



# Self-management in the post-hair transplantation recovery period among patients with androgenetic alopecia: A qualitative study

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## ABSTRACT

**Background:** The success of hair transplantation surgeries for androgenetic alopecia is evaluated by postoperative long-term outcomes. Patients' self-management during the long recovery period affects this outcome.

**Objective:** This study aimed to explore patients' self-management status, facilitators, and impediments in the postoperative period and to provide a reference for developing a postoperative self-management intervention program.

**Methods:** Patients who underwent hair transplantation for androgenetic alopecia were selected using purposive sampling. They were interviewed using one-to-one semi-structured interviews at a general tertiary hospital in Hangzhou from March to April 2022. Qualitative research analysis software Nvivo 12.0 was used to analyze the collected data.

**Results:** The self-management of postoperative patients with androgenetic alopecia during the recovery period encompasses six areas: more problems with postoperative medication (e.g., not being able to take medication on time) and wound care (e.g., not daring to shampoo, etc.), not being able to review their postoperative condition on time (due to busy schedules at work and at home), more hindrances to the establishment of good living habits (affected by overtime work, socialising, and bad habits of the people around them), and seeking positive ways of relieving bad emotions (stress, anxiety, depression, etc.), worrying about one's image during recovery and taking the initiative to obtain and use resources to promote recovery (through the Internet, books, etc.)

**Conclusions:** Various factors impact the postoperative self-management abilities of patients, including medication, shampooing, and emotions. It is essential to design support programs to enhance these abilities and improve long-term hair transplantation outcomes.

## 1. Background

Androgenetic alopecia also known as male-pattern baldness, is the most common type of progressive hair loss, affecting approximately 50 % of men and 10 % of women worldwide. Androgenetic alopecia is a polygenic condition with varying degrees of severity, age of onset, and areas of scalp involvement (Huiting et al., 2021). In recent years, advancements in technology have caused significant changes in people's lifestyles, dietary diversity, the formation of unhealthy habits, and prolonged exposure to negative emotions.

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**Table 1**  
General information sheet for interviewees(n=16).

No.	Gender	Age	Working condition	Planting site	Hair transplant volume	Postoperative time/month	Adherence to medication	Complications
P1	Female	33	On-the-job	Hairline	1842	6	Yes	Yes
P2	Male	31	On-the-job	Hairline	1562	5	No	No
P3	Male	34	On-the-job	Hairline + Head	3898	5	No	No
P4	Male	33	On-the-job	Hairline	1829	4	No	No
P5	Male	28	On-the-job	Hairline	2103	4	No	No
P6	Male	28	On-the-job	Hairline	2848	9	Yes	No
P7	Male	38	On-the-job	Hairline + Head	5201	3	No	No
P8	Male	33	On-the-job	Hairline	1639	3	No	Yes
P9	Female	29	On-the-job	Hairline	1745	2	No	No
P10	Male	35	On-the-job	Hairline + Head	3125	2	No	No
P11	Male	30	On-the-job	Hairline	1879	10	Yes	No
P12	Male	22	Students	Hairline	1718	2	No	No
P13	Female	28	On-the-job	Hairline	2074	1	Yes	No
P14	Female	30	On-the-job	Hairline	1830	1	Yes	No
P15	Male	24	Students	Hairline	2573	0.5	Yes	No
P16	Male	29	On-the-job	Hairline	3023	0.5	Yes	No

These factors have contributed to the increasingly prevalent issue of androgenetic alopecia, with an onset age that tends to be younger. According to statistics, the prevalence of androgenetic alopecia is approximately 21.3 % among men and 6.0 % among women in China (Yanhua 2020). This condition is characterized by slow and progressive development that affects the patient's physical appearance and profoundly impacts their mental, psychological, and overall quality of life. Despite extensive research, the pathogenesis of this disease remains unclear. However, it is believed to be primarily related to genetic mechanisms, androgenic receptors, androgens, type II 5 $\alpha$ -reductase, and the growth cycle. Social factors, dietary habits, lack of sleep due to late nights, and high scalp oil production are all closely associated with the onset of the disease. Furthermore, many patients opt for hair transplantation surgery to restore hair loss and improve their image (Umar, 2012, 2012).

