

Nutritional and Non-Nutritional Risk Factors Implicated in Common Dermatological Disorder

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Abstract:-

Backgrounds:

Patients often seek dermatological disorder remedied include dietary and non-nutritional agents as they frequently link to many health problems. While some of these concerns are unfounded, due to significant evidence considerations of important of dietary in some dermatological conditions. The aim of the present study was to study the nutrition and non-nutritional risk factors implicated in development of dermatological diseases.

Methodology

This cross sectional study comprised of 186 patients with skin diseases. Data were collected using a questionnaire and in face to face interviews. The questionnaire include non-nutritional risk factors and modified FFQ beside data on anthropometrics. Data was presented as either mean \pm SD or frequencies and percentages according to the nature of data. Chi-square test was used at $\alpha < 0.05$.

Results and Discussion:

Of the total samples 186 patients with skin disorder aged between 18-53 years old found that the peak age at 18-24 years old. The non-nutritional risk factors shown that significant differences between dermatological disease blood group O, psychological factors, education levels, and students as a type of job ($P < 0.05$). However, the obtained biochemical lab result revealed that abnormal low levels of Hemoglobin, Vitamin D, Zinc, Iron and magnesium. Furthermore, nutritional risk factors implicated in dermatological disorders that shown statistically differences include, low water intake, lack of exercises, heavier body weight, abdominal obesity, decreased intake of micronutrients supplementation, increased intake of junk foods and dermatological triggers foods and lack of nutritious ($P < 0.05$).

Conclusion:

Imbalance food intake, deprivation body sleeping, blood groups which significantly affect health of the skin. Therefore, our data suggested that, awareness for dermatological risk factors might be needed to all patients at younger ages to protect the skin against deterioration factors.

Keywords:- Skin; BMI; Nutrition Risk Factors; Biochemical Data; Food Intake.

I. INTRODUCTION

Patients often seek dietary advice as they frequently link to some of health problems, including diseases of the skin. (1). A number of well-known skin conditions are linked to diet, such as food allergies and dermatitis herpetiformis (2). Furthermore, dietary interventions may influence the course of the skin disease, as in case of acne. In others skin disease, dietary change may serve as one aspect of prevention, such as in skin cancer and skin aging (3). While other dermatological disease may cause systemic disease, and dietary modification may affect health outcomes, as in psoriasis (4). Use of systemic medications for treatment of dermatological disease, such as corticosteroids, are known to increase the risk of other diseases, and dietary change may reduce this risk (5).

The skin particularly epidermis and dermis which functions normally when adequate nutrition is provided. In deficiency of essential fatty acids (EFA) the epidermal permeability increased which eventually led to transepidermal water loss (6). Furthermore, body weight status, dietary imbalance in the form of micro and macronutrients and also specific nutrient inadequacy or excess and toxic components can disturb the equilibrium of the skin (7). In addition, the photo-protective potential of antioxidants, derived from micronutrient supplementation which promote skin immune system (8).

There are a number of skin disorders include Acne, skin pigmentation, psoriasis, atopic dermatitis and allergic contact dermatitis are among the most common skin disorders and due to the clinical presentation, as well as clinical course of the disease, which significantly decline the

health-related quality of life and represent a great psychological burden for the patient (9,10).

Although acne among dermatological disorders occurs in adolescences and causes significant psychological burden. Therefore, among the wide used treatment of dermatological disease include Cosmeceuticals and Nutricosmetics are topical products with effects on both skin appearance and functioning (11).

Beside those nutritional risk factors attributed to skin diseases, there also other factors widely studied include psychological status (12) , marital status, education levels (13) , age specific disorders, blood groups and sleeping hours (14, 15) . Those factors still receiving a lot of challenges (16) . Furthermore, Psychodermatology it is the interaction between mind and skin and exact occurrence of psychological factors that affect skin disease is not well understood; however, it has been estimated to be 25% to 33% in various studies (17,18).

Non-nutritional and a wide variety of food items have been found to be associated with aggravation of acne, psoriasis, atopic dermatitis and allergic contact dermatitis. Consequently, identifying certain factors and adopting new dietary modification and habits may significant help in prevention of flare-ups, as well as on the improvement of final treatment outcome. Such work is still scaring locally so that the result might highlighted new risks for dermatological disorders. Therefore, The aim of the study is to determine nutrition and non- nutrition risk factors implicated in development of skin disorders.

