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Sexual Functions in Egyptian Females with Vitiligo

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ABSTRACT

Background: Vitiligo manifests as depigmented dermal patches developed owing to the loss of melanocytes. It has a major undesirable effect on sexual activity owing to the deforming skin lesions affecting self-image and self-esteem. Sexual dysfunction is common and may influence 30–70% of women, leading to individual trouble.

Objective: This study aimed to assess the sexual function and dysfunction in females with vitiligo, and to evaluate the quality of life (QOL) in relation to disease severity.

Patients and methods: This study was a prospective case-control study, comprising 100 females with vitiligo in the childbearing period (patient group) and 100 healthy volunteers (control group). Evaluation of vitiligo activity was done via Vitiligo Disease Activity (VIDA) score & Vitiligo Area Scoring Index (VASI). Patients and controls were asked to complete the Arabic validated version of Female Sexual Function Index (ArFSFI) questionnaire & Dermatology Life Quality Index (DLQI).

Results: Total FSFI average score was significantly lower in cases than control with 65% defective pattern in cases, which was significantly higher than control (22%). Slight difference between patients with VIDA (0 &1) and those with VIDA (2, 3 & 4), as regards all items and total average scores of FSFI scale. However, the differences were statistically non-significant. Slight difference between patients with no or slow response to treatment and those with satisfactory response as regards the total average scores of FSFI scale

Conclusion: According to our study, patients with vitiligo were demonstrated to be at greater risk of sexual dysfunction.

Keywords: Vitiligo, Female sexual dysfunction, Quality of life, Egyptian females, Female sexual function index.

INTRODUCTION

Vitiligo manifests as depigmented patches of the epidermis owing to the loss of melanocytes [1].

Although a lot of treatment modalities were prescribed for disease stabilization by stopping the depigmentation process with a subsequent development of durable repigmentation, no special cure could be described till now, and the long-term persistence of repigmentation could not be predicted [2].

Vitiligo has been considered as the commonest depigmented skin disorder with an estimated prevalence of 0.5-2% of the general population. The effects are same for both genders, and there are no evident changes in frequency of occurrence based on photo type or ethnicity [3]. Obviously, any pathological changes in skin appearance could induce emotional stress, shame, depression and decrease their self-esteem and hence, isolate them from the community [4, 5]. Because the skin has erogenic functions, skin lesions may negatively affect one's sexual life and interpersonal relations [6].

It has been demonstrated that the relapsing nature of vitiligo impair QoL and the capability for coping with society [7].

Development of novel disorders, active diseases, and lesion on upper limb had considerable adverse events on QoL also vitiligo patients being employed and have new vitiligo patches are of great likelihood for depression [8].

FSD is a heterogeneous group of complicated disorders, which has adverse effects on mental and physical health as well as on emotional well-being. It is a frequent disorder in females whatever the age and negatively affects their QoL and affects also the sexual function and QoL of their partners [9].

Sexual dysfunction could be defined as difficulty felt by an individual throughout any stage of a normal sexual activity, such as desire, arousal, lubrication, orgasm, or pain [10]. Management of vitiligo cases must evaluate their emotional effects and comprise tools for psychiatric intervention, that might eventually associated with better adaptations with a subsequent increase of QoL [7].

Our study aimed to assess the sexual function and dysfunction in females with vitiligo, and to evaluate the QoL in relation to disease severity.

PATIENTS AND METHODS

The current study was conducted on a total of 100 females with chronic vitiligo in the childbearing period (Patient group) and 100 healthy volunteers (Control group) who meet the inclusion criteria through the period between October 2021 and June 2022.

Patients were recruited from females attending the dermatology, andrology and STDS Out-patients Clinic of Mansoura University Hospital.

Inclusion criteria: Females diagnosed with Vitiligo by clinical examination using Woods light, married for at least 1 year, and had a stable marital relationship and their husbands had normal sexual function.

Exclusion criteria: Pregnant females, females with 2 months postpartum, females with chronic debilitating and severe medical illnesses, females with history of psychiatric disease, females with sexual disorders before developing vitiligo and females with other physical deformities affecting their self-esteem.

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Methods

Every patient was subject to detailed full history taking that included personal history (age, education, occupation and residence), present history (onset, course and duration of vitiligo), past history of medical disorders and drug intake, type and duration of drug intake, family history (Vitiligo and other skin diseases or psychiatric problems) and sexual history of both partners.

