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Major Dermatological Manifestations in the Female Genital Area

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Abstract:

Introduction: Introduction: Vulvar skin diseases are frequent in gynecological practice. Due to several circumstances, including occlusion, anatomical position, repetitive contact with physiological secretions, estrogen insufficiency, friction, and heat, the vulva is susceptible to dermatitis and barrier breakdown.

Aim of study: To assess and properly diagnose the main dermatological complaints in the female genital area and to determine the risk factors associated with sexual dysfunction**.**

Subjects and methods: The current cross-sectional study included 200 married women, selected from the outpatient dermatology clinic of Fayoum University Hospital, dermatology and gynecology clinics of Fayoum General Hospital, and primary health care centers.

Results: The most common clinical manifestations related to the genital area were itching before the menstrual period (51.0%) and itching with whitish cheesy discharge (44.0%). About one-fifth of females (20.5%) had a bad smell, (10.5%) of females had genital warts, (10%) of females had abscesses in skin folds, and (10%) of females had itching in the genital area after using intimate lotions. The vulva itching, together with dandruff on the scalp, cervical ulcers, hypopigmented patches, and white spots in the vaginal area, were noted as the lowest seen signs.

Conclusion: The skin and mucous membranes of the female genitalia are impacted by a variety of medical diseases, the majority of which one sexual dysfunction. So proper assessment and personalized management are essential. Screening campaign and Health education messages to increase the awareness of females about Vulvar diseases affecting the genital area.

Keywords: Vulvar Skin Diseases; Dermatitis; Sexual Dysfunction; Estrogen.

1. Introduction

Dermatological complaints of the vulva continue to be underreported, misdiagnosed, and undertreated in the elderly population. The most common complaints are: pruritus, discharge, hypopigmentation, hyperpigmentation, genital warts, abnormal mass, and sexual complaints [1]. Vulvar hypopigmentation encompasses a group of common yet challenging-to-treat skin conditions, including Lichen planus (LP), Lichen sclerosus (LS), Lichen simplex chronicus (LSC), and other related disorders. The disease has an epidemiological incidence of approximately 1% to 3%, with a malignant transformation rate of 2% to 5%, which increases with age. LS, in particular, can progress to facultative precancerous lesions of squamous cell carcinoma (SCC), placing affected individuals at risk. Women with LS face a 2% to 5% likelihood of developing vulvar cancer. A biopsy is essential in differentiating sclerosing lichen planus from LP and in detecting any malignant progression to SCC [2].

Pigmented lesions of the female genital area are seen in approximately 10% of women throughout life. The most common causes include: Post-inflammatory hyperpigmentation, melanocytic nevus, pigmented seborrheic keratosis, genital melanosis, lentiginosis, and malignant melanoma [3]. Vulvar tumors encompass benign growths, malignant tumors, and squamous intraepithelial lesions. The total prevalence of vulvar cancer during the previous few decades has increased by an average of 4.6% every five years. Squamous cell carcinoma is the most prevalent malignancy affecting the vulva, with vulvar intraepithelial neoplasia serving as a significant precursor. Paget's disease of the vulva is another less common but notable malignancy [4]. Human papillomaviruses (HPV) are the most prevalent sexually transmitted infections globally, with 50% to 80% of sexually active individuals likely to contract an HPV infection during their lifetime. Nearly 95% of individuals suffering from cervical cancer are associated with HPV, and the virus is responsible for about five percent of all cervical tumors worldwide [5].

Female sexual dysfunction (FSD) is identified as disruptions in any stage of a sexual response of the woman, resulting in three main conditions: penetration disorder or genito-pelvic pain, female orgasmic disorder, and interest disorder / female sexual arousal. Because of its terrible

effects, which include diminished quality of life and marital discord, FSD management is essential [6]. This work aimed to assess and properly diagnose the main dermatological complaints in the female genital area and determine the risk factors associated with sexual dysfunction.

2. Subjects and Methods

2.1.Subjects

This was a cross-sectional study that included 200 married women aged 18-55 years old, who were selected from the outpatient dermatology clinic of Fayoum University Hospital, the outpatient dermatology and gynecology clinics of Fayoum General Hospital, and primary health care centers at Fayoum district. The sample type was the non-probability convenience method included 200 females with an exclusion criterion of: Female patients not married or widowed. Female patients outside the age group. The study was conducted during the period from June 2022 to June 2023.

