

## Attitude and practice regarding the use of multivitamins for hair fall: Cross sectional study in Saudi Arabia

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### Abstract:

**Background:** Despite the lack of evidence which support the hypothesis that usage of multivitamins is effective in preventing hair fall, their use is still prevailing. Although recent studies demonstrated interference of certain vitamins with certain analytical investigations, they are still practically in use without medical supervision and/or control. **Aim:** To assess the Attitude and Practice of Using Multivitamins for treatment of Hair Fall. **Methods:** A total number of 1015(females and males) were participated in this study. They aged 18 or more responded to questionnaires on their perception and previous experience with the use of multivitamins. **Results:** 44% of the participants used multivitamins for hair fall treatment, and only 37.4% recommended using them under medical supervision. The rest were influenced by social media (18.7%) friends and family (17.3%) by themselves (15%), and pharmacists (10.6%). 33.3% carried out blood tests prior use and only (15.3%) had a follow up blood test. Figure 1. Shows side effects such as abdominal pain, diarrhea and constipation were observed in (18.5%). (57.3%) reported noticeable improvement in hair fall and it was significantly associated with the use of multivitamins for more than 3 months ( $p<0.01$ ). Figure 2. Indicates that (63.5%) agreed on their effectiveness for hair fall treatment and (61.4%) would attribute the effect to other factors. **Conclusion:** Additional studies are required towards to validate and justify the benefit or downside of multivitamins for hair fall. Knowledge about the misuse of multivitamins is crucial to avoid unnecessary harm.

**Keywords:** Attitude; Practice; Multivitamins; Hair Fall

### Introduction:

Hair fall (alopecia) in medical terms, is one of the common causes to visit the dermatology clinic. It's a problem of women, men and children. Almost one-half of men and one-third of women experience hair falling during their lifetime<sup>1,2</sup>. Hair fall can be divided to scarring and non-scarring.

Non-scarring alopecia include androgenetic alopecia (AGA), telogen effluvium (TE), and alopecia areata (AA), with androgenic alopecia being the most common among men and women<sup>3,4</sup>. AGA is an androgen-related condition in genetically predisposed individuals, different presentation could be noticed in men and women, in women usually it's confined to the crown, sparing the frontal hairline<sup>1</sup>, while in men the frontal hairline and the crown are the usual sites of hair thinning<sup>2,5</sup>. Alopecia areata (AA) is an immune-mediated disease causing temporary or permanent hair loss. It's well-defined round patches mainly affecting the scalp<sup>6,7</sup>. Telogen effluvium (TE), is a form of non-scarring alopecia characterized by diffuse, often acute hair shedding. It could be triggered by metabolic

stress, hormonal changes, or medications. Furthermore, some events could trigger (TE) including acute febrile illness; severe infection; major surgery; severe trauma; postpartum hormonal changes, hypothyroidism; discontinuing estrogen-containing medication; crash dieting; low protein intake; heavy metal ingestion; and iron deficiency<sup>8</sup>.

Different treatments are used in treating the different types of hair fall. Most known and used and prescribed treatments are supplements and vitamins. In a study conducted in Saudi Arabia 2012, the attitude and practice of dermatologists was assessed regarding prescribing minerals and vitamins for their patients who suffer from hair fall. Out of 144 dermatologists 60% recommended using vitamins and minerals for treating at least one type of hair loss. The used supplements include: zinc, iron, vitamin D and biotin. It was mainly prescribed for acute telogen effluvium (62%)<sup>9</sup>.

Unfortunately, sufficient studies are few that assess the knowledge and practice of the

population regarding the use of multivitamins for hair fall, as well as the possible harm that could be caused when they are being used inappropriately. This study aimed at investigating the attitude and practice of females and males in Saudi Arabia regarding the use of multivitamins for hair fall. Furthermore, it aimed to assess the population's perspective on their effectiveness for treatment of hair fall.

**Methodology:**

**Study design and participants:**

A quantitative cross-sectional study design was conducted during the period from November 2017 to February 2018 in Saudi Arabia. The study followed the principal of Helsinki declaration and was approved by Research and Ethical committee at Princess Norah University. It encompassed 1015 participants, both males and females. Inclusion criteria for participation required being aged 18 and above. The target population size was based on 50% prevalence and 95% confidence interval. The sample calculated was around 400 but was increased to 1000 to compensate the incomplete data.

All participants were informed that the study is completely anonymous and voluntary, and all

**Results:**

A total of 1015 agreed to participate in the study.

