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Investigation of skincare habits and possible rosacea triggers of patients with rosacea: A prospective case–control study

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ABSTRACT

OBJECTIVE: Skincare is a part of rosacea treatment; patients benefit from complementary dermo-cosmetic care as well as medical treatments. Some skincare habits are known to trigger and exacerbate rosacea, but there are very few epidemiological studies on this matter.

METHODS: A total of 200 people, including 100 patients with rosacea and 100 controls, were included in the study. We questioned the methods used by the participants in daily facial cleansing. Sun and heat exposure, makeup habits, the history of the use of topical steroids, and outdoor working status were noted. A dermoscopic examination, a non-invasive and valuable method to evaluate the presence and severity of Demodex, was performed.

RESULTS: We evaluated 30% of our rosacea patients as erythematotelangiectatic rosacea, 13% as papulopustular rosacea, and 57% of our patients had mixed type, which could not be distinguished from one of these subtypes. In the case group, the proportion of people who used daily facial cleansers and daily soaps was lower than in the control group, while the proportion of those who cleaned their face with only water and those who used facial cleansers less frequently was higher ($p<0.001$). In the case group, while the rate of daily make-up and use of make-up products was lower ($p=0.001$, $p<0.001$, respectively), the rate of not wearing make-up was higher ($p=0.001$). The history of hot bath use was higher in the case group than in the control group ($p=0.011$). We found a significant relationship between the severity of plaque and dry appearance and the increase in Demodex density ($p=0.007$, $p<0.001$, respectively).

CONCLUSION: We recommend that patients with rosacea clean their faces daily with soap or facial cleansers and not take a bath with very hot water. Patients should be evaluated for increased Demodex mites, especially if skin dryness is accompanied.

Keywords: Demodex; rosacea; skincare.

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Rosacea can be considered a chronic inflammatory disease caused by innate immunity and abnormal vasomotor function in those with a genetic predisposition. But its pathogenesis is still unclear [1]. The worldwide prevalence of rosacea has been reported to be up to 10%, and it is estimated that 40 million cases are affected [2].

Demodex colonization, microbial stimuli, UV radiation, heat, emotional changes, alcohol, spicy foods, cosmetics, exercise, topical irritants, and certain medications are thought to be associated with the onset or exacerbation of rosacea [3, 4].

Skincare is a part of rosacea treatment; patients benefit from complementary dermo-cosmetic care as well as medical

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treatments [5]. Skincare in rosacea should basically be done in the form of cleaning, moisturizing, sun protection, and make-up steps when necessary, respectively, and the products to be selected should be non-irritant and hypoallergenic [6–8]. In addition, excessive skin cleansing should be avoided as it can trigger the development of rosacea by disrupting the barrier functions of the skin, and the impaired skin barrier should be repaired with proper skin care [8, 9].

Some skincare habits are known to trigger and exacerbate rosacea, but there are very few epidemiological studies on this matter. In the multicenter retrospective case-controlled study, which is the only one that examined daily skin care habits, it was reported that excessive use of facial cleansers, frequent makeup, and regular skin care in beauty centers were closely related to the development of rosacea [8].

This study aims to evaluate the skincare habits, sun and heat exposure, and some nutritional habits of patients with rosacea. Our study is among the few that evaluated skincare and some eating and beverage habits in patients with rosacea.

Highlight key points

- Rosacea is a common problem affecting approximately 40 million people worldwide.
- Limited epidemiological studies exist on skincare habits triggering and exacerbating rosacea.
- Regulating daily skin care habits may be beneficial in the treatment of rosacea.

MATERIALS AND METHODS

The Population of the Study

A total of 200 people, including 100 patients with rosacea and 100 controls, between the ages of 18 and 65, were included in the study. The control group was selected from healthy volunteers who did not have rosacea but were compatible with the patient group regarding age and gender. People under the age of 18, pregnant, or breastfeeding were excluded from the study. The Clinical Research Ethics Committee granted approval for this study (date: March 09, 2021, number: 2021.900.39). Written informed consent was obtained from the patient for the publication of the images. The study was carried out in accordance with the Declaration of Helsinki.

