32.5
High	11	27.5
High	6	15.0

**Table (4): distribution of thyroid troubles in the participants suffering from thyroid hormone abnormalities in male about the Erectile Function**

**Table 4** show that, regarding how often were you able to get an erection during sexual activity the majority of participants answer almost always were(35.0%), while most of times were(27.5%), but almost never or never were(5.0%), regarding when you had erections with sexual stimulation, how often were your erections hard enough for penetration most of participants almost always followed be most times were(40.0% and 25.0%), while almost never or never were (7.5%).

Regarding when you attempted intercourse, how often were you able to penetrate your partner the majority of participants answer almost always were (42.5%), while Some times were(17.5%), but almost never or never were (5.0%), regarding during sexual intercourse, how often were you able to maintain your erection after you had penetrated your partner most of participants almost always followed be some times were(42.5% and 17.5%), while almost never or never were (5.0%).

Regarding during sexual intercourse, how difficult was it to maintain your erection to completion of intercourse the majority of participants answer not difficult were (42.5%), while Slightly difficult were(35.0%), but very difficult were (2.5%), regarding how do you rate your confidence that you can get and keep your erection most of participants moderate flowed be high were(32.5% and 27.5%), while very low were(20.0%).

**Table (5): distribution of thyroid troubles in the participants suffering from thyroid hormone abnormalities in male about the Variables Orgasmic Function**

<b>Variables of orgasmic Function</b>	<b>N</b>	<b>%</b>
<b>When you had sexual stimulation or intercourse, how often did you ejaculate?</b>		
Almost never or never	4	10.0
A few times	1	2.5
Sometimes	6	15.0
Most times	7	17.5
Almost always	21	52.5
No sexual activity	1	2.5
<b>When you had sexual stimulation or intercourse, how often did you have the feeling of orgasm (with or without ejaculation)?</b>		
Almost never or never	3	7.5
A few times	3	7.5
Sometimes	9	22.5
Most times	7	17.5
Almost always	18	45.0
<b>Sexual Desire</b>		
<b>How often have you felt sexual desire?</b>		
A few times	2	5.0
Sometimes	7	17.5
Most times	16	40.0
Almost always	15	37.5
<b>How would you rate your level of sexual desire?</b>		
Low	3	7.5
Moderate	15	37.5
High	8	20.0
High	14	35.0
<b>Intercourse Satisfaction</b>		
<b>How many times have you attempted sexual intercourse?</b>		
11-20 times	3	7.5
7-10 times	2	5.0
5-6 times	1	2.5
3-4 times	9	22.5
1-2 times	20	50.0
No attempts	5	12.5
<b>When you attempted sexual intercourse how often was it satisfactory for you?</b>		
Almost never or never	2	5.0
A few times	8	20.0
Sometimes	8	20.0
Most times	5	12.5
Almost always	15	37.5
No sexual activity	2	5.0
<b>How much have you enjoyed the sexual intercourse?</b>		

Not very enjoyable	4	10.0
Not very enjoyable	12	30.0
Highly enjoyable	10	25.0
Very highly enjoyable	12	30.0
No intercourse	2	5.0
<b>Overall Satisfaction</b>		
<b>How satisfied have you been with your overall sex life?</b>		
Very dissatisfied	3	7.5
Moderately dissatisfied	6	15.0
About equally satisfied and dissatisfied	9	22.5
Moderately satisfied	10	25.0
Very satisfied	12	30.0
<b>How satisfied have you been with your sexual relationship with your partner?</b>		
Very dissatisfied	4	10.0
Moderately dissatisfied	4	10.0
About equally satisfied and dissatisfied	8	20.0
Moderately satisfied	12	30.0
Very satisfied	12	30.0

Regarding When you had sexual stimulation or intercourse, how often did you ejaculate the majority of participants answer almost always were (52.5%), while most times were(17.5%), but almost never or never were (10.0%), regarding when you had sexual stimulation or intercourse, how often did you have the feeling of orgasm (with or without ejaculation) most of participants almost always were(45.0 %) but Sometimes followed be most times were(22.5% and 17.5%), while almost never or never were (7.5%).