**Table 1: the demographic data of the participants.**

	Percentage
Online	49.3%
Offline	50.7%
Male	40.1%
Female	59.9%
Age Groups	
18-21	42.7%
22-29	37.2%
30-39	12.8%
Above 40	7.3%
Education	
University	50.5%
High school	47.6%
Less than high school	1.9%
Income	
Less than 5000 SR/month	58.1%
5000-10,000 SR/month	19.5%
More than 10,000 SR/month	22.4%

data collected is intended to be kept private. Participants were given instructions on how to fill the questionnaires and any queries were cleared.

**Study instruments and statistical analysis:**

Data were collected as self-administrated questionnaire, with 515 participants from Princess Noura University students, health care workers and patients waiting areas at King Fahad Medical City and Prince Sultan Military Medical City, neighbors, friends, and family members. An online survey was also done on google forms with 500 total participants. The questionnaires consisted of 17 close ended questions and were formulated based on previous literature. it was translated into Arabic and checked by an Arabic linguistic expert to check for consistency. It includes: demographics, participants believe, previous experience, observed side effects and the results of using the multivitamins. The data were coded, entered and analyzed using the SPSS version 23. Descriptive analysis in terms of means was used to describe the criteria for the study sample. P-value less than 0.05 was considered statistically significant.

The data were collected by two different means, 500 participants answered an online questionnaire and 515 participants answered a self-administered paper questionnaire. The study included an age group

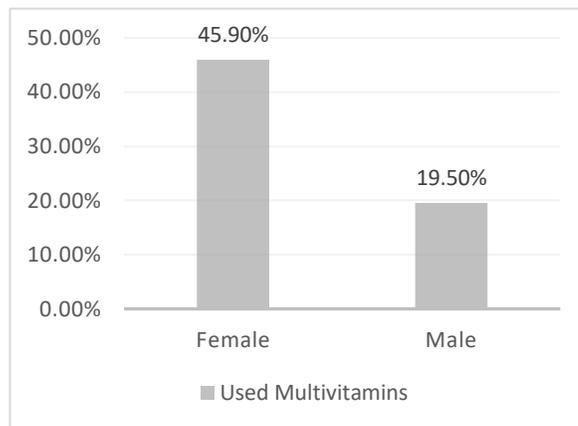
between the age of (18 to 65), with an arithmetic mean of 25. (59.9%) of the participants were female and (40.1%) were male. The highest level of education was university (50.3%).

**Table 2: the geographic distribution of the study.**

Central Region	70.8%
Western Region	24.7%
Eastern Region	3.7%
Northern Region	0.2%
Southern Region	0.5%

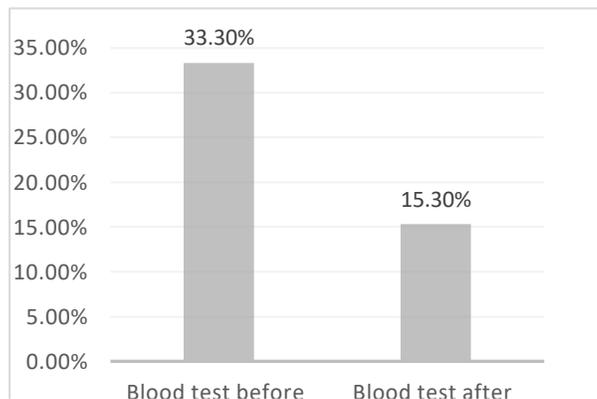
The majority (80.6%) of the participants reported that they experienced hair fall, of which (44%) of them used multivitamins as a treatment for the hair fall. The use of multivitamins was higher in female population (45.9%), comparing to male population in which only (19.5%) of them used multivitamins.

Graph 1. Additionally, the consumption of multivitamins was more in those who had low income (54.6%).



**Graph 1: percentage of female and male participants who used multivitamins.**

The participants were asked in terms of who recommended the use of multivitamins, and (37.4%) answered by a physician in the clinic, (18.7%) answered by social media influencers, (17.3%) used it after the recommendation of friends and family, (15.9%) by themselves and (10.6%) by a pharmacist. However, when asked about having blood tests done before starting the treatment, only (33.3%) of them answered yes, and those who were followed up with another blood test after starting the multivitamins course were only (15.3%).

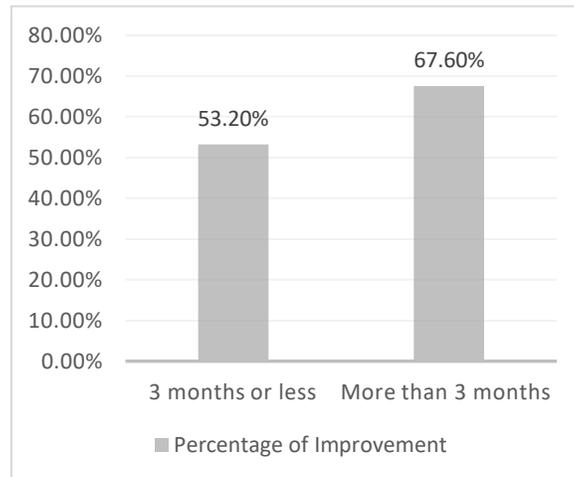


**Graph 2: percentage of participants who had blood tests before and after the**

The average duration of using the multivitamins was from 1-3 months (51.1%), more than 3 months (29.3%) and less than 1 month (19.6%). Moreover, the participants were asked if they tried to take more than the recommended daily dose to get faster results and (13.5%) answered yes.

