

Management patterns for skin aging among Saudi dermatologists: A questionnaire-based study

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ABSTRACT

Background: Skin aging is a complicated process affected by intrinsic, chronological, and extrinsic, environmental, determinants, and it is affected, to a large extent, by exposure to ultraviolet radiation (UVR). The present study aims to assess the antiaging treatment strategies in a real-world setting in Saudi Arabia. **Materials and Methods:** We conducted an online cross-sectional survey that was conducted from May 2020 to October 2020, involving all eligible dermatologists working at different academic, governmental, and private sectors in Saudi Arabia. **Results:** A total of 200 dermatologists were included in this study, of them, 33% were aged between 24–35 years. 28.5%, 25.5%, 24.5%, and 21.5% of the participants had 7–10, 4–6, >10, and 0–3 years of practice, respectively. Generally, 80 (40%) of the dermatologists reported that 10–20% of their patients consulting for antiaging, while 50 (25%) reported that 41–60% of their patients consulted for antiaging treatment. Cream products were preferred by 105 (52.5%) of the users. In general, 158 (79%) prescribe growth factors Post-procedures, while 29 (14.5), 24 (12%), and 22 (11%) prescribe them for under-eye dark circles, acne scars, and aging skin, respectively. 124 (62%) prefer to use it in combination with retinoids. **Conclusion:** The results of this survey indicate the fact that female patients and the age group 31–40 years old are more likely to seek skincare and antiaging therapy. Most dermatologists prescribed growth factors together with retinoids and only a small proportion of them used growth factors are antiaging modalities.

Keywords: Antiaging, dermatologist, Saudi, skin aging

Introduction

Skin aging is a complicated process affected by intrinsic/chronological and extrinsic/environmental determinants, and it is affected, to a large extent, by exposure to ultraviolet radiation (UVR).^[1–3] Chronic skin exposure to the UVR would induce dermal elastosis, the extracellular matrix (ECM) degradation, and the emergence of wrinkles, which is called photoaging.^[4] The ECM proteins, present in the dermal matrix, include elastin, collagen, and proteoglycans; they are responsible

for maintaining the resilience and strength of the skin.^[5] The aging process is associated with changes and atrophy in the dermal matrix, mainly driven by fibroblasts, declined dermal collagen synthesis with an increase in its breakdown.^[5] The most common visible signs for aging include wrinkles, sagging, dullness, and skin discoloration or spots.^[6] With the “youthful” skin appearance is being perceived as healthy and attractive, the ag-ng-associated alterations are a concern for many people, especially those on the face.^[7–9] Additionally, skin aging was found to have an impact on the individuals’ quality of life, including both physical and psychological aspects.^[10]

Over the past few decades, with the increased life expectancy, there is a major increase in asking for antiaging treatments, coupled with desiring for flawless skin.^[11] It is known that dermatologists have a critical role in the skin aging dynamics.^[12]

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The previous literature shows that patients would mostly use the antiaging therapy following the consultation of a dermatologist.^[13] Based on the last recommendations, the aging management strategies should be tailored for each patient, incorporating the understanding of the skin aging process.^[14,15] Many treatment modalities have been developed for aging skin, including cosmeceutical agents, esthetic, and surgical procedures.^[16,17]

A survey of 147 Indian dermatologists showed that both genders visit dermatologists seeking clinical treatment for skin aging.^[12] Their results also showed that dermatologists prescribe a combination of two to four antiaging products, with a 6-month average improvement of 30%.^[12] Similar studies about the patterns of topical therapies for aging skin are scarce in Saudi Arabia. Hence, the present study aims to assess the antiaging treatment strategies in a real-world setting in Saudi Arabia.

Materials and Methods

Study design

This is an online cross-sectional survey that was conducted from May 2020 to October 2020, involving all eligible dermatologists working at different academic, governmental, and private sectors in Saudi Arabia.