#### **Regarding Sexual Desire**

How often have you felt sexual desire the majority of participants answer most times were (40.0%), while Slightly difficult were(35.0%), but almost always were (37.5%), regarding how would you rate your level of sexual desire most of participants moderate flowed be high were(37.5% and 35.5%), while low were(7.0%).

#### **Regarding Intercourse Satisfaction**

How many times have you attempted sexual intercourse the majority of participants answer 1-2 times were (50.0%), while 3-4 times were(22.5%), regarding when you attempted sexual intercourse how often was it satisfactory for you the majority of participants answer almost always were (37.5%), while A few times and Sometimes were(20.5%), regarding how much have you enjoyed the sexual intercourse the majority of participants answer very highly enjoyable and not very enjoyable were (30.0%), highly enjoyable were(25.0%).

#### **Regarding Overall Satisfaction**

How satisfied have you been with your overall sex life the majority of participants answer very satisfied were (30.0%), while moderately satisfied were(25.0%),while about equally satisfied and dissatisfied were (22.5%), regarding when you attempted sexual intercourse how often was it satisfactory for you the majority of participants answer almost always were (37.5%), while A few times and Sometimes were(20.5%), regarding how satisfied have you been with your sexual relationship with your partner the majority of participants

answer very satisfied and moderately satisfied were (30.0%), highly enjoyable were(25.0%), about equally satisfied and dissatisfied were(20.0%)

**Table (6): Distribution the relation between Thyroid dysfunction and the Variables Orgasmic Function (Erectile , Orgasmic, Sexual Desire, Intercourse Satisfaction, Overall Satisfaction, Total score) on sexual function male**

	Thyroid dysfunction		T-test	
	No	Yes		
	Mean ± SD	Mean ± SD	t	P-value
<b>Erectile Function</b>	21.893 ± 7.036	21.750 ± 6.510	0.060	0.952
<b>Orgasmic Function</b>	8.036 ± 2.219	7.167 ± 2.758	1.055	0.298
<b>Sexual Desire</b>	8.107 ± 1.729	7.500 ± 1.834	1.000	0.324
<b>Intercourse Satisfaction</b>	8.964 ± 2.975	7.833 ± 3.996	0.992	0.327
<b>Overall Satisfaction</b>	7.250 ± 2.351	6.917 ± 2.968	0.380	0.706
<b>Total score</b>	54.250 ± 13.209	51.167 ± 13.710	0.669	0.507

Table 6 and figure 2 show that is no significant relation between depression Thyroid dysfunction and Erectile Function (increase in No than Yes by the mean+ SD(21.893 ± 7.036), where t=0.060 and P-value=0.952, no significant relation between Thyroid dysfunction and Erectile Function.

Regarding the Orgasmic Function is no significant relation between Thyroid dysfunction and Orgasmic Function (increase in No than Yes by the mean+ SD (8.036 ± 2.219), where T=1.055 and P-value=0.298, no significant relation between Thyroid dysfunction and Orgasmic Function.