II. MATERIAL AND METHODS

Study samples

In this descriptive cross-sectional study, a total of 186 adult participants between 18 and 53 years of age and 24 male and 162 female with dermatological disease s were enrolled in the study. Patients with any of dermatological disorders were include in the study. Similarly, pregnant women, postmenopausal women, and patients with recent history of immunosuppressant therapies or chemotherapy were also not enrolled in the study. All patients were collected from dermatological clinical in numbers of poly clinics in Benghazi city, Benghazi, Libya from a period between beginning of January to the end of March 2020.

Ethical consideration:

The study was approved by the Institutional Ethics Committee of medicine. A signed informed consent was obtained from all the participants in the study.

Questionnaire

The questionnaire for this study is predesigned based on 36 items divided into four sections. It contained questions about personal information, demographic and socioeconomic characteristics, and personal habit, family history of dermatological diseases, biochemical investigations, history of disease, anthropometric data and

dietary history containing Modified food frequency questionnaires.

Measurements

Weight and height were measured after completion of the questionnaires and hand in by two researchers. Height was measured to the nearest 0.1 cm using calibrated scale attached to the machine against a wall while weight was measured to the nearest 0.2 kg using weighing machine. All measurements were involved the participants in either thin socks or barefoot and with heavy clothing items taken away. Body mass index (BMI) was calculated as weight in kilograms divided by the square of height in meters and categorized described in (19). Waist circumferences was measured at the narrowest level of the hip at the maximum level over light clothing, using an unstretched tape meter, in order to avoid any pressure to body surface and measurements were recorded to the nearest 0.1 cm. A waist circumference >35 inches (88 cm) in women and >40 inches (102 cm) in men (20). The waist-hip ratio (WHR) was also computed and categorized as $WHR \geq 0.80$ cm in women and ≥ 0.9 cm in men(21).

Dietary history

Food intake was recorded by either 24 hours recall or food frequency questionnaires. The 24 hours dietary recall aimed to calculate macronutrients and energy intake, but because of missing data for 24 hours we omitted the result. While food frequency questionnaire, have had modified and specified in short form include major food stuff intake which will indicate dietary pattern of the subjects. Modified food frequency questionnaire (MFFQ) was used and analyzed accordingly food intake daily weekly and monthly.

Biochemical tests

The laboratory tests were obtained from women and man include testing of hemoglobin, vitamin D, calcium and lipid profiles and serum electrolytes .Data were collected by interviews or from medical records of patients.

Statistical analysis

The data were analyzed using SPSS. Continuous variables are summarized as number (frequency), mean, and standard deviation while categorical variables are summarized using frequency and percentage. For quantitative data compared was done across groups using *t*-test, and proportions were compared with Chi-square test. Level of significance (α) was set at 0.05.

III. RESULTS

The 186 questionnaires administered, the mean age of patients is 29 years (range, 18 to 53 years); the most age significantly suffering from dermatological disordered those between 18-24 years old ($P=0.000$), which represent 50% (Table 1). Out of 186 patients 162 (87.1%) was female and 24 (12.9%) was male by which male to female ratio 1: 7 (Table 2).

Table 1: age distribution of the patients:

Age	N	N %	P values
18-24	93	50.0%	0.000
25-30	45	24.2%	
31-40	43	23.1%	
41-50	4	2.2%	
>50	1	0.5%	
Total	186	100.0%	

Chi-square test was performed at $\alpha < 0.05$ which considered significant.

Table 2: Gender distribution of the patients:

Sex	N	N %
male	24	12.9%
female	162	87.1%
Total	186	100.0%

The socio-demographic data of the patients shown that, majority of patients have high qualified degree (University levels) which presented by 90.0% . Regarding marital status about 77% of patients were single ($P=0.000$), and most of the patients were students (64%) $P=0.000$.