The examination of the patient`s skin involved assessment of vitiligo type whether localized or generalized [11], assessment of vitiligo activity utilizing the VIDA score, which is a six-point scale to assess vitiligo activity. It is reliant on the patient records of vitiligo activity. The time period and vitiligo activity are used to grade this score. VIDA score grades were: 4 indicated activity lasting six weeks or less, score 3 indicated activity lasting six weeks to three months, score 2 indicated activity within the period from three to six months, score 1 indicated activity lasting six to twelve months, score zero indicated stable for at least 12 months, and score -1 indicated stable with spontaneous re-pigmentation for at least 12 months [12]. Assessment of vitiligo severity, distribution and extent was done according to VASI. To calculate the total pigment loss, we assessed the BSA affected and the actual percentage of pigment loss of each region.

Patients and controls were asked to complete the ArFSFI questionnaire [13].

The female sexual index was an instrument evaluating FSD. The FSFI is a 19-item questionnaire that evaluates the SF or troubles throughout the last 28 days, that included the quality of desire, arousal, lubrication, orgasm, satisfaction and degree of pain [14]. Each domain was scored on a scale of zero or 1-5. The score of each domain was measured via summing up the scores of that domain`s questions and multiplying the obtained number by the multiplier factor of that domain. Multiplier factors of 0.6, 0.4, and 0.3 were used for domains including 2, 3, and 4 questions, correspondingly (6).

Laboratory Investigations: Blood samples were taken from both patient and control groups to assess levels of T3, T4, TSH, prolactin and estrogen to exclude organic disease-causing sexual dysfunction.

Dermatology Life Quality Index (DLQI): All cases in the current study was subjected to DLQI questionnaire to assess the vitiligo impacts on the QoL [15]. It is composed of ten questions concerning manifestations, feelings, daily activities, leisure, work or schools, relationships with others, and therapy throughout the week before the questionnaire. There were four response categories for every question ("not at all", "a little", "a lot", and "very much"). The maximum score was 30 and the minimum score was zero. There was a significant positive association between the score and the Health-related QoL (in which the impairment in HRQL increases with a higher score). This instrument was utilized to evaluate HRQL in cases with various dermal conditions, which include vitiligo [16, 17].

Ethical approval: Mansoura Medical Ethics Committee of Mansoura Faculty of Medicine gave its approval to this study (Code no. MS.20.08.1210). All participants gave written consents after receiving all information. Confidentiality was guaranteed at all levels. The Helsinki Declaration was followed throughout the study's conduct.

Statistical analysis

The gathered questionnaires were subjected to revision, and the gathered data were coded, and analysed utilizing the SPSS program for Windows (version 25). The normal data distribution was evaluated by using one-sample Kolmogorov-Smirnov test. Qualitative data were defined utilizing number and percent. Correlation between categorical variables was tested utilizing Chi-square test (χ^2). Continuous variables were presented as mean ± SD in terms of parametric data and Median for non-parametric ones. Student t- test was utilized for the comparison of two means while ANOVA test was utilized for the comparison of more than 2 groups. As regards all previously mentioned tests, the results were significant when $p \leq 0.05$.

RESULTS

Table (1) demonstarted the sociodemographic characteristics of the studied groups. Age of both cases and control groups ranged from 18 – 50 years, with average 31.95 ± 7.99 years in cases and 31.85 ± 6.24 years in controls. Most of cases and control subjects were from rural areas; 74% and 66% respectively. Education level ranged from read & write to university level. Working percentage was 30% among cases and 39% among controls. Both groups are matched as regards socio-demographic characteristics, by means there were no significant differences between both groups as regard age, residence, education and occupation ($P > 0.05$).