Data collection

The survey questionnaire was prepared after a thorough review of the literature. The questions were customized to fit into the criteria of this study. The questionnaire's content was then validated by a panel of subject experts. A pilot study was conducted among 30 participants, who were not included in the final survey. The survey was analyzed using Cronbach's reliability coefficient. If there is any need, the needed changes were incorporated before using them for the larger sample.

The questionnaire was composed of two parts: "Part A" which was the sociodemographic details and background clinical experience and "Part B" that assessed management of aging skin. The questionnaire was distributed online using google forms. Only completely filled questionnaires were considered for the study.

Informed consent and ethical considerations

No identifying information of any participant was published and all collected data were exclusively used for statistical analysis. The data of the participants were kept confidential. Every participant was asked to fill an online informed consent in the first page of the survey before being able to move further.

Statistical analysis

Data will be analyzed by SPSS 26 (SPSS Inc, Chicago, IL, USA). Descriptive statistics were calculated for all variables. Continuous variables were summarized using mean \pm standard deviation (SD), while categorical ones were presented as frequency count (N) and percentages (%). Missing observations in any variable were excluded from the corresponding analysis.

Results

Respondent dermatologists

A total of 200 dermatologists were included in this study, of them, 33% were aged between 24–35 years. 28.5%, 25.5%, 24.5%, and 21.5% of the participants had 7–10, 4–6, >10, and 0–3 years of practice, respectively. The majority, 173 (86.5%), of them practiced at government hospitals, while 27 (13.5%) practiced at private hospitals/clinics [Table 1].

Patients' demographics that consulting for antiaging treatment

Generally, 80 (40%) of the dermatologists reported that 10–20% of their patients consulting for antiaging, while 50 (25%) reported that 41–60% of their patients consulted for antiaging treatment [Figure 1]. Additionally, 39.5% of the dermatologists reported that the ratio of male: female patients who consulted for antiaging drugs was 3:7 [Figure 2]. On the other hand, 82 (41%) prescribe only two products for male patients while 118 (59%) prescribe 5 products for female patients [Figure 3].

In total, 140 (70%) of the participants reported that most of their patients consulted for antiaging drugs were 31–40 years old while 47 (23.5%) of them reported that those patients were aged from 25–30 years [Figure 4]. The ideal age to consult about antiaging products was 30 and 25 according to 75 (37.5%) and 67 (33.5%) of the dermatologists, respectively [Supplementary Figure 1].

Aging signs and treatments

According to the participants, the most common aging signs in Saudi patients are wrinkles (71.5%) followed by dull skin or complexion (64.5%), pigmentation (38%), and finally dry skin (36.5%). Clinical and instrumental evaluations were the commonest methods used to assess the improvement when using antiaging drugs [Table 2].

The number of commonly prescribed drugs for both males and females is summarized in Figure 5. The results of the survey show that 114 (58%) dermatologists usually prefer to prescribe drugs with multiple active agents, while 83 (41.5%) preferred drugs with a single active agent. Cream products were preferred by 105 (52.5%) of the users [Table 3].

In terms of expenditure, 67 (45.6%) dermatologists reported that the average amount of money spent by their patients per month on antiaging products is 2000–4000 Saudi riyals (SAR) [Figure 6] and 68.5% believed that the average amount spent by their consulting patients on one product is 1500 SAR, 23% and 8.5% reported that this amount was 1000 and 2000 SAR, respectively [Figure 7].

In general, 158 (79%) prescribe growth factors Post-procedures, while 29 (14.5), 24 (12%), and 22 (11%) prescribe them for under-eye dark circles, acne scars, and aging skin, respectively. 124 (62%) prefer to use it in combination with retinoids [Table 4].