Table 3: socio-demographic characters of the patients:

Education	N	N %	P values	
primary	2	1.1%	0.000	
preparatory	2	1.1%		
secondary	13	7.0%		
university	169	90.9%		
Total	186	100.0%		
Marital status	single	143	76.9%	0.000
	married	40	21.5%	
	divorce	3	1.6%	
occupation	Total	186	100.0%	0.000
	nurse	4	2.2%	
	Technician	23	12.4%	
	student	119	64.0%	
	Professional	16	8.6%	
	employee	2	1.1%	
	teachers	6	3.2%	
	House-wife	12	6.5%	
	lawyer	1	0.5%	
	Self-employment	1	0.5%	
	Engineering	2	1.1%	
Total	186	100.0%		

Chi-square test was performed at $\alpha < 0.05$ which considered significant.

The data for types of dermatological disorder presented in table (4) which include skin allergy (28%) , Acne (50.5%), skin hyperpigmentation (39.2%), sebaceous cyst 16.7%, Eczema 26.3%, psoriasis (1.6%) and hair fall (68.8%), in which the highest two top dermatological disorders were hair fall (68.8%), and acne (50.5%) (Table 4).

Table 4: Types of dermatological disorder:

		N	N %
Skin allergy	yes	52	28.0%
	no	134	72.0%
	Total	186	100.0%
acne	yes	94	50.5%
	no	92	49.5%
	Total	186	100.0%
pigmentation	yes	73	39.2%
	no	113	60.8%
	Total	186	100.0%
Sebaceous cyst	yes	31	16.7%
	no	155	83.3%
	Total	186	100.0%
eczema	yes	49	26.3%
	no	137	73.7%
	Total	186	100.0%
psoriasis	yes	3	1.6%
	no	183	98.4%
	Total	186	100.0%
hair fall	yes	128	68.8%
	no	58	31.2%
	Total	186	100.0%

In the next blood groups of patients with dermatological problems have been investigated and found that those patients carry blood group (O) have more dermatological disease ($p < 0.05$) and also psychological factors significantly ($P < 0.05$) contribute to development of skin disorders (Table 5). For sleeping hours, 63.4% of the patients response that they have had 4-6 hours daily sleeping hours ($P=0.000$), whereas those sleeping hours more than 6 hours being the least (18.3%) (Table 5). Furthermore, in the table 6, more than 50% of the patients were involved in body weight in which approximately 60% have had recently weight loss ($P < 0.05$). Further analysis body weight of the patients found that overall body mass index was 25.2 (overweight) and BMI categorization shown that normal weight and overweight and obesity BMI have almost same trends (46.2% Vs 45.7%) (Table 7), . Regarding waist and waist hip ratio in which have been shown increased significantly among patients (high risk) $P < 0.05$ (Table 7).

Table 5: Blood groups of the patients as risk factors for dermatological disorder:

Blood Group	N	N %	P values
A	54	29.0%	0.013
B	36	19.4%	
O +	83	44.6%	
O -ve	2	1.1%	
B -ve	1	0.5%	
AB	9	4.8%	
A -ve	1	0.5%	
Total	186	100.0%	
Psychological status			0.000
yes	131	70.4%	
no	55	29.6%	
Total	186	100.0%	
Sleeping hours			0.000
4-6 hr	118	63.4%	
7-9 hr	34	18.3%	
9 hr	34	18.3%	

Chi-square test was performed at $\alpha < 0.05$ which considered significant between groups.

Table 6: weight management program as risk factors for dermatological disorder:

	N	N %	P values
Weight Program			0.005
yes	100	53.8%	
no	86	46.2%	
Total	186	100.0%	
Recent loss weight			
yes	112	60.2%	
no	74	39.8%	
Total	186	100.0%	
Recent gain weight			
yes	74	39.8%	
no	112	60.2%	
Total	186	100.0%	

Chi-square test was performed between groups at $\alpha < 0.05$ which considered significant.

Table 7: anthropometric indices as risk factors for dermatological disorder

	Mean ± SD	N	N %	P values
weight	66.53± 14			0.001
BMI	25.15± 5.6			
BMI categories				
Normal		15	8.1%	
Under weight		86	46.2%	
Over weight and obese		85	45.7%	
Total		186	100.0%	
WHR				
Normal		71	38.2%	
at highly risk		115	61.8%	
Total		186	100.0%	
waist circumferences				0.02
Normal		78	42. %	
At high risk		108	58.0%	
Total		186	100.0%	

Chi-square test was performed between groups at $\alpha < 0.05$ which considered significant.