The clinical features of rosacea and the comorbidities of the patients were noted. Demographic data, Fitzpatrick skin type, and habits of skincare and food and beverage consumption of the participants were recorded. In terms of smoking, they were divided into three groups: smokers, non-smokers, and ex-smokers.

Evaluation of Facial Skincare Habits

They were divided into three categories by questioning the methods used by the participants in daily facial cleansing. (1) Those who use only water (without soap or any special facial cleansing agent); (2) Those who use soap only; and (3) Those who use a special facial cleansing agent (gel or foam). They were also asked if they used tonics and exfoliants in their skincare.

They were asked whether they went to professional skincare. Those who underwent more than three skincare sessions in a year were regarded as going to skincare regularly.

We questioned their makeup habits. We noted whether they used products such as foundation cream, powder, BB cream, or CC cream and how often they used them. They were regarded as regular users if they used the aforementioned products more than 3 times a week.

Assessment of Sun Exposure

Sun exposure habits and outdoor work status were questioned. Staying in the sun for at least 4 h, more than 3 days a week, was considered sun exposure.

Evaluation of Topical and Systemic Steroid Exposure

Those with a topical and/or systemic steroid use history for more than 3 months per year on a regular or intermittent basis were considered exposed to steroids.

Evaluation of Eating and Drinking Habits

Regarding alcohol use, participants were classified as non-users, those using two or less per week, and those using more than 3 times per week. They were asked about their habits of milk, hot beverages, and spicy food consumption. The consumption of any of them more than 3 times per week was regarded as a habit.

Assessment of Heat Exposure

They were using the sauna and/or Hammam more than once a month, which was considered a habit. The participants were asked whether they bathed in cold, warm, or very hot water. Those using very hot water were considered to have hot bath habits. Those exercising for more than 20 minutes at least 3 days a week were regarded as having exercising habits.