Discussion

In this survey-based study, we have included a total of 200 dermatologists who responded to our questionnaire and fulfilled our criteria. We tried to assess the current concepts of managing skin aging among our included population. The results of our investigation showed that 40% of them reported that 10–20% called for antiaging treatment, another 35% reported a rate of 21–40%, while the rest (25%) reported that 41–60% of their patients consulted for antiaging management. These rates are better than those reported by Agarwal *et al.*,^[12] which conducted a similar survey of 147

dermatologists. The authors reported that the highest rate of patients' consultation was reported by 6.9% of their included dermatologists only. Besides, 58.2% of dermatologists reported a rate of 10–20% of their patients. These differences might be attributable to the differences between the two populations attributable to the differences in cultures and beliefs. Another difference is the male to female ratio between our study and theirs. Although 39.5% of the dermatologists that were included in this study reported a 3:7 male to female ratio, it was far less than the 75.3% of their dermatologists that reported the same ratio. The high percentage of women, compared to men, is logical as it is widely accepted that women tend to seek antiaging treatment to achieve a more youthful, and healthy appearance. Studies showed that women are more liable to attain cosmetics and skin-related products that can reduce the process of aging.^[13,18] Moreover, it is widely known that most care products are directed mostly at women as statistics showed that women females have purchased more skin products than males over the years, and are the target population for skin-related products testing and validation.^[19] On the other hand, recent investigations also showed that men are becoming more and more interested in seeking antiaging skin medications.^[20,21]

Another factor to be considered is the age of the investigated population. In our study, the results showed that most patients were in the 31–40 years' age group as reported by 70% of the included dermatologists. This is consistent with the results by

Table 1: Sociodemographic characteristics of participants (n=200)

| Variables | n | % |
|-------------------------|-----|------|
| Age (Years) | | |
| 24-35 | 66 | 33.0 |
| 36-45 | 54 | 27.0 |
| 46-55 | 56 | 28.0 |
| 56-60 | 24 | 12.0 |
| Years of Practice | | |
| 0-3 | 43 | 21.5 |
| 4-6 | 51 | 25.5 |
| 7-10 | 57 | 28.5 |
| >10 | 49 | 24.5 |
| Years of Practice | | |
| Government hospital | 173 | 86.5 |
| Private hospital/Clinic | 27 | 13.5 |

Table 2: Signs and duration of improvement with antiaging drugs (n=200)

| Questions | Variables | N | % |
|--|---------------------------|-----|------|
| How do you gauge the improvement in patients? | Photographic evaluation | 28 | 14.0 |
| | Clinical evaluation | 86 | 43.0 |
| | Instrumental evaluation | 86 | 43.0 |
| According to you, which are the common aging changes in Saudi skin? | Dry skin | 73 | 36.5 |
| | Dull skin/Dull complexion | 129 | 64.5 |
| | Wrinkles | 143 | 71.5 |
| | Pigmentation | 76 | 38.0 |
| In which signs of aging do you see improvement at the earliest? | Dry skin | 1 | 0.5 |
| | Dull skin/Dull complexion | 74 | 37.0 |
| | Wrinkles | 99 | 49.5 |
| | Pigmentation | 26 | 13.0 |
| After the first visit, when do you call the patient for a follow-up? | 1 month | 26 | 13.0 |
| | 2 months | 144 | 72.0 |
| | 3 months | 30 | 15.0 |
| When is the effect of anti-aging products evident? | 2-4 months | 55 | 27.5 |
| | 4-6 months | 109 | 54.5 |
| | >6 months | 36 | 18.0 |
| What is the percentage of improvement noticed at the end of 6 months? | <15% | 33 | 16.5 |
| | 15-20% | 92 | 46.0 |
| | >20 | 75 | 37.5 |
| How long do you continue with the first option of treatment before changing to another option? | 3 | 30 | 15.0 |
| | 4 | 120 | 60.0 |
| | 6 | 50 | 25.0 |
| By how much time do users expect improvement? | 3 months | 63 | 31.5 |
| | 6 months | 137 | 68.5 |

