

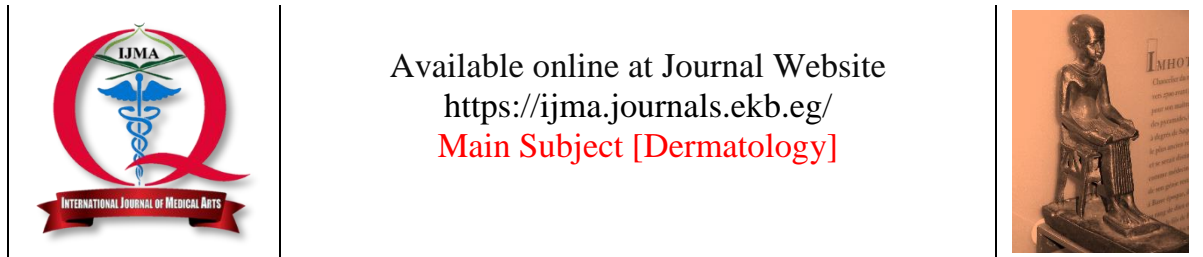
IJMA



INTERNATIONAL JOURNAL OF MEDICAL ARTS

VOLUME 6, ISSUE 7, JULY 2024

P- ISSN: 2636-4174
E- ISSN: 2682-3780



Available online at Journal Website
<https://ijma.journals.ekb.eg/>
 Main Subject [Dermatology]



Original Article

Prevalence of Female Sexual Dysfunction in Patients with Thyroid Disorders

Amira Yasser Ismail *, Zakareia Mahran Obaid, Osama Mohammed Ahmed, Ibrahim Fathy Fouda

Department of Dermatology, Venereology, and Andrology, Damietta Faculty of Medicine, Al-Azhar University, Damietta, Egypt.

ABSTRACT

Article information

Received: 25-12-2023

Accepted: 03-02-2024

DOI:
10.21608/ijma.2024.258015.1899.

*Corresponding author

Email: amirayasserh@gmail.com

Citation: Ismail AY, Obaid ZM, Ahmed OM, Fouda IF. Prevalence of Female Sexual Dysfunction in Patients with Thyroid Disorders. IJMA 2024; July; 6 [7]: 4715-4720. doi: 10.21608/ijma.2024.258015.1899.

Background: In women, both hypothyroidism and hyperthyroidism have been found to be linked to difficulties in desire, arousal, lubrication, orgasm, satisfaction, and pain during sexual intercourse. There have been numerous investigations into fertility among women with thyroid disorders. However, there is a scarcity of research on sexual dysfunction in this particular group of women.

The aim of the work: The study's aim was to find out how common sexual problems are among women who have thyroid problems.

Patients and Methods: This cross-sectional study included 300 women diagnosed with a thyroid disease attended at the endocrinology and dermatology, venereology and andrology department outpatient clinics at Damietta Faculty of Medicine, Al-Azhar University. An interview-based questionnaire was filled by a trained doctor. The questionnaire consisted of two parts, Baseline data, and Female Sexual function index [FSFI] score. This score comprised six domains: desire, arousal, lubrication, orgasm, satisfaction and pain.

Results: In the present study, the cut of point to diagnose FSD was 26; scores less than 26 is considered to have sexual dysfunction. Based on that, we found that 175 patients [59.6%] had sexual dysfunctions, and 125 patients [41.7%] were sexually normal. Correlation analysis between the FSD score and the different study variables revealed no statistically significant correlation between the FSD score and patients age [$r=0.08$, $P=0.14$]. Also, no statistically significant correlation between the BMI and FSD [$r=0.03$, $P=0.5$]. However, a strong negative correlation was found between the duration of thyroid disease and FSD score [$r=-0.18$, $P=0.001$].

Conclusion: Patients with thyroid disorders exhibited a significant incidence of Female Sexual Dysfunction [FSD]. Thus, it was determined that regular screening should be conducted for thyroid disorders in this specific population to detect these disorders at an early stage.

Keywords: Sexual Dysfunction; Hypothyroidism; Hyperthyroidism; FSDI.



This is an open-access article registered under the Creative Commons, ShareAlike 4.0 International license [CC BY-SA 4.0] [<https://creativecommons.org/licenses/by-sa/4.0/legalcode>].

INTRODUCTION

Understanding sexuality involves a deep exploration of the complicated relationships between the neurologic, endocrine, and vascular systems. Sexual dysfunction encompasses challenges in engaging in typical sexual activities and experiencing physical pleasure, desire, arousal, or orgasm [1].