The patients with dermatological disorders have received a number of treatment among which dermatological care therapy and nutrients supplements. The dermatological care therapy listed in table 8 shown, the top treatment regimen used by patients were cosmetic skin therapy (67.2%) P=0.000, make up (65.5%) P=0.000 and plasma injection and meso-therapy (60.8%) P=0.001. While there was other therapy but not significant use include moisturized agents (54.8%) P=0.07. Unregarding nutrient 5 supplements more than two third of the patients used dietary micronutrients supplements (75.8%) P=0.000 (Table 9A) in which further analysis of this nutrients revealed that, all micronutrients supplements were used but not frequently (Table 9 A & B).

Table 8: Recent treatment used for dermatological care:

		N	N %	P values
Cosmetic skin therapy	yes	125	67.2%	0.000
	no	61	32.8%	
	Total	186	100.0%	
moisturizer	yes	102	54.8%	0.07
	no	84	45.2%	
	Total	186	100.0%	
Scrub	yes	68	36.5%	
	no	118	63.4%	
	Total	186	100.0%	
Facial washes/ cleanser	yes	76	40.8%	
	no	110	59.1%	
	Total	186	100.0%	
Hyaluronic acid	yes	59	31.7%	
	no	127	68.3%	
	Total	186	100.0%	
Vit.C .topical. cream	yes	13	7%	
	no	173	93.0%	
	Total	186	100.0%	
Plasma meso-therapy	yes	113	60.8%	0.001
	no	73	39.2%	
	Total	186	100%	
makeup	yes	122	65.5%	0.000
	no	64	34.5%	
	Total	186	100.0%	

Chi-square test was performed between groups at $\alpha < 0.05$ which considered significant.

Table 9 A: Recent nutrient supplementation used for dermatological care:

		N	N %	P values
Vitamin and minerals supplementation	yes	141	75.8%	0.000
	no	54	24.2%	
	Total	186	100%	
vitamin. D. supplement	yes	46	24.8%	
	no	140	75.3%	
	Total	186	100.0%	
vitamin. C. supplement	yes	6	3.3%	
	no	180	96.8%	
	Total	186	100.0%	
vitamin.B12.supplement	yes	12	5.5%	
	no	174	93.5%	
	Total	186	100.0%	
Vit. B. complex. supplement	yes	16	8.6%	
	no	170	91.4%	
	Total	186	100.0%	
Zinc. supplement	yes	11	5.9%	

Folic. acid. supplement	no	175	94.1%
	Total	186	100.0%
	yes	29	15.6%
	no	157	84.4%
	Total	186	100.0%

Chi-square test was performed between groups at $\alpha < 0.05$ which considered significant.

Table 9 B: Recent nutrient supplementation used for dermatological care:

		N	N %
Iron. supplement	yes	28	15.1%
	no	158	84.9%
	Total	186	100.0%
Multivitamin. supplement	yes	26	14.0%
	no	160	86.0%
	Total	186	100.0%
Calcium. supplement	yes	42	22.7%
	no	143	77.3%
	Total	185	100.0%
osteocare. supplement	yes	76	40.9%
	no	110	59.1%
	Total	186	100.0%
omega.3.supplement	yes	48	25.8%
	no	138	74.2%
	Total	186	100.0%

Water intake among patients were figure out significantly by less consumed in which 61% of patients consumed 2-3 cups/daily and while 2.7% consumed the greater amounts 6-8 cup/day (Table 10). Furthermore, more than 70% of patient reported that, they have lack exercise ($P < 0.05$), eaten fast foods (74.2%) $P=0.000$.

Table 10: Patients dietary intake and habits:

		N	N %	P values
Water intake	2-3 cup/daily	113	60.8%	0.000
	4-5 cup/ daily	68	36.6%	
	6-8 cup/ daily	5	2.7%	
	Total	186	100.0%	
Exercise	yes	51	27.4%	0.000
	no	135	72.6%	
	Total	186	100.0%	
Fast food	yes	138	74.2%	0.000
	no	48	25.8%	
	Total	186	100.0%	

Chi-square test was performed between groups at $\alpha < 0.05$ which considered significant.