2.2. Study tools

Semi-structured interview questionnaire: Socio-demographic aspects such as age, residency, level of education, age of marriage, and age gap between the patient and her husband. Reproductive health, such as the number of children, mode of delivery, previous abortion, and method of contraception. Pathophysiological factors: chronic diseases (diabetes, obesity, and rheumatoid arthritis), hormonal changes, and urinary incontinence. Psychological factors related to health and lifestyle include experiences of emotional distress or stress-related issues, such as potentially traumatic events like sexual harassment, pregnancy termination, or circumcision. Socio-cultural factors: beliefs, attitudes, and misunderstandings about sex, substance abuse, and smoking. History of the lesion as onset, course, duration & relapse, or complication. Sexual functions via the Female Sexual Function Index. A thorough physical examination was performed on each patient. The local examination was done by taking into consideration the symptoms (pruritus, discharge, dyspigmentation, and lumps).

2.3. Statistical Analysis

The collected questionnaires were reviewed to ensure completeness and logical

consistency. The recorded data was then entered into a computer using Microsoft Excel for Windows 2003 after being translated into English to facilitate data processing. Subsequently, the data were transferred to the Statistical Package for Social Sciences (SPSS) version 22 (Armonk, NY: IBM Corp.) for statistical analysis at various levels, including Descriptive statistics in the form of standard deviations (SD) and means were calculated for numerical data, and an independent t-test was used as a test of significance. Categorical data were described as numbers and percentages; the chi-square test was used. For the interpretation of results of tests of significance, was adopted of $P \leq 0.05$ was adopted.

3. Results

The study results were divided into four sections regarding the Socio-demographic characteristics of the studied group, gynecological and obstetric history, as well as past history of medical and surgical diseases, characteristics related to sexual relations, and risk factors of the studied group related to sexual dysfunction.

3.1. Socio-demographic characteristics of the studied group

The age of participating females and their husbands ranged between 18 and 55 years old, with the mean age for females being 30.5 ± 9.3 years old, and the mean age for their husbands was 36.1 ± 9.2 years old. More than 60% of the females have a secondary education, 62/200 (31.0%), or even a university education, 72/200 (36.0%). As regards their residency, 127/200 (63.5%) of them are living in urban areas, and less than half, 90/200 (45.0%) of the females were housewives, and 86/200 (43.0%) were employees. Nearly half of their husbands, 90/200 (45.0%), received a University education. And more than half of them, 101/200 (50.5%) were employees. Less than half of the husbands, 98/200 (49.0%), were smokers shown in **Table 1**.

Table 1: Socio-demographic characteristics of the studied females and their husbands.

Variables		Females		Husbands	
		N	%	N	%
Age (years)	18-30	117	58.5%	65	32.5%
	31-45	72	36.0%	92	46.0%
	46-55	11	5.5%	43	21.5%
Level of education	Illiterate	19	9.5%	18	9.0%
	Primary school	18	9.0%	8	4.0%
	Preparatory school	29	14.5%	26	13.0%
	Secondary school	62	31.0%	58	29.0%
	University	72	36.0%	90	45.0%
Residence	Rural	73	36.5%	73	36.5%
	Urban	127	63.5%	127	63.5%
Occupation	Employee	86	43.0%	101	50.5%
	(Not working) Housewives	90	45.0%	3	1.5%
	Workers	21	10.5%	56	28.0%
	Technicians	-	-	21	10.5%
	Others	3	1.5%	19	9.5%
Smoking	Non-smokers	-	-	102	51.0%
	Smokers	-	-	98	49.0%

Female characteristics related to marriage. The Mean (±SD) for marriage duration and the age difference between the couples were (9 ± 6.8) and (6.1 ± 3.6), respectively. Most of the study females, 117/200 (58.5%), have been married at the age >18 years, while 47/200 (23.5%) have been married since the age of 16-18, and 36/200 (18.0%) at the age <16 years.

3.2. Gynecological and obstetric history as well as history of medical and surgical diseases

The majority of the females (177/200, 88.5%) had children. The Mean ± SD of children's number was 2.5 ± 1.2. Cesarean section (C.S.) was reported as a method of delivery in about half of females, 89/200 (44.5%). About one-fifth, 32/200 (16.0%), were pregnant at the time. Less than one quarter, 46/200 (23.0%), reported at least a previous occasion of abortion. Less than half of females, 94/200 (47.0%), were applying a contraceptive method at the time of the interview; loop 51/200 (25.5%) was the most applied method. The menstrual period was regular in most females 149/200, 74.5%), while it was irregular in 50/200 (25.0%) of the females. Only one female was in the menopausal phase.

One-tenth of females 21/200 (10.5%) had a history of surgery in the genital area.

Less than one-fifth, 32/200 (16.0%), had diabetes. Only nine cases (4.5%) had rheumatological diseases. Sixteen females (8%) had dermatological diseases. Only 8 females (4.0%) reported hormonal changes and uncontrolled urine. Nearly half of female's 92/200, 46.0%) were circumcised.