Recent data showed an increase in domestic hair transplant procedures from 180,000 to 450,000 between 2016 and 2021 (Jufang, 2018). However, the long-term outcomes of hair transplantation in patients with androgenetic alopecia have not been satisfactory (Jimenez et al., 2021). This could be attributed to the extended recovery period of hair transplantation surgery and the patients' inadequate self-management skills, such as their inability to adhere to medication post-surgery (Collins and Avram, 2021) and improper trauma care, leading to accidental hair loss care (Yue et al., 2021). The underlying causes of androgenetic alopecia remain unaddressed (e.g., continued smoking by the patient alcohol consumption, sleep deprivation, and bad moods). These factors can result in unfavorable long-term transplant outcomes, leading to doctor-patient disputes, diminishing patient satisfaction, and the post-transplant experience. Studies have demonstrated that enhancing self-management after hair transplantation in patients with androgenetic alopecia is a crucial way to improve long-term survival rates (Xuewen and Yuchong, 2021). However, there have been limited investigations into the self-management of androgenetic alopecia patients after hair transplantation, both nationally and internationally. Therefore, this study utilized in-depth interviews to explore the facilitators and impediments to the self-management of androgenetic alopecia patients after hair transplantation to guide the development of targeted interventions in the future.

## 2. Methods

### 2.1. Study subjects

Using a purposive sampling method, individuals who had undergone androgenetic alopecia hair transplantation in the plastic surgery department of a general tertiary hospital in Hangzhou during March–April 2022 were selected for a one-to-one, semi-structured interview. The inclusion criteria for the study were as follows: patients who had undergone hair transplant surgery for androgenetic alopecia within one year of the interview, with a minimum of 1000 follicular units, aged over 18 years, able to effectively communicate and comprehend, and providing complete information on the consultation and treatment. Conversely, patients who were unwilling to participate in the study were excluded. The researchers established a strong rapport with the research subjects, comprehensively introduced themselves and the relevant research content, and agreed with the subjects on the time and place of the interview. The interviewers familiarised themselves with the background of the interviewees and the interview outline beforehand. They received systematic and comprehensive training on semi-structured interview methods while preparing essential equipment, including laptops, tape recorders, transcripts, and signature pens. To ensure sample heterogeneity and analyze data saturation without introducing new themes.

**Table 2**  
Table of interview results.

Theme		Cause and detailed description	case	case
Theme 1: Problems with Postoperative Medication and Wound Care	1.1 Failure to follow medical advice to administer medication on time for a long period	Patients don't understand how medication for hair loss works and worry about side effects	Case 3 (3 months post-op): "I think it is good to do well after surgery. Post-op medication is probably not that important, and I stopped using it after about 2 months."	Case 5 (3 months post-op): "I was worried that the side effects of taking the medication for a long time would be significant and would have a bad effect on my health."
	1.2 Confusion about the care of the surgical area	Patient's fear due to lack of understanding and treatment	Case 8 (2 weeks post-op): "I had folliculitis on my scalp after surgery, and I was worried and did not know how to deal with it."	
Theme 2: Failure to review regularly after surgery		Work, family commitments, etc.	Case 12 (5 months post-op): "I have a 9 to 5 job with two days off a week, and I have to spend time with my children. Coming to the medical hospital and park is too much trouble, so I do not want to come over."	Case 10 (3 months post-op): "I have asked the doctor about any post-op problems by WeChat, so it is unnecessary to go to the hospital again for a review."
Theme 3: There are more obstacles to establishing good lifestyle habits.		Influenced by overtime work, socialising and the bad habits of those around them	Case 11 (10 months post-op): "Although takeaway food is a bit greasy and not nutritious but it is convenient, and my close colleagues also like to order takeaway food, which also affects me."	Case 4 (1-month post-op): "I have been smoking for over 10 years, and I am surrounded by friends who also smoke, and they hand it to me, and it is hard to quit."
Theme 4: Seeking positive ways to alleviate adverse emotions (Mainly contains adverse emotions such as stress, anxiety, depression, etc.)	4.1 Seeking support from healthcare professionals	Seek help from healthcare professionals	Case 1 (1 month postoperative): "I asked the nurse to help me with the hair washing video, and when I got home, I followed the video to reduce my fear of washing my hair."	Case 5 (3 months post-op): "I did not know much about the medication used post-op and was worried that long-term medication would have a bad effect on my body. After I took the initiative to ask my doctor about the side effects of the medication, I have now decided to stick with it."
	4.2 Seeking Support from Laypeople	Seek support from family and friends	Case 3 (1-month post-op): "I made a plan for a healthy and regular life after surgery and asked my wife to monitor and remind me not to stay up late, and she gave me great support." Case 15 (3 months post-op): "After my hair transplant surgery, I was concerned about the constant redness of my scalp, which was affecting my appearance.."	Case 6 (9 months post-op): "Whenever I feel depressed due to work and life stress, I reach out to my friends, and they give me a lot of encouragement."
Theme 5: Worrying about your image during the recovery period		Due to the long recovery period, postoperative patients may experience redness of the scalp and a period of transient shedding, which can be covered with wig pieces and caps to reduce the waiting period.		
Theme 6: Proactive access and use of resources for recovery		Focus on the internet, books, and other information that is good for hair growth and care	Case 1 (1-month post-op): "I would follow photos and experiences shared by other patients on the internet, so I knew what my hair looked like at each stage post-op, which gave me peace of mind and confidence in the end result."	Case 14 (3 months post-op): "I now pay more attention to foods that are good for hair growth and eat a balanced diet."