In the table 11, the dietary pattern of the patients shown highly consumed the mean three meals (about 70%) while being least consumed snacks about 50% (Table 11). Table 12 A & B shown that, modified food frequency of food intake based on daily, week, monthly and none. On the basis of daily food intake, the following foods and junk foods were found significant high include egg, milk, cheese, bread , vegetable, fruits, sugar, coffee, tea, chocolate, sweets and juices ($P < 0.05$).

Table 11: Patients dietary pattern

		N	N %
Breakfast	yes	128	68.8%
	no	33	17.7%
	some times	25	13.4%
	Total	186	100.0%
Mid-morning snack	yes	100	53.8%
	no	86	46.2%
	Total	186	100.0%
Lunch	yes	175	94.1%
	no	11	5.9%
	Total	186	100.0%
Mid afternoon snack	yes	97	52.2%
	no	89	47.8%
	Total	186	100.0%
Dinner	yes	130	70.3%
	no	55	29.7%
	Total	185	100.0%
Mid night snacks	yes	89	47.8%
	no	97	52.2%
	Total	186	100.0%

Table 12 A: analysis of modified food frequency questionnaires:

Types of foods	No eating	Rarely	Daily	Weekly	Monthly	Total	*P values
Meat	(17) 9.1%	(12) 6.5%	(31) 16.6%	(96) 51.6%	(30) 16.1%	(186) 100%	N
Chickens	(7) 3.8%	(6) 3.2%	(47) 25.2%	(123) 66.1%	(3) 1.6%	(186) 100%	N
Fish	(43) 23.1%	(30) 16%	(5) 2.7%	(34) 18.2%	(74) 40%	(186) 100%	N
Eggs	(10) 5.4%	(7) 4%	(108) 58%	(56) 30%	(5) 2.6%	(186) 100%	0.000
Milk	(13) 7%	(6) 3.2%	(152) 82%	(15) 8%	0 0	(186) 100%	0.000
Cheese	(7) 3.8%	(3) 1.6%	(158) 84.8%	(17) 9.1%	(1) 0.5%	(186) 100%	0.000
Bread	(6) 3.2%	(2) 1.1%	(173) 93%	(4) 2.1%	(1) 0.5%	(186) 100%	0.000
Pasta	(11) 6%	(7) 4%	(29) 15.5%	(135) 72%	(4) 2.1%	(186) 100%	N
Rice	(7) 4%	(7) 4%	(31) 16.6%	(137) 73.6%	(4) 2.1%	(186) 100%	N
Legumes	(16) 8.6%	(9) 5%	(14) 7.5%	(123) 66.1%	(24) 13%	(186) 100%	N
Vegetable	(3) 1.6%	(11) 6%	(144) 77%	(25) 13.4%	(3) 1.6%	(186) 100%	0.000
Fruit	(5) 2.7%	(10) 5.4%	(108) 58%	(56) 30.1%	(7) 3.7%	(186) 100%	0.000

* This analysis based on the daily basis of food intake. Chi-square test was performed and this done through compared the groups to the daily basis intake and the values considered significant at $\alpha < 0.05$.

Table 12 B : Analysis of modified food frequency questionnaire (Cont)

Canned Fruits	74 (40%)	86 (46.2%)	2 (1%)	10 (5.3%)	14 (7.5%)	186 (100%)	*P values
Juice	12 (6%)	11 (6%)	108 (58%)	49 (27%)	6 (3%)	186 (100%)	0.000
Water	0	0	186 (100%)	0	0	186 (100%)	N
Soft drinks	26 (13.9%)	34 (18.3%)	54 (29%)	65 (35%)	7 (3.8%)	186 (100%)	N
Energy drinks	81 (43.8%)	83 (44.6%)	2 (1%)	5 (2.6%)	15 (8%)	186 (100%)	N
Tea	18 (9.6%)	14 (7.5%)	129 (69.4%)	21 (11.3%)	4 (2.2%)	186 (100%)	0.000
Coffee	16 (8.6%)	8 (4.3%)	151 (81.3%)	9 (4.8%)	2 (1%)	186 (100%)	0.000
Sugar	13 (6.9%)	8 (4.3%)	158 (85%)	4 (2.2%)	3 (1.6%)	186 (100%)	N
Chocolate	4 (2.2%)	8 (4.3%)	141 (75.8)	26 (13.9%)	7 (3.8%)	186 (100%)	0.000
Sweet	13 (6.9%)	9 (4.8)	128 (68.9)	28 (15%)	8 (4.3%)	186 (100%)	0.000
Nuts	44 (23.6%)	47 (25.2%)	31 (16.6)	36 (19.3%)	28 (15.3%)	186 (100%)	N