3.3. Characteristics related to sexual relations

Vaginal sex position was reported in almost all sexual relations, 198/200 (99.0%). Abnormal sex behaviors were stated by five females (2.5%). Fourteen females (7.0%) reported their exposure to sexual harassment. The most common clinical manifestations related to the genital area were itching before the menstrual period (51.0%) and itching with whitish cheesy discharge (44.0%). About one-fifth of females (20.5%) had a bad smell. (10.5%) of females had genital warts. (10%) of females had abscesses in skin folds. (10%) of females had itching in the genital area after using intimate lotions. The lower observed manifestations were hyperpigmentation (8.5%), itching after using certain vaginal wash (6.5%), abscesses (6.5%), and severe itching at night in the lower abdomen and genital area (4.5%). It was noticed that the lowest observed manifestation was itching in the vulva with itching and dandruff in the scalp (3 females), genital warts in the husband`s genital area (2 females), discharge or itching in the husband`s genital area (1 female), cervical ulcer (1 female), hypopigmented patch (1 female), white patches in the genital area (1 female) (**Figure1**).

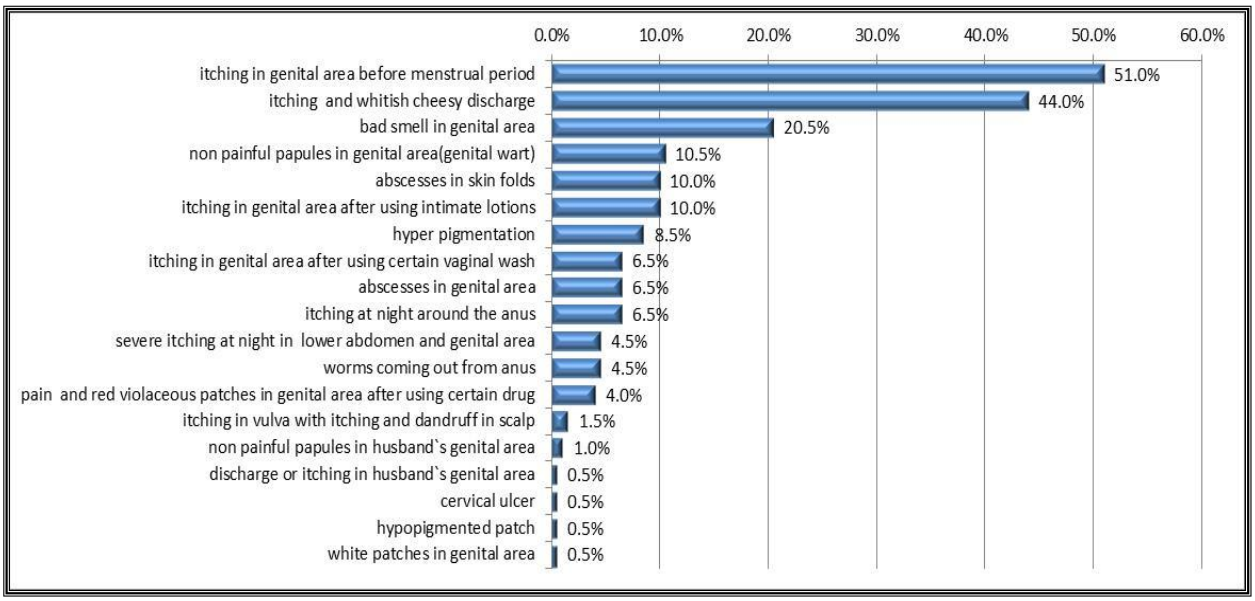

Figure 1: Clinical Manifestations related to the genital area.

3.4. The relation between marriage characteristics and itching before menstruation

Although the duration of marriage was higher in females with itching before menstruation compared to those without, it was not statistically significant (mean ± SD: 9.2 ± 7.0 vs. 8.9 ± 6.6, *p*=0.779). Also, the age difference between the couples was higher in females with itching before menstruation when compared to those without, but it was not statistically significant (mean ± SD: 6.5 ± 3.5 vs. 5.8 ± 3.7, *p*=0.219). Similarly, there was no statistically significant association between age of marriage and itching before menstruation, p=0.669. Uncontrolled urine was substantially associated with itching before menstruation, *p*=0.035. There was no statistically significant variation among other female surgical and medical histories and the itching before menstruation, *p*>0.05 (**Table 2**).

Table 2: Medical and surgical history in relation to Itching before menstruation.