Table (1): Demographic characteristics of the studied groups

Characteristics	Items	Cases (100)		Control (100)		Significance test
		No	%	No	%	
Age (years)	<32	54		47		χ^2=0.320, P0.572
	≥32	46		53		
	Mean ± SD	31.95	±7.99	31.85	±6.24	t=0.099,P0.922
Residence	Urban	26	26.0	34	34.0	χ^2=1.520,
	Rural	74	74.0	66	66.0	P 0.217
Education	R/W	20	20.0	13	13.0	
	Basic	23	23.0	24	24.0	χ^2=5.174, P0.160
	Secondary	34	34.0	27	27.0	
	University	23	23.0	36	36.0	
Occupation	Not work	70	70.0	61	61.0	χ^2=1.790, P0.181
	Work	30	30.0	39	39.0	

χ^2 =Chi square test t=student t- test

Table **(2)** showed that duration of the disease ranged from 0.5 months up to 240 months with median 24 months. Generalized type represents 37%, while focal type was 19% and segmental was 44%. Nearly half of patients (43%) were VIDA (1). The lesions were single in 43% and multiple in 57%. VASI score ranged from 1 to 7 with 2 median value. Only 19% of patients had satisfactory response to treatment. The effect of the disease on the DLQI of patients ranged from: No effect (10%), little (39%), a lot (40%) and very much affection (11%).

Table (2): Clinical characteristics of the studied cases (100)

Clinical characteristics	Subgroups	No	%
Duration (months)	0.5 –	10	10.0
Median 24	6.0 –	14	14.0
(Min-max) 0.5-240	12.0 –	20	20.0
	24.0 –	25	25.0
	48.0 –	20	20.0
	120 – 240	11	11
Clinical Type	Generalized	37	37.0
	Focal	19	19.0
	Segmental	44	44.0
VIDA	0	14	14.0
	1	43	43.0
	2	23	23.0
	3	19	19.0
	4	1	1.0
Distribution	Single	43	43.0
	Multiple	57	57.0
VASI score	Min – Max	1.0 -7.0	
	Median	2.00	
	Mean ± SD	2.678 ± 1.55	
Response to ttt	No	8	8.0
	Slow	73	73.0
	Satisfactory	19	19.0
DLQI	No effect	10	10.0
	Little	39	39.0
	A lot	40	40.0
	Very much affection	11	11.0

Table (3) showed the comparison between cases and control regarding FSFI. **Desire** average score was significantly (P < 0.001) decreased in cases than in control. **Arousal** average score was significantly (P<0.04) decreased in cases than in control. **Lubrication** average score was significantly (P<0.04) decreased in cases than control. **Orgasm** average score was significantly (P<0.05) decreased in cases than in control. **Satisfaction** average score was significantly (P<0.001) decreased in cases than in control. **Pain** average score was significantly (P<0.012) lower in cases than in control but with non-significant difference in defective pattern. **Total FSFI** average score was significantly (P<0.001) decreased in cases than in control with 65% defective pattern in cases, which was significantly (P<0.001) higher than in control (22%).

Table (3): Comparison between cases and control as regards female sexual function index (FSFI) and its parameters

FSFI parameters	Cases (100)	Control (100)	Significance test
Desire (Mean ± SD**)**	3.67 ± 0.71	4.18 ± 0.68	t= 5.184, P<0.001
Defective (no,%) Not defective	90 (90.0%) 10 (10.0%)	55 (55.0%) 45 (45.0%)	χ^2=30.721,P<0.001
Arousal (Mean ± SD**)**	3.58 ± 0.68	4.36 ± 0.60	t= 8.718, P<0.001
Defective (no,%) Not defective	100 (100.0%) 0 (0.0%)	96 (96.0%) 4 (4.0%)	χ^2=4.080,P<0.04
Lubrication (Mean ± SD**)**	4.49 ± 0.77	4.73 ± 0.92	t= 2.009, P<0.04
Defective (no,%) Not defective	98 (98.0%) 2 (2.0%)	77 (77.0%) 23 (23.0%)	χ^2=20.160,P<0.001
Orgasm (Mean ± SD**)**	3.97 ± 1.02	4.22 ± 0.77	t= 1.939, P<0.05
Defective (no,%) Not defective	79 (79.0%) 21 (21.0%)	78 (78.0%) 22 (22.0%)	χ^2=0.030,P<0.863
Satisfaction (Mean ± SD**)**	4.07 ± 1.08	4.96 ± 1.08	t= 5.829, P<0.001
Defective (no,%) Not defective	94 (94.0%) 6 (6.0%)	62 (62.0%) 38 (38.0%)	χ^2=29.837,P<0.001
Pain (Mean ± SD**)**	5.19 ± 0.89	5.47 ± 0.65	t= 2.551, P<0.012
Present (no,%) Absent	51 (51.0%) 49 (49.0%)	42 (42.0%) 58 (58.0%)	χ^2=1.628,P<0.202
Total FSFI (Mean ± SD**)**	25.12 ± 3.27	27.93 ± 3.13	t= 6.210, P<0.001
Defective (no,%) Not defective	65 (65.0%) 35 (35.0%)	22 (22.0%) 78 (78.0%)	χ^2=37.616,P<0.001

Table **(4)** showed slight difference between patients with less than 2 years duration and those with duration of 2 years and more as regards all items and total average scores of FSFI scale. However, the differences weren't statistically significant (p > 0.05).