As per the definition provided in the Diagnostic and Statistical Manual of Mental Disorders [DSM-5] by the American Psychiatric Association [APA], sexual dysfunction refers to the presence of notable distress during normal sexual activity for at least 6 months, excluding any influence from drug-induced substances [2].

Female sexual dysfunction [FSD] typically encompasses a range of problems including increased pain, decreased desire, arousal, lubrication, orgasm, and satisfaction during sexual activity [3].

Sexual function is often disrupted by endocrine diseases, and it's important to note that sexual dysfunction could be a sign of a more serious endocrine condition. Thyroid disease is known to increase the likelihood of experiencing sexual dysfunction. The hormones produced by the thyroid gland have a significant impact on almost every cell, organ, and system in the body, including those related to sexual health [4].

Research has demonstrated a link between both hypothyroidism and hyperthyroidism and various sexual difficulties in women, including increased pain, decreased desire, arousal, lubrication, orgasm, and satisfaction during sexual activity. Given their impact on both peripheral and central pathways, these substances have the potential to interfere with sexual function by influencing hormone levels and causing psychiatric and autonomic dysregulation [5]. Additionally, the discovery of thyroid receptors in the genital area suggests a potential link between thyroid hormones and sexual dysfunctions [6]. In addition, achieving a euthyroid state was found to be linked with the restoration of desire, satisfaction, and relief from pain in women [7].

Numerous studies have been conducted to investigate the correlation between thyroid disorders and fertility in women. However, there is a limited amount of research on sexual dysfunction in women [8]. So, the aim of this study is to establish the frequency with which

sexual dysfunction occurs in women who have thyroid disorders.

PATIENTS AND METHODS

This cross-sectional study included 300 women diagnosed thyroid disease attended at the endocrinology and dermatology, venereology and andrology department outpatient clinics at Damietta Faculty of Medicine, Al-Azhar University. Our study followed the Helsinki declaration principals. Ethical approval was obtained from the institutional review Board of Damietta faculty of medicine [Al-Azhar University]. All patients signed the informed consent to be included in this study. We included the patients according to the following criteria:

The inclusion criteria were: Female patients who are diagnosed with thyroid disease, Married in continuous marital relationship, and in child-bearing period [18 – 40 years].

The exclusion criteria were: Female patients suffering from ovarian or gynecological pathology, Adrenal disease, Depression or other psychiatric conditions, and chronic diseases.

Data collection

An interview-based questionnaire was filled by a trained doctor. The questionnaire contained the following parts:

- a) **Baseline data:** including: age, thyroid disorders duration, type of the thyroid disorder.
- b) **Female Sexual function index [FSFI]:** this score comprised six domains: The variables under consideration encompass the domains of desire, arousal, lubrication, orgasm, satisfaction, and pain. The assessment of desire and satisfaction items is conducted using a 5-point Likert scale, with values ranging from 1 to 5. Conversely, the remaining items are evaluated using a 6-point Likert scale, with values ranging from 0 to 5. The derivation of the individual domain scores and full scale [overall] score of the Female Sexual Function Index [FSFI] can be accomplished through the utilization of the computational formula as delineated in the following manner, as depicted in Table 1. The summation of individual domain scores is achieved by aggregating the scores assigned to the constituent items within the domain, which are subsequently multiplied by the corresponding domain factor [as indicated

below]. The summation of the six domain scores culminates in the acquisition of the comprehensive full-scale score. Within the context of the individual domains, it is important to note that a domain score of zero signifies that the subject has reported no

engagement in sexual activity within the previous month. The observed range of scores spans from a minimum of 2 to a maximum of 30. A predetermined threshold value of 26 or less has been established for the purpose of detecting Female Sexual Dysfunction [FSD].

Table [1]: Female Sexual Function Index-19 [FSFI-19] Scoring Appendix

Domain	Item number	Range	Factor	Minimum score	Maximum score
Desire	1, 2	1 – 5	0.6	1.2	6
Arousal	3, 4, 5, 6	0 – 5	0.3	0	6
Lubrication	7, 8, 9, 10	0 – 5	0.3	0	6
Orgasm	11, 12, 13	0 – 5	0.4	0	6
Satisfaction	14, 15, 16	0 or 1 – 5	0.4	0.8	6
Pain	17, 18, 19	0 – 5	0.4	0	6
Full scale score range				2	36

Statistical analysis: Data were analyzed using the Statistical Package for the Social Sciences version 21 [SPSS 21]. Mean and standard deviation were used for describing the continuous data, while number and percentage described the categorical data. Normality of quantitative data was determined by the Kolmogorov–Smirnov test. Comparisons between groups of categorical data were made using the chi-square test, and the comparison between the two groups of quantitative data was done by using the Mann Whitney U test. A P value of < 0.05 was considered to be significant

RESULTS

A total number of 300 Female patients who were diagnosed with thyroid disorders entered the analysis of this study. Demographics and baseline clinical data were described in table 2.