The presence of side effects caused by the multivitamins was assessed. (10.3%) answered that they experienced changes in bowel habits, and (7.8%) had stomachache. However only (18.4%) of those who had side effects went to see a doctor for their symptoms.

The results of using the multivitamins showed that 57.3% of those who used them noticed an improvement in terms of the hair fall, and (42.7%) mentioned no improvement was noticed. The correlation between the noticed improvement and duration of treatment was significant in those who used the multivitamins for longer than 3 months ( $p = 0.01$ ). Graph 3



**Graph 3: Relation between duration of treatment and Improvement**

On the other hand, no significant improvement in the hair fall was noticed between those who recommended using the multivitamins by a doctor, and those who didn't visit a doctor ( $p > 0.05$ ). However, those who had follow up visits and blood tests done after starting the course had significant improvement comparing to those who didn't ( $p < 0.01$ ).

The attitude of the participants toward the effectiveness of multivitamins on hair fall was assessed and showed that 63.5% agreed that using multivitamins is helpful for treating hair fall, while, (61.4%) recommended the use of multivitamins for people around them suffering from hair fall.

**Discussion:**

The standard components that multivitamins contain include: vitamin C, A, E, K, D, B12, B6, Thiamin, Riboflavin, Pantothenic acid, Niacin,

Folic Acid, Biotin, Iron, Zinc and many more. Although the previous literature showed uncertainty about the role of multivitamins in treating hair fall, they are being used widely. In our study, 44% of those who suffered from hair fall used multivitamins, majority of which did not carry out the necessary medical investigations.

A study was done on 296 healthy individuals to evaluate the association between Androgenic Alopecia and low serum levels of 25-hydroxyvitamin D, and the results concluded that there's no significant association between the two<sup>11</sup>. Although vitamin D has an important role in anagen initiation<sup>12</sup>, there's not enough data to support its effectiveness in treating hair fall.

Furthermore, no sufficient data proved that biotin can be effective in treating hair fall<sup>13</sup>.

On the other hand, iron supplements were shown to reduce the mean percentage of telogen hair when used for 6 months in women who suffered from chronic Telogen Effluvium<sup>14</sup>. Moreover,

low iron stores (ferritin <40 mg/L) was observed in females with androgenic alopecia and alopecia areata comparing to those with normal serum ferritin who didn't suffer from hair fall<sup>15,16</sup>.

Additionally, studies about the uses of zinc in treating hair fall wasn't conclusive, in a case control study, zinc was shown to be significantly low in patients with severe alopecia areata<sup>17</sup>. Furthermore, in a double-blinded study, patient with alopecia areata, were given zinc supplements for 3 months and 59% showed complete hair regrowth<sup>18</sup>. However, another study showed contradictory results<sup>19</sup>.

As the previous literature showed, that results were not satisfactory and convincing due to the interference between the role of either vitamins and /or minerals in dealing or remedy of hair fall. Surprisingly, a recent study showed that dermatologists in Saudi Arabia prescribed zinc in 62%, iron in 54%, vitamin D in 36% and biotin 39% of the cases suffering from hair fall, of which 70% did not perform biochemical investigations to check for the given vitamin's and mineral's serum level both pre- and post-use<sup>9</sup>.

The recommended dietary allowance (RDA) is the average daily intake sufficient to meet the nutrient requirements of nearly all healthy people. Some of these multivitamins may contain nutrients of 100% to more than 600% of the RDAs for adults<sup>9</sup>.

In our study the majority of the participants (62.6%) used the multivitamins after the recommendation of others without visiting a doctor or having the necessary blood tests. Furthermore, a number of the participants 13.5% used more than the recommended dose to see faster results, which can increase the risk of toxicity.

The overall improvement in our study was observed in 57.3% of the participants, and it was significant in those who followed a longer treatment course for more than 3 months, which is needed considering the slow growth rate of a normal hair fiber which is 0.35 mm per day<sup>1,4</sup>.

Another factor that had a significant association with hair fall improvement, was having follow up visiting physicians and blood tests investigations after the initiation of the course, which was only done on 15.3% of the participants.