Table (4): Average total FSFI and its parameters and DLQI score in relation to duration of disease among cases

FSFI parameters	Duration of disease		Significance test
	< 2 years (44)	≥ 2 years (56)	
Desire (Mean ± SD**)**	3.74 ± 0.72	3.62 ± 0.70	t= 0.802, P 0.424
Arousal (Mean ± SD**)**	3.63 ± 0.66	3.54 ± 0.69	t= 0.671, P 0.504
Lubrication (Mean ± SD**)**	4.52 ± 0.77	4.50 ± 0.77	t= 0.328, P 0.744
Orgasm (Mean ± SD**)**	3.91 ± 1.06	4.02 ± 1.00	t= 0.521, P 0.604
Satisfaction (Mean ± SD**)**	4.09 ± 0.98	4.08 ± 1.16	t= 0.155, P 0.878
Pain (Mean ± SD**)**	5.15 ± 0.89	5.23 ± 0.90	t= 0.463, P 0.645
FSFI (Mean ± SD**)**	25.31 ± 3.15	24.96 ± 3.38	t= 0.517, P 0.606
DLQI score	6.11 ± 3.84	7.70 ± 5.24	t= 1.679, P 0.096

Table **(5)** showed slight difference between patients with generalized, focal or segmental types as regards all items and total average scores of FSFI scale. However, the differences were not statistically significant (P>0.05).

Table (5): Average total FSFI and its parameters and DLQI score in relation to type of disease among cases.

FSFI parameters	Type of disease			Significance test
	Generalized (37)	Focal (19)	Segmental (44)	
Desire (Mean ± SD**)**	3.76 ± 0.69	3.41 ± 0.66	3.71 ± 0.74	F= 1.670, P 0.194
Arousal (Mean ± SD**)**	3.67 ± 0.65	3.47 ± 0.76	3.54 ± 0.66	F= 0.663, P 0.518
Lubrication (Mean ± SD**)**	4.58 ± 0.74	4.15 ± 0.72	4.56 ± 0.78	F= 2.368, P 0.099
Orgasm (Mean ± SD**)**	4.02 ± 1.03	3.68 ± 0.99	4.06 ± 1.03	F= 0.962, P 0.386
Satisfaction (Mean ± SD**)**	4.25 ± 1.03	3.83 ± 1.11	4.03 ± 1.11	F= 1.005, P 0.370
Pain (Mean ± SD**)**	5.18 ± 0.83	5.37 ± 0.81	5.13 ± 0.97	F= 0.491, P 0.613
FSFI (Mean ± SD**)**	25.54 ± 3.13	23.99 ± 3.04	24525 ± 3.44	F= 1.486, P 0.231
DLQI(Mean ± SD**)**	6.24 ± 4.53	7.58 ± 5.06	7.39 ± 4.76	F= 0.761, P 0.470

F: ANOVA test

Table **(6)** showed slight difference between patients with VIDA (0 &1) and those with VIDA (2, 3 & 4), as regards all items and total average scores of FSFI scale. However, the differences were statistically non-significant (P>0.05). There was slight difference between patients with single or multiple as regards all items and total average scores of FSFI scale. However, the differences were not statistically significant (P>0.05), except for pain score, which was significantly higher among patients with multiple lesion (P<0.008).

Table (6): Average total FSFI and its parameters and DLQI score in relation to VIDA and distribution of disease among cases.