As regards the desire score in thyroid patients, it ranged from 1 to 5 with a mean + SD of 3.01 ± 1.32 . The mean desire scores in hyperthyroid was 3.18 ± 1.32 while in hypothyroid patients was 2.86 ± 1.31 which was significantly higher in hyperthyroid patients [P value = 0.04].

In terms of the lubrication score in thyroid patients, it ranged from 0 to 5 with a mean of 3.46 ± 1.46 . The mean lubrication score in hyperthyroid was 3.54 ± 1.45 while in hypothyroid patients was 3.38 ± 1.48 with no significant difference between them [P value = 0.3].

According to the arousal score in thyroid patients, the mean score was 3.00 ± 1.39 . The mean lubrication score in hyperthyroid was 3.09 ± 1.31 while in hypothyroid patients $2.91 + 1.45$ with no significant difference between them [P value = 0.2].

As regards the orgasm score in thyroid patients, it ranged from 1 to 5 with a mean of 3.29 ± 1.56 . The mean orgasm scores in hyperthyroid was 3.50 ± 1.58 while in hypothyroid patients 3.10 ± 1.52 which was significantly higher in hyperthyroid patients [P value = 0.02].

The mean satisfaction score in thyroid patients was 3.49 ± 1.63 . The mean satisfaction score in hyperthyroid was 3.65 ± 1.60 while in hypothyroid patients was mean \pm SD = 3.43 ± 1.65 , with no significant difference between them as regard satisfaction score [P value = 0.09].

In terms of the Pain score in thyroid patients, we found that the mean score was 3.69 ± 1.67 . The mean score in hyperthyroid was 3.87 ± 1.74 while in hypothyroid patients was 3.51 ± 1.59 , with no significant difference between them [P = 0.06].

The Total FSD score in thyroid patients was ranged from 2 – 36 with mean of 19.9 ± 8.04 . The total FSD score in hyperthyroid was 20.83 ± 8.00 while in hypothyroid patients was 19.10 ± 8.02 , with no significant difference between them [P value = 0.06].

In the present study, the cut of point to diagnose FSD was 26; scores less than 26 is considered to have sexual dysfunction. Based on

that, we found that 175 patients [58.3%] had sexual dysfunctions, and 125 patients [41.7%] were sexually normal. We compared between the normal and abnormal sexual function patients regarding the age, duration and type of thyroid disorder, and we found that, the median [IQR] age of the patients was significantly higher in abnormal patients. However, the duration of thyroid disorder was significantly lower in abnormal sexual function patients. 53.7% of abnormal patients were hypothyroidism, and 46.4% were hyperthyroidism [Table 3].

Correlation analysis between the FSD score and the different study variables revealed no statistically significant correlation between the FSD score and patients age [$r=0.08$, $P = 0.1$]. Also, no statistically significant correlation between the BMI and FSD [$r=0.03$, $P = 0.5$]. However, a strong negative correlation was found between the duration of disease and FSD score [$r= -0.1$, $P= 0.001$] [Table 4].

Table [2]: demographics and baseline data of study population

Variable	Values
Age [years]	34.2 ± 6.16
BMI [m ² /kg]	26.0 ± 4.35
Type of thyroid disorder [%]	
- Hypothyroidism	51.6 %
- Hyperthyroidism	49.3 %
Duration of thyroid disorder [months]	36.3 + 49.2 months

Table [3]: Comparison between the normal and abnormal subjects regarding the different study variables

Variables	Normal [N= 125]	Abnormal [sexual dysfunction] [N= 175]	P value
Age			
Median [IQR]	37 [29 – 45]	40 [36.25 - 45]	0.01 ^a
Duration of disease			
Median [IQR]	3 [0.7 – 5]	0.1 [0.03 – 2]	0.001 ^a
Type of thyroid disorder			
Hypothyroidism	139 [57%]	16 [28.5%]	0.001 ^b
Hyperthyroidism	105 [43%]	40 [71.4%]	

a: Mann Whitney U test. b: Chi Square test

Table [4]: Correlation between FSD and different study variables.

	Severity of FSD	
	Pearson's [r]	P value
Age	0.084	0.147
BMI	0.032	0.582
Duration of thyroid disorder	0.186	0.001*

DISCUSSION

When a woman experiences problems with her sexual desire, arousal, orgasm, or pain, and how these things affect her relationships with others, she is said to be suffering from female sexual dysfunction [FSD]. A number of factors contribute to this progressive issue, which worsens with age^[9]. In women, the reported rates of FSD range from 40-60%, however this does

vary across studies and is dependent on the criteria used to define it^[10].