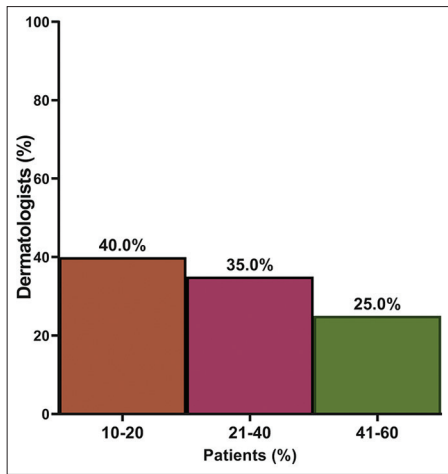


Figure 1: Percentage of patients consulting for anti-aging treatments

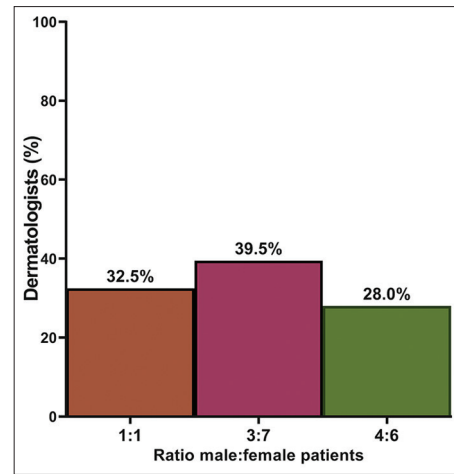


Figure 2: Male: female ratio who consulting for anti-aging treatments

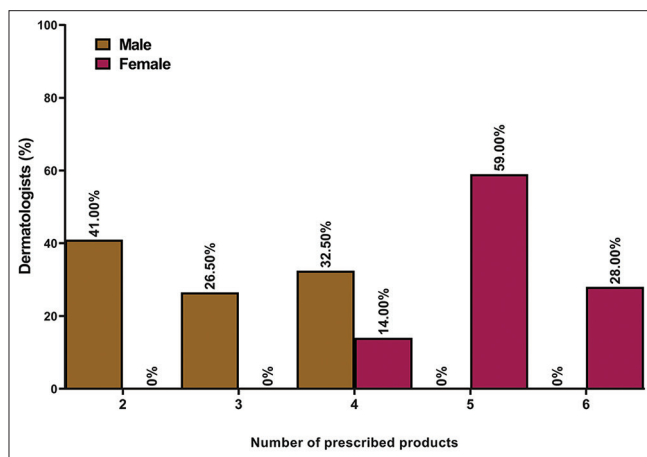


Figure 3: The number of prescribed products for each gender

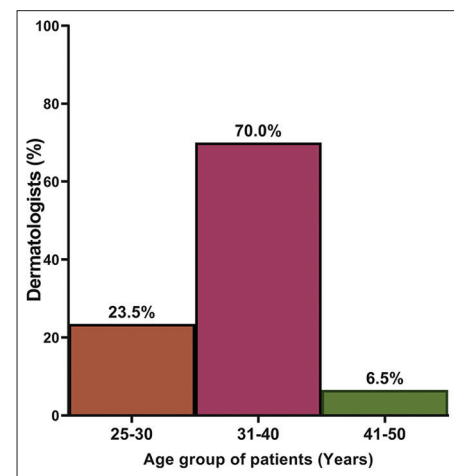


Figure 4: Patients' age groups consulting for anti-aging treatments

Agarwal *et al.*,^[12] which reported the same results. The authors also reported that their dermatologist population reported that most of them recommended the age of 30 years as the ideal age to inaugurate the antiaging regime into skincare and management. On the other hand, Bonati *et al.*^[22] recommended that skincare and antiaging management should be started at an early age and also reported that regardless of age, the appropriately introduced skincare might be attributable to investigations regarding the physiological and pathological mechanisms behind the age-related events. Besides, the most reported aging features in this study were wrinkles, dull skin/dull complexion, pigmentation, and dry skin. Additionally, the earliest and aging signs to improve as reported by the included Saudi dermatologists that were commonly reported were wrinkles, dull skin/dull complexion, and pigmentation, respectively. Agarwal *et al.*^[12] reported that among their Indian population, wrinkles, pigmentation, dull skin, and dryness were the most common aging features while wrinkles and dry skin were the earliest signs to improve. Another study conducted by Vashi *et al.*,^[2] compared facial aging among different ethnic groups, reported that dark spots, wrinkles, and skin laxity were the most commonly reported characteristics among the different ethnic groups.