FSFI parameters	VIDA of disease			Distribution of disease		
	0 to1 (57)	2 to 4 (43)	Significance test	Single (43)	Multiple (57)	Significance test
Desire (Mean ± SD**)**	3.62 ± 0.72	3.74 ± 0.70	t= 0.825, P 0.411	3.73 ± 0.70	3.63 ± 0.72	t= 0.654, P 0.515
Arousal (Mean ± SD**)**	3.60 ± 0.66	3.56 ± 0.71	t= 0.229, P 0.820	3.52 ± 0.73	3.62 ± 0.63	t= 0.677, P 0.500
Lubrication (Mean ± SD**)**	4.47 ± 0.74	4.51 ± 0.80	t= 0.248, P 0.805	4.47 ± 0.76	4.51 ± 0.77	t= 0.224, P 0.823
Orgasm (Mean ± SD**)**	3.93 ± 0.92	4.02 ± 1.15	t= 0.416, P 0.678	3.81 ± 1.11	4.10 ± 0.94	t= 1.405, P 0.163
Satisfaction (Mean ± SD**)**	4.02 ± 1.13	4.14 ± 1.01	t= 0.542, P 0.589	4.11 ± 1.13	4.04 ± 1.05	t= 0.317, P 0.752
Pain (Mean ± SD**)**	5.09 ± 0.96	5.33 ± 0.78	t= 1.358, P 0.178	5.46 ± 0.75	5.99 ± 0.93	t= 2.708, P 0.008*
FSFI (Mean ± SD**)**	24.97 ± 3.14	25.31 ± 3.47	t= 0.507, P 0.613	25.16 ± 3.40	25.08 ± 3.21	t= 0.114, P 0.910
DLQI (Mean ± SD**)**	7.72 ± 5.09	6.04 ± 4.04	t= 1.772, P 0.079	6.00 ± 4.15	7.75 ± 5.01	t= 1.862, P 0.066

Table **(7)** showed slight difference between patients with no or slow response to treatment and those with satisfactory response as regards all items and total average scores of FSFI scale. However, the differences were not statistically significant (P>0.05). The average total FSFI and its parameters in relation to affected QOL by disease among cases. There were statistically significant higher average scores of all FSFI items, except pain and its total score in patients with no to little QOL affection than those with a lot to very much affection.

Table (7): Average total FSFI and its parameters and DLQI score in relation to disease response to treatment and affected QOL among cases.

FSFI parameters	**Treatment Response**			**Effect on QOL**		
	No to slow (81)	Satisfactory (19)	Significance test	No to little (49)	A lot to much (51)	Significance test
Desire (Mean ± SD**)**	3.68 ± 0.70	3.63 ± 0.76	t= 0.275, P=0.784	3.96 ± 0.62	3.40 ± 0.70	t= 4.230, P<0.001
Arousal (Mean ± SD**)**	3.59 ± 0.66	3.52 ± 0.73	t= 0.392, P= 0.696	3.91 ± 0.63	3.26 ± 0.56	t= 5.442, P<0.001
Lubrication (Mean ± SD**)**	4.48 ± 0.77	4.55 ± 0.77	t= 0.381, P= 0.704	4.79 ± 0.72	4.21 ± 0.65	t= 4.068, P<0.001
Orgasm (Mean ± SD**)**	3.99 ± 1.03	3.92 ± 1.03	t= 0.274, P= 0.784	4.47 ± 0.99	3.50 ± 0.81	t= 5.372, P<0.001
Satisfaction (Mean ± SD**)**	408 ± 1.07	4.00 ± 1.13	t= 0.322, P= 0.748	446 ± 0.91	3.70 ± 1.11	t= 3.717, P<0.001
Pain (Mean ± SD**)**	5.19 ± 0.90	5.22 ± 0.86	t= 0.156, P= 0.875	5.30 ± 0.84	5.09 ± 0.93	t= 1.172, P= 0.244
FSFI (Mean ± SD**)**	25.14 ± 3.27	25.01 ± 3.40	t= 0.62, P= 0.872	27.07 ± 2.98	23.23 ± 2.31	t= 7.219, P<0.001
DLQI (Mean ± SD**)**	7.14 ± 4.92	6.42 ± 3.82	t= 0.592, P= 0.555			

There was moderate, negative, significant correlation (r= - 0.703; P0.001) (figure 1).