Data analysis in Egypt showed that 52% of the population suffers from FSD, with sexual desire disorders being the most common form of this dysfunction. Disorders related to desire [35%], orgasm [29%], arousal [21%], pain [20%] and sexual satisfaction [15%] were found to be prevalent, in that order^[11].

Among the women of Damietta Governorate, 62% had some kind of sexual dysfunction, according to a study that looked at the frequency of FSD in the region^[10]. Research has shown that FSD is influenced by multiple variables. Among these, you can find elements related to the body's anatomy and physiology as well as our minds and society. Sexual dysfunction may be an indication of a more serious endocrine disorder, and endocrine diseases often disrupt sexual function. Sexual dysfunction can be worsened by thyroid disease. The thyroid gland secretes hormones that affect a wide variety of bodily functions, including those associated with sexual health^[4].

The presence of diminished sexual desire, arousal, lubrication, orgasmic response, satisfaction, and pain during sexual intercourse has been observed to exhibit a correlation with both hypothyroidism and hyperthyroidism in the female population. Indirectly, these factors have the potential to induce psychiatric and autonomic dysregulation, thereby compromising sexual function. Furthermore, they exert an influence on the levels of sex hormones in circulation via both peripheral and central pathways^[5].

Consequently, we hoped that our research would show how common sexual dysfunction is among women who have thyroid issues. With an average age of 34.2 ± 6.16 years, a mean body mass index of 26.0 ± 4.35 m²/kg, and a mean duration of thyroid disorder of 36.3 ± 49.2 months, our study included 300 women. Hypothyroidism affected 58.3% of our population, while hyperthyroidism affected 41.6%. The desire and orgasm scores were significantly higher in hyperthyroid patients compared to hypothyroid patients, as indicated by the FSD score. Hypothyroid and hyperthyroid patients did not differ significantly with respect to lubrication, arousal, and satisfaction ratings.

Alsheheri et al.^[12] performed a similar cross-sectional study on 300 female patients with diabetes mellitus and/or thyroid disease. FSD was evaluated using the Arizona Sexual Experience Scale [ASEX]. Hyperthyroid patients had a higher ASEX in their study. An increased risk of FSD was observed in patients with subclinical hypothyroidism in another study^[13].

When it came to total FSD score, our study found no statistical differences between hypothyroid and hyperthyroid participants. Nonetheless, the severity of FSD was positively correlated with the duration of the thyroid disorder. Regarding

age and BMI, however, no correlation was discovered. There was no correlation between FSFI scores and any of the anthropometric measures like body mass index [BMI], waist-to-hip ratio [WHR], or fat percentage in our study, which is consistent with a prior study that found a negative correlation between BMI and orgasm^[14].

There was a negative correlation between body mass index and erectile dysfunction in a prior study by Mozafari et al. This might be because the study population was different; for example, if the participants had a low mean BMI, it could mean that their underlying diseases were not well managed^[15].

In conclusion, out of 300 females, 175 [or 58.3% of the total] were concluded to have some kind of sexual dysfunction. Two earlier investigations found a rate quite similar to this one. A cross-sectional study found that 44% of hyperthyroidism patients and 22-46% of hypothyroidism patients experienced sexual dysfunction^[7].

The prevalence of FSD was found to be about 46.1% in thyroid diseases and 20.7% in controls, according to the second study^[1]. Thyroid patients, however, had a lower percentage of FSD, according to a recent study. A total of 26.7% of the population was determined to have them^[12]. These differences may be related to the different sample sizes and population criteria between each study groups.

Our findings indicate a significant increase of Female Sexual Dysfunction [FSD] among individuals diagnosed with thyroid disorders. Therefore, it is imperative to conduct regular screening for thyroid disorders in patients with Female Sexual Dysfunction [FSD] in order to detect and identify these disorders at an early stage. The implementation of this intervention is expected to result in a decrease in morbidity rates among the affected population, thereby leading to an improvement in their overall quality of life. Our study was limited by being conducted in one center, the relatively narrow scale and the lack of biochemical correlations.

Conclusion: Patients with thyroid disorders exhibited a significant incidence of Female Sexual Dysfunction [FSD]. Thus, it was determined that regular screening should be conducted for thyroid disorders in this specific population to detect these disorders at an early stage.

Disclosure: No financial disclosure or conflict of interest.