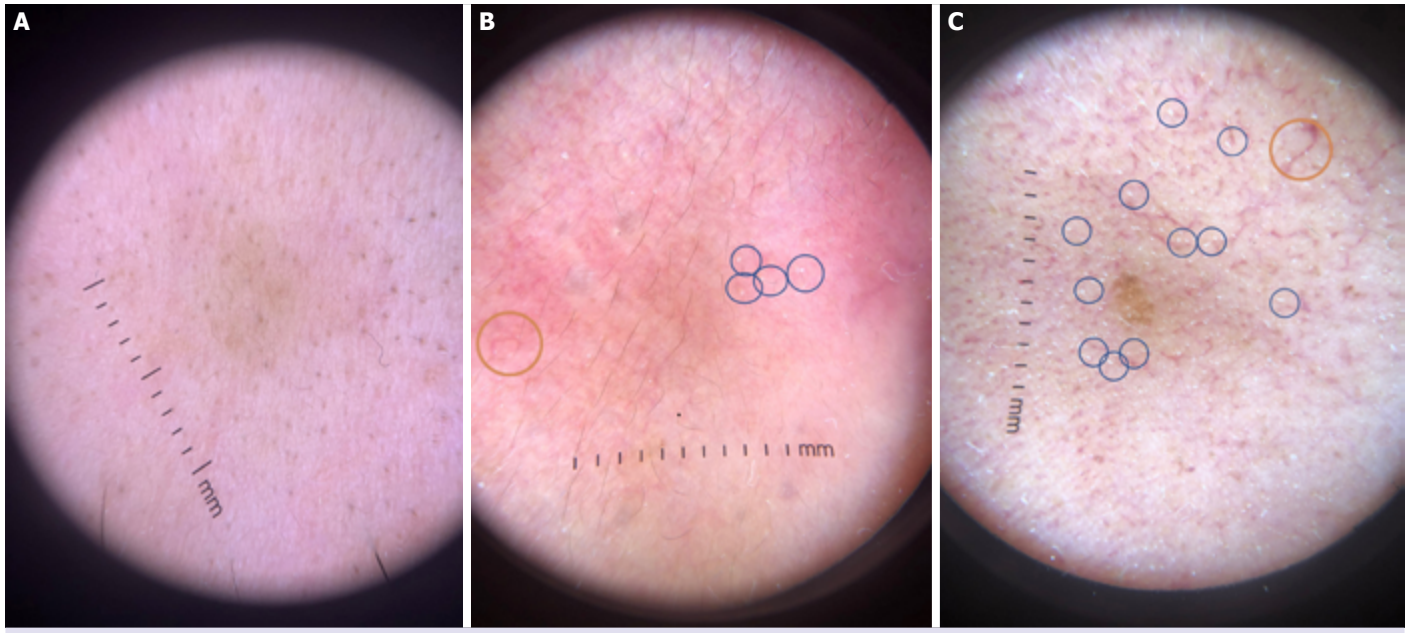

FIGURE 1. Dermoscopic examination for Demodex evaluation. **(A)** Demodex negative, **(B)** Demodex low: 4–9 tails were seen in the area (black circles), telangiectatic vessels (red circle) **(C)** Demodex high:10 or more tails were seen in the area (black circles) and telangiectatic vessels (red circle) are seen.

Classification of Disease Severity

All patients were diagnosed and graded according to the rosacea diagnostic criteria of the National Rosacea Society Expert Committee [10, 11]. Clinical manifestations (transient erythema, permanent erythema, papules and pustules, telangiectasia, burning-stinging) and physician global evaluation were rated in 4 categories: absent, minimal, moderate, and severe. The skin types of the patients were assessed according to Fitzpatrick skin phototypes [12].

Evaluation of the Presence of Demodex Mites

A dermoscopic examination, a non-invasive and useful method to evaluate the presence and severity of Demodex, was performed [13, 14]. If more than three Demodex tails were seen in an area, it was considered Demodex positive. The density rates of the Demodex were determined according to the number of Demodex tails (4–9 tails: Demodex low, 10 or more tails: Demodex high) (Fig. 1).

Statistical Analysis

Homogeneity

It was checked whether the case and control groups were similar in terms of gender and age. Regarding gender, case and control groups are identical (χ^2:0,243; p=0.622>0.05). In terms of age, when the case and control groups were compared, it was found that they were similar at a 95% confidence level (t= 1,846; p=0.066>0.05).

Analysis of Data

The distribution of numerical data was examined based on skewness and kurtosis values, and a t-test and one-way ANOVA were used in normal distribution rates. A Bonferroni post hoc test was used. Mann–Whitney U and Kruskal–Wallis H tests were used on the data not showing a normal distribution. Dunn's test was used in post hoc analysis. Likelihood ratio (a), Pearson chi-square (b), Mantel–Haenszel test (c), Fisher Exact test (d), and Yates correction (e) were used for comparisons between other non-parametric data. The results yielded a 95% confidence level. Analyses were performed using IBM SPSS Version 25.0 (Chicago, USA)

RESULTS

Demographic Data

In the patient group, 74 of them were female (74%), 26 of them were male (26%), and the control group consisted of 77 females (77%) and 23 males (23%). The mean age was 44.32 (±11.24) in the patient group and 41.39 (±11.22) in the control group. The mean disease duration was 4.7 years (±3.27) (Table 1).

Table 1. Participants' information

Groups	n	%
Cases	100	50.0
Controls	100	50.0
Total	200	100.0
Sex-cases		
Female	74	74.0
Male	26	26.0
Sex-controls		
Female	77	77.0
Male	23	23.0
Sex-total		
Female	151	75.5
Male	49	24.5
Total	200	100.0

	Min	Max	Mean	SD
Age				
Cases	20.00	65.00	44.32	11.24
Controls	18.00	65.00	41.39	11.21
Total	18.00	65.00	42.86	11.29
Duration of disease (year)				
Cases	1.00	20.00	4.70	3.27

Min: Minimum; Max: Maxumim; SD: Standard deviation.