Table 3: Dermatologists choose antiaging drugs (n=200)

| Questions | Variables | n | % |
|---|-----------------------------|-----|------|
| Which formulation is preferred by the users for anti-aging treatment? | Serum | 35 | 17.5 |
| | Gel | 42 | 21.0 |
| | Cream | 105 | 52.5 |
| | Lotion | 18 | 9.0 |
| Which type of products do you prefer to prescribe? | With a single active agent | 83 | 41.5 |
| | With multiple active agents | 114 | 58.5 |
| Among the following retinoids, which one do you commonly used for anti-aging treatment? | Retinol | 21 | 10.5 |
| | Retinaldehyde | 99 | 49.5 |
| | Tretinoin | 80 | 40.0 |
| Amongst the following, which is the commonly used antioxidant? | Vitamin C | 22 | 11.0 |
| | Vitamin E | 137 | 68.5 |
| | Soy extracts | 28 | 14.0 |
| | Grape seed extracts | 13 | 6.5 |

The data from our survey also showed that treatment in the cream formulation was preferred by most of the surveyed dermatologists. Moreover, around 58.5% of them preferred to prescribe multiple antiaging agents for better effective results. Additionally, retinaldehyde and tretinoin were the most widely prescribed retinoids while vitamin E was the most prescribed

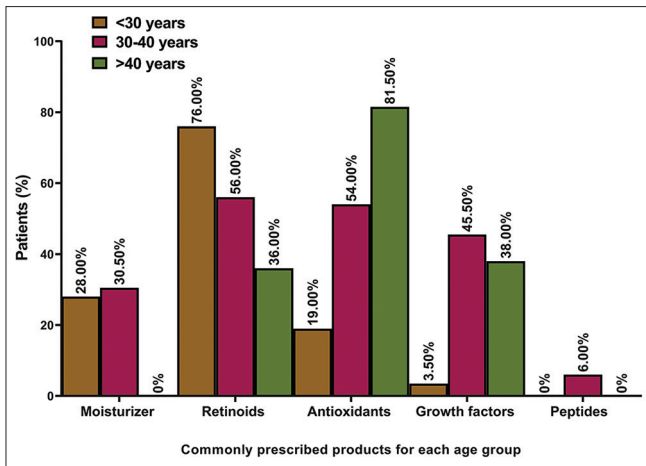


Figure 5: Commonly prescribed products for each age group

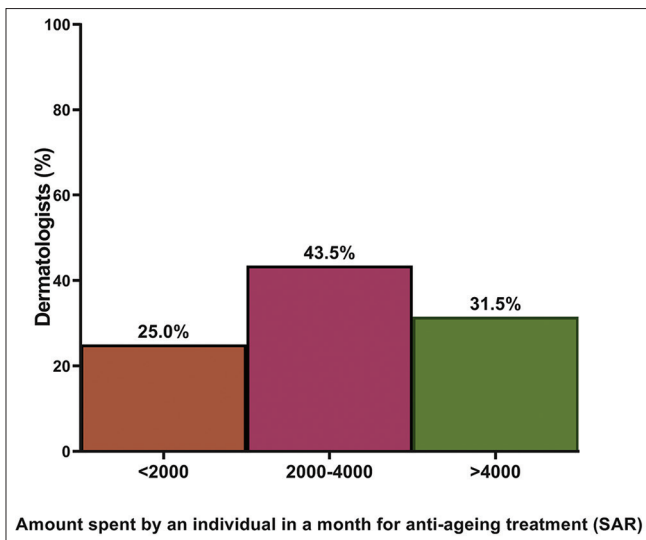


Figure 6: Amount spent by an individual in a month for anti-aging treatment (SAR)