In this study, participants had overall positive beliefs in terms of the effectiveness of the multivitamins as a treatment, even in those who never been treated with multivitamins mentioned recommending them to other treatments.

#### **Conclusion:**

Although multivitamins are being prescribed and used in treating hair fall, more efforts are needed towards validating the benefit or downside of multivitamins for hair fall. Improvement of knowledge's about the misuse of multivitamins is greatly important to avoid unnecessary harm.

#### **Limitations and Strength:**

No similar studies regarding the assessment of attitude and practice of the population towards multivitamins as hair fall treatment have been done so far in the Middle East. However, the use of a convenience sample was a limitation in this study, and despite the large sample size, another limitation was the generalization of the results when only 1015 had participated.

#### **Recommendations:**

Public education about the components of the multivitamins and the RDA is an important step to achieve safer results. We recommend more strict policies to be applied when it comes to selling over-the-counter multivitamins to avoid the unnecessary possible harm of taking more than the RDA. We also recommend doctors to standardize an approach plan that includes pre and post-use blood tests.

#### **References:**

1. **Mubki T, Shamsaldeen O, McElwee K, Shapiro J(2013):** An update on diagnosis and treatment of female pattern hair loss. Expert Review of Dermatology,8(4):427-436.
2. **Otberg N, Finner A, Shapiro J(2007):** Androgenetic alopecia. Endocrinology and Metabolism Clinics of North America,36(2):379-398.
3. **Shapiro J (2007):** Hair Loss in Women.The New England Journal of Medicine, 357:1620-1630.
4. **Trüeb R(2010):** Systematic approach to hair loss in women. JDDG: Journal der

- Deutschen Dermatologischen Gesellschaft,8(4):284-297.
5. **Varothai S, Bergfeld W(2014):** Androgenetic Alopecia: An Evidence-Based Treatment Update. *American Journal of Clinical Dermatology*,15(3):217-230.
  6. **Alkhalifah A (2013):** Alopecia Areata Update. *Dermatologic Clinics*,31(1):93-108.
  7. **Roest Y, van Middendorp H, Evers A, van de Kerkhof P, Pasch M(2017):** Nail Involvement in Alopecia Areata: A Questionnaire-Based Survey of Impact on Quality of Life and Review of the Literature. *Acta Dermato Venereologica*, 98(2):212-217.
  8. **Hughes EC, Taneja A(2017):** Telogen Effluvium. [Updated 2017 Mar 30]. In: *StatPearls* [Internet]. Treasure Island (FL): StatPearls Publishing;
  9. **Mubki T(2014):** Use of Vitamins and Minerals in the Treatment of Hair Loss: A Cross-Sectional Survey among Dermatologists in Saudi Arabia. *Journal of Cutaneous Medicine and Surgery*,18(6):405-412.
  10. **Patel D, Swink S, Castelo-Soccio L(2017):** A Review of the Use of Biotin for Hair Loss. *Skin Appendage Disorders*,3(3):166-169.
  11. **Bolland MJ, Ames RW, Grey AB et al.(2017):** Does degree of baldness influence vitamin D status? *Med J Aust.*,189:674–5.
  12. **Sakai Y, Kishimoto J, Demay MB(2001):** Metabolic and cellular analysis of alopecia in vitamin D receptor knockout mice. *J Clin Invest.*,107:961–6.
  13. **Atanaskova Mesinkovska N, Bergfeld WF(2013):** Hair: what is new in diagnosis and management? Female pattern hair loss update: diagnosis and treatment. *Dermatol Clin.*,31:119–27.
  14. **Karadag AS, Ertugul DE, Tatal E, Akin KO(2011):** The role of anemia and vitamin D levels in acute and chronic telogen effluvium. *Turk J Med Sci.*, 41:827–33.
  15. **Kantor J, Kessler LJ, Brooks DG, Cotsarelis G(2003):** Decreased serum ferritin is associated with alopecia in women. *J Invest Dermatol.*,121:985–8.
  16. **Deloche C, Bastien P, Chadoutaud S et al.(2007):** Low iron stores: a risk factor for excessive hair loss in non-menopausal women. *Eur J Dermatol.*,17:507–12.
  17. **Bhat YJ, Manzoor S, Khan AR, Qayoom S(2009):** Trace element levels in alopecia areata. *Indian J Dermatol Venereol Leprol.*,75:29–31.
  18. **Sharquie KE, Noaimi AA, Shwail ER(2012):** Oral zinc sulphate in treatment of alopecia areata (double blind; cross-over study). *J Clin Exp Dermatol Res.*,3:150.
  19. **Ead RD(1981):** Oral zinc sulphate in alopecia areata. A double blind trial. *Br J Dermatol.*,104:483–4.