Smoking rates were similar between the case and control groups (p=0.764). Rates of family history of rosacea were higher, and regular sunscreen use after the disease was significantly higher (p<0.001) (Table 2).

Clinical Features of Patients

Permanent erythema was observed in 95% of all patients, while telangiectasia was present in 97%, and papulopustules were present in 77%. Ocular involvement was seen in 23% of patients, and a phymatous variant of the disease was seen in 3% of patients. Other clinical features were dryness at 76%, burning-stinging at 49%, plaques at 19%, edema at 13%, and peripheral involvement at 2% (Table 3).

We evaluated 30% of our rosacea patients as erythematotelangiectatic rosacea (ETR) and 13% as papulopustular rosacea (PPR), and 57% of our patients had mixed type, which could not be distinguished from one of the ETR and PPR subtypes (Table 4).

When we compared the clinical findings of rosacea with the density of Demodex, we found a statistically significant relationship between the severity of plaque and dry appearance and the increase in Demodex density (p=0.007, p<0.001, respectively). There was no correlation between other clinical findings and Demodex density (Table 4).

Skincare Habits

In the case group, the proportion of people who used daily facial cleansers and daily soaps was lower than in the control group, while the proportion of those who cleaned their face with only water and those who used facial cleansers less frequently (1–3 times per week) was higher (p<0.001).

In the case group, while the rate of daily make-up and use of make-up products was lower (p=0.001, p<0.001, respectively), the rate of not wearing make-up was higher (p=0.001).

The history of hot bath use and the rate of topical steroid use were higher in the case group than in the control group (p=0.011, p=0.024, respectively). In the case group, the rate of possession of Fitzpatrick skin type 2 was significantly higher than in the controls (p<0.001) (Table 5).

Dietary Habits

We did not find any difference in the consumption of hot food and beverages, alcohol use, or spicy food consumption between the patient and control groups (p=0.138, p=0.097, and p=0.191, respectively).

The Rate of Demodex Mites in Study Groups

The presence of Demodex mites was significantly different between the patient and control groups. We detected Demodex mites in 80% of the patient group and 20% of the control group (Table 4). In the study group, those who used daily soap and facial cleansers had a lower Demodex mites rate (p=0.007). In addition, those who did not have Demodex mite wore more daily makeup (p=0.025) (Table 6).

While there was no relationship between the presence of Demodex mites and age in the patient group, the ages of those who had very Demodex mites in the control group and, therefore, in the whole study group were higher than those without Demodex mites (p=0.004, p=0.033, respectively) (Table 7).

TABLE 2. Family history of rosacea, history of smoking, and habits of regular use of sunscreen in case and control groups

Smoking	Cases		Controls		p
	n	%	n	%	
None smoker	74	74.0	71	71.0	0.764[a]
Yes	22	22.0	26	26	
Quit	4	4.0	3	3.0	
Family history of rosacea					**<0.001**[b]
No	69	69.0	91	91.0	
Yes	31	31.0	9	9	
Habits of regular use of sunscreen					**<0.001**[b]
No	49	49.0	52	52.0	
Started after illness	31	31.0	0	0	
Yes	11	11.0	25	25.0	
Irregular	9	9.0	23	23.0	
Total	100	100.0	100	100.0	

a: Likelihood ratio; b: Pearson chi-square test.

DISCUSSION

Rosacea is common, especially in the 3rd and 4th decades. In different studies, the average age has been reported to be between 35 and 51 years [15, 16]. We found that the mean age of the patients was 44.32 years, like in prior reports. The duration of the disease is often longer than 2 years [17]. In our study, the mean disease duration was 4.7 years.

