

LIFESTYLE PATTERNS OF PATIENTS WITH ALOPECIA AND FACTORS AFFECTING THEIR WILLINGNESS TO UNDERGO TREATMENT: A CROSS-SECTIONAL STUDY AMONG ADULTS

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ABSTRACT

Alopecia has become a growing concern since it directly affects the quality of life of the patients. It can be stimulated by various factors including stress, lifestyle changes, genetic predisposition, and aging. The objectives of this study were to evaluate the lifestyle patterns of alopecia patients, to understand alopecia's characteristics and treatment options, and finally to assess the factors affecting the willingness to undergo treatment. An observational cross-sectional study was conducted targeting 171 alopecia patients in the Lebanese adult population in 2020. A survey was administered during face-to-face interviews to collect the study data. Almost half of the participants in this study were smokers and alcohol consumers. For the majority of participants, alopecia initiated between 20 and 40 years and was associated with family history. Moreover, the willingness to use hair loss treatment is higher with age and university graduates had 5.05 higher odds to use them compared to primary and intermediate levels. The existence of family history had 3.42 higher odds to use hair loss treatment. In conclusion, patients with alopecia had specific lifestyle patterns. Pharmacists were the main source of information for alopecia treatment. Therefore, empowering their role in providing the adequate support for the patients is essential.

Keywords: Alopecia; Lifestyle; Patterns; Factors; Treatment

INTRODUCTION

Alopecia is a non-scarring condition leading to the loss of hair in the scalp and/or the body (Wasserman et al., 2007). It can affect both men and women with different patterns of hair loss. In General, hair loss arises in both frontal and temporal regions in men and can induce complete baldness whilst alopecia women tend to lose hair in the central area and the anterior zone of the scalp (Jamerson & Aguh, 2021). Alopecia can be irreversible (cicatricial alopecia), or reversible (non-cicatricial alopecia) (Porrino-Bustamante et al., 2021). In the first case, the hair

follicles are irreversibly damaged and displaced by fibrous tissues, resulting in permanent hair loss. This type of alopecia is uncommon and corresponds to only 5% of the cases (Bolduc et al., 2016). It can be primary due to diseases affecting the follicle or secondary due to other systematic disorders such as scleroderma or neoplastic disease (Gordon & Tosti, 2011; Harries & Paus, 2010). In contrast, in non-cicatricial alopecia, the hair loss may be due to alterations in the hair cycle, the follicle size, hair breakage, or a combination of these causes without affecting the hair follicle (Pratt et al., 2017). More than half of men over the age of 50 years, 13% of premenopausal women, and 75% of women over the age of 65 years suffer from androgenetic alopecia (Harrison & Bergfeld, 2009). This type can be triggered by genetic and hormonal factors due to an excessive response to androgen (Rodak et al., 2021). On the other hand, another prevalent type is alopecia areata usually associated with other diseases, mainly of an autoimmune nature, such as thyroid dysfunction, lupus erythematosus, vitiligo, psoriasis, rheumatoid arthritis and inflammatory bowel disease (Pratt et al., 2017; Senna et al., 2021). Affecting almost 0.2% of people, it is characterized by round or oval zones devoid of hair on the scalp (Petukhova et al., 2010).

Nevertheless, alopecia has become a growing concern because it directly affects the quality of life of the patients (Thadanipon & Suchonwanit, 2021). It can be stimulated by various factors such as excessive or consecutive episodes of stress, major lifestyle changes (e.g., smoking, alcohol consumption, sleep quality, obesity, and nutrition), exposure to certain chemical products (e.g., chemotherapy, hair straightening products and some drugs such as allopurinol, androgens and anticoagulants), genetic predisposition, and aging (Ryu et al., 2021). Most of these are modifiable risk factors and therefore can be addressed. Moreover, alopecia may lead to significant psychiatric disorders given that alopecia patients may suffer from serious depressive episodes, anxiety disorder, social phobia, or paranoid disorder (Savaş Erdoğan et al., 2021). They may also experience a decrease in health-related quality of life in many areas, including changes in personality, emotions, behaviors, and social interactions (Mostaghimi et al., 2021). In addition, it has been reported that women suffering from alopecia experienced more frustration and embarrassment than men (Chernyshov et al., 2021). However, a recent study in 2021 proclaimed that alopecia men felt less attractive, lost control, and had concerns about dating (Razum & Vukasović Hlupić, 2022).