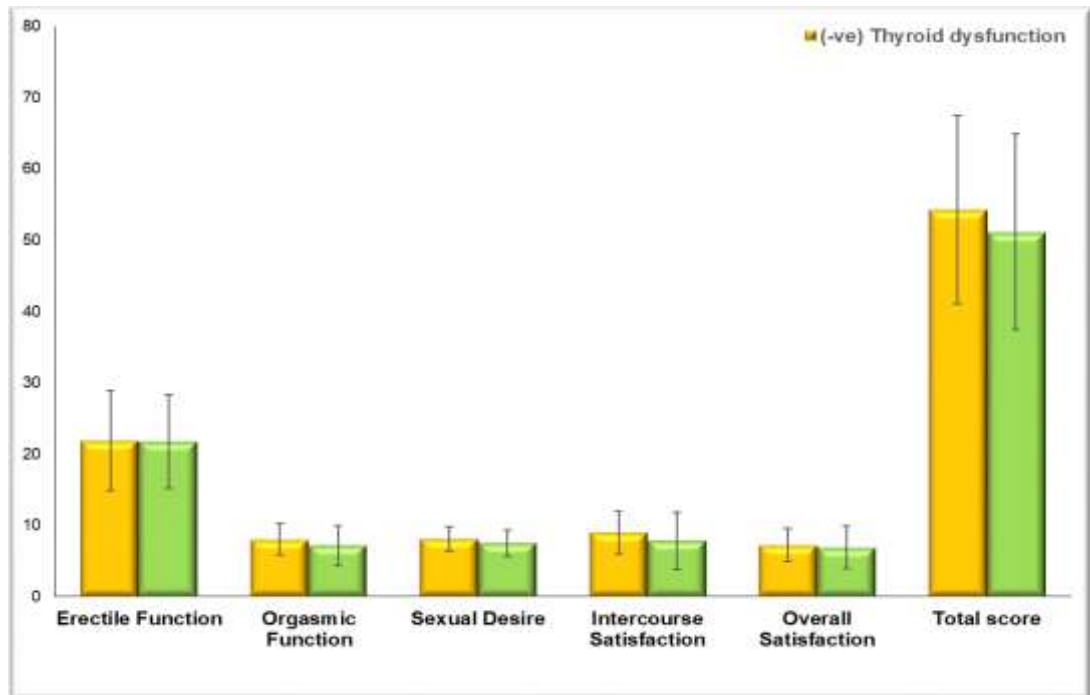
Regarding the Sexual Desire is no significant relation between Thyroid dysfunction and Sexual Desire (increase in No than Yes by the mean+ SD (8.107±1.729), where T=1.000 and P-value=0.324, no significant relation between Thyroid dysfunction and Sexual Desire.

Regarding the Intercourse Satisfaction is no significant relation between Thyroid dysfunction and Intercourse Satisfaction (increase in No than Yes by the mean+ SD (8.964 ±2.975), where T=0.992 and P-value=0.326, no significant relation between Thyroid dysfunction and Intercourse Satisfaction

Regarding the Overall Satisfaction is no significant relation between Thyroid dysfunction and Overall Satisfaction (increase in No than Yes by the mean+ SD (7.250 ±2.351), where T=0.992 and P-value=0.327, no significant relation between Thyroid dysfunction and Overall Satisfaction.

Regarding the Total score is no significant relation between Thyroid dysfunction and Total score (increase in No than Yes by the mean+ SD (54.250 ±13.209), where T=0.669 and P-value=0.507, no significant relation between Thyroid dysfunction and Total score.

**Figure 2** Distribution the relation between Thyroid dysfunction and the Variables Orgasmic Function (Erectile , Orgasmic, Sexual Desire, Intercourse Satisfaction, Overall Satisfaction, Total score) on sexual function male



**Table (7):** Distribution the effects of relation between Thyroid dysfunction on variables Erectile Function and the Variables Orgasmic Function in sexual function male

		Erectile Function	Orgasmic Function	Sexual Desire	Intercourse Satisfaction	Overall Satisfaction
<b>Orgasmic Function</b>	<b>r</b>	0.421				
	<b>P-value</b>	0.007*				
<b>Sexual Desire</b>	<b>r</b>	0.241	0.118			
	<b>P-value</b>	0.134	0.469			
<b>Intercourse Satisfaction</b>	<b>r</b>	0.745	0.486	0.136		
	<b>P-value</b>	<0.001*	0.001*	0.402		
<b>Overall Satisfaction</b>	<b>r</b>	0.640	0.398	0.338	0.645	
	<b>P-value</b>	<0.001*	0.011*	0.033*	<0.001*	
<b>Total score</b>	<b>r</b>	0.928	0.608	0.376	0.859	0.795
	<b>P-value</b>	<0.001*	<0.001*	0.017*	<0.001*	<0.001*



Table 7 show that is a significant relation between Erectile Function and Orgasmic Function while P-value=0.007 and r (0.421).

Regarding the Sexual Desire is no significant relation between Sexual Desire and Erectile Function while P-value=0.134 and r (0.241) also no significant relation between Sexual Desire and Orgasmic Function while P-value=0.469 and r (0.118).

Regarding the Intercourse Satisfaction is a significant relation between Intercourse Satisfaction and Erectile Function while P-value=0.001 and r (0.745) also a significant relation between Intercourse Satisfaction and Orgasmic Function while P-value=0.001 and r (0.486), also no significant relation between Intercourse Satisfaction and Orgasmic Function while P-value=0.402 and r (0.136).