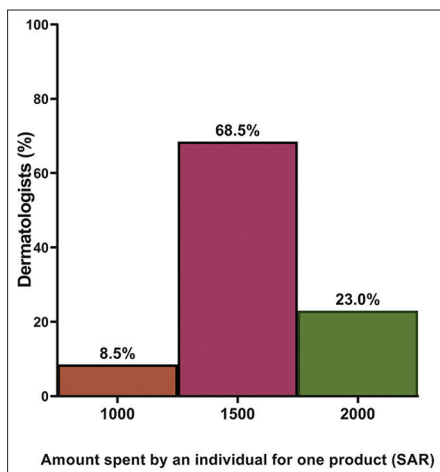


Figure 7: Amount spent by an individual for one product (SAR)

antioxidant therapy. As for growth factors prescription, most of the dermatologists showed that they prescribed growth factors

Table 4: Growth factor use as an antiaging drug (n=200)

| Questions | Variables | n | % |
|--|----------------------------------|-----|-------|
| In which conditions do you use growth factors base product? | Aging skin | 22 | 11.0% |
| | Post-procedures | 158 | 79.0% |
| | Under-eye dark circles | 29 | 14.5% |
| How do you use growth factors in the management of aging skin? | Acne scars | 24 | 12.0% |
| | As monotherapy | 8 | 4.0% |
| | In combination with retinoids | 124 | 62.0% |
| | In combination with antioxidants | 53 | 26.5% |
| | In combination with both | 15 | 7.5% |

after procedures only while only 11% of them used them for aging skin. Besides, 62% of our surveyed dermatologists prescribed growth factors with retinoids and only 7.5% prescribed them with antioxidants and retinoids. Previous investigations have shown favorable outcomes on improving skin aging following the use of combined retinoids, antioxidants, and/or growth factors administration.^[23-26] Agarwal *et al.*^[12] reported that most of their dermatologists mostly prescribed these elements in addition to moisturizers as first-line modalities for the antiaging treatment. The authors also mentioned that around 70% of their dermatologists reported favorable outcomes by the end of 6 months after initiating the treatment while this period was much longer than the anticipated one by patients which was 3 months only. Moreover, the average monthly cost for each patient to buy antiaging modalities was 2000–4000 INR.^[12] In this study, improvement by 4–6 months was reported by 54.5%, and 46% of dermatologists reported an improvement by 15–20% of aging by the end of the 6 months. However, 68.5% of the patients did expect the improvement to occur by the end of the 6 months and 43.5% spent 2000–4000 monthly SAR on their antiaging therapy.

As the survey was conducted on dermatologists only and did not survey patients, we consider this as a major limitation in this study. Moreover, only topical modalities were investigated by the survey. We, hereby, recommend the inauguration of further studies with better sample allocation and cost-effective analysis to reach judgment and comprehension about the aging process and the antiaging modalities.

Conclusion

The results of this survey indicate the fact that female patients are more likely to seek skincare and antiaging therapy than male patients. Moreover, patients in the age group 31–40 years old were the most likely to seek antiaging management. Most dermatologists prescribed growth factors together with retinoids and only a small proportion of them used growth factors are antiaging modalities. We recommend that further studies should be inaugurated to validate the different factors of antiaging modalities and the best regimen to prescribe.

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None.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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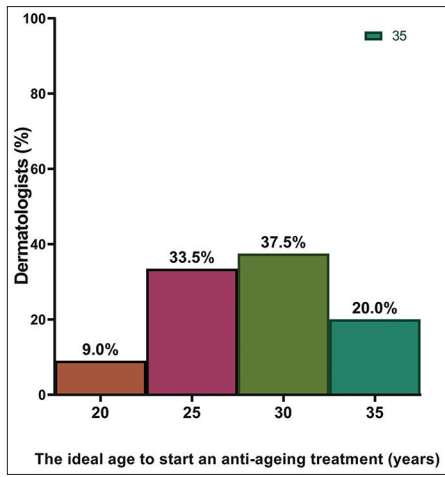
Nil.

Conflicts of interest

There are no conflicts of interest.

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Supplementary Figure 1: The ideal age to start anti-aging treatment