Both non-pharmacological and pharmacological treatments can slow hair loss progression. Amino acids, trace elements and supplements including vitamins, biotin and collagen are efficient (Almohanna et al., 2019). Nonetheless, only two pharmacological treatments are approved by the Food and Drug Administration for the treatment of alopecia: topical minoxidil (2 and 5%) and oral finasteride (1mg) (Mysore et al., 2019). Considering that the clinical response may take 6-12 months to become apparent, these treatments are used for a prolonged period and therefore may be influenced by the patients' adherence (Randolph & Tosti, 2021). Based on that, it is important to assess the factors affecting the willingness to use treatments for alopecia.

Few studies described the patterns of alopecia and the treatment preference of alopecia patients. Following the pandemic and the economic crisis in Lebanon, patients faced challenges accessing treatment (Hatem & Goossens, 2022), which could have affected their willingness to prioritize other health conditions over alopecia. Therefore, the objectives of this study were to evaluate the lifestyle patterns of alopecia patients, to understand alopecia's characteristics and treatment options, and finally to assess the factors affecting the willingness to undergo treatment.

MATERIALS AND METHODS

A- Study design

An observational cross-sectional study was conducted targeting alopecia patients in the Lebanese adult population from May 2020 to August 2020. A survey was administered through face-to-face interviews to collect the study data.

B- Setting and participants

A non-probability sample (n=171) was recruited in twelve pharmacies randomly selected across five of the eight Lebanese governorates. Recruitment took place on any of the days the pharmacies were open, and at different times of the day. During recruitment, an interviewer would approach people seeking medical assistance or advice for hair loss and provide information about the study. Inclusion criteria were having Lebanese nationality, being at least 18 years old, and suffering from alopecia. Exclusion criteria were being older than 80 years old and people seeking alopecia treatment for another person. All refusals were registered, and no financial incentives were provided. Anonymity and confidentiality were preserved, and the participants could withdraw their participation at any point of the study.

C- Study instrument

The questionnaire had mainly closed-ended questions and consisted of three main parts: the first part covered the sociodemographic characteristics of the study participants including sex, age, height and weight, governorate of residence, level of education, occupation and marital status. The second part collected data related to the lifestyle patterns of the participants such as smoking cigarettes or smoking shisha (also called waterpipe and nargileh), alcohol consumption and physical activity. Moreover, it enclosed the medical history of the patients including medical conditions, blood tests and thyroid function tests. The third part contained questions related to alopecia type, family history, the area affected, and treatment choices. Each survey took approximately 15 minutes and was available in English and Arabic conforming to the respondent's preference. It was piloted on ten volunteers after which questions with a lack of clarity or comprehensiveness were adjusted accordingly.

D- Statistical analysis

Statistical analyses were performed using Statistical Package for Social Sciences (SPSS Inc, Chicago, Illinois) Version 26. Continuous data were described using means and standard deviations. Categorical data were described using frequencies and percentages. Bivariate analysis, using the Chi-square test and Fisher exact test, was performed to evaluate the associations between the variables related to alopecia patterns and the sex of the participants. In addition, a multivariable analysis using a logistic regression model was performed to evaluate the relationship between previous access to treatment and the participants' characteristics producing crude Odd Ratios with 95% Confidence Interval (CI). The variables age and sex were included in the regression irrespective of statistical significance since these variables have previously been shown to be clinically important variables to adjust for. Nevertheless, alopecia patterns variables were only selected if they had p-values <0.20 in univariable analysis. A p-value <0.05 was considered statistically significant.