Regarding the Overall Satisfaction is a significant relation between Overall Satisfaction and Erectile Function while P-value=<0.001 and r (0.640) also a significant relation between Overall Satisfaction and Orgasmic Function while P-value=0.011 and r (0.398), also a significant relation between Overall Satisfaction and Sexual Desire while P-value=0.033 and r (0.338) and the Overall Satisfaction is a significant relation between Overall Satisfaction and Intercourse Satisfaction while P-value=<0.001 and r (0.645) Regarding the Total score is a significant relation between Erectile Function, Orgasmic Function, Sexual Desire, Intercourse Satisfaction, Overall Satisfaction while P-value=0.001 and respectively r (0.928, 0.608, 0.376, 0.859, 0.795)

**Table (8): Distribution the relation between the Thyroid dysfunction on variables Erectile Function and the Variables Orgasmic Function in sexual function male and (age and BMI )**

	Age		BMI	
	r	P-value	r	P-value
<b>Erectile Function</b>	-0.076	0.641	0.127	0.436
<b>Orgasmic Function</b>	-0.006	0.969	0.239	0.138
<b>Sexual Desire</b>	-0.218	0.177	0.107	0.510
<b>Intercourse Satisfaction</b>	0.140	0.389	0.145	0.372
<b>Overall Satisfaction</b>	-0.269	0.094	0.115	0.480
<b>Total score</b>	-0.085	0.601	0.180	0.266

Table 8 shows that the Erectile Function, Orgasmic Function, Sexual Desire , Intercourse Satisfaction, Overall Satisfaction, Total score is no significant relation between age and Erectile Function, Orgasmic Function, Sexual Desire , Intercourse Satisfaction, Overall Satisfaction, Total score while respectively P-value=(0.641, 0.969, 0.177, 0.389, 0.094, 0.601) and r (-0.076, -0.006, -0.218, 0.140, -0.269, -0.085).

Regarding the Erectile Function, Orgasmic Function, Sexual Desire , Intercourse Satisfaction, Overall Satisfaction, Total score is no significant relation between Erectile Function, Orgasmic Function, Sexual Desire , Intercourse Satisfaction, Overall

Satisfaction, Total score and BMI respectively P-value=( 0.436, 0.138, 0.510, 0.372, 0.480, 0.266) and r (0.127, 0.239, 0.107, 0.145, 0.115, 0.180)

**Table (9): Distribution of the Thyroid dysfunction by the score on variables Erectile Function and the Variables Orgasmic Function in sexual function male .**

		Very weak	Weak	Average	High	Very High	%	Range	Mean±SD
<b>Erectile Function</b>	<b>N</b>	1	8	8	8	15	74	9-30.	21.850±6.800
	<b>%</b>	2.5%	20.0%	20.0%	20.0%	37.5%			
<b>Orgasmic Function</b>	<b>N</b>	0	2	14	8	16	79	2-10.	7.775±2.391
	<b>%</b>	0.0%	5.0%	35.0%	20.0%	40.0%			
<b>Sexual Desire</b>	<b>N</b>	0	2	14	8	16	79	4-10.	7.925±1.760
	<b>%</b>	0.0%	5.0%	35.0%	20.0%	40.0%			
<b>Intercourse Satisfaction</b>	<b>N</b>	2	13	19	2	4	56.5	0-15.	8.625±3.303
	<b>%</b>	5.0%	32.5%	47.5%	5.0%	10.0%			
<b>Overall Satisfaction</b>	<b>N</b>	4	3	13	7	13	71	2-10.	7.150±2.517
	<b>%</b>	10.0%	7.5%	32.5%	17.5%	32.5%			
<b>Total score</b>	<b>N</b>	0	7	16	4	13	71.5	31-75.	53.325±13.261
	<b>%</b>	0.0%	17.5%	40.0%	10.0%	32.5%			

Table 9 shows that the Erectile Function the majority of participants answer very high were (37.5%), while wt (74%) and range (9 -30) while Mean± SD were(21.850±6.800)