* This analysis based on the daily basis of food intake. Chi-square test was performed and this done through compared the groups to the daily basis intake and the values considered significant at $\alpha < 0.05$. N=Non significant

Regarding biochemical blood result, there were abnormal low levels of hemoglobin, iron, vitamin D, zinc, and magnesium have been identified (Table 13).

Table 13: blood biochemical results:

	Mean \pm SD	*Reference values
Hemoglobin	10.83 \pm 2.1	12-15mg/dl
Iron	55.18 \pm 23	65-150 μ g/dl
Magnesium	1.77 \pm 0.43	1.8-3 mg/dl
Sodium	136.32 \pm 9	135-146 mEq
Vit.B12	351.98 \pm 123	190-865 pg/ml
Vit.D	15.70 \pm 5	30-50 ng.
Zinc	66.40 \pm 22	70-114 mg/dl

*These values were based on the local laboratory results.

IV. DISCUSSION

The role of risk factors in the aggravated, preventive and/or treatment common skin disorders including; acne, psoriasis, atopic dermatitis and contact allergies, are yet to be established.

In the current work, dermatological disorder affect female more than male by around 7: 1 and this values still higher than those finding by other researchers done in Egypt (22) and Saudi (23). However skin diseases increased with age and were more frequent in men (72.3 %) than in women (58.0%) (24). With respect to the ages those early adult (18-24 years old) significantly suffering from skin disorder and this result was similar to the work conducted by Assaedi et al (22). The socioeconomic character in this study particular education levels found that high education levels have higher dermatological disorders similarly to other works (16, 22). The reason why higher education levels suffering from such disorder is still not known yet.

Interestingly, socioeconomic data also revealed that, dermatological disease confined to the single marital status and student as well ($P < 0.05$). According to our knowledge these finding were the first time demonstrated in our study. In fact the reason why single marital status and student have had such disorders probably due to students still in growth spurt periods in which there will be increased hormonal changes or due to particular habit which explained by involvement in weight reduction program and this case is true as coming in section.

To find out what type of skin disease could be reported, in the present research there were 7 types of skin disorders reported in the study include skin allergy, Acne, skin hyperpigmentation, sebaceous cyst, Eczema, psoriasis and hair fall. Among which, the most common disease found hair fall and acne. This study did not include one skin disorder therefore, it's difficult to compared to other works.

Interestingly, the current study demonstrated that, patients carry blood groups (O+) prone to have more skin disorders. In previous work done by Marjory et al found that there was no relation between blood groups and skin diseases (25). Because of different skin diseases, some studies pointed out that the inverse relationship between acne and patients with blood group (O) (26) and non-O blood group is common in patients with AD (27). Previous investigations have shown marked disagreement. Hajini and et al (28) found no correlation between blood groups and psoriasis and also other skin diseases. Dadras and et al (29) on the basis of patients came to the same conclusion, and suggest some preponderance of Group O compared with the normal population.

Psychological disorder is another factors has been found in this study contributed to skin disease. It has been reported that psychologic stress perturbs epidermal permeability barrier homeostasis, and it may act as precipitant for some inflammatory disorders like atopic dermatitis and psoriasis (30). Dermatologists have stressed the need for psychiatric consultation in general, and psychological factors may be of particular concern in chronic intractable dermatologic conditions, such as eczema, prurigo and psoriasis (31, 32). The patients with dermatological disorders have been observed to used particular treatment include cosmetic, Plasma injection and meso-therapy and their own make up. Stress is one of the another factor aggravate dermatitis in people already exposed to the disease (33). In concerning of the skin, , lack of sleep causes release of stress hormone cortisol, which in turn encourages inflammation in the skin, causing flare-ups in conditions like acne, psoriasis, and even eczema (34). There is particular recommendation for sleeping hours reported by National Sleep Foundation which recommended seven to nine hours of sleep per night for most adults. Less sleeping hours than those recommended can play a role in the development of wrinkles, sagging skin, and dark circles under the eyes (35).