RESULTS

General characteristics of the patients

In total 195 people were approached from which 171 were included based on the previously defined criteria (87.7%). Table 1 represents the general characteristics of the participants. The sample included both men (n=82, 47.9%) and women (n=89, 52.1%) with a mean age of 34 ± 12 years. Most of the patients were in Mount Lebanon and South (39.2% and 19.9% respectively). Moreover, the mean height was 170 ± 9 cm, and the majority had a normal Body Mass Index (BMI) (n=81, 49.4%). The sample included various levels of education with 80 patients (52.6%) holding a university degree. In addition, 89 patients (56.7%) do not work in the medical field versus almost 23% of healthcare professionals.

Table 1. Distribution of the general characteristics of the patients. Lebanon 2020.

Variables (N=171)		Frequency (%)
Gender	Men	82 (47.9%)
	Women	89 (52.1%)
Age (years)	Mean \pm SD	34 ± 12
Age group	18-29	82 (47.9%)
	30-39	37 (21.7%)
	40-49	26 (15.2%)
	≥ 50	26 (15.2%)
Location	Beirut	31 (18.1%)
	Mount Lebanon	67 (39.2%)
	South	34 (19.9%)
	North	23 (13.4%)
	Bekaa	16 (9.4%)
Height	Mean \pm SD	170 ± 9
Weight	Mean \pm SD	70 ± 14
BMI	< 18.5	8 (4.9%)
	18.5-24.9	81 (49.4%)
	25-29.9	68 (41.4%)
	≥ 30	7 (4.3%)
	Missing	7 (--%)
Level of Education	Primary- Intermediate	47 (27.5%)
	Secondary	34 (19.9%)
	University	90 (52.6%)
Occupation	Medical	36 (22.9%)
	Non-Medical	89 (56.7%)
	Student	24 (15.3%)
	Unemployed	8 (5.1%)
	Missing	14 (--%)
Marital status	Single	85 (49.7%)
	Married	82 (47.9%)
	divorced	4 (2.4%)
Monthly income (USD)	≤ 500	41 (26.1%)
	> 500	116 (73.9%)
	Missing	14 (--%)

Results are given in terms of frequency (percentage); BMI: Body mass index

Lifestyle patterns and medical history of alopecia patients

The lifestyle patterns of the study sample are displayed in Table 2. Regarding smoking habits, almost half of the patients (n=86, 50.6%) were smokers. Moreover, 21.7% smoked cigarettes from which 45.9% smoked 10 to 20 cigarettes per day and 43.3% had more than 20 daily. On the other side, 34.5% of the study participants were shisha smokers from which the majority smoked one shisha per week (n=27, 45.8%). In addition, almost half of the patients (n=88, 51.5%) were alcohol consumers with only 22 (27.5%) regular drinkers. Furthermore, 52.6% of the sample did physical activity from which 44.4% practiced more than two times per week.

Table 2. Distribution of the lifestyle patterns of the patients. Lebanon 2020.

Questions (N=171)		Frequency (%)
Do you smoke?	Yes	83 (48.5%)
	No	88 (51.5%)
Smoking cigarettes	Yes	37 (21.7%)
	No	134 (78.3%)
Number of cigarettes per day	< 10	4 (10.8%)
	10-20	17 (45.9%)
	> 20	16 (43.3%)
Smoking shisha	Yes	59 (34.5%)
	No	112 (65.5%)
Number of shishas per week	1	27 (45.8%)
	2-3	16 (27.1%)
	> 3	16 (27.1%)
Alcohol consumption	Yes	88 (51.5%)
	No	83 (48.5%)
Frequency	Rarely	16 (20%)
	Often	42 (52.5%)
	Regularly	22 (27.5%)
	Missing	8 (--%)
Physical activity	Yes	90 (52.6%)
	No	81 (47.4%)
Frequency per week	≤ 2	50 (55.6%)
	> 2	40 (44.4%)
Duration of each	≤ 30 min	33 (36.7%)
	> 30 min	57 (63.3%)

Results are given in terms of frequency (percentage).