Regarding the Orgasmic Function the majority of participants answer very high were (40.0%) followed by Average were (35.5%) while wt (79%) and range (2-10.) while Mean± SD were(7.775±2.391)

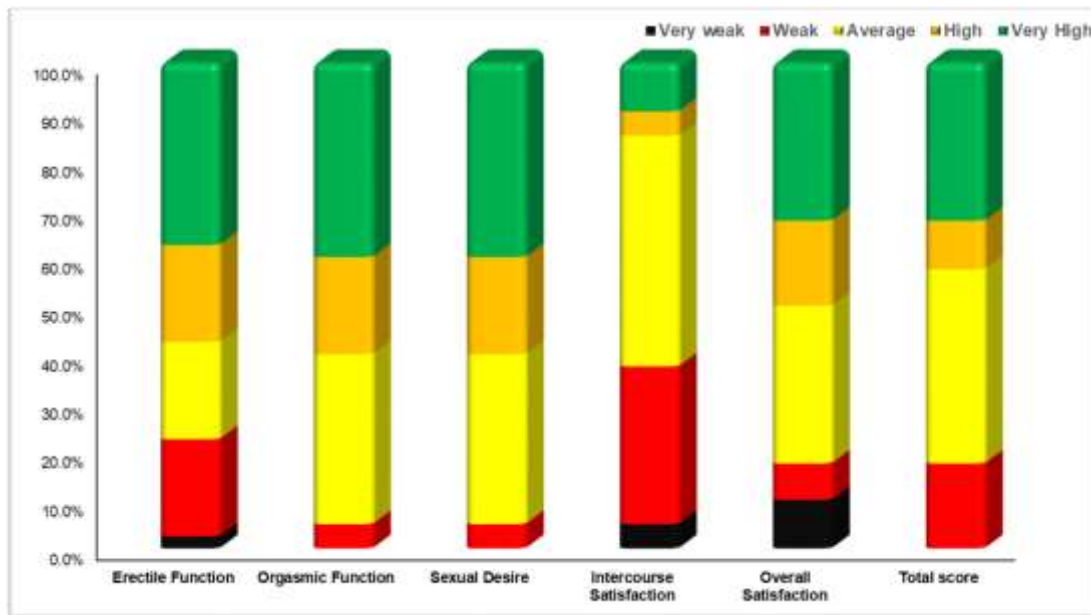
Regarding the Sexual Desire the majority of participants answer very high were (40.0%), followed by average were (35.5%), while wt (56.5%) and range (4 -10) while Mean± SD were (7.925±1.760)

Regarding the Intercourse Satisfaction the majority of participants answer average were (47.5%) followed by weak were (32.5%), while wt (56.5%) and range (0 -15) while Mean± SD were (8.625±3.303)

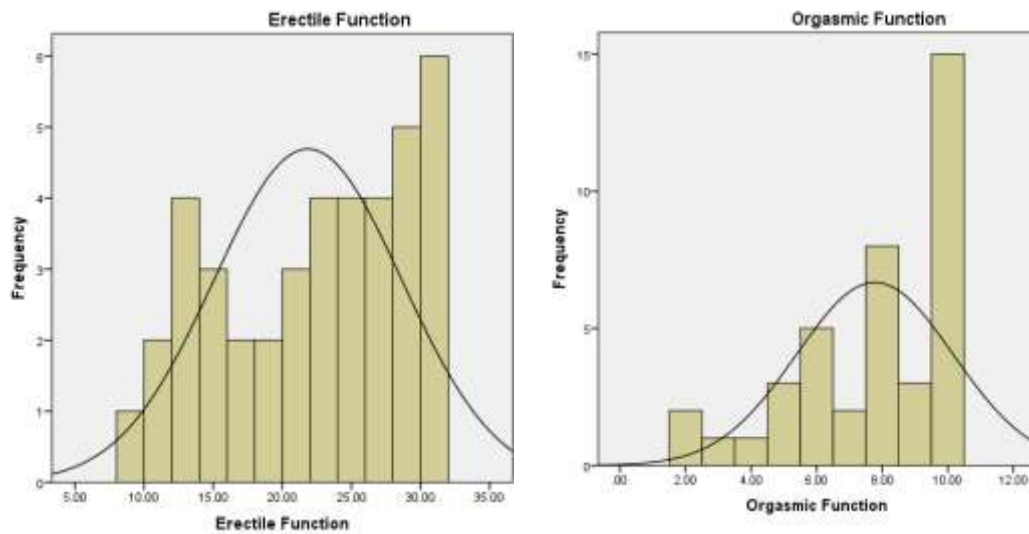
Regarding the Overall Satisfaction the majority of participants answer very high were (32.5%), followed by average were (32.5%), while wt (71%) and range (2 -10) while Mean± SD were(7.150±2.517)