## 2.2. Ethical approval

This study was reviewed by the Ethics Committee of a tertiary care hospital (approval number: ZN-20220425-0063-01). Ethical principles were strictly observed throughout the study, including informed consent, confidentiality, benefits, and doing no harm.

### 2.3. Data collection and analysis

A research team was established, comprising six members: one chief physician in the plastic surgery department, one chief nurse, and four senior nurses. The team members participated in analysis discussions, data collection, and drafting the semi-structured interview outline. This study used a face-to-face, semi-structured interview method to collect data. The items were carefully prepared before the interview, and the venue and interview outline were thoroughly reviewed. An independent, quiet classroom was chosen as the interview venue, where an interviewer and a recorder collaboratively conducted the interview. The interviewees were then formally introduced to themselves, and the purpose of the study was explained. Subsequently, an informed consent form was signed, and the interview was initiated by activating the tape recorder. The main questions addressed within the interview revolve around the patient's perspectives regarding various aspects of postoperative self-management that warrant consideration. These include existing obstacles and concerns for the future, emphasizing the difficulties and challenges encountered during the patient's postoperative self-management. The objective is to comprehend how the patient has approached self-management, how obstacles have been overcome, and what benefits and changes have been ultimately achieved. The interview structure was developed based on a thorough examination of the literature. It comprised five inquiries: ①What do you look for after a hair transplant? ②Have you made any changes to your postoperative routine? ③What did you do to resolve the difficulties you encountered after the operation? ④How did you manage your bad moods after the operation? ⑤What other areas do you need help with in improving your self-management skills? Listening attentively and taking notes throughout the interview while maintaining a clean and quiet environment is important. Creating an environment that fosters trust and confidentiality is critical, as refraining from passing judgment or interfering with interviewee perspectives and avoiding coercive questions or statements to elicit genuine thoughts. Each participant has the right to speak and not respond to specific topics. The entire interview typically lasted between 20 and 30 min.