Variables		Yes (N=102)		No (N=98)		*P*-value
		N	%	N	%	
Surgery in the genital area	No	93	52.0%	86	48.0%	0.430
	Yes	9	42.9%	12	57.1%	
Diabetes	No	91	54.2%	77	45.8%	0.053
	Yes	11	34.4%	21	65.6%	
Rheumatological diseases	No	97	50.8%	94	49.2%	1.000
	Yes	5	55.6%	4	44.4%	
Dermatological disease	Atopic dermatitis	0	0.0%	2	100.0%	0.221
	Chronic idiopathic urticaria	1	100.0%	0	0.0%	
	Scabies	2	22.2%	7	77.8%	
	Seborrheic dermatitis	0	0.0%	1	100.0%	
	Urticaria	1	50.0%	1	50.0%	
	Vitiligo	1	100.0%	0	0.0%	
	No	97	52.7%	87	47.3%	
Hormonal changes	No	97	50.5%	95	49.5%	0.721
	Yes	5	62.5%	3	37.5%	

Un-control of urine	No	95	49.5%	97	50.5%	0.035*
	Yes	7	87.5%	1	12.5%	
Circumcision	No	54	50.0%	54	50.0%	0.759
	Yes	48	52.2%	44	47.8%	

**Significant at p<0.05*

Although the age of marriage, duration of the marriage, and the age difference between the couples were higher in females with itching accompanied by whitish cheesy discharge as compared to those without, it was not statistically significant, p=0.348, p=0.690, and 0.263, respectively.

3.5. Medical and surgical history in relation to itching with whitish discharge before menstruation

Uncontrolled urine was statistically significantly associated with itching and whitish discharge, p=0.023. However, other female medical and surgical histories were not significantly associated with the itching and whitish cheesy discharge, *p*>0.05 (**Table 3**).

Table 3: Medical and surgical history in relation to itching with whitish discharge before menstruation.

Variables		**Yes (N=88)**		**No (N=112)**		***P*-value**
		N	**%**	**N**	**%**	
Surgery in the genital area	No	80	44.7%	99	55.3%	0.564
	Yes	8	38.1%	13	61.9%	
Diabetes	No	79	47.0%	89	53.0%	0.054
	Yes	9	28.1%	23	71.9%	
Rheumatological diseases	No	84	44.0%	107	56.0%	1.000
	Yes	4	44.4%	5	55.6%	
Dermatological disease	Atopic dermatitis	1	50.0%	1	50.0%	0.525
	Chronic idiopathic urticarial	1	100.0%	0	0.0%	
	Scabies	2	22.2%	7	77.8%	
	Seborrheic dermatitis	0	0.0%	1	100.0%	
	Urticaria	1	50.0%	1	50.0%	
	Vitiligo	1	100.0%	0	0.0%	
	No	82	44.6%	102	55.4%	
Hormonal changes	No	83	43.2%	109	56.8%	0.304
	Yes	5	62.5%	3	37.5%	
Un-control of urine	No	81	42.2%	111	57.8%	**0.023***
	Yes	7	87.5%	1	12.5%	

Circumcision	No	42	38.9%	66	61.1%	0.115
	Yes	46	50.0%	46	50.0%	

**Significant at p<0.05*

As regards the sexual relations, 180/200 (90.0%), husbands were satisfied. Twenty-one females (10.5%) stated that their husbands suffered from erectile dysfunction, and 19/200 (9.5%) had ejaculation problems. Above one-tenth of the study participants, 28/200 (14%), reported sexual dysfunction. Dyspareunia was reported in 24/200 (12%).3 females only had decreased libido, and one woman reported persistent pain & vaginal heaviness

3.6.Risk factors of the studied group related to sexual dysfunction

Regarding the sociodemographic characteristics of the study participants, there was no statistically significant relation among females and sexual dysfunction, as age p=0.384, level of education p=0.224, residence p=0.451, and occupation p=0.062. Husband occupation was significantly associated with sexual dysfunction among females; technicians and non-working had the highest prevalence of female sexual dysfunction (38.1% and 33.3%, respectively, p=0.005). However, other husband characteristics were not statistically associated with female sexual dysfunction, p>0.05.

The study reveals that sexual dysfunction is higher in females with increased age differences between the couple than in females with decreased age differences between the couple. It was not statistically significant (mean ± SD: 11.1 ± 7.9 vs. 8.7 ± 6.5, p=0.076). Also, the age gap between the couples was higher in females with sexual dysfunction when compared to those without, but it was not statistically significant (mean ± SD: 6.7 ± 3.6 vs. 6.1 ± 3.6, p=0.397). As well as there was also no statistically significant association between the age of marriage and sexual dysfunction.

3.7.Gynecological and obstetric history in relation to sexual dysfunction

The mean ± SD number of children was higher among females with sexual dysfunction 2.8 ±1.5 than those with normal sexual function 2.5 ± 1.1, without any statistical significance (p=0.192). Having children was significantly associated with the female's sexual dysfunction. Sexual dysfunction was higher in females who had

children rather than those with no children (15.8% vs. 0%, *p*=0.040). There was a statistically significant relation between the method of delivery and sexual dysfunction; females who reported normal vaginal delivery (NVD) had a higher prevalence of sexual dysfunction than females who underwent C.S. (19.3% vs. 12.4%, *p*=0.05). Also, there was a statistically significant association between applying contraception methods and females' sexual dysfunction; females using Depo-Provera injection and Microlot had the highest prevalence of sexual dysfunction (42.1% and 25.5%, respectively, *p*=0.005). However, other characteristics were not statistically associated with female sexual dysfunction, p>0.05 (**Table 4**).