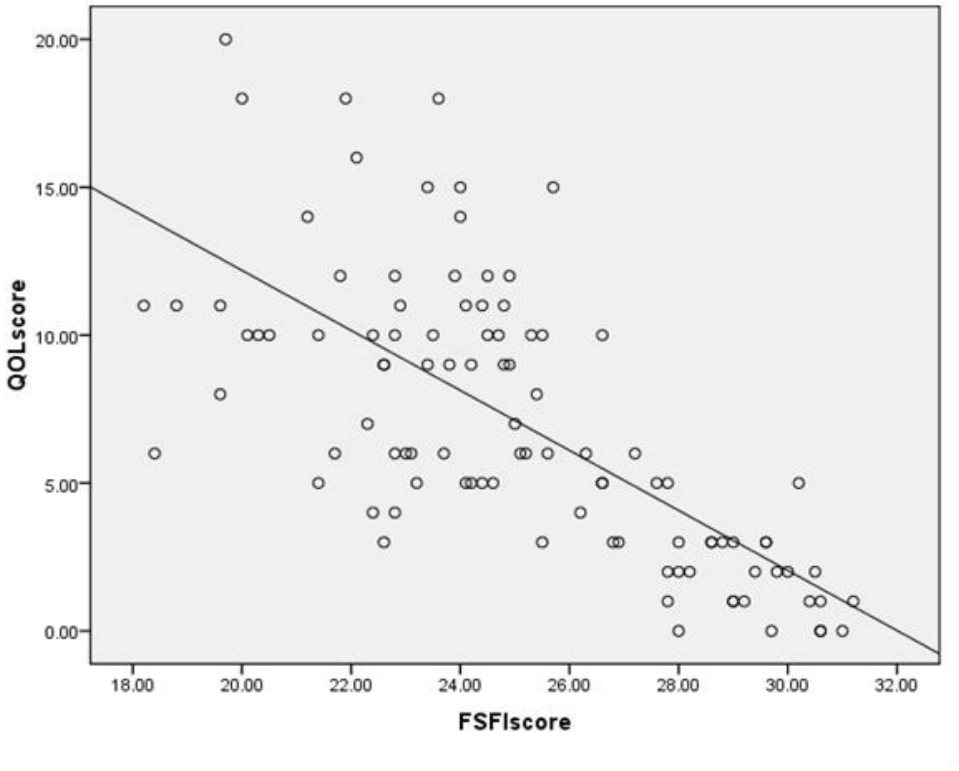

Figure (1): Correlation between DLQI score and FSFI score among cases.

DISCUSSION

Vitiligo is an acquired depigmented chronic dermal lesion, featured by the development of white macules and patches as a result of loss of epidermal melanocytes [18]. As skin diseases impact one's self-image, vitiligo impacts a person's mental and psychological health, sexual life, and relationships with others. Vitiligo, like other skin disorders, has an impact on an individual's emotional and psychological wellbeing, sexual life, and relations with others [19]. Shame and embarrassment are the main causes of relationship problems with the other sex, particularly when a new partner is being introduced. Vitiligo patients may have a mindset of avoidance towards sexual activity because they expect to fail [20].

Because there are no clear definitions, reliable evaluation techniques, or effective treatments for FSD, the condition has been significantly underdiagnosed and undertreated [21]. FSD is a complicated disorder influenced by biologic, psychiatric, and social variables. In addition, FSD consists of 4 main categorizes, which includes sexual desire, arousal, orgasmic, and pain disorders [22]. The present study aimed at assessing the sexual function and dysfunction in females with vitiligo and evaluating the QoL in relation to disease severity.

This study was a prospective case-control study, comprising 100 consecutive females with vitiligo in the child bearing period (patient group) and 100 healthy volunteers (control group). This study was conducted over one year on all patients attending the Dermatology, Andrology and STDs department of Mansoura University Hospital. The control group comprised normal volunteer women.

In the current study, the range of QoL affection was: No effect (10%), little (39%), a lot (40%) and very much affection (11%). This result is in agreement with **Krüger and Schallreuter** [23] who displayed that QoL of 30 of 96 vitiligo cases wasn't influenced and only little in 35 participants. On the other hand, the life of the remaining cases was either members (scores 6–10, n=19/19.8%), severely (11–20, n=10/10.4%) or even extremely (scores 21–30, n=2/2.1%) affected. Poorer QoL in female patients according to behaviour factor was logically predictable, as cosmetic issues are of great consideration among females. They express a greater degree of emotional burden, and the disease has powerful impact on their self-steam [24].