REFERENCES

1. Pasquali D, Maiorino MI, Renzullo A, Bellastella G, Accardo G, Esposito D, et al. Female sexual dysfunction in women with thyroid disorders. *J Endocrinol Invest.* 2013; 36:729–33, doi: 10.3275/8933.
2. Regier DA, Kuhl EA, Kupfer DJ. The DSM-5: Classification and criteria changes. *World Psychiatry.* 2013 Jun;12[2]:92–8, doi: 10.1002/wps.20050.
3. Starc A, Jukić T, Poljšak B, Dahmane R. Female sexual function and dysfunction: a cross-national prevalence study in Slovenia. *Acta Clin Croat.* 2018; 57[1]:52, doi: 10.20471/acc.2018.57.01.06.
4. Bates JN, Kohn TP, Pastuszak AW. Effect of thyroid hormone derangements on sexual function in men and women. *Sex Med Rev.* 2020; 8[2]: 217–30, doi: 10.1016/j.sxmr. 2018.09.005.
5. Gabrielson AT, Sartor RA, Hellstrom WJG. The Impact of Thyroid Disease on Sexual Dysfunction in Men and Women. *Sex Med Rev.* 2019 Jan; 7[1]:57–70, doi: 10.1016/j.sxmr.2018.05.002.
6. Carosa E, Lenzi A, Jannini EA. Thyroid hormone receptors and ligands, tissue distribution and sexual behavior. *Mol Cell Endocrinol.* 2018; 467:49–59, doi: 10.1016/j.mce.2017.11.006.
7. Oppo A, Franceschi E, Atzeni F, Taberlet A, Mariotti S. Effects of hyperthyroidism, hypothyroidism, and thyroid autoimmunity on female sexual function. *J Endocrinol Invest.* 2011; 34[6]:449–53, doi: 10.1007/ BF03346712.
8. Stechova K, Mastikova L, Urbaniec K, Vanis M, Hylmarova S, Kvapil M, et al. Sexual dysfunction in women treated for type 1 diabetes and the impact of coexisting thyroid disease. *Sex Med.* 2019; 7[2]:217–26, doi: 10.1016/j.esxm.2019.03.001
9. Elnashar AM, EL-Dien Ibrahim M, El-Desoky MM, Ali OM, El-Sayd Mohamed Hassan M. Female sexual dysfunction in Lower Egypt. *BJOG An Int J Obstet Gynaecol.* 2007; 114 [2]: 201–6, doi: 10.1111/j.1471-0528.2006.01106.x.
10. Abou Khodair H, Abo Al-Wafa HO, Rotab SMM. Prevalence of female sexual dysfunction in Damietta governorate. *Egypt J Hosp Med.* 2019; 74[1]:55–62, doi: 10.21608/ejhm.2019.22432.
11. Ibrahim ZM, Ahmed MR, Ahmed WAS. Prevalence and risk factors for female sexual dysfunction among Egyptian women. *Arch Gynecol Obstet.* 2013; 287[6]:1173–80, doi: 10.1007/s00404-012-2677-8.
12. Alshehri KM, Althobaiti RA, Alqurashi AI, Algethami NE, Alswat KA. Prevalence of Sexual Dysfunction in Women with Type 1, 2 Diabetes and Thyroid Disorder: A Cross-Sectional Study in Taif City, Saudi Arabia. *Int J Womens Health.* 2022; 385–94, doi: 10.2147/IJWH.S343065.
13. Zhang Y, Tang Z, Ruan Y, Huang C, Wu J, Lu Z, et al. Prolactin and thyroid stimulating hormone [TSH] levels and sexual dysfunction in patients with schizophrenia treated with conventional antipsychotic medication: a cross-sectional study. *Med Sci Monit Int Med J Exp Clin Res.* 2018; 24:9136, doi: 10.12659/MSM.913759.
14. Genazzani AR, Gambacciani M, Simoncini T. Menopause and aging, quality of life and sexuality: International menopause society expert workshop 1–4 December 2006, Pisa, Italy. *Climacteric.* 2007; 10[2]:88–96, doi: 10.1080/13697130701297760
15. Mozafari M, Khajavikhan J, Jaafarpour M, Khani A, Direkvand-Moghadam A, Najafi F. Association of body weight and female sexual dysfunction: a case control study. *Iran Red Crescent Med J.* 2015 Jan 23; 17[1]: e24685, doi: 10.5812/ircmj.24685.

IJMA



INTERNATIONAL JOURNAL OF MEDICAL ARTS

VOLUME 6, ISSUE 7, JULY 2024

P- ISSN: 2636-4174
E- ISSN: 2682-3780