There was no statistically significant relation between female medical (Diabetes, rheumatological diseases, dermatological diseases, *p*=0.265, *p*=1.000, *p*=0.805, respectively), and surgical history in the genital area p=0.320 as well as circumcision *p*=0.092), and the sexual dysfunction. Sexual behavior was not statistically associated with the prevalence of sexual dysfunction as abnormal sexual behavior, sex position, and sexual harassment, *p*=0.533, *p*=0.0261, and *p*=0.225, respectively.

Table 4: Gynecological and obstetric history in relation to sexual dysfunction.

Variables		Yes (N=28)		No (N=172)		*P*-value
		N	%	N	%	
Having child	Yes	28	15.8%	149	84.2%	**0.040***
	No	0	0.0%	23	100.0%	
Method of delivery	CS	11	12.4%	78	87.6%	**0.050***
	Normal	17	19.3%	71	80.7%	
Pregnant	No	25	14.9%	143	85.1%	0.411
	Yes	3	9.4%	29	90.6%	
Previous abortions	No	22	14.3%	132	85.7%	0.831
	Yes	6	13.0%	40	87.0%	
Applying the method of contraception	Depo-Provera injection	8	42.1%	11	57.9%	**0.022***
	Loop	9	17.6%	42	82.4%	
	Microlot	1	25.0%	3	75.0%	
	Oral contraceptive bills	1	5.0%	19	95.0%	
	No	9	8.5%	97	91.5%	
Menstrual period	Irregular	12	24.0%	38	76.0%	0.060
	Menopausal	0	0.0%	1	100.0%	
	Regular	16	10.7%	133	89.3%	

**Significant at p < 0.05*

Figure 2 and **Table 5** showed the relation between Pruritus and sexual dysfunction without any statistically significant difference, $p>0.05$. Females who reported bad smell in their genital area had a statistically higher prevalence of sexual dysfunction than those who did not report bad smell (24.4% vs. 11.3%, $p=0.032$). As well as, Females with hyperpigmentation had the highest prevalence as compared to females with hypopigmented patches and those without pigmentation (41.2% vs. 0 and 11.5%, $p=0.003$).

Table 5: Association between Pruritus and sexual dysfunction.

Variables		Yes (N=28)		No (N=172)		*P*-value
		N	%	N	%	
Itching in the genital area after using certain vaginal wash	No	26	13.9%	161	86.1%	1.000
	Yes	2	15.4%	11	84.6%	
Itching in the genital area after using intimate lotions	No	27	15.0%	153	85.0%	0.320
	Yes	1	5.0%	19	95.0%	
Itching in the vulva with itching and dandruff on the scalp	No	27	13.7%	170	86.3%	0.366
	Yes	1	33.3%	2	66.7%	
Itching in the genital area before the menstrual period	No	17	17.3%	81	82.7%	0.181
	Yes	11	10.8%	91	89.2%	
Itching and whitish cheesy discharge	No	18	16.1%	94	83.9%	0.341
	Yes	10	11.4%	78	88.6%	
Discharge or itching in the husband`s genital area	No	28	14.1%	171	85.9%	1.000
	Yes	0	0.0%	1	100.0%	
Itching at night around the anus	No	26	13.9%	161	86.1%	1.000
	Yes	2	15.4%	11	84.6%	
Worms coming out of the anus	No	26	13.6%	165	86.4%	0.616
	Yes	2	22.2%	7	77.8%	
Severe itching at night in the lower abdomen and genital area	No	26	13.6%	165	86.4%	0.616
	Yes	2	22.2%	7	77.8%	