Our study demonstrated that; average scores of all FSFI parameters comprising desire, arousal, lubrication, orgasm and satisfaction that were significantly lower in cases than in control as (P<0.001),(P<0.04), (P<0.04) ,(P< 0.05)and (P<0.001) respectively except for pain average score was lower in cases than in control (P<0.012) but with non-significant difference defective pattern. Total FSFI average score was significantly (P<0.001) lower in cases than in control with 65% defective pattern in cases, which was significantly (P<0.001) higher than in control (22%). In agreement with our study, the outcomes of **Liang *et al.*** [25], which revealed that cases with vitiligo were at a higher possibility of developing sexual dysfunction especially among female cases. Also, two studies by **Sarhan *et al.*** [20] and **Khaled *et al.*** [22] evaluated the participants' AVFSFI, scores of the vitiligo group were significantly lower than that of the controls.

Our study demonstrated that there was no statistically significant difference between patients with less than 2 years disease duration and those with duration of 2 years and more, as regards all items and total average scores of FSFI scale and DLQI. In agreement with our study **Kent and Al-Abadie** [17] and **Mishra *et al.*** [26] didn't demonstrate any significant relationship between the DLQI score and disease duration. In contrast to our study, **Alhetheli** [27] study detected that the impacts of vitiligo on QoL were significantly accompanied by disease variables, such as duration, degree, pattern of distributions, personality traits, and sex. Moreover, **Radtke *et al.*** [28] have displayed that there was a significant increase in QoL limitation as the length of the disease increases.

Our study revealed that, there was no statistically significant difference between cases with no and slow response to treatment and those with satisfactory response as regards all items and total average scores of FSFI scale and DLQI score. In the same line with our study, **Noor *et al.*** [29] concluded that treatment of vitiligo caused no significant effect on QoL. However, **Latipov *et al.*** [30] by comparing the DLQ indices before and after treatment, revealed statistically significant differences between them as after treatment the DLQI was better than before treatment.

Our study demonstrated that there was negative significant correlation between VASI and FSFI scores among cases r= - 0.339, P=0.001. These outcomes are in the same line with **Sarhan *et al*** [20] who demonstrated that there was a negative correlation between the VASI score and sexual satisfaction. VASI and DLQI scores were significantly associated with both AVFGSIS and AVFSFI either individually or in combination (p<0.05). Also **Khaled *et al.*** [22] have displayed revealed that there was a highly significant correlation between VASI score and sexual dysfunction, as the more the severity (the higher the score) the more dysfunction.

Ours study displayed that there was no statistically significant difference between cases with VIDA 0 &1 and those with VIDA 2, 3 & 4 as regards all items and total average scores of FSFI scale and DLQI (P>0.05). In contrast to our study, **Khaled *et al.*** [22] study revealed that there was a highly significant correlation between VIDA score and FSD, as the more the active disease the more dysfunction.

Our study revealed that there was no significant difference between patients with single or multiple lesions as regards all items and total average scores of

FSFI scale and DLQI score (P>0.05) except for pain score, which was significantly higher among patients with multiple lesion (P<0.008). Also, there was no statistically significant difference among patients with generalized, focal or segmental types as regards all items and total average scores of FSFI scale and DLQI Score. In agreement with our study **Morales *et al.*** [31] didn't demonstrate a significant correlation between QoL and disease extension. In contrast, **Wang *et al.*** [32] stated that the vitiligo distribution pattern may predict the DLQI. In addition, **Grimes *et al.*** [33] concluded that genital involvement and generalized vitiligo are significant predisposing factors, which interfere with the sexual life of cases.

The present study displayed that there was a statistically significant higher average scores of all items of FSFI, except for pain and its total score in patients with no or little QoL affection than those with a lot or very much affection. Moreover, there was negative significant correlation between DLQI score and FSFI score among cases (r= - 0.703, P=0.001). These results are in the same line with **Sarhan *et al.*** [20] who clearly revealed that cases with low DLQI scores were accompanied by a negative genital self-image and FSD.

CONCLUSIONS

Decreased FSFI score parameters and total average FSFI scores among patients with vitiligo in comparison with the controls is suggesting that vitiligo patients are at higher risk for sexual dysfunction development. Significant affection of DLQI scores among vitiligo patients indicates the impact of vitiligo on QoL.

RECOMMENDATIONS

Further multicentric studies involving larger numbers of patients and lasting for longer durations are required for better and more accurate evaluation. Psychological evaluation of cases with vitiligo is essential to enhance outcomes and increase patients' compliance with treatment.

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