From the sample, 72 patients had other comorbidities. The higher percentage of medical conditions accounted for hypertension, anemia (18.1% each), and dysthyroidism (16.7%). Furthermore, 80 alopecia patients (46.8%) experienced stress in the previous year and 13 (14.6% of women) gave birth. Almost 63% of the participants did a blood test in the past year with only 29.9% with abnormal results. Finally, 33 patients (32.2%) did specifically a thyroid test from which 24.3% came with abnormal results (Table 3).

Table 3. Medical history of the alopecia patients. Lebanon 2020.

Questions (N=171)		Frequency (%)
Do you have a medical condition?	Yes	72 (42.1%)
	No	99 (57.9%)
Medical conditions	Anemia	13 (18.1%)
	Dysthyroidism	12 (16.7%)
	Diabetes	7 (9.7%)
	Hypertension	13 (18.1%)
	Dermatosis	10 (13.9%)
	Psychosis	3 (4.1%)
	Auto-immune disease	5 (6.9%)
	Dyslipidemia	7 (9.7%)
	Other	2 (2.8%)
In the past year, did you experience:	Stress	80 (46.8%)
	Childbirth (women)	13 (14.6%)
	Psychoactive choc	6 (3.6%)
In the past year, did you take:	Antidepressant	11 (6.4%)
	Methotrexate	6 (3.6%)
	antihypertensive	12 (7.1%)
	Retinoid	14 (8.2%)
In the past year, did you do a blood test?	Yes	107 (62.6%)
	No	64 (37.4%)
If yes, was the result:	Normal	75 (70.1%)
	Abnormal	32 (29.9%)
In the past year, did you do a thyroid test?	Yes	33 (32.2%)
	No	116 (67.8%)
If yes, was the result:	Normal	25 (75.7%)
	Abnormal	8 (24.3%)

Results are given in terms of frequency (percentage).

Characteristics of alopecia and treatment options

Patients were asked about the age whilst alopecia started. It was noted that 113 patients (66.1%) developed it between 20 and 40 and only 12 patients (7%) when older than 40 years. Moreover, the entire scalp was the area mostly affected by alopecia (37.1%) followed by frontal (26.4%), vertex (21.6%), and fronto-temporal (14.9%) areas respectively. Additionally, almost 56% of alopecia patients reported having a family member suffering from the same condition with the highest percentage for their fathers (55.2%). When asked about the hair loss frequency, 45% of the participants stated that it was continuous, 35% seasonal and 20% temporal. Furthermore, 49.1% of the patients reported that their hair loss is related to a condition or stressors from which the majority (76.3%) is due to dermatosis. Almost 80% of the patients reported a previous use of hair alopecia treatment with a higher use of supplements (48.5%) and anti-hair loss shampoos (47.5%). Finally, 52.5% of the patients relied on their pharmacist recommendation and the majority based their choices on efficacy (62.5%) (Table 4).

Table 4. Questions related to alopecia. Lebanon 2020.

Questions (N=171)		Frequency (%)
Age when alopecia started (years)	< 20	46 (26.9%)
	20-40	113 (66.1%)
	> 40	12 (7%)
The area affected by alopecia	Entire scalp	62 (37.1%)
	Frontal area	44 (26.4%)
	Fronto-temporal areas	25 (14.9%)
	Vertex	36 (21.6%)
	Missing	4 (--%)
Family history of alopecia	Yes	96 (56.1%)
	No	75 (43.9%)
Family member	Father	53 (55.2%)
	Mother	13 (13.5%)
	Grandparents	14 (14.6%)
	Siblings	2 (2.1%)
	Uncle/Aunt	14 (14.6%)
Hair loss frequency	Continuous (Baldness)	45 (45%)
	Occasional (seasonal)	35 (35%)
	Temporal	20 (20%)
	Missing	71 (--%)
Is your hair loss related to a condition or stressor?	Yes	84 (49.1%)
	No	87 (50.9%)
If yes, please specify:	Dermatosis	58 (76.3%)
	Childbirth	13 (17.1%)
	Other	5 (6.6%)
	Missing	8 (--%)
Have you ever used hair loss treatment?	Yes	136 (79.5%)
	No	35 (20.5%)
Have you ever used for treating hair loss:	Supplements	83 (48.5%)
	Shampoo	81 (47.4%)
	Lotion	22 (12.9%)
	Medication	70 (40.9%)
How did you know about hair loss treatment?	Pharmacist	73 (52.5%)
	Physician	39 (28.1%)
	Family/Friend	19 (13.7%)
	Social media	8 (5.7%)
	Missing	32 (--%)
What criteria will affect your treatment choices?	Price	44 (30.5%)
	Efficacy	90 (62.5%)
	Recommendations	5 (3.5%)
	Advertisements	5 (3.5%)
	Missing	27 (--%)