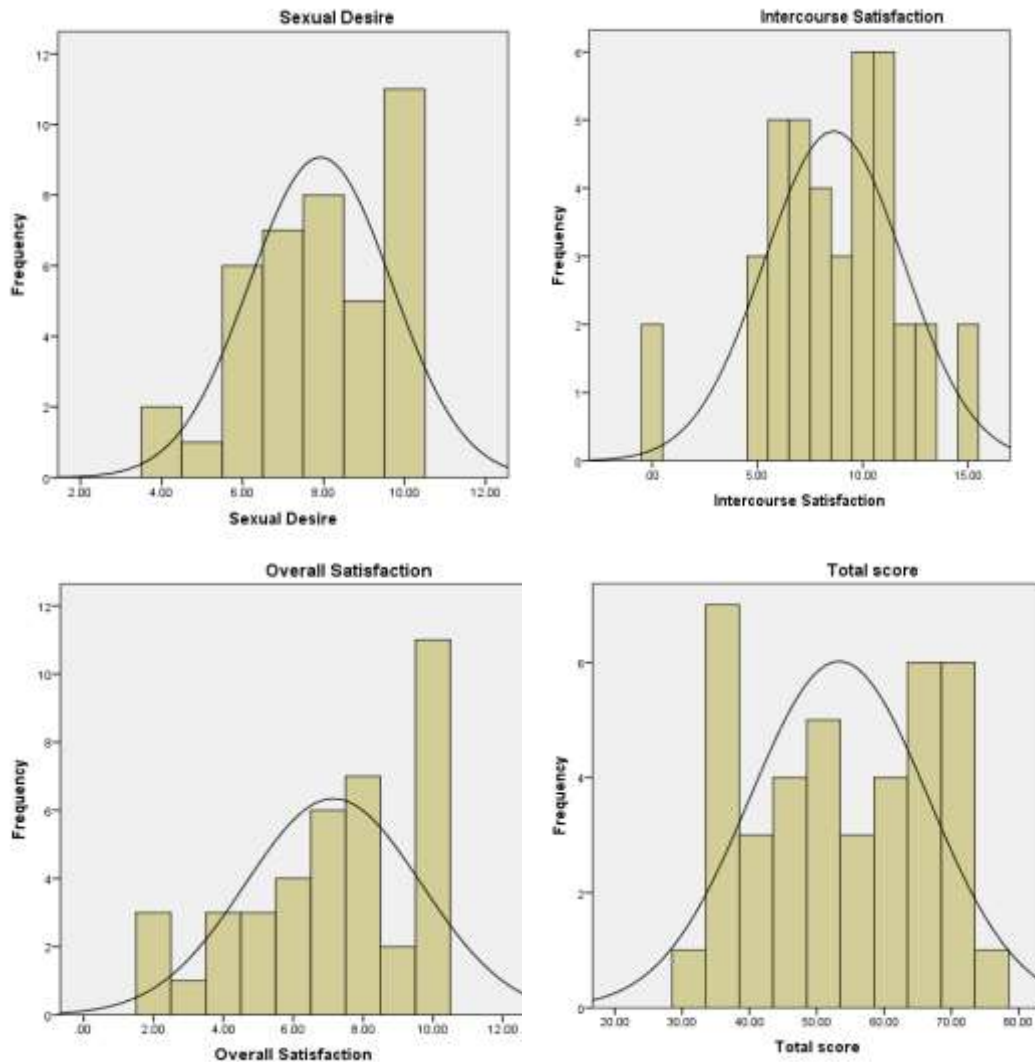
Regarding the Total score the majority of participants answer very average were (40.0%), followed by very high were (32.5%), while wt (71.5%) and range (31 -75) while Mean± SD were(53.325±13.261)