Having skin phototypes I and II is known to be the most significant risk for rosacea [18]. We also found that patients with skin phototype II were significantly more frequent than the control group. The high rate of rosacea in skin phototypes I and II may be related to one or more reasons, such as genetic predisposition and low melanin, which is UV protective, and the diagnosis of rosacea is much more difficult in dark-skinned people.

Although it has been reported that smoking may be significantly associated with phymatous rosacea, its relationship with ETR and PPR types has not been clearly determined [19]. In our study, we did not detect a difference between the patient and control groups regarding smoking. Since we have very few patients with phymatous rosacea, we could not evaluate the relationship between smoking and phymatous rosacea.

The prevalence of ETR has been reported to be 45–80% and PPR 18–49%. The frequency of ocular involvement and the phymatous variant are conflicting. Contrary to the studies reporting ocular involvement as 1%, more studies report a 65–80% range. Although studies report 4% of phymatous involvement, there are also studies reporting a rate of 48% [20]. Consistent with the literature, we found the ETR rate to be higher than the PPR rate. We did not have isolated ocular or phymatous rosacea; 23% of our patients had ocular involvement, and 3% had phymatous changes.

Demodex mites were found at a high rate in people with dry skin, and it is reported that this may be because the tails of the mites protruding from the follicular openings give the feeling of dry skin [21]. It has also been suggested that the very dryness of the skin is a factor facilitating the development of Demodex mites [22]. Similarly, we observed that the dry appearance of the skin increased as the density of Demodex mites increased. While dry skin may facilitate the development of Demodex mites, the increase in Demodex mites may also cause skin dryness with a mechanism similar to the dry eye that develops due to sebaceous gland obstruction in the ocular region [23]. Further studies are needed to elucidate this. When dry skin is seen in patients with rosacea, it may be an excellent approach to evaluate, especially for increased Demodex mites.

Skincare habits can contribute to the development of rosacea. Excessive skincare has been shown to play a role in the development of rosacea. The use of more than two facial cleansers per day, more than four face masks per week, more than six makeup products per week, and

Table 3. Clinical characteristics of patients

	n	%		n	%
Transient erythema			Severe	0	0.0
No	29	29.0	Dryness		
Mild	40	40.0	No	24	24.0
Moderate	27	27.0	Mild	47	47.0
Severe	4	4.0	Moderate	27	27.0
Permanent erythema			Severe	2	2.0
No	5	5.0	Edema		
Mild	46	46.0	No	87	87.0
Moderate	42	42.0	Mild	12	12.0
Severe	7	7.0	Moderate	1	1.0
Papulopustules			Severe	0	0.0
No	23	23.0	Peripheral involvement		
Mild	39	39.0	No	98	98.0
Moderate	33	33.0	Yes	2	2.0
Severe	5	5.0	Disease subtypes*		
Telangiectasia			Erythematotelangiectatic	30	30
No	6	6.0	Papulopustular	13	13
Mild	50	50.0	Mix*	57	57
Moderate	36	36.0	Phymatous**	3	3
Severe	8	8.0	Ocular**	23	23
Burning/stinging			Physician's global assessment		
No	51	51.0	Mild	47	47
Mild	30	30.0	Moderate	43	43
Moderate	16	16.0	Severe	10	10
Severe	3	3.0	Patient's global assessment		
Plaques			Mild	33	33
No	81	81.0	Moderate	53	53
Mild	15	15.0	Severe	14	14
Moderate	4	4.0			

*: Some patients presented with mixed forms of the disease (mixed form: patients with erythema, telangiectasia, and papules of similar intensity but not fully divided into the ETR or PPR group); **: We did not have any isolated ocular or phymatous type of patients.

more than one regular skin care product per week in a beauty salon have been reported to be closely related to the development of rosacea in China [8]. We found that daily use of facial cleanser, makeup, and regular skincare in a beauty salon was not frequent in our rosacea groups. This can be due to the marked differences in makeup and skincare habits between various societies, countries, and social groups. We have found that patients with rosacea mostly wash their face daily with just water or use a facial cleanser <3 times per week. And we have seen that Demodex, which is thought to have an essential role in the development of rosacea, is less intense in those who use daily soap or facial cleanser. We believe that inadequate facial cleansing, as well as excessive facial cleansing, plays a role in the development of rosacea.