Results are given in terms of frequency (percentage).

Bivariate analysis associating alopecia patterns and sex is described in Table 5. A statistically significant association with the age at which alopecia started was noted where 78.1% of men had alopecia at an age between 20 and 40 compared to 55.1% of women

($p < 0.001$). Moreover, only 16.1% of men encountered occasional or seasonal hair loss frequency versus almost 66% of women ($p < 0.001$). Having a family history of alopecia was significantly correlated with sex where 58.4% of alopecia women had a family history compared to 28% of men ($p < 0.001$). A higher percentage of men (63.4%) used medication for hair loss in comparison to only 20.2% of women ($p < 0.001$). However, women were willing to recommend hair loss treatment to others more than men ($p < 0.001$). In addition, almost 67% of men used hair loss treatment for three to six months compared to 41.4% of women ($p = 0.009$).

Table 5. Bivariate analysis between alopecia patterns and sex

Questions:	Sex		p-value
	Men % [95% CI]	Women % [95% CI]	
Age when alopecia started:			
	< 20	13.4[7.5-22.7]	<0.001
	20-40	78.1[67.7-85.7]	
	> 40	8.5[4.1-16.9]	
Hair loss area:			
	Entire scalp	41.5[31.3-52.4]	0.005
	Frontal area	15.8[9.4-25.5]	
	Fronto-temporal area	20.7[13.2-30.9]	
	Vertex	21.9[14.2-32.2]	
Hair loss frequency:			
	Temporal	17.7[10-29.4]	<0.001
	Occasional (seasonal)	16.1[8.8-27.6]	
	Continuous (baldness)	66.1[53.4-76.9]	
Family history:			
	Yes	28[19.4-38.8]	<0.001
	No	71.9[61.2-80.6]	
Have you ever used hair loss treatment?			
	Yes	87.8[78.7-93.3]	0.01
	No	12.2[6.7-21.3]	
Have you ever used supplements for hair loss?			
	Yes	41.5[31.3-52.4]	0.076
	No	58.5[47.6-68.7]	
Have you ever used shampoo for hair loss?			
	Yes	42.7[32.4-53.6]	0.239
	No	57.3[46.3-67.6]	
Did you use a shampoo containing sulfate?			
	Yes	67.1[56.1-76.4]	0.002
	No	23.2[15.2-33.6]	
Have you ever used medication for hair loss?			
	Yes	63.4[52.4-73.1]	<0.001
	No	36.6[26.8-47.6]	
Are you satisfied with the treatment results?			
	Yes	70.7[59.3-79.9]	<0.001
	No	29.3[20.1-40.7]	

How long you took the hair loss treatment?				
<3 months	6.8[2.6-17.1]	20.7[12.1-33.1]		
3-6 months	67.2[54.1-78.1]	41.4[29.4-54.5]		0.009
>6 months	24.1[14.1-36.8]	24.1[14.1-36.8]		
Will you recommend hair loss treatment to others?				
Yes	45.9[34.9-57.4]	78.8[67.2-87.1]		
No	54.1[42.6-65.1]	24.1[12.9-32.8]		<0.001

Results are given in terms of frequency (percentage).