**Figure 3 Distribution of the Thyroid dysfunction by the score on variables Erectile Function and the Variables Orgasmic Function in sexual function male**



**Figure 4** Distribution of the Thyroid dysfunction by the score on variables Erectile Function and the Variables Orgasmic Function in sexual function male





## DISCUSSION

Thyroid diseases are among the commonest endocrine disorders worldwide and attention to physical examination findings, combined with selected laboratory and radiologic tools, aids in the early diagnosis and treatment of thyroid endocrine disorders is fundamental(30).

Reproductive function in male needs normal libido, normal erection, normal hypothalamic-pituitary-target endocrine gland pathway, and normal spermatogenesis and accessory organs of ejaculation (31) . Anecdotal reports suggest a relationship between libido and/or impotence and hyper- and hypothyroidism (32) , but no controlled data have been published until now. By using a validated SHIM 5-item questionnaire, regarding the International Index of Erectile Function questionnaire, we found that patient with abnormal thyroid function had 51 SD = 12.68 in IIEFS while patient with normal thyroid function had 54 SD = 12.36. This study intended to report the prevalence of Erectile dysfunction in dysthyroid patients and identify any relationships between thyroid and Erectile dysfunction.

This community-based study was conducted on male sexual function in the Makah City, Saudi Arabia, of male sex, Impact of thyroid hormone abnormalities on male sexual function in a representative sample. Saudi Arabia is a rapidly developing country with changes that influence lifestyle of the population towards urbanization with more

progression towards impact of thyroid hormone abnormalities on male sexual function . The results and outcomes of this study present unique information in trends male sex in Makah City, Saudi Arabia their socio-demographic characteristics, and their knowledge on thyroid gland, mainly, hypothyroidism, and hyperthyroidism.

Thyroid dysfunction is common in Saudi Arabia account in 47.34% depends on a study on the thyroid diseases in the Arab world. And we found that there is a non-significant relation between thyroid abnormalities and male sexual dysfunction and there is another study that recommend all male patient with abnormal thyroid function to screen about erectile function.(33) We found in our study relation between abnormal thyroid function with urological clinic not visit , marital status , educational level , and LUTS .

E. Krassas et al. (2002) Seventy-one men, 27 hyperthyroidism, 44 hypothyroidism, and an equal number of controls were included in the study. A validated SHIM 5-item questionnaire was applied to all participants. This study determined that there was a positive correlation between SHIM scores and serum-free T4 ( $r = 0.413$ ,  $P = 0.005$ ) and negative for TSH ( $r = - 0.669$ ,  $P < 0.001$ ). After therapy, a significant improvement in SHIM scores in both hyperthyroidism ( $P < 0.0001$ ) and hypothyroidism ( $P < 0.0001$ ) patients and Erectile dysfunction are common in males with thyroid dysfunction. In contrast to our study, there was no significant association between abnormal thyroid function and male sexual dysfunction.(34)

Krysiak et al. (2017)The study population was divided into three groups: included: men with autoimmune overt hypothyroidism (group A), men with autoimmune subclinical hypothyroidism (group B), and healthy euthyroid males without thyroid autoimmunity (group C). All enrolled patients finished a questionnaire evaluating male sexual function (International Index of Erectile Function -15: IIEF-15) and evaluating the presence and severity of depressive symptoms (Beck Depression Inventory-Second Edition – BDI-II) before and after the intervention of Levothyroxine for 6 months. The results showed that autoimmune hypothyroidism in males is characterized by sexual and mood disorders and that Levothyroxine improve the sexual dysfunction and depressive symptoms of the hypothyroidism patients.(35)

## **CONCLUSION**

The study concluded that there is an association between thyroid dysfunction and erectile dysfunction but not reaching the statistical significant value, there is also a significant association between thyroid dysfunction and each of the following: 1

ower urinary tract symptoms, educational level, marital status and there is a relation between those who diagnosed with thyroid dysfunction and urology clinic visit. It is recommended that all patient with sexual dysfunction undergo thyroid hormone level and function test.

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