Altered vascular reactivity is common in rosacea patients [6]. This may partly explain why these patients have an increased sensitivity to certain components of skin care products that are widely used throughout society. Although makeup rates were low in our case and control groups, we found that the rate of not wearing makeup was significantly higher in the patient group. When any cleaning product as a makeup remover is used, patients may have reduced their habit of using makeup products

Table 4. Relationship between clinical features and Demodex density in rosacea patients

	Demodex density						p
	No		Less		More		
	n	%	n	%	N	%	
Transient erythema							0.590[c]
No	7	35.0	7	33.3	15	25.4	
Mild	5	25.0	10	47.6	25	42.4	
Moderate	8	40.0	3	14.3	16	27.1	
Severe	0	0.0	1	4.8	3	5.1	
Permanent erythema							0.363[c]
No	0	0.0	1	4.8	4	6.8	
Mild	12	60.0	9	42.9	25	42.4	
Moderate	8	40.0	11	52.4	23	39.0	
Severe	0	0.0	0	0.0	7	11.9	
Papulopustules							0.638[c]
No	5	25.0	5	23.8	13	22.0	
Mild	8	40.0	7	33.3	24	40.7	
Moderate	7	35.0	8	38.1	18	30.5	
Severe	0	0.0	1	4.8	4	6.8	
Telangiectasia							0.740[c]
No	2	10.0	0	0.0	4	6.8	
Mild	7	35.0	12	57.1	31	52.5	
Moderate	10	50.0	8	38.1	18	30.5	
Severe	1	5.0	1	4.8	6	10.2	
Burning/sinking							0.278[c]
No	12	60.0	12	57.1	27	45.8	
Mild	6	30.0	4	19.0	20	33.9	
Moderate	1	5.0	5	23.8	10	16.9	
Severe	1	5.0	0	0.0	2	3.4	
Plaques							0.007[c]
No	19	95.0	20	95.2	42	71.2	
Mild	1	5.0	1	4.8	13	22.0	
Moderate	0	0.0	0	0.0	4	6.8	
Severe	0	0.0	0	0.0	0	0.0	
Dry appearance							<**0.001**[c]
No	10	50.0	9	42.9	5	8.5	
Mild	9	45.0	10	47.6	28	47.5	
Moderate	1	5.0	2	9.5	24	40.7	
Severe	0	0.0	0	0.0	2	3.4	
Physician global assessment							0.374[c]
No	0	0.0	0	0.0	1	1.7	
Mild	11	55.0	10	47.6	25	42.4	
Moderate	7	35.0	11	52.4	25	42.4	
Severe	2	10.0	0	0.0	8	13.6	

a: Likelihood ratio; c: Mantel–Haenszel test.

because of the sensitive skin in rosacea. Thus, the presence of rosacea seems to affect skincare habits.

Exposure to heat, sunlight, emotional changes, alcohol, spicy foods, exercise, hot water baths, consumption of hot food are the main factors that trigger rosacea. These factors may cause repetitive capillary dilatation and deterioration in the regulatory function of the vessels, contributing to the invasion of inflammatory cells and leading to the development of rosacea [4]. Sun exposure (25–64%) and thermal stimuli (e.g., hot baths or exercise) (25%) were reported as the two most common triggering factors [24, 25]. Sun exposure was similar between the patient and control groups. Hot bath usage was higher (35%) in our patient group than in the control group. We could not evaluate the effect of alcohol use on rosacea since alcohol use was very low in all our study groups.

Spicy and hot foods have been thought to be triggers in rosacea, but they have not been reported to play a role in the development of rosacea [26]. We didn't find any difference between the case and control groups in terms of the consumption of hot and spicy foods.