The nutritional risk factors for skin disease have been arising during the last year, therefore, recent weight loss due to dietary management, being overweight, increased waist circumferences and waist hip ratio have attributed to dermatological disorders as demonstrated in here. The main effects of increasing body weight on skin physiology are related to the barrier function, the sebaceous and sweat glands, the hairs, the structure and function of collagen, the cicatrization of wounds, the subcutaneous fat, the lymphatic drainage and the microcirculation (36).

The main methods used to measure obesity are anthropometric measurements, such as body weight, subscapular/tricipital fold ratio, waist and hip circumference, and body mass index (BMI) (4). Obesity and high abdominal fat mass doubles the risk of psoriasis, and persistent weight gain substantially increases psoriasis risk (37). Furthermore, the result of this work shown that the majority of patients on vitamin and mineral supplementations but none of particular minerals and vitamin shown significant trends. In contrary to many

studies by which micronutrients such as vitamin (A, E, D, folic acids, vitamin B12 and vitamin C) and minerals include (zinc, iron, magnesium and selenium), all of which necessity factors for production of skin against deteriorations (38, 39). The current work found decreased consumptions of aforementioned micronutrients which in turn result in dermatological diseases.

Decreased Water intake, lack of exercise, high consumption of fasting foods, and less sleeping hours are all of these factors were found significant increased ($P < 0.05$) in patients with dermatological diseases. It is clear that higher water consumption in regular diet has positively associated with normal skin physiology (40). The "Dietary Guidelines for Americans 2010" report that adequate water intake 3.7 and 2.7 L/day for men and women, respectively(41), while the European Food Safety Authority (EFSA) has a reference values of 2.0 and 2.5 L of water per day for women and men, respectively (41). However, the current work found that an average water drinking were 2-3 cups daily (75 ml) which is considered far less than normal requirement. The patients in this study did not practicing the exercise. In spite that, they have more skin disorders and this disagree with several studies by which many dermatologists believe that patients with dermatitis should avoid exercise due to increased sweating (42). Furthermore, intensive exercises has been found negatively affect the physiological states of the skin and the immune system (43).

The result of modified food frequency questionnaire shown that, the food which consumed on the daily basis include eggs milk, cheese, bread, vegetable and fruits beside to junk food and tea, coffee, chocolate, sweets, juice and sugar. Consumption of milk, sugar, cheese and chocolate have been associated with skin diseases (44).

Regarding blood biochemistry, our study revealed that, serum deficit of nutrients which reflect either skin beauty and hair strength. Zinc one of the trace element important for maintaining strength of the hair and integration of the skin and lack in zinc can result in weeping dermatitis, secondary infections, alopecia, nail defects, excessive fragile hair and spars, acrodermatitis, poor wound healing (45, 46). Iron is also another element found that its deficiency result in spoon shaped nails, hair loss, glossitis with loss of papillae, angular cheilitis and pruritis (47).

Overall, non-nutrition and nutritional factors have been proved to increased skin disorders and such factors need to be further validated in large samples size. Lack of the references which also make the comparison bit difficult. Its highly recommended that nutritional education program might needed for the role of nutrients and diet and identified well known non-nutritional factors in preventing dermatological disease.

V. CONCLUSION

The present study revealed that female suffering of dermatological disorder more than male. The age of such disorder has been confined to early adults and the most common skin disorder reported in the study were hair fall and acne. Furthermore, high education levels (university levels), students and single marital status have had more dermatological disorder. Serum nutrients deficiency, less water intake, increased waist circumferences, waist hip ratio and, being overweight altogether contribute to increased dermatological disease. Taken together increased consumption of junk food with less consumption nutritious foods and or lack of micronutrients supplementations, lack of exercise decrease circadian rhythm lead to increased inflammatory milieu in the body which in turn increased skin response to deleterious changes led to development of skin diseases.

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