**Significant at p<0.05*

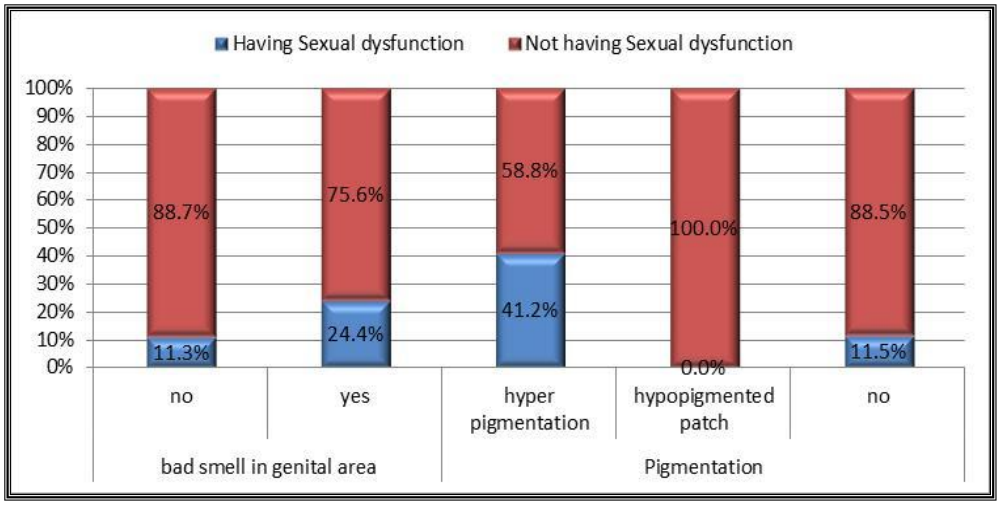

Figure 2: Bad smell in the genital area and pigmentation in relation to sexual dysfunction.

4. Discussion

Vulvar skin conditions pose a considerable morbidity burden on those impacted and can significantly influence the sexual well-being of both partners and patients [7]. Examples of vulvar inflammatory dermatoses (VID) include lichen sclerosus, lichen planus, and lichen simplex chronicus, which can present with symptoms such as pain, itching, texture changes, skin discoloration, and an increased susceptibility to tearing during sexual activity. In more severe cases, these conditions may lead to permanent anatomical alterations and an elevated risk of vulvar cancer [8-10]. Dermatological conditions affecting the genital area are frequently misdiagnosed, resulting in delayed treatment and a higher disease burden [11]. Chronic or recurrent vulvovaginal symptoms can present significant challenges for healthcare providers, both in terms of diagnosis and treatment [12].

This work aimed to assess and properly diagnose the main dermatological complaints in the female genital area and to determine their association with sexual dysfunction. The current study showed that nearly half of the patients aged between 31 to 45 years old completed their university, and worked as employees. More than half of female patients were married at age >18 years old and had more than 2 children. Regarding a recent survey, conducted by Rivera et al. [7] among 348 participants, most of the patients were between 25 to 44 years old. Nearly one-third of them (29.0%; $n = 101$) reported genital dermatological diseases; the mean age of patients with genital skin diseases was 46.5 ± 15.4 years, which was consistent with the current results. While in Yucel et al. [13] who investigated the effects of vitiligo as a dermatological disease with and without genital involvement on sexual dysfunction in accordance with the current results, mentioned that patients with vitiligo accompanied by genital involvement aged between 18 to 60 years old with a mean ± SD of 42.07 ± 9.82 years, half of the patients were employees, and most of them had more than 2 children. However, the reported duration of marriage between their patients was longer than in this current study (18.5 ± 11.32 vs. 9 ± 6.8, respectively). In contrast to these findings, Yucel et al. reported that most of their patients only obtained their primary education.

In the current study, the most common clinical manifestations related to the

genital area were itching in the genital area before the menstrual period (51%) and itching and whitish cheesy discharge (44%). In Raef et al. (14), a review study of Vulvar Pruritus, about one-fifth of females (20.5%) had a smell in the genital area. Itching was identified as the most common symptom, affecting 70% of patients seeking care at a specialized vulvar clinic. Similarly, a survey study conducted in the United Kingdom by Kandanearachchi et al. (15) found that 67.3% of general practitioners reported seeing more than five people experience vulvar problems each month, with vulvar pruritus being the most common complaint. Likewise, a retrospective observational study by García-Souto et al. [16] analyzed 148 individuals who attended specialized vulvar consultations over five years, revealing that 45.9% suffered from dyspareunia, 66.2% reported pain, and83.8% experienced anogenital itching.

In the present study, a significant statistical association was observed between urinary incontinence and symptoms such as itching and whitish discharge (p=0.023). Previous research [14, 17] has highlighted that vulvar skin is more sensitive to irritants than other areas of the body. Factors such as sweat, urine, friction from clothing, and the use of feminine hygiene products can compromise the skin's barrier function, leading to increased vulvar irritation. In the current study, vaginal sex position was reported in almost all sexual relations (99.0%). Abnormal sex behaviors were stated by 5 females (2.5%). Fourteen females (7.0%) reported their exposure to sexual harassment. In comparison, Rivera et al. [7] reported that the vaginal sex position was reported only in 50% of patients with valvular inflammatory dermatoses, while the majority performed all sexual activities, including vaginal, oral, masturbation, etc.

In the current study, the majority of the sexual relations (90.0%), husbands were satisfied. More than one-tenth of the study participants (14%) reported sexual dysfunction. In Kurizky et al [18], a Brazilian case-control study that included sexually active women diagnosed with psoriasis, 20% of patients had genital involvement, and more than half of patients had no sexual dysfunction, with no statistically significant association between genital involvement and sexual dysfunction (p=0.55), which seemly agree with this work. On the contrary, other studies [19-22] pointed to genital involvement in dermatological diseases as an important factor in the quality of sexual life. On the other hand, in the current study, a significant association was

found between sexual dysfunction and the husbands' occupation (p=0.005), having children (p=0.040), previous normal delivery (p=0.05), and applying contraception methods, especially depoprovera injection and microlot (p=0.005).