Topical use of corticosteroids is known to cause a rash on the face that is clinically indistinguishable from rosacea [27]. Topical steroid usage was higher in the rosacea group (16%) than in the control group (6%). Topical steroid use by patients may be at the recommendation of a non-physician because of the chronic form of their disease that does not heal, except for being misdiagnosed. The vasoconstriction and anti-inflammatory effects of topical steroids may cause a misleading healing effect on redness, which may result in the patient continuing topical steroid use. Patients with rosacea should be questioned in terms of topical steroid use.

The increase in the intensity of Demodex mites has begun to be accepted as an important trigger of the inflammatory cascade and a marker of rosacea. Also, rosacea

Table 5. Skincare habits and possible triggers in the study group

	Groups				p
	Cases		Controls		
	n	%	n	%	
Daily facial cleansing					<**0.001**[b]
Water	35	35.0	20	20.0	
Daily soap	20	20.0	36	36.0	
Daily facial cleanser	28	28.0	43	43.0	
Soap 1–3 days a week	4	4.0	0	0.0	
Facial cleanser 1–3 days a week	13	13.0	1	1.0	
Tonic usage					0.578[a]
No	94	94.0	90	90.0	
Weekly	3	3.0	5	5.0	
Daily	3	3.0	5	5.0	
Peeling usage					0.013[c]
No	95	95.0	86	86.0	
Monthly	3	3.0	4	4.0	
Weekly	1	1.0	2	2.0	
Daily	1	1.0	8	8.0	
Professional skin care					0.599[a]
No	95	95.0	96	96.0	
Classic	4	4.0	2	2.0	
Hydrafacial	1	1.0	2	2.0	
Makeup					**0.001**[c]
No	85	85.0	64	64.0	
Monthly	1	1.0	1	1.0	
Weekly	9	9.0	10	10.0	
Daily	5	5.0	25	25.0	
Steroid usage					**0.024**[b]
No	84	84.0	94	94.0	
Yes	16	16.0	6	6.0	
Sun exposure					0.315[b]
No	88	88.0	83	83.0	
Yes	12	12.0	17	A warm	
Warm bath, sauna					**0.011**[b]
No	65	65.0	81	81.0	
Yes	35	35.0	19	19.0	
Exercise					0.262[b]
No	77	77.0	70	70.0	
Yes	23	23.0	30	30.0	
Hot drinks					0.138[b]
No	60	60.0	70	70.0	
Yes	40	40.0	30	30.0	
Consumption of spicy foods					0.191[b]
No	66	66.0	57	57.0	
Yes	34	34.0	43	43.0	
Alcohol usage					0.097[c]
No	82	82.0	70	70.0	
2/week or less	12	12.0	22	22.0	
3/week or more	6	6.0	8	8.0	
Demodex rates					<**0.001**[c]
None	20	20.0	70	70.0	
Few	21	21.0	18	18.0	
More	59	59.0	12	12.0	
Fitzpatrick skin type					<**0.001**[c]
II	61	61.0	36	36.0	
III	36	36.0	48	48.0	
IV	3	3.0	16	16.0	

a: Likelihood ratio; b: Pearson Chi-square test; c: Mantel–Haenszel test; d: Fisher exact test.

papulopustules can be treated using acaricides [28, 29]. We observed that the density of Demodex mites clearly increased in 80% of patients with rosacea. We think it is essential to evaluate the density of Demodex mites in rosacea and to determine the treatment with acaricides accordingly. Dermoscopy, a non-invasive method, is very useful in assessing and following Demodex intensity.

Demodex mites have been shown in 63% of cases with ETR and 85% of PPR cases. The potential role of the Demodex mite in developing rosacea and the similarities between demodicosis and rosacea leads to diagnostic confusion. They can also all be considered part of the same entity [28]. In a meta-analysis examining Demodex density in patients with rosacea, it was found that Demodex density was lower in ETR than in PPR, but this rate was not statistically significant [30]. In our study, we saw an increase in the severity of plaque and dry appearance findings with the rise in Demodex density, but we did not detect a relationship with the severity of erythema, telangiectasia, and papulopustules.