Predictors of the willingness of patients to undergo treatment

Table 6 shows that after adjusting for covariates, the willingness to use a hair loss treatment is increased by a higher level of education, more particularly university graduates (OR 5.05, 95% CI 1.51-16.87). Moreover, each year of age increase had 1.22 higher odds to buy hair loss treatment (p=0.002). Finally, a significant correlation was noted between having a family history of alopecia and buying hair loss treatments (OR 3.42, 95% CI 1.20-9.77).

Table 6. Predictors of willingness to use hair loss treatment*, Lebanon 2020

	Unadjusted model		Adjusted model	
	OR [95% CI]	P-value	OR [95% CI]	P-value
Age in years (per increase of one year)	1.28 [1.15 – 1.43]	<0.001	1.22 [1.08 – 1.39]	0.002
Woman (man as reference)	0.36 [0.16 – 0.79]	0.012	1.19 [0.39 – 3.58]	0.761
Level of monthly income in US dollars (<500 as reference)				
>500	5.39 [2.40 – 12.1]	<0.001	-	-
Level of education (primary, & intermediate as reference)				
Secondary	4.87 [1.7 – 13.9]	0.003	2.29 [0.62– 8.46]	0.216
University	17.7 [6.1 – 51.6]	<0.001	5.05 [1.51– 16.87]	0.009
Marital status (single as reference)				
Married	5.33 [2.18 – 13.07]	<0.001	1.58 [0.44 – 5.76]	0.484
Do you smoke? (No as reference)				
Yes	6.31 [2.46 – 16.2]	<0.001	-	-
Smoking cigarettes (No as reference)				
Yes	12.2 [1.6 – 92.7]	0.015	-	-

Smoking shisha (No as reference)			-	-
Yes	3.09 [1.2 – 7.93]	0.019	-	-
Do you have a medical condition? (No as reference)			-	-
Yes	4.56 [1.78 – 11.7]	0.002	-	-
Family history of alopecia				
Yes	4.30 [1.91 – 9.68]	<0.001	3.42 [1.20 – 9.77]	0.021
The area affected by alopecia (Entire scalp as reference)				
Frontal area	0.71 [0.29 – 1.74]	0.452	-	-
Fronto-temporal areas	1.39 [0.41 – 4.78]	0.021	-	-
Vertex	4.51 [0.96 – 21.3]	0.057	-	-

** Question: Have you ever used hair loss treatment? The baseline answer is “no”.*

**OR: Odds Ratio; CI: Confidence interval*

DISCUSSION

The study included 171 patients suffering from alopecia and was carried out in order to evaluate their lifestyle patterns, alopecia characteristics, and treatment options as well as predictors affecting the willingness of patients to undergo treatment. The sample was almost equally distributed between men (47.9%) and women (52.1%) with an average age of 34 ± 12 years. In contrast, studies reported a higher prevalence of alopecia in men than women (Mostaghimi et al., 2021; Trager et al., 2021). This difference can be explained by the fact that the sample was recruited from pharmacies and therefore might include a higher proportion of women visitors (Peletidi & Kayyali, 2021). In addition, 44.7% of the patients had an abnormal body mass index which can be inducing hair loss and accelerate hair thinning (Morinaga et al., 2021). A cross-sectional study conducted in Taiwan emphasized that a higher BMI was significantly associated with greater severity of hair loss (Yang et al., 2014).

Almost half of the participants in this study were smokers. It has been previously reported that smoking status and intensity were directly correlated with hair loss (Dai et al., 2020). In addition, 52% of the patients were alcohol consumers and 52.6% only practiced physical activity. In accordance, a prospective cohort study published in 2017 concluded that high alcohol consumption and smoking advanced the signs of aging and consequently early onset of hair loss (Schou et al., 2017). Conversely, It has previously been described that alcohol consumers had significantly lower risks of alopecia (Dai et al., 2020). However, two studies conducted in Turkey and Iran reported a lack of association between alcohol drinking and smoking habits with the development of alopecia (Danesh-Shakiba et al., 2020; Salman et al., 2017). Moreover, a significant association was previously reported between alopecia and low-intensity physical activity in a study conducted in Korea in 2017 on 1182 participants from which 45.2% suffered from alopecia (Choi et al., 2017).