The collation and preliminary data analysis were conducted parallel with the information collection process. Verbatim conversion of recordings into a textual format was achieved within 24 h of completing the interviews. To ensure the maximum authenticity of the transcribed text and to minimize information loss, it was imperative to mark non-verbal cues, such as pauses, intonation, tone of voice, facial expressions, and body movements, in conjunction with the interview notes. A second person verified the accuracy of the transcriptions. A total of 16 recorded interviews were collected for this study, generating a transcribed text of approximately 120,000 words. The transcribed text was subsequently deprivatized and formatted with additional information, such as documents and page numbers. Furthermore, general information about the interviewees was recorded in a Word table. In this study, two researchers collaborated to analyze the data using the traditional content analysis method. This approach entailed several crucial steps, beginning with the researcher immersing himself in the data through extensive reading to develop a comprehensive understanding. Subsequently, critical concepts and ideas were identified and coded verbatim for further refinement, and the related codes were grouped into sub-themes. These sub-themes were meticulously defined, and their links to the principal themes were explicated and grouped accordingly. The researchers utilized NVivo 12.0, a qualitative research analysis software, to categorize the collected data, establish nodes, and distillate sub-themes to facilitate analysis. Throughout the data analysis process, regular and frequent communication in the form of group discussions was employed to ensure the reliability of the study and to avoid subjective bias.

## 3. Results

### 3.1. Characteristics of participants

A final data saturation sample size of 16 cases was achieved. The patients interviewed were between 2 weeks and 10 months postoperative from their androgenetic alopecia hair transplantation procedure, with 75 % of the sample population being male and 25 % female. The mean age of the sample was  $30 \pm 6.25$  years, with a transplanted follicular unit volume ranging from 1562 to 5201 follicular units. Among the patients interviewed, 14 were employed, and 2 were students. Of these, 44 % adhered to their medication. Two patients developed folliculitis after surgery. [Table 1](#) provides additional general information about the interviewees.

### 3.2. Presentation of topics related to self-management

The self-management of postoperative patients with androgenetic alopecia during the recovery period encompasses six areas: more problems with postoperative medication (e.g., not being able to take medication on time) and wound care (e.g., not daring to shampoo, etc.), not being able to review their postoperative condition on time (due to busy schedules at work and at home), more hindrances to the establishment of good living habits (affected by overtime work, socialising, and bad habits of the people around them), and seeking positive ways of relieving bad emotions (stress, anxiety, depression, etc.), worrying about one's image during recovery and taking the initiative to obtain and use resources to promote recovery (through the Internet, books, etc.) See [Table 2](#) for details

## 4. Discussion

### 4.1. Strengthening postoperative medication education and shampoo guidance

Interviews revealed that many patients had poor medication adherence postoperatively, unable to correctly and consistently follow medical advice, take regular follow-up visits, and understand the importance of medication ([Nadimi, 2020](#)). Since androgenetic alopecia is progressive, long-term postoperative medication is key to preventing its progression and ensuring sustained transplant

results. Abroad, medical staff have already recognized surgical intervention, medication treatment, and long-term postoperative plans as crucial for enhancing surgical outcomes. The Food and Drug Administration -approved oral finasteride combined with topical minoxidil is currently the first-line treatment for androgenetic alopecia (Collins and Avram, 2021). Patients need to take finasteride (Rossi et al., 2016) orally and use topical minoxidil for at least six months postoperatively to promote hair growth, increase hair density, and control hair loss progression (Lam, 2013). Therefore, medical staff should strengthen postoperative education, provide detailed explanations and guidance on medication, and regularly check in on patients' medication usage to help them adhere to the treatment.

For shampooing, inadequate knowledge led to improper scalp care, causing transplanted hair to fall out. Clinically, mild, non-irritating shampoo should be used daily until scalp scabs fall off, avoiding direct contact with high-pressure water (Li et al., 2012). In the first week post-surgery, gentle fingertip massage should be used to remove scalp scabs (Wang and Tan, 2014). If scabs persist after a week, emollient oil can be applied with slightly more pressure to promote scab removal and healing, enhancing transplant survival rates (Guifang and Lina, 2015). Difficult-to-remove scabs should be addressed at the hospital to prevent transplant loss (Yang et al., 2019). Clinically, 0.75 % hydrogen peroxide or 0.9 % saline can be used to soften and clean persistent scabs (Kerure and Patwardhan, 2018). Although the scalp has good blood circulation, improper handling can still lead to complications such as infection, rash, itching, hyperpigmentation, folliculitis, and scarring. In the early postoperative period, patients should be guided to wear open-front or loose-collared clothing to avoid scratching exposed grafts. Nurses should provide health education on shampooing, such as sending instructional videos to patients for repeated viewing to facilitate learning.