In addition, Demodex mites were less common in patients with rosacea who used daily soap and daily facial cleanser. Skin cleansing effectively reduces the number of Demodex folliculorum [8, 31–33]. It is conceivable that

Table 6. Demodex rates in the study group

	Demodex						p
	None		Few		More		
	n	%	n	%	n	%	
Daily facial cleansing							**0.007**[a]
Water	17	18.9	11	28.2	27	38.0	
Daily soap	31	34.4	11	28.2	14	19.7	
Daily facial cleanser	39	43.3	14	35.9	18	25.4	
Soap, 1–3 days a week	1	1.1	1	2.6	2	2.8	
Facial cleanser, 1–3 days a week	2	2.2	2	5.1	10	14.1	
Tonic							0.495[b]
No	83	92.2	33	84.6	68	95.8	
Weekly	3	3.3	4	10.3	1	1.4	
Daily	4	4.4	2	5.1	2	2.8	
Peels							0.544[c]
No	83	92.2	31	79.5	67	94.4	
Monthly	2	2.2	3	7.7	2	2.8	
Weekly	1	1.1	1	2.6	1	1.4	
Daily	4	4.4	4	10.3	1	Prof.	
Professional skincare							0.602[a]
No	85	94.4	37	94.9	69	97.2	
Classic	3	3.3	2	5.1	1	1.4	
Hydrafacial	2	2.2	0	0.0	1	1.4	
Chemical peels							0.449[a]
No	89	98.9	39	100.0	71	100.0	
Yes	1	1.1	0	0.0	0	0.0	
Makeup							**0.025**[a]
No	61	67.8	29	74.4	59	83.1	
Monthly	2	2.2	0	0.0	0	0.0	
Weekly	6	6.7	6	15.4	7	9.9	
Daily	21	23.3	4	10.3	5	7.0	
Makeup product							0.054[a]
No	61	67.8	28	71.8	57	80.3	
bb/cc cream	24	26.7	8	20.5	9	12.7	
Moisturizer	0	0.0	0	0.0	3	4.2	
bb/cc cream+ moisturizer	5	5.6	3	7.7	2	2.8	
2/week or less	19	21.1	9	23.1	6	8.5	
3/week or more	6	6.7	3	7.7	5	7.0	

Prof: Professional; a: Likelihood ratio; b: Pearson Chi-square test; c: Mantel–Haenszel test.

few and intermittent facial cleansings may trigger rosacea through an increase in the number of Demodex mites.

There was a significant difference between the intensity of Demodex mites in the control group and the total in terms of age. The risk of infection with Demodex types increases with age [34, 35]. We also observed that the intensity of Demodex mites increased as the age increased in the control group and, therefore, in the study group.

Conclusion

Since rosacea occurs in people of different races and skin types, skincare recommendations should be specific to the person as well as the treatment of the disease [36]. Approximately 12% of patients with rosacea are looking for advice on skincare. It can be thought that these patients do not attach the necessary importance to skin care [37]. In this context, dermatologists should explain the importance of skin care to patients with rosacea to increase their awareness and help create a patient-specific skincare routine.

Table 7. Demodex rates in the study group in terms of age

Demodex rates	n	Age (Mean±SD)	F	p	Significance
Cases					
None	20	45.95±8.84	0.317	0.729	–
Few	21	43.19±12.97			
More	59	44.17±11.42			
Controls					
None	70	39.03±10.36	5.973	**0.004**	More>None
Few	18	45.72±12.55			
More	12	48.67±9.51			
Total					
None	90	40.57±10.4	3.479	**0.033**	More>None
Few	39	44.36±12.67			
More	71	44.93±11.19			

SD: Standard deviation; F: One-way ANOVA test.

Ethics Committee Approval: The Maltepe University Clinical Research Ethics Committee granted approval for this study (date: 09.03.2021, number: 2021.900.39).

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