The current study results agree with a cross-sectional study by Abd Elrahman et al. [23] about the effect of mode of delivery on couples' sexual relationship during the postpartum period, who concluded that episiotomy, vaginal delivery, and multipara negatively impact male and female sexual domains. In contrast, Janse et al. [20], a multicenter cross-sectional study of sexual health and quality of life are impaired in hidradenitis suppurativa, concluded that the mode of delivery has a nonsignificant effect on female sexual function.

With respect to hormonal contraceptive-related sexual effects, there are mixed results. In accordance with our results, a cross-sectional analysis of 1,938 patients examining the effect of hormonal contraception on sexual desire observed that decreased libido and decreased interest in sex are common complaints among medroxyprogesterone acetate Depo-Provera (DMPA) users [24]. However, on the contrary, some reviews prove that DMPA is unlikely to be accompanied by sexual function in women [25, 26].

In addition, the current study reported some disease-related symptoms associated with sexual dysfunction, including bad smells in the genital area (p=0.032) as well as hyperpigmented patches (p=0.003) [25, 26]. This was also consistent with de Jong et al. [27], who hypothesized that disgust resulting from many reasons, such as bad smell, the presence of colored skin due to underlying diseases, seems an obvious candidate for being involved in disrupting arousal.

5. Conclusion

The skin and mucous membranes of the female genitalia are impacted by a variety of medical diseases, the majority of which cause sexual dysfunction or impairment. The most frequent vaginal area symptom was itching, before menstruation, or itching with a yellowish, cheesy discharge. One-fifth of the study's female participants had unpleasant vaginal odors. The vulva itching, together with dandruff on the scalp, cervical ulcers, hypopigmented patches, and white spots in the vaginal area, were noted as the lowest seen signs. More than 10% of study participants reported having sexual dysfunction. Sexual dysfunction was strongly connected with bad genital odor. In a tiny

percentage of the study participants, dyspareunia, decreased libido, chronic pain, and vaginal heaviness were also mentioned. The study recommended having health education messages to increase the awareness of females about Vulvar diseases affecting the genital area. Encourage females to seek medical advice for symptoms of pain, soreness, and itching, as well as how they affect everyday functions (micturition, defecation, and menstruation) and activities (sleep, work, and social life). Additionally, it ought to talk about sexual function, body image, and how medical interventions affect these women's health and quality of life. As well as a screening campaign for females of reproductive age (15-49 years old) who have dermatological conditions that affect their genitalia and have problems with their sexual function.

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References

1. Nguyen N, Corley S. Geriatric vulvar dermatology. Curr Geriatr Rep. 2020;9(4):183-191. doi:10.1007/s13670-020-00332-8
2. Kirtschig G, Becker K, Günthert A, et al. Evidence-based (S3) guideline on (anogenital) Lichen sclerosus. J Eur Acad Dermatol Venereol. 2015;29(10):e1-e43. doi:10.1111/jdv.13136
3. Aydingoz IE, Meseci E. Vulvar pigmented lesions: a retrospective study and a review of literature. Eur J Gynaecol Oncol. 2017;38(4):584-588.
4. Siegel RL, Miller KD, Jemal A. Cancer statistics, 2017. CA Cancer J Clin. 2017;67(1):7-30. doi:10.3322/caac.21387
5. Abuel-Zahab NH, El-Sheikh M, Abdel-Fattah H, Metwally NS. Effect of Nursing Guideline about Genital Human Papilloma Virus Infection on perception of Female University Students. Egypt J Health Care. 2022;13(1):1-14.
6. Chanmekun SB, Zulkifli MM, Muhamad R, et al. Managing sexual dysfunction for women with breast cancer: the perspective of healthcare providers in North East Malaysia. Support Care Cancer. 2022;30(1):401-411. doi:10.1007/s00520-021-06425-0
7. Rivera S, Flood A, Dykstra C, Herbenick D, DeMaria AL. Genital Self-Image, Sexual Function, and Quality of Life Among Individuals with Vulvar and Non-Vulvar Inflammatory