#### 4.2. Ensuring timely postoperative follow-up

The interviews revealed that some patients missed their scheduled follow-ups. Regular postoperative check-ups are essential for monitoring hair growth, adjusting medications, and preventing further hair loss. Follow-up methods include phone calls and WeChat. In-person follow-ups at the hospital are crucial for close observation and using trichoscopes to monitor hair growth, promptly identifying and addressing issues.

#### 4.3. Establishing a regular and stable lifestyle

Androgenetic alopecia progresses slowly and is closely linked to lifestyle habits. Irregular sleep, obesity, greasy and spicy foods can disrupt hormones, while staying up late, smoking, drinking, and stress negatively impact hair growth. Most interviewees acknowledged the significant connection between androgenetic alopecia and lifestyle, emphasizing the importance of adequate sleep, healthy diet, and exercise. However, many found it challenging to maintain these habits due to work, social engagements, and negative influences from peers. Therefore, it is necessary to help patients establish long-term healthy lifestyles (QH Liu et al., 2018). Clinically, medical staff assist patients in planning and executing long-term postoperative interventions to improve survival rates, with health education being crucial for ensuring good surgical outcomes (Avram et al., 2014).

#### 4.4. Adopting positive ways to cope with negative emotions

The interviews revealed variations in the self-management of emotions among respondents, who all actively sought ways to regulate their negative emotions (Yu, 2020). Since it takes about six months to a year to achieve satisfactory postoperative appearance, patients worry about their appearance during recovery and the final outcome. Some felt significant pressure from work, studies, and life (F Liu et al., 2018), experiencing varying degrees of anxiety and depression (Li and Zou, 2019). If negative emotions persist, they can adversely affect hair growth and expand hair loss areas (Lin et al., 2016; Yu, 2016). Research shows that androgenetic alopecia patients often face prolonged work hours and computer use, exacerbating stress, fear, anxiety, and sleep issues, impacting normal work and life (Zhou and Li, 2013). Postoperatively, patients might experience scalp redness, local allergies, and curly, fine new hair, which heightens anxiety (Abt et al., 2018). Thus, it is necessary to pay attention to the psychological changes of these patients, providing appropriate support, alleviating negative emotions, and enhancing satisfaction (Klingbeil and Fertig, 2018).

#### 4.5. Helping patients to recover their post-operative image as soon as possible

The recovery period of hair transplantation surgery is long, and the planted hair has the process of shedding and re-growing, during which problems such as redness of the scalp may occur. Therefore, healthcare professionals should instruct patients to cover the surgical area to reduce the patient's postoperative waiting period.

#### 4.6. Facilitating communication among patients and access to resources

The interviews revealed that patients seek mutual support and share experiences through various channels like hospital communication groups, social media, and online communities. Sharing postoperative experiences and recovery tips help patients gain confidence and manage expectations. However, some misinformation circulates online, so it is vital to guide patients to reliable sources and provide accurate information (Durosier Mertilus et al., 2021). Clinically, regular patient communication sessions and Question and Answer forums with medical staff can enhance the quality of patient education and support networks.

#### 4.7. Limitations and clinical implications

The information obtained in this study has certain limitations due to human and geographical constraints, and the study subjects were only obtained from a tertiary hospital, which inevitably led to bias in the analysis, and further analysis of multi-centre and large-sample data has yet to be collected in the future.

This study will provide a reference for the development of personalised intervention plans for patients and the improvement of the long-term survival rate of hair follicular units.

### 5. Conclusion

Enhancing self-management competence in patients with androgenetic alopecia following hair transplantation warrants further attention. It is crucial to improve postoperative patient education and follow-up visits to assist patients in adjusting their behaviors, acquiring problem-solving skills, and attaining practical disease management objectives. This primarily involves enhancing patients' cognition and behavior, which are interdependent and mutually reinforcing.

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### CRediT authorship contribution statement

**Liu Shichang:** Data curation. **Zhang Jufang:** Conceptualization. **Yang Xiangying:** Formal analysis. **Wu Yali:** Data curation. **Ning Li:** Supervision.

### Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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