The descriptive analysis of the medical history of the patients emphasized that 42.1% had previous medical history including hypertension, anemia, dysthyroidism and dermatoses. These results are coherent with a systematic review describing a higher prevalence of comorbidities with alopecia patients (Lee et al., 2019). Moreover, 46.8% of the patients experienced stress during the preceding year. This result was recently reported in a study in Taiwan where stress was the most likely to trigger symmetrical alopecia (Chen et al., 2021).

In this study and for the majority of participants, alopecia initiated between 20 and 40 years. Previous studies have found similar results where androgenetic alopecia typically started between 30 and 40 years of age and the prevalence of alopecia was around 30% in men Caucasians in their thirties, and it increased to 40% among men aged 50 years (Hamilton, 1951; Kaliyadan et al., 2013). Fifty five percent of the participants had a family history from the father's side. In fact, genetics plays an important role in the development of the disease since this association was previously reported where a positive family history was noted in 62.2% of the participants with women pattern of hair loss (Łukasik et al., 2021). Another study found that patients with family history of alopecia areata had reduced hair regrowth after relapses, more severe symptoms, and earlier age of onset (Sophie et al., 2018). Almost 80% of the patients used anterior hair loss treatment such as supplements (48.5%), shampoos (47.4%), lotions (12.9%) and medications (40.9%) and the majority have chosen the treatment based on their pharmacist's recommendations. Patients seeking supplements believed that community pharmacists were the best source of information regarding the efficacy, interactions with other medications, lifestyle advice and possible adverse events (Harnett et al., 2019). Therefore, including alopecia management in the continuing education program of pharmacists can help clarify misconceptions and optimize treatments (Hatem et al., 2021).

Sex was significantly associated with the age when alopecia started where 78.1% of men had alopecia at an age between 20 and 40 compared to 55.1% of women ($p < 0.001$) in accordance with the literature (Kaliyadan et al., 2013). Moreover, having a family history of alopecia was significantly correlated with sex where 58.4% of alopecia women had a family history compared to 28% of men ($p < 0.001$). In contrast, a study assessing the gender-specific risk factors showed that both men and women had the same percentage of family history (Kim et al., 2018). However, this result could be explained that women with another family member with alopecia tended more to seek early medical assistance and they were willing to recommend hair loss treatment to others more than men.

When assessing the predictors correlated with the willingness to use a hair loss treatment, a higher level of education more particularly university graduates had 5.05 higher odds to use them compared to primary and intermediate levels. It has been previously reported in a study in Turkey that university graduates had 1.6 higher odd of self-medication (Nayir et al., 2016). Moreover, each year of age increase had 1.22 higher odds to buy hair loss treatment and a significant correlation was noted between having a family history of alopecia and buying hair loss treatments. These findings can be related to the aggravation of alopecia cases with age and therefore a higher need to access treatment (Chernyshov et al., 2021; Salman et al., 2017).

This study has several limitations. Firstly, it was limited to patients from community pharmacies which might not be representative of all alopecia patients. To limit this problem, data were collected from twelve pharmacies distributed in five different districts. Secondly, recall bias could exist, since the patients might not recall past information correctly. This study also has several strengths. The implementation of a uniform training for the data collectors

minimized interviewer bias and the initial definition of the inclusion criteria reduced selection bias. Moreover, the control for confounders increased the internal validity of the study.

CONCLUSION

Patients with alopecia had specific lifestyle patterns such as high body mass index, smoking and alcohol status. Pharmacists were the main source of information for alopecia treatment. Therefore, empowering their role in providing the adequate support for the patients is essential. Many hair loss treatments are available. However, the willingness to buy those treatments increased with age, higher level of education and the existence of family history.

DECLARATIONS

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