Dermatoses. Arch Sex Behav. 2022;51(8):3965-3979. doi:10.1007/s10508-022-02373-w

8. Niu X, Wang T, Wang Q, et al. Vaginal Microbiota Changes in the Vulvar Lichen Simplex Chronicus. Clin Exp Obstet Gynecol. 2023;50(1):17. doi:10.31083/j.ceog5001017
9. Vieira-Baptista P, Pérez-López FR, López-Baena MT, Stockdale CK, Preti M, Bornstein J. Risk of Development of Vulvar Cancer in Women With Lichen Sclerosus or Lichen Planus: A Systematic Review. J Low Genit Tract Dis. 2022;26(3):250-257. doi:10.1097/LGT.0000000000000678
10. Krapf JM, Mitchell L, Holton MA, Goldstein AT. Vulvar Lichen Sclerosus: Current Perspectives. Int J Womens Health. 2020;12:11-20. doi:10.2147/IJWH.S191200
11. Thorstensen KA, Birenbaum DL. Recognition and management of vulvar dermatologic conditions: lichen sclerosus, lichen planus, and lichen simplex chronicus. J Midwifery Womens Health. 2012;57(3):260-275. doi:10.1111/j.1542-2011.2012.00175.x
12. Jakuboski SH, Noor SJ. Meet the expert: Topical management of vulvar dermatoses. J Geriatr Oncol. 2022;13(3):282-286. doi:10.1016/j.jgo.2021.12.008
13. Yucel D, Sener S, Turkmen D, Altunisik N, Sarac G, Cumurcu HB. Evaluation of the Dermatological Life Quality Index, sexual dysfunction and other psychiatric diseases in patients diagnosed with vitiligo with and without genital involvement. Clin Exp Dermatol. 2021;46(4):669-674. doi:10.1111/ced.14489
14. Raef HS, Elmariah SB. Vulvar Pruritus: A Review of Clinical Associations, Pathophysiology and Therapeutic Management. Front Med (Lausanne). 2021;8:649402. doi:10.3389/fmed.2021.649402
15. Kandanearachchi P, Sahu B, Antonakou A, Papoutsis D. A survey of management of vulvar disorders in the primary health care setting in an urban area of England. Arch Hell Med. 2018;35(3):379-385.
16. García-Souto F, Lorente-Lavirgen AI, Mendonça FI, et al. Vulvar dermatoses: a cross-sectional 5-year study. Experience in a specialized vulvar unit. An Bras Dermatol. 2022;97(6):747-756. doi:10.1016/j.abd.2021.11.008
17. Pichardo-Geisinger R. Atopic and Contact Dermatitis of the Vulva. Obstet Gynecol Clin North Am. 2017;44(3):371-378. doi:10.1016/j.ogc.2017.05.003
18. Kurizky PS, Martins GA, Carneiro JN, Gomes CM, Mota L. Evaluation of the occurrence of sexual dysfunction and general quality of life in female patients with psoriasis. An Bras Dermatol. 2018;93(6):801-806. doi:10.1590/abd1806-4841.20197469
19. Ludwig CM, Fernandez JM, Hsiao JL, Shi VY. The Interplay of Atopic Dermatitis and Sexual Health. Dermatitis. 2020;31(5):303-308. doi:10.1097/DER.0000000000000617
20. Janse IC, Deckers IE, van der Maten AD, et al. Sexual health and quality of life are impaired in hidradenitis suppurativa: a multicentre cross-sectional study. Br J Dermatol. 2017;176(4):1042-1047. doi:10.1111/bjd.14975
21. Ryan C, Sadlier M, De Vol E, et al. Genital psoriasis is associated with significant impairment in quality of life and sexual functioning. J Am Acad Dermatol. 2015;72(6):978-983. doi:10.1016/j.jaad.2015.02.1127

22. Maaty AS, Gomaa AH, Mohammed GF, Youssef IM, Eyada MM. Assessment of female sexual function in patients with psoriasis. J Sex Med. 2013;10(6):1545-1548. doi:10.1111/jsm.12124
23. Abd Elrahman SH, Zeid AA, Awady M. Effect of mode of delivery on couples' sexual relationship during the postpartum period. Hum Androl. 2019;9(4):92-98. doi:10.21608/ha.2019.17549.1027
24. Boozalis A, Tutlam NT, Robbins CC, Peipert JF. Sexual Desire and Hormonal Contraception. Obstet Gynecol. 2016;127(3):563-572. doi:10.1097/AOG.0000000000001286
25. Casey PM, MacLaughlin KL, Faubion SS. Impact of Contraception on Female Sexual Function. J Womens Health (Larchmt). 2017;26(3):207-213. doi:10.1089/jwh.2016.5854
26. Burrows LJ, Basha M, Goldstein AT. The effects of hormonal contraceptives on female sexuality: a review. J Sex Med. 2012;9(9):2213-2223. doi:10.1111/j.1743-6109.2012.02848.x
27. de Jong PJ, van Lankveld JJ, Elgersma HJ, Borg C. Disgust and sexual problems: theoretical conceptualization and case illustrations. Int J Cogn Ther. 2010;3(1):23-39. doi:10.1521/ijct